CATALYZE AUSABLE GROVE STREET MICROGRID

1934 NY-22
KEESEVILLE, NY 12944

INDEX OF DRAWINGS				
PAGE NO.	REV	SHEET NO.	DATE	DESCRIPTION
1	0	G001	06/03/2025	COVER SHEET
2	0	S100	11/05/2024	KEESEVILLE SOLAR EXISTING SURVEY PLAN
3	0	C120	06/03/2025	DEMOLITION PLAN
4	0	C130	06/03/2025	SITE PLAN
5	0	C131	06/03/2025	SITE PLAN
6	0	C140	06/03/2025	GRADING & DRAINAGE PLAN
7	0	C141	06/03/2025	GRADING & DRAINAGE PLAN
8	0	C150	06/03/2025	EROSION & SEDIMENT CONTROL PLAN
9	0	C151	06/03/2025	EROSION & SEDIMENT CONTROL PLAN
10	0	C160	06/03/2025	LANDSCAPING PLAN
11	0	C161	06/03/2025	LANDSCAPING PLAN
12	0	C190	06/03/2025	ACCESS ROAD PLAN & PROFILE
13	0	C530	06/03/2025	SITE DETAILS
14	0	C540	06/03/2025	STORMWATER BASIN ENLARGEMENTS
15	0	C550	06/03/2025	EROSION & SEDIMENT CONTROL DETAILS AND NOTES
16	0	C560	06/03/2025	STORMWATER & BIORETENTION DETAILS AND NOTES

N

LOCATION MAP

N.T.S.

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC

800 GESSNER ROAD, SUITE 700

HOUSTON, TEXAS 77024

PROJECT NO: 2231157

JUNE 3, 2025

EXP: 6/30/2025

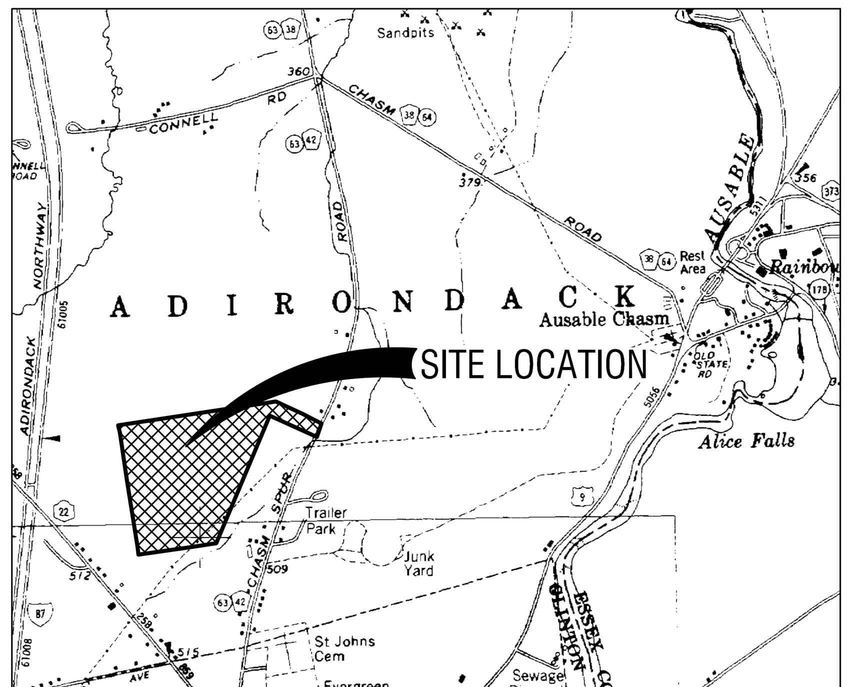
LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

ISSUED FOR:
APA SOLAR APPLICATION
JUNE 3, 2025

CATALYZE AUSABLE GROVE STREET
MICROGRID, LLC
PROJECT NO: 2231157

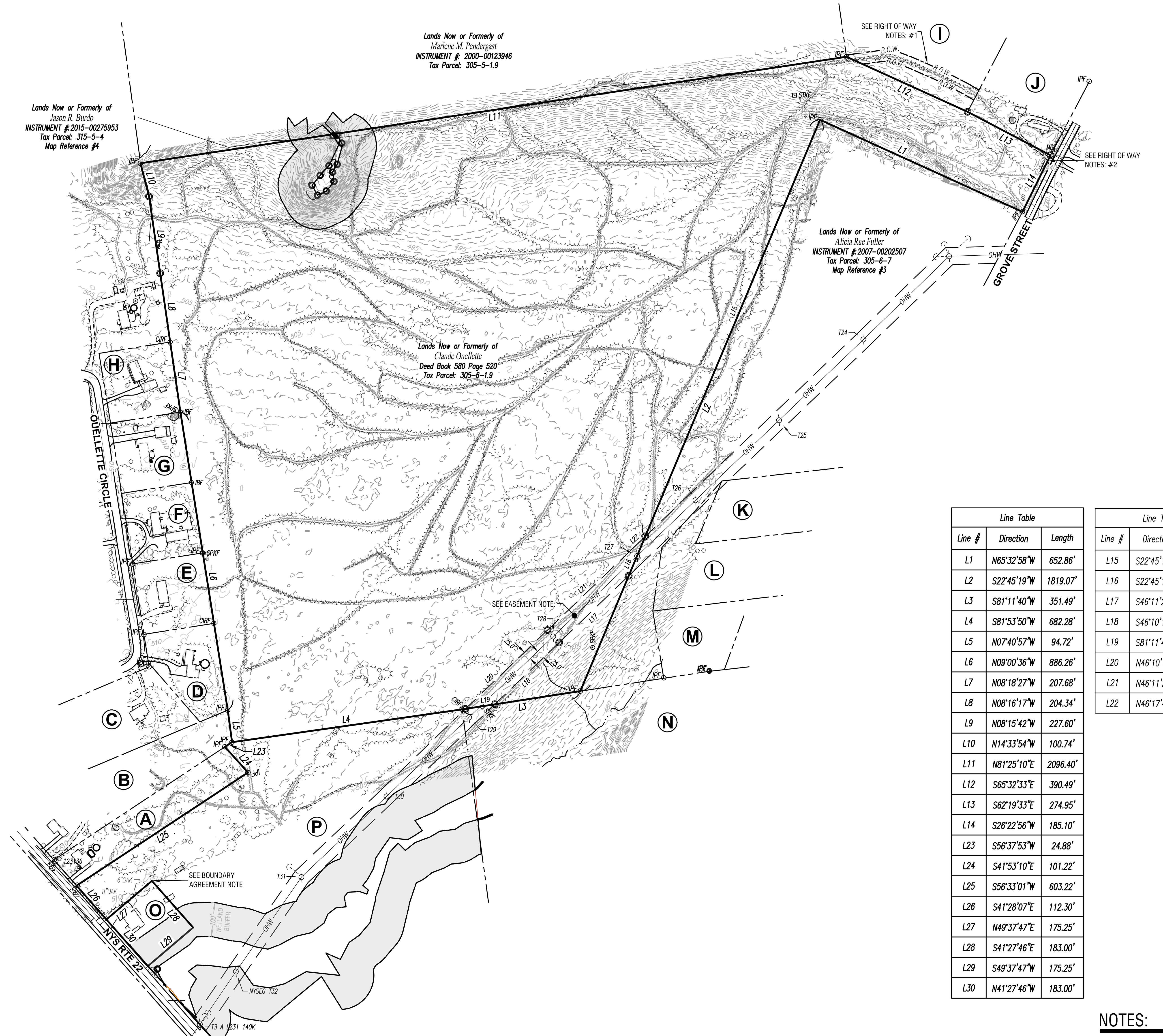
CATALYZE AUSABLE GROVE STREET MICROGRID
1934 NY-22, KEESEVILLE NY 12944

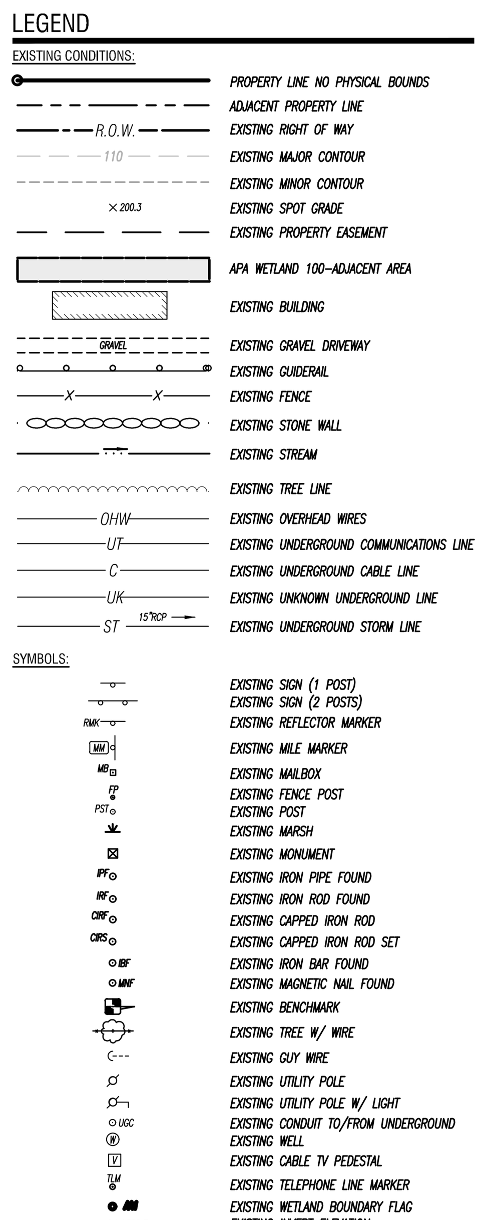


LOCATION MAP

SOURCE: N.Y.S. D.O.T. QUAD CODE D51-KEESEVILLE

SCALE: 1"=2000'





Line Table		
Line #	Direction	Length
L1	N65°32'58"W	652.86'
L2	S22°45'19"W	1819.07'
L3	S81°11'40"W	351.49'
L4	S81°53'50"W	682.28'
L5	N07°40'57"W	94.72'
L6	N09°00'36"W	886.26'
L7	N08°18'27"W	207.68'
L8	N08°16'17"W	204.34'
L9	N08°15'42"W	227.60'
L10	N14°33'54"W	100.74'
L11	N81°25'10"E	2096.40'
L12	S65°32'33"E	390.49'
L13	S62°19'33"E	274.95'
L14	S26°22'56"W	185.10'
L23	S56°37'53"W	24.88'
L24	S41°53'10"E	101.22'
L25	S56°33'01"W	603.22'
L26	S41°28'07"E	112.30'
L27	N48°37'47"E	175.25'
L28	S41°27'46"E	183.00'
L29	S48°37'47"W	175.25'
L30	N41°27'46"W	183.00'

Line Table		
Line #	Direction	Length
L15	S22°45'19"W	1326.60'
L16	S22°45'19"W	125.45'
L17	S46°11'28"W	282.84'
L18	S46°10'14"W	262.21'
L19	S81°11'40"W	87.12'
L20	N46°10'14"E	333.57'
L21	N46°11'28"E	341.10'
L22	N46°17'47"E	56.84'

A	Lands Now or Formerly of Rickie Barber & Patricia Barber Deed Book 667 Page 210 Tax Parcel: 315-2-6
B	Lands Now or Formerly of Joanne R. Lattrell & Robert J. Lattrell Deed Book 713 Page 20 Tax Parcel: 315-2-5
C	Lands Now or Formerly of Daniel E. Rock & Susan M. Rock Deed Book 20001 Page 26250 Tax Parcel: 315-2-25 Map Reference #1
D	Lands Now or Formerly of Francis Stefanick Jr. Life Estate Holly A. Stefanick Life Estate & Eric Michael Fletcher INSTRUMENT #: 2019-00301772 Tax Parcel: 315-2-26 Map Reference #1
E	Lands Now or Formerly of John C. Lawton, Jr. & Kayli A. Collins INSTRUMENT #: 2017-00285278 Tax Parcel: 315-2-27 Map Reference #1
F	Lands Now or Formerly of George D. Ouimette & Donna L. Ouimette INSTRUMENT #: 2004-00166783 Tax Parcel: 315-2-28 Map Reference #1
G	Lands Now or Formerly of Alfred K. Cobb & Cynthia Cobb INSTRUMENT #: 2000-00127420 Tax Parcel: 315-2-29 Map Reference #1
H	Lands Now or Formerly of Leann M. Shaffer & Justin J. Cook INSTRUMENT #: 2024-00335764 Tax Parcel: 315-5-1 Map Reference #1
I	Lands Now or Formerly of Deanna R. Prentiss INSTRUMENT #: 2010-00236074 Tax Parcel: 305-6-5
J	Lands Now or Formerly of Mildred B. LaHart Deed Book 606 Page 6 Tax Parcel: 305-2-3
K	Lands Now or Formerly of May Ryan INSTRUMENT #: 2008-00213613 Tax Parcel: 305-6-4 Map Reference #3
L	Lands Now or Formerly of Barbara Trombley Deed Book 799 Page 241 Tax Parcel: 305-6-6 Map Reference #3
M	Lands Now or Formerly of Steven R. Stract & Michael Ann Strack INSTRUMENT #: 2023-00332242 Tax Parcel: 305-6-21 Map Reference #'s 2 & 3
N	Lands Now or Formerly of Ronald B. Pray Life Estate Blair B. Pray, Randy S. Pray & Regan Pray INSTRUMENT #: 2024-00335711 Tax Parcel: 305-2-2
O	Lands Now or Formerly of Matthew M. Dion INSTRUMENT #: 2014-00265440 Tax Parcel: 315-2-8
P	Lands Now or Formerly of Matthew Dion INSTRUMENT #: 2014-00265440 Tax Parcel: 315-2-7

TAX PARCEL:

TOWN OF AUSABLE, CLINTON COUNTY, NEW YORK
SECTION 305 - BLOCK 6 - LOT 1.9

PARCEL AREA:

305-6-1.9 2,822,998 SQ.FT.± OR 64.81 ACRES±

DEED REFERENCE:

GILL OUELLETTE TO CLAUDE OUELLETTE DATED JUNE 22, 1976, FILED IN THE CLINTON COUNTY CLERK'S OFFICE IN LIBER 580 OF DEEDS AT PAGE 520 ON JULY 7, 1976.

AQUATIC RESOURCES:

POTENTIAL AQUATIC RESOURCES WERE DELINEATED AND LOCATED BY LABELLA ON MAY 11, 2023 & APRIL 23, 2024. ALL WETLAND/STREAM BOUNDARIES AND JURISDICTIONS ARE SUBJECT TO VERIFICATION BY USACE AND APA.

RIGHT OF WAY NOTES:

1. INSTRUMENT #: 2010-00236074 - "FURTHER EXCEPTING AND RESERVING UNTO CLAUDE OUELLETTE AS EASEMENT AND RIGHT OF WAY AT THE WIDTH OF TWO (2) RODS ALONG THE GENERAL COURSE OF AN OLD WOOD ROAD WHICH WILL RUN THE ENTIRE LENGTH OF THE SOUTHWEST BOUNDARY OF THE PROPERTY HEREIN CONVEYED ADJOINING SAID BOUNDARY AND RUNNING FOR A DISTANCE OF 390.49 FEET MORE OR LESS ALONG SAID BOUNDARY.
2. LIBER 606 PAGE 006 - "TOGETHER WITH A RIGHT-OF-WAY IN COMMON, WITH THE GRANTORS HEREIN, OVER A WOOD ROAD LOCATED IN THE SOUTH SIDE OF THE PARCEL HEREIN CONVEYED".

EASEMENT NOTE:

GEORGE SIGNOR AND LEE SIGNOR TO NEW YORK STATE E. & G. CORP. DATED NOVEMBER 1940. FILED IN HATE CLINTON COUNTY CLERK'S OFFICE IN LIBER 196 OF DEEDS AT PAGE 408 ON DECEMBER 16, 1940. "...UPON SAID RIGHT OF WAY AND UPON A STRIP OF LAND TWENTY FIVE FEET IN WIDTH ALONG EACH SIDE OF SAID RIGHT OF WAY..."

BOUNDARY AGREEMENT:

"BEGINNING AT AN IRON PIN SET FOR A CORNER AT A POINT THIRTY-THREE FEET NORTHEAST OF THE NORTHEASTERLY CORNER OF THE WOODSHED ATTACHED TO THE HOUSE ON THE PREMISES HEREBY CONVEYED; THENCE WEST IN THE LINE OF A ROW OF SMALL MAPLE TREES ON SAID LOT, TWO HUNDRED FEET (200) TO THE CENTER OF SAID HIGHWAY; THENCE SOUTHERLY OR SOUTHEASTERLY IN THE CENTER OF SAID HIGHWAY ON HUNDRED AND EIGHTY-THREE FEET; THENCE EASTERLY OR NORTHEASTERLY TWO HUNDRED (200) FEET TO AN IRON PIN SET FOR A CORNER; THENCE NORTHERLY ONE HUNDRED AND EIGHTY-THREE FEET TO THE PLACE OF BEGINNING"

THE ORIGINAL HOUSE AND WOODSHED NO LONGER EXIST. THE TWO OAK TREES WERE HELD TO ESTABLISH THE NORTHERLY LINE. A BOUNDARY LINE AGREEMENT IS SUGGESTED.

MAP REFERENCES:

1. MAP ENTITLED "MAP SHOWING NORTH COUNTRY ACRES SUBDIVISION", PREPARED BY JAMES BLAISE PLS, DATED JULY 27, 1978, FILED IN THE CLINTON COUNTY CLERK'S OFFICE IN SURVEY BOOK 9 PAGE 8.
2. MAP ENTITLED "SURVEY MAP SHOWING TWO PARCELS OF LAND PARCEL I BEING CONVEYED TO LOUIS HOFFMANN, PARCEL II BEING CONVEYED TO FORREST L. HALL, III, PREPARED BY JAMES C. BLAISE, DATED AUGUST 8, 1985, FILED IN THE CLINTON COUNTY CLERK'S OFFICE IN SURVEY BOOK 12 PAGE 125
3. MAP ENTITLED "MAP SHOWING SURVEY OF PROPERTY FOR FULLER CONSTRUCTION CO.", PREPARED BY BRODERICK M. COBANE, DATED SEPTEMBER 14, 1989, LAST REVISED 09-06-1990, FILED IN THE CLINTON COUNTY CLERK'S OFFICE IN SURVEY BOOK 19 OF MAPS AT PAGE 13.
4. MAP ENTITLED "COUNTRY ACRES SUBDIVISION LOTS 1 - 11", PREPARED BY R. M. SUTHERLAND, PC, DATED MARCH 7, 1991, LAST REVISED 09-30-91, FILED IN THE CLINTON COUNTY CLERK'S OFFICE IN SURVEY BOOK 22 PAGE 3.

FLOOD ZONE NOTE:

PORTIONS OF THE SURVEYED AREAS ARE SHOWN TO LIE WITHIN FLOOD ZONE X (AREAS OF MINIMAL FLOODING), AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF AUSABLE, CLINTON COUNTY, NEW YORK, IDENTIFIED AS 3601650765E, BEARING AN EFFECTIVE DATE OF DECEMBER 7, 2023.

THIS INTERPRETATION OF THE BASE FLOOD ELEVATION, IF DEPICTED, SHOULD NOT BE RELIED UPON FOR DESIGN PURPOSES WITHOUT OBTAINING CONFIRMATION FROM THE LOCAL FLOOD ADMINISTRATOR AND/OR FEMA AS TO AGREEMENT OF THIS INTERPRETATION OF THE SPECIAL FLOOD HAZARD AREA.

NOTES:

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S INKED SEAL OR HIS EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.

LABELLA DID NOT PERFORM UNDERGROUND UTILITY MARKOUT OR RECORD PLAN RESEARCH PERTAINING TO ANY UNDERGROUND UTILITIES THAT MAY BE PRESENT IN THE AREA OF THIS SURVEY. AS SUCH, ANY POSSIBLE UNDERGROUND UTILITIES IN THE VICINITY OF THE PROJECT ARE NOT DEPICTED.

COPYRIGHT LABELLA ASSOCIATES PC, ALL RIGHTS RESERVED.

SURVEY SUBJECT TO ANY RIGHT, TITLE OR INTEREST THE PUBLIC MAY HAVE FOR HIGHWAY USE.

SUBJECT TO THE INTEREST OF OTHERS IN AND TO THAT PORTION OF NYS RTE 22 USED FOR ROAD PURPOSES.

SUBSURFACE STRUCTURES NOT VISIBLE OR READILY APPARENT ARE NOT SHOWN AND THEIR LOCATION AND EXTENT ARE NOT CERTIFIED.

HORIZONTAL DATUM AND NORTH ORIENTATION ARE BASED ON THE NYS PLANE COORDINATE SYSTEM (NAD83-NY EAST ZONE) UTILIZING REAL TIME GNSS OBSERVATIONS ON THE NYSDOT CORS NETWORK, NAVD88, GEOID 18 AT THE TIME OF FIELD SURVEY (APRIL 2024).

TOPOGRAPHY SHOWN HEREON WAS COMPILED FROM AERIAL TOPOGRAPHY PERFORMED BY BLUESKY IN CONJUNCTION WITH A FIELD SURVEY COMPLETED MAY 20, 2024 BY LABELLA ASSOCIATES PC, DATUM NAVD-88 GEOID 18, 1 FOOT CONTOUR INTERVAL. LIMITS OF TOPOGRAPHIC SURVEY COMPLETED BY LABELLA ARE DEPICTED HEREON (SEE LEGEND).

UNDERGROUND FACILITIES AND STRUCTURES SHOWN HEREON WERE TAKEN FROM DATA OBTAINED FROM PREVIOUS MAPS AND RECORD DRAWINGS. ALL ABOVE GROUND STRUCTURES AND SURFACE FEATURES SHOWN HEREON ARE THE RESULT OF A FIELD SURVEY UNLESS OTHERWISE NOTED. THERE MAY BE OTHER UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN OR CERTIFIED BY THE UNDERSIGNED. SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. THE UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION MUST BE NOTIFIED PRIOR TO CONDUCTING TEST BORINGS, EXCAVATION AND CONSTRUCTION.

THE CONTRACTOR SHALL COMPLY WITH NEW YORK STATE INDUSTRIAL CODE RULE 753 - 48 HOURS PRIOR TO DIGGING CALL DIGSAFELY NEW YORK 1-800-962-7962 TO HAVE PUBLIC UTILITY LOCATIONS PAINTED.

STATE OF NEW YORK
DAMION LOZIER
051001
LICENSED LAND SURVEYOR

Damion M. Lozier, L.S. NYS #051001
EXP: 08/31/2025

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED ON JUNE 07, 2024 AND THAT THIS SURVEY MAP WAS MADE BY ME OR UNDER MY DIRECTION, AND CONFORMS WITH THE MINIMUM STANDARD OF PRACTICE ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

11/4/2024 4:03:39 PM
B:\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Survey\dwg\05_SVY_2231157.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

NOT FOR CONSTRUCTION

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC

800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

KEESEVILLE SOLAR

217 GROVE STREET,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY:

REVIEWED BY:

ISSUED FOR: 30% SET

DATE: 11/5/2024

DRAWING NAME:

KEESEVILLE SOLAR EXISTING SURVEY PLAN

DRAWING NUMBER:

S100

1 DEMOLITION PLAN
C120 SCALE: 1" = 150'

LEGEND:

- EXISTING TREE TO BE REMOVED
- EXISTING PAVEMENT & SIDEWALK TO BE REMOVED
- WORKLIMITS
- PAVEMENT SAWCUT LINE

BASEMAP REFERENCE:

SURVEY MAP ENTITLED "KEESEVILLE SOLAR EXISTING SURVEY PLAN" PREPARED BY LABELLA ASSOCIATES, DATED NOVEMBER 5, 2024.

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

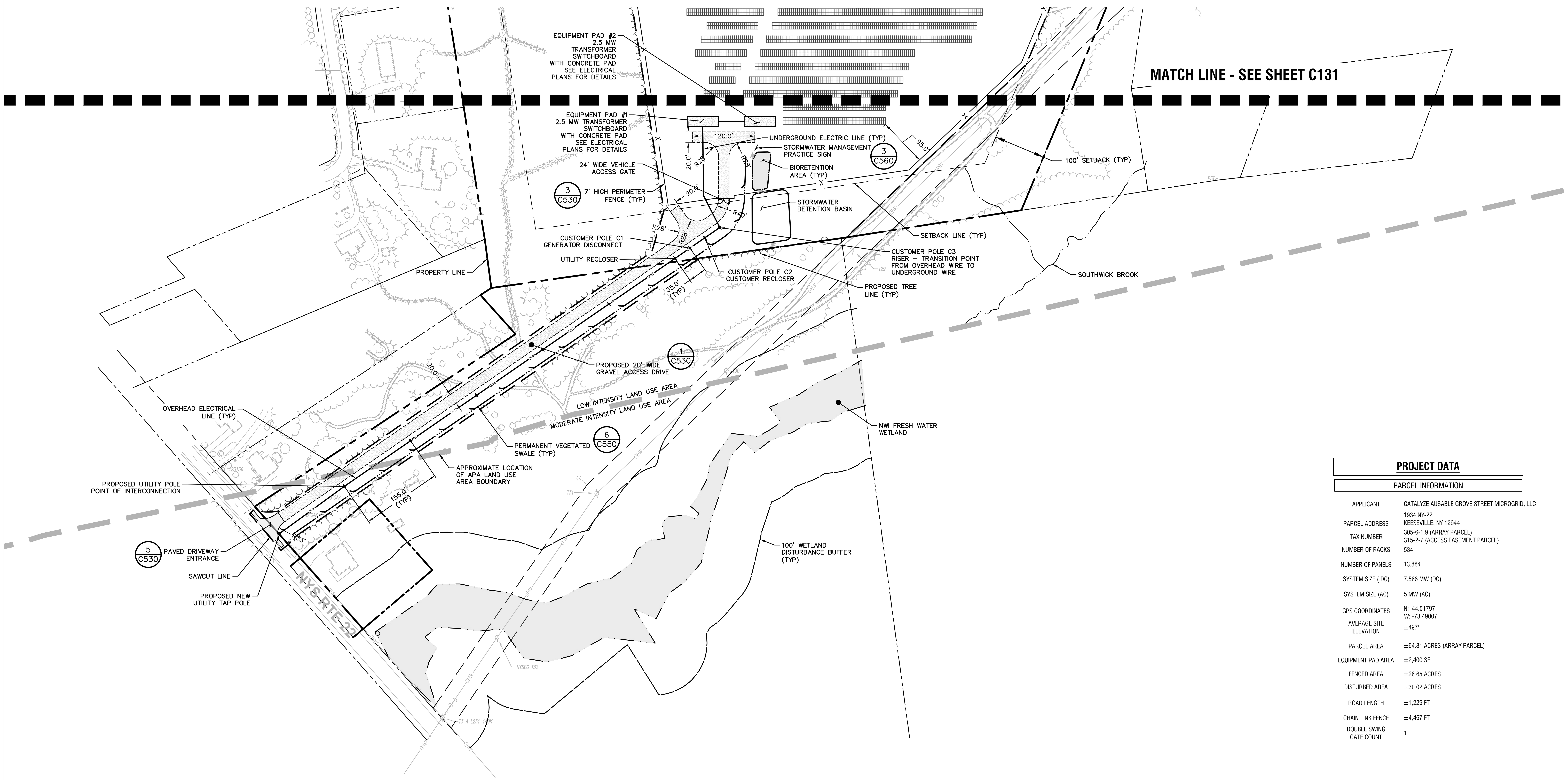
DRAWING NAME:

DEMOLITION PLAN

DRAWING NUMBER:

C120

6/4/2025 12:21:42 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Dwill\01_C120_2231157_DEMO.dwg



PROJECT DATA

PARCEL INFORMATION

APPLICANT	CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
PARCEL ADDRESS	1934 NY-22 KEESEVILLE, NY 12944
TAX NUMBER	305-6-1.9 (ARRAY PARCEL) 315-2-7 (ACCESS EASEMENT PARCEL)
NUMBER OF RACKS	534
NUMBER OF PANELS	13,884
SYSTEM SIZE (DC)	7.566 MW (DC)
SYSTEM SIZE (AC)	5 MW (AC)
GPS COORDINATES	N: 44.51797 W: -73.49007
AVERAGE SITE ELEVATION	±497'
PARCEL AREA	±64.81 ACRES (ARRAY PARCEL)
EQUIPMENT PAD AREA	±2,400 SF
FENCED AREA	±26.65 ACRES
DISTURBED AREA	±30.02 ACRES
ROAD LENGTH	±1,229 FT
CHAIN LINK FENCE	±4,467 FT
DOUBLE SWING GATE COUNT	1

SITE LEGEND:

- PROPERTY LINE
- SETBACK LINE — SETBACK LINE
- PAVEMENT
- GRAVEL DRIVEWAY
- CHAIN LINK FENCE
- CONCRETE SURFACE
- ROAD LINING & STRIPING
- GRAVEL SURFACE
- OHW — PROPOSED OVER HEAD WIRE
- PROPOSED TREE LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PERMANENT VEGETATED SWALE

1
C130
SITE PLAN
SCALE: 1" = 100'

N

BULK TABLE:

TOWN OF AUSABLE ZONING DISTRICT: LOW INTENSITY (LI)

ZONING REQUIREMENTS:

	REQUIRED	PROPOSED
MINIMUM LOT AREA	1.6 ACRES	64.81 ACRES
MINIMUM REQUIRED FRONTAGE	100 FT	133 FT
MINIMUM YARDS		
FRONT	100 FT	102 FT
SIDES	100 FT	125 FT
REAR	100 FT	> 100 FT
MAXIMUM PANEL HEIGHT	12 FT	12 FT

LAYOUT NOTES:

1. EQUIPMENT, AND SOLAR MODULE DIMENSIONS TO BE TAKEN FROM PLANS BY CATALYZE AUSABLE GROVE STREET MICROGRID, LLC. NOTIFY THE ENGINEER OF ANY DEVIATION FROM CONDITIONS SHOWN ON THIS PLAN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINES AND INVERTS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER AND THE ENGINEER AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADDITIONS TO THE SATISFACTION OF THE OWNER AND THE ENGINEER BEFORE UTILITIES WILL BE ACCEPTED.

LaBella
Powered by partnership.
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

STATE OF NEW YORK · WALTER JOHN KUBOW · 080087 · LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

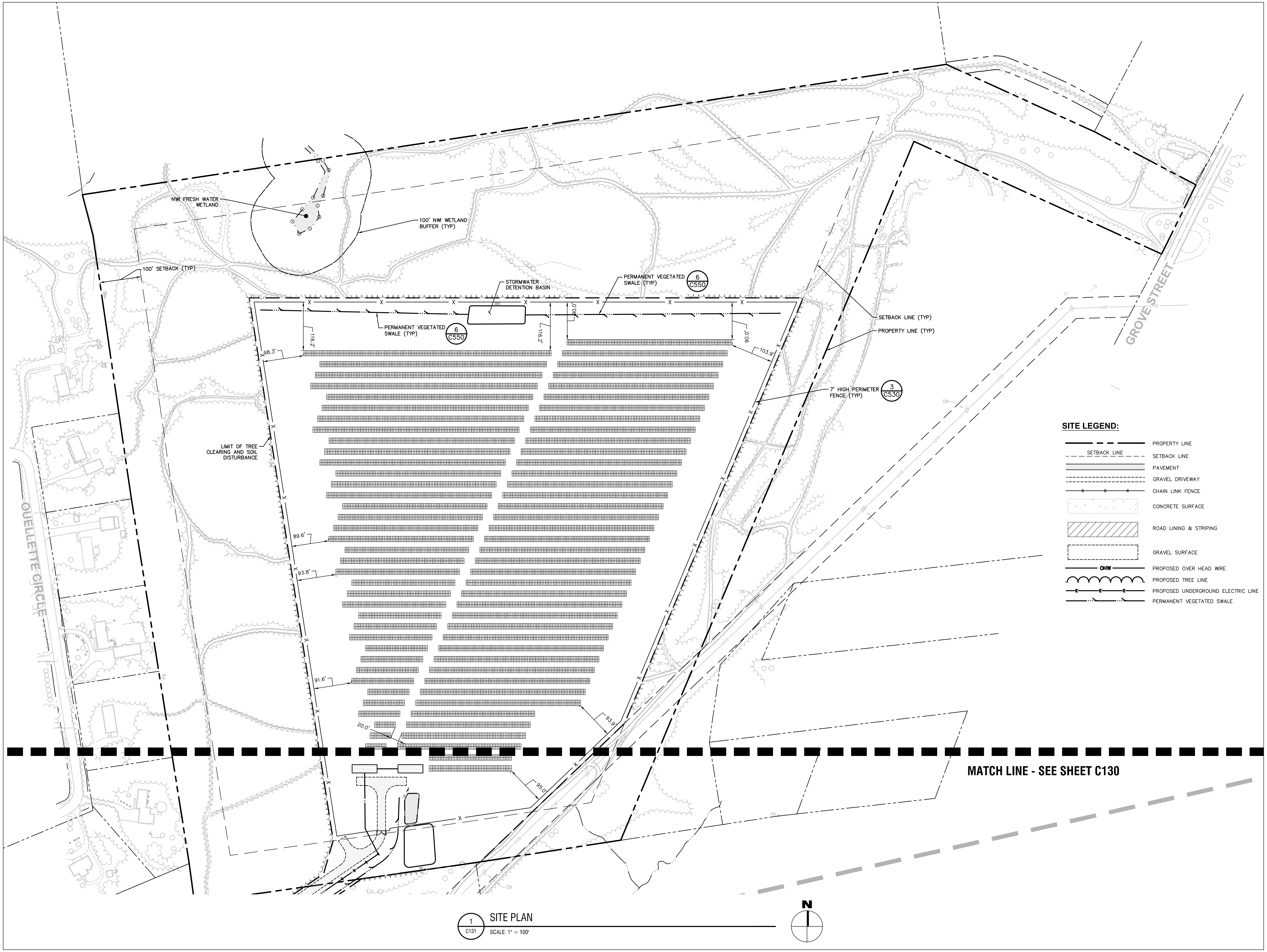
CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157
DRAWN BY: CAR
REVIEWED BY: NRJV
ISSUED FOR: APA SOLAR APPLICATION
DATE: 06/03/2025
DRAWING NAME: **SITE PLAN**
DRAWING NUMBER: **C130**



6/4/2025 12:31:04 PM
\\cash.lan\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C130_2231157_SITE.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

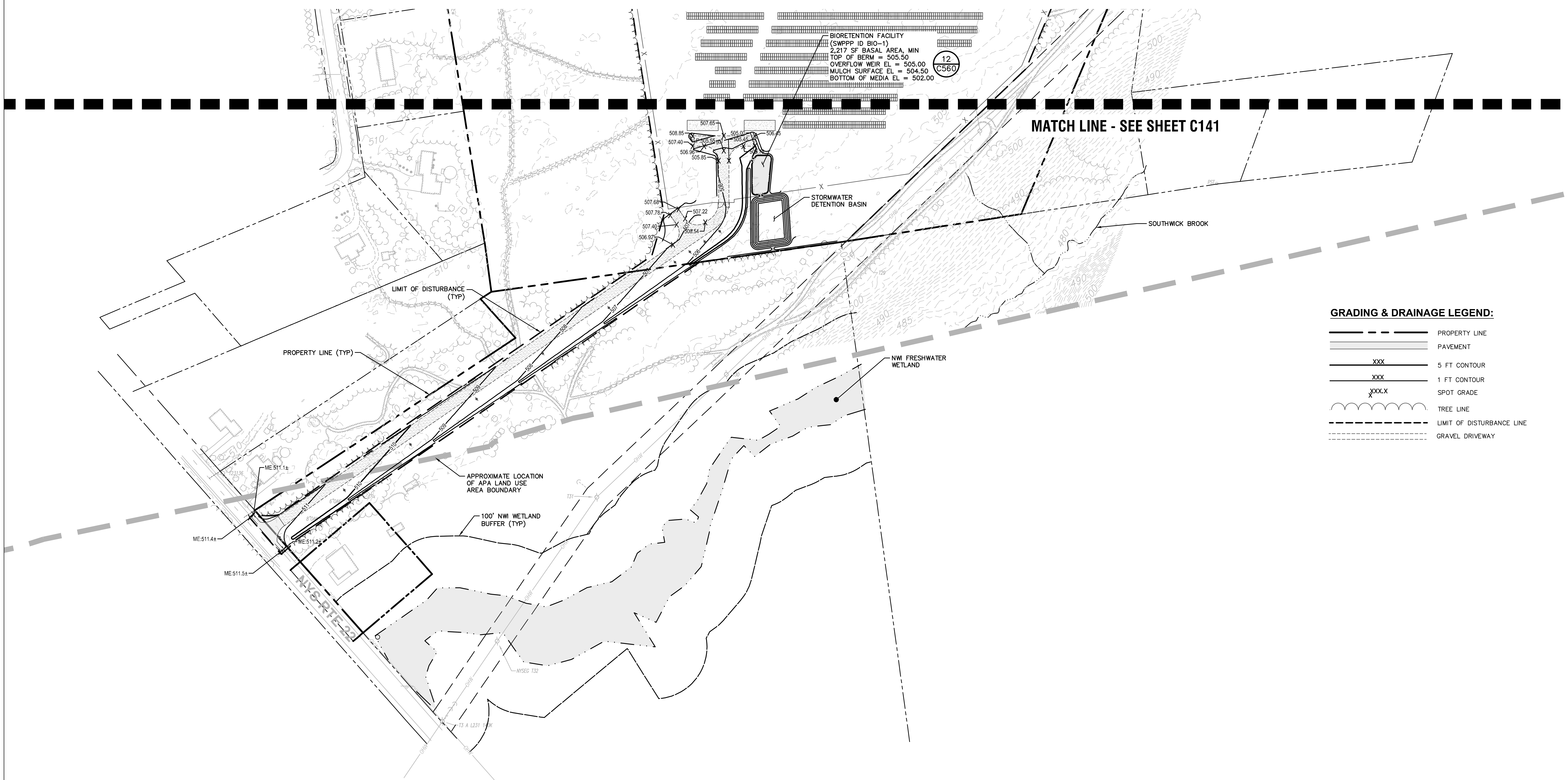
DATE: 06/03/2025

DRAWING NAME:

SITE PLAN

DRAWING NUMBER:

C131



1
C140
GRADING & DRAINAGE PLAN
SCALE: 1" = 100'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
LICENSED PROFESSIONAL ENGINEER
080087
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

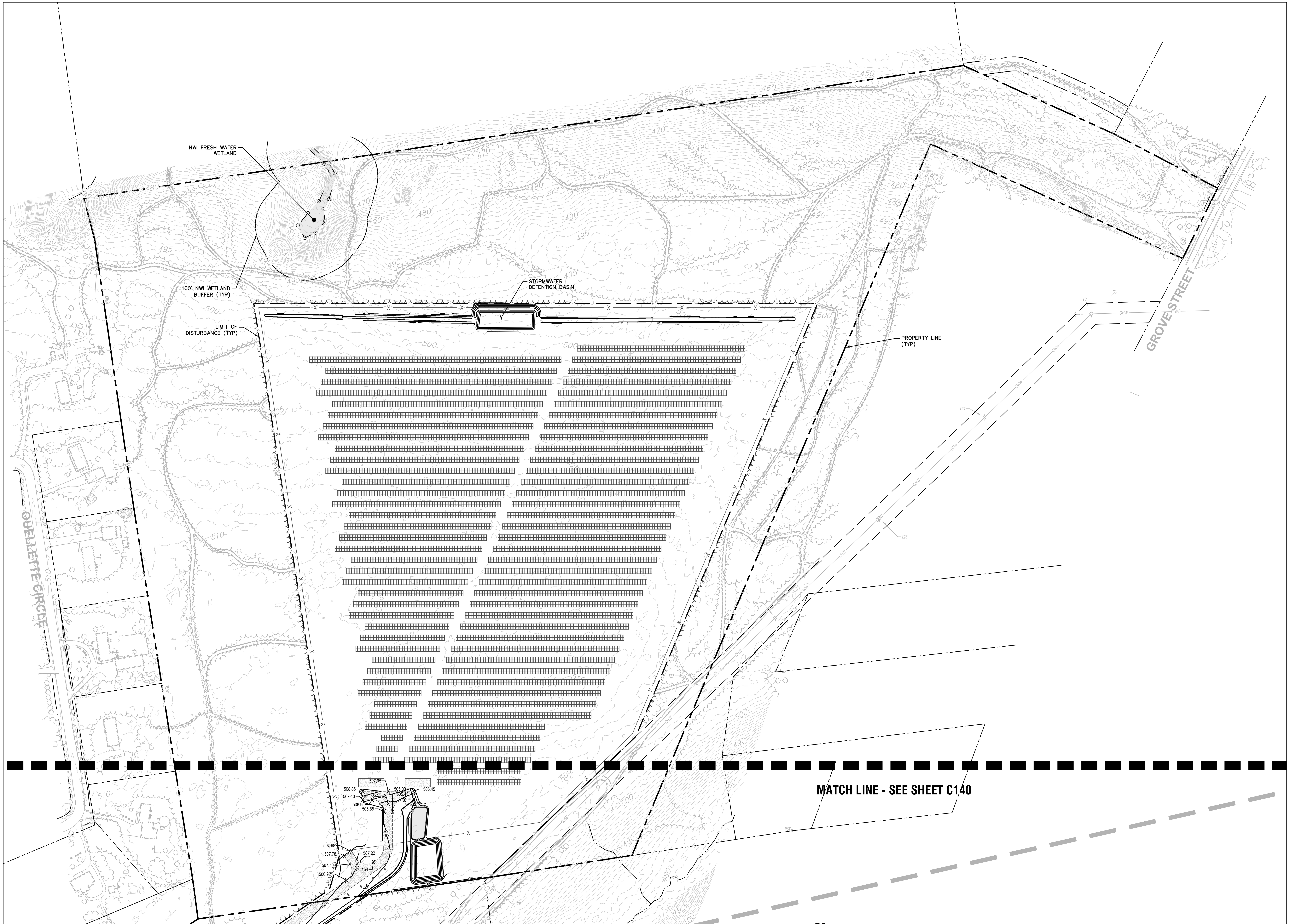
DATE: 06/03/2025

DRAWING NAME:

GRADING & DRAINAGE PLAN

DRAWING NUMBER:

C140



1 C141 GRADING & DRAINAGE PLAN
SCALE: 1" = 100'

LaBella
Powered by partnership.
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

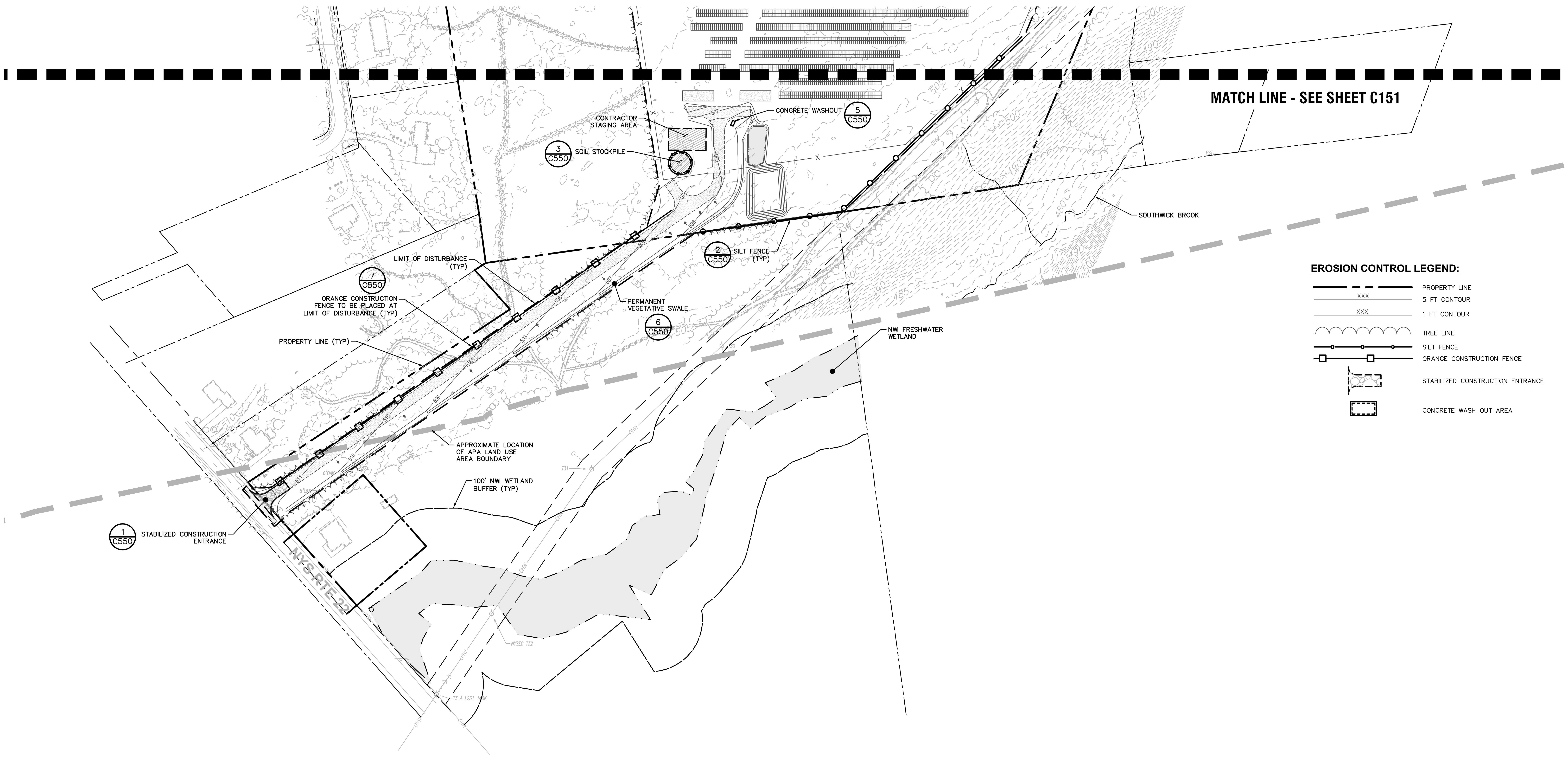
PROJECT NUMBER: 2231157
DRAWN BY: CAR
REVIEWED BY: NRJV
ISSUED FOR: APA SOLAR APPLICATION
DATE: 06/03/2025
DRAWING NAME:

GRADING & DRAINAGE PLAN

DRAWING NUMBER:

C141

6/4/2025 12:29:49 PM



EROSION CONTROL LEGEND:

PROPERTY LINE
XXX 5 FT CONTOUR
XXX 1 FT CONTOUR
TREE LINE
SILT FENCE
ORANGE CONSTRUCTION FENCE
STABILIZED CONSTRUCTION ENTRANCE
CONCRETE WASH OUT AREA

1 C150 EROSION & SEDIMENT CONTROL PLAN
SCALE: 1" = 100'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

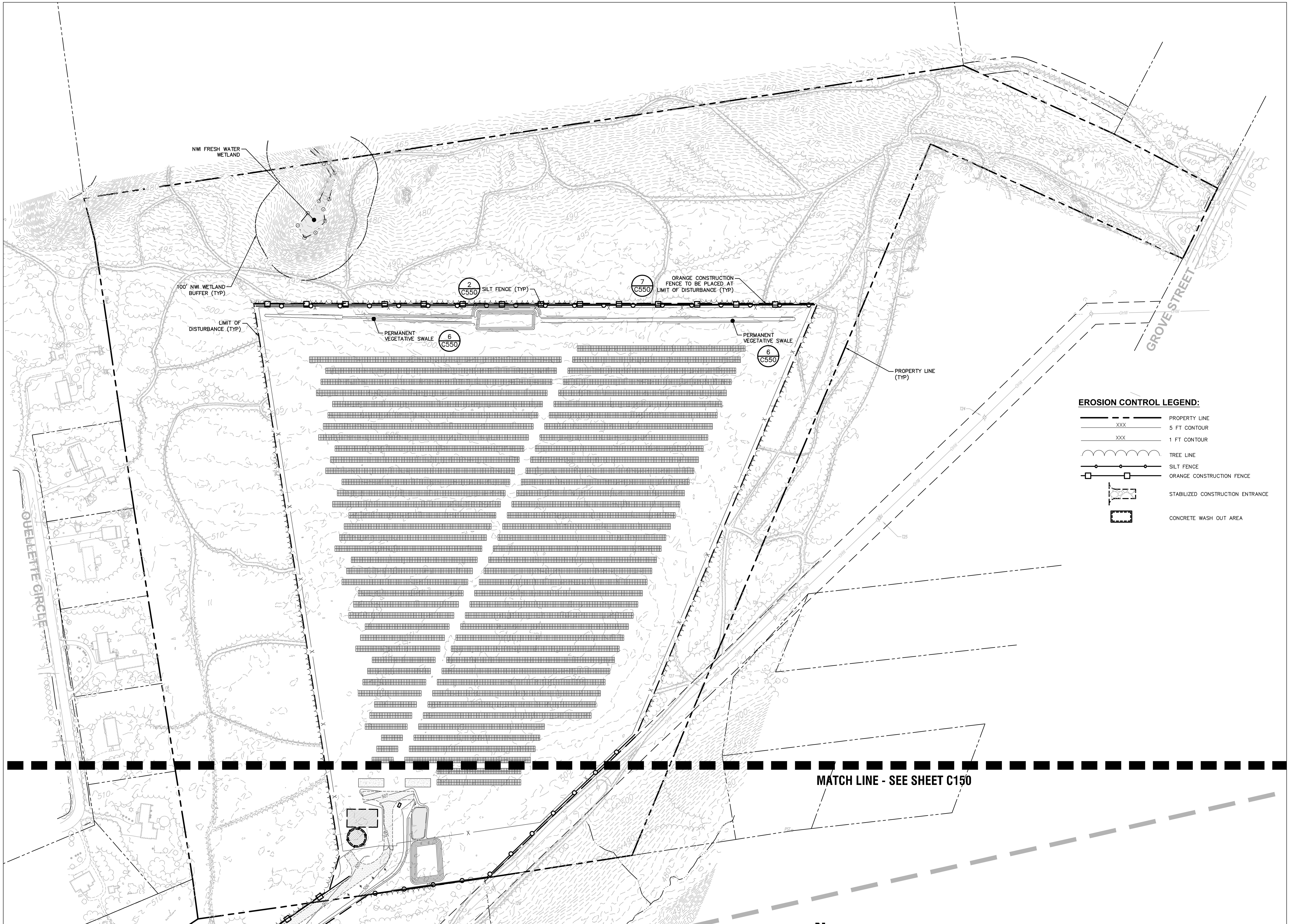
DRAWING NAME:

EROSION & SEDIMENT CONTROL PLAN

DRAWING NUMBER:

C150

6/4/2025 12:28:20 PM
\\cash lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C150_2231157_EROS.dwg



1 C151 EROSION & SEDIMENT CONTROL PLAN

SCALE: 1" = 100'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

STATE OF NEW YORK · WALTER JOHN KUBOW · LICENSED PROFESSIONAL ENGINEER · 080087

EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

DRAWING NAME:

EROSION & SEDIMENT CONTROL PLAN

DRAWING NUMBER:

C151

6/4/2025 12:27:56 PM \\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Dwf\01_C150_2231157_EROS.dwg

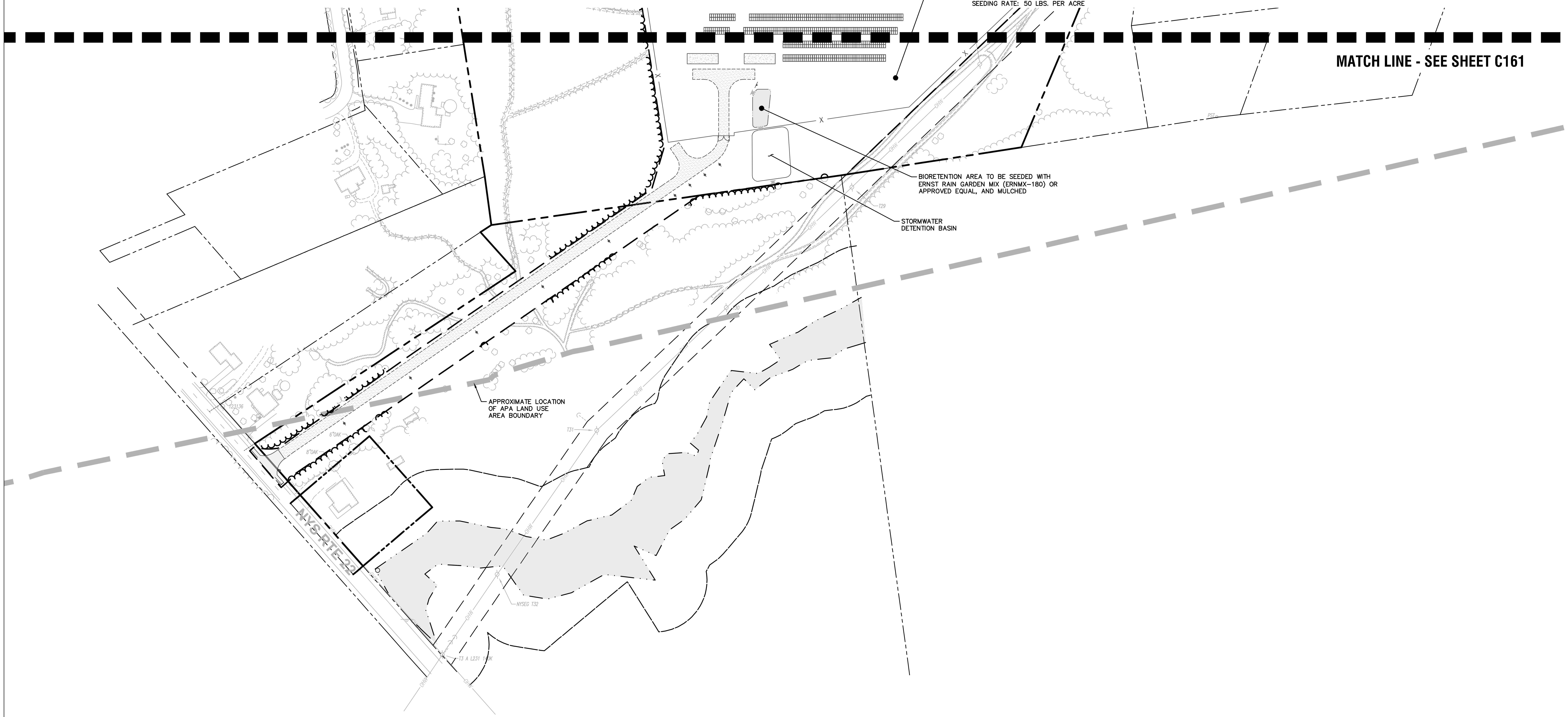
ALL AREAS INSIDE FENCE TO BE TOPSOILED, SEEDED WITH THE FOLLOWING SEED MIX OR APPROVED EQUAL, AND MULCHED (TYP)

20% FIREFLY HARD FESCUE
10% INTRIGUE CHEWINGS FESCUE
10% EUREKA II HARD FESCUE
10% MINOTAUR HARD FESCUE

20% HONEY BEE FORAGE MIX (ERNMX-157)

10% LANCELEAF COREOPSIS
5% BIGLEAF MOUNTAIN MINT
5% BLACK EYED SUSAN
5% HAIRY BEARDTONGUE
5% OHIO SPIDERWORT

SEEDING RATE: 50 LBS. PER ACRE



LANDSCAPING LEGEND:

PROPOSED TREE LINE

1 / C160 LANDSCAPING PLAN

SCALE: 1" = 100'

N

MAINTENANCE NOTES:

1. NO MOWING SHALL OCCUR FROM APRIL 1 TO NOVEMBER 1.
2. PROBLEM WEEDS SHOULD BE HAND PULLED OR SPOT SPRAYED WITH AN APA APPROVED HERBICIDE. VINES AND SPINY PLANTS SHOULD BE CONTROLLED, AS WELL AS OTHER INVASIVE SPECIES.
3. PRIOR TO APRIL 1, TRIM ANY REMAINING MATERIAL FROM THE PREVIOUS YEAR CLOSE TO THE GROUND (APPROXIMATELY 2"). THIS WILL ALLOW THE SOIL TO WARM MORE QUICKLY, STIMULATING EMERGENCE AND GROWTH OF NATIVE SEEDLINGS AND REDUCING THE LIKELIHOOD OF SHRUB INVASION.
4. IF THERE IS A HEAVY INFESTATION OF RAGWEED OR FOXTAIL, TRIM THE MEADOW TO 8" AFTER NOVEMBER 1.

6/4/2025 12:27:02 PM
\\cash lab\PPAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C160_2231157_LANDSCAPE.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER

EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: RMD

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

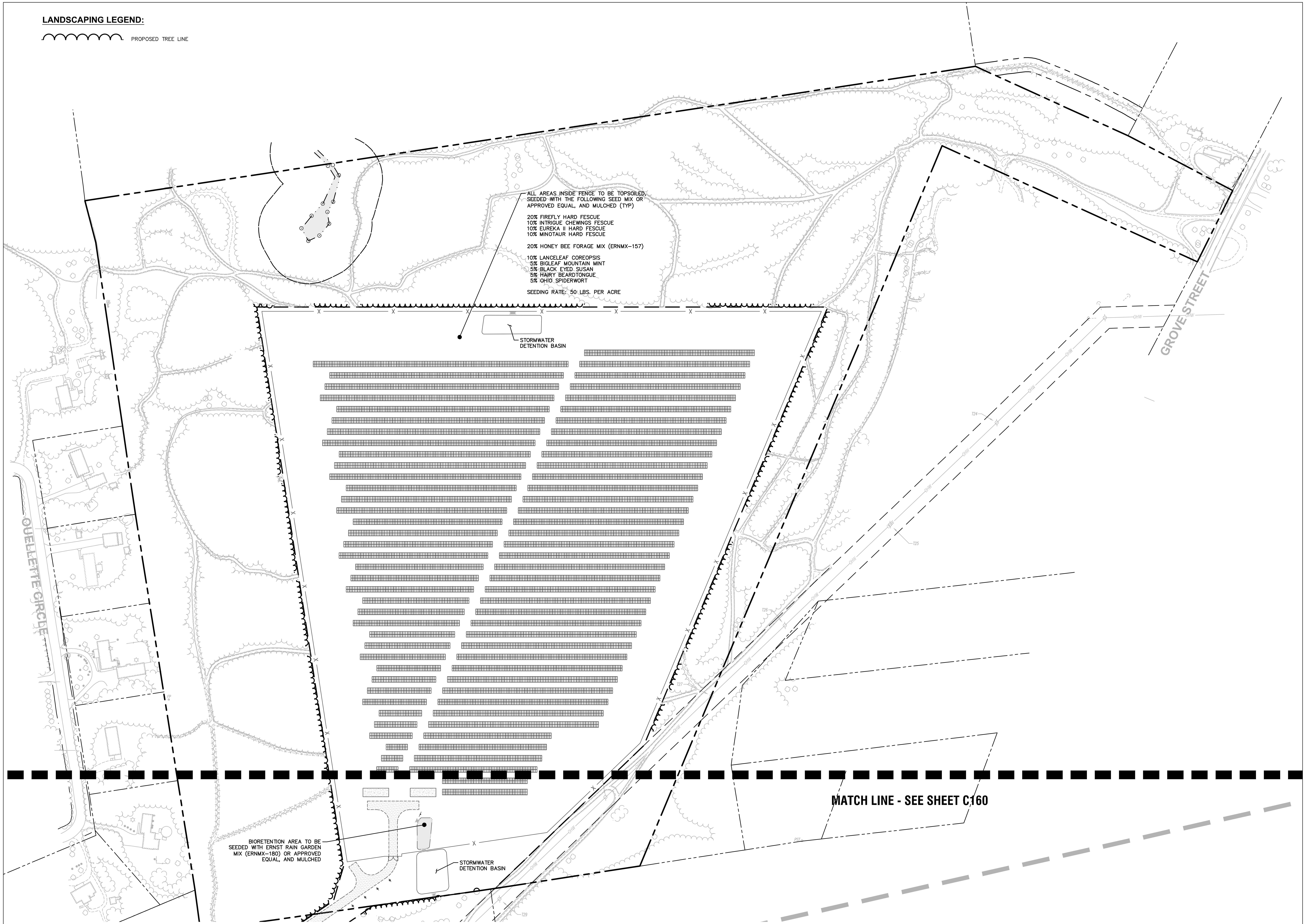
DATE: 06/03/2025

DRAWING NAME:

LANDSCAPING PLAN

DRAWING NUMBER:

C160



1 C161 LANDSCAPING PLAN
SCALE: 1" = 100'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
LICENSED PROFESSIONAL ENGINEER
080087
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: RMD

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

DRAWING NAME:

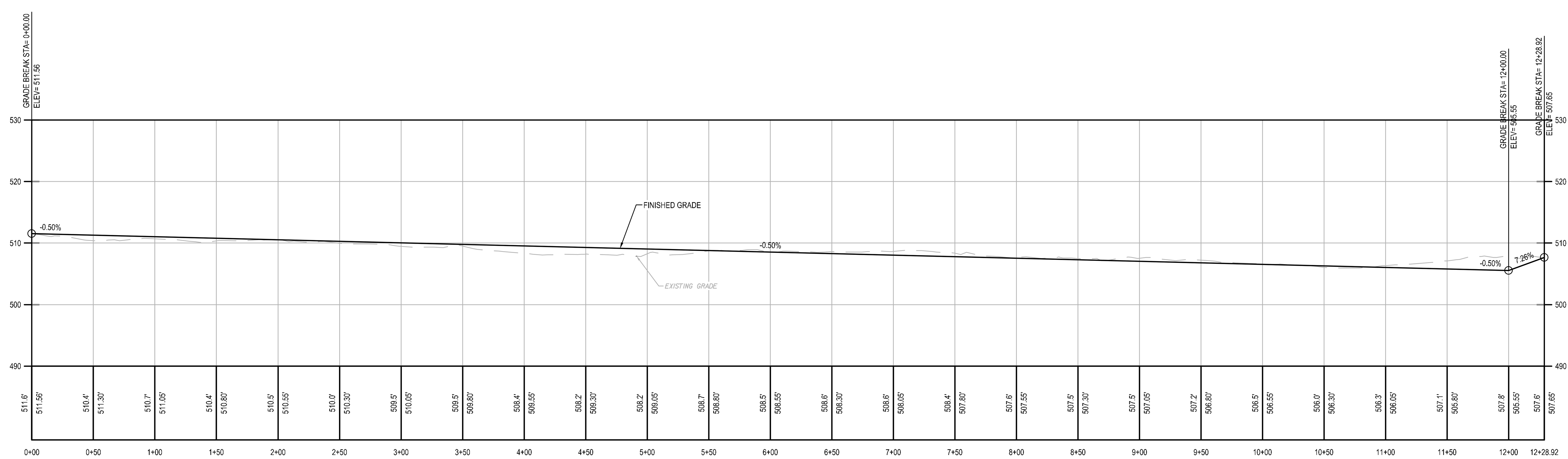
LANDSCAPING PLAN

DRAWING NUMBER:

C161

6/4/2025 12:26:39 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C160_2231157_LANDSCAPE.dwg

1 C190 ACCESS ROAD PLAN
SCALE: 1" = 60'



2 C190 ACCESS ROAD PROFILE
SCALE H: 1" = 60'
SCALE V: 1" = 12'

LaBella
Powered by partnership.
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

STATE OF NEW YORK · WALTER JOHN KUBOW · LICENSED PROFESSIONAL ENGINEER · 080087
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

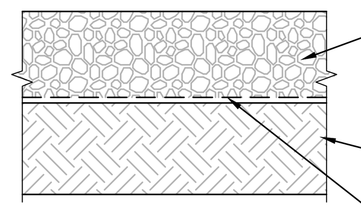
PROJECT NUMBER: 2231157
DRAWN BY: ZH
REVIEWED BY: NV
ISSUED FOR: APA SOLAR APPLICATION
DATE: 06/03/2025
DRAWING NAME:

ACCESS ROAD PLAN & PROFILE

DRAWING NUMBER:

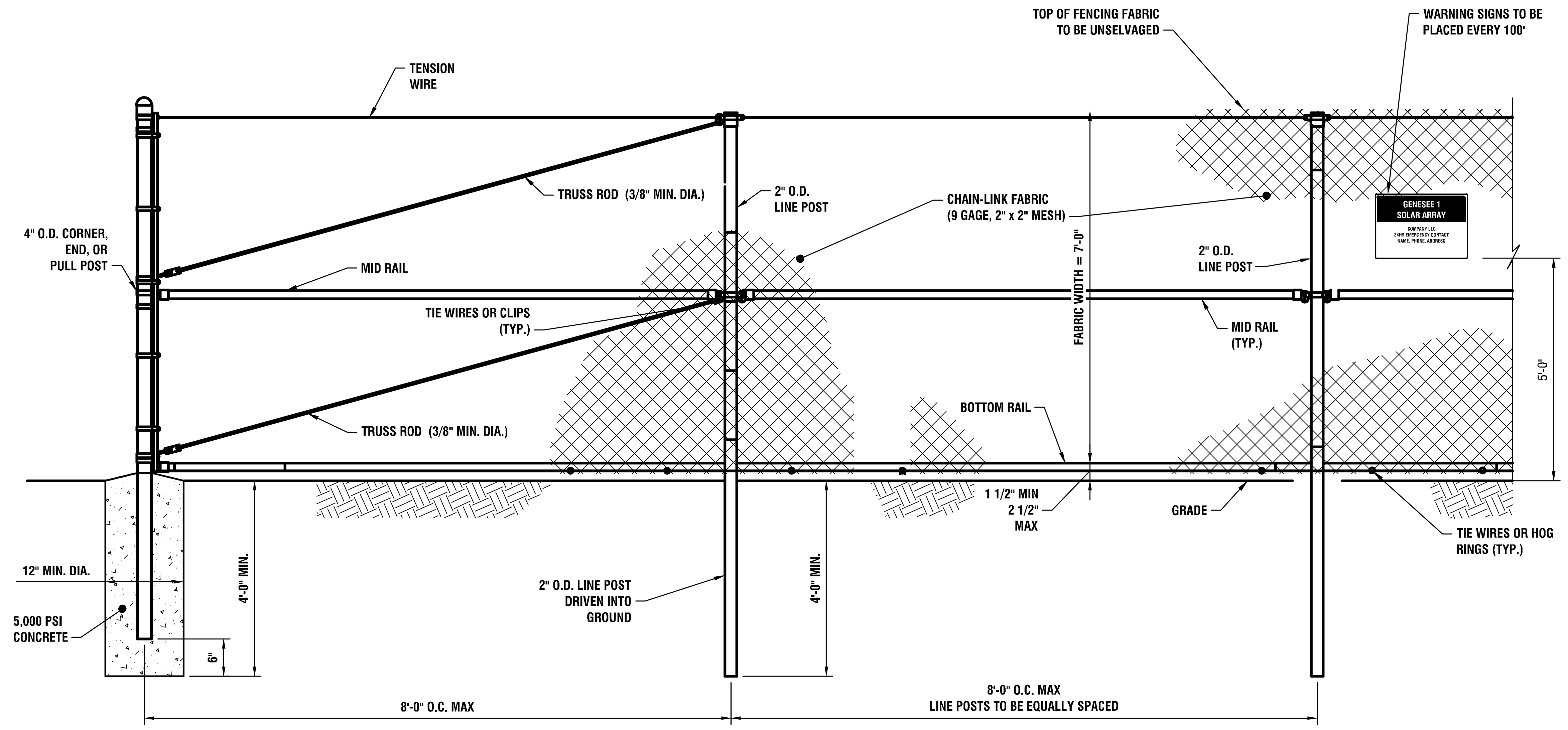
C190

6/4/2025 12:25:54 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C190_2231157_PLAN-PROF.dwg



NOTES:
1. SUBBASE MATERIAL SHALL CONFORM WITH **SECTION 304** – SUBBASE COURSE OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.

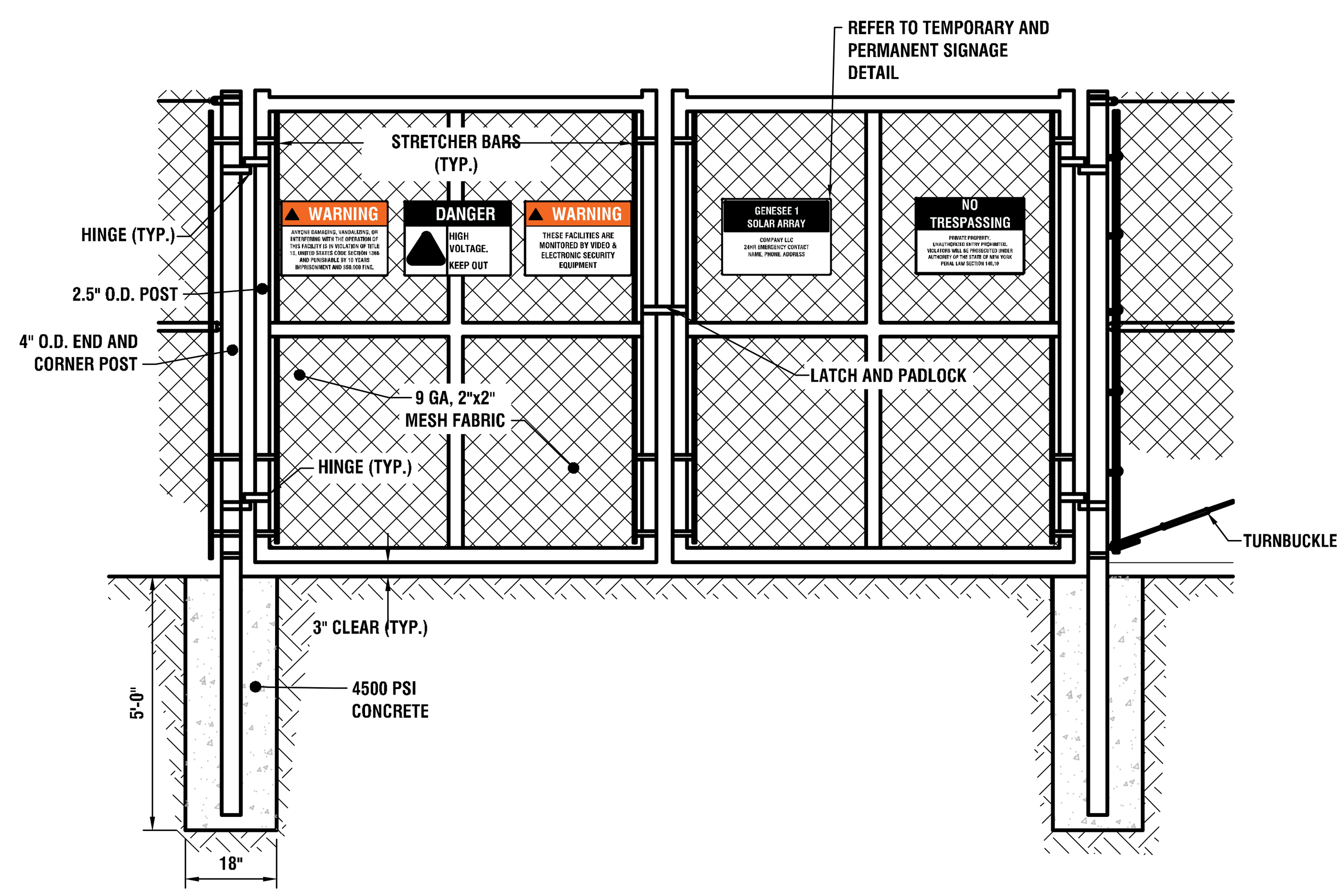
1 DRIVEWAY SECTION DETAIL
SCALE: NOT TO SCALE



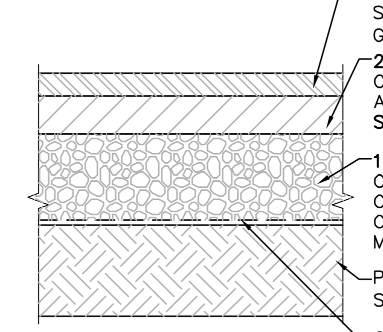
2 7' HIGH POST DRIVEN FENCE
SCALE: NOT TO SCALE

NOTES:

1. ALL FABRIC SHALL BE BLACK VINYL COATED (THERMALLY FUSED AND BONDED).
2. TIES SHALL BE HOT-DIP GALVANIZED, .90 OZ. ZINC PER SQ. FT.WITH BLACK VINYL COATING
3. ALL POSTS, RAILS, AND APPURTENANCES SHALL BE HOT-DIP GALVANIZED WITH BLACK VINYL COATING
4. IN ALL ATHLETIC FIELD INSTALLATIONS, FABRIC SHALL BE INSTALLED ON THE PLAY FIELD SIDE OF THE FRAMING.
5. ALL POSTS AND RAILS SHALL CONFORM TO: GROUP IA: (ASTM F1043) SCHEDULE 40 STEEL PIPE, ASTM F1083 REGULAR GRADE (30,000 PSI YIELD).
6. FENCING SYSTEM IS DESIGNED TO WITHSTAND A WIND SPEED OF 105 MPH.

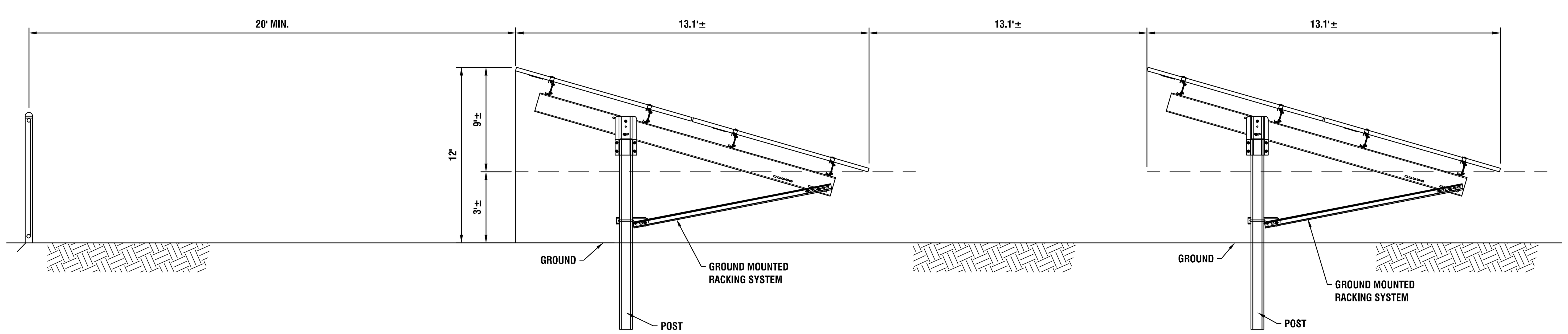


3 7' TALL 24' WIDE DOUBLE SWING GATE
SCALE: NOT TO SCALE



NOTES:
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED **"CURRENT VERSION"**, AND ALL ADDENDA THERE TO.
2. SUBBASE MATERIAL SHALL CONFORM WITH **SECTION 304** – SUBBASE COURSE OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.
3. WARM MIX ASPHALT (WMA) PAVEMENT SHALL CONFORM WITH **SECTION 400**–WARM MIX ASPHALT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS. ALTHOUGH **SECTION 400** IN ITS ENTIRETY IS REFERENCED, THE WARM MIX ASPHALT (WMA) PAVEMENT(S) SPECIFIED FOR THIS CONTRACT SHALL BE AS SPECIFIED UNDER **SECTION 402**–WARM MIX ASPHALT (WMA) PAVEMENTS.
4. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH **SECTION 407**–TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
5. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH **SECTION 203**–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
6. PAVEMENT SECTION SHOWN IS PRELIMINARY. PRIOR TO BIDDING AND COMMENCEMENT OF CONSTRUCTION, THE FINAL DESIGN OF THE PAVEMENT SECTION MUST BE PREPARED BY A NYS LICENSED PROFESSIONAL ENGINEER AND MUST BE BASED ON A CURRENT GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT.

5 PAVEMENT SECTION DETAIL
SCALE: NOT TO SCALE



4 TYPICAL SITE LAYOUT DETAIL
SCALE: NOT TO SCALE

6/4/2025 12:23:04 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C530_2231157_SITE-DET.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

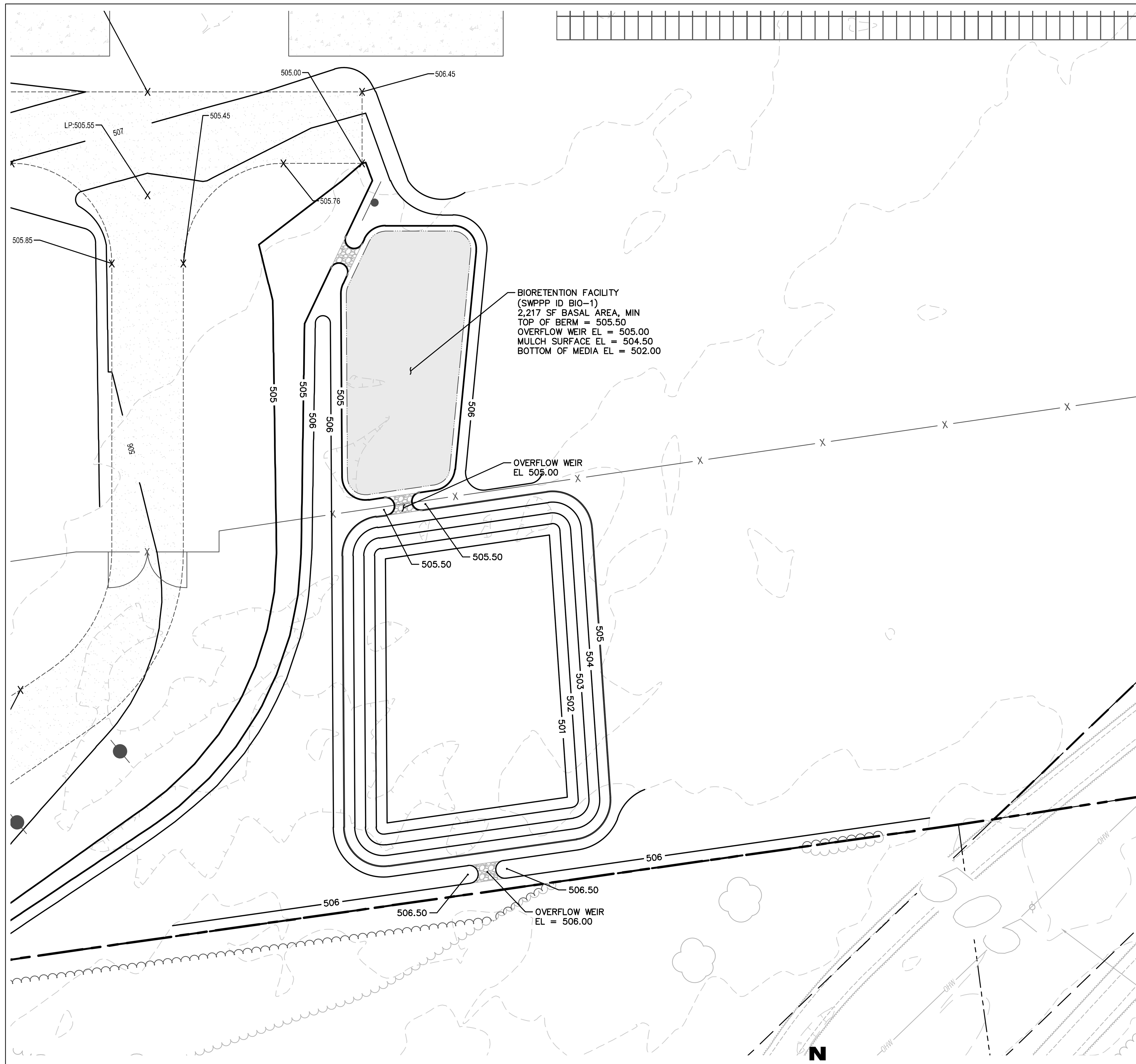
DATE: 06/03/2025

DRAWING NAME:

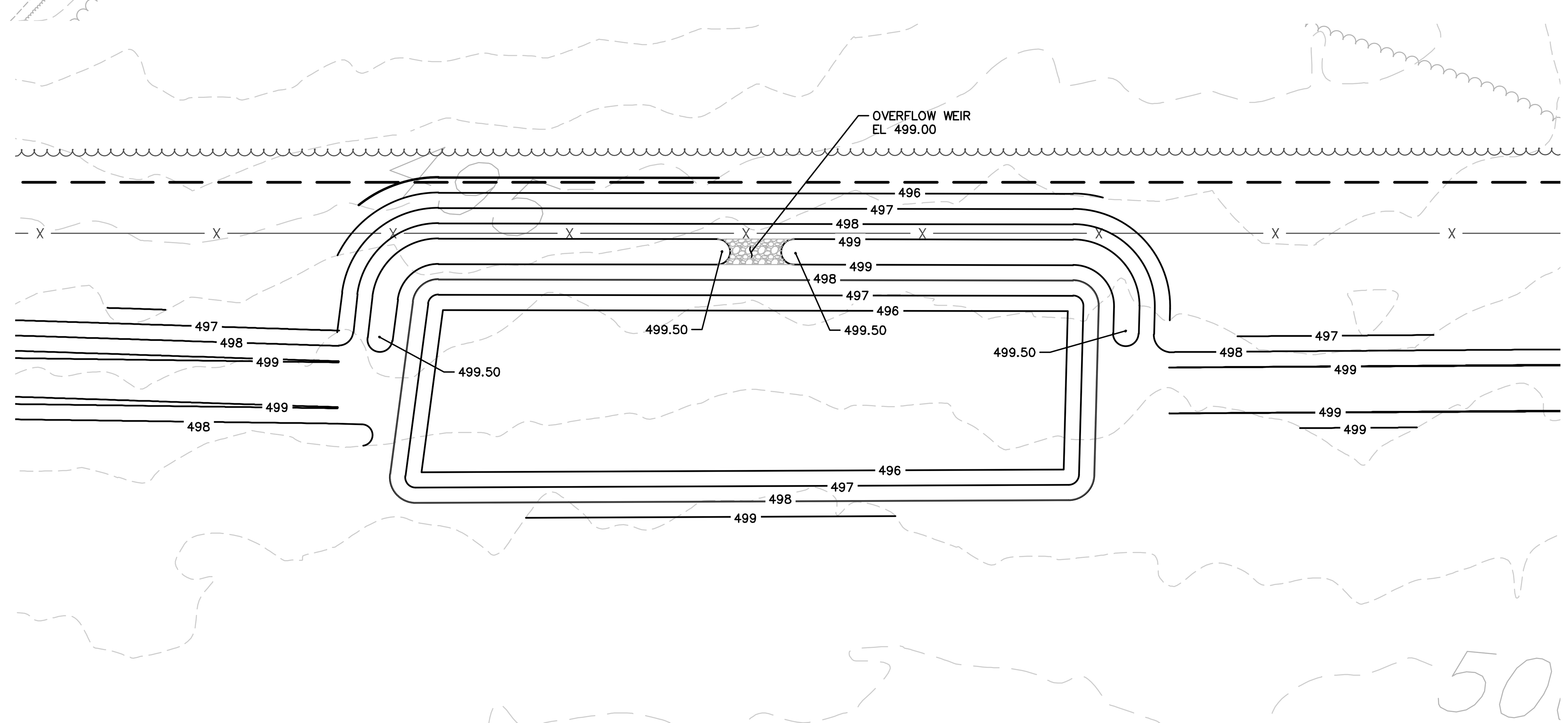
SITE DETAILS

DRAWING NUMBER:

C530



1 C540 BIORETENTION & RETENTION BASIN 1 ENLARGEMENT
SCALE: 1" = 20'



2 C540 RETENTION BASIN 2 ENLARGEMENT
SCALE: 1" = 20'

GRADING & DRAINAGE LEGEND:

- PROPERTY LINE
- PAVEMENT
- XXX 5 FT CONTOUR
- XXX 1 FT CONTOUR
- XXX.X SPOT GRADE
- TREE LINE
- LIMIT OF DISTURBANCE LINE
- GRAVEL DRIVEWAY

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

STATE OF NEW YORK · WALTER JOHN KUBOW · 080087 · LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

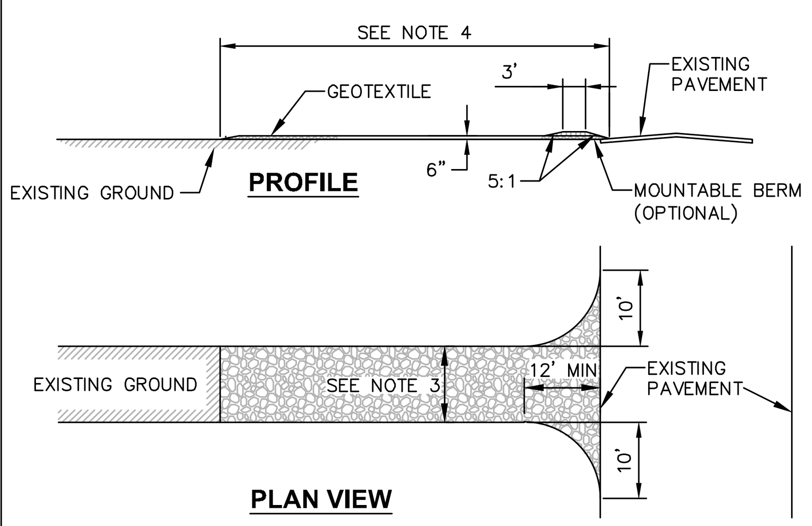
PROJECT NUMBER: 2231157
DRAWN BY: CAR
REVIEWED BY: NRJV
ISSUED FOR: APA SOLAR APPLICATION
DATE: 06/03/2025
DRAWING NAME:

STORMWATER BASIN ENLARGEMENTS

DRAWING NUMBER:

C540

6/4/2025 12:25:17 PM
\\cesh.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C540_2231157_GRAD-DET.dwg



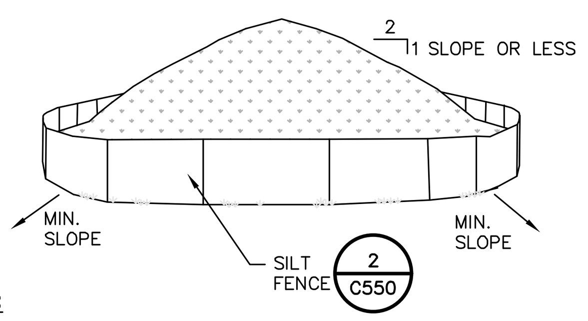
CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. THICKNESS – NOT LESS THAN SIX (6) INCHES.
3. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY FOUR (24) FEET IF SINGLE ENTRANCE TO SITE.
4. LENGTH – NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

© 1

STABILIZED CONSTRUCTION ENTERANCE DETAIL

SCALE: NTS



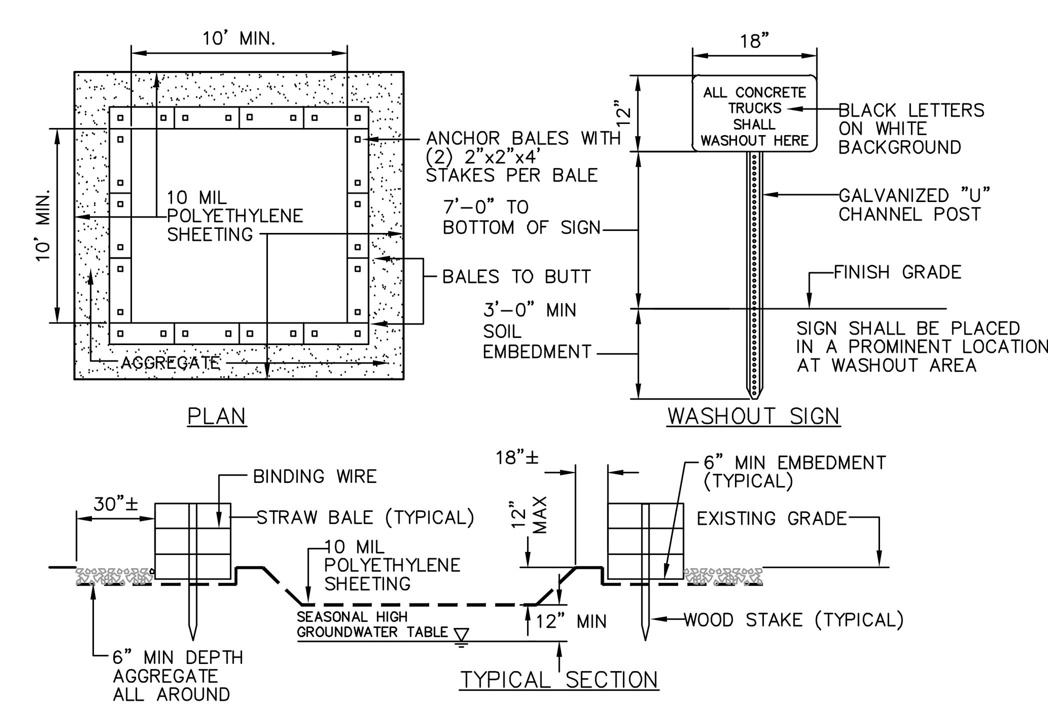
NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE.

© 3

TEMPORARY SOIL STOCKPILE DETAIL

SCALE: NTS



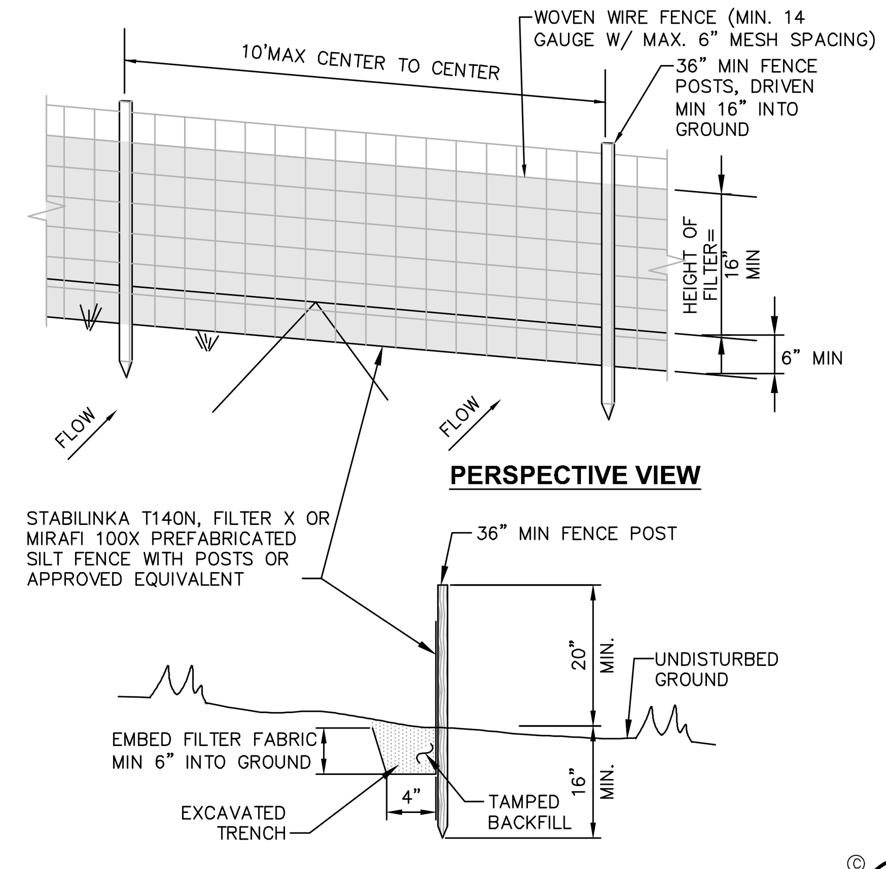
NOTES:

1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL. THIS INCLUDES REPLACEMENT OF THE 10 MIL POLYETHLENE SHEETING.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY, REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

© 5

CONCRETE WASHOUT DETAIL

SCALE: NTS



NOTES:

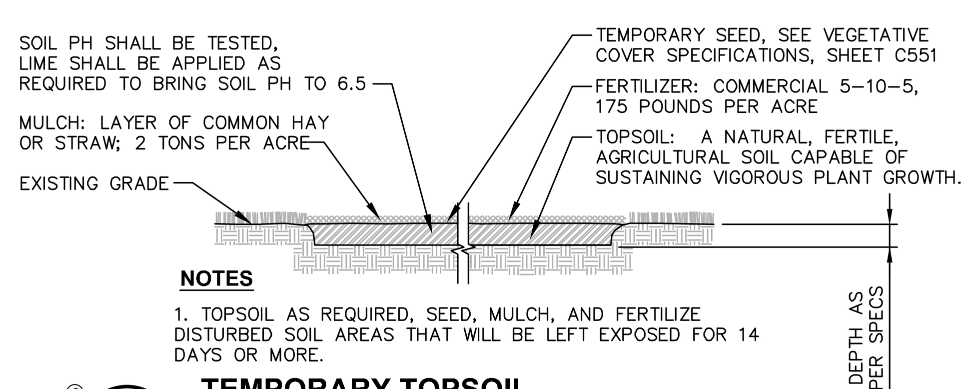
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL "T" OR "U" TYPE OR HARDWOOD.
2. FILTER FABRIC TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAX MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIALS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED 1/4 ACRE PER 100 FEET OF FENCE.
6. SILT FENCE SHALL BE USED WHERE EROSION COULD OCCUR IN THE FORM OF SHEET EROSION.
7. SILT FENCE SHALL NOT BE USED WHEN A CONCENTRATION OF WATER IS FLOWING TO THE BARRIER.
8. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUN–OFF TO A SILT FENCE ARE:

SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH(FT)
2:1	25
3:1	50
4:1	75
5:1 OR FLATTER	100

© 2

SILT FENCE INSTALLATION DETAIL

SCALE: NTS



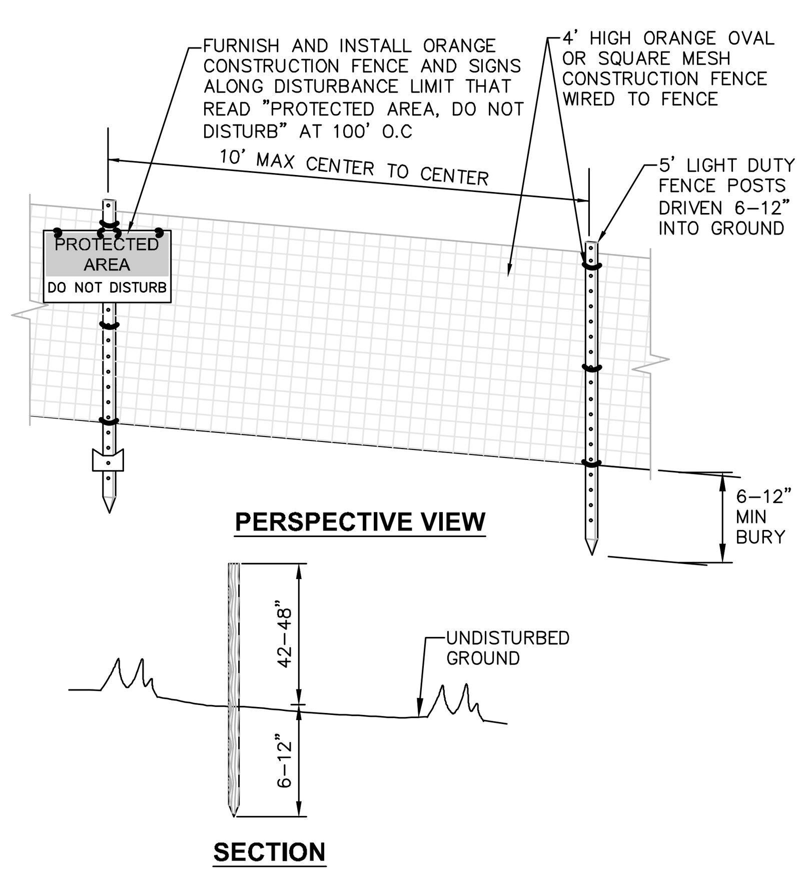
NOTES

1. TOPSOIL AS REQUIRED, SEED, MULCH, AND FERTILIZE DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 14 DAYS OR MORE.

© 4

TEMPORARY TOPSOIL, FERTILIZER, SEED & MULCH DETAIL

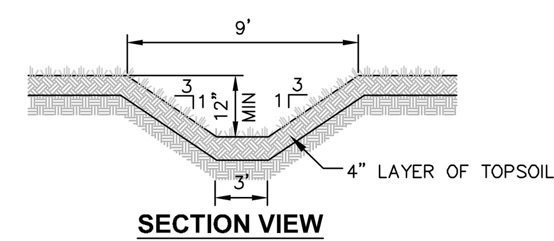
SCALE: NTS



© 7

TEMPORARY ORANGE CONSTRUCTION FENCE DETAIL

SCALE: NTS



NOTES:

1. MINIMUM DEPTH OF SWALE SHALL BE 12".
2. SWALE SHALL BE AT LEAST 6 FEET WIDE AT TOP.
3. SWALE SHALL BE SEEDED AND MULCHED WITH FAST GERMINATING RYE 15 LBS. TO 25 LBS. PER 1,000 SQ. FT.
4. SLOPE OF SWALE SHALL BE MINIMUM 2%.

© 6

PERMANENT GRASS LINED DIVERSION SWALE DETAIL

SCALE: NTS

SPDES GENERAL PERMIT GP-0-25-001 COMPLIANCE NOTES:

THIS PLAN SET AND THE ACCOMPANYING SWPPP ENTITLED "KEESEVILLE SOLAR" HAVE BEEN SUBMITTED AS A SET. THESE ENGINEERING DRAWINGS ARE CONSIDERED AN INTEGRAL PART OF THE SWPPP, THEREFORE THE PLAN SET IS NOT CONSIDERED COMPLETE WITHOUT THE SWPPP.

1. THIS PROJECT HAS REQUESTED WRITTEN APPROVAL FROM NYSDEC ALLOWING THE DISTURBANCE OF MORE THAN FIVE (5) ACRES OF LAND AT ANY ONE TIME. CONTRACTOR SHALL NOT DISTURB MORE THAN FIVE (5) ACRES UNTIL SUCH TIME THAT THE WAIVER IS GRANTED AND WRITTEN AUTHORIZATION IS RECEIVED FROM NYSDEC.

CONSTRUCTION SEQUENCING NOTES:

1. PRIOR TO COMMENCING ANY CLEARING, GRUBBING, EARTHWORK ACTIVITIES, ETC. AT THE SITE, THE CONTRACTOR SHALL FLAG THE WORK LIMITS AND SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (I.E. SILT FENCES, TREE PROTECTION/BARRIER FENCES, STABILIZED CONSTRUCTION ENTRANCES, STORM DRAIN SEDIMENT FILTERS, DRAINAGE DITCH SEDIMENT FILTERS, ETC.) INDICATED ON THE PROJECT DRAWINGS. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THEIR TRIBUTARY AREAS.
2. THE CONTRACTOR SHALL COMMENCE SITE CONSTRUCTION ACTIVITIES INCLUDING CLEARING & GRADING OF THE PROPOSED AREA OF DISTURBANCE AS REQUIRED.
3. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND IMMEDIATELY ESTABLISH PERMANENT VEGETATION ON THE AREAS DISTURBED DURING THEIR REMOVAL.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:

PERMANENT AND TEMPORARY VEGETATION:

INSPECT ALL AREAS THAT HAVE RECEIVED VEGETATION EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. ALL AREAS DAMAGED BY EROSION OR WHERE SEED HAS NOT ESTABLISHED SHALL BE REPAIRED AND RESTABILIZED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE:

INSPECT THE ENTRANCE PAD EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. CHECK FOR MUD, SEDIMENT BUILD–UP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING WET WEATHER. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. WASH AND REPLACE STONE AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF–SITE BY VEHICLES. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. REMOVE TEMPORARY CONSTRUCTION ENTRANCE AS SOON AS THEY ARE NO LONGER NEEDED TO PROVIDE ACCESS TO THE SITE.

SILT FENCE:

INSPECT FOR DAMAGE EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE FENCE BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE FENCE. IF FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF FENCE IMMEDIATELY.

SOIL STOCKPILE:

INSPECT SEDIMENT CONTROL BARRIERS (SILT FENCE OR HAY BALE) AND VEGETATION FOR DAMAGE EVERY SEVEN DAYS & AFTER EVERY RAIN EVENT. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE SEDIMENT CONTROL BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE SEDIMENT CONTROL BARRIER. IF SEDIMENT CONTROL BARRIER TEARS, BEGINS TO DECOMPOSE, OR IN ANYWAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF SEDIMENT CONTROL BARRIER IMMEDIATELY. REVEGETATE DISTURBED AREA TO STABILIZE SOIL STOCK PILE. REMOVE THE SEDIMENT CONTROL BARRIER WHEN THE SOIL STOCKPILE HAS BEEN REMOVED.

DUST CONTROL:

SCHEDULE CONSTRUCTION OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED AREAS AT ANY ONE TIME DURING THE COURSE OF WORK. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SEEDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS BEFORE SIGNIFICANT BLOWING PROBLEMS DEVELOP. WATER SHALL BE SPRAYED AS NEEDED. REPEAT AS NEEDED, BUT AVOID EXCESSIVE SPRAYING, WHICH COULD CREATE RUNOFF AND EROSION PROBLEMS

SNOW AND ICE CONTROL:
PARKING LOTS, ROADWAYS, AND DRIVEWAYS ADJACENT TO WATER QUALITY FILTERS SHALL NOT BE SANDED DURING SNOW EVENTS DUE TO HIGH POTENTIAL FOR CLOGGING FROM SAND IN SURFACE WATER RUNOFF. USE SALT ONLY FOR SNOW AND ICE CONTROL..

EROSION AND SEDIMENT CONTROL MEASURES:

GENERAL MEASURES:

1. DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
2. AS MUCH AS IS PRACTICAL, EXISTING VEGETATION SHALL BE PRESERVED. FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SOILS.
3. SITE PREPARATION ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE SCOPE AND DURATION OF SOIL DISRUPTION.
4. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL POINTS OF ENTRY ONTO THE PROJECT SITE.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IN STRICT COMPLIANCE WITH "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", AUGUST 2016.
2. EXCESS SOIL TO BE STOCKPILED WITHIN THE LIMITS OF SITE DISTURBANCE IF NOT USED IMMEDIATELY FOR GRADING PURPOSES. INSTALL SILT FENCE AROUND SOIL STOCKPILES.
3. APPLY SURFACE STABILIZATION AND RESTORATION MEASURES. AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS DELAYED, SUSPENDED, OR INCOMPLETE AND WILL NOT BE REDISTURBED FOR 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED. (SEE SPECIFICATIONS FOR TEMPORARY VEGETATIVE COVER). AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS COMPLETE AND WILL NOT BE REDISTURBED SHALL BE STABILIZED AND RESTORED WITH PERMANENT VEGETATIVE COVER AS SOON AS SITE AREAS ARE AVAILABLE AND WITHIN 14 DAYS AFTER WORK IS COMPLETE. (SEE SPECIFICATIONS FOR PERMANENT VEGETATIVE COVER). SEEDING FOR PERMANENT VEGETATIVE COVER SHALL BE WITHIN THE SEASONAL LIMITATIONS. PROVIDE STABILIZATION WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER WORK IS COMPLETE, FOR SEEDING OUTSIDE PERMITTED SEEDING PERIODS.
4. SEEDED AREAS TO BE MULCHED WITH STRAW OR HAY MULCH IN ACCORDANCE WITH VEGETATIVE COVER SPECIFICATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. THE CONTRACTOR IS TO SUPPLY ALL EQUIPMENT AND WATER.
7. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.

COMPACTION REQUIREMENTS

LOCATION	COMPACTION	TESTING FREQUENCY
PIPE TRENCH BACKFILL (IN PAVED AREAS)	95% ASTM D1557	1 SERIES OF TESTS FOR EACH 150 FT OR LESS OF TRENCH LENGTH. SERIES INCLUDE 3 COMPACTION TESTS SPREAD EVENLY ALONG TRENCH PROFILE.
PIPE TRENCH BACKFILL (IN UNPAVED AREAS)	90% ASTM D1557	1 SERIES OF TESTS FOR EACH 150 LF OR LESS OF TRENCH LENGTH. SERIES INCLUDE 3 COMPACTION TESTS SPREAD EVENLY ALONG TRENCH PROFILE.
PIPE BEDDING AND PIPE ZONE BACKFILL	95% ASTM D1557	1 TEST FOR EACH 150 FT OR LESS OF TRENCH LENGTH.
PAVEMENT SUBBASE AND LAST LIFT OF SELECT GRANULAR FILL (FILL BETWEEN SHEET PILES)	95% ASTM D1557	1 TEST FOR EVERY 2,000 SQ FT, OF LIFT AREA BUT NO FEWER THAN TWO TESTS PER LIFT

TOPSOIL SPECIFICATIONS:

1. EXISTING EXCESS TOPSOIL SHALL BE REMOVED AND STORED IN TOPSOIL STOCKPILES SUFFICIENTLY REMOVED FROM OTHER EXCAVATION OR DISTURBANCE TO AVOID MIXING. SILT FENCE SHALL BE INSTALLED AROUND TOPSOIL STOCKPILE AREAS.

SITE PREPARATION:

1. COMPLETE ROUGH GRADING AND FINAL GRADE, ALLOWING FOR DEPTH OF TOPSOIL TO BE ADDED.
2. SCARIFY ALL COMPACT, SLOWLY PERMEABLE, MEDIUM AND FINE TEXTURED SUBSOIL AREAS. SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%.
3. REMOVE REFUSE, WOODY PLANT PARTS, STONES OVER 3 INCHES IN DIAMETER, AND OTHER LITTER.

TOPSOIL MATERIALS:

1. NEW TOPSOIL SHALL BE BETTER THAN OR EQUAL TO THE QUALITY OF THE EXISTING ADJACENT TOPSOIL. IT SHALL MEET THE FOLLOWING CRITERIA:
   A. ORIGINAL LOAM TOPSOIL, WELL DRAINED HOMOGENEOUS TEXTURE AND OF UNIFORM GRADE, WITHOUT THE ADMIXTURE OF SUBSOIL MATERIAL AND FREE OF DENSE MATERIAL, HARDPAN, CLAY, STONES, SOD OR OTHER OBJECTIONABLE MATERIAL.
   B. CONTAINING NOT LESS THAN 5% NOR MORE THAN 20% ORGANIC MATTER IN THAT PORTION OF A SAMPLING PASSING A 1/4" SIEVE WHEN DETERMINED BY THE WET COMBUSTION METHOD ON A SAMPLE DRIED AT 105°C.
   C. CONTAINING A PH VALUE WITHIN THE RANGE OF 6.5 TO 7.5 ON THAT PORTION OF THE SAMPLE WHICH PASSES A 1/4" SIEVE.
   D. CONTAINING THE FOLLOWING WASHED GRADATIONS:

SIEVE DESIGNATION	% PASSING
1"	100
1/4"	97–100
NO 200	20–60

APPLICATION AND GRADING:

1. EXISTING TOPSOIL SHALL BE 4" OR GREATER, IF SUFFICIENT DEPTH IS NOT PRESENT, DISTRIBUTED TOPSOIL TO A UNIFORM DEPTH OF 4" OVER DISTURBED AREAS TO RECEIVE SEED INCLUDING TRENCHES. IT SHALL NOT BE PLACED WHEN IT IS PARTLY FROZEN, MUDDY, OR ON FROZEN SLOPES OR OVER ICE, SNOW, OR STANDING WATER.
2. TOPSOIL PLACED AND GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.

VEGETATIVE COVER SPECIFICATIONS:

TEMPORARY VEGETATIVE COVER (DURING CONSTRUCTION):

1. SITE PREPARATION
   (SAME AS PERMANENT VEGETATIVE COVER)
2. SEED MIX: (APPLY AT RATE OF 3 TO 4 LBS PER 1000 SF)

AMOUNT BY: WEIGHT	SPECIES OR VARIETY	MINIMUM % PURITY	GERMINATION
100%	ANNUAL RYEGRASS	98%	90%

3. SEEDING:
   (SAME AS PERMANENT VEGETATIVE COVER)

PERMANENT VEGETATIVE COVER (AFTER CONSTRUCTION):

1. SITE PREPARATION
   A. BRING AREA TO BE SEEDED TO REQUIRED GRADE. A MINIMUM OF 4" OF EXISTING OR IMPORTED TOPSOIL IS REQUIRED.
   B. PREPARE SEEDBED BY LOOSENING SOIL TO A DEPTH OF 4 INCHES.
   C. REMOVE ALL STONES OVER 1 INCH IN DIAMETER, STICKS AND FOREIGN MATTER FROM THE SURFACE.
   D. LIME TO PH OF 6.5.
   E. FERTILIZER: USE 5–10–5 (NPK) OR EQUIVALENT. APPLY AT RATE OF 4 LBS/1000 SF.
   F. INCORPORATE LIME AND FERTILIZER IN THE TOP 4 INCHES OF TOPSOIL.
   G. SMOOTH AND FIRM THE SEEDBED.
2. SEED MIXTURE FOR USE ON GROUND REPAIR AREAS:
   PROVIDE FRESH, CLEAN, NEW–CROP SEED MIXED IN THE PROPORTIONS SPECIFIED FOR SPECIES AND VARIETY, AND CONFORMING TO FEDERAL AND STATE STANDARDS.

   APPLY AT A RATE OF 50 LBS PER ACRE

AMOUNT BY: WEIGHT	SPECIES OR VARIETY
20.0%	ERNST HONEY BEE FORAGE SEED MIX (ERNMX–157)
20.0%	FIREFLY HARD FESCUE
10.0%	INTRIGUE CHEWINGS FESCUE
10.0%	EUREKA II HARD FESCUE
10.0%	MINOTAUR HARD FESCUE
10.0%	LANCELEAF COREOPSIS
05.0%	BIGLEAF MOUNTAIN MINT
05.0%	BLACK EYED SUSAN
05.0%	HAIRY BEARDTONGUE
05.0%	OHIO SPIDERWORT

3. SEEDING
   A. APPLY SEED TO DISTURBED AREAS UNIFORMLY BY CULTI–PACKER OR HYDRO–SEEDER AT RATE INDICATED .
   B. ALL SEEDED AREAS SHALL BE PROTECTED FROM EROSION BY ONE OF THE FOLLOWING METHODS:
1. A UNIFORM BLANKET OF STRAW APPLIED AT A RATE OF 2 TONS /ACRE MIN., TO BE APPLIED ONCE SEEDING IS COMPLETE.
2. WOOD FIBER CELLULOSE APPLIED WITH SEED MIX BY HYDROSEEDER AT RATE OF 2,000 LBS/ACRE.
   C. ALL SEEDED SLOPES 3:1 OR GREATER SHALL BE PROTECTED FROM EROSION WITH JUTE MESH OR APPROVED EQUAL.
   D. IRRIGATE TO FULLY SATURATE SOIL LAYER, BUT NOT TO DISLODGE PLANTING SOIL.
   E. PRIOR TO INTRODUCING NEW SEED VARIETY TO AN AREA OF EXISTING VEGETATION, TRIM EXISTING VEGETATION TO A HEIGHT OF 3". DRILL SEED AT THE RATE INDICATED. MOW AREA A MINIMUM OF THREE TIMES AT A TWO WEEK INTERVAL.
   F. UNLESS OTHERWISE DIRECTED IN WRITING, SEED FROM MARCH 15TH TO JUNE 15TH, AND FROM AUGUST 15TH TO OCTOBER 15TH. DORMANT, WINTER SEEDING CAN OCCUR FROM LATE NOVEMBER TO JANUARY.

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

STATE OF NEW YORK
WALTER JOHN KUBOW
080087
LICENSED PROFESSIONAL ENGINEER
EXP: 6/30/2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

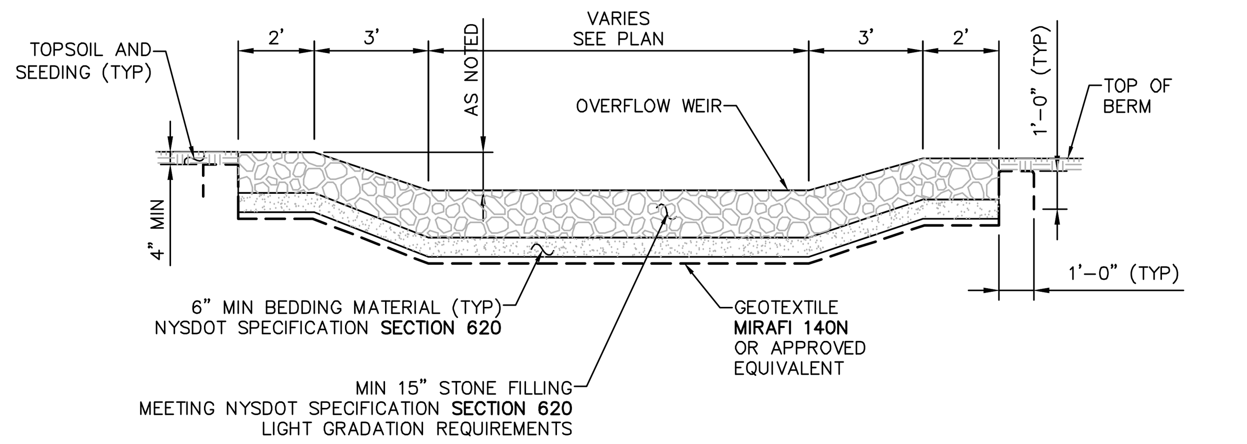
DRAWING NAME:

EROSION & SEDIMENT CONTROL DETAILS AND NOTES

DRAWING NUMBER:

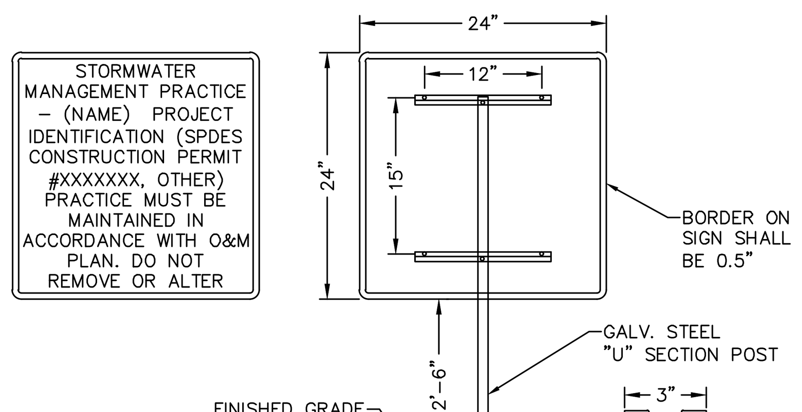
C550

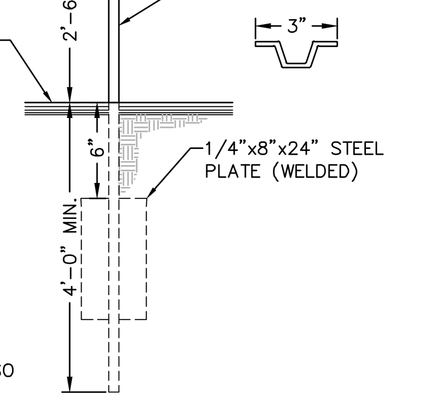
6/4/2025 12:24:31 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C550_2231157_EROS-DET.dwg



© 1 **SECTION THRU STOMRWATER MANAGEMENT OVERFLOW WEIR**

SCALE: NTS



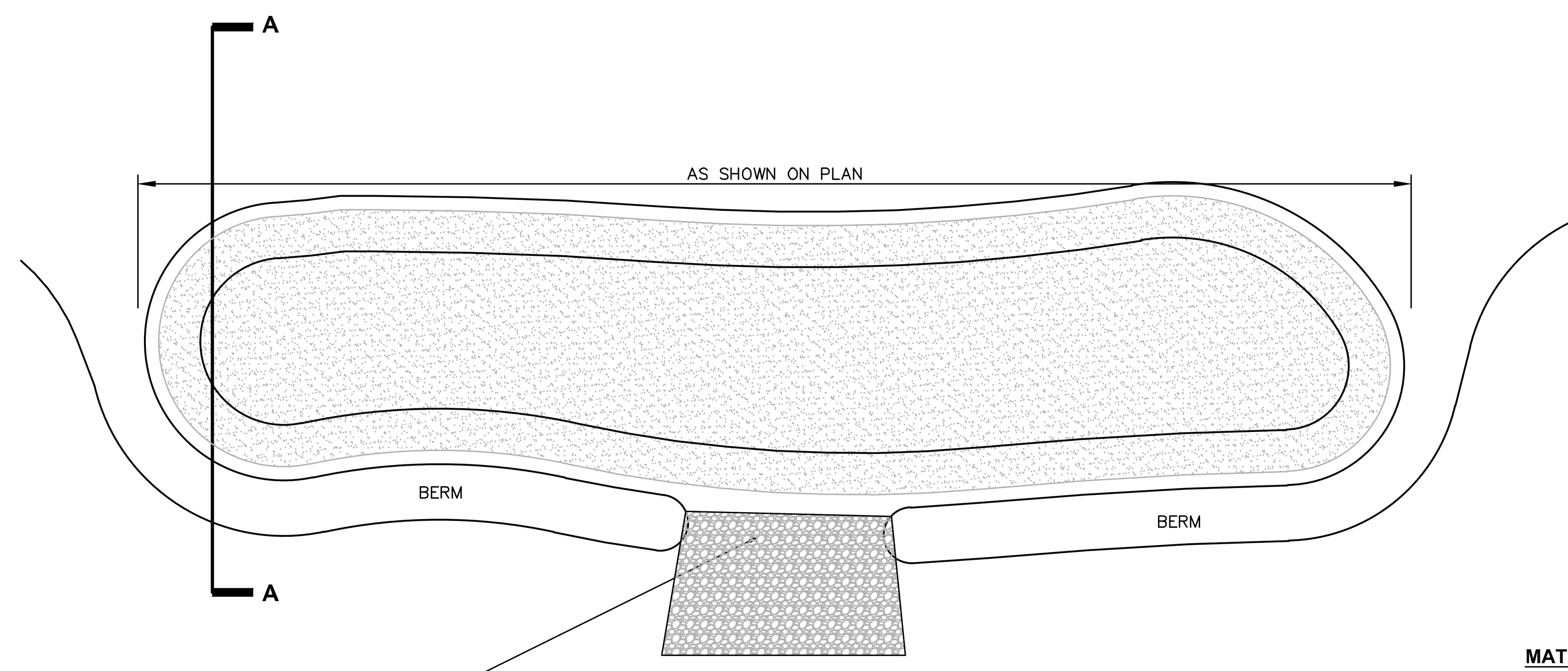


NOTES:

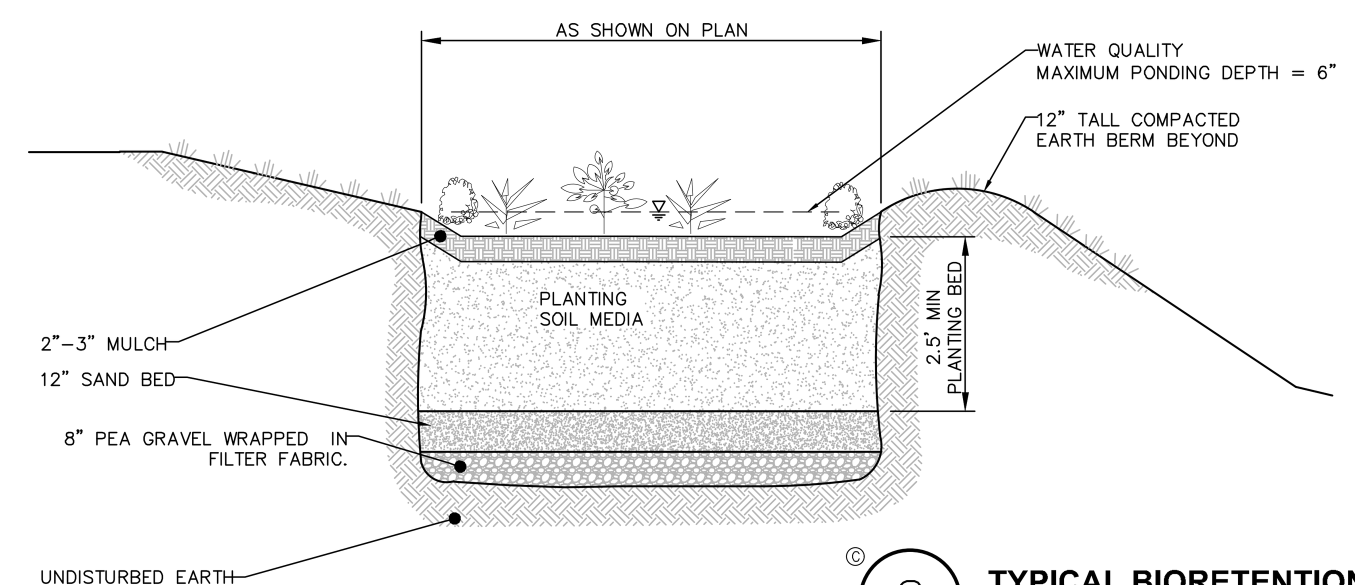
1. SIGN SHALL BE ALUMINUM IN ACCORDANCE WITH NYSDOT STANDARD SPECS SECTION 730.
2. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.
3. ANY DAMAGED OR MISSING STORMWATER PRACTICE SIGNS SHALL BE REPLACED BY THE GOVERNING HOA.
4. CONTRACTOR SHALL ERECT SIGN THE IMMEDIATE VICINITY (NOT IN) OF EACH STORMWATER MANAGEMENT PRACTICE,
5. BACKGROUND COLOR OF SIGN SHALL BE MUTCD BROWN, THE LEGEND AND BORDER SHALL BE MUTCD WHITE.
6. LETTERING OF THE SIGN SHALL BE SIZED SO THAT SIGN IS LEGIBLE.
7. NAMES AND SPDES PERMIT NUMBER SHALL BE OBTAINED BY CONTRACTOR FROM PLANS AND ISSUED SPDES CONSTRUCTION PERMIT.

© 3 **STORMWATER MANAGEMENT PRACTICE PERMANENT SIGN**

SCALE: NOT TO SCALE



PLAN



SECTION

© 2 **TYPICAL BIORETENTION DETAIL**

SCALE: NTS

NOTES:

1. BIORETENTION FACILITIES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH "THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL", CHAPTER 6.
2. PLANTING SOIL SHALL BE TESTED & MEET THE FOLLOWING CRITERIA:

PH RANGE	5.2–7.0
ORGANIC MATTER	1.5–4%
MAGNESIUM	35 LB/AC
PHOSPHOROUS P_2O_5	75 LB/AC
POTASSIUM K_2O	85/AC
SOLUBLE SALTS	NOT TO EXCEED 500PPM

3. ROTOTILL 2–3" OF SAND BASE INTO THE BASE OF THE BIORETENTION FACILITY.
4. BACK FILLING OF BIORETENTION FACILITY SHALL BE PLACED IN 12" LIFTS.
5. BIORETENTION AREA MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

MATERIALS SPECIFICATION FOR BIORETENTION

PARAMETERS	SPECIFICATIONS	SIZE	NOTES
PLANTING SOILS	SAND 35–60% SILT 30–55% CLAY 10–25%	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM OR LOAM
MULCH	UN COLORED SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM
GEOTEXTILE	CLASS "C" APPARENT OPPENING SIZE (ASTM–D–4751), GRAB TENSILE STRENGTH (ASTM–D–4632), BURST STRENGTH (ASTM–D–4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
GRAVEL	AASHTO M–43. NO. 67.	0.25" – 0.75"	
SAND	AASHTO M–6 OR ASTM C–33	0.02" – 0.04"	SAND SUBSTITUTION SUCH AS DIABASE GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTE ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND

POST-CONSTRUCTION STORMWATER MAINTENANCE AND INSPECTION NOTES:

1. GRASSED SWALES

   SWALE MAINTENANCE WILL INCLUDE PERIODIC MOWING, OCCASIONAL SPOT RESEEDING AND WEED CONTROL TO KEEP GRASS COVER DENSE AND VIGOROUS. RESULTANT YARD WASTE SHALL BE COLLECTED AND DISPOSED OF OFF-SITE. APPLICATION OF FERTILIZERS AND PESTICIDES SHOULD BE RESTRICTED OR LIMITED.

   INSPECTIONS SHOULD BE CONDUCTED ANNUALLY OF THE GRASS SWALES.

2. RIP–RAP DISSIPATION STRUCTURES

   RIP–RAP USED TO DISSIPATE ENERGY SHALL BE CLEANED OR REPLACED WHEN IT BECOMES OVERBURDENED WITH SILT OR SEDIMENT.

   INSPECTIONS SHOULD BE CONDUCTED ANNUALLY.

3. BIORETENTION FILTER

   a. INSPECTION

   BIORETENTION FILTERS SHOULD BE INSPECTED PERIODICALLY FOR THE FIRST FEW MONTHS AFTER CONSTRUCTION AND THEN ON A QUARTERLY BASIS. BIORETENTION FILTERS SHOULD BE INSPECTED AFTER ALL MAJOR STORM EVENTS. ITEMS TO CHECK FOR INCLUDE (BUT ARE NOT LIMITED TO):

   i. CHECKING EMBANKMENTS FOR SUBSIDENCE, EROSION, CRACKING, UNDESIRABLE TREE AND SHRUB GROWTH AND THE PRESENCE OF BURROWING ANIMALS.

   ii. CHECK INLET FOR EROSION.

   iii. EVIDENCE OF STANDING WATER (I.E. DOES IT DEWATER BETWEEN STORMS).

   iv. HEALTH AND VIGOR OF VEGETATION (TREES, SHRUBS, GRASS, FLOWERS, MULCH).

   v. ACCUMULATION OF SEDIMENT OR YARD WASTE.

   vi. EVIDENCE OF CLOGGING AT INLETS OR OUTLETS.

   vii. CONDITION OF THE OVERFLOW SPILLWAY.

   viii. ENSURE GRASS IS WELL ESTABLISHED.

   ix. GRASS HEIGHT NOT GREATER THAN SIX INCHES.

   b. MOWING

   MOW GRASS AREAS WITHIN BIORETENTION FACILITY TO ENSURE THAT GRASS HEIGHT DOES NOT EXCEED 6–INCHES. UNDESIRABLE TREES AND SHRUBS SHOULD BE REMOVED. RESULTANT YARD WASTES SHALL BE COLLECTED AND DISPOSED OF OFF–SITE

   c. DEBRIS, TRASH AND LITTER CONTROL

   REMOVAL OF DEBRIS AND LITTER SHALL BE ACCOMPLISHED DURING MOWING OPERATIONS. INLET STRUCTURES SHOULD BE CLEARED OF ALL DEBRIS AND LITTER.

   d. STRUCTURAL REPAIRS AND REPLACEMENT

   COMPONENTS OF THE BIORETENTION FILTER, WHICH REQUIRE REPAIR OR REPLACEMENT, SHOULD BE ADDRESSED IMMEDIATELY FOLLOWING IDENTIFICATION. THIS INCLUDES TREATING AND OR REPLACING DISEASED TREES AND SHRUB, FERTILIZING AS NECESSARY, REPLACING MULCH WHERE BARE SPOTS APPEAR, FILTER BEDS.

   e. EROSION AND SEDIMENT CONTROL

   SOURCES OF SEDIMENTATION, SPECIFICALLY ERODED AREAS IN UPLAND DRAINAGE AREAS, SHOULD BE STABILIZED IMMEDIATELY UPON IDENTIFICATION. STABILIZATION SHOULD BE WITH VEGETATIVE PRACTICES OR OTHER EROSION CONTROL PRACTICES WHEN VEGETATIVE MEASURES DO NOT PROVE EFFECTIVE.

   SOIL SLUMPAGE, EROSION OF THE EMBANKMENTS OR AROUND INLETS/OUTLETS, AND CRACKING SHOULD BE STABILIZED AND REPAIRED IMMEDIATELY UPON IDENTIFICATION.

   f. SEDIMENT REMOVAL

   SEDIMENTS THAT ACCUMULATE IN THE BIORETENTION FILTER SHOULD BE REMOVED ANNUALLY TO PREVENT CLOGGING OF INLET OR OUTLET STRUCTURES. DISPOSAL OF MATERIAL REMOVED FROM BIORETENTION FILTER SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL GUIDELINES.

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE

800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC

1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 06/03/2025

DRAWING NAME:

STORMWATER & BIORETENTION DETAILS AND NOTES

DRAWING NUMBER:

C560

6/4/2025 12:23:56 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\01_C560_2231157_UTIL-DET.dwg

CONSTRUCTION SEQUENCING NOTES:

1. SCHEDULE A PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE THE TOWN OF AUSABLE REPRESENTATIVE, OWNER'S/OPERATOR'S ENGINEER, QUALIFIED INSPECTOR, CONTRACTOR, AND THEIR SUB-CONTRACTORS TO DISCUSS RESPONSIBILITIES AS THEY RELATE TO IMPLEMENTATION OF THE SWPPP.
2. PRIOR TO COMMENCING ANY CLEARING, GRUBBING, EARTHWORK ACTIVITIES, ETC., AT THE SITE, THE CONTRACTOR SHALL FLAG THE WORK LIMITS AND SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (I.E., SILT FENCE, STABILIZED CONSTRUCTION ENTRANCES, ETC.) INDICATED ON THE PROJECT DRAWINGS. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THEIR TRIBUTARY AREAS.
3. THE CONTRACTOR SHALL CLEAR AND GRUB THE AREA OF DISTURBANCE AS NEEDED. THIS AREA SHALL NOT EXCEED FIVE (5) ACRES IN EXTENT WITHOUT TEMPORARY STABILIZATION.
4. THE CONTRACTOR SHALL COMMENCE SITE CONSTRUCTION ACTIVITIES, INCLUDING CLEARING & GRADING OF THE PROPOSED AREA OF DISTURBANCE, AS REQUIRED.
5. CONSTRUCT ALL UTILITIES, CURB AND GUTTER, GUTTER INLETS, AREA INLETS, AND STORM SEWER MANHOLES, AS SHOWN ON THE PLANS. INLET PROTECTION MAY BE REMOVED TEMPORARILY FOR THIS CONSTRUCTION. PLACE REQUIRED RIP-RAP AT LOCATIONS SHOWN ON THE PLANS.
6. FINALIZE PAVEMENT SUB-GRADE PREPARATION.
7. INSTALL SUB-BASE MATERIAL AS REQUIRED FOR PAVEMENT.
8. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND IMMEDIATELY ESTABLISH PERMANENT VEGETATION ON THE AREAS DISTURBED DURING THEIR REMOVAL.

1 / PH1 — CONSTRUCTION PHASING PLAN
SCALE: 1" = 150'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

NEW YORK STATE OF OPPORTUNITY. Adirondack Park Agency
RECEIVED
Date: July 7, 2025

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
1934 NY-22,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NV

ISSUED FOR: APA SOLAR APPLICATION

DATE: 07/07/2025

DRAWING NAME:

CONSTRUCTION PHASING PLAN

DRAWING NUMBER:

PH1

7/7/2025 10:46:07 AM
\\cash.lan\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\ZZ_F\G7_2231157_PHASING.dwg

Stormwater Pollution Prevention Plan

Prepared for:
Catalyze Ausable Grove Street Microgrid, LLC
800 Gessner Road, Suite 700
Houston, TX 77024

Submitted by:
LaBella Associates
4 British American Boulevard
Latham, NY 12110
(518) 273-0055

LaBella
Powered by partnership.

Keeseville Solar

Town of AuSable, Clinton County, New York

DATE: MAY 2025
LAST REVISED: MAY 2025
PROJECT NO. 2231157

This Page Intentionally Left Blank

PREPARER OF THE SWPPP

"I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name and Title[1]: Walter Kubow, PE

Date: May 2025

---

[1] This is a signature of a New York State licensed Professional Engineer employed by LaBella Associates that is duly authorized to sign and seal Stormwater Pollution Prevention Plans (SWPPPs), NOIs, and NOTs prepared under their direct supervision. Refer to Appendix B for the SWPPP Preparer Certification Form, and Appendix I for the LaBella Certifying Professionals Letter.

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1.0 EXECUTIVE SUMMARY

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for major activities associated with construction of a solar field in the Town of AuSable. This SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities enacted by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be executed and permit coverage must be obtained prior to the commencement of construction activity.

This SWPPP has been developed in accordance with the “New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity,” Permit No. GP-0-25-001, effective January 29, 2025 through January 28, 2030. The SWPPP and accompanying plans identify and detail stormwater management, pollution prevention, and erosion and sediment control measures necessary during and following completion of construction.

This SWPPP and the accompanying plans entitled “Keeseville Solar” have been submitted as a set. These engineering drawings are considered an integral part of this SWPPP. Therefore, this SWPPP is not considered complete without them. References made herein to “the plans” or to a specific “sheet” refer to these drawings.

This report considers the impacts associated with the intended development with the purpose of:

1. Maintaining existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;
2. Controlling increases in the rate of stormwater runoff resulting from the proposed development so as not to adversely alter downstream conditions; and
3. Mitigating potential stormwater quality impacts and preventing soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

The analysis and design completed and documented in this report is intended to be part of the application made for a solar development project completed on behalf of the Owner/Operator.

1.1 Project Description

Catalyze Ausable Grove Street Microgrid, LLC is proposing development project, to include a new solar field. The project will disturb greater than 1-acre of land. A Site Location Map has been provided in Appendix A, as Figure A-1.

This type of project is included in Table 2 of Appendix B of GP-0-25-001; and the project site is not located in one of the watersheds listed in Appendix C of GP-0-25-001. Therefore, this SWPPP includes post-construction stormwater management practices, as well as erosion and sediment controls.

This project is not located within a regulated, traditional land use control Municipal Separate Stormwater Sewer System (MS4).

Runoff from the project site will discharge to the tributary to the Ausable River, which is not included in the list of Section 303(d) water bodies included in Appendix D of GP-0-25-001.

Project construction activities will consist primarily of site grading, and the installation of storm drainage infrastructure necessary to support the proposed development project. Construction phase pollutant sources anticipated at the site are disturbed (exposed) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by stormwater.

1.2 Stormwater Pollution Controls

The stormwater pollution controls outlined herein have been designed and evaluated in accordance with the following standards and guidelines:

- New York State Stormwater Management Design Manual, dated July 31, 2024 (Design Manual).
- New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016 (SSESC).

Stormwater quality will be enhanced through the implementation of temporary and permanent erosion and sediment control measures, the proposed stormwater management practice(s), and other construction-phase pollution controls outlined herein.

The proposed stormwater management approach consisting of open drainage ways and on-site stormwater management practices will adequately collect, treat, and convey the stormwater runoff.

A bioretention will be used to manage and treat stormwater runoff generated by the proposed development project.

Pre- and post-development surface runoff rates have been evaluated for the 1-, 10-, and 100-year 24-hour storm events. Comparison of pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the project site will not be increased.

The post-construction stormwater management practice(s) will be owned by Catalyze Ausable Grove Street Microgrid, LLC. Policy and procedures will be in place, which ensure operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

2.0 SITE CHARACTERISTICS

2.1 Land Use and Topography

The project site is located within the LI – Low Intensity zoning district. A solar field is subject to a special use permit within this district.

The overall site is slightly sloping, with slopes ranging from 0 to 14 percent. Site elevations range from approximately 436 feet relative to the North American Vertical Datum of 1988 (NAVD88) to 517 feet NAVD88. The site gradually slopes from south to north, with steeper slopes along the northern edge of the property.

2.2 Soils and Groundwater

The US Department of Agriculture (USDA) Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/) was used to obtain surficial soil conditions for the study area, as follows:

Table 1: USDA Soil Data

Map Symbol & Description	Hydrologic Soil Group	Permeability (inches/hour)	Erosion Factor K	Depth to Water Table (inches)	Depth to Bedrock (inches)
DeA – Deerfield fine sand, 0 to 3 percent slopes	A/D	5.95 – 19.98	0.02	18 - 36	>80
DeB – Deerfield fine sand, 3 to 8 percent slopes	A/D	5.95 – 19.98	0.02	18 - 36	>80
Jn – Junius fine sand	A/D	1.98 – 5.95	0.05	12 - 18	>80
PtA – Plainfield loamy sand, 0 to 3 percent slopes	A	5.95 – 19.98	0.10	>80	>80
PtB – Plainfield loamy sand, 3 to 8 percent slopes	A	5.95 – 19.98	0.10	>80	>80
PtC – Plainfield loamy sand, 8 to 15 percent slopes	A	5.95 – 19.98	0.10	>80	>80

Upon review of the soil data presented in Table 1, the project site does not contain soils with a soil slope phase of D with a map unit name that inclusive of slopes greater than 25%, and does not contain soils with a soil slope phase of E or F.

The project site is composed of HSG A soils and HSG D soils, as shown in the table below. For the purposes of this report, HSG A/D soils were modeled as HSG D soils to reflect the undrained condition.

Table 2: Project Site HSG Data

HSG A	HSG B	HSG C	HSG D
84.7%	0%	0%	15.3%

The Soil Conservation Service defines the hydrologic soil groups as follows:

- Type A Soils: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.
- Type D Soils: Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

The soils map for the study area is presented in Appendix A, as Figure A-2.

2.3 Watershed Designation

The project site is not located in a restricted watershed identified in Appendix C of GP-0-25-001.

2.4 Receiving Water Bodies

The nearest natural classified water course into which runoff from the project site will discharge is the tributary to the Ausable River. The tributary to the Ausable River is classified by NYSDEC as a Class C water course, and is not included in the Section 303(d) list of impaired waters found in Appendix D of GP-0-25-001.

2.5 Aquifer Designation

The project site is not located over a US EPA designated Sole Source aquifer; nor is it located over a Primary or Principal aquifer listed in the NYSDEC Technical and Operational Guidance Series (TOGS) 2.1.3 (1980).

2.6 Wetlands

Wetlands depicted on the accompanying plan set were delineated and located by LaBella on May 11, 2023 and April 23, 2024. These wetlands are federally regulated wetlands that encompass approximately 0.11 acres of the 64.7± acre property.

2.7 Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), Town of AuSable, New York, Community Panel Number 360165 0765 E, the project site lies within Flood Zone X, areas determined to be outside 500-year floodplain.

2.8 Listed, Endangered, or Threatened Species

A habitat assessment report was prepared by LaBella, dated June 2023, and determined that the project site has no known occurrences of threatened or endangered species, or critical habitat. An Environmental Resource Map has been provided in Appendix A, as Figure A-4.

2.9 Historic Places

A search on the New York State Cultural Resource Information System (CRIS) database, performed on July 11, 2024, revealed that the property is not located within an archeologically sensitive area, and 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. Additionally, the construction activity does not include the construction of a new building within 20 feet of any structure more than 50 years old. A printout of the historic places screening map is presented in Appendix A, as Figure A-3.

2.10 Rainfall Data

Rainfall data utilized in the modeling and analysis was obtained from the Cornell University online Extreme Precipitation in New York & New England website (http://precip.eas.cornell.edu/). A local IDF file was imported, and specific mass curves were generated, in HydroCAD to evaluate the pre- and post-development stormwater runoff characteristics. Rainfall data specific to the portion of Clinton County under consideration, for various 24-hour storm events, is presented in the following Table:

Table 3: Rainfall Data

Storm Event Return Period	24-Hour Rainfall (inches)
1-year	1.88
10-year	3.07
100-year	5.12

2.11 Pre-development Watershed Conditions

The pre-development project site is covered predominantly by woods and gravel roads. Analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The Pre-Development Watershed Delineation Map has been provided in Appendix A, as Figure A-5.

The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix D. A summary of the pre-development watershed runoff rates at each analysis point is presented in Table 7.

2.12 Post-development Watershed Conditions

The post-development project site is covered predominantly by meadow and woods. The analysis of post-development conditions considered existing drainage patterns, soil types, ground cover to remain, planned site development, site grading, and stormwater management facilities proposed as part of site improvements. The Post-Development Watershed Delineation Map has been provided in Appendix A, as Figure A-6.

The results of the computer modeling used to analyze the overall watershed under post-development conditions are presented in Appendix E. A summary of the post-development watershed runoff rates at each analysis point is presented in Table 7.

This project falls under Scenario 2 from the NYSDEC's Solar Memorandum, dated April 5, 2018, due to changes in hydrology from pre to post development. See Figures 1 and 2 below from the Maryland Department of the Environment's Solar Design Guidance, which has been incorporated by the NYSDEC as additional guidance. Spacing the panels following these guidelines allows for the panels to be considered pervious.

Refer to Appendix K for the NYSDEC's Solar Memorandum and Maryland Design Guidance for Solar Panel Installations.

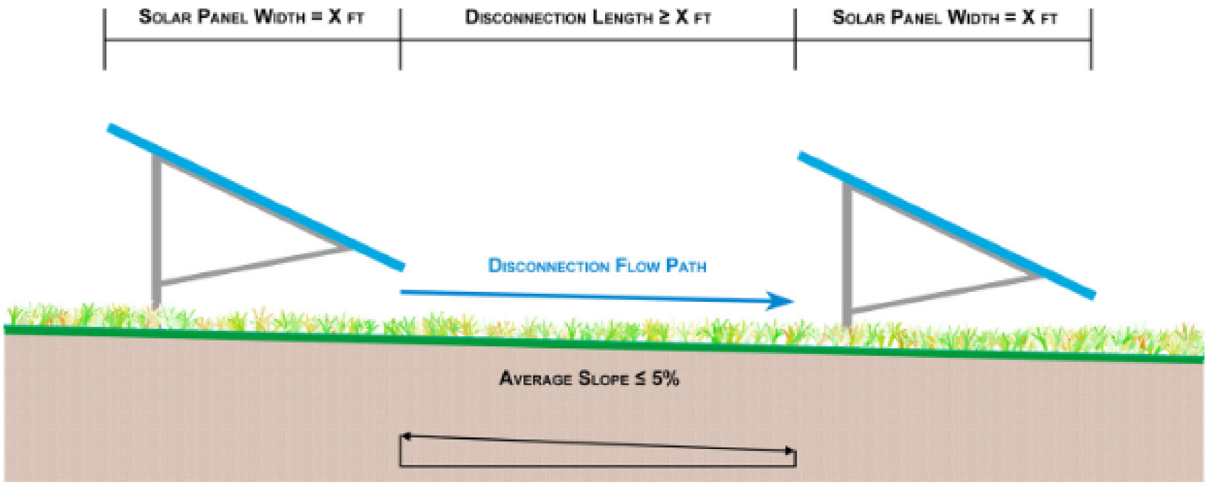


Figure 1. Typical Installation - Slope ≤ 5%

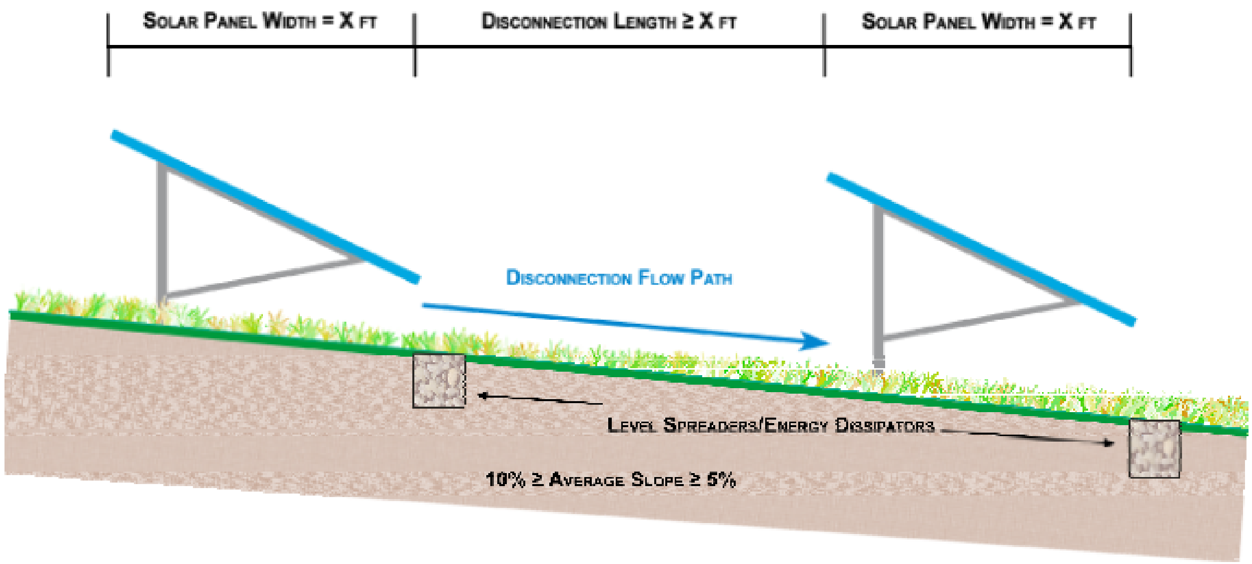


Figure 2. Typical Installation – Slope ≥ 5% but ≤ 10%

2.13 Description of Analysis Points

The study area consists of an overall watershed that encompasses approximately 101.5± acres, including the 64.8± acre project site and 36.0± acre area of disturbance. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at a chosen location in the study area. This location was defined as a Analysis Point (AP) in order to compare the effects resulting from stormwater management facilities proposed as part of the project. A description of the selected analysis point is provided below.

- Analysis Point 1: Off-site discharge of runoff that flows overland to the tributary to the Ausable River.

2.14 Consideration of Future Physical Risks Due to Climate Change

Part III.A.2 of GP-0-25-001 requires consideration of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance. Refer to Table E of Appendix C for a site evaluation related to climate change.

3.0 STORMWATER MANAGEMENT PLANNING

Chapter 3 of the Design Manual outlines a six-step planning process for site planning and selection of stormwater management practices that must be implemented for both new development and redevelopment projects. This process is intended to develop a design that maintains pre-construction hydrologic conditions through the application of environmentally sound development principles, as well as treatment and control of runoff discharges from the site. The following sections outline the step-by-step process and how it has been applied to this project.

The goals of this Stormwater Management Plan are to analyze the peak rate of runoff under pre- and post-development conditions, to maintain the pre-development rate of runoff in order to minimize impacts to adjacent or downstream properties, and to minimize the impact to the quality of runoff exiting the site.

The Design Manual provides both water quality and water quantity objectives to be met by projects requiring a “Full SWPPP”. These objectives will be met by applying stormwater control practices to limit peak runoff rates and improve the quality of runoff leaving the developed site.

3.1 STEP 1 – Site Planning

During the Site Planning process, the project site is evaluated for implementation of the green infrastructure planning measures identified in Table 3.1 of the Design Manual, in order to preserve natural resources and reduce impervious cover. Table A of Appendix C provides a description of each green infrastructure planning measure, along with a project specific evaluation.

3.2 STEP 2 – Calculate Water Quality Treatment Volume (WQv)

Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

3.2.1 NYSDEC Requirements for Water Quality Volume

The Design Manual requires that water quality treatment be provided for the initial flush of runoff from every storm. The NYSDEC refers to the amount of runoff to be treated as the “Water Quality Volume” (WQv). Section 4.2 of the Design Manual defines the Water Quality Volume as follows:

$$\text{WQv} = \frac{[(P)(R_V)(A)]}{12}$$

Where:	P	=	90% Rainfall Event Number
	R_v	=	0.05 + 0.009 (I)
	I	=	Impervious Cover (Percent)
	A	=	Contributing Area in Acres

This definition ensures that, all other things being equal, the Water Quality Volume will increase along with the impervious cover percentage.

3.2.2 Methodology for New Development

The Water Quality Volume equation has been applied to the drainage area tributary to the stormwater quality practice proposed for this project. The practice has been sized to accommodate the Water Quality Volume, as per the performance criteria presented in Chapter 5 and/or Chapter 6 of the Design Manual. Water quality volume calculations for each of the proposed practices are presented in Table B of Appendix C.

3.3 STEP 3 – Apply RR Techniques and Standard SMPs with RRv Capacity to Reduce Total WQv

Land use change and development in the watershed increases the volume of runoff. As such, reductions in the amount of runoff from new development, accomplished through the implementation of a stormwater management plan for the site, will play an important role in the success or failure of the watershed-wide stormwater management plan. Runoff reduction techniques can be applied to manage, reduce, and treat stormwater, while maintaining and restoring natural hydrology through infiltration, evapo-transpiration, and the capture and reuse of stormwater. Volume reduction techniques by themselves typically are not sufficient to provide adequate attenuation of stormwater runoff, but they can decrease the size of the peak runoff rate reduction facilities.

3.3.1 NYSDEC Requirements for New Development

The Design Manual states that runoff reduction shall be achieved through infiltration, groundwater recharge, reuse, recycle, and/or evaporation/evapotranspiration of 100-percent of the post-development water quality volume to replicate pre-development hydrology. Runoff control techniques provide treatment in a distributed manner before runoff reaches the collection system, by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow. This can be accomplished by applying a combination of Runoff Reduction Techniques, standard Stormwater Management Practices (SMPs) with RRv capacity, and good operation and maintenance.

3.3.2 Application of Standard Stormwater Management Practices (SMPs) with RRv Capacity

The following Table demonstrates a summary of the standard SMP(s) with RRv capacity that have been incorporated into the stormwater management plan for this project. The standard SMP(s) with RRv capacity have been designed in accordance with Chapter 6 of the Design Manual. Refer to the contract drawings for practice dimensions, material specifications, and installation details. Practice specific calculations are presented in Appendix C.

Table 4: Summary of Standard SMPs with RRv Capacity being Applied

Standard SMP with RRv Capacity	Design Variant	Pretreatment Volume Required (% of WQv)	Pretreatment Volume Provided (CF)	RRv Capacity	WQv Required (CF)	WQv Reduced /RRv Provided (CF)	WQv Treated[1] (CF)	Total WQv Provided[2] (CF)
BIO-1 (Bioretention without underdrain)	F-5	25	715	100%	2,860	2,860	0	2,860

Footnotes:
[1]*WQv Treated = WQV Required - RRv Provided*
[2]*Total WQv Provided = WQV Treated + RRv Provided*

3.3.3 RRv Performance Summary

A summary of the RRv provided is presented in the following table:

Table 5: RRv Summary

WQv Required (CF)	RRv Provided WQv Reduced (CF)	% RRv Provided/ WQv Reduced
2,860	2,860	100

As indicated in the above table, the RRv provided is greater than the RRv required for the project site. As such, the RRv criteria has been met and the designer can proceed to Step 6.

3.4 STEP 4 – Calculate the Minimum RRv Required

As previously discussed, the RRv provided is greater than the RRv required for this project. As such, the runoff reduction volume criteria has been met, and minimum RRv is not applicable.

3.5 STEP 5 – Apply Standard SMPs to Address Remaining Water Quality Volume

As previously discussed, 100% of the required WQv is being provided and reduced through RRv practice. As such, the water quality and runoff reduction volume criteria have been met and no other standard SMPs are required.

3.6 STEP 6 - Apply Volume and Peak Rate Control

This report presents the pre-development and post-development features and conditions associated with the rate of surface water runoff within the study area. For both cases, the drainage patterns, drainage structures, soil types, and ground cover types are considered in this study.

3.6.1 NYSDEC Requirements for New Development

Chapter 4 of the Design Manual requires that projects meet three separate stormwater quantity criteria:

1. The Channel Protection (CPv) requirement is designed to protect stream channels from erosion. This is accomplished by providing 24 hours of extended detention for the 1-year, 24-hour storm event. The Manual defines the CPv detention time as the center of mass detention time through each stormwater management practice.

2. The Overbank Flood Control (Qp) requirement is designed to prevent an increase in the frequency and magnitude of flow events that exceed the bank-full capacity of a channel, and therefore must spill over into the floodplain. This is accomplished by providing detention storage to ensure that, at each analysis point, the post-development 10-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

3. The Extreme Flood Control (Qf) requirement is designed to prevent the increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100-year floodplain, and to protect the physical integrity of stormwater management practices. This is accomplished by providing detention storage to ensure that, at each analysis point, the post-development 100-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

3.6.2 Methodology

In order to demonstrate that the NYSDEC detention requirements are being met, the Design Manual requires that a hydrologic and hydraulic analysis of the pre- and post-development conditions be performed using the Natural Resources Conservation Service Technical Release 20 (TR-20) and Technical Release 55 (TR-55) methodologies. HydroCAD, developed by HydroCAD Software Solutions LLC of Tamworth, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. HydroCAD uses the TR-20 algorithms and TR-55 methods to create and route runoff hydrographs.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors) combining hydrographs and routing flows though pipes, streams and ponds. HydroCAD can also calculate the center of mass detention time for various hydraulic features. Documentation for HydroCAD can be found on their website: http://www.hydrocad.net/.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.
2. Reach: Uniform streams, channels, or pipes that convey stormwater from one point to another.
3. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.

Subcatchments, reaches, and ponds are represented by hexagons, squares, and triangles, respectively, on the watershed routing diagrams provided with the computations included in Appendix D and Appendix E.

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous subcatchments. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

Proposed stormwater management practices were designed and evaluated in accordance with the Design Manual and local regulatory requirements. A local IDF file was imported, and specific mass curves were generated, in HydroCAD to evaluate the pre- and post-development stormwater runoff characteristics for various 24-hour storm events identified in the following Table.

Table 6: Design Events

Facility	24-hour Storm Event
Storm Sewer	10-year
Stormwater Management Practice(s)	1-year
	10-year
	100-year
Flood Conditions	100-year

3.6.3 Performance Summary

The CPv requirement does not apply as the reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems.

A comparison of the pre- and post-development watershed conditions was performed for all analysis points and storm events evaluated herein. For all analysis points and design storms, this comparison demonstrates that the peak rate of runoff will not be increased. Therefore, the project will not have a significant adverse impact on the adjacent or downstream properties or receiving water courses.

The results of the computer modeling used to analyze the pre- and post-development watersheds are presented in Appendix D and Appendix E, respectively. The following Table summarizes the results of this analysis.

Table 7: Summary of Pre- and Post-Development Peak Discharge Rates

Pre- vs. Post-Development Discharge Rate (cfs)						
Analysis Point (AP)	1-year 24-hour storm event		10-year 24-hour storm event		100-year 24-hour storm event	
	Pre	Post	Pre	Post	Pre	Post
1	0.00	0.00	0.00	0.00	0.88	0.55

4.0 CONSTRUCTION SEQUENCE

In order for construction to progress in a practical and efficient manner, soil disturbance in excess of five acres at any given time will be required. The General Permit allows for soil disturbance of greater than five acres upon written authorization from the NYSDEC. Therefore, once the site contractor is awarded the construction contract, a waiver will be requested to allow the disturbance of more than five acres at any one time. In accordance with Part I.E.6.b the written Request to Disturb Greater than Five Acres must include:

- The SPDES permit identification number (Permit ID); and
- Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and
- The phasing plan for the project and sequencing plans for all phases from the SWPPP in accordance with Part III.B.1.d.; and
- Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and
- Acknowledgement that the Owner/Operator will comply with the requirements in Part IV.C.2.b.; and
- Acknowledgement that the Owner/Operator will comply with the requirements in Part II.B.1.b.

The Owner/Operator must be in receipt of an Authorization Letter to Disturb Greater than Five Acres, which will include when the authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time from the NYSDEC. Should the request be denied, the contractor shall limit the area of disturbance to less than five acres of disturbance at any given time. The contractor shall prepare and submit to the Owner's/Operator's Engineer a sequencing plan that identifies the progression of construction through the site. This sequencing plan must be retained as part of the Site Log Book.

The "Erosion and Sediment Control Plan" in the accompanying drawings identifies the major construction activities that are the subject of this SWPPP. The order (or sequence) in which the major activities are expected to begin is presented on the accompanying drawings, though each activity will not necessarily be completed before the next begins. In addition, these activities could occur in a different order if necessary to maintain adequate erosion and sediment control. If this is the case, the contractor shall notify the Owner's/Operator's Engineer overseeing the implementation of the SWPPP.

The Contractor will be responsible for implementing the erosion and sediment control measures identified on the plans. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper function remains with the Contractor.

Refer to the accompanying plans for details and specifications regarding the construction sequencing schedule.

5.0 CONSTRUCTION-PHASE POLLUTION CONTROL

The SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control measures that have been incorporated into the design of this project. These measures will be implemented during construction, to minimize soil erosion and control sediment transport off-site, and after construction, to control the quality and quantity of stormwater runoff from the developed site.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, have been developed in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-0-25-001 (effective January 29, 2025 through January 28, 2030)
- New York State Standards and Specifications for Erosion and Sediment Control, NYSDEC (November 2016)

The SWPPP and accompanying plans outline the construction scheduling for implementing the erosion and sediment control measures. These documents include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

Temporary and permanent erosion and sediment control measures that shall be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction site discharges.
2. Preservation of existing vegetation to the greatest extent practical. Following the completion of construction activities in any portion of the site, permanent vegetation shall be established on all exposed soils.
3. Site preparation activities to minimize the area and duration of soil disruption.
4. Establishment of permanent traffic corridors to ensure that “routes of convenience” are avoided.

5.1 Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures described in the following sections are included as part of the construction documents.

5.1.1 Stabilized Construction Access

Prior to construction, stabilized construction access(es) will be installed, per accompanying plans, to reduce the tracking of sediment onto public roadways.

Construction traffic must enter and exit the site at the stabilized construction access(es). The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

The access(es) shall be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, additional aggregate will be placed atop the filter fabric to assure the minimum thickness is maintained. All sediment and/or soil spilled, dropped, or washed onto public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

5.1.2 Dust Control

Water trucks shall be used as needed during construction to reduce dust generated on-site. Dust control must be provided by the Contractor(s) to a degree that is acceptable to the Owner, and in compliance with the applicable local and state dust control requirements.

5.1.3 Temporary Soil Stockpile

Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

5.1.4 Silt Fencing

Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) will be established downgradient of all disturbed areas. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands.

Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To facilitate effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by the Contractor(s). Maintenance of the fence will be performed as needed.

5.1.5 Temporary Seeding

For areas undergoing clearing, grading, and disturbance as part of construction activities, where work has temporarily ceased, temporary soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has temporarily ceased.

5.1.1 Manufactured Insert Inlet Protection

Install insert inlet protection beneath the grate of all catch basins, to prevent sediment from entering the catch basins and storm sewer system. Remove sediment accumulation and repair or replace insert as necessary to ensure proper function.

5.1.2 Dewatering Operations

Dewatering will be used to intercept sediment-laden stormwater or pumped groundwater and allow it to settle out of the pumped discharge prior to being discharged from the site. Water from dewatering operations shall be treated to eliminate the discharge of sediment and other pollutants. Water resulting from dewatering operations shall be directed to temporary sediment traps or dewatering devices. Temporary sediment traps and dewatering bags will be provided, installed, and maintained at downgradient locations to control sediment deposits to downstream surfaces.

5.2 Permanent Erosion and Sediment Control Measures

The permanent erosion and sediment control measures described in the following sections are included as part of the construction documents.

5.2.1 *Establishment of Permanent Vegetation*

Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

Permanent soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has permanently ceased.

Final site stabilization is achieved when all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

5.2.2 *Rock Outlet Protection*

Rock outlet protection shall be installed at the locations as indicated and detailed on the accompanying plans. The installation of rock outlet protection will reduce the velocity and energy of water, such that the flow will not erode downstream surfaces.

5.3 Other Pollutant Controls

Part I.C.1 of GP-0-25-001 prohibits discharges from construction material wastewater, pollutants used in vehicle and equipment operation and maintenance, vehicle and equipment washing and toxic or hazardous substances.

The following table identifies materials and/or chemicals commonly used and/or stored on construction sites and should be addressed in the site-specific spill prevention and response plan:

Table 8: Common Construction Pollutants

Material/Chemical	Physical Description	Stormwater Pollutants	Location
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic	Herbicides used for noxious weed control
Fertilizer	Liquid or solid grains	Nitrogen, phosphorous	Newly seeded areas
Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	No equipment cleaning allowed in project limits
Asphalt	Black solid	Oil, petroleum distillates	Streets and roofing
Concrete	White solid/grey liquid	Limestone, sand, pH, chromium	Curb and gutter, building construction
Curing compounds	Creamy white liquid	Naphtha	Curb and gutter
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil	Leaks or broken hoses from equipment
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment / staging area
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes	Secondary containment / staging area
Kerosene	Pale yellow liquid petroleum hydrocarbon	Coal oil, petroleum distillates	Secondary containment / staging area
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Leaks or broken hoses from equipment
Sanitary toilets	Various colored liquid	Bacteria, parasites, and viruses	Staging area
Construction materials			
Granular fill	Various colored solids	Sediment	Stockpile / fill areas
Subbase course	Gray/brown solid	Sediment, dust	Stockpile
Topsoil	Brown solid	Sediment	Stockpile
Mulch	Various colored solid	Sediment, debris	Staging area
Seed	Brown/yellow solid	Nutrients, debris	Staging area
HDPE Storm Pipe	Black solid		Staging area
SDR-35, SDR-21 PVC Pipe	Various colored solid		Staging area
Metals Frames and Grates	Gray solid		Staging area
Joint Sealant	Light gray viscous solid	Polyurethane	Staging area

*(Area where material/chemical is used on-site)

5.4 Construction Housekeeping Practices

During the construction phase, the Contractor(s) will implement the following measures:

5.4.1 Sediment Sweeping/Vacuuming

Any sediment that is tracked by construction vehicles or erosion onto adjacent public or private impervious surfaces must be swept or vacuumed, utilizing self-propelled and/or walk-behind equipment, and removed on a daily basis. Kick brooms and sweeper attachments are not an acceptable means of sweeping. Sweeping or vacuuming should not take place while tracked sediment is wet. If tracked sediment is compacted, the sediment must be scraped loose prior to sweeping or vacuuming.

5.4.2 Material Stockpiles

Material resulting from clearing and grubbing operations that will be stockpiled on-site, must be adequately protected with downgradient erosion and sediment controls.

5.4.3 Equipment Cleaning and Maintenance

The Contractor(s) will designate areas for equipment cleaning, maintenance, and repair. The Contractor(s) and subcontractor(s) will utilize those areas. The areas will be protected by a temporary perimeter berm.

5.4.4 Detergents

The use of detergents for large-scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

5.4.5 Spill Prevention and Response

A Spill Prevention and Response Plan shall be developed, for the pollutants identified in Section 5.3, for the site by the Contractor(s) that addresses the following:

1. Reducing chance of spills
2. Stopping the source of spills
3. Containing and cleaning up spills
4. Disposing of materials contaminated by spills
5. Training personnel responsible for spill prevention/response
6. Material handling procedures
7. Material storage requirements

The plan shall detail the steps required in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Safety Data Sheets (SDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

5.4.6 Concrete Washout Areas

A temporary concrete washout area shall be provided for every project where concrete will be poured or otherwise formed on-site and shall consist of an excavated or above-ground lined construction pit where concrete trucks or equipment can be washed out after their loads have been discharged. Waste generated from concrete wash water that shall not be allowed to flow into drainage ways, inlets, receiving waters, highway right-of-way, or any location other than the designated concrete washout area(s). Proper signage shall be placed adjacent to the facility to designate the “Concrete Washout Area”. Locate the facility a minimum of 100-feet from drainage swales, storm drain inlets, wetlands, streams, and other surface waters. Prevent surface water from entering the washout area.

The hardened residue from the concrete wash areas will be disposed of in the same manner as other non-hazardous construction waste materials. Maintenance of the washout area shall include removal of hardened material when 75% of the storage capacity is filled, and a minimum freeboard of 12 inches shall be maintained. The Contractor will be responsible for seeing that these procedures are followed. The project may require the use of multiple concrete washout areas based on the frequency of concrete pours.

5.4.7 Material Storage

Construction materials shall be stored in a dedicated staging area. The staging area shall be located in an area that prevents negative impacts of construction materials on stormwater quality.

Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed of at an approved solid waste or chemical disposal facility.

6.0 INSPECTIONS, MAINTENANCE, AND REPORTING

6.1 Inspection and Maintenance Requirements

6.1.1 Pre-Construction Inspection and Certification

Prior to the commencement of construction, the Qualified Inspector/Qualified Professional shall conduct an assessment of the site and certify that the appropriate erosion and sediment control measures have been adequately installed and implemented. The Contractor shall contact the Qualified Inspector/Qualified Professional once the erosion and sediment control measures have been installed.

6.1.2 Construction Phase Inspections and Maintenance

A Qualified Inspector/Qualified Professional, as defined in Appendix A of the General Permit GP-0-25-001, shall conduct regular site inspections between the time this SWPPP is implemented and final site stabilization. Site inspections shall occur at an interval of at least once every seven (7) calendar days.

The purpose of site inspections is to assess performance of pollutant controls. Based on these inspections, the Qualified Inspector/Qualified Professional will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via stormwater runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction access will be constructed where vehicles enter and exit. This access will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.
2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.
3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.
4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.
5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Within one (1) business day of the completion of an inspection, the *Qualified Inspector/Qualified Professional* shall notify the Owner/Operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one (1) business day of the notification and shall complete the corrective actions within five (5) business days if the corrective action does not require engineering design. If the corrective action requires engineering design, then the engineering design process must be initiated within five (5) business days and the corrective action must be completed within a reasonable timeframe but no later than within 60 calendar days.

In addition to the inspections performed by the *Qualified Inspector/Qualified Professional*, the Contractor shall perform routine inspections that include a visual check of all erosion and sediment control measures. All inspections and maintenance shall be performed in accordance with the inspection and maintenance schedule provided on the accompanying plans. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

It is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the accompanying plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers, sediment traps, etc.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

6.1.3 *Temporary Suspension of Construction Activities*

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 frequency of Qualified Inspector/Qualified Professional inspections can be reduced to once every 30 calendar days. Prior to reducing the frequency of inspections, the Owner/Operator must notify the DOW Water (SPDES) Program contact at the Regional Office by hard copy or email and again by hard or email prior to re-commencing construction.

6.1.4 *Partial Project Completion*

For construction sites where soil disturbance activities have been shut down with partial project completion, 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 inspections by the Qualified Inspector/Qualified Professional can stop. Prior to the shutdown, the Owner/Operator shall notify the DOW Water (SPDES) Program contact at the Regional Office in writing and again in writing prior to resuming construction activity.

If soil disturbance activities have not resumed within two years from the date of shutdown, an electronic Notice of Termination (eNOT) shall be properly completed and submitted to the NYSDEC.

6.1.5 *Post-Construction Inspections and Maintenance*

Inspections and maintenance of final stabilization measures and post-construction stormwater management practices shall be performed in accordance with Appendix G, once all disturbed areas are stabilized and all stormwater management systems are in place and operable.

6.2 Reporting Requirements

6.2.1 *Inspection Reports*

Pursuant to Part IV.C of GP-0-25-001, inspection reports shall be prepared for the duration of construction, as outlined herein, and shall be signed by the *Qualified Inspector* or *Qualified Professional*. A sample inspection form is provided in Appendix F.

At a minimum, each inspection report shall record the following information:

1. Permit Identification Number
2. Date and time of inspection.
3. Name and title of person(s) performing inspection.
4. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection.
5. 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.
6. A description of the condition of all natural surface waters of the State 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 waters of the State.

7. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance.
8. 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.
9. 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.
10. Estimates, in square feet or acres, of the following areas:
    a. Total area with active soil disturbance (not requiring either temporary stabilization or final stabilization).
    b. Total area with inactive soil disturbance (requiring either temporary stabilization or final stabilization).
    c. Total area that has achieved temporary stabilization.
    d. Total area that has achieved final stabilization.
11. Indication of the 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.
12. 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).
13. Identification and status of all corrective actions that were required by previous inspection.
14. Color photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *Qualified Inspector/Qualified Professional* 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/Qualified Professional* 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/Qualified Professional* shall attach the 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.

6.2.2 Site Log Book

Pursuant to Part I.E.3 of GP-0-25-001, the Owner/Operator shall retain a copy of all documentation necessary to demonstrate eligibility with the General Permit, the General Permit, the SWPPP, the signed SWPPP Preparer Certification Form, the signed Owner/Operator Certification Form, the eNOI, and the Letter of Acknowledgement at the construction site from commencement of construction activity until the date that all areas of disturbance have achieved final stabilization and the electronic Notice of Termination has been submitted to the NYSDEC.

Pursuant to Part I.E.4 of GP-0-25-001, the Owner/Operator shall maintain a copy of the signed Contractor/Subcontractor Certification Forms, all inspection reports, and any Letter of Acknowledgements received in the event that the eNOI needs to be updated from the date as of which the documents become final until the date that all areas of disturbance have achieved final stabilization and the electronic Notice of Termination has been submitted to the NYSDEC.

All required documentation shall be maintained within the project Site Log Book. The Site Log Book shall be maintained on-site in a secure location (i.e. job trailer, on-site construction office, or mailbox with lock) and must be accessible during normal business hours to an individual performing a compliance inspection. The Site Log Book must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the owner or operator must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6.2.3 Post Construction Records and Archiving

Following construction, the Owner/Operator shall retain copies of the SWPPP, the complete construction Site Log Book, and a copy of the Letter of Termination received, for a period of at least five years from the date that NYSDEC accepts a complete eNOT. This period may be extended by the NYSDEC, at its sole discretion, at any time upon written notification.

Records shall be maintained of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix G.

7.0 SWPPP IMPLEMENTATION RESPONSIBILITIES

A summary of the responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit GP-0-25-001 conditions is outlined in the subsequent sections. For a complete listing of the definitions, responsibilities, and obligations, refer to the SPDES General Permit GP-0-25-001 presented in Appendix J.

7.1 Owner’s/Operator's Responsibilities

1. Ensure that control measures are selected, designed, installed, implemented and maintained to minimize the discharge of pollutants and prevent a violation of the water quality standards, meeting the non-numeric effluent limitations in Part II.B of the SPDES General Permit and in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

2. Ensure that practices are selected, designed, installed, and maintained to meet the performance criteria in the Design Manual. Practices must be designed to meet the applicable sizing criteria in Part II.C.2 of GP-0-25-001.

3. Retain the services of a “Qualified Inspector” or “Qualified Professional” as defined in Appendix A of the SPDES General Permit, to provide the services outlined in Section 7.4 “Qualified Inspector’s/Qualified Professional’s Responsibilities.”

4. Retain the services of a “Qualified Professional,” as defined in Appendix A of the SPDES General Permit, to provide the services outlined in Section 7.2 “Owner’s/Operator’s Engineers Responsibilities.”

5. Have an authorized corporate officer sign the Owner/Operator Certification Form to accompany the eNOI. A copy of the completed NOI is included in Appendix B.

6. Submit the electronic version of the NOI (eNOI) using the NYSDEC’s website (http://www.dec.ny.gov/chemical/43133.html).

7. Pay the required initial and annual fees upon receipt of invoices from NYSDEC. These invoices are generally issued in the fall of each year. The initial fee is calculated as $110.00 per acre disturbed plus $675.00 per acre of net increase in impervious cover, and the annual fee is $110.00.

8. Prior to the commencement of construction activity, identify the contractor(s) and subcontractor(s) that will be responsible for implementing the erosion and sediment control measures and stormwater management practices described in this SWPPP. Have each of these contractors and subcontractors identify at least one "Trained Contractor", as defined in Appendix A of the SPDES General Permit that will be responsible for the implementation of the SWPPP. Ensure that the Contractor has at least one "Trained Contractor" on site on a daily basis when soil disturbance activities are being performed.

9. Schedule a pre-construction meeting which shall include the Town of AuSable representative, Owner's/Operator's Engineer, Qualified Inspector, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

10. Retain the services of an independent certified materials testing and inspection firm operating under the direction of a licensed Professional Engineer to perform regular tests, inspections, and certifications of the construction materials used in the construction of all post-construction stormwater management practices.

11. Retain the services of a NYS licensed land surveyor to perform an as-built topographic survey of the completed post-construction stormwater management facilities.

12. Require the Contractor to fully implement the SWPPP prepared for the site by the Owner/Operator's Engineer to 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 electronic Notice of Termination (eNOT) has been submitted to the NYSDEC.

13. Forward a copy of the Letter of Acknowledgement received from the regulatory agency to the Owner's/Operator's Engineer for project records, and to the Contractor for display at the construction site.

14. Maintain a copy of the SWPPP and Site Log Book at the construction site, until all disturbed areas have achieved final stabilization and the eNOT has been submitted to the NYSDEC. Place documents in a secure location that must be accessible during normal business hours to an individual performing a compliance inspection.

15. Prior to submitting an electronic Notice of Termination, ensure for post-construction stormwater management practice(s) that are privately owned, the Owner/Operator has a deed restriction in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

16. Submit an electronic Notice of Termination (eNOT) form (see Appendix B) to NYSDEC within 48 hours of receipt of the Owner's/Operator's Engineer's certification of final site stabilization including the Final Stabilization and Post-Construction Stormwater Management Practice(s) certifications completed and signed by the qualified inspector.

17. Request and receive all SWPPP records from the Owner's/Operator's Engineer and archive those records for a minimum of five (5) years after the eNOT is filed.

18. Implement the Post-Construction Inspections and Maintenance procedures outlined in Appendix G.

19. The eNOI, SWPPP, Letter of Acknowledgement (LOA), updated LOAs (when applicable), and inspection reports required by GP-0-25-001 are public documents that the Owner/Operator must make available for review and copying by any person within five (5) business days of the Owner/Operator receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

20. The Owner/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/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 project 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; and
    c) To address issues or deficiencies identified during an inspection by the "Qualified Inspector," NYSDEC, or other Regulatory Authority.
    d) To document the final construction conditions.

21. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the following process applies:
    a) The new Owner/Operator must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2 of GP-0-25-001 and submit an eNOI to NYSDEC.
        i. Permit coverage for the new Owner/Operator will be effective upon receipt of the Letter of Acknowledgement.
        ii. Upon receipt of the Letter of Acknowledgement, the new Owner/Operator must provide their Permit ID to the original Owner/Operator.
    b) If the original Owner/Operator will no longer be the Owner/Operator of the construction activity identified in the original Owner's/Operator's eNOI, the original Owner/Operator, upon receipt of the new Owner's/Operator's Permit ID, must submit to NYSDEC a completed eNOT in accordance that includes the name and Permit ID of the new Owner/Operator.
    c) If the original Owner/Operator maintains ownership of a portion of the construction activity, the original Owner/Operator must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:
        i. The revised area of disturbance and/or impervious area(s).
        ii. The revised SMP information, if applicable.
        iii. A narrative description of what has changed.
        iv. The new Owner's/Operator's Permit ID for the portion of the project removed from the eNOI.

7.2 Owner’s/Operator’s Engineer’s Responsibilities

1. Prepare the SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.

2. Prepare the electronic Notice of Intent (eNOI) (see Appendix B) and sign the “SWPPP Preparer Certification Form.” Forward the Owner/Operator Certification Form to the Owner/Operator for signature.

3. Provide copies of the SWPPP to the Town of AuSable once all signatures and attachments are complete.

4. Enter Contractor’s information in Section 7.5 “SWPPP Participants” once a Contractor is selected by the Owner/Operator.

5. Participate in a pre-construction meeting which shall include the Town of AuSable representative, Owner/Operator, Qualified Inspector, Contractor, and all subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

6. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

7.3 Contractor's Responsibilities

1. Sign the SWPPP Contractor's Certification Form contained within Appendix B and forward to the Owner’s/Operator’s Engineer for inclusion in the Site Log Book.

2. Identify at least one Trained Contractor that will be responsible for implementation of this SWPPP. Ensure that at least one Trained Contractor is on site on a daily basis when soil disturbance activities are being performed. The Trained Contractor shall 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 conditions at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one (1) business day and shall complete the corrective actions within five (5) business days if the corrective action does not require engineering design. If the corrective action requires engineering design, then the engineering design process must be initiated within five (5) business days and the corrective action must be completed within a reasonable timeframe but no later than within 60 calendar days.

3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with construction activities that will result in soil disturbance to identify at least one Trained Contractor that will be on site on a daily basis when soil disturbance activities are being performed; and to sign a copy of the Subcontractor’s Certification Form contained within Appendix B, then forward to the Owner’s/Operator’s Engineer for inclusion into the Site Log Book. This information must be retained as part of the Site Log Book.

4. Maintain a Spill Prevention and Response Plan in accordance with requirements outlined in Section 5 of this SWPPP. This plan shall be provided to the Owner’s/Operator’s Engineer for inclusion in the Site Log Book, prior to mobilization on-site.

5. Participate in a pre-construction meeting which shall include the Town of AuSable representative, Owner/Operator, Owner's/Operator's Engineer, Qualified Inspector, and all subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

6. If Contractor plans on utilizing adjacent properties for material, waste, borrow, or equipment storage areas, or if Contractor plans to engage in industrial activity other than construction (such as operating asphalt and/or concrete plants) at the site, Contractor shall submit appropriate documentation to the Owner's/Operator's Engineer so that the SWPPP can be modified accordingly.

7. Implement site stabilization, erosion and sediment control measures, and other requirements of the SWPPP.

8. In accordance with the requirements in the most current version of the NYS Standards and Specifications for Erosion and Sediment Control, conduct inspections of erosion and sediment control measures installed at the site to ensure that they remain in effective operating condition at all times. Prepare and retain written documentation of inspections as well as of all repairs/maintenance activities performed. This information must be retained as part of the Site Log Book.

9. Begin implementing corrective actions within one (1) business day of receipt of notification by the Qualified Inspector/Qualified Professional that deficiencies exist with the erosion and sediment control measures employed at the site. Corrective actions shall be completed within five (5) business days if the corrective action does not require engineering design. If the corrective action requires engineering design, then the engineering design process must be initiated within five (5) business days and the corrective action must be completed within a reasonable timeframe but no later than within 60 calendar days.

10. Maintain a record of the date(s) and location(s) that soil restoration is performed in accordance with the accompanying plans and NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," dated April 2008. A copy of this is publication is provided in Appendix H. The record that is to be maintained shall be a copy of the overall site grading plan delineating the area(s) and date(s) that the soil was restored.

11. Upon completion of all construction at the site, the contractor responsible for overall SWPPP Compliance shall sign the certification on their Contractor Certification Form indicating that: a.) all temporary erosion and sediment control measures have been removed from the site, b.) the on-site soils disturbed by construction activity have been restored in accordance with the SWPPP and the NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," and c.) all permanent stormwater management practices required by the SWPPP have been installed in accordance with the contract documents.

7.4 Qualified Inspector's/Qualified Professional's Responsibilities

1. Participate in a pre-construction meeting with the Town of AuSable representative, Owner/Operator, Owner/Operator's Engineer, Contractor, and their subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

2. Conduct an initial assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within this SWPPP have been adequately installed and implemented to ensure overall preparedness of the site.

3. Provide on-site inspections to determine compliance with the SWPPP. Site inspections shall occur at an interval of at least once every seven calendar days. A written inspection report shall be provided to the Owner/Operator and general contractor within one business day of the completion of the inspection, with any deficiencies identified. A sample inspection form is provided in Appendix F.

4. Prepare an inspection report subsequent to each and every inspection that shall include/address the items listed in Part IV.C.4 of GP-0-25-001. Sign all inspection reports and maintain on site with the SWPPP.

5. Notify the owner/operator and appropriate contractor or subcontractor of any corrective actions that need to be taken.

6. Prepare a construction Site Log Book to be used as a record of all inspection reports generated throughout the duration of construction. Ensure that the construction Site Log Book is maintained and kept up-to-date throughout the duration of construction.

7. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports, soil restoration, inspections, and maintenance logs.

8. Based on the as-built survey and material testing certifications performed by others, the Qualified Professional shall perform evaluations of the completed stormwater management practices to determine whether they were constructed in accordance with this SWPPP.

9. The Qualified Professional shall conduct a final site assessment and prepare a certification letter to the Owner/Operator indicating that, upon review of the material testing and inspection reports prepared by the firm retained by the Owner/Operator, review of the completed topographic survey, and evaluation of the completed stormwater management facilities, the stormwater management facilities have been constructed substantially in accordance with the contract documents and should function as designed.

10. Prepare the electronic Notice of Termination (eNOT). The Qualified Inspector shall sign the eNOT Final Stabilization and Post-Construction Stormwater Management Practice(s) certifications, and forward the eNOT Owner/Operator Certification Form to the Owner/Operator for signature.

11. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction Site Log Book, and written records required by the General Permit to the Owner/Operator for archiving.

7.5 SWPPP Participants

1. Owner's/Operator's Engineer [2]:
   Walter Kubow, PE
   LaBella Associates, DPC
   4 British American Boulevard
   Latham, NY 12110
   Phone: (518) 273-0055

2. Owner/Operator [3]:
   Janet Ward, Senior Project Development Manager
   Catalyze Ausable Grove Street Microgrid, LLC
   800 Gessner Road, Suite 700
   Houston, TX 77024
   Phone: (303) 991-5883 Ext. 462

3. Contractor[4,6]:
   Name and Title: ______________________________
   Company Name: ______________________________
   Mailing Address: ______________________________
   ____
   Phone: ______________________________
   Fax: ______________________________

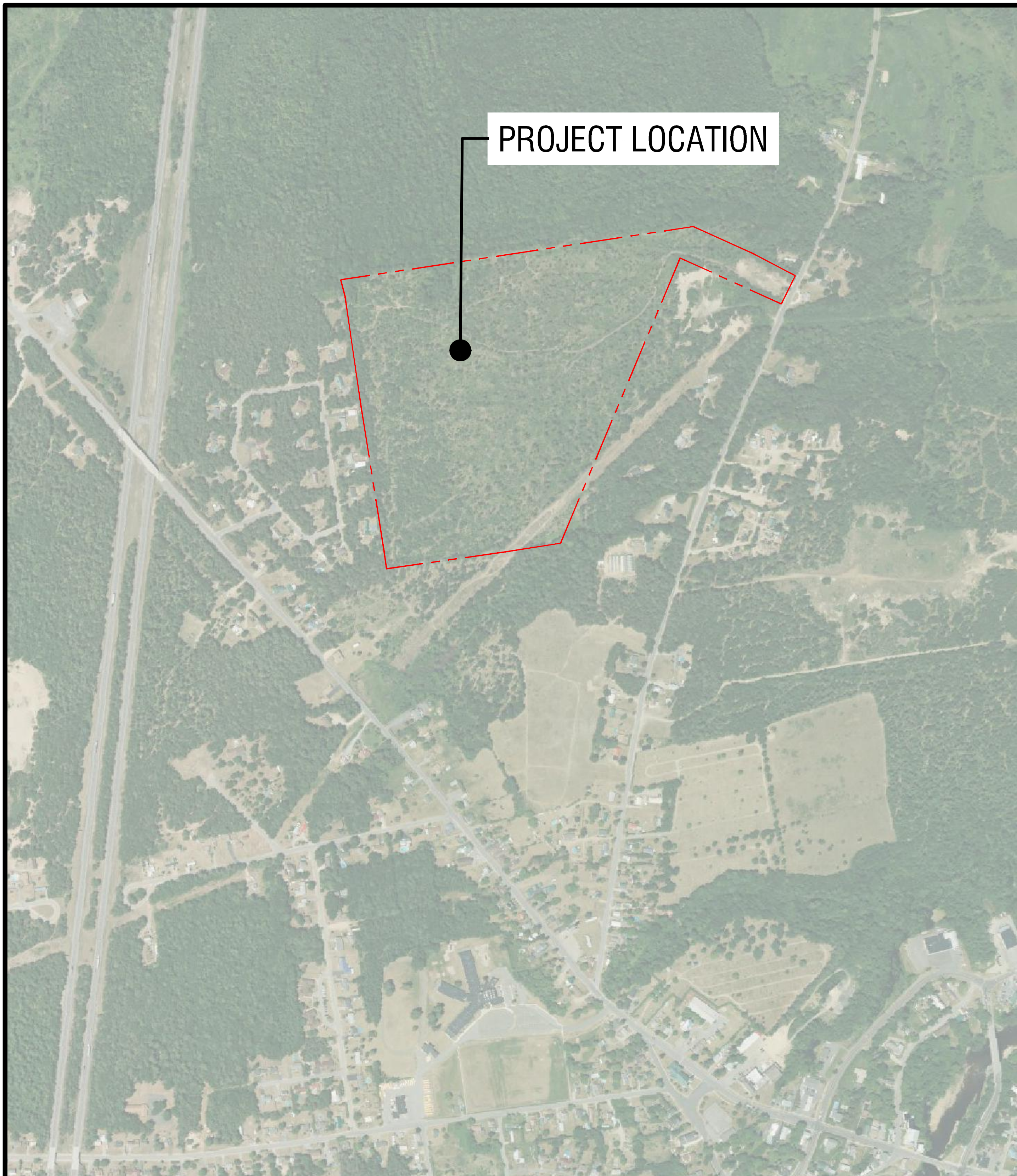
---

[2] *Refer to Appendix B for the SWPPP Preparer Certification Form.*
[3] *Refer to Appendix B for the Owner/Operator Certification Form.*
[5] *Refer to Appendix B for Contractor and Subcontractor Certification Form.*
[6] *Contractor's information to be entered once the Contractor has been selected.*

APPENDIX A: FIGURES

LaBella
Powered by partnership.

This Page Intentionally Left Blank



LaBella
Powered by partnership.

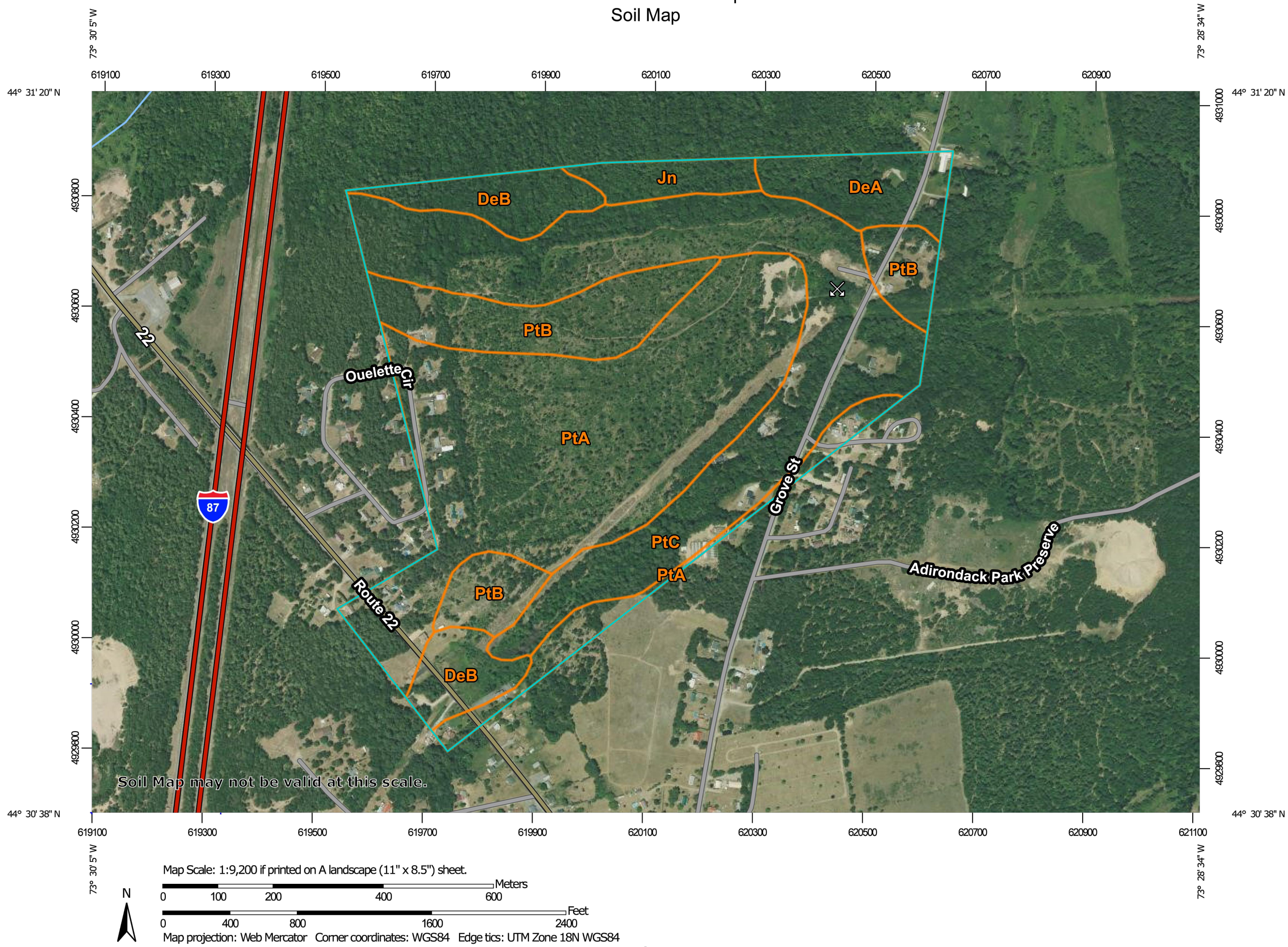
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

ISSUED FOR: SWPPP			
DRAWING NAME: **SITE LOCATION MAP**	DRAWN BY: CAR	DATE: 07/12/2024	PROJECT NO.: 2231157
PROJECT NAME: **KEESEVILLE SOLAR** 217 GROVE STREET, KEESEVILLE, NY 12944	DRAWING NUMBER: **A-1**		

7/12/2024 1:59:56 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\99_2231157_FIG1-4_SWPPP-FIG.dwg

Custom Soil Resource Report
Soil Map



9

7/12/2024 12:59:44 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\99_2231157_FIG1-4_SWPPP-FIG.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

ISSUED FOR: SWPPP

DRAWING NAME: **SOILS MAP**

DRAWN BY: CAR
DATE: 07/12/2024
PROJECT NO.: 2231157

PROJECT NAME: **KEESEVILLE SOLAR**
217 GROVE STREET, KEESEVILLE, NY 12944

DRAWING NUMBER: **A-2A**

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clinton County, New York
Survey Area Data: Version 24, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

LaBella Powered by partnership.
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com
C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

ISSUED FOR:	SWPPP
DRAWING NAME:	SOILS LEGEND
DRAWN BY:	CAR
DATE:	07/12/2024
PROJECT NO.:	2231157
PROJECT NAME:	KEESEVILLE SOLAR, 217 GROVE STREET, KEESEVILLE, NY 12944
DRAWING NUMBER:	A-2B

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DeA	Deerfield fine sand, 0 to 3 percent slopes	9.7	5.2%
DeB	Deerfield fine sand, 3 to 8 percent slopes	13.5	7.3%
Jn	Junius fine sand	5.2	2.8%
PtA	Plainfield loamy sand, 0 to 3 percent slopes	74.6	40.1%
PtB	Plainfield loamy sand, 3 to 8 percent slopes	25.2	13.6%
PtC	Plainfield loamy sand, 8 to 15 percent slopes	57.7	31.0%
Totals for Area of Interest		**185.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

LaBella
Powered by partnership.
4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com
C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

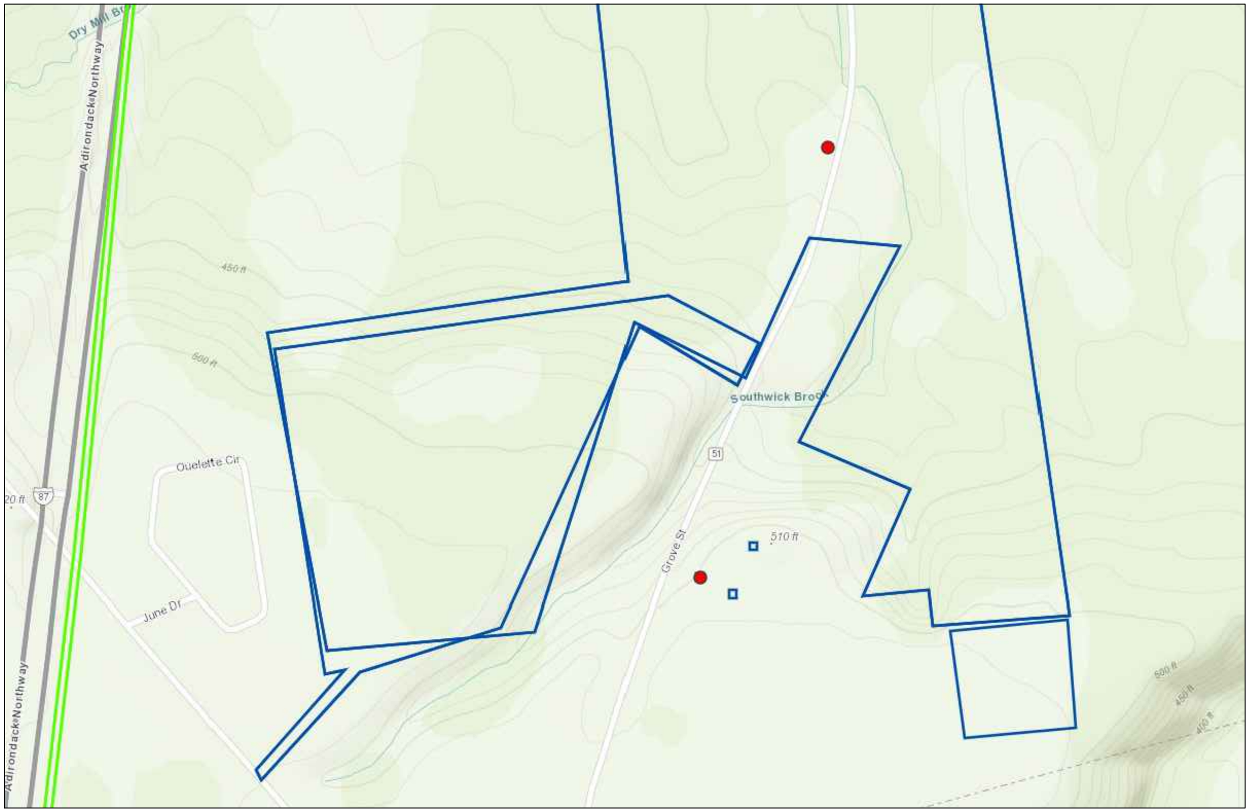
ISSUED FOR: SWPPP

DRAWING NAME: **SOILS TABLE**

DRAWN BY: CAR | DATE: 07/12/2024 | PROJECT NO.: 2231157

PROJECT NAME: **KEESEVILLE SOLAR**
217 GROVE STREET, KEESEVILLE, NY 12944

DRAWING NUMBER: **A-2C**



Consultation Projects (View)

Archeologically Sensitive Areas

Survey Building Areas (View)

LPC Historic Districts

LPC Landmarks

Cemeteries

USN Building Points (View)

- Eligible
- Listed
- Not Eligible
- Not Eligible - Demolished
- Undetermined

Survey Archaeology Areas (View)

National Register Building Sites (View)

USN Building Districts (View)

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

ISSUED FOR:	SWPPP
DRAWING NAME:	HISTORIC PLACES SCREENING MAP
DRAWN BY:	CAR
DATE:	07/12/2024
PROJECT NO.:	2231157
PROJECT NAME:	KEESEVILLE SOLAR 217 GROVE STREET, KEESEVILLE, NY 12944
DRAWING NUMBER:	A-3

7/12/2024 1:00:50 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\99_2231157_FIG1-4_SWPPP-FIG.dwg

Environmental Resource Mapper

July 11, 2024

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

- ★ Unique Geological Features
- Waterbody Classifications for Rivers/Streams
- Waterbody Classifications for Lakes

Waterbody Inventory/Priority Waterbodies List

- Lakes and Reservoirs
- Estuaries
- Rivers and Streams
- Shorelines

- State Regulated Freshwater Wetlands (Outside of the Adirondack Park)
- State Regulated Wetland Checkzone
- Significant Natural Communities
- Natural Communities Near This Location
- Rare Plants or Animals

National Wetlands Inventory

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

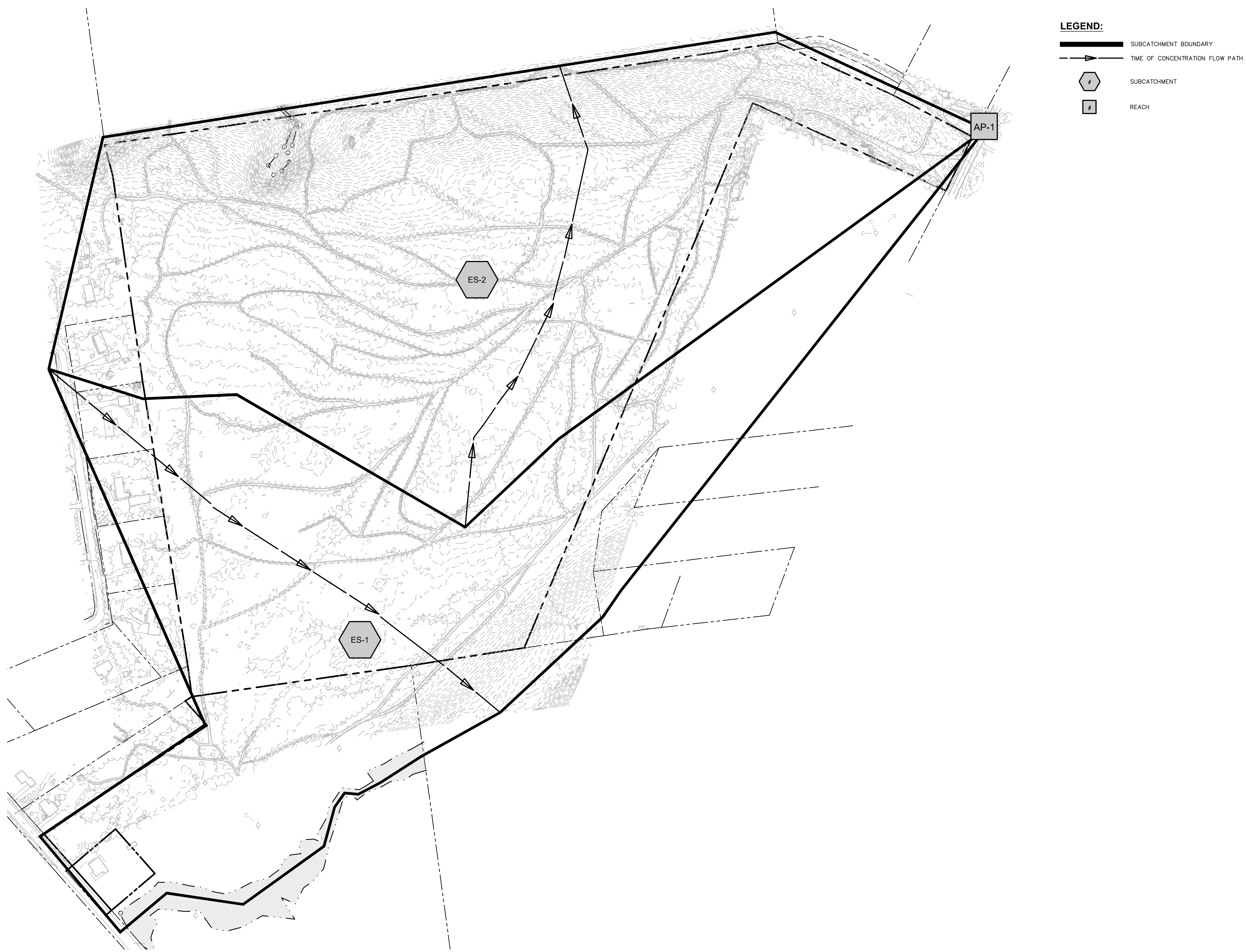
LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

ISSUED FOR: SWPPP		
DRAWING NAME: **ENVIRONMENTAL RESOURCE MAP**		
DRAWN BY: CAR	DATE: 07/12/2024	PROJECT NO.: 2231157
PROJECT NAME: **KEESEVILLE SOLAR** 217 GROVE STREET, KEESEVILLE, NY 12944	DRAWING NUMBER: **A-4**	

7/12/2024 1:01:05 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Civil\99_2231157_FIG1-4_SWPPP-FIG.dwg



1
FIG 5
PRE-DEVELOPMENT WATERSHED DELINEATION MAP
SCALE: 1" = 150'

N

11/8/2024 1:54:55 PM
\\cash.lab\P\PAM\Catalyze\2231157 - Keeseville Solar\06_Drawings\Dwl\99_FIGS-6_2231157_SWPPP_PRE-POST.dwg

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235
labellapc.com

NOT FOR CONSTRUCTION

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

KEESEVILLE SOLAR
217 GROVE STREET,
KEESEVILLE, NY 12944

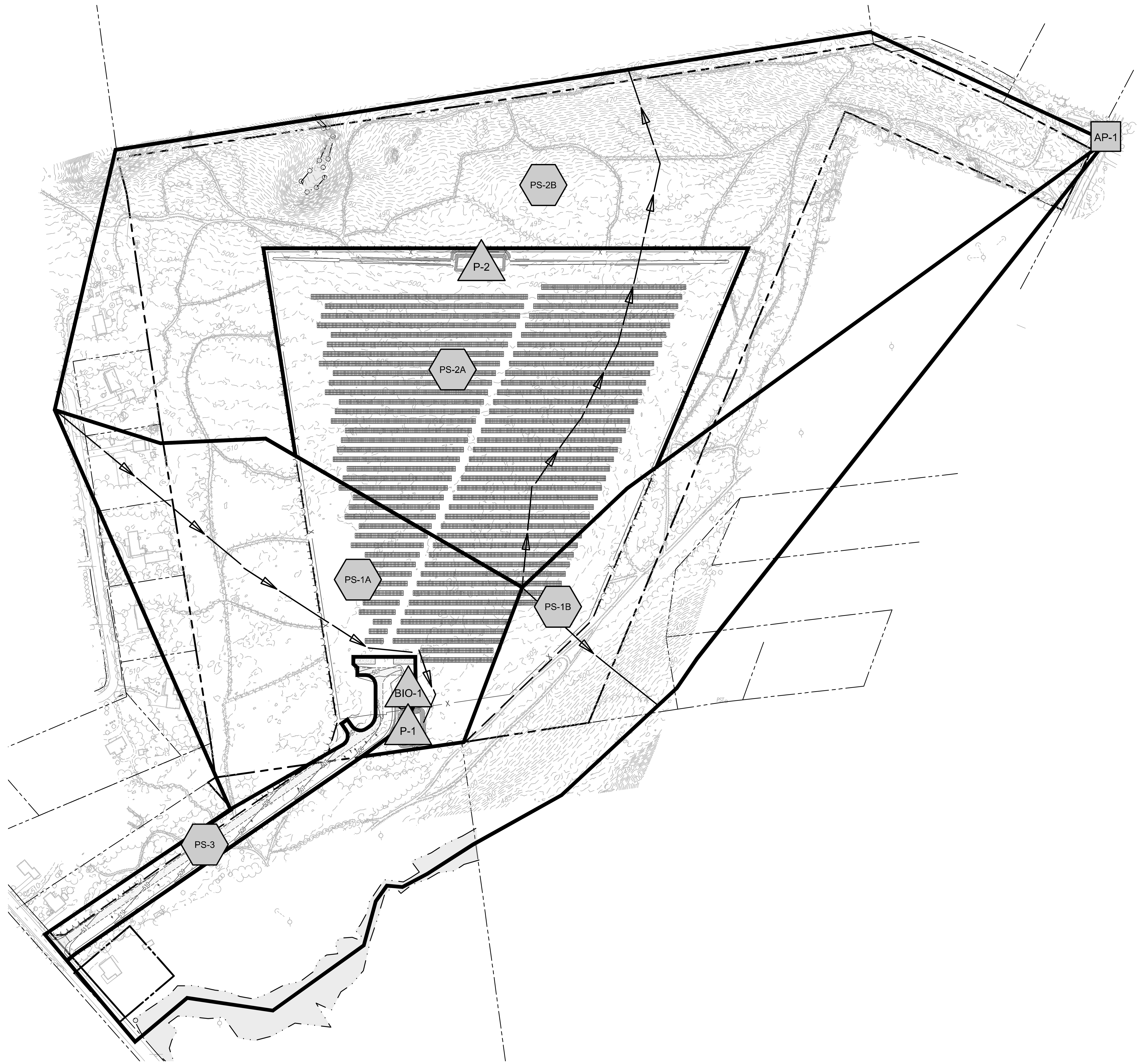
NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157
DRAWN BY: CAR
REVIEWED BY: NRJV
ISSUED FOR: SWPPP
DATE: 10/22/2024
DRAWING NAME:

PRE-DEVELOPMENT WATERSHED DELINEATION MAP

DRAWING NUMBER:

FIG 5



LEGEND:

- SUBCATCHMENT BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- \# SUBCATCHMENT
- \# STORMWATER MANAGEMENT PRACTICE OR STRUCTURE
- \# REACH

1 / FIG 6 POST-DEVELOPMENT WATERSHED DELINEATION MAP

SCALE: 1" = 150'

N

LaBella
Powered by partnership.

4 British American Boulevard
Latham, NY 12110
518-439-8235

labellapc.com

NOT FOR CONSTRUCTION

CERTIFICATE OF AUTHORIZATION NUMBER:
PROFESSIONAL ENGINEERING: 018281
LAND SURVEYING: 017976
GEOLOGICAL: 018750

CATALYZE AUSABLE GROVE STREET MICROGRID, LLC

800 GESSNER ROAD, SUITE 700
HOUSTON, TEXAS 77024

KEESEVILLE SOLAR

217 GROVE STREET,
KEESEVILLE, NY 12944

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2231157

DRAWN BY: CAR

REVIEWED BY: NRJV

ISSUED FOR: SWPPP

DATE: 10/22/2024

DRAWING NAME:

POST-DEVELOPMENT WATERSHED DELINEATION MAP

DRAWING NUMBER:

FIG 6

APPENDIX B: FORMS

Notice of Intent (NOI)
SWPPP Preparer Certification Form
Owner/Operator Certification Form
Contractor and Subcontractor Certification Forms
5 Acre Waiver

LaBella
Powered by partnership.

This Page Intentionally Left Blank

Construction General Permit (CGP)
Electronic Notice of Intent (eNOI)
GP-0-25-001

version 1.10

(Submission #: HQC-MK94-8M9QC, version 1)

Details

Originally Started By	LaBella Latham
Alternate Identifier	Catalyze AuSable Grove Street Microgrid—Region 5
Submission ID	HQC-MK94-8M9QC
Status	Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

---

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the Na or State Registers of Historic Places, or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determinec historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet
- 5-20 acres of disturbance—50 feet
- 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

a) that the construction activity is not within an archeologically sensitive area indicated on the sensiti map, and that the construction activity is not immediately adjacent to a property listed or determined t eligible for listing on the National or State Registers of Historic Places, and

b) that there is no new permanent building to be built 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 OPRHP, a Historic Preserva Commission of a Certified Local Government, or a qualified preservation professional has determinec 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?

Yes

State Environmental Quality Review (SEQR)

---

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?
Yes

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001?
Yes

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?
No

Owner/Operator Information

8. Owner/Operator Name
Catalyze AuSable Grove Street Microgrid, LLC

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
Janet Ward	303-991-5883	janet.ward@catalyze.com

10. Owner/Operator Mailing Address

800 GESSNER RD
STE 700
HOUSTON, TX 77024-4284
USA

11. Is the billing contact different from the Owner/Operator Contact?
No

12. What type of organization is the owner/operator?
Corporation

12.b. Is the owner/operator registered with the Department of State to do business in New York State?
Yes

12.b.i. Department of State ID #
6727366

The Department of State ID can be found using the following link:
Department of State | Division of Corporations

Site Information

13. Project/Site Name
Catalyze AuSable Grove Street Microgrid

14. Site Address

> 1934 NY-22
>
> AuSable, NY 12944
>
> Clinton

DEC Region
5

15. Site Latitude & Longitude
44.51797068544553,-73.49007159265136

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
The project site was formerly used for logging, and is currently unutilized. There are some young trees along with former dirt logging roads. The site will be cleared and developed as a solar field with gravel access road and concrete equipment pads. The site will be seeded with a pollinator-friendly seed mix within the solar array area.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
64.8

20. Total Area to be Disturbed (acres)
30.0

21. Existing Impervious Area to be Disturbed (acres)
0.0

22. Future Impervious Area Within Disturbed Area (acres)
0.7

Nature of the project:
New Construction

23. Do you plan to disturb more than 5 acres of soil at any one time?
Yes

> The owner/operator must meet the requirements in Part I.E.6. before disturbing greater than five acres

> at any one time.

---

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

A (%)
85

B (%)
0

C (%)
0

D (%)
15

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

Start Date
11/10/2025

End Date
07/05/2027

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Tributary to the Ausable River

27. Type of waterbody identified in question 26?
Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

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

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

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

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. 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

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

37.a. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2024

SWPPP Preparer

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

40. Name of the person who prepared the SWPPP
Walter Kubow

41. SWPPP Preparer Organization Name
LaBella Associates

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
Walter Kubow	518-273-0055	wkubow@labellapc.com

43. SWPPP Preparer Address

4 British American Boulevard
Latham, NY 12110

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) Upload the completed form

[Download SWPPP Preparer Certification Form]

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?
Yes

Erosion & Sediment Control Criteria

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

Post-Construction Criteria

Site Planning and Soil Restoration

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

47. 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.
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).

Water Quality Criteria

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
2860	2860			NaN

Water Quantity Criteria

51. Does one of the waiver conditions apply to the channel protection for this construction activity?
Yes

51.a. The need to provide channel protection has been waived because:
Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems.

52. Does one of the waiver conditions apply to the Qp and Qf for this construction activity?
No

Overbank Flood Control Criteria (Qp)

52.b.i. Pre-Development (CFS)
0.00

52.b.ii. Post-Development (CFS)
0.00

Total Extreme Flood Control Criteria (Qf)

52.b.iii. Pre-Development (CFS)
0.88

52.b.iv. Post-Development (CFS)
0.55

Operation and Maintenance

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

53.a. Identify the entity responsible for the long-term Operation and Maintenance.
Catalyze Ausable Grove Street Microgrid, LLC

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Infiltration Bioretention (F-4)	0.730	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*	*NONE PROVIDED*

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
No

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?

Yes

Additional Project Information

62. Enter any additional pertinent project information in the text box below.

NONE PROVIDED

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	Keeseville Solar
eNOI Submission ID:	
Owner/Operator Name:	Catalyze Ausable Grove Street Microgrid, LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature

Date

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: Keeseville Solar

eNOI Submission ID: ____________________

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

____

Signature

____

Date

Stormwater Pollution Prevention Plan
Contractor Certification Statement
(Responsible for overall SWPPP Compliance)

Keeseville Solar
217 Grove Street, Town of AuSable, Clinton County, New York

This is to certify that the following contracting firm will be responsible for installing, constructing, repairing, inspecting and/or maintaining the erosion and sediment control practices and post-construction stormwater management control practices required by the SWPPP.

Contracting Firm Information

Name: ______________________________

Address: ______________________________

Telephone & Fax: ______________________________

Trained Contractor(s) [1] Responsible for SWPPP Implementation (Provide name, title, and date of last training)

____

____

Prior to commencement of construction activity, the following certification shall be issued:

I hereby certify under penalty of law that I understand and agree to comply with the requirements 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 requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges 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

Printed Name: ______________________________

Title/Position: ______________________________

Signature: ______________________ Date: ______________________

Upon completion of construction activities, the following certification shall be issued, prior to issuance of the NOT:

I hereby certify that that all permanent stormwater management practices required by the SWPPP have been installed in accordance with the contract documents. I further certify that all temporary erosion and sediment control measures have been removed from the site, and that the on-site soils disturbed by construction activity have been restored in accordance with the SWPPP and the NYSDEC Division of Water's publication "Deep-Ripping and Decompaction".

Printed Name: ______________________________

Title/Position: ______________________________

Signature: ______________________ Date: ______________________

[1] "Trained Contractor" means an employee from a contracting (construction) company 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 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" will be responsible for the day to day implementation of the SWPPP.

[2] Signatory Requirements:

a. For a corporation, this form shall be signed by (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principle 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, this form shall be signed by a general partner or the proprietor, respectively.
c. For a municipality, State, Federal, or other public agency, this form 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).

Stormwater Pollution Prevention Plan
Subcontractor Certification Statement
(whose work involves soil disturbance)

Keeseville Solar
217 Grove Street, Town of AuSable, Clinton County, New York

Each Subcontractor whose work will involve soil disturbance of any kind is required to complete and sign this Certification Statement before commencing any construction activity at the site. This completed Certification Statement(s) shall be maintained at the construction site in the Site Log Book.

Subcontracting Firm Information

Name: ______________________________

Address: ______________________________

____

Telephone & Fax: ______________________________

Trained Contractor(s) [2] Responsible for SWPPP Implementation (Provide name, title, and date of last training)

____

____

Prior to commencement of construction activities, the following certification shall be issued:

I hereby certify under penalty of law that I understand and agree to comply with the requirements 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 requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges 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

Printed Name: ______________________________

Title/Position: ______________________________

Signature: ______________________ Date: ______________

---

[2] "Trained Contractor" means an employee from a contracting (construction) company 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 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" will be responsible for the day to day implementation of the SWPPP.

[2] Signatory Requirements:

a. For a corporation, this form shall be signed by (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principle 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, this form shall be signed by a general partner or the proprietor, respectively.
c. For a municipality, State, Federal, or other public agency, this form 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).

APPENDIX C:
PROJECT EVALUATION AND DESIGN CALCULATIONS

LaBella
Powered by partnership.

This Page Intentionally Left Blank

Step 1 - Site Planning

	Practice	Description	Applicable	Project Specific Evaluation
Preservation of Natural Features and Conservation Design	**Preservation of Undisturbed Areas**	Delineate and protect undisturbed forests, native vegetated areas, riparian corridors, water bodies, wetlands, and natural terrain.	No	The proposed site layout has been designed to limit land disturbance to the greatest extent practical. The project does not propose permanent conservation at this time.
	Preservation of Buffers	Delineate and protect naturally vegetated buffers along perennial streams, rivers, shorelines, and wetlands.	Yes	There is a wetland located on the project site. For the area adjacent to this water body, a 100-ft naturally vegetated buffer will be applied. No disturbance will occur within this buffer.
	Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	Yes	Clearing and grading will be limited to the area of disturbance and will be minimized to the greatest extent practical. The limits of all proposed clearing will be demarcated in the field with orange construction fencing, prior to construction, to prevent unnecessary removal of trees.
	Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	No	The site layout has been designed to avoid sensitive resource areas to the greatest extent practical. The site layout will avoid disturbance to wetlands.
	Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	No	The site layout has been designed to maximize open space. Impervious surfaces have been minimized to the greatest extent practical.
	Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.	Yes	Full soil restoration is proposed for all areas of disturbance that will not become hardscape. All areas will be stabilized with seed & mulch, and landscaped areas will be provided.
	Roadway Reduction	Minimize roadway widths and lengths, below local requirements, to reduce site impervious area	No	Roadway widths and lengths have been minimized to the greatest extent practical.

Step 1 - Site Planning

Reduction of Impervious Cover	**Sidewalk Reduction**	Minimize sidewalk lengths and widths, below local requirements, to reduce site impervious area	N/A	No sidewalks are proposed as a part of this project.
	Driveway Reduction	Minimize driveway lengths and widths, below local requirements, to reduce site impervious area	N/A	No new driveways are proposed as part of this project.
	Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	N/A	No cul-de-sacs are proposed as part of this project.
	Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	N/A	No new buildings are proposed as part of this project.
	Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, reducing stall dimensions below local requirements, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	N/A	No parking is proposed as part of this project.

Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?						No
What is the nature of this construction project?			New Construction			
Design Point:	1					
P=	1.00	inches	*Enter 90% Rainfall Event as P*			
Calculate Required WQv						
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**SMP Description**
1						
2						
3	2.53	0.73	29	0.31	2,860	Infiltration Bioretention
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	2.53	0.73	29	0.31	**2860**	**Required WQv**

Steps 3 and 5 - Apply RR Techniques and Standard SMPs

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)**
RR Techniques	Conservation of Natural Areas	RR-1	0.00		0	
	Sheet Flow to Riparian Buffer/Filter Strip	RR-2	0.00	0.00	0	
	Tree Planting/Tree Pit/Tree Trench	RR-3	0.00	0.00	0	
	Disconnection of Rooftop Runoff	RR-4		0.00	0	
	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	
	Rainwater Harvesting Systems	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Extensive & Intensive)	RR-10	0.00	0.00	0	
	Stream Daylighting	RR-11				
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	0.00	0.00	0	0
	Infiltration Bioretention	F-4	2.53	0.73	2,860	0
	Filtration Bioretention	F-5	0.00	0.00	0	0
	Bioslope	F-6	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention	P-1	0.00	0.00		0
	Wet Pond	P-2	0.00	0.00		0
	Wet Extended Detention	P-3	0.00	0.00		0
	Multiple Pond System	P-4	0.00	0.00		0
	Shallow Wetland	W-1	0.00	0.00		0
	Extended Detention Shallow Wetland	W-2	0.00	0.00		0
	Pond/Wetland System	W-3	0.00	0.00		0
	Pocket Wetland	W-4	0.00	0.00		0
	Gravel Wetland	W-5	0.00	0.00		0
	Surface Sand Filter	F-1	0.00	0.00		0
	Underground Sand Filter	F-2	0.00	0.00		0
	Perimeter Sand Filter	F-3	0.00	0.00		0
	Wet Swale	O-2	0.00	0.00		0
Alt. SMPs	Flow Based Alternative Practice	-	0.00	0.00		0
	Volume Based Alternative Practice	-				
	Totals by RR Technique	→	0.00	0.00	0	
	Totals by Standard SMP w/RRV	→	2.53	0.73	2,860	0
	Totals by Standard SMP	→	0.00	0.00		0
	Totals by Alternative SMP	→	0.00	0.00		0
	Totals (RR Techniques + all SMPs)	→	2.53	0.73	2,860	0

Step 3 - Evaluation of RR Techniques and Standard SMPs with RRv Capacity

	Practice	Description	Applicable	Project Specific Evaluation
RR Techniques	**Conservation of Natural Areas (RR-1)**	Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas by permanently conserving these areas on a site. Undisturbed natural areas include: forest retention areas; reforestation areas; stream and river corridors; shorelines; wetlands, vernal pools, and associated vegetated buffers; and undisturbed open space.	No	The project site does not contain any significant natural resources.
	Sheet Flow to Riparian Buffer/Filter Strip (RR-2)	Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project.	No	A 100-foot buffer will be maintained from wetlands on-site.
	Tree Planting/Tree Pit/Tree Trench (RR-3)	Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control.	No	The project proposes the preservation of existing mature trees in order to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. However, credit for these trees will not be taken toward an area reduction in the RRv calculations.
	Disconnection of Rooftop Runoff (RR-4)	Direct runoff from rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates.	N/A	Rooftop disconnect is not applicable, as no roofs are existing or proposed as part of this project.
	Vegetated Swale (RR-5)	The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase time of concentration, reduce the peak discharge, and provide infiltration.	No	The site has been designed to place greater emphasis on sheet flow instead of channeled flow. Stormwater practices have been designed to provide management and treatment at the source. Vegetated swales are proposed at several locations on-site. However, credit for these practices will not be taken in the RRv calculations.
	Rain Garden (RR-6)	Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression.	No	Due to the limited tributary area to rain gardens (≤ 1,000SF), bioretention facilities will be implemented instead of rain gardens.

Step 3 - Evaluation of RR Techniques and Standard SMPs with RRv Capacity

RR Techniques	**Stormwater Planter (RR-7)**	Small landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality.	No	The stormwater management approach for this project is intended to provide a more natural aesthetic that is consistent with the wooded surrounding. Since, stormwater planters have significant maintenance considerations and a more structured aesthetic, they have not been proposed for this project.
	Rainwater Harvesting System (RR-8)	Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities.	No	Rainwater harvesting systems are not proposed on-site due to the need for active management/maintenance and initial capital cost. In addition, the cold climate of the project area would require additional protection measures from freezing.
	Porous Pavement (RR-9)	Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils.	No	Porous pavement is not proposed as part of this project due to no asphalt pavement being proposed as a part of this project.
	Green Roof (RR-10)	Capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce volume and discharge rate of runoff entering conveyance system.	No	A green roof is not proposed on-site due to no buildings being proposed as a part of this project.
	Stream Daylighting (RR-11)	Stream Daylight previously-culverted/piped streams to restore natural habitats, better attenuate runoff by increasing the storage size, promoting infiltration, and help reduce pollutant loads.	No	No stream daylighting opportunities are present on this site.
	Infiltration Trench (I-1)	An infiltration practice that stores the water quality volume in the void spaces of a gravel trench before it is infiltrated into the ground.	No	An infiltration trench is not proposed as a part of this project, as bioretention facilities are proposed instead.
	Infiltration Basin (I-2)	An infiltration practice that stores the water quality volume in a shallow depression, before it is infiltrated it into the ground.	No	An infiltration basin is not proposed as a part of this project, as bioretention facilities are proposed instead.
	Dry Well (I-3)	An infiltration practice similar in design to the infiltration trench, and best suited for treatment of rooftop runoff.	No	Dry wells are not proposed as a part of this project, as bioretention facilities are proposed instead.

Step 3 - Evaluation of RR Techniques and Standard SMPs with RRv Capacity

Standard SMPs with RRv Capacity	**Underground Infiltration System (I-4)**	An infiltration practice below grade that stores the water quality volume in pre-manufactured pipes, vaults or other modular structures, before it is infiltrated into the ground.	No	Underground infiltration systems are not proposed as a part of this project as bioretention facilities are proposed instead.
	Infiltration Bioretention (F-4)	A shallow depression that treats stormwater as it flows through a soil matrix, before it is infiltrated into the ground.	Yes	An Infiltration bioretention will be used to treat the proposed roadway. Calculations have been provided in the SWPPP.
	Filtration Bioretention (F-5)	A shallow depression that treats stormwater as it flows through a soil matrix and is returned to the storm drain system.	No	Due to well-draining soils, an infiltration bioretention will be implemented, instead of a filtration bioretention.
	Bioslope (F-6)	Permeable engineered soil media that is installed along embankments or other slopes, designed to capture and treat stormwater runoff from adjacent paved areas.	No	Due to the flat site topography, bioslopes are not feasible for use on the project site.
	Dry Swale (O-1)	An open drainage channel or depression explicitly designed to detain and promote the filtration of stormwater runoff into the soil media.	No	Dry swales are not proposed because the site has been designed to place greater emphasis on sheet flow instead of channeled flow.

Infiltration Bioretention (F-4)

Design Point:	**1**

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
3	2.53	0.73	29	0.31	2,860	1.00	Infiltration Bioretention

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	0.5	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is contributing area greater than max. contributing area?	No	
Enter depth to seasonal high water table (ft)	2	
Enter depth to bedrock (ft)	2	
Is pretreatment provided, in conformance with Section 6.4.3.1	Yes	
Enter average height of ponding (ft)	0.5	
Enter depth of surface layer (inches)	3	
Enter depth of filter media (ft)	2.5	
Enter depth of drainage layer (inches)	12	
Enter slope of maintenance access (%)	2	
Enter width of maintenance access (ft)	20	

Sizing Criteria				
		Value	Units	Notes
Permeability Flow Rate	k	1	ft/day	
Filter Time	tf	2	days	
Required Filter Area	Af	1192	sf	
Enter Provided Filter Area	Af	2217	sf	

Calculate Runoff Reduction		
RRv Provided	**2,860**	***cf***

Appendix C - Table E
Climate Change Risk Evaluation

Physical Risk	Overall Site Planning	Location, Elevation and Sizing of... Control Measures and Practices Stormwater runoff from the proposed project site will be controlled by the proposed infiltration bioretention.	Conveyance Systems The project does not propose any conveyance systems.	Detention Systems While not the main purpose, the proposed infiltration bioretention will function as a detention system.
Increasing Temperature	The project site minimizes the use of pavements and other materials that can significantly contribute to heat island effects. The risk of increasing temperatures had little impact on the overall site planning.	The component of the infiltration bioretention that may be impacted by increasing temperatures the most is the proposed vegetation, if it is not heat tolerant. If the proposed lawn seed mix is not heat tolerant, extra maintenance could be required in the future to maintain vegetation coverage. The risk of increasing temperatures did not impact the design of the practice.	The project does not propose any conveyance systems.	Increasing average air temperatures will cause the temperature of stormwater being controlled in above ground detention systems to rise at a faster rate. Increasing temperatures will increase the evaporation rates from these above ground systems but will also influence the water temperatures of downstream water courses and waterbodies which can be detrimental to aquatic species. However, the conveyance path between the project site and the nearest downstream waterbody is long, which should help dissipate the temperature increase. The design was not influenced by the risk of increasing temperatures.
Increasing Precipitation	The risk of increasing precipitation did not directly influence the overall site planning.	The proposed infiltration bioretention has been designed to safely convey the 100-year storm event through a combination of infiltration and overflow, and provides 1-foot of freeboard to the top of the practice berm. The bioretention also has an overflow weir. The weir will add an extra layer of protection and allow the bioretention to safely convey some storms above the 100-year event without overtopping the practice embankments. An analysis has not been performed to determine the maximum storm event that the bioretention can safely convey. The risk of increasing precipitation did not directly impact control measure design.	The project does not propose any conveyance systems.	The proposed infiltration bioretention has been designed to safely convey the 100-year storm event through a combination of infiltration and overflow and provides 1-foot of freeboard to the top of the practice berm. The bioretention also has an overflow weir. The weir will add an extra layer of protection and allow the bioretention to safely convey some storms above the 100-year event. An analysis has not been performed to determine the maximum storm event that the bioretention can safely convey. The risk of increasing precipitation did not directly impact detention system design.

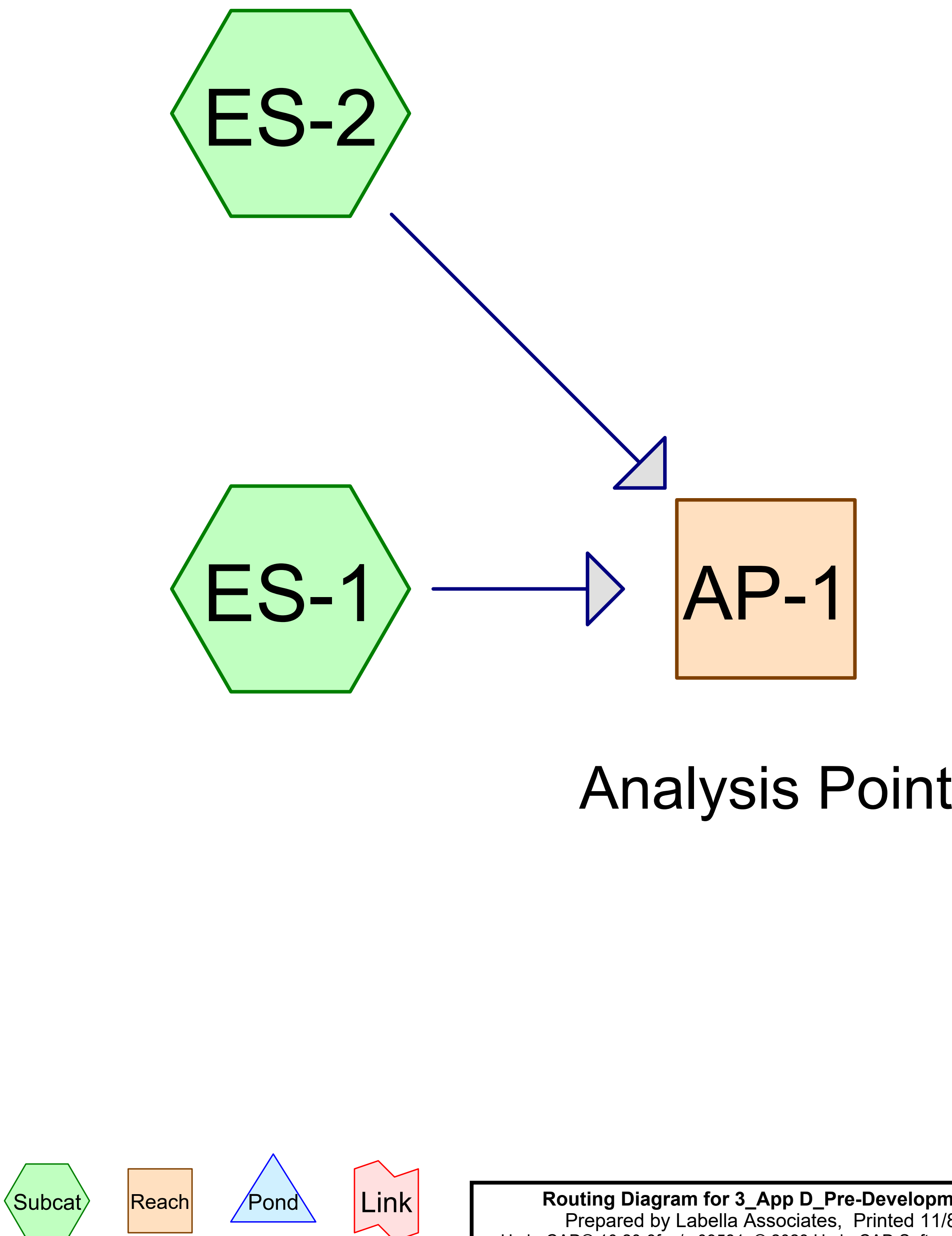
		Location, Elevation and Sizing of...		
Physical Risk	Overall Site Planning	Control Measures and Practices Stormwater runoff from the proposed project site will be controlled by the proposed infiltration bioretention.	Conveyance Systems The project does not proposed any conveyance systems.	Detention Systems While not the main purpose, the proposed infiltration bioretention will function as a detention system.
Increasing Variability in Precipitation, Including Chance of Drought	The risk of increasing precipitation variability did not impact overall site planning. However, the proposed site has been designed with adequate drainage systems to safely convey the 100-year storm event.	The risk of increasing precipitation variability did not impact the design of the proposed control practice. The proposed infiltration bioretention has been designed to safely convey the 100-year storm event through a combination of infiltration and overflow. The bioretention also has an overflow weir. The weir will add an extra layer of protection and allow the bioretention to safely convey some storms above the 100-year event. An analysis has not been performed to determine the maximum storm event that the bioretention can safely convey. Increasing frequency of high intensity precipitation events could lead to the practice not having adequate time to drain between events. However, the proposed system has been designed to drain within 48 hours of a storm event. Increasing chance of drought could require additional maintenance of the practice to ensure continued adequate vegetative coverage.	The project does not propose any conveyance systems.	The risk of increasing precipitation variability did not impact the design of the proposed detention systems. The proposed infiltration bioretention has been designed to safely convey the 100-year storm event through a combination of infiltration and overflow. The bioretention also has an overflow weir. The weir will add an extra layer of protection and allow the bioretention to safely convey some storms above the 100-year event. An analysis has not been performed to determine the maximum storm event that the bioretention can safely convey. Increasing frequency of high intensity precipitation events could lead to the practice not having adequate time to drain between events. However, the proposed system has been designed to drain within 48 hours of a storm event. Increasing chance of drought could require additional maintenance of the practice to ensure continued adequate vegetative coverage.
Increasing Frequency and Severity of Flooding	This consideration is of minimal risk to the project site and was not included in site planning.	This consideration is of minimal risk to the project site and was not included in control measure and practice design. However, the provided infiltration bioretention ensures that both the post-development stormwater discharge rates and volumes from the project site will be reduced from pre-development conditions.	The project does not propose any conveyance systems.	This consideration is of minimal risk to the project site and was not included in detention system design. However, the provided infiltration bioretention ensures that both the post-development stormwater discharge rates and volumes from the project site will be reduced from pre-development conditions.

Physical Risk	Overall Site Planning	Location, Elevation and Sizing of... Control Measures and Practices Stormwater runoff from the proposed project site will be controlled by the proposed infiltration bioretention.	Conveyance Systems The project does not proposed any conveyance systems.	Detention Systems While not the main purpose, the proposed infiltration bioretention will function as a detention system.
Rising Sea Level	This consideration is of minimal risk to the project site and was not included in site planning.	This consideration is of minimal risk to the project site and was not included in control measure and practice design.	The project does not propose any conveyance systems.	This consideration is of minimal risk to the project site and was not included in detention system design.
Increasing Storm Surge	This consideration is of minimal risk to the project site and was not included in site planning.	This consideration is of minimal risk to the project site and was not included in control measure and practice design.	The project does not propose any conveyance systems.	This consideration is of minimal risk to the project site and was not included in detention system design.
Shifting Ecology	The risk of shifting ecology did not impact overall site planning.	The risk of shifting ecology did not impact control measure design. However, the proposed system has been designed to drain within 48 hours of a storm event. This low practice detention time will help minimize the temperature of the stormwater that the system is conveying, helping to minimize the temperature rise of downstream waterbodies and watercourses. Increased maintenance could be required in the future to ensure that healthy vegetative cover is maintained in the practice as precipitation and temperature levels increase in the future.	The project does not propose any conveyance systems.	The risk of shifting ecology did not influence detention system design. However, the proposed system has been designed to drain within 48 hours of a storm event. This low practice detention time will help minimize the temperature of the stormwater that the system is conveying, helping to minimize the temperature rise of downstream waterbodies and watercourses.

APPENDIX D:
PRE-DEVELOPMENT STORMWATER MODELING

LaBella
Powered by partnership.

This Page Intentionally Left Blank



Routing Diagram for 3_App D_Pre-Development Model
Prepared by Labella Associates, Printed 11/8/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
25.931	39	>75% Grass cover, Good, HSG A (ES-1, ES-2)
3.899	72	Dirt roads, HSG A (ES-1, ES-2)
0.894	98	Paved parking, HSG A (ES-1, ES-2)
70.758	30	Woods, Good, HSG A (ES-1, ES-2)
101.483	**35**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentES-1: Runoff Area=1,981,622 sf 1.33% Impervious Runoff Depth=0.00"
Flow Length=1,748' Tc=137.5 min CN=35 Runoff=0.00 cfs 0.000 af

SubcatchmentES-2: Runoff Area=2,438,961 sf 0.52% Impervious Runoff Depth=0.00"
Flow Length=1,516' Tc=66.9 min CN=34 Runoff=0.00 cfs 0.000 af

Reach AP-1: Analysis Point Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 101.483 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
99.12% Pervious = 100.588 ac 0.88% Impervious = 0.894 ac

Summary for Subcatchment ES-1:

[45] Hint: Runoff=Zero

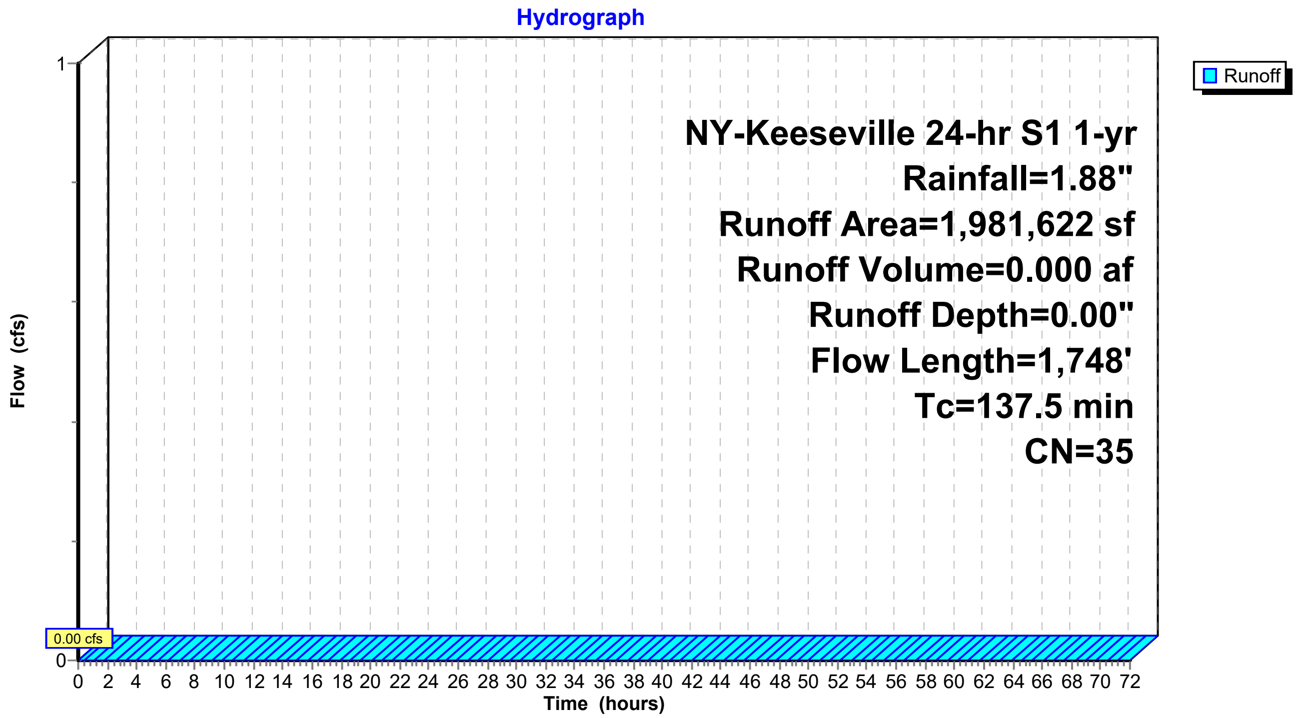
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
26,344	98	Paved parking, HSG A
52,626	72	Dirt roads, HSG A
564,930	39	>75% Grass cover, Good, HSG A
1,337,722	30	Woods, Good, HSG A
1,981,622	35	Weighted Average
1,955,278		98.67% Pervious Area
26,344		1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.16"
81.0	1,396	0.0033	0.29		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.8	252	0.0913	1.51		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
137.5	1,748	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

[45] Hint: Runoff=Zero

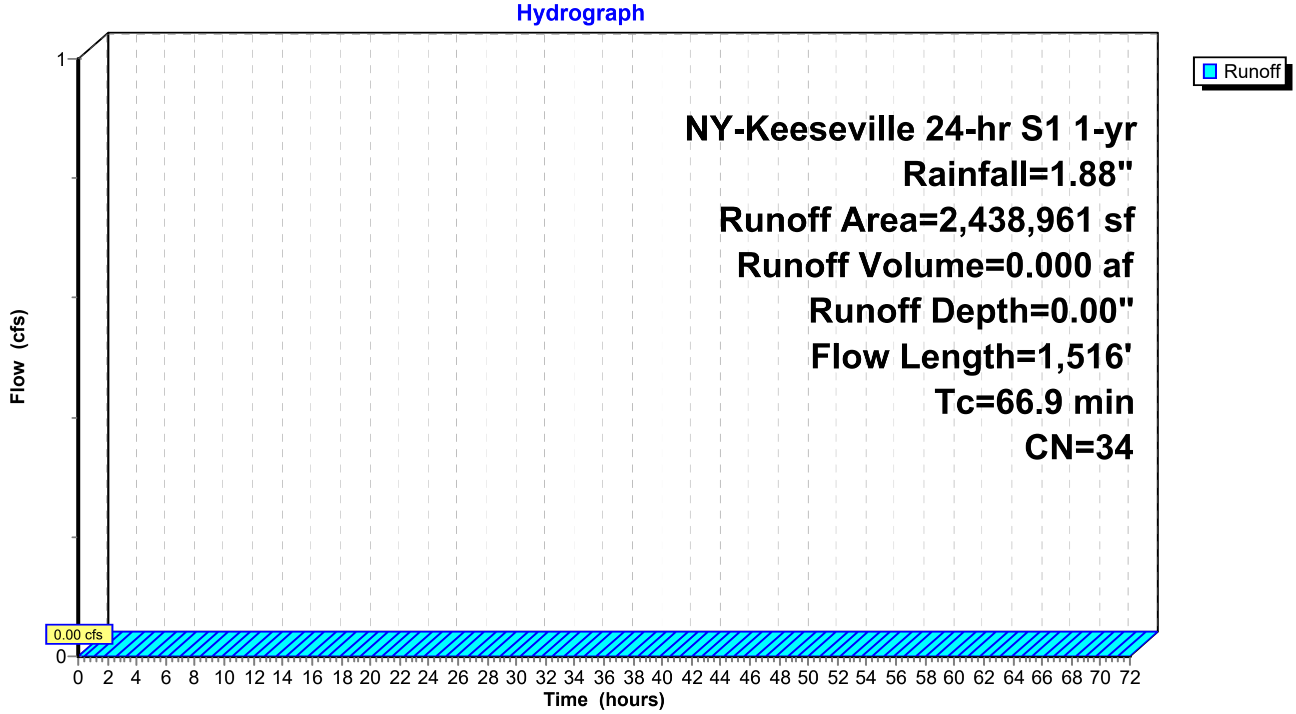
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
117,228	72	Dirt roads, HSG A
564,646	39	>75% Grass cover, Good, HSG A
1,744,475	30	Woods, Good, HSG A
2,438,961	34	Weighted Average
2,426,349		99.48% Pervious Area
12,612		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
33.0	1,129	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
66.9	1,516	Total			

Subcatchment ES-2:



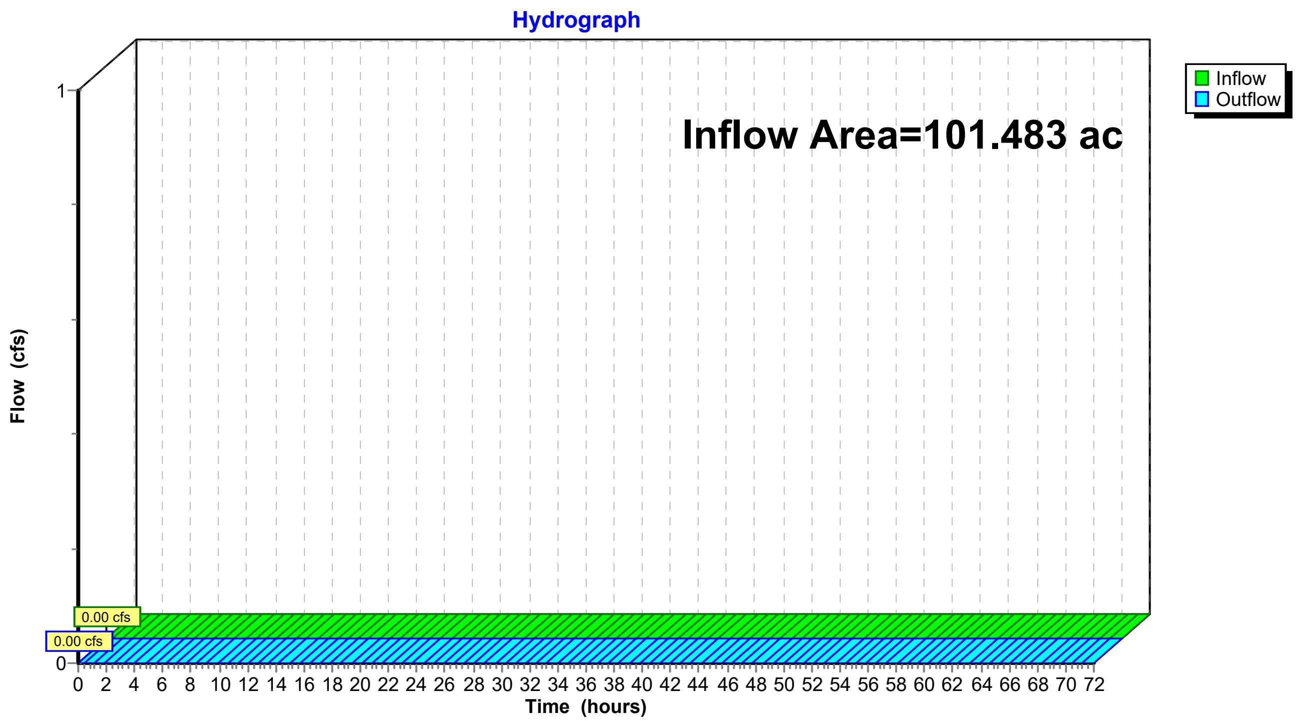
Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 0.88% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach AP-1: Analysis Point



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-1: Runoff Area=1,981,622 sf 1.33% Impervious Runoff Depth=0.00"
Flow Length=1,748' Tc=137.5 min CN=35 Runoff=0.00 cfs 0.000 af

Subcatchment ES-2: Runoff Area=2,438,961 sf 0.52% Impervious Runoff Depth=0.00"
Flow Length=1,516' Tc=66.9 min CN=34 Runoff=0.00 cfs 0.000 af

Reach AP-1: Analysis Point Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 101.483 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
99.12% Pervious = 100.588 ac 0.88% Impervious = 0.894 ac

Summary for Subcatchment ES-1:

[45] Hint: Runoff=Zero

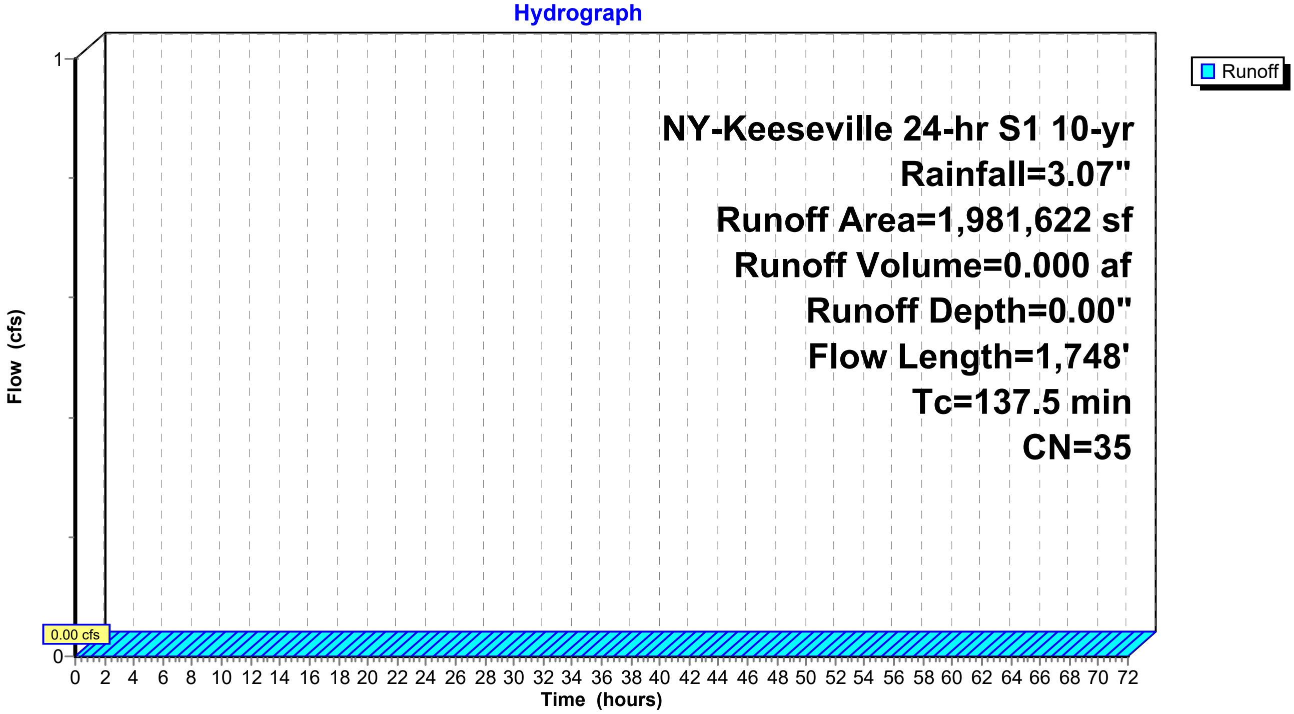
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
26,344	98	Paved parking, HSG A
52,626	72	Dirt roads, HSG A
564,930	39	>75% Grass cover, Good, HSG A
1,337,722	30	Woods, Good, HSG A
1,981,622	35	Weighted Average
1,955,278		98.67% Pervious Area
26,344		1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
81.0	1,396	0.0033	0.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	252	0.0913	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
137.5	1,748	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

[45] Hint: Runoff=Zero

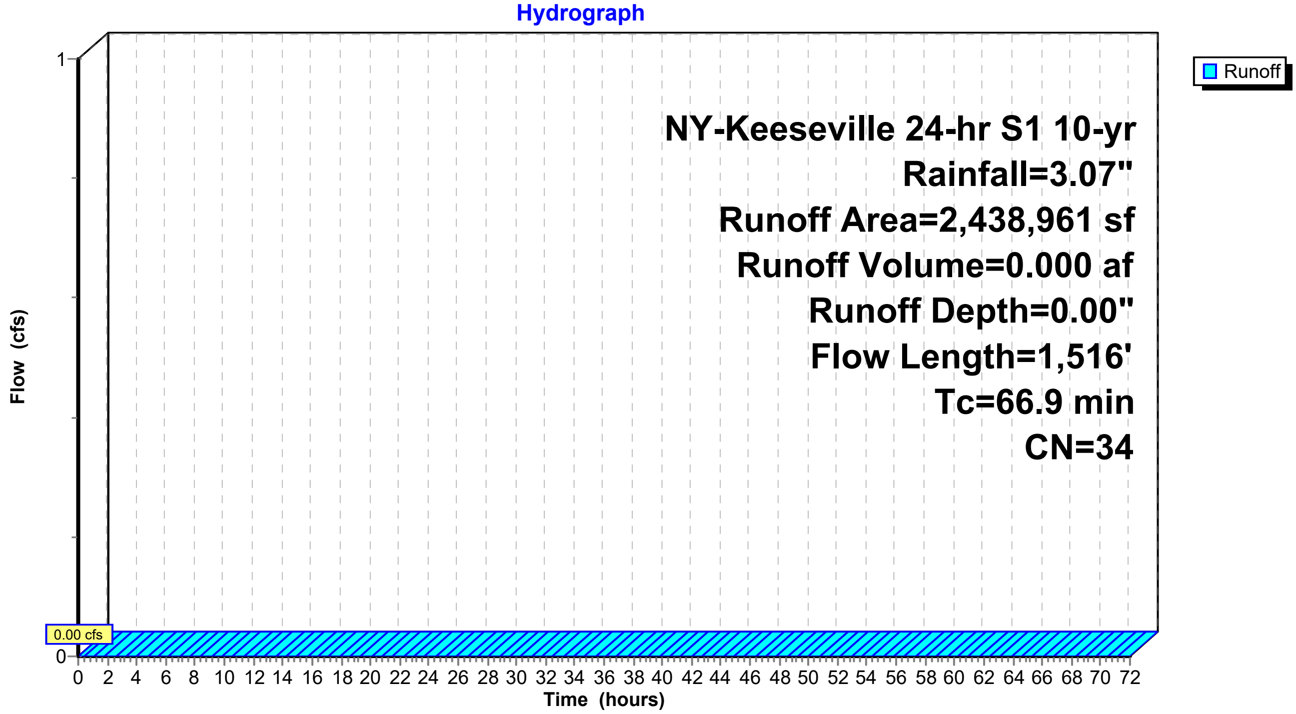
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
117,228	72	Dirt roads, HSG A
564,646	39	>75% Grass cover, Good, HSG A
1,744,475	30	Woods, Good, HSG A
2,438,961	34	Weighted Average
2,426,349		99.48% Pervious Area
12,612		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
33.0	1,129	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
66.9	1,516	Total			

Subcatchment ES-2:



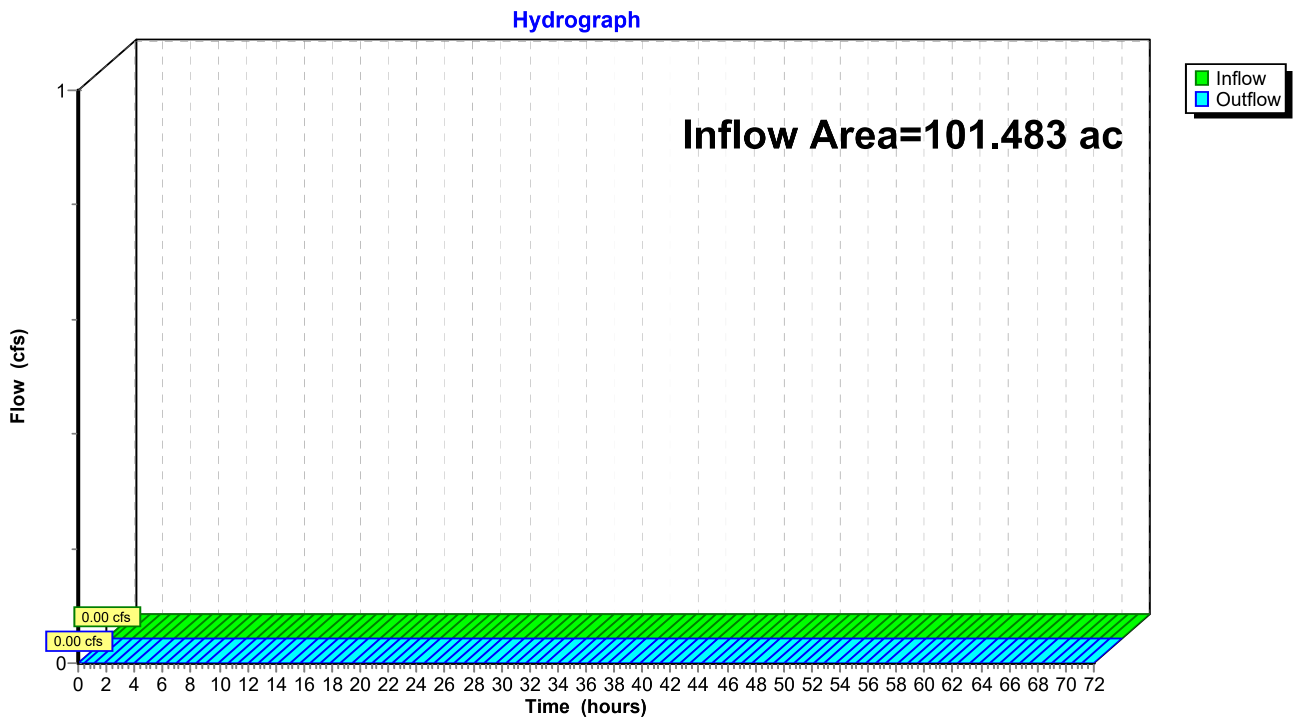
Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 0.88% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach AP-1: Analysis Point



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentES-1: Runoff Area=1,981,622 sf 1.33% Impervious Runoff Depth=0.10"
Flow Length=1,748' Tc=137.5 min CN=35 Runoff=0.45 cfs 0.375 af

SubcatchmentES-2: Runoff Area=2,438,961 sf 0.52% Impervious Runoff Depth=0.07"
Flow Length=1,516' Tc=66.9 min CN=34 Runoff=0.43 cfs 0.346 af

Reach AP-1: Analysis Point Inflow=0.88 cfs 0.721 af
Outflow=0.88 cfs 0.721 af

Total Runoff Area = 101.483 ac Runoff Volume = 0.721 af Average Runoff Depth = 0.09"
99.12% Pervious = 100.588 ac 0.88% Impervious = 0.894 ac

Summary for Subcatchment ES-1:

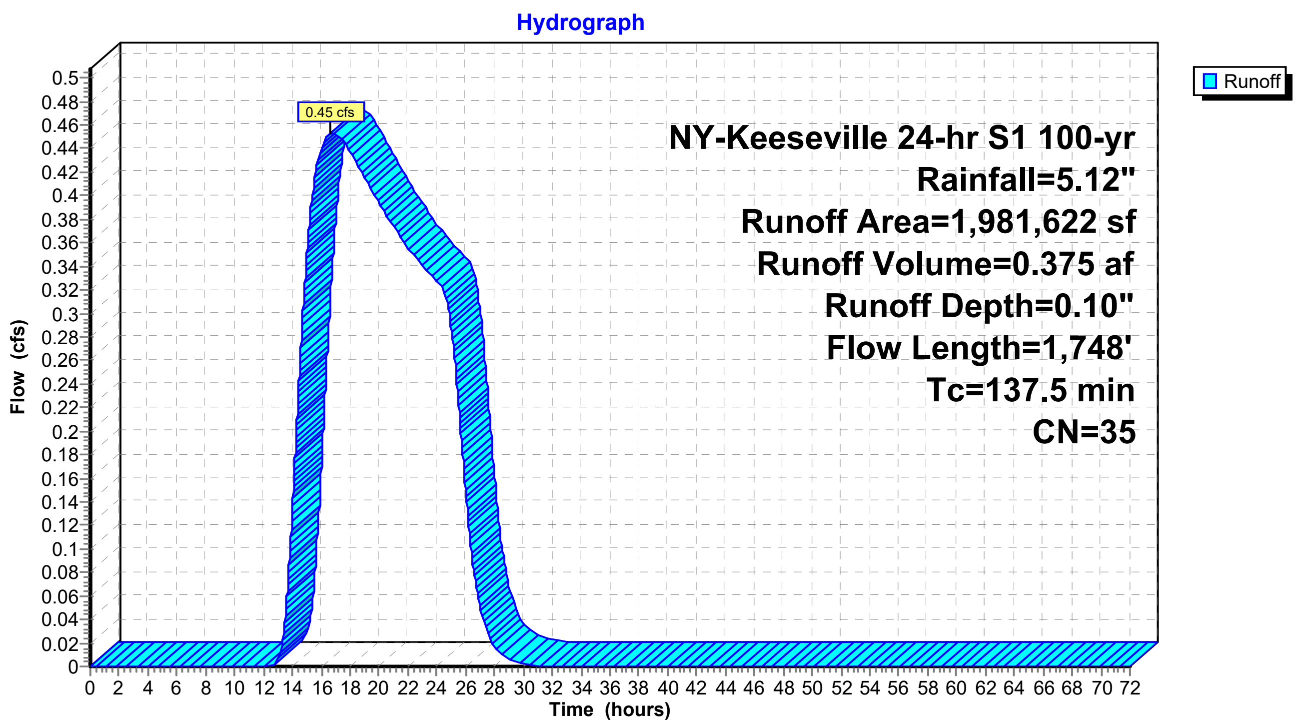
Runoff = 0.45 cfs @ 16.66 hrs, Volume= 0.375 af, Depth= 0.10"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
26,344	98	Paved parking, HSG A
52,626	72	Dirt roads, HSG A
564,930	39	>75% Grass cover, Good, HSG A
1,337,722	30	Woods, Good, HSG A
1,981,622	35	Weighted Average
1,955,278		98.67% Pervious Area
26,344		1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
81.0	1,396	0.0033	0.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	252	0.0913	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
137.5	1,748	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

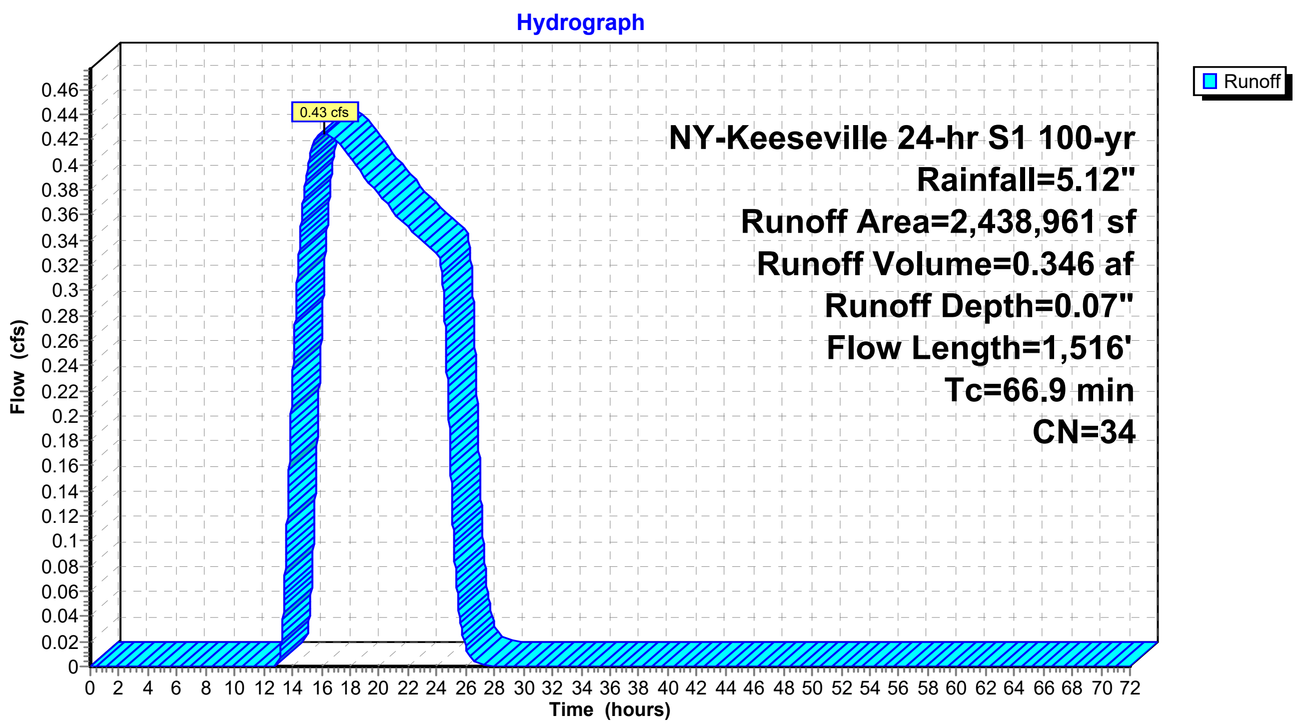
Runoff = 0.43 cfs @ 16.13 hrs, Volume= 0.346 af, Depth= 0.07"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
117,228	72	Dirt roads, HSG A
564,646	39	>75% Grass cover, Good, HSG A
1,744,475	30	Woods, Good, HSG A
2,438,961	34	Weighted Average
2,426,349		99.48% Pervious Area
12,612		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
33.0	1,129	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
66.9	1,516	Total			

Subcatchment ES-2:



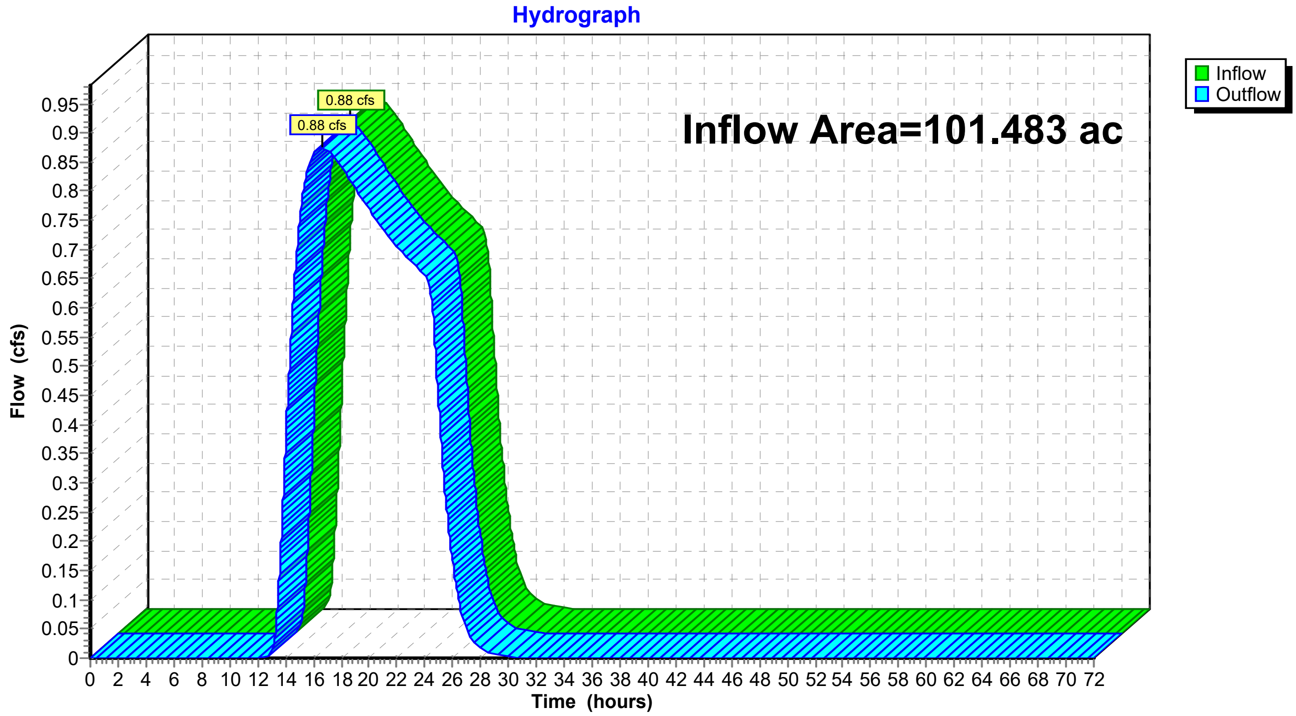
Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 0.88% Impervious, Inflow Depth = 0.09" for 100-yr event
Inflow = 0.88 cfs @ 16.58 hrs, Volume= 0.721 af
Outflow = 0.88 cfs @ 16.58 hrs, Volume= 0.721 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

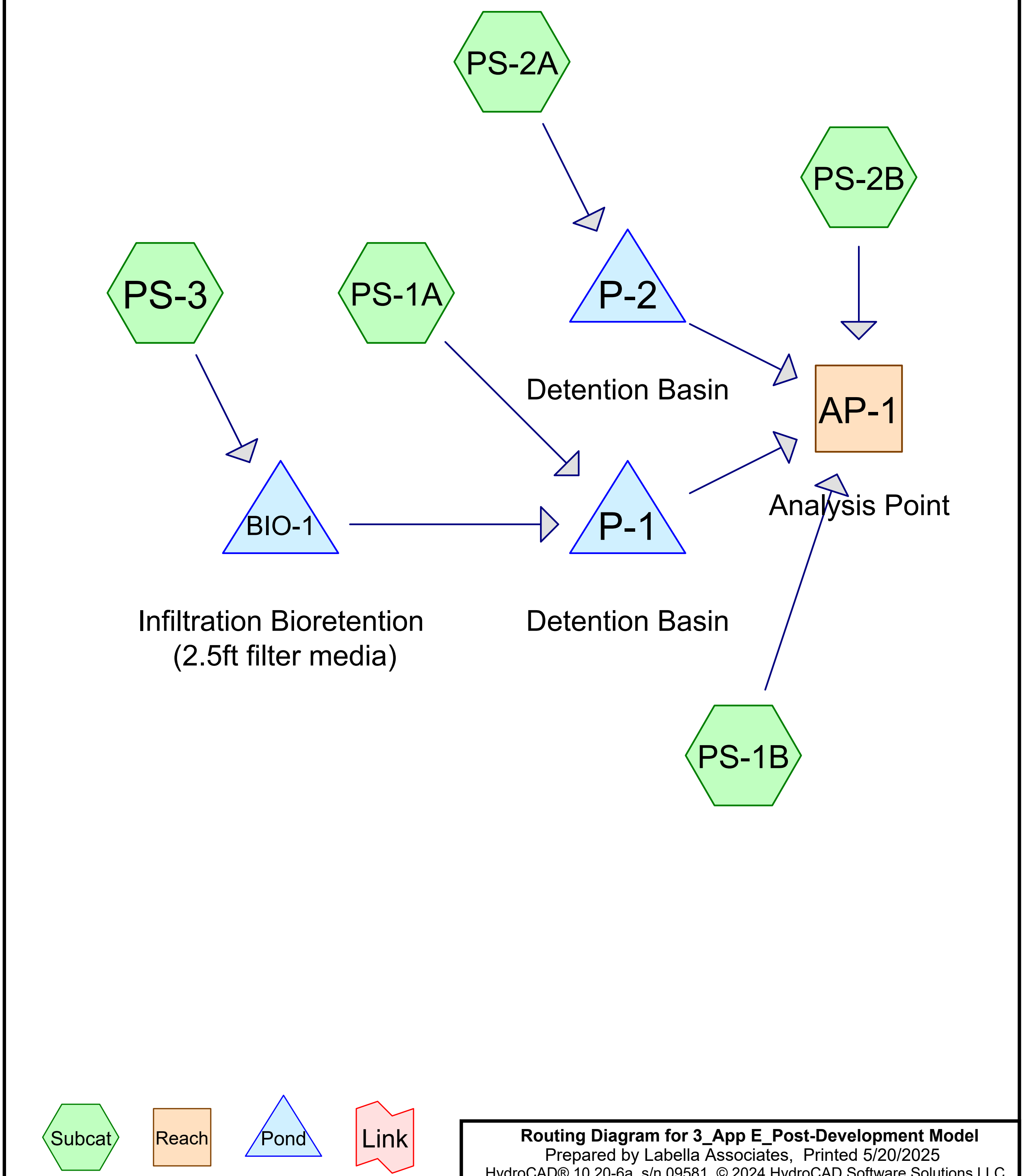
Reach AP-1: Analysis Point



APPENDIX E:
POST DEVELOPMENT STORMWATER MODELING

LaBella
Powered by partnership.

This Page Intentionally Left Blank



Routing Diagram for 3_App E_Post-Development Model
Prepared by Labella Associates, Printed 5/20/2025
HydroCAD® 10.20-6a s/n 09581 © 2024 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
48.874	39	>75% Grass cover, Good, HSG A (PS-1A, PS-1B, PS-2A, PS-2B, PS-3)
2.302	72	Dirt roads, HSG A (PS-1A, PS-1B, PS-2B, PS-3)
1.590	98	Paved parking, HSG A (PS-1A, PS-1B, PS-2B, PS-3)
48.718	30	Woods, Good, HSG A (PS-1A, PS-1B, PS-2B, PS-3)
101.483	**36**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-1A: Runoff Area=728,043 sf 2.10% Impervious Runoff Depth=0.00"
Flow Length=1,469' Tc=105.9 min CN=37 Runoff=0.00 cfs 0.000 af

Subcatchment PS-1B: Runoff Area=1,143,262 sf 0.86% Impervious Runoff Depth=0.00"
Flow Length=494' Tc=15.4 min CN=35 Runoff=0.00 cfs 0.000 af

Subcatchment PS-2A: Runoff Area=845,587 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,006' Slope=0.0130 '/' Tc=39.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment PS-2B: Runoff Area=1,593,414 sf 0.79% Impervious Runoff Depth=0.00"
Flow Length=509' Tc=37.5 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment PS-3: Runoff Area=110,278 sf 28.61% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=55 Runoff=0.00 cfs 0.001 af

Reach AP-1: Analysis Point Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond BIO-1: Infiltration Bioretention (2.5ft filter Peak Elev=504.50' Storage=0 cf Inflow=0.00 cfs 0.001 af
Discarded=0.00 cfs 0.001 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond P-1: Detention Basin Peak Elev=501.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond P-2: Detention Basin Peak Elev=496.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 101.483 ac Runoff Volume = 0.001 af Average Runoff Depth = 0.00"
98.43% Pervious = 99.893 ac 1.57% Impervious = 1.590 ac

Summary for Subcatchment PS-1A:

[45] Hint: Runoff=Zero

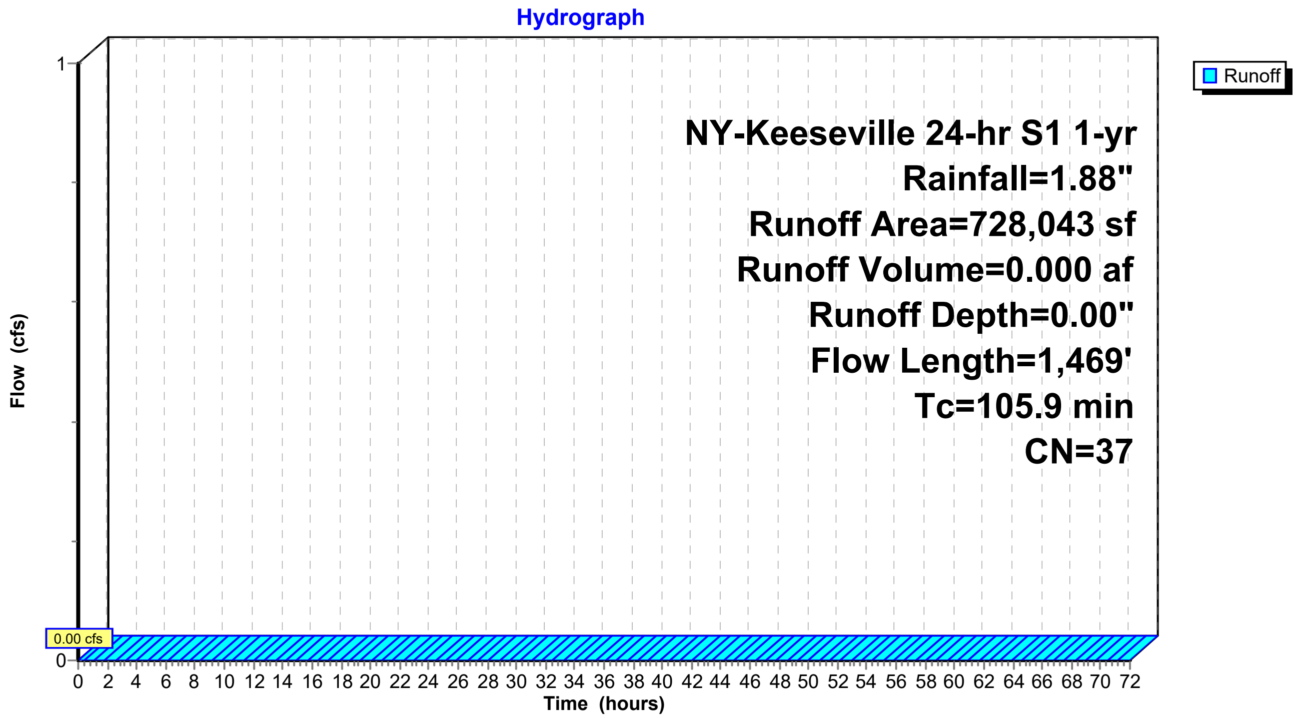
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P-1 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
15,305	98	Paved parking, HSG A
16,011	72	Dirt roads, HSG A
353,436	39	>75% Grass cover, Good, HSG A
343,291	30	Woods, Good, HSG A
728,043	37	Weighted Average
712,738		97.90% Pervious Area
15,305		2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
47.9	826	0.0033	0.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.3	543	0.0913	2.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
105.9	1,469	Total			

Subcatchment PS-1A:



Hydrograph for Subcatchment PS-1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.00
11.00	0.43	0.00	0.00
12.00	1.05	0.00	0.00
13.00	1.45	0.00	0.00
14.00	1.55	0.00	0.00
15.00	1.61	0.00	0.00
16.00	1.66	0.00	0.00
17.00	1.70	0.00	0.00
18.00	1.73	0.00	0.00
19.00	1.76	0.00	0.00
20.00	1.79	0.00	0.00
21.00	1.82	0.00	0.00
22.00	1.84	0.00	0.00
23.00	1.86	0.00	0.00
24.00	**1.88**	0.00	0.00
25.00	1.88	0.00	0.00
26.00	1.88	0.00	0.00
27.00	1.88	0.00	0.00
28.00	1.88	0.00	0.00
29.00	1.88	0.00	0.00
30.00	1.88	0.00	0.00
31.00	1.88	0.00	0.00
32.00	1.88	0.00	0.00
33.00	1.88	0.00	0.00
34.00	1.88	0.00	0.00
35.00	1.88	0.00	0.00
36.00	1.88	0.00	0.00
37.00	1.88	0.00	0.00
38.00	1.88	0.00	0.00
39.00	1.88	0.00	0.00
40.00	1.88	0.00	0.00
41.00	1.88	0.00	0.00
42.00	1.88	0.00	0.00
43.00	1.88	0.00	0.00
44.00	1.88	0.00	0.00
45.00	1.88	0.00	0.00
46.00	1.88	0.00	0.00
47.00	1.88	0.00	0.00
48.00	1.88	0.00	0.00
49.00	1.88	0.00	0.00
50.00	1.88	0.00	0.00
51.00	1.88	0.00	0.00

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	1.88	0.00	0.00
53.00	1.88	0.00	0.00
54.00	1.88	0.00	0.00
55.00	1.88	0.00	0.00
56.00	1.88	0.00	0.00
57.00	1.88	0.00	0.00
58.00	1.88	0.00	0.00
59.00	1.88	0.00	0.00
60.00	1.88	0.00	0.00
61.00	1.88	0.00	0.00
62.00	1.88	0.00	0.00
63.00	1.88	0.00	0.00
64.00	1.88	0.00	0.00
65.00	1.88	0.00	0.00
66.00	1.88	0.00	0.00
67.00	1.88	0.00	0.00
68.00	1.88	0.00	0.00
69.00	1.88	0.00	0.00
70.00	1.88	0.00	0.00
71.00	1.88	0.00	0.00
72.00	1.88	0.00	0.00

Summary for Subcatchment PS-1B:

[45] Hint: Runoff=Zero

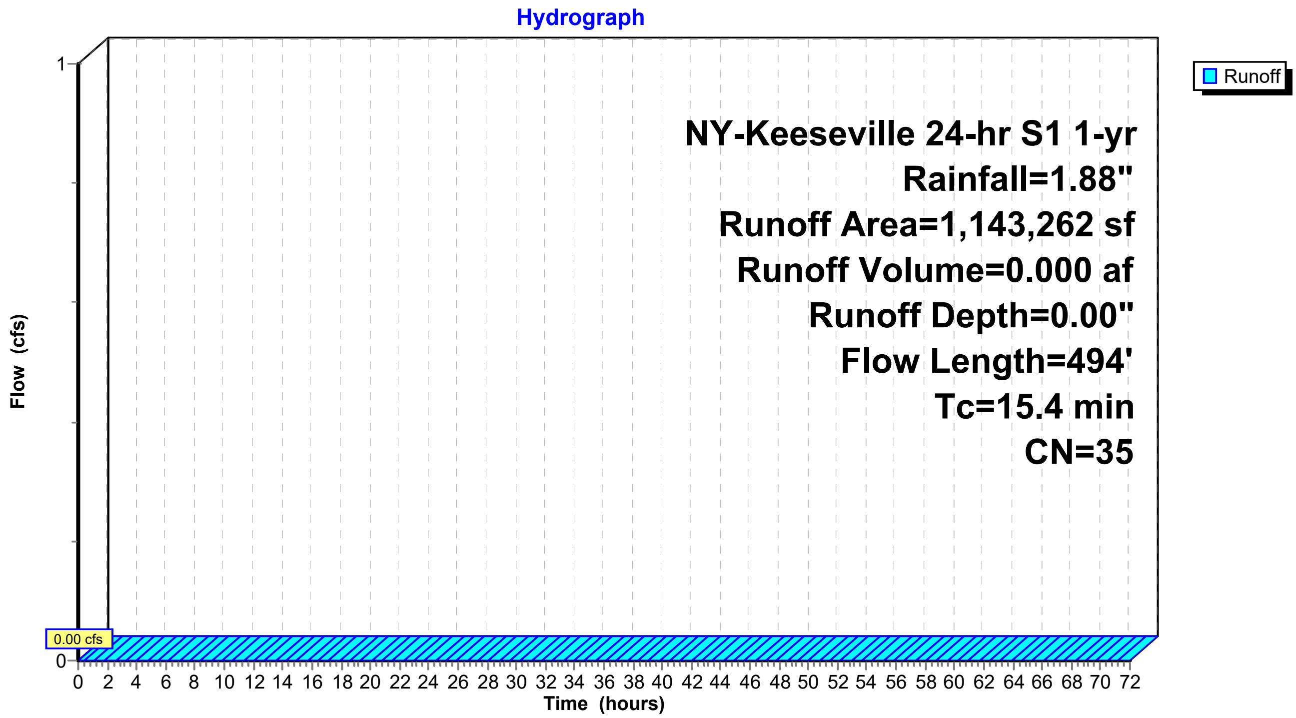
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
9,776	98	Paved parking, HSG A
21,255	72	Dirt roads, HSG A
474,403	39	>75% Grass cover, Good, HSG A
637,828	30	Woods, Good, HSG A
1,143,262	35	Weighted Average
1,133,486		99.14% Pervious Area
9,776		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0606	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
4.3	394	0.0913	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	494	Total			

Subcatchment PS-1B:



Hydrograph for Subcatchment PS-1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.00
11.00	0.43	0.00	0.00
12.00	1.05	0.00	0.00
13.00	1.45	0.00	0.00
14.00	1.55	0.00	0.00
15.00	1.61	0.00	0.00
16.00	1.66	0.00	0.00
17.00	1.70	0.00	0.00
18.00	1.73	0.00	0.00
19.00	1.76	0.00	0.00
20.00	1.79	0.00	0.00
21.00	1.82	0.00	0.00
22.00	1.84	0.00	0.00
23.00	1.86	0.00	0.00
24.00	**1.88**	0.00	0.00
25.00	1.88	0.00	0.00
26.00	1.88	0.00	0.00
27.00	1.88	0.00	0.00
28.00	1.88	0.00	0.00
29.00	1.88	0.00	0.00
30.00	1.88	0.00	0.00
31.00	1.88	0.00	0.00
32.00	1.88	0.00	0.00
33.00	1.88	0.00	0.00
34.00	1.88	0.00	0.00
35.00	1.88	0.00	0.00
36.00	1.88	0.00	0.00
37.00	1.88	0.00	0.00
38.00	1.88	0.00	0.00
39.00	1.88	0.00	0.00
40.00	1.88	0.00	0.00
41.00	1.88	0.00	0.00
42.00	1.88	0.00	0.00
43.00	1.88	0.00	0.00
44.00	1.88	0.00	0.00
45.00	1.88	0.00	0.00
46.00	1.88	0.00	0.00
47.00	1.88	0.00	0.00
48.00	1.88	0.00	0.00
49.00	1.88	0.00	0.00
50.00	1.88	0.00	0.00
51.00	1.88	0.00	0.00

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	1.88	0.00	0.00
53.00	1.88	0.00	0.00
54.00	1.88	0.00	0.00
55.00	1.88	0.00	0.00
56.00	1.88	0.00	0.00
57.00	1.88	0.00	0.00
58.00	1.88	0.00	0.00
59.00	1.88	0.00	0.00
60.00	1.88	0.00	0.00
61.00	1.88	0.00	0.00
62.00	1.88	0.00	0.00
63.00	1.88	0.00	0.00
64.00	1.88	0.00	0.00
65.00	1.88	0.00	0.00
66.00	1.88	0.00	0.00
67.00	1.88	0.00	0.00
68.00	1.88	0.00	0.00
69.00	1.88	0.00	0.00
70.00	1.88	0.00	0.00
71.00	1.88	0.00	0.00
72.00	1.88	0.00	0.00

Summary for Subcatchment PS-2A:

[45] Hint: Runoff=Zero

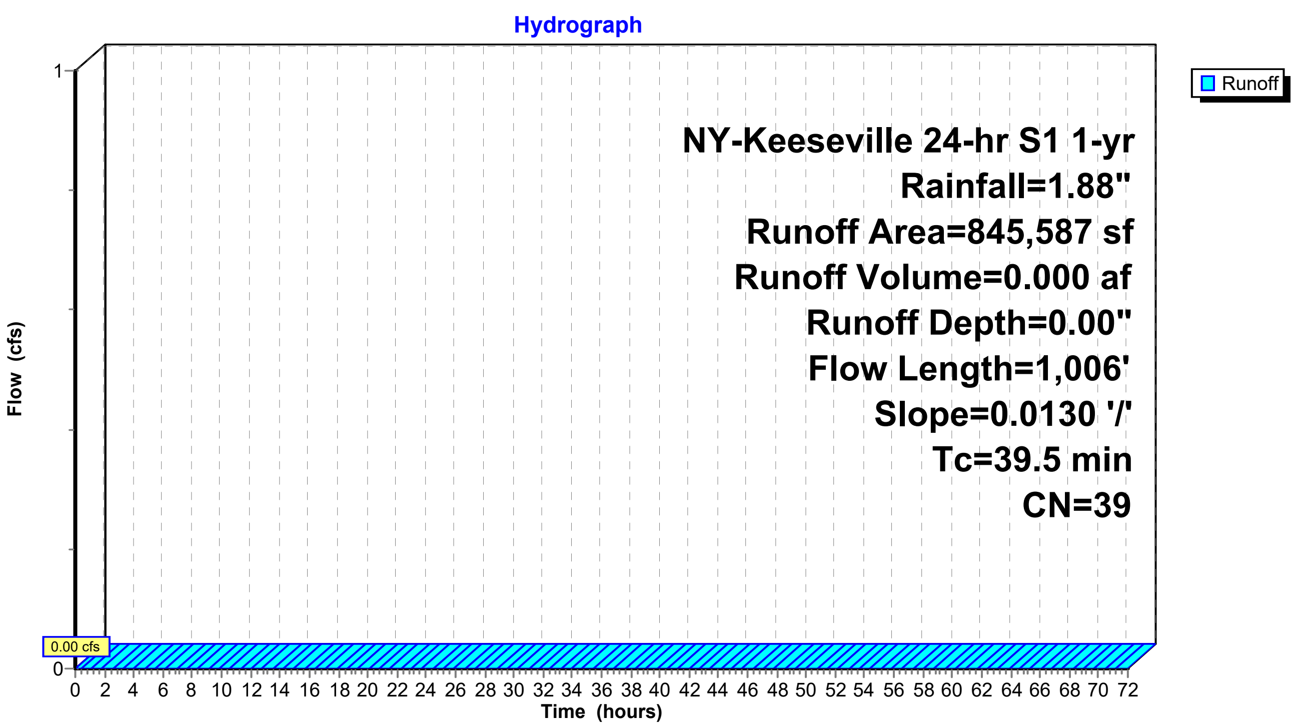
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P-2 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	72	Dirt roads, HSG A
845,587	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
845,587	39	Weighted Average
845,587		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0130	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
18.9	906	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.5	1,006	Total			

Subcatchment PS-2A:



Hydrograph for Subcatchment PS-2A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.00
11.00	0.43	0.00	0.00
12.00	1.05	0.00	0.00
13.00	1.45	0.00	0.00
14.00	1.55	0.00	0.00
15.00	1.61	0.00	0.00
16.00	1.66	0.00	0.00
17.00	1.70	0.00	0.00
18.00	1.73	0.00	0.00
19.00	1.76	0.00	0.00
20.00	1.79	0.00	0.00
21.00	1.82	0.00	0.00
22.00	1.84	0.00	0.00
23.00	1.86	0.00	0.00
24.00	**1.88**	0.00	0.00
25.00	1.88	0.00	0.00
26.00	1.88	0.00	0.00
27.00	1.88	0.00	0.00
28.00	1.88	0.00	0.00
29.00	1.88	0.00	0.00
30.00	1.88	0.00	0.00
31.00	1.88	0.00	0.00
32.00	1.88	0.00	0.00
33.00	1.88	0.00	0.00
34.00	1.88	0.00	0.00
35.00	1.88	0.00	0.00
36.00	1.88	0.00	0.00
37.00	1.88	0.00	0.00
38.00	1.88	0.00	0.00
39.00	1.88	0.00	0.00
40.00	1.88	0.00	0.00
41.00	1.88	0.00	0.00
42.00	1.88	0.00	0.00
43.00	1.88	0.00	0.00
44.00	1.88	0.00	0.00
45.00	1.88	0.00	0.00
46.00	1.88	0.00	0.00
47.00	1.88	0.00	0.00
48.00	1.88	0.00	0.00
49.00	1.88	0.00	0.00
50.00	1.88	0.00	0.00
51.00	1.88	0.00	0.00
52.00	1.88	0.00	0.00
53.00	1.88	0.00	0.00
54.00	1.88	0.00	0.00
55.00	1.88	0.00	0.00
56.00	1.88	0.00	0.00
57.00	1.88	0.00	0.00
58.00	1.88	0.00	0.00
59.00	1.88	0.00	0.00
60.00	1.88	0.00	0.00
61.00	1.88	0.00	0.00
62.00	1.88	0.00	0.00
63.00	1.88	0.00	0.00
64.00	1.88	0.00	0.00
65.00	1.88	0.00	0.00
66.00	1.88	0.00	0.00
67.00	1.88	0.00	0.00
68.00	1.88	0.00	0.00
69.00	1.88	0.00	0.00
70.00	1.88	0.00	0.00
71.00	1.88	0.00	0.00
72.00	1.88	0.00	0.00

Summary for Subcatchment PS-2B:

[45] Hint: Runoff=Zero

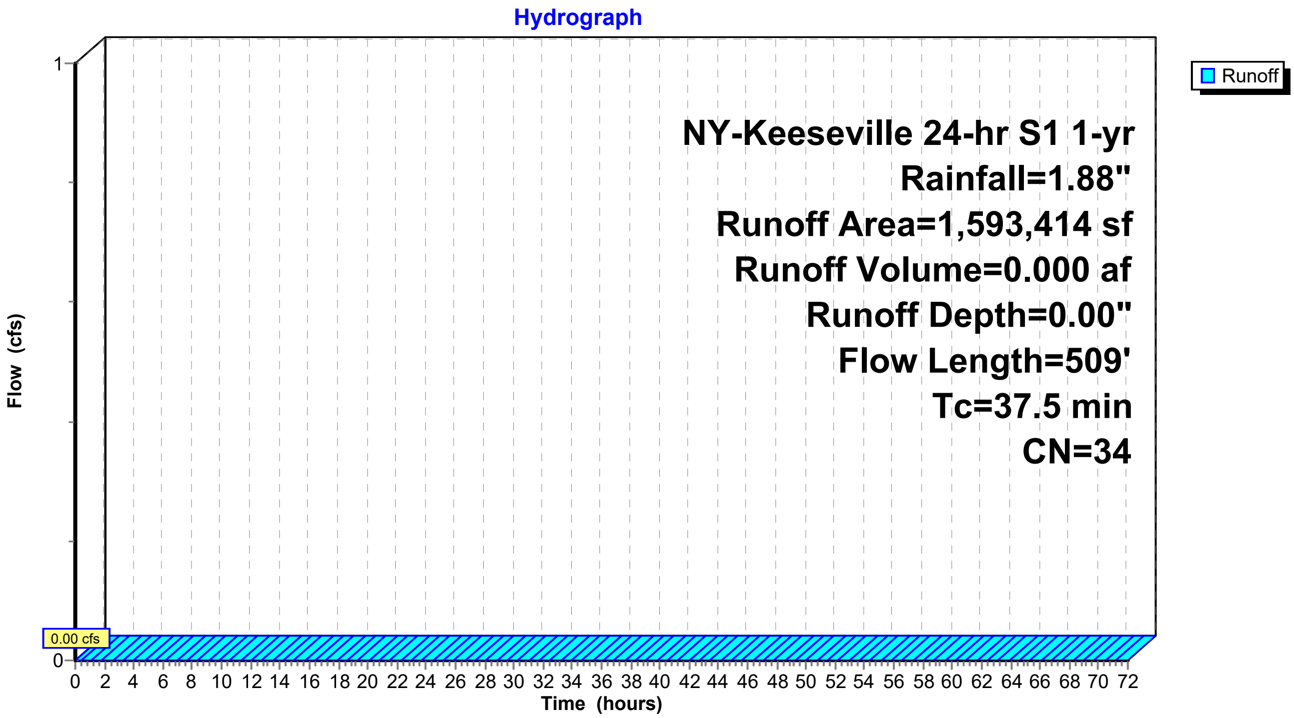
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
62,536	72	Dirt roads, HSG A
386,320	39	>75% Grass cover, Good, HSG A
1,131,946	30	Woods, Good, HSG A
1,593,414	34	Weighted Average
1,580,802		99.21% Pervious Area
12,612		0.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
3.6	122	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.5	509	Total			

Subcatchment PS-2B:



Hydrograph for Subcatchment PS-2B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**	52.00	1.88	0.00	0.00
1.00	0.02	0.00	0.00	53.00	1.88	0.00	0.00
2.00	0.04	0.00	0.00	54.00	1.88	0.00	0.00
3.00	0.06	0.00	0.00	55.00	1.88	0.00	0.00
4.00	0.09	0.00	0.00	56.00	1.88	0.00	0.00
5.00	0.12	0.00	0.00	57.00	1.88	0.00	0.00
6.00	0.15	0.00	0.00	58.00	1.88	0.00	0.00
7.00	0.18	0.00	0.00	59.00	1.88	0.00	0.00
8.00	0.22	0.00	0.00	60.00	1.88	0.00	0.00
9.00	0.27	0.00	0.00	61.00	1.88	0.00	0.00
10.00	0.34	0.00	0.00	62.00	1.88	0.00	0.00
11.00	0.43	0.00	0.00	63.00	1.88	0.00	0.00
12.00	1.05	0.00	0.00	64.00	1.88	0.00	0.00
13.00	1.45	0.00	0.00	65.00	1.88	0.00	0.00
14.00	1.55	0.00	0.00	66.00	1.88	0.00	0.00
15.00	1.61	0.00	0.00	67.00	1.88	0.00	0.00
16.00	1.66	0.00	0.00	68.00	1.88	0.00	0.00
17.00	1.70	0.00	0.00	69.00	1.88	0.00	0.00
18.00	1.73	0.00	0.00	70.00	1.88	0.00	0.00
19.00	1.76	0.00	0.00	71.00	1.88	0.00	0.00
20.00	1.79	0.00	0.00	72.00	1.88	0.00	0.00
21.00	1.82	0.00	0.00				
22.00	1.84	0.00	0.00				
23.00	1.86	0.00	0.00				
24.00	**1.88**	0.00	0.00				
25.00	1.88	0.00	0.00				
26.00	1.88	0.00	0.00				
27.00	1.88	0.00	0.00				
28.00	1.88	0.00	0.00				
29.00	1.88	0.00	0.00				
30.00	1.88	0.00	0.00				
31.00	1.88	0.00	0.00				
32.00	1.88	0.00	0.00				
33.00	1.88	0.00	0.00				
34.00	1.88	0.00	0.00				
35.00	1.88	0.00	0.00				
36.00	1.88	0.00	0.00				
37.00	1.88	0.00	0.00				
38.00	1.88	0.00	0.00				
39.00	1.88	0.00	0.00				
40.00	1.88	0.00	0.00				
41.00	1.88	0.00	0.00				
42.00	1.88	0.00	0.00				
43.00	1.88	0.00	0.00				
44.00	1.88	0.00	0.00				
45.00	1.88	0.00	0.00				
46.00	1.88	0.00	0.00				
47.00	1.88	0.00	0.00				
48.00	1.88	0.00	0.00				
49.00	1.88	0.00	0.00				
50.00	1.88	0.00	0.00				
51.00	1.88	0.00	0.00				

Summary for Subcatchment PS-3:

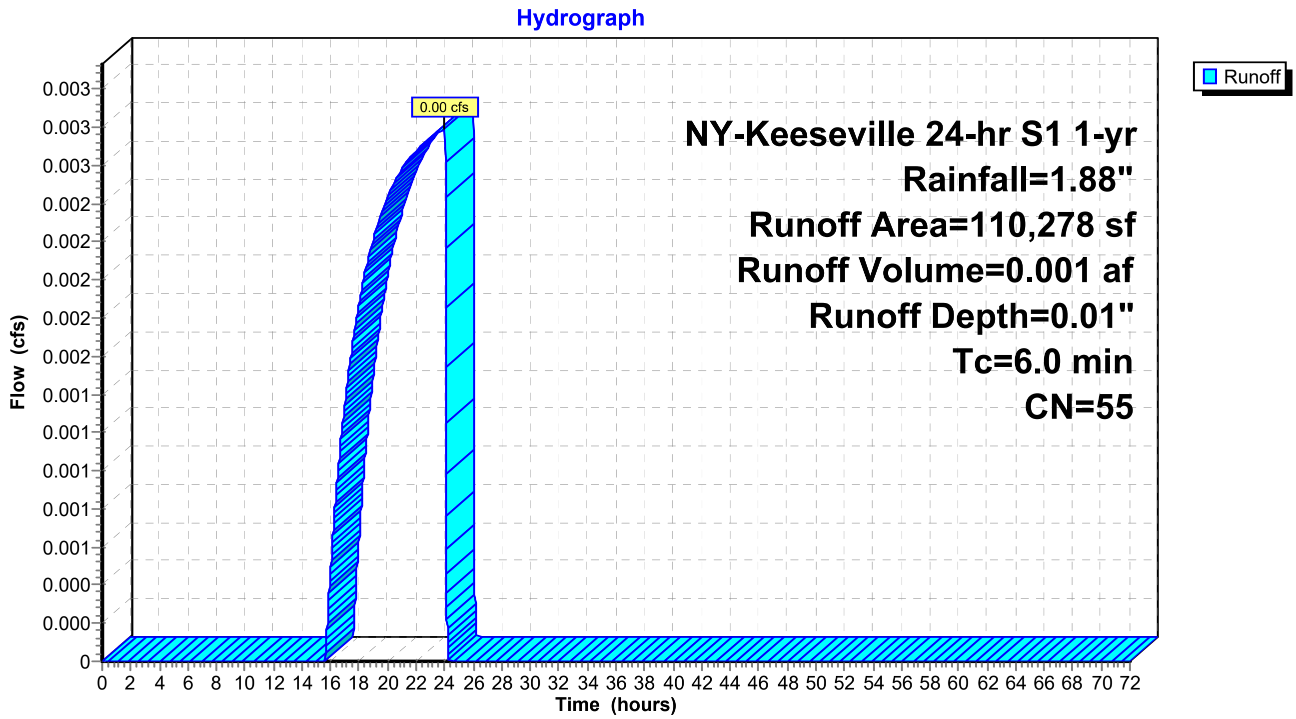
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.001 af, Depth= 0.01"
Routed to Pond BIO-1 : Infiltration Bioretention (2.5ft filter media)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 1-yr Rainfall=1.88"

Area (sf)	CN	Description
31,551	98	Paved parking, HSG A
455	72	Dirt roads, HSG A
69,201	39	>75% Grass cover, Good, HSG A
9,071	30	Woods, Good, HSG A
110,278	55	Weighted Average
78,727		71.39% Pervious Area
31,551		28.61% Impervious Area

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

Subcatchment PS-3:



Hydrograph for Subcatchment PS-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.00
11.00	0.43	0.00	0.00
12.00	1.05	0.00	0.00
13.00	1.45	0.00	0.00
14.00	1.55	0.00	0.00
15.00	1.61	0.00	0.00
16.00	1.66	0.00	0.00
17.00	1.70	0.00	0.00
18.00	1.73	0.00	0.00
19.00	1.76	0.00	0.00
20.00	1.79	0.00	0.00
21.00	1.82	0.00	0.00
22.00	1.84	0.00	0.00
23.00	1.86	0.01	0.00
24.00	**1.88**	**0.01**	**0.00**
25.00	1.88	0.01	**0.00**
26.00	1.88	0.01	0.00
27.00	1.88	0.01	0.00
28.00	1.88	0.01	0.00
29.00	1.88	0.01	0.00
30.00	1.88	0.01	0.00
31.00	1.88	0.01	0.00
32.00	1.88	0.01	0.00
33.00	1.88	0.01	0.00
34.00	1.88	0.01	0.00
35.00	1.88	0.01	0.00
36.00	1.88	0.01	0.00
37.00	1.88	0.01	0.00
38.00	1.88	0.01	0.00
39.00	1.88	0.01	0.00
40.00	1.88	0.01	0.00
41.00	1.88	0.01	0.00
42.00	1.88	0.01	0.00
43.00	1.88	0.01	0.00
44.00	1.88	0.01	0.00
45.00	1.88	0.01	0.00
46.00	1.88	0.01	0.00
47.00	1.88	0.01	0.00
48.00	1.88	0.01	0.00
49.00	1.88	0.01	0.00
50.00	1.88	0.01	0.00
51.00	1.88	0.01	0.00

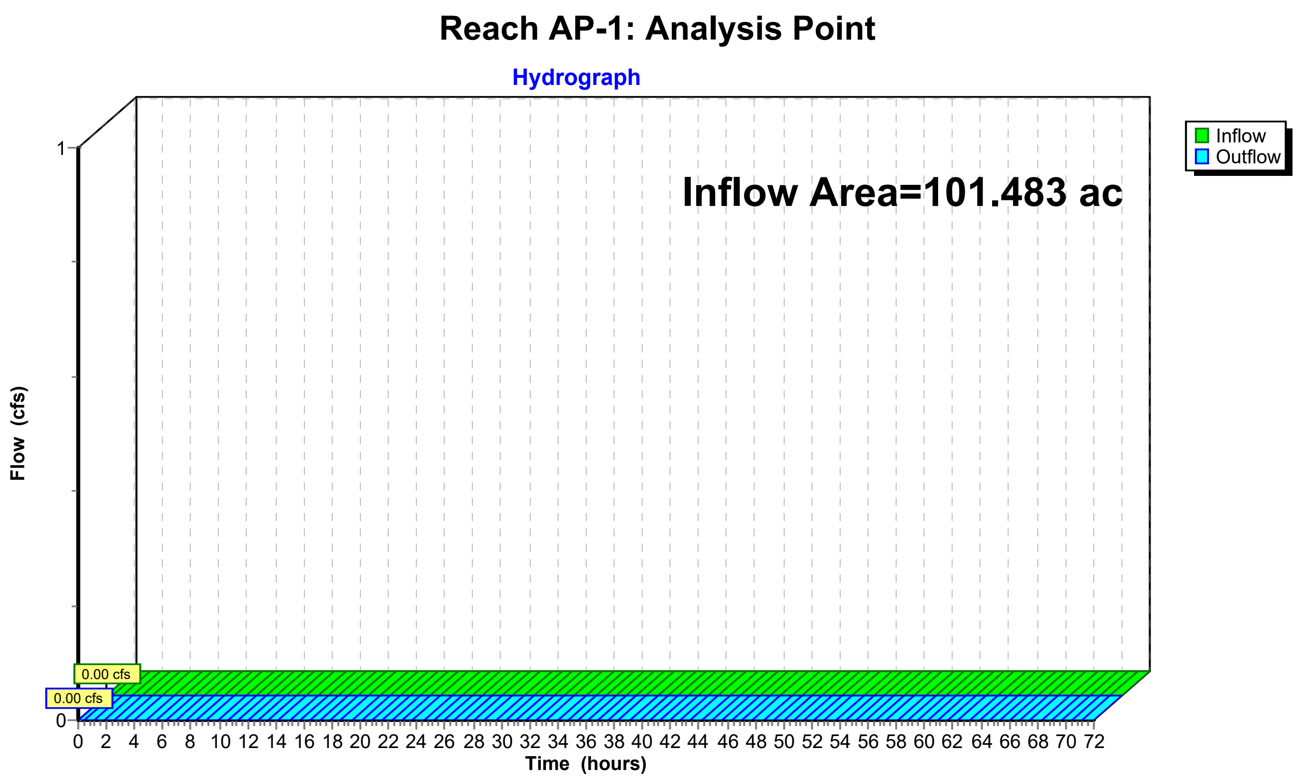
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	1.88	0.01	0.00
53.00	1.88	0.01	0.00
54.00	1.88	0.01	0.00
55.00	1.88	0.01	0.00
56.00	1.88	0.01	0.00
57.00	1.88	0.01	0.00
58.00	1.88	0.01	0.00
59.00	1.88	0.01	0.00
60.00	1.88	0.01	0.00
61.00	1.88	0.01	0.00
62.00	1.88	0.01	0.00
63.00	1.88	0.01	0.00
64.00	1.88	0.01	0.00
65.00	1.88	0.01	0.00
66.00	1.88	0.01	0.00
67.00	1.88	0.01	0.00
68.00	1.88	0.01	0.00
69.00	1.88	0.01	0.00
70.00	1.88	0.01	0.00
71.00	1.88	0.01	0.00
72.00	1.88	0.01	0.00

Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 1.57% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Hydrograph for Reach AP-1: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**		**0.00**
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.00		0.00
12.00	0.00		0.00
13.00	0.00		0.00
14.00	0.00		0.00
15.00	0.00		0.00
16.00	0.00		0.00
17.00	0.00		0.00
18.00	0.00		0.00
19.00	0.00		0.00
20.00	0.00		0.00
21.00	0.00		0.00
22.00	0.00		0.00
23.00	0.00		0.00
24.00	0.00		0.00
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Inflow Area = 2.532 ac, 28.61% Impervious, Inflow Depth = 0.01" for 1-yr event
Inflow = 0.00 cfs @ 24.01 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 24.01 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1 : Detention Basin

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 504.50' @ 0.00 hrs Surf.Area= 2,217 sf Storage= 0 cf
Flood Elev= 505.50' Surf.Area= 3,049 sf Storage= 2,575 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,236.2 - 1,236.2)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	2,575 cf	**6" Ponding (Prismatic)**Listed below (Recalc)

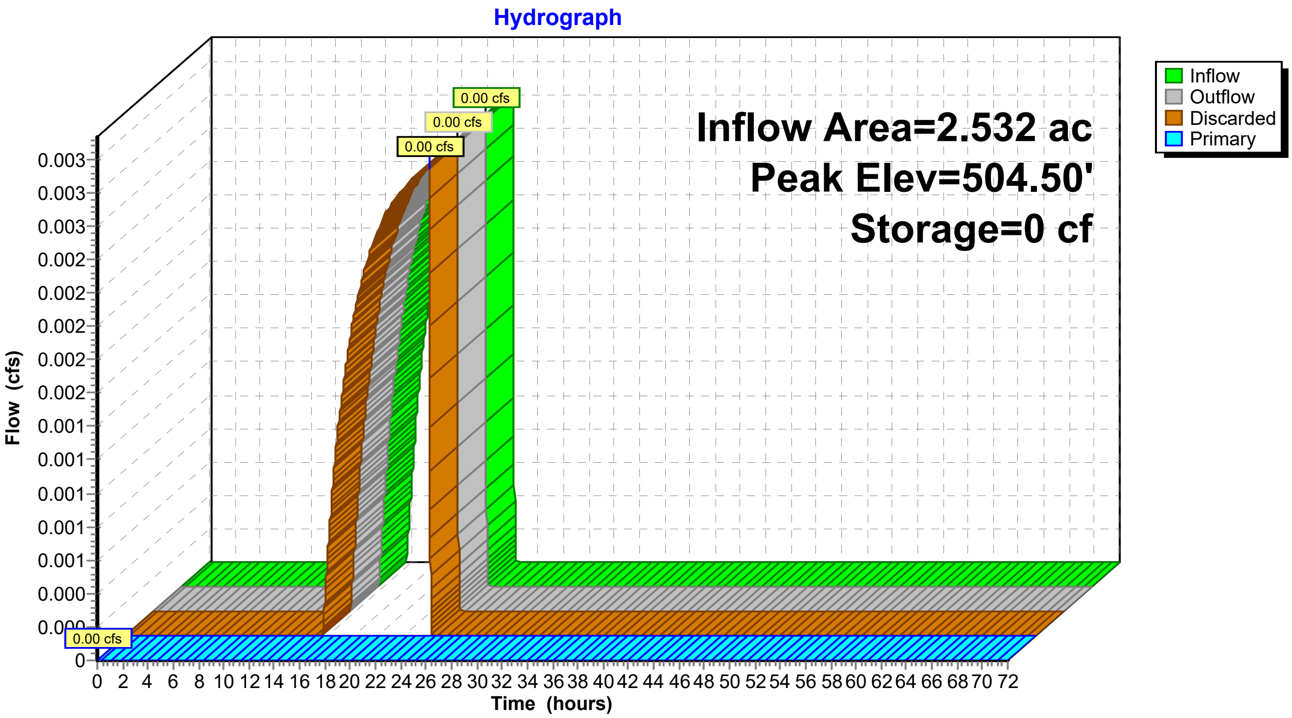
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
504.50	2,217	0	0
505.00	2,517	1,184	1,184
505.50	3,049	1,392	2,575

Device	Routing	Invert	Outlet Devices
#1	Discarded	504.50'	**0.250 in/hr Exfiltration Through Media over Surface area**
#2	Primary	505.00'	**10.0' long x 3.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

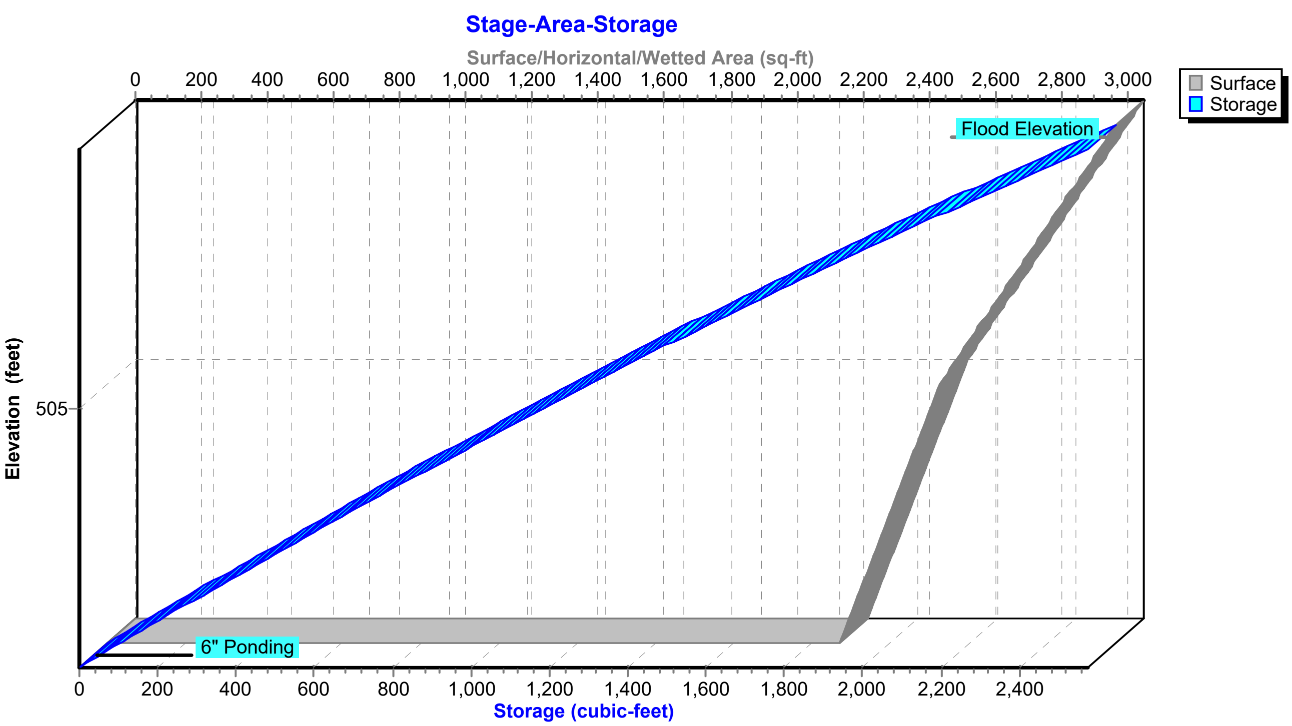
Discarded OutFlow Max=0.00 cfs @ 24.01 hrs HW=504.50' (Free Discharge)
1=Exfiltration Through Media (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=504.50' TW=501.00' (Dynamic Tailwater)
2=Emergency Overflow Weir (Controls 0.00 cfs)

Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Hydrograph for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**504.50**	0.00	0.00	**0.00**
2.00	0.00	0	504.50	0.00	0.00	0.00
4.00	0.00	0	504.50	0.00	0.00	0.00
6.00	0.00	0	504.50	0.00	0.00	0.00
8.00	0.00	0	504.50	0.00	0.00	0.00
10.00	0.00	0	504.50	0.00	0.00	0.00
12.00	0.00	0	504.50	0.00	0.00	0.00
14.00	0.00	0	504.50	0.00	0.00	0.00
16.00	0.00	0	504.50	0.00	0.00	0.00
18.00	0.00	**0**	504.50	0.00	0.00	0.00
20.00	0.00	**0**	504.50	0.00	0.00	0.00
22.00	0.00	0	504.50	0.00	0.00	0.00
24.00	**0.00**	0	504.50	**0.00**	**0.00**	0.00
26.00	**0.00**	0	504.50	**0.00**	**0.00**	0.00
28.00	0.00	0	504.50	0.00	0.00	0.00
30.00	0.00	0	504.50	0.00	0.00	0.00
32.00	0.00	0	504.50	0.00	0.00	0.00
34.00	0.00	0	504.50	0.00	0.00	0.00
36.00	0.00	0	504.50	0.00	0.00	0.00
38.00	0.00	0	504.50	0.00	0.00	0.00
40.00	0.00	0	504.50	0.00	0.00	0.00
42.00	0.00	0	504.50	0.00	0.00	0.00
44.00	0.00	0	504.50	0.00	0.00	0.00
46.00	0.00	0	504.50	0.00	0.00	0.00
48.00	0.00	0	504.50	0.00	0.00	0.00
50.00	0.00	0	504.50	0.00	0.00	0.00
52.00	0.00	0	504.50	0.00	0.00	0.00
54.00	0.00	0	504.50	0.00	0.00	0.00
56.00	0.00	0	504.50	0.00	0.00	0.00
58.00	0.00	0	504.50	0.00	0.00	0.00
60.00	0.00	0	504.50	0.00	0.00	0.00
62.00	0.00	0	504.50	0.00	0.00	0.00
64.00	0.00	0	504.50	0.00	0.00	0.00
66.00	0.00	0	504.50	0.00	0.00	0.00
68.00	0.00	0	504.50	0.00	0.00	0.00
70.00	0.00	0	504.50	0.00	0.00	0.00
72.00	0.00	0	504.50	0.00	0.00	0.00

Summary for Pond P-1: Detention Basin

Inflow Area = 19.245 ac, 5.59% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 501.00' @ 0.00 hrs Surf.Area= 3,564 sf Storage= 0 cf
Flood Elev= 506.50' Surf.Area= 8,838 sf Storage= 32,460 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

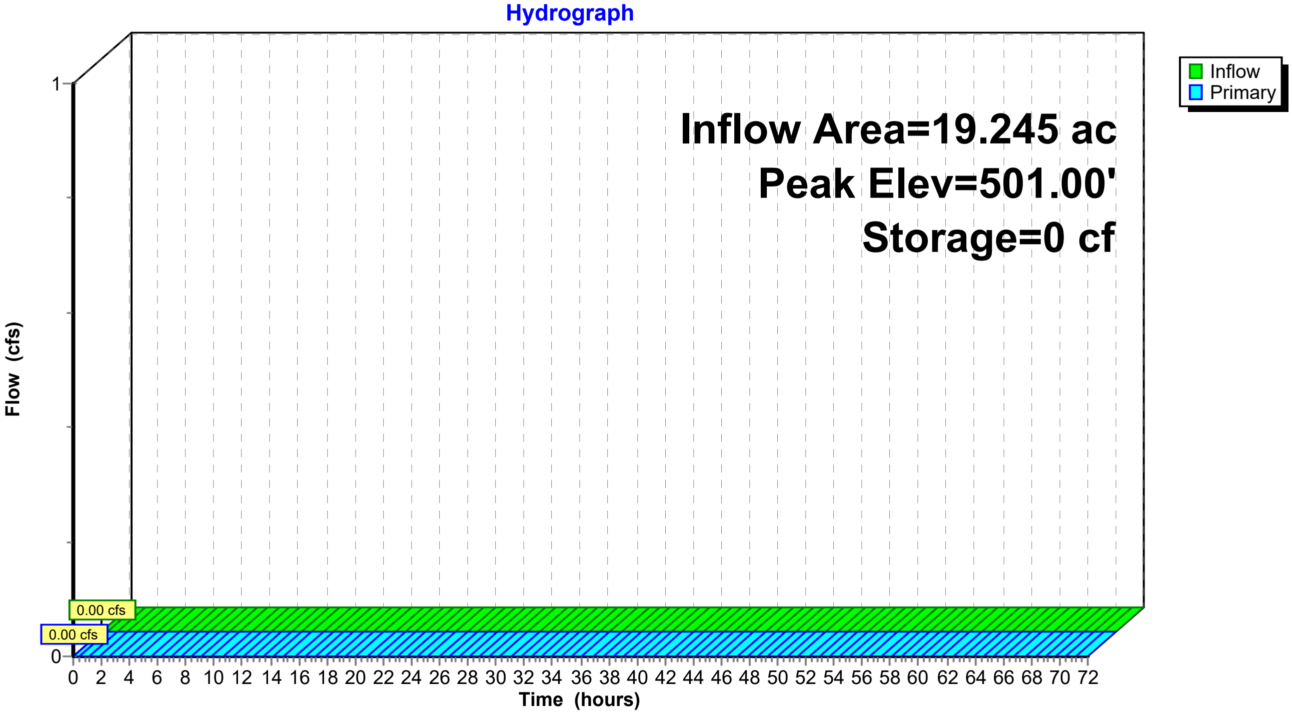
Volume	Invert	Avail.Storage	Storage Description
#1	501.00'	32,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
501.00	3,564	0	0
502.00	4,330	3,947	3,947
503.00	5,155	4,743	8,690
504.00	6,035	5,595	14,285
505.00	6,973	6,504	20,789
506.00	7,967	7,470	28,259
506.50	8,838	4,201	32,460

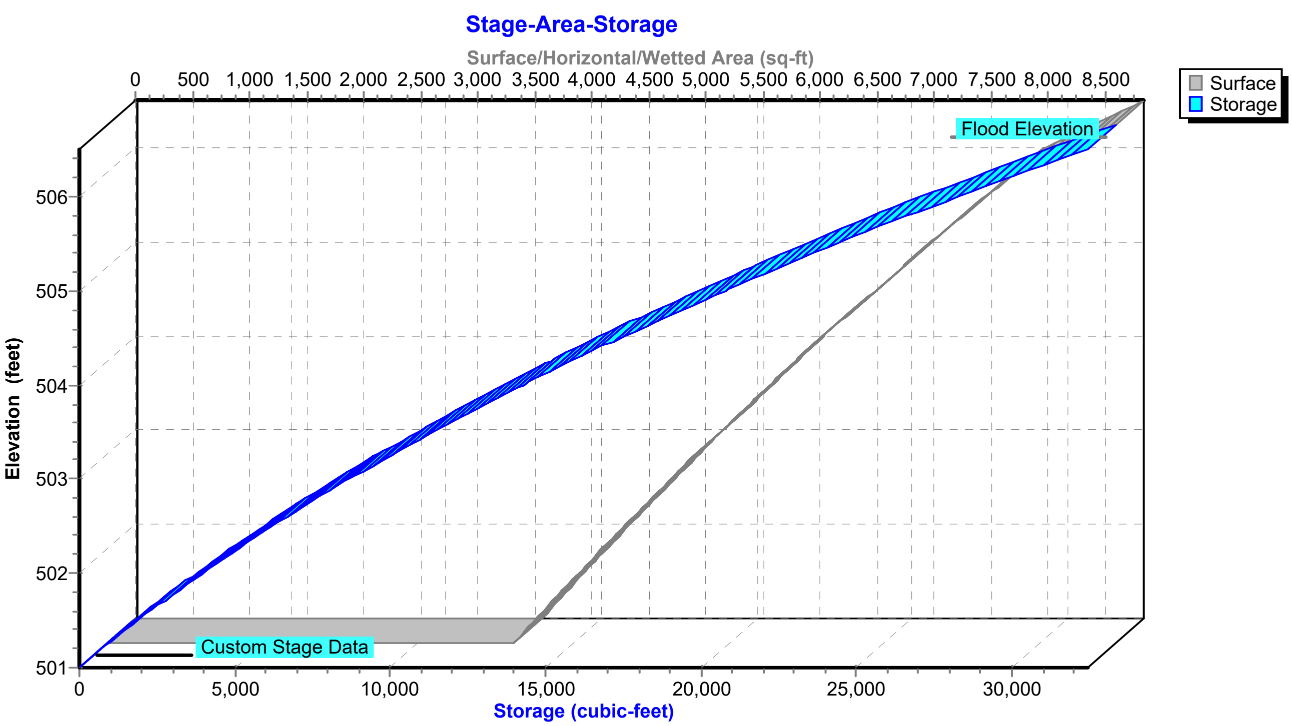
Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=501.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P-1: Detention Basin



Pond P-1: Detention Basin



Hydrograph for Pond P-1: Detention Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**501.00**	**0.00**
1.00	0.00	501.00	0.00
2.00	0.00	501.00	0.00
3.00	0.00	501.00	0.00
4.00	0.00	501.00	0.00
5.00	0.00	501.00	0.00
6.00	0.00	501.00	0.00
7.00	0.00	501.00	0.00
8.00	0.00	501.00	0.00
9.00	0.00	501.00	0.00
10.00	0.00	501.00	0.00
11.00	0.00	501.00	0.00
12.00	0.00	501.00	0.00
13.00	0.00	501.00	0.00
14.00	0.00	501.00	0.00
15.00	0.00	501.00	0.00
16.00	0.00	501.00	0.00
17.00	0.00	501.00	0.00
18.00	0.00	501.00	0.00
19.00	0.00	501.00	0.00
20.00	0.00	501.00	0.00
21.00	0.00	501.00	0.00
22.00	0.00	501.00	0.00
23.00	0.00	501.00	0.00
24.00	0.00	501.00	0.00
25.00	0.00	501.00	0.00
26.00	0.00	501.00	0.00
27.00	0.00	501.00	0.00
28.00	0.00	501.00	0.00
29.00	0.00	501.00	0.00
30.00	0.00	501.00	0.00
31.00	0.00	501.00	0.00
32.00	0.00	501.00	0.00
33.00	0.00	501.00	0.00
34.00	0.00	501.00	0.00
35.00	0.00	501.00	0.00
36.00	0.00	501.00	0.00
37.00	0.00	501.00	0.00
38.00	0.00	501.00	0.00
39.00	0.00	501.00	0.00
40.00	0.00	501.00	0.00
41.00	0.00	501.00	0.00
42.00	0.00	501.00	0.00
43.00	0.00	501.00	0.00
44.00	0.00	501.00	0.00
45.00	0.00	501.00	0.00
46.00	0.00	501.00	0.00
47.00	0.00	501.00	0.00
48.00	0.00	501.00	0.00
49.00	0.00	501.00	0.00
50.00	0.00	501.00	0.00
51.00	0.00	501.00	0.00
52.00	0.00	501.00	0.00
53.00	0.00	501.00	0.00
54.00	0.00	501.00	0.00
55.00	0.00	501.00	0.00
56.00	0.00	501.00	0.00
57.00	0.00	501.00	0.00
58.00	0.00	501.00	0.00
59.00	0.00	501.00	0.00
60.00	0.00	501.00	0.00
61.00	0.00	501.00	0.00
62.00	0.00	501.00	0.00
63.00	0.00	501.00	0.00
64.00	0.00	501.00	0.00
65.00	0.00	501.00	0.00
66.00	0.00	501.00	0.00
67.00	0.00	501.00	0.00
68.00	0.00	501.00	0.00
69.00	0.00	501.00	0.00
70.00	0.00	501.00	0.00
71.00	0.00	501.00	0.00
72.00	0.00	501.00	0.00

Summary for Pond P-2: Detention Basin

Inflow Area = 19.412 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 496.00' @ 0.00 hrs Surf.Area= 3,905 sf Storage= 0 cf
Flood Elev= 499.50' Surf.Area= 7,923 sf Storage= 19,936 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

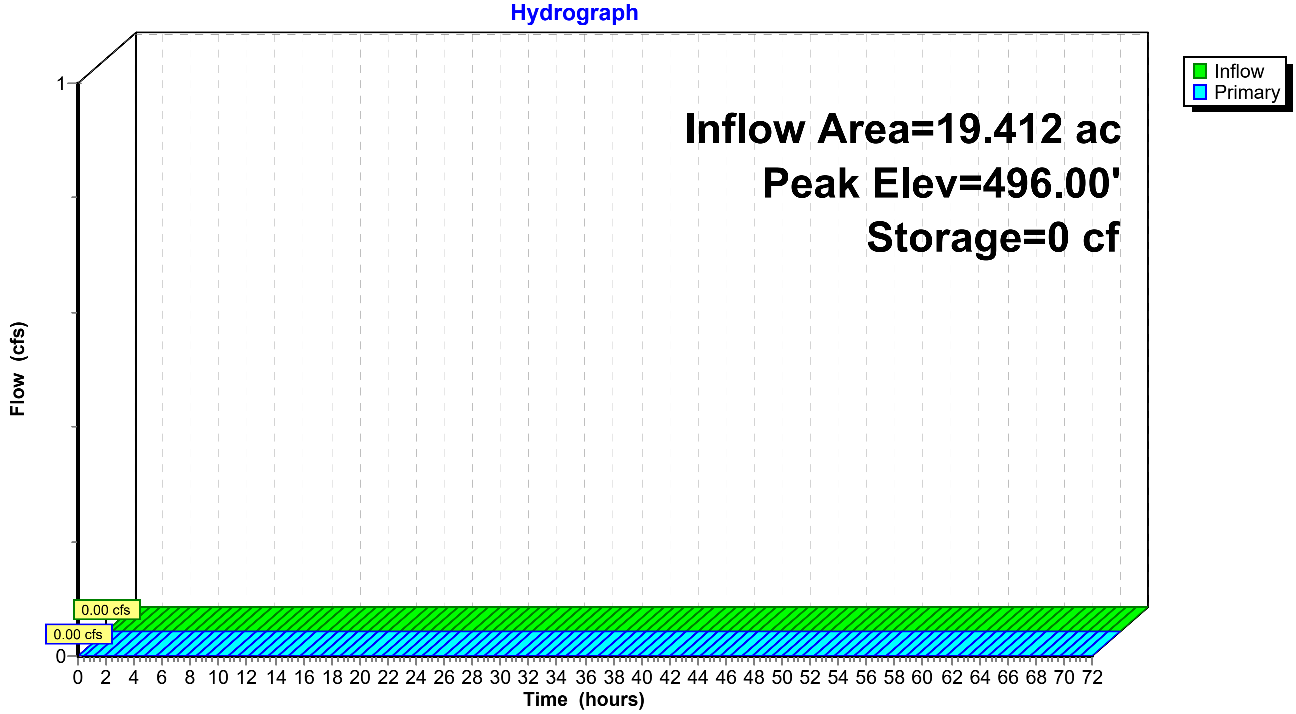
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	19,936 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	3,905	0	0
497.00	4,872	4,389	4,389
498.00	5,897	5,385	9,773
499.00	6,978	6,438	16,211
499.50	7,923	3,725	19,936

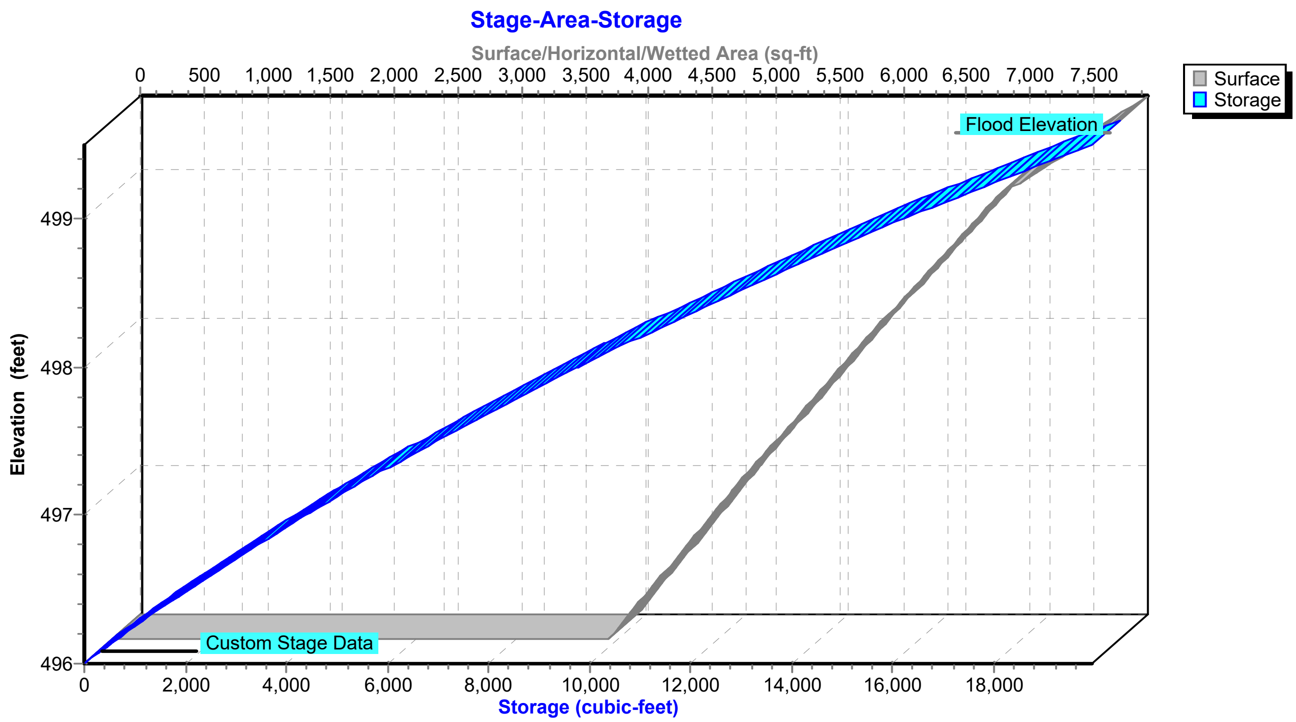
Device	Routing	Invert	Outlet Devices
#1	Primary	499.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P-2: Detention Basin



Pond P-2: Detention Basin



Hydrograph for Pond P-2: Detention Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**496.00**	**0.00**
1.00	0.00	496.00	0.00
2.00	0.00	496.00	0.00
3.00	0.00	496.00	0.00
4.00	0.00	496.00	0.00
5.00	0.00	496.00	0.00
6.00	0.00	496.00	0.00
7.00	0.00	496.00	0.00
8.00	0.00	496.00	0.00
9.00	0.00	496.00	0.00
10.00	0.00	496.00	0.00
11.00	0.00	496.00	0.00
12.00	0.00	496.00	0.00
13.00	0.00	496.00	0.00
14.00	0.00	496.00	0.00
15.00	0.00	496.00	0.00
16.00	0.00	496.00	0.00
17.00	0.00	496.00	0.00
18.00	0.00	496.00	0.00
19.00	0.00	496.00	0.00
20.00	0.00	496.00	0.00
21.00	0.00	496.00	0.00
22.00	0.00	496.00	0.00
23.00	0.00	496.00	0.00
24.00	0.00	496.00	0.00
25.00	0.00	496.00	0.00
26.00	0.00	496.00	0.00
27.00	0.00	496.00	0.00
28.00	0.00	496.00	0.00
29.00	0.00	496.00	0.00
30.00	0.00	496.00	0.00
31.00	0.00	496.00	0.00
32.00	0.00	496.00	0.00
33.00	0.00	496.00	0.00
34.00	0.00	496.00	0.00
35.00	0.00	496.00	0.00
36.00	0.00	496.00	0.00
37.00	0.00	496.00	0.00
38.00	0.00	496.00	0.00
39.00	0.00	496.00	0.00
40.00	0.00	496.00	0.00
41.00	0.00	496.00	0.00
42.00	0.00	496.00	0.00
43.00	0.00	496.00	0.00
44.00	0.00	496.00	0.00
45.00	0.00	496.00	0.00
46.00	0.00	496.00	0.00
47.00	0.00	496.00	0.00
48.00	0.00	496.00	0.00
49.00	0.00	496.00	0.00
50.00	0.00	496.00	0.00
51.00	0.00	496.00	0.00
52.00	0.00	496.00	0.00
53.00	0.00	496.00	0.00
54.00	0.00	496.00	0.00
55.00	0.00	496.00	0.00
56.00	0.00	496.00	0.00
57.00	0.00	496.00	0.00
58.00	0.00	496.00	0.00
59.00	0.00	496.00	0.00
60.00	0.00	496.00	0.00
61.00	0.00	496.00	0.00
62.00	0.00	496.00	0.00
63.00	0.00	496.00	0.00
64.00	0.00	496.00	0.00
65.00	0.00	496.00	0.00
66.00	0.00	496.00	0.00
67.00	0.00	496.00	0.00
68.00	0.00	496.00	0.00
69.00	0.00	496.00	0.00
70.00	0.00	496.00	0.00
71.00	0.00	496.00	0.00
72.00	0.00	496.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPS-1A: Runoff Area=728,043 sf 2.10% Impervious Runoff Depth=0.00"
Flow Length=1,469' Tc=105.9 min CN=37 Runoff=0.00 cfs 0.000 af

SubcatchmentPS-1B: Runoff Area=1,143,262 sf 0.86% Impervious Runoff Depth=0.00"
Flow Length=494' Tc=15.4 min CN=35 Runoff=0.00 cfs 0.000 af

SubcatchmentPS-2A: Runoff Area=845,587 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,006' Slope=0.0130 '/' Tc=39.5 min CN=39 Runoff=0.00 cfs 0.000 af

SubcatchmentPS-2B: Runoff Area=1,593,414 sf 0.79% Impervious Runoff Depth=0.00"
Flow Length=509' Tc=37.5 min CN=34 Runoff=0.00 cfs 0.000 af

SubcatchmentPS-3: Runoff Area=110,278 sf 28.61% Impervious Runoff Depth=0.21"
Tc=6.0 min CN=55 Runoff=0.23 cfs 0.045 af

Reach AP-1: AnalysisPoint Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond BIO-1: InfiltrationBioretention(2.5ft Peak Elev=505.01' Storage=1,199 cf Inflow=0.23 cfs 0.045 af
Discarded=0.01 cfs 0.042 af Primary=0.01 cfs 0.003 af Outflow=0.03 cfs 0.045 af

Pond P-1: DetentionBasin Peak Elev=501.04' Storage=151 cf Inflow=0.01 cfs 0.003 af
Outflow=0.00 cfs 0.000 af

Pond P-2: DetentionBasin Peak Elev=496.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 101.483 ac Runoff Volume = 0.045 af Average Runoff Depth = 0.01"
98.43% Pervious = 99.893 ac 1.57% Impervious = 1.590 ac

Summary for Subcatchment PS-1A:

[45] Hint: Runoff=Zero

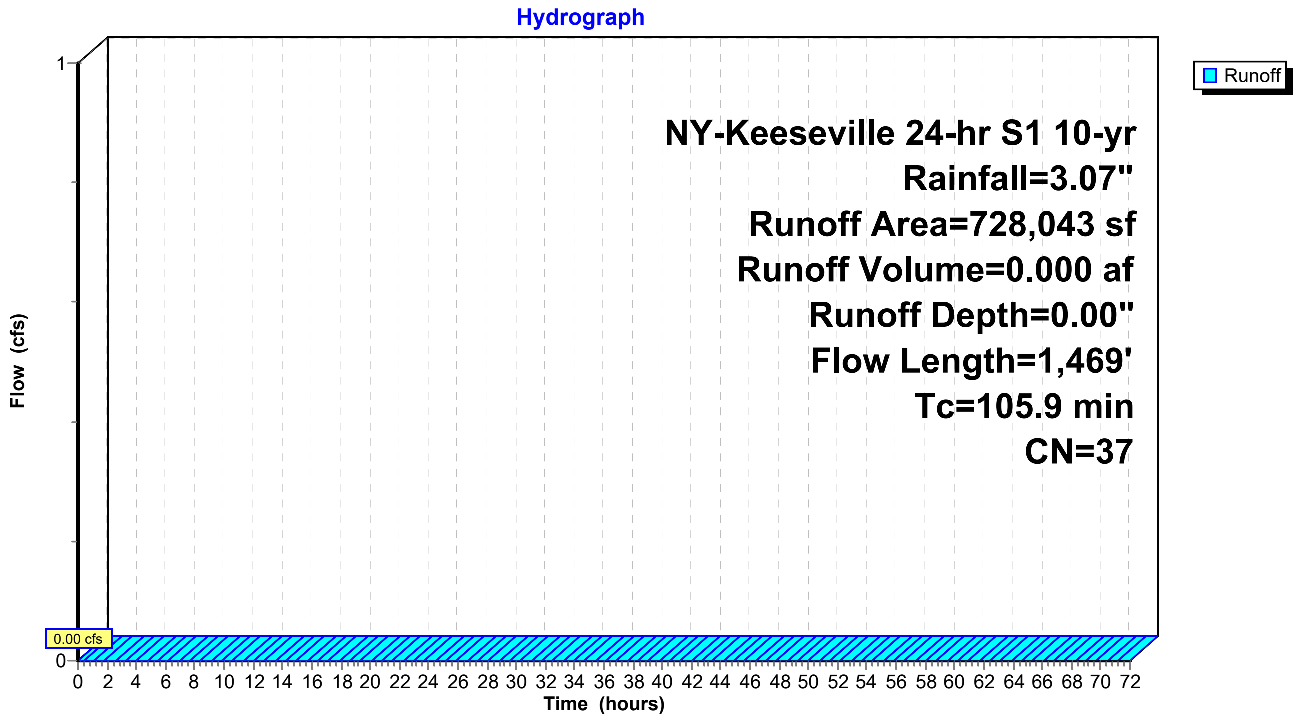
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P-1 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
15,305	98	Paved parking, HSG A
16,011	72	Dirt roads, HSG A
353,436	39	>75% Grass cover, Good, HSG A
343,291	30	Woods, Good, HSG A
728,043	37	Weighted Average
712,738		97.90% Pervious Area
15,305		2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
47.9	826	0.0033	0.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.3	543	0.0913	2.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
105.9	1,469	Total			

Subcatchment PS-1A:



Hydrograph for Subcatchment PS-1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.19	0.00	0.00
6.00	0.24	0.00	0.00
7.00	0.30	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.45	0.00	0.00
10.00	0.55	0.00	0.00
11.00	0.71	0.00	0.00
12.00	1.70	0.00	0.00
13.00	2.37	0.00	0.00
14.00	2.52	0.00	0.00
15.00	2.63	0.00	0.00
16.00	2.71	0.00	0.00
17.00	2.77	0.00	0.00
18.00	2.83	0.00	0.00
19.00	2.88	0.00	0.00
20.00	2.92	0.00	0.00
21.00	2.96	0.00	0.00
22.00	3.00	0.00	0.00
23.00	3.04	0.00	0.00
24.00	**3.07**	0.00	0.00
25.00	3.07	0.00	0.00
26.00	3.07	0.00	0.00
27.00	3.07	0.00	0.00
28.00	3.07	0.00	0.00
29.00	3.07	0.00	0.00
30.00	3.07	0.00	0.00
31.00	3.07	0.00	0.00
32.00	3.07	0.00	0.00
33.00	3.07	0.00	0.00
34.00	3.07	0.00	0.00
35.00	3.07	0.00	0.00
36.00	3.07	0.00	0.00
37.00	3.07	0.00	0.00
38.00	3.07	0.00	0.00
39.00	3.07	0.00	0.00
40.00	3.07	0.00	0.00
41.00	3.07	0.00	0.00
42.00	3.07	0.00	0.00
43.00	3.07	0.00	0.00
44.00	3.07	0.00	0.00
45.00	3.07	0.00	0.00
46.00	3.07	0.00	0.00
47.00	3.07	0.00	0.00
48.00	3.07	0.00	0.00
49.00	3.07	0.00	0.00
50.00	3.07	0.00	0.00
51.00	3.07	0.00	0.00
52.00	3.07	0.00	0.00
53.00	3.07	0.00	0.00
54.00	3.07	0.00	0.00
55.00	3.07	0.00	0.00
56.00	3.07	0.00	0.00
57.00	3.07	0.00	0.00
58.00	3.07	0.00	0.00
59.00	3.07	0.00	0.00
60.00	3.07	0.00	0.00
61.00	3.07	0.00	0.00
62.00	3.07	0.00	0.00
63.00	3.07	0.00	0.00
64.00	3.07	0.00	0.00
65.00	3.07	0.00	0.00
66.00	3.07	0.00	0.00
67.00	3.07	0.00	0.00
68.00	3.07	0.00	0.00
69.00	3.07	0.00	0.00
70.00	3.07	0.00	0.00
71.00	3.07	0.00	0.00
72.00	3.07	0.00	0.00

Summary for Subcatchment PS-1B:

[45] Hint: Runoff=Zero

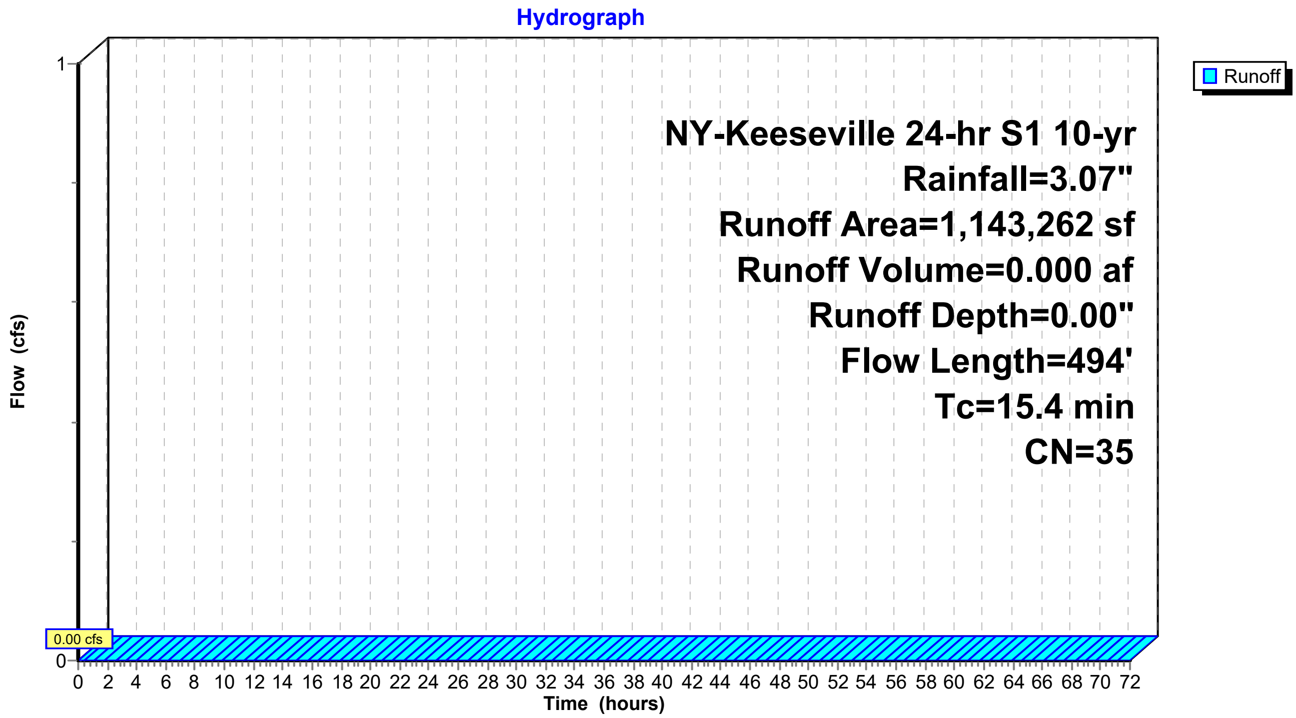
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
9,776	98	Paved parking, HSG A
21,255	72	Dirt roads, HSG A
474,403	39	>75% Grass cover, Good, HSG A
637,828	30	Woods, Good, HSG A
1,143,262	35	Weighted Average
1,133,486		99.14% Pervious Area
9,776		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0606	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
4.3	394	0.0913	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	494	Total			

Subcatchment PS-1B:



Hydrograph for Subcatchment PS-1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.19	0.00	0.00
6.00	0.24	0.00	0.00
7.00	0.30	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.45	0.00	0.00
10.00	0.55	0.00	0.00
11.00	0.71	0.00	0.00
12.00	1.70	0.00	0.00
13.00	2.37	0.00	0.00
14.00	2.52	0.00	0.00
15.00	2.63	0.00	0.00
16.00	2.71	0.00	0.00
17.00	2.77	0.00	0.00
18.00	2.83	0.00	0.00
19.00	2.88	0.00	0.00
20.00	2.92	0.00	0.00
21.00	2.96	0.00	0.00
22.00	3.00	0.00	0.00
23.00	3.04	0.00	0.00
24.00	**3.07**	0.00	0.00
25.00	3.07	0.00	0.00
26.00	3.07	0.00	0.00
27.00	3.07	0.00	0.00
28.00	3.07	0.00	0.00
29.00	3.07	0.00	0.00
30.00	3.07	0.00	0.00
31.00	3.07	0.00	0.00
32.00	3.07	0.00	0.00
33.00	3.07	0.00	0.00
34.00	3.07	0.00	0.00
35.00	3.07	0.00	0.00
36.00	3.07	0.00	0.00
37.00	3.07	0.00	0.00
38.00	3.07	0.00	0.00
39.00	3.07	0.00	0.00
40.00	3.07	0.00	0.00
41.00	3.07	0.00	0.00
42.00	3.07	0.00	0.00
43.00	3.07	0.00	0.00
44.00	3.07	0.00	0.00
45.00	3.07	0.00	0.00
46.00	3.07	0.00	0.00
47.00	3.07	0.00	0.00
48.00	3.07	0.00	0.00
49.00	3.07	0.00	0.00
50.00	3.07	0.00	0.00
51.00	3.07	0.00	0.00
52.00	3.07	0.00	0.00
53.00	3.07	0.00	0.00
54.00	3.07	0.00	0.00
55.00	3.07	0.00	0.00
56.00	3.07	0.00	0.00
57.00	3.07	0.00	0.00
58.00	3.07	0.00	0.00
59.00	3.07	0.00	0.00
60.00	3.07	0.00	0.00
61.00	3.07	0.00	0.00
62.00	3.07	0.00	0.00
63.00	3.07	0.00	0.00
64.00	3.07	0.00	0.00
65.00	3.07	0.00	0.00
66.00	3.07	0.00	0.00
67.00	3.07	0.00	0.00
68.00	3.07	0.00	0.00
69.00	3.07	0.00	0.00
70.00	3.07	0.00	0.00
71.00	3.07	0.00	0.00
72.00	3.07	0.00	0.00

Summary for Subcatchment PS-2A:

[45] Hint: Runoff=Zero

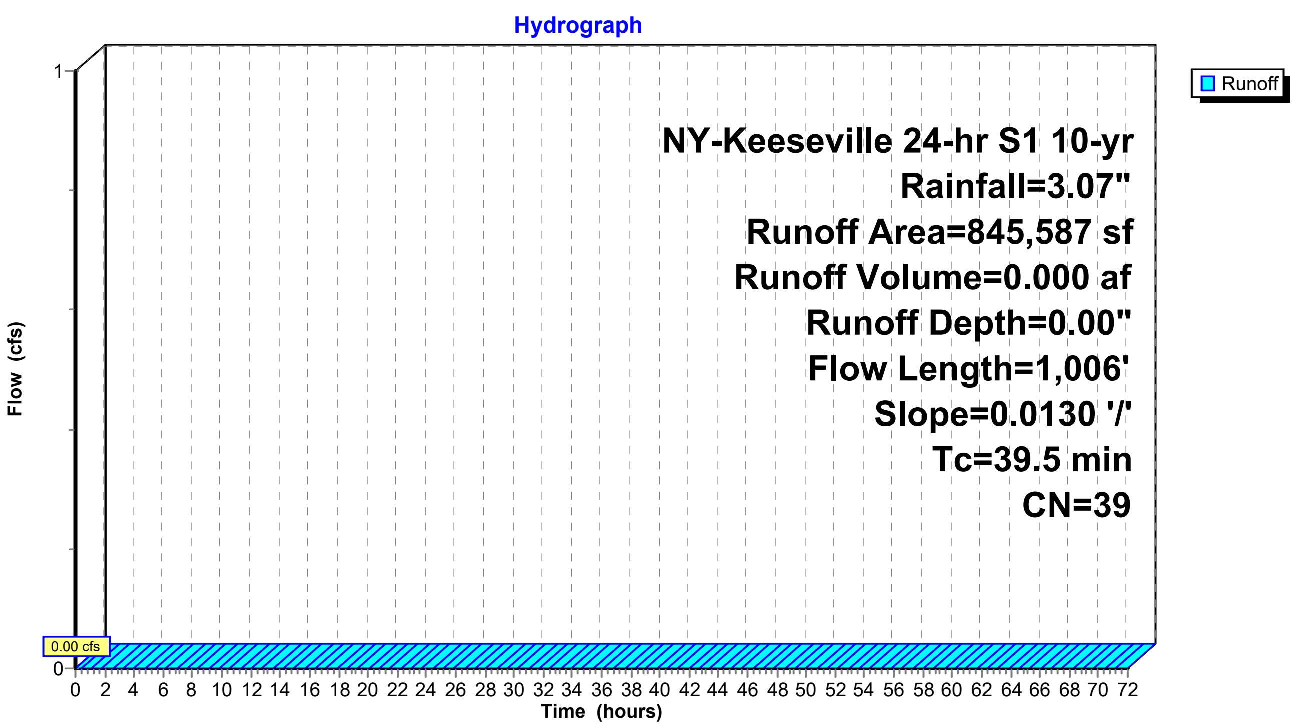
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P-2 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	72	Dirt roads, HSG A
845,587	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
845,587	39	Weighted Average
845,587		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0130	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
18.9	906	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.5	1,006	Total			

Subcatchment PS-2A:



Hydrograph for Subcatchment PS-2A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.19	0.00	0.00
6.00	0.24	0.00	0.00
7.00	0.30	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.45	0.00	0.00
10.00	0.55	0.00	0.00
11.00	0.71	0.00	0.00
12.00	1.70	0.00	0.00
13.00	2.37	0.00	0.00
14.00	2.52	0.00	0.00
15.00	2.63	0.00	0.00
16.00	2.71	0.00	0.00
17.00	2.77	0.00	0.00
18.00	2.83	0.00	0.00
19.00	2.88	0.00	0.00
20.00	2.92	0.00	0.00
21.00	2.96	0.00	0.00
22.00	3.00	0.00	0.00
23.00	3.04	0.00	0.00
24.00	**3.07**	0.00	0.00
25.00	3.07	0.00	0.00
26.00	3.07	0.00	0.00
27.00	3.07	0.00	0.00
28.00	3.07	0.00	0.00
29.00	3.07	0.00	0.00
30.00	3.07	0.00	0.00
31.00	3.07	0.00	0.00
32.00	3.07	0.00	0.00
33.00	3.07	0.00	0.00
34.00	3.07	0.00	0.00
35.00	3.07	0.00	0.00
36.00	3.07	0.00	0.00
37.00	3.07	0.00	0.00
38.00	3.07	0.00	0.00
39.00	3.07	0.00	0.00
40.00	3.07	0.00	0.00
41.00	3.07	0.00	0.00
42.00	3.07	0.00	0.00
43.00	3.07	0.00	0.00
44.00	3.07	0.00	0.00
45.00	3.07	0.00	0.00
46.00	3.07	0.00	0.00
47.00	3.07	0.00	0.00
48.00	3.07	0.00	0.00
49.00	3.07	0.00	0.00
50.00	3.07	0.00	0.00
51.00	3.07	0.00	0.00

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	3.07	0.00	0.00
53.00	3.07	0.00	0.00
54.00	3.07	0.00	0.00
55.00	3.07	0.00	0.00
56.00	3.07	0.00	0.00
57.00	3.07	0.00	0.00
58.00	3.07	0.00	0.00
59.00	3.07	0.00	0.00
60.00	3.07	0.00	0.00
61.00	3.07	0.00	0.00
62.00	3.07	0.00	0.00
63.00	3.07	0.00	0.00
64.00	3.07	0.00	0.00
65.00	3.07	0.00	0.00
66.00	3.07	0.00	0.00
67.00	3.07	0.00	0.00
68.00	3.07	0.00	0.00
69.00	3.07	0.00	0.00
70.00	3.07	0.00	0.00
71.00	3.07	0.00	0.00
72.00	3.07	0.00	0.00

Summary for Subcatchment PS-2B:

[45] Hint: Runoff=Zero

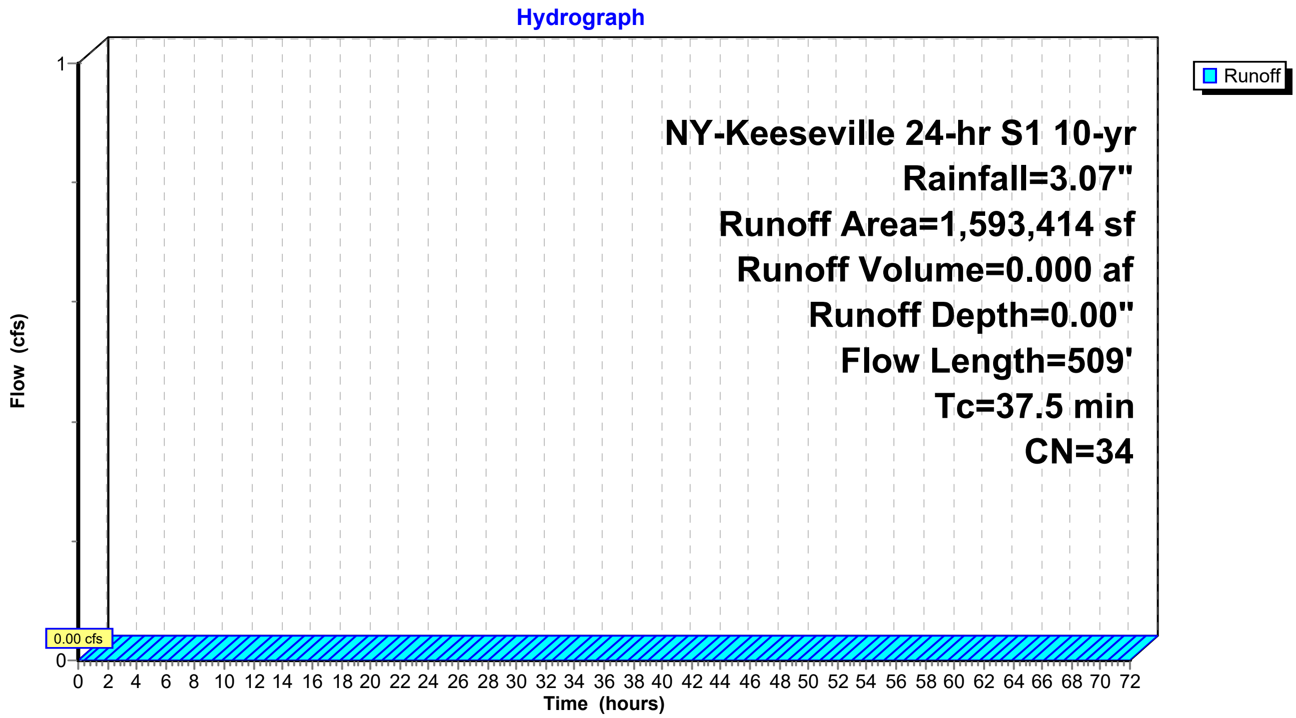
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
62,536	72	Dirt roads, HSG A
386,320	39	>75% Grass cover, Good, HSG A
1,131,946	30	Woods, Good, HSG A
1,593,414	34	Weighted Average
1,580,802		99.21% Pervious Area
12,612		0.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
3.6	122	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.5	509	Total			

Subcatchment PS-2B:



Hydrograph for Subcatchment PS-2B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.00**	52.00	3.07	0.00	0.00
1.00	0.03	0.00	0.00	53.00	3.07	0.00	0.00
2.00	0.07	0.00	0.00	54.00	3.07	0.00	0.00
3.00	0.11	0.00	0.00	55.00	3.07	0.00	0.00
4.00	0.15	0.00	0.00	56.00	3.07	0.00	0.00
5.00	0.19	0.00	0.00	57.00	3.07	0.00	0.00
6.00	0.24	0.00	0.00	58.00	3.07	0.00	0.00
7.00	0.30	0.00	0.00	59.00	3.07	0.00	0.00
8.00	0.37	0.00	0.00	60.00	3.07	0.00	0.00
9.00	0.45	0.00	0.00	61.00	3.07	0.00	0.00
10.00	0.55	0.00	0.00	62.00	3.07	0.00	0.00
11.00	0.71	0.00	0.00	63.00	3.07	0.00	0.00
12.00	1.70	0.00	0.00	64.00	3.07	0.00	0.00
13.00	2.37	0.00	0.00	65.00	3.07	0.00	0.00
14.00	2.52	0.00	0.00	66.00	3.07	0.00	0.00
15.00	2.63	0.00	0.00	67.00	3.07	0.00	0.00
16.00	2.71	0.00	0.00	68.00	3.07	0.00	0.00
17.00	2.77	0.00	0.00	69.00	3.07	0.00	0.00
18.00	2.83	0.00	0.00	70.00	3.07	0.00	0.00
19.00	2.88	0.00	0.00	71.00	3.07	0.00	0.00
20.00	2.92	0.00	0.00	72.00	3.07	0.00	0.00
21.00	2.96	0.00	0.00				
22.00	3.00	0.00	0.00				
23.00	3.04	0.00	0.00				
24.00	**3.07**	0.00	0.00				
25.00	3.07	0.00	0.00				
26.00	3.07	0.00	0.00				
27.00	3.07	0.00	0.00				
28.00	3.07	0.00	0.00				
29.00	3.07	0.00	0.00				
30.00	3.07	0.00	0.00				
31.00	3.07	0.00	0.00				
32.00	3.07	0.00	0.00				
33.00	3.07	0.00	0.00				
34.00	3.07	0.00	0.00				
35.00	3.07	0.00	0.00				
36.00	3.07	0.00	0.00				
37.00	3.07	0.00	0.00				
38.00	3.07	0.00	0.00				
39.00	3.07	0.00	0.00				
40.00	3.07	0.00	0.00				
41.00	3.07	0.00	0.00				
42.00	3.07	0.00	0.00				
43.00	3.07	0.00	0.00				
44.00	3.07	0.00	0.00				
45.00	3.07	0.00	0.00				
46.00	3.07	0.00	0.00				
47.00	3.07	0.00	0.00				
48.00	3.07	0.00	0.00				
49.00	3.07	0.00	0.00				
50.00	3.07	0.00	0.00				
51.00	3.07	0.00	0.00				

Summary for Subcatchment PS-3:

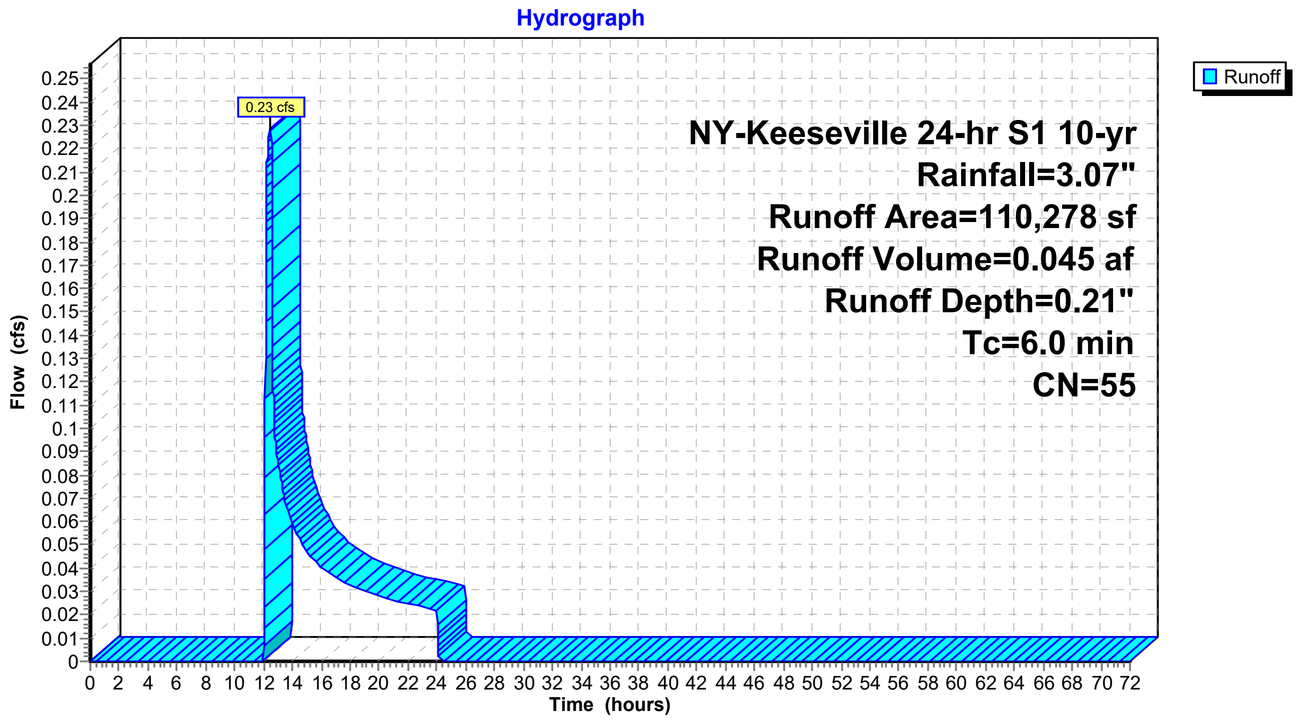
Runoff = 0.23 cfs @ 12.45 hrs, Volume= 0.045 af, Depth= 0.21"
Routed to Pond BIO-1 : Infiltration Bioretention (2.5ft filter media)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 10-yr Rainfall=3.07"

Area (sf)	CN	Description
31,551	98	Paved parking, HSG A
455	72	Dirt roads, HSG A
69,201	39	>75% Grass cover, Good, HSG A
9,071	30	Woods, Good, HSG A
110,278	55	Weighted Average
78,727		71.39% Pervious Area
31,551		28.61% Impervious Area

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

Subcatchment PS-3:



Hydrograph for Subcatchment PS-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.19	0.00	0.00
6.00	0.24	0.00	0.00
7.00	0.30	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.45	0.00	0.00
10.00	0.55	0.00	0.00
11.00	0.71	0.00	0.00
12.00	1.70	0.00	**0.00**
13.00	2.37	0.06	**0.08**
14.00	2.52	0.09	0.06
15.00	2.63	0.11	0.05
16.00	2.71	0.12	0.04
17.00	2.77	0.14	0.04
18.00	2.83	0.15	0.03
19.00	2.88	0.16	0.03
20.00	2.92	0.18	0.03
21.00	2.96	0.19	0.03
22.00	3.00	0.20	0.02
23.00	3.04	0.20	0.02
24.00	**3.07**	**0.21**	0.02
25.00	3.07	0.21	0.00
26.00	3.07	0.21	0.00
27.00	3.07	0.21	0.00
28.00	3.07	0.21	0.00
29.00	3.07	0.21	0.00
30.00	3.07	0.21	0.00
31.00	3.07	0.21	0.00
32.00	3.07	0.21	0.00
33.00	3.07	0.21	0.00
34.00	3.07	0.21	0.00
35.00	3.07	0.21	0.00
36.00	3.07	0.21	0.00
37.00	3.07	0.21	0.00
38.00	3.07	0.21	0.00
39.00	3.07	0.21	0.00
40.00	3.07	0.21	0.00
41.00	3.07	0.21	0.00
42.00	3.07	0.21	0.00
43.00	3.07	0.21	0.00
44.00	3.07	0.21	0.00
45.00	3.07	0.21	0.00
46.00	3.07	0.21	0.00
47.00	3.07	0.21	0.00
48.00	3.07	0.21	0.00
49.00	3.07	0.21	0.00
50.00	3.07	0.21	0.00
51.00	3.07	0.21	0.00
52.00	3.07	0.21	0.00
53.00	3.07	0.21	0.00
54.00	3.07	0.21	0.00
55.00	3.07	0.21	0.00
56.00	3.07	0.21	0.00
57.00	3.07	0.21	0.00
58.00	3.07	0.21	0.00
59.00	3.07	0.21	0.00
60.00	3.07	0.21	0.00
61.00	3.07	0.21	0.00
62.00	3.07	0.21	0.00
63.00	3.07	0.21	0.00
64.00	3.07	0.21	0.00
65.00	3.07	0.21	0.00
66.00	3.07	0.21	0.00
67.00	3.07	0.21	0.00
68.00	3.07	0.21	0.00
69.00	3.07	0.21	0.00
70.00	3.07	0.21	0.00
71.00	3.07	0.21	0.00
72.00	3.07	0.21	0.00

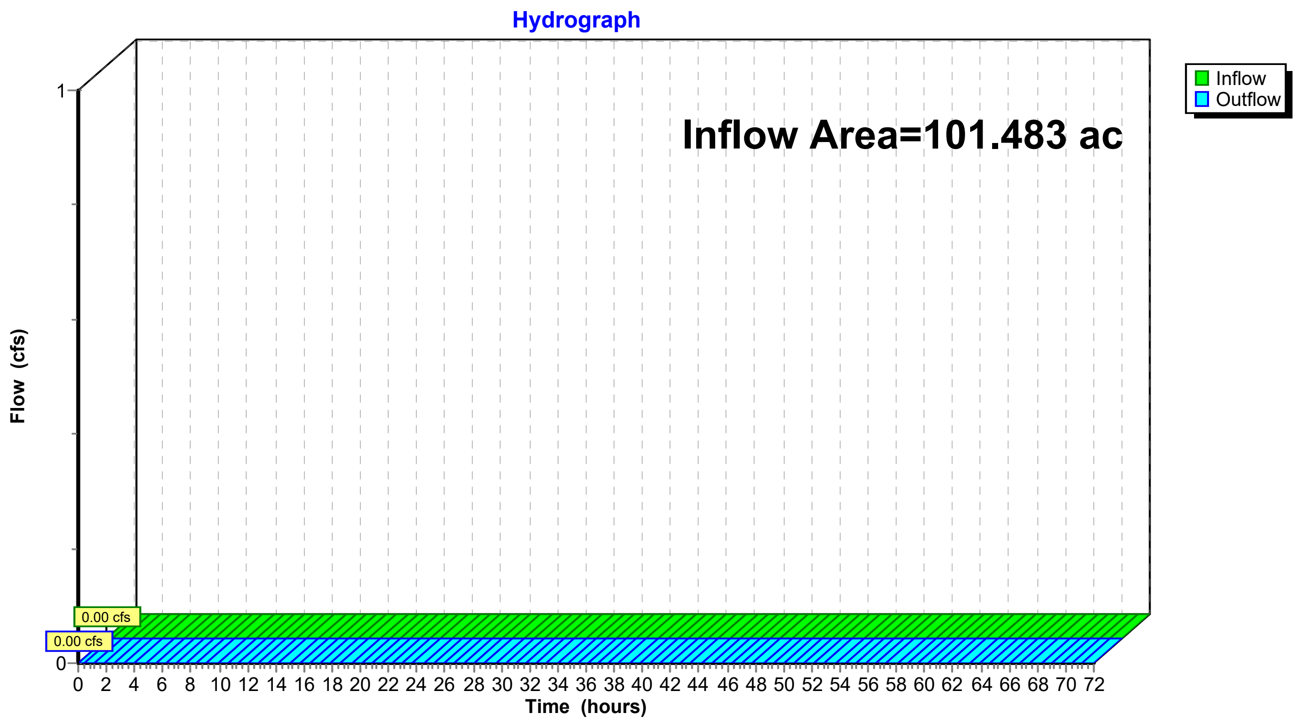
Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 1.57% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach AP-1: Analysis Point



Hydrograph for Reach AP-1: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**		**0.00**
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.00		0.00
12.00	0.00		0.00
13.00	0.00		0.00
14.00	0.00		0.00
15.00	0.00		0.00
16.00	0.00		0.00
17.00	0.00		0.00
18.00	0.00		0.00
19.00	0.00		0.00
20.00	0.00		0.00
21.00	0.00		0.00
22.00	0.00		0.00
23.00	0.00		0.00
24.00	0.00		0.00
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Inflow Area = 2.532 ac, 28.61% Impervious, Inflow Depth = 0.21" for 10-yr event
Inflow = 0.23 cfs @ 12.45 hrs, Volume= 0.045 af
Outflow = 0.03 cfs @ 20.76 hrs, Volume= 0.045 af, Atten= 88%, Lag= 498.2 min
Discarded = 0.01 cfs @ 20.76 hrs, Volume= 0.042 af
Primary = 0.01 cfs @ 20.76 hrs, Volume= 0.003 af
Routed to Pond P-1 : Detention Basin

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 505.01' @ 20.76 hrs Surf.Area= 2,524 sf Storage= 1,199 cf
Flood Elev= 505.50' Surf.Area= 3,049 sf Storage= 2,575 cf

Plug-Flow detention time= 788.3 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 788.4 min (1,754.8 - 966.4)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	2,575 cf	**6" Ponding (Prismatic)** Listed below (Recalc)

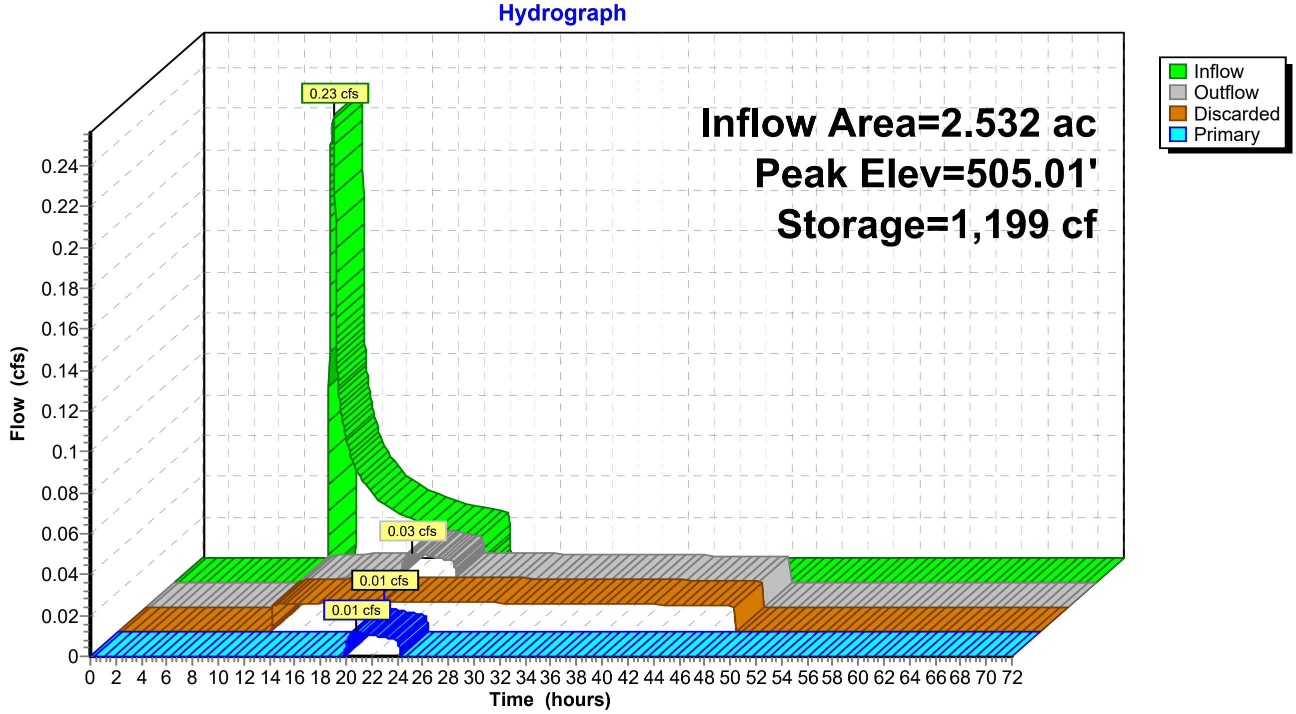
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
504.50	2,217	0	0
505.00	2,517	1,184	1,184
505.50	3,049	1,392	2,575

Device	Routing	Invert	Outlet Devices
#1	Discarded	504.50'	**0.250 in/hr Exfiltration Through Media over Surface area**
#2	Primary	505.00'	**10.0' long x 3.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

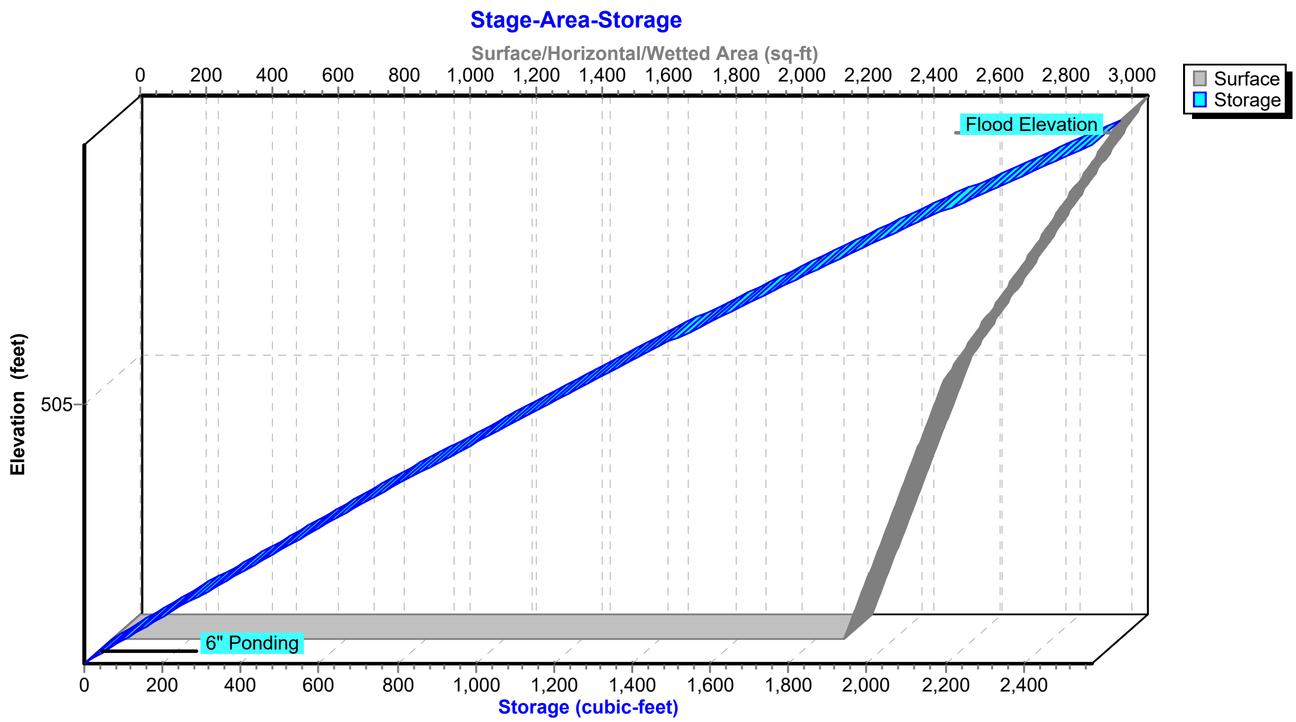
Discarded OutFlow Max=0.01 cfs @ 20.76 hrs HW=505.01' (Free Discharge)
1=Exfiltration Through Media (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 20.76 hrs HW=505.01' TW=501.01' (Dynamic Tailwater)
2=Emergency Overflow Weir (Weir Controls 0.01 cfs @ 0.19 fps)

Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Hydrograph for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	504.50	0.00	0.00	0.00
2.00	0.00	0	504.50	0.00	0.00	0.00
4.00	0.00	0	504.50	0.00	0.00	0.00
6.00	0.00	0	504.50	0.00	0.00	0.00
8.00	0.00	0	504.50	0.00	0.00	0.00
10.00	0.00	0	504.50	0.00	0.00	0.00
12.00	**0.00**	0	504.50	0.00	0.00	0.00
14.00	**0.06**	682	504.80	0.01	0.01	0.00
16.00	0.04	926	504.90	0.01	0.01	0.00
18.00	0.03	1,083	504.96	0.01	0.01	0.00
20.00	0.03	**1,193**	**505.00**	**0.02**	**0.01**	**0.01**
22.00	0.02	**1,198**	**505.01**	**0.03**	**0.01**	**0.01**
24.00	0.02	1,195	505.00	0.02	0.01	0.01
26.00	0.00	1,094	504.96	0.01	0.01	0.00
28.00	0.00	991	504.92	0.01	0.01	0.00
30.00	0.00	888	504.88	0.01	0.01	0.00
32.00	0.00	787	504.84	0.01	0.01	0.00
34.00	0.00	686	504.80	0.01	0.01	0.00
36.00	0.00	587	504.76	0.01	0.01	0.00
38.00	0.00	489	504.71	0.01	0.01	0.00
40.00	0.00	392	504.67	0.01	0.01	0.00
42.00	0.00	295	504.63	0.01	0.01	0.00
44.00	0.00	200	504.59	0.01	0.01	0.00
46.00	0.00	106	504.55	0.01	0.01	0.00
48.00	0.00	13	504.51	0.01	0.01	0.00
50.00	0.00	0	504.50	0.00	0.00	0.00
52.00	0.00	0	504.50	0.00	0.00	0.00
54.00	0.00	0	504.50	0.00	0.00	0.00
56.00	0.00	0	504.50	0.00	0.00	0.00
58.00	0.00	0	504.50	0.00	0.00	0.00
60.00	0.00	0	504.50	0.00	0.00	0.00
62.00	0.00	0	504.50	0.00	0.00	0.00
64.00	0.00	0	504.50	0.00	0.00	0.00
66.00	0.00	0	504.50	0.00	0.00	0.00
68.00	0.00	0	504.50	0.00	0.00	0.00
70.00	0.00	0	504.50	0.00	0.00	0.00
72.00	0.00	0	504.50	0.00	0.00	0.00

Summary for Pond P-1: Detention Basin

Inflow Area = 19.245 ac, 5.59% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.01 cfs @ 20.76 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 501.04' @ 24.29 hrs Surf.Area= 3,596 sf Storage= 151 cf
Flood Elev= 506.50' Surf.Area= 8,838 sf Storage= 32,460 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

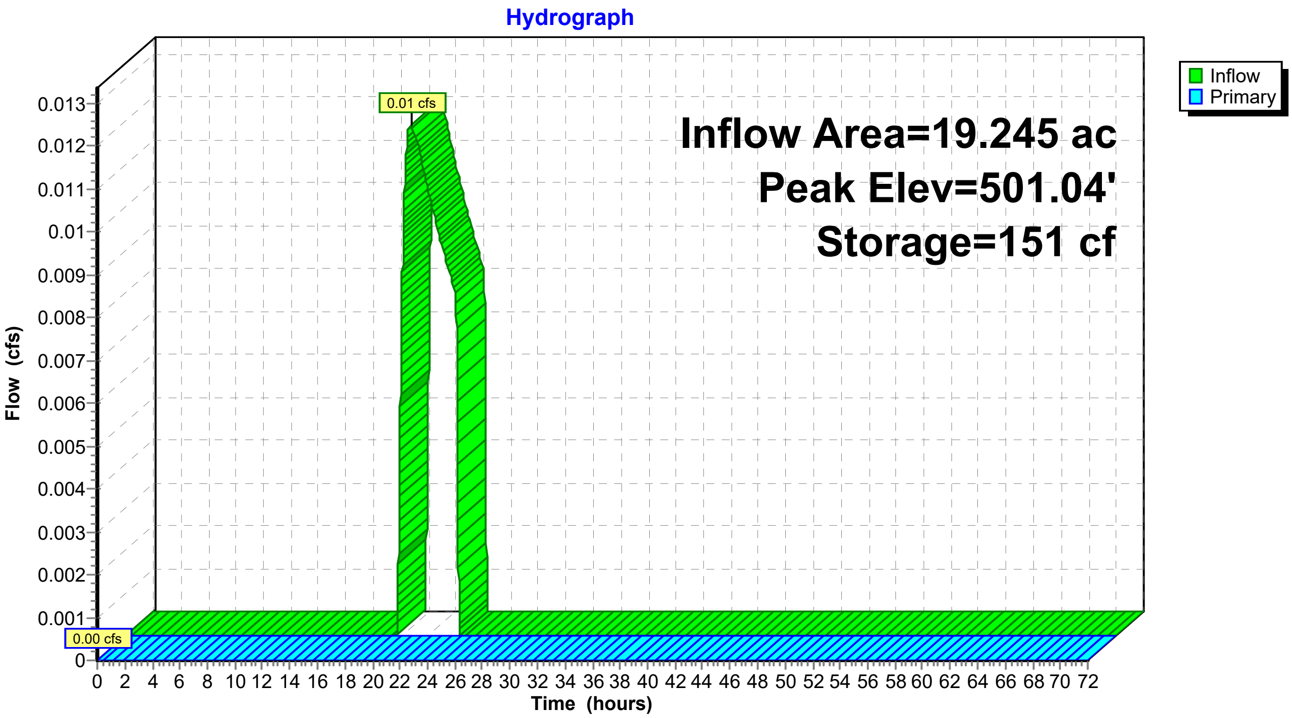
Volume	Invert	Avail.Storage	Storage Description
#1	501.00'	32,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
501.00	3,564	0	0
502.00	4,330	3,947	3,947
503.00	5,155	4,743	8,690
504.00	6,035	5,595	14,285
505.00	6,973	6,504	20,789
506.00	7,967	7,470	28,259
506.50	8,838	4,201	32,460

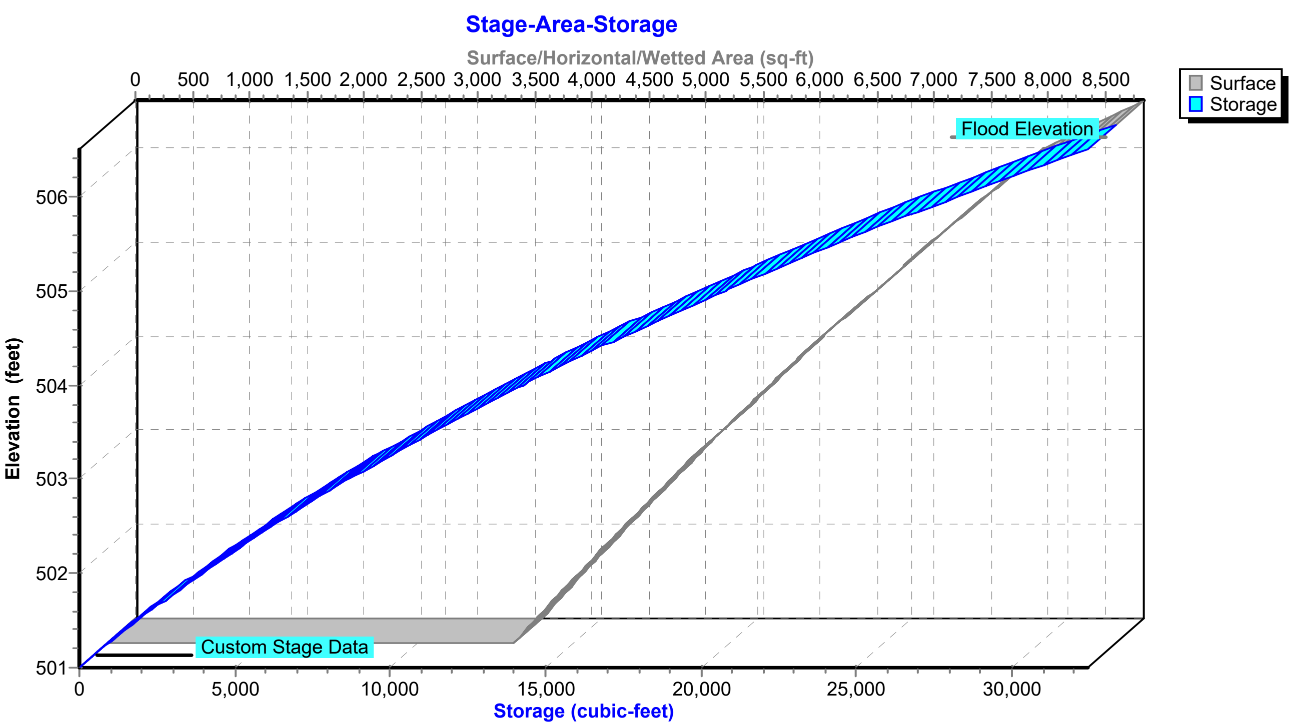
Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=501.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1: Detention Basin



Pond P-1: Detention Basin



Hydrograph for Pond P-1: Detention Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	501.00	**0.00**
2.00	0.00	0	501.00	0.00
4.00	0.00	0	501.00	0.00
6.00	0.00	0	501.00	0.00
8.00	0.00	0	501.00	0.00
10.00	0.00	0	501.00	0.00
12.00	0.00	0	501.00	0.00
14.00	0.00	0	501.00	0.00
16.00	0.00	0	501.00	0.00
18.00	0.00	0	501.00	0.00
20.00	**0.01**	2	501.00	0.00
22.00	**0.01**	81	501.02	0.00
24.00	0.01	**147**	**501.04**	0.00
26.00	0.00	**151**	**501.04**	0.00
28.00	0.00	151	501.04	0.00
30.00	0.00	151	501.04	0.00
32.00	0.00	151	501.04	0.00
34.00	0.00	151	501.04	0.00
36.00	0.00	151	501.04	0.00
38.00	0.00	151	501.04	0.00
40.00	0.00	151	501.04	0.00
42.00	0.00	151	501.04	0.00
44.00	0.00	151	501.04	0.00
46.00	0.00	151	501.04	0.00
48.00	0.00	151	501.04	0.00
50.00	0.00	151	501.04	0.00
52.00	0.00	151	501.04	0.00
54.00	0.00	151	501.04	0.00
56.00	0.00	151	501.04	0.00
58.00	0.00	151	501.04	0.00
60.00	0.00	151	501.04	0.00
62.00	0.00	151	501.04	0.00
64.00	0.00	151	501.04	0.00
66.00	0.00	151	501.04	0.00
68.00	0.00	151	501.04	0.00
70.00	0.00	151	501.04	0.00
72.00	0.00	151	501.04	0.00

Summary for Pond P-2: Detention Basin

Inflow Area = 19.412 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 496.00' @ 0.00 hrs Surf.Area= 3,905 sf Storage= 0 cf
Flood Elev= 499.50' Surf.Area= 7,923 sf Storage= 19,936 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

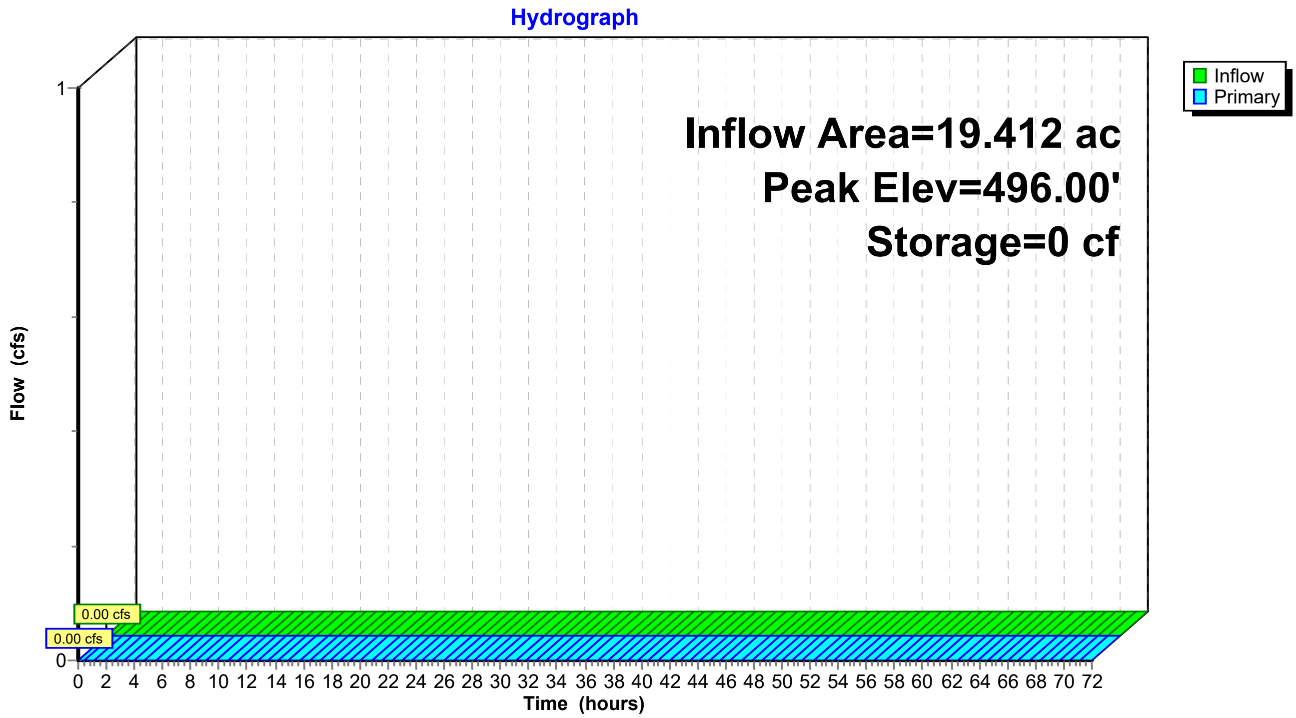
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	19,936 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	3,905	0	0
497.00	4,872	4,389	4,389
498.00	5,897	5,385	9,773
499.00	6,978	6,438	16,211
499.50	7,923	3,725	19,936

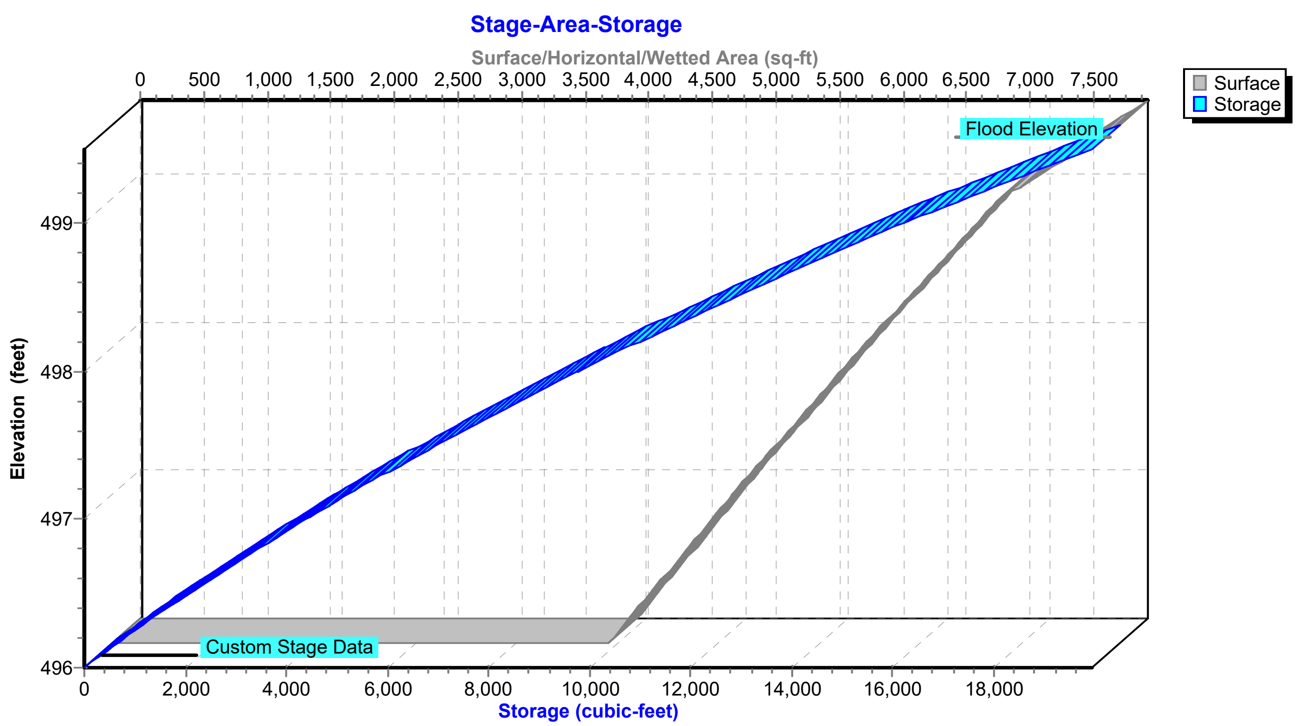
Device	Routing	Invert	Outlet Devices
#1	Primary	499.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P-2: Detention Basin



Pond P-2: Detention Basin



Hydrograph for Pond P-2: Detention Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**496.00**	**0.00**
1.00	0.00	496.00	0.00
2.00	0.00	496.00	0.00
3.00	0.00	496.00	0.00
4.00	0.00	496.00	0.00
5.00	0.00	496.00	0.00
6.00	0.00	496.00	0.00
7.00	0.00	496.00	0.00
8.00	0.00	496.00	0.00
9.00	0.00	496.00	0.00
10.00	0.00	496.00	0.00
11.00	0.00	496.00	0.00
12.00	0.00	496.00	0.00
13.00	0.00	496.00	0.00
14.00	0.00	496.00	0.00
15.00	0.00	496.00	0.00
16.00	0.00	496.00	0.00
17.00	0.00	496.00	0.00
18.00	0.00	496.00	0.00
19.00	0.00	496.00	0.00
20.00	0.00	496.00	0.00
21.00	0.00	496.00	0.00
22.00	0.00	496.00	0.00
23.00	0.00	496.00	0.00
24.00	0.00	496.00	0.00
25.00	0.00	496.00	0.00
26.00	0.00	496.00	0.00
27.00	0.00	496.00	0.00
28.00	0.00	496.00	0.00
29.00	0.00	496.00	0.00
30.00	0.00	496.00	0.00
31.00	0.00	496.00	0.00
32.00	0.00	496.00	0.00
33.00	0.00	496.00	0.00
34.00	0.00	496.00	0.00
35.00	0.00	496.00	0.00
36.00	0.00	496.00	0.00
37.00	0.00	496.00	0.00
38.00	0.00	496.00	0.00
39.00	0.00	496.00	0.00
40.00	0.00	496.00	0.00
41.00	0.00	496.00	0.00
42.00	0.00	496.00	0.00
43.00	0.00	496.00	0.00
44.00	0.00	496.00	0.00
45.00	0.00	496.00	0.00
46.00	0.00	496.00	0.00
47.00	0.00	496.00	0.00
48.00	0.00	496.00	0.00
49.00	0.00	496.00	0.00
50.00	0.00	496.00	0.00
51.00	0.00	496.00	0.00
52.00	0.00	496.00	0.00
53.00	0.00	496.00	0.00
54.00	0.00	496.00	0.00
55.00	0.00	496.00	0.00
56.00	0.00	496.00	0.00
57.00	0.00	496.00	0.00
58.00	0.00	496.00	0.00
59.00	0.00	496.00	0.00
60.00	0.00	496.00	0.00
61.00	0.00	496.00	0.00
62.00	0.00	496.00	0.00
63.00	0.00	496.00	0.00
64.00	0.00	496.00	0.00
65.00	0.00	496.00	0.00
66.00	0.00	496.00	0.00
67.00	0.00	496.00	0.00
68.00	0.00	496.00	0.00
69.00	0.00	496.00	0.00
70.00	0.00	496.00	0.00
71.00	0.00	496.00	0.00
72.00	0.00	496.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPS-1A: Runoff Area=728,043 sf 2.10% Impervious Runoff Depth=0.16"
Flow Length=1,469' Tc=105.9 min CN=37 Runoff=0.32 cfs 0.218 af

SubcatchmentPS-1B: Runoff Area=1,143,262 sf 0.86% Impervious Runoff Depth=0.10"
Flow Length=494' Tc=15.4 min CN=35 Runoff=0.29 cfs 0.216 af

SubcatchmentPS-2A: Runoff Area=845,587 sf 0.00% Impervious Runoff Depth=0.22"
Flow Length=1,006' Slope=0.0130 '/' Tc=39.5 min CN=39 Runoff=1.05 cfs 0.364 af

SubcatchmentPS-2B: Runoff Area=1,593,414 sf 0.79% Impervious Runoff Depth=0.07"
Flow Length=509' Tc=37.5 min CN=34 Runoff=0.28 cfs 0.226 af

SubcatchmentPS-3: Runoff Area=110,278 sf 28.61% Impervious Runoff Depth=1.04"
Tc=6.0 min CN=55 Runoff=2.95 cfs 0.219 af

Reach AP-1: AnalysisPoint Inflow=0.55 cfs 0.442 af
Outflow=0.55 cfs 0.442 af

Pond BIO-1: InfiltrationBioretention(2.5ft Peak Elev=505.18' Storage=1,644 cf Inflow=2.95 cfs 0.219 af
Discarded=0.02 cfs 0.043 af Primary=1.81 cfs 0.177 af Outflow=1.83 cfs 0.219 af

Pond P-1: DetentionBasin Peak Elev=504.47' Storage=17,218 cf Inflow=1.81 cfs 0.395 af
Outflow=0.00 cfs 0.000 af

Pond P-2: DetentionBasin Peak Elev=498.95' Storage=15,854 cf Inflow=1.05 cfs 0.364 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 101.483 ac Runoff Volume = 1.244 af Average Runoff Depth = 0.15"
98.43% Pervious = 99.893 ac 1.57% Impervious = 1.590 ac

Summary for Subcatchment PS-1A:

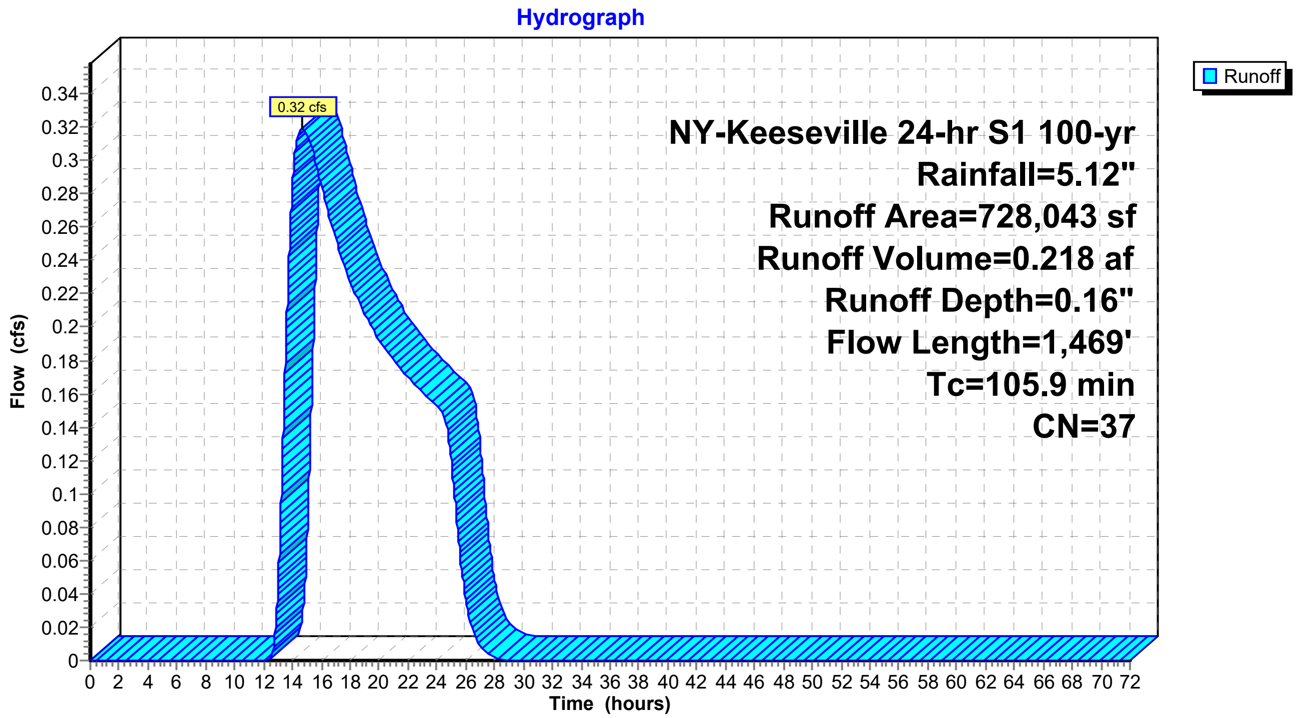
Runoff = 0.32 cfs @ 14.71 hrs, Volume= 0.218 af, Depth= 0.16"
Routed to Pond P-1 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
15,305	98	Paved parking, HSG A
16,011	72	Dirt roads, HSG A
353,436	39	>75% Grass cover, Good, HSG A
343,291	30	Woods, Good, HSG A
728,043	37	Weighted Average
712,738		97.90% Pervious Area
15,305		2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	100	0.0033	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
47.9	826	0.0033	0.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.3	543	0.0913	2.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
105.9	1,469	Total			

Subcatchment PS-1A:



Hydrograph for Subcatchment PS-1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.23	0.00	0.00
5.00	0.30	0.00	0.00
6.00	0.38	0.00	0.00
7.00	0.46	0.00	0.00
8.00	0.57	0.00	0.00
9.00	0.70	0.00	0.00
10.00	0.86	0.00	0.00
11.00	1.11	0.00	0.00
12.00	2.81	0.00	0.00
13.00	4.02	0.02	0.04
14.00	4.26	0.04	**0.28**
15.00	4.43	0.06	**0.32**
16.00	4.55	0.07	0.28
17.00	4.66	0.09	0.25
18.00	4.75	0.10	0.23
19.00	4.82	0.11	0.21
20.00	4.89	0.12	0.19
21.00	4.96	0.13	0.18
22.00	5.02	0.14	0.17
23.00	5.07	0.15	0.16
24.00	**5.12**	**0.16**	0.15
25.00	5.12	0.16	0.12
26.00	5.12	0.16	0.04
27.00	5.12	0.16	0.01
28.00	5.12	0.16	0.00
29.00	5.12	0.16	0.00
30.00	5.12	0.16	0.00
31.00	5.12	0.16	0.00
32.00	5.12	0.16	0.00
33.00	5.12	0.16	0.00
34.00	5.12	0.16	0.00
35.00	5.12	0.16	0.00
36.00	5.12	0.16	0.00
37.00	5.12	0.16	0.00
38.00	5.12	0.16	0.00
39.00	5.12	0.16	0.00
40.00	5.12	0.16	0.00
41.00	5.12	0.16	0.00
42.00	5.12	0.16	0.00
43.00	5.12	0.16	0.00
44.00	5.12	0.16	0.00
45.00	5.12	0.16	0.00
46.00	5.12	0.16	0.00
47.00	5.12	0.16	0.00
48.00	5.12	0.16	0.00
49.00	5.12	0.16	0.00
50.00	5.12	0.16	0.00
51.00	5.12	0.16	0.00
52.00	5.12	0.16	0.00
53.00	5.12	0.16	0.00
54.00	5.12	0.16	0.00
55.00	5.12	0.16	0.00
56.00	5.12	0.16	0.00
57.00	5.12	0.16	0.00
58.00	5.12	0.16	0.00
59.00	5.12	0.16	0.00
60.00	5.12	0.16	0.00
61.00	5.12	0.16	0.00
62.00	5.12	0.16	0.00
63.00	5.12	0.16	0.00
64.00	5.12	0.16	0.00
65.00	5.12	0.16	0.00
66.00	5.12	0.16	0.00
67.00	5.12	0.16	0.00
68.00	5.12	0.16	0.00
69.00	5.12	0.16	0.00
70.00	5.12	0.16	0.00
71.00	5.12	0.16	0.00
72.00	5.12	0.16	0.00

Summary for Subcatchment PS-1B:

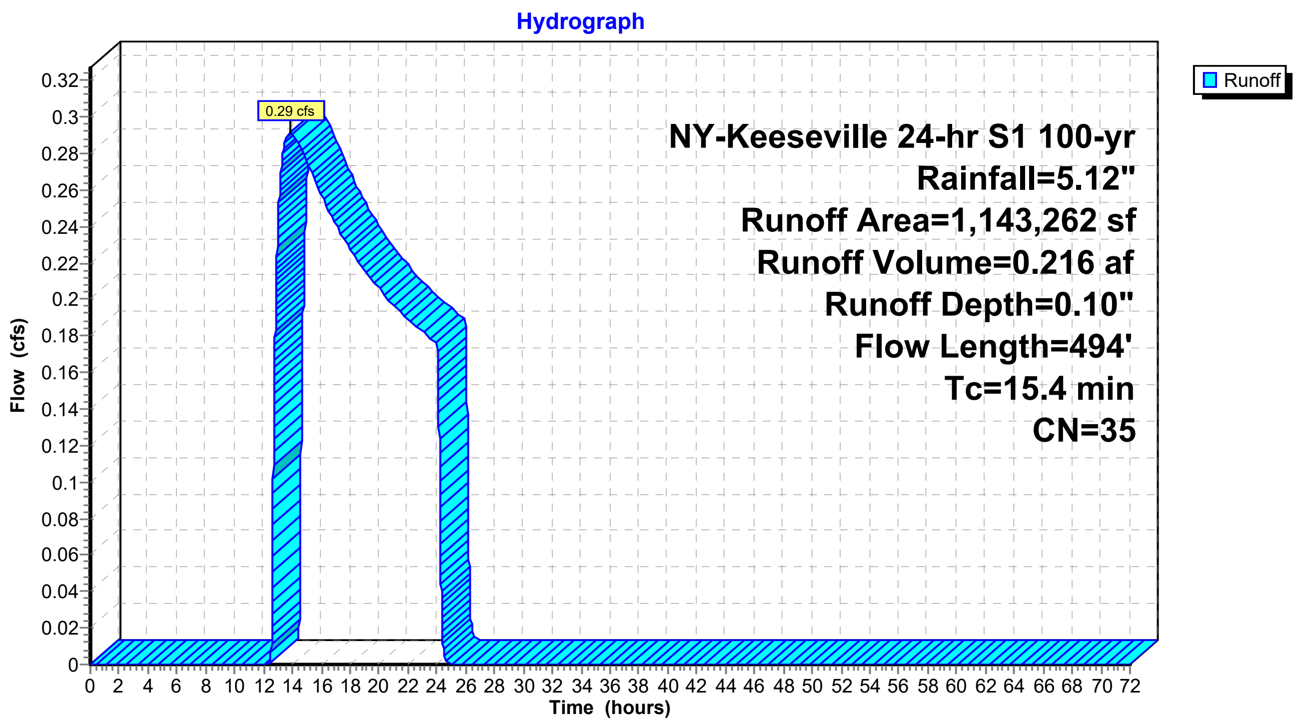
Runoff = 0.29 cfs @ 13.84 hrs, Volume= 0.216 af, Depth= 0.10"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
9,776	98	Paved parking, HSG A
21,255	72	Dirt roads, HSG A
474,403	39	>75% Grass cover, Good, HSG A
637,828	30	Woods, Good, HSG A
1,143,262	35	Weighted Average
1,133,486		99.14% Pervious Area
9,776		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0606	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
4.3	394	0.0913	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	494	Total			

Subcatchment PS-1B:



Hydrograph for Subcatchment PS-1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.23	0.00	0.00
5.00	0.30	0.00	0.00
6.00	0.38	0.00	0.00
7.00	0.46	0.00	0.00
8.00	0.57	0.00	0.00
9.00	0.70	0.00	0.00
10.00	0.86	0.00	0.00
11.00	1.11	0.00	0.00
12.00	2.81	0.00	0.00
13.00	4.02	0.00	**0.24**
14.00	4.26	0.02	**0.29**
15.00	4.43	0.03	0.28
16.00	4.55	0.04	0.26
17.00	4.66	0.05	0.24
18.00	4.75	0.05	0.23
19.00	4.82	0.06	0.22
20.00	4.89	0.07	0.21
21.00	4.96	0.08	0.20
22.00	5.02	0.09	0.19
23.00	5.07	0.09	0.18
24.00	**5.12**	**0.10**	0.18
25.00	5.12	0.10	0.00
26.00	5.12	0.10	0.00
27.00	5.12	0.10	0.00
28.00	5.12	0.10	0.00
29.00	5.12	0.10	0.00
30.00	5.12	0.10	0.00
31.00	5.12	0.10	0.00
32.00	5.12	0.10	0.00
33.00	5.12	0.10	0.00
34.00	5.12	0.10	0.00
35.00	5.12	0.10	0.00
36.00	5.12	0.10	0.00
37.00	5.12	0.10	0.00
38.00	5.12	0.10	0.00
39.00	5.12	0.10	0.00
40.00	5.12	0.10	0.00
41.00	5.12	0.10	0.00
42.00	5.12	0.10	0.00
43.00	5.12	0.10	0.00
44.00	5.12	0.10	0.00
45.00	5.12	0.10	0.00
46.00	5.12	0.10	0.00
47.00	5.12	0.10	0.00
48.00	5.12	0.10	0.00
49.00	5.12	0.10	0.00
50.00	5.12	0.10	0.00
51.00	5.12	0.10	0.00
52.00	5.12	0.10	0.00
53.00	5.12	0.10	0.00
54.00	5.12	0.10	0.00
55.00	5.12	0.10	0.00
56.00	5.12	0.10	0.00
57.00	5.12	0.10	0.00
58.00	5.12	0.10	0.00
59.00	5.12	0.10	0.00
60.00	5.12	0.10	0.00
61.00	5.12	0.10	0.00
62.00	5.12	0.10	0.00
63.00	5.12	0.10	0.00
64.00	5.12	0.10	0.00
65.00	5.12	0.10	0.00
66.00	5.12	0.10	0.00
67.00	5.12	0.10	0.00
68.00	5.12	0.10	0.00
69.00	5.12	0.10	0.00
70.00	5.12	0.10	0.00
71.00	5.12	0.10	0.00
72.00	5.12	0.10	0.00

Summary for Subcatchment PS-2A:

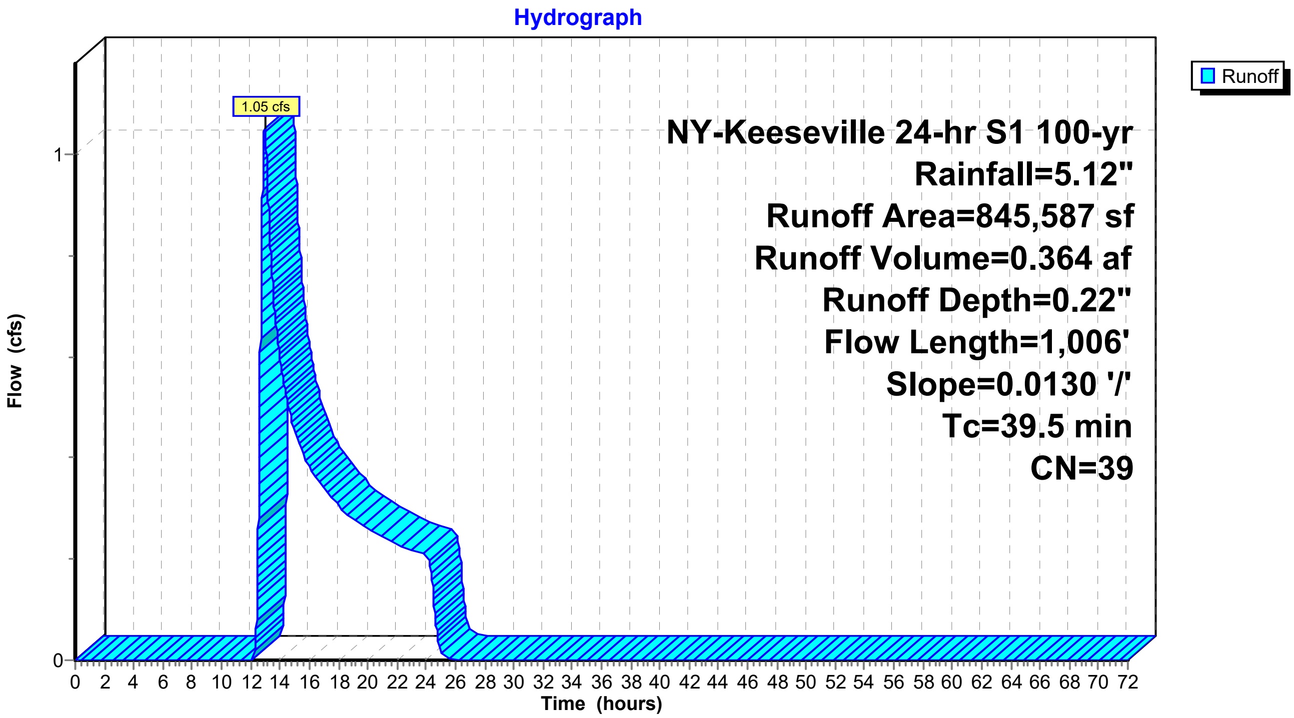
Runoff = 1.05 cfs @ 12.95 hrs, Volume= 0.364 af, Depth= 0.22"
Routed to Pond P-2 : Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	72	Dirt roads, HSG A
845,587	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
845,587	39	Weighted Average
845,587		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0130	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.16"
18.9	906	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.5	1,006	Total			

Subcatchment PS-2A:



Hydrograph for Subcatchment PS-2A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.23	0.00	0.00
5.00	0.30	0.00	0.00
6.00	0.38	0.00	0.00
7.00	0.46	0.00	0.00
8.00	0.57	0.00	0.00
9.00	0.70	0.00	0.00
10.00	0.86	0.00	0.00
11.00	1.11	0.00	0.00
12.00	2.81	0.00	**0.00**
13.00	4.02	0.05	**1.04**
14.00	4.26	0.08	0.60
15.00	4.43	0.10	0.46
16.00	4.55	0.12	0.39
17.00	4.66	0.14	0.34
18.00	4.75	0.15	0.31
19.00	4.82	0.17	0.28
20.00	4.89	0.18	0.26
21.00	4.96	0.19	0.24
22.00	5.02	0.20	0.23
23.00	5.07	0.21	0.22
24.00	**5.12**	**0.22**	0.21
25.00	5.12	0.22	0.02
26.00	5.12	0.22	0.00
27.00	5.12	0.22	0.00
28.00	5.12	0.22	0.00
29.00	5.12	0.22	0.00
30.00	5.12	0.22	0.00
31.00	5.12	0.22	0.00
32.00	5.12	0.22	0.00
33.00	5.12	0.22	0.00
34.00	5.12	0.22	0.00
35.00	5.12	0.22	0.00
36.00	5.12	0.22	0.00
37.00	5.12	0.22	0.00
38.00	5.12	0.22	0.00
39.00	5.12	0.22	0.00
40.00	5.12	0.22	0.00
41.00	5.12	0.22	0.00
42.00	5.12	0.22	0.00
43.00	5.12	0.22	0.00
44.00	5.12	0.22	0.00
45.00	5.12	0.22	0.00
46.00	5.12	0.22	0.00
47.00	5.12	0.22	0.00
48.00	5.12	0.22	0.00
49.00	5.12	0.22	0.00
50.00	5.12	0.22	0.00
51.00	5.12	0.22	0.00
52.00	5.12	0.22	0.00
53.00	5.12	0.22	0.00
54.00	5.12	0.22	0.00
55.00	5.12	0.22	0.00
56.00	5.12	0.22	0.00
57.00	5.12	0.22	0.00
58.00	5.12	0.22	0.00
59.00	5.12	0.22	0.00
60.00	5.12	0.22	0.00
61.00	5.12	0.22	0.00
62.00	5.12	0.22	0.00
63.00	5.12	0.22	0.00
64.00	5.12	0.22	0.00
65.00	5.12	0.22	0.00
66.00	5.12	0.22	0.00
67.00	5.12	0.22	0.00
68.00	5.12	0.22	0.00
69.00	5.12	0.22	0.00
70.00	5.12	0.22	0.00
71.00	5.12	0.22	0.00
72.00	5.12	0.22	0.00

Summary for Subcatchment PS-2B:

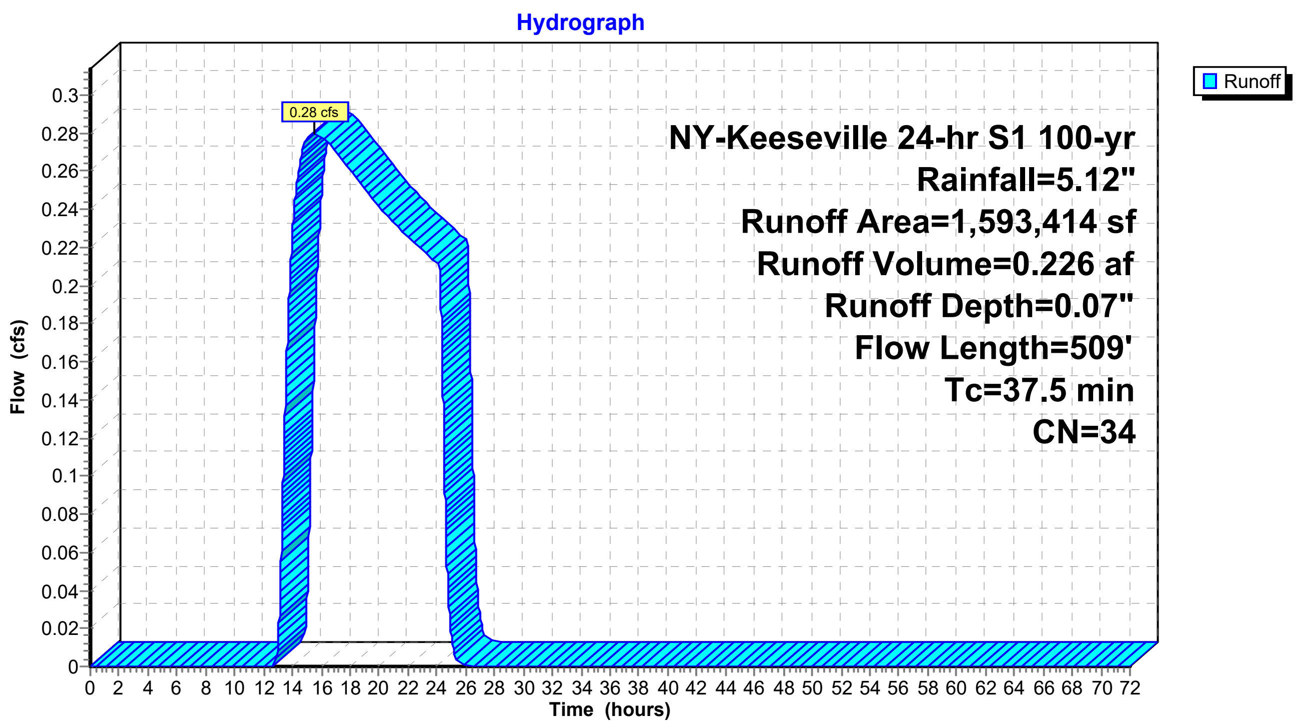
Runoff = 0.28 cfs @ 15.46 hrs, Volume= 0.226 af, Depth= 0.07"
Routed to Reach AP-1 : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
12,612	98	Paved parking, HSG A
62,536	72	Dirt roads, HSG A
386,320	39	>75% Grass cover, Good, HSG A
1,131,946	30	Woods, Good, HSG A
1,593,414	34	Weighted Average
1,580,802		99.21% Pervious Area
12,612		0.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.1	100	0.0130	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.16"
3.6	122	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	287	0.1185	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.5	509	Total			

Subcatchment PS-2B:



Hydrograph for Subcatchment PS-2B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.23	0.00	0.00
5.00	0.30	0.00	0.00
6.00	0.38	0.00	0.00
7.00	0.46	0.00	0.00
8.00	0.57	0.00	0.00
9.00	0.70	0.00	0.00
10.00	0.86	0.00	0.00
11.00	1.11	0.00	0.00
12.00	2.81	0.00	0.00
13.00	4.02	0.00	0.01
14.00	4.26	0.01	0.23
15.00	4.43	0.01	**0.28**
16.00	4.55	0.02	**0.28**
17.00	4.66	0.03	0.27
18.00	4.75	0.04	0.26
19.00	4.82	0.04	0.25
20.00	4.89	0.05	0.24
21.00	4.96	0.06	0.23
22.00	5.02	0.06	0.23
23.00	5.07	0.07	0.22
24.00	**5.12**	**0.07**	0.21
25.00	5.12	0.07	0.02
26.00	5.12	0.07	0.00
27.00	5.12	0.07	0.00
28.00	5.12	0.07	0.00
29.00	5.12	0.07	0.00
30.00	5.12	0.07	0.00
31.00	5.12	0.07	0.00
32.00	5.12	0.07	0.00
33.00	5.12	0.07	0.00
34.00	5.12	0.07	0.00
35.00	5.12	0.07	0.00
36.00	5.12	0.07	0.00
37.00	5.12	0.07	0.00
38.00	5.12	0.07	0.00
39.00	5.12	0.07	0.00
40.00	5.12	0.07	0.00
41.00	5.12	0.07	0.00
42.00	5.12	0.07	0.00
43.00	5.12	0.07	0.00
44.00	5.12	0.07	0.00
45.00	5.12	0.07	0.00
46.00	5.12	0.07	0.00
47.00	5.12	0.07	0.00
48.00	5.12	0.07	0.00
49.00	5.12	0.07	0.00
50.00	5.12	0.07	0.00
51.00	5.12	0.07	0.00
52.00	5.12	0.07	0.00
53.00	5.12	0.07	0.00
54.00	5.12	0.07	0.00
55.00	5.12	0.07	0.00
56.00	5.12	0.07	0.00
57.00	5.12	0.07	0.00
58.00	5.12	0.07	0.00
59.00	5.12	0.07	0.00
60.00	5.12	0.07	0.00
61.00	5.12	0.07	0.00
62.00	5.12	0.07	0.00
63.00	5.12	0.07	0.00
64.00	5.12	0.07	0.00
65.00	5.12	0.07	0.00
66.00	5.12	0.07	0.00
67.00	5.12	0.07	0.00
68.00	5.12	0.07	0.00
69.00	5.12	0.07	0.00
70.00	5.12	0.07	0.00
71.00	5.12	0.07	0.00
72.00	5.12	0.07	0.00

Summary for Subcatchment PS-3:

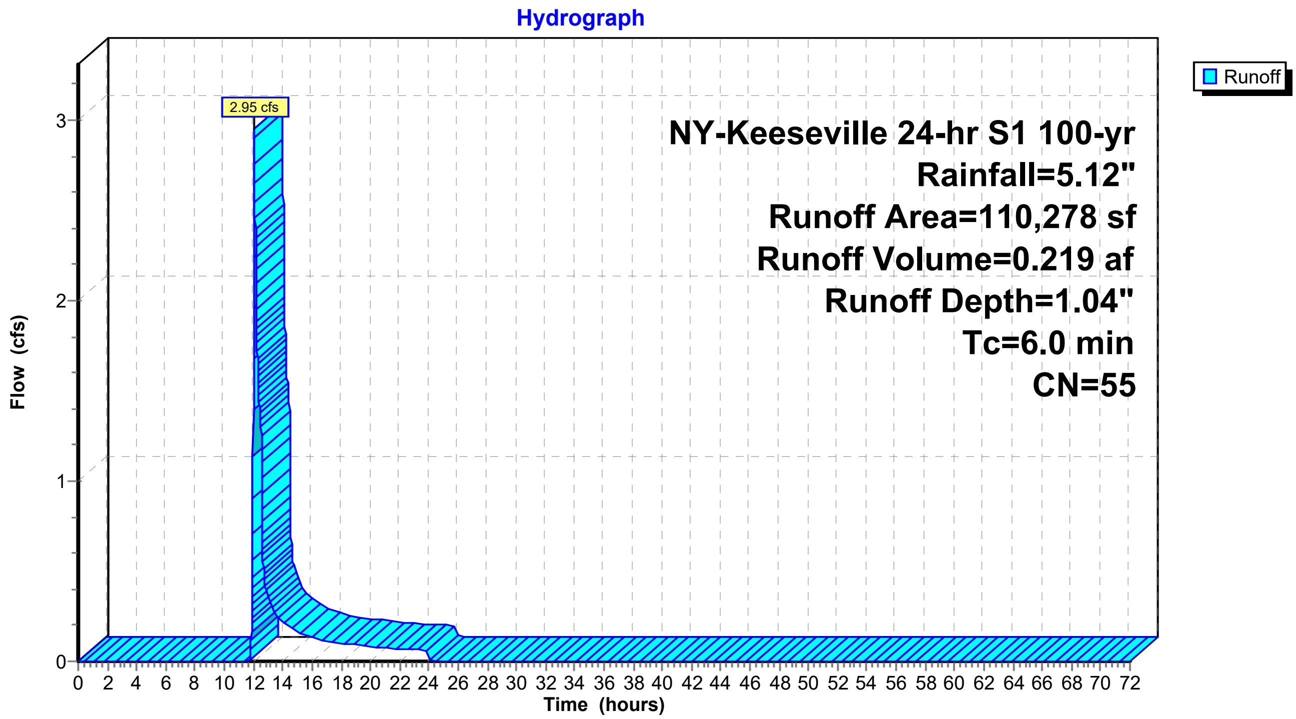
Runoff = 2.95 cfs @ 12.05 hrs, Volume= 0.219 af, Depth= 1.04"
Routed to Pond BIO-1 : Infiltration Bioretention (2.5ft filter media)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Keeseville 24-hr S1 100-yr Rainfall=5.12"

Area (sf)	CN	Description
31,551	98	Paved parking, HSG A
455	72	Dirt roads, HSG A
69,201	39	>75% Grass cover, Good, HSG A
9,071	30	Woods, Good, HSG A
110,278	55	Weighted Average
78,727		71.39% Pervious Area
31,551		28.61% Impervious Area

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

Subcatchment PS-3:



Hydrograph for Subcatchment PS-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.23	0.00	0.00
5.00	0.30	0.00	0.00
6.00	0.38	0.00	0.00
7.00	0.46	0.00	0.00
8.00	0.57	0.00	0.00
9.00	0.70	0.00	0.00
10.00	0.86	0.00	0.00
11.00	1.11	0.00	0.00
12.00	2.81	0.15	**1.96**
13.00	4.02	0.54	**0.35**
14.00	4.26	0.64	0.22
15.00	4.43	0.71	0.16
16.00	4.55	0.77	0.13
17.00	4.66	0.81	0.11
18.00	4.75	0.86	0.10
19.00	4.82	0.89	0.09
20.00	4.89	0.93	0.08
21.00	4.96	0.96	0.08
22.00	5.02	0.99	0.07
23.00	5.07	1.01	0.07
24.00	**5.12**	**1.04**	0.06
25.00	5.12	1.04	0.00
26.00	5.12	1.04	0.00
27.00	5.12	1.04	0.00
28.00	5.12	1.04	0.00
29.00	5.12	1.04	0.00
30.00	5.12	1.04	0.00
31.00	5.12	1.04	0.00
32.00	5.12	1.04	0.00
33.00	5.12	1.04	0.00
34.00	5.12	1.04	0.00
35.00	5.12	1.04	0.00
36.00	5.12	1.04	0.00
37.00	5.12	1.04	0.00
38.00	5.12	1.04	0.00
39.00	5.12	1.04	0.00
40.00	5.12	1.04	0.00
41.00	5.12	1.04	0.00
42.00	5.12	1.04	0.00
43.00	5.12	1.04	0.00
44.00	5.12	1.04	0.00
45.00	5.12	1.04	0.00
46.00	5.12	1.04	0.00
47.00	5.12	1.04	0.00
48.00	5.12	1.04	0.00
49.00	5.12	1.04	0.00
50.00	5.12	1.04	0.00
51.00	5.12	1.04	0.00
52.00	5.12	1.04	0.00
53.00	5.12	1.04	0.00
54.00	5.12	1.04	0.00
55.00	5.12	1.04	0.00
56.00	5.12	1.04	0.00
57.00	5.12	1.04	0.00
58.00	5.12	1.04	0.00
59.00	5.12	1.04	0.00
60.00	5.12	1.04	0.00
61.00	5.12	1.04	0.00
62.00	5.12	1.04	0.00
63.00	5.12	1.04	0.00
64.00	5.12	1.04	0.00
65.00	5.12	1.04	0.00
66.00	5.12	1.04	0.00
67.00	5.12	1.04	0.00
68.00	5.12	1.04	0.00
69.00	5.12	1.04	0.00
70.00	5.12	1.04	0.00
71.00	5.12	1.04	0.00
72.00	5.12	1.04	0.00

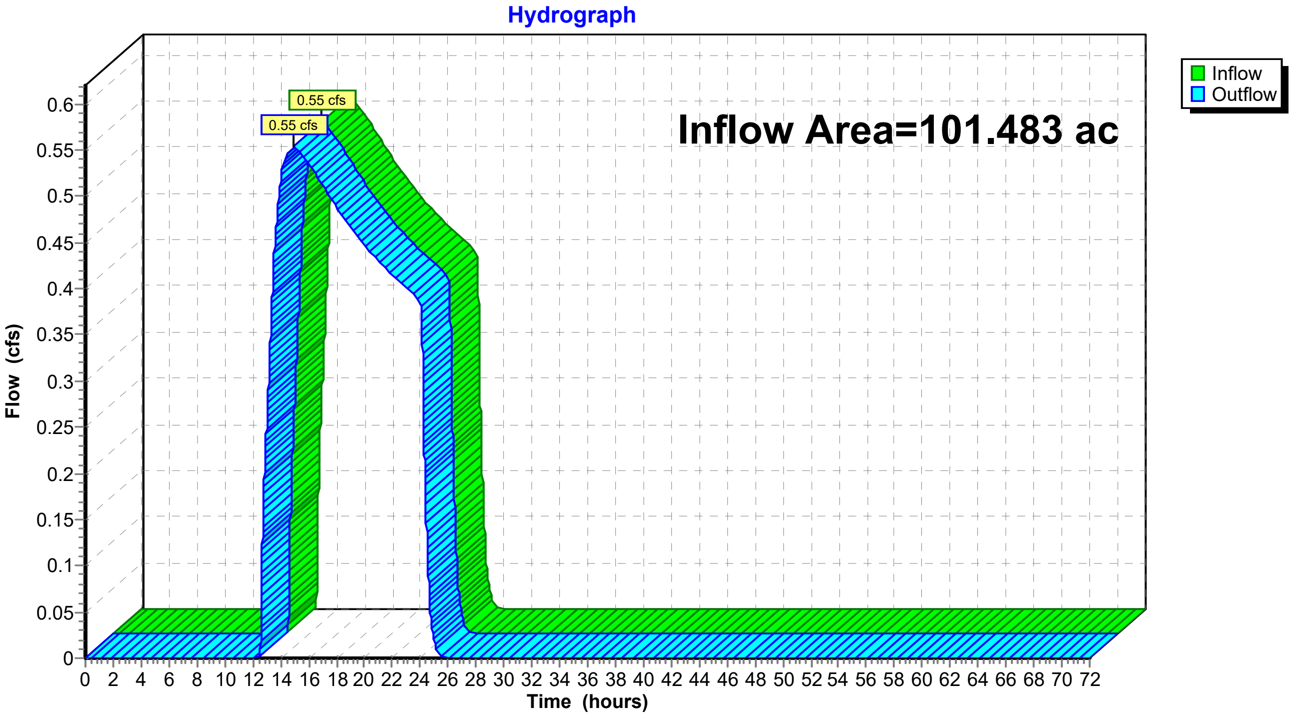
Summary for Reach AP-1: Analysis Point

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

Inflow Area = 101.483 ac, 1.57% Impervious, Inflow Depth = 0.05" for 100-yr event
Inflow = 0.55 cfs @ 14.87 hrs, Volume= 0.442 af
Outflow = 0.55 cfs @ 14.87 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach AP-1: Analysis Point



Hydrograph for Reach AP-1: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.00		0.00
12.00	0.00		0.00
13.00	0.25		0.25
14.00	**0.52**		**0.52**
15.00	**0.55**		**0.55**
16.00	0.54		0.54
17.00	0.51		0.51
18.00	0.49		0.49
19.00	0.47		0.47
20.00	0.45		0.45
21.00	0.43		0.43
22.00	0.41		0.41
23.00	0.40		0.40
24.00	0.39		0.39
25.00	0.02		0.02
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Inflow Area = 2.532 ac, 28.61% Impervious, Inflow Depth = 1.04" for 100-yr event
Inflow = 2.95 cfs @ 12.05 hrs, Volume= 0.219 af
Outflow = 1.83 cfs @ 12.21 hrs, Volume= 0.219 af, Atten= 38%, Lag= 9.6 min
Discarded = 0.02 cfs @ 12.21 hrs, Volume= 0.043 af
Primary = 1.81 cfs @ 12.21 hrs, Volume= 0.177 af
Routed to Pond P-1 : Detention Basin

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 505.18' @ 12.21 hrs Surf.Area= 2,705 sf Storage= 1,644 cf
Flood Elev= 505.50' Surf.Area= 3,049 sf Storage= 2,575 cf

Plug-Flow detention time= 186.2 min calculated for 0.219 af (100% of inflow)
Center-of-Mass det. time= 186.3 min (1,067.4 - 881.1)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	2,575 cf	**6" Ponding (Prismatic)** Listed below (Recalc)

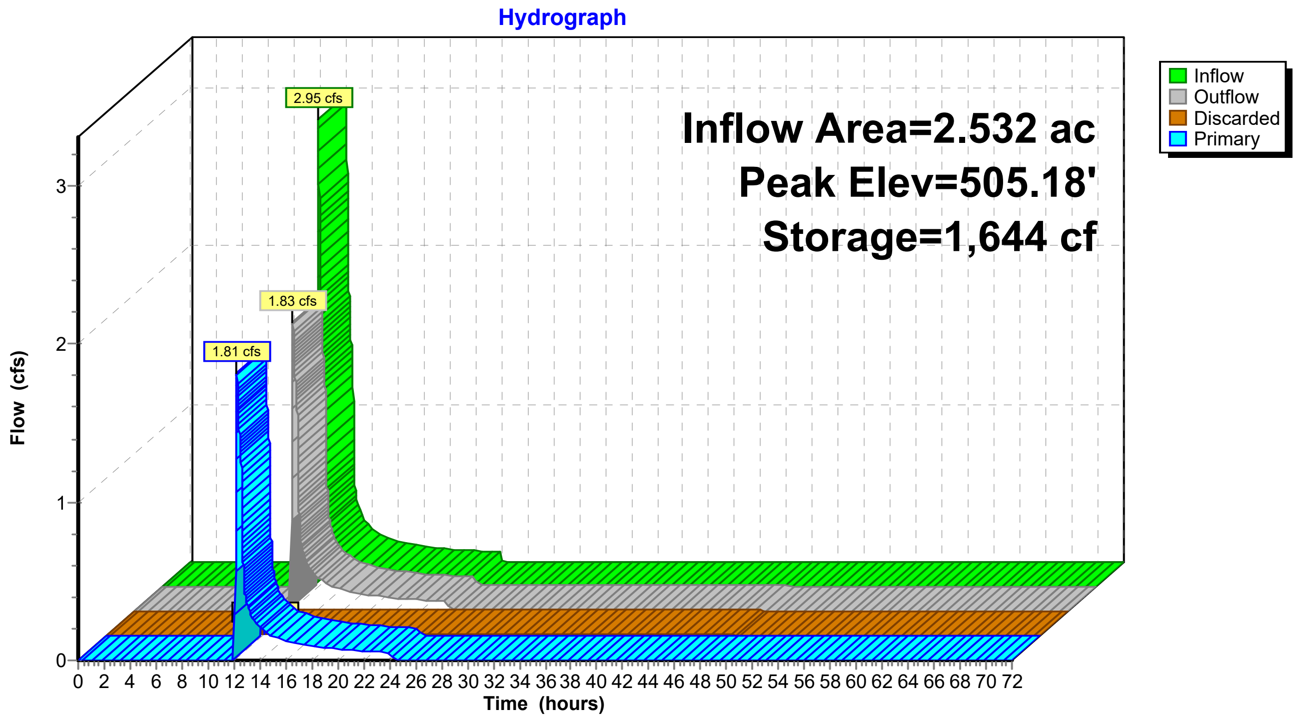
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
504.50	2,217	0	0
505.00	2,517	1,184	1,184
505.50	3,049	1,392	2,575

Device	Routing	Invert	Outlet Devices
#1	Discarded	504.50'	**0.250 in/hr Exfiltration Through Media over Surface area**
#2	Primary	505.00'	**10.0' long x 3.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

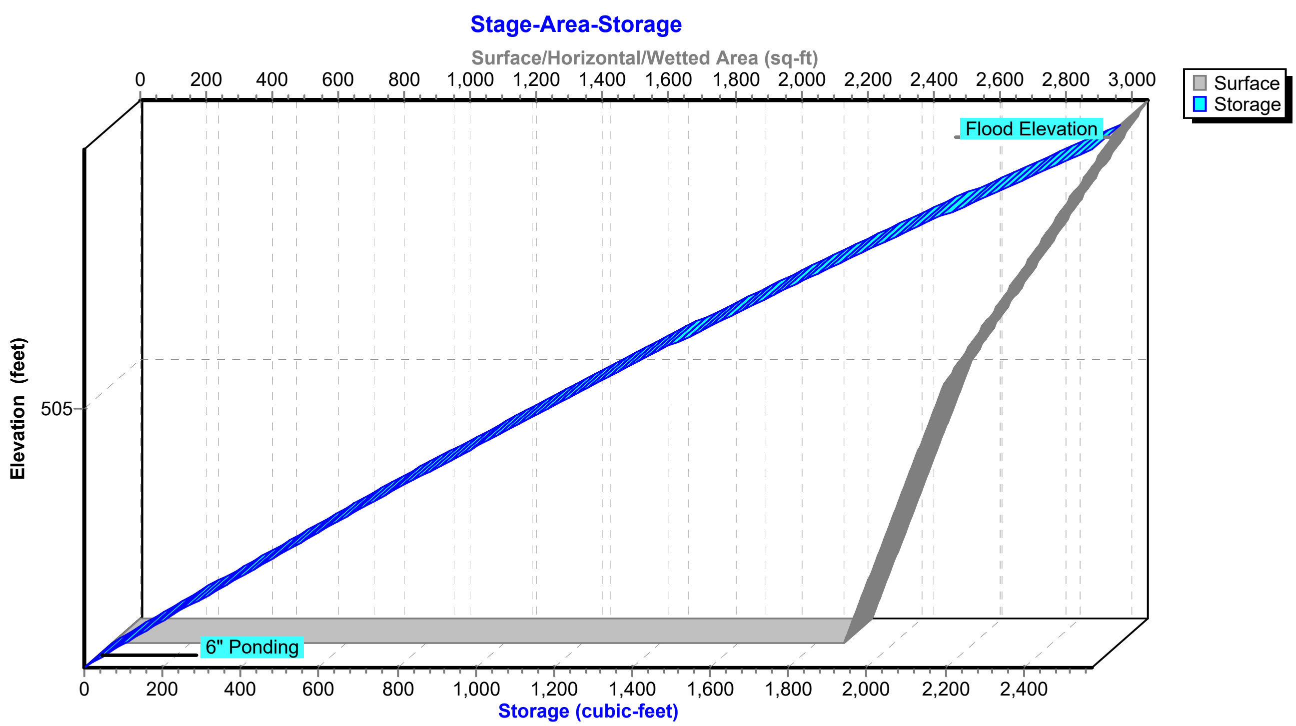
Discarded OutFlow Max=0.02 cfs @ 12.21 hrs HW=505.18' (Free Discharge)
└─**1=Exfiltration Through Media** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.81 cfs @ 12.21 hrs HW=505.18' TW=501.16' (Dynamic Tailwater)
└─**2=Emergency Overflow Weir** (Weir Controls 1.81 cfs @ 1.02 fps)

Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Pond BIO-1: Infiltration Bioretention (2.5ft filter media)



Hydrograph for Pond BIO-1: Infiltration Bioretention (2.5ft filter media)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	504.50	0.00	0.00	0.00
2.00	0.00	0	504.50	0.00	0.00	0.00
4.00	0.00	0	504.50	0.00	0.00	0.00
6.00	0.00	0	504.50	0.00	0.00	0.00
8.00	0.00	0	504.50	0.00	0.00	0.00
10.00	0.00	0	504.50	0.00	0.00	0.00
12.00	**1.96**	**366**	**504.66**	**0.01**	**0.01**	**0.00**
14.00	**0.22**	**1,290**	**505.04**	**0.22**	**0.01**	**0.21**
16.00	0.13	1,258	505.03	0.14	0.01	0.12
18.00	0.10	1,243	505.02	0.10	0.01	0.09
20.00	0.08	1,234	505.02	0.08	0.01	0.07
22.00	0.07	1,228	505.02	0.07	0.01	0.06
24.00	0.06	1,224	505.02	0.06	0.01	0.05
26.00	0.00	1,105	504.97	0.01	0.01	0.00
28.00	0.00	1,001	504.93	0.01	0.01	0.00
30.00	0.00	899	504.89	0.01	0.01	0.00
32.00	0.00	797	504.84	0.01	0.01	0.00
34.00	0.00	697	504.80	0.01	0.01	0.00
36.00	0.00	598	504.76	0.01	0.01	0.00
38.00	0.00	499	504.72	0.01	0.01	0.00
40.00	0.00	402	504.68	0.01	0.01	0.00
42.00	0.00	306	504.64	0.01	0.01	0.00
44.00	0.00	210	504.59	0.01	0.01	0.00
46.00	0.00	116	504.55	0.01	0.01	0.00
48.00	0.00	23	504.51	0.01	0.01	0.00
50.00	0.00	0	504.50	0.00	0.00	0.00
52.00	0.00	0	504.50	0.00	0.00	0.00
54.00	0.00	0	504.50	0.00	0.00	0.00
56.00	0.00	0	504.50	0.00	0.00	0.00
58.00	0.00	0	504.50	0.00	0.00	0.00
60.00	0.00	0	504.50	0.00	0.00	0.00
62.00	0.00	0	504.50	0.00	0.00	0.00
64.00	0.00	0	504.50	0.00	0.00	0.00
66.00	0.00	0	504.50	0.00	0.00	0.00
68.00	0.00	0	504.50	0.00	0.00	0.00
70.00	0.00	0	504.50	0.00	0.00	0.00
72.00	0.00	0	504.50	0.00	0.00	0.00

Summary for Pond P-1: Detention Basin

Inflow Area = 19.245 ac, 5.59% Impervious, Inflow Depth = 0.25" for 100-yr event
Inflow = 1.81 cfs @ 12.21 hrs, Volume= 0.395 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 504.47' @ 29.90 hrs Surf.Area= 6,475 sf Storage= 17,218 cf
Flood Elev= 506.50' Surf.Area= 8,838 sf Storage= 32,460 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

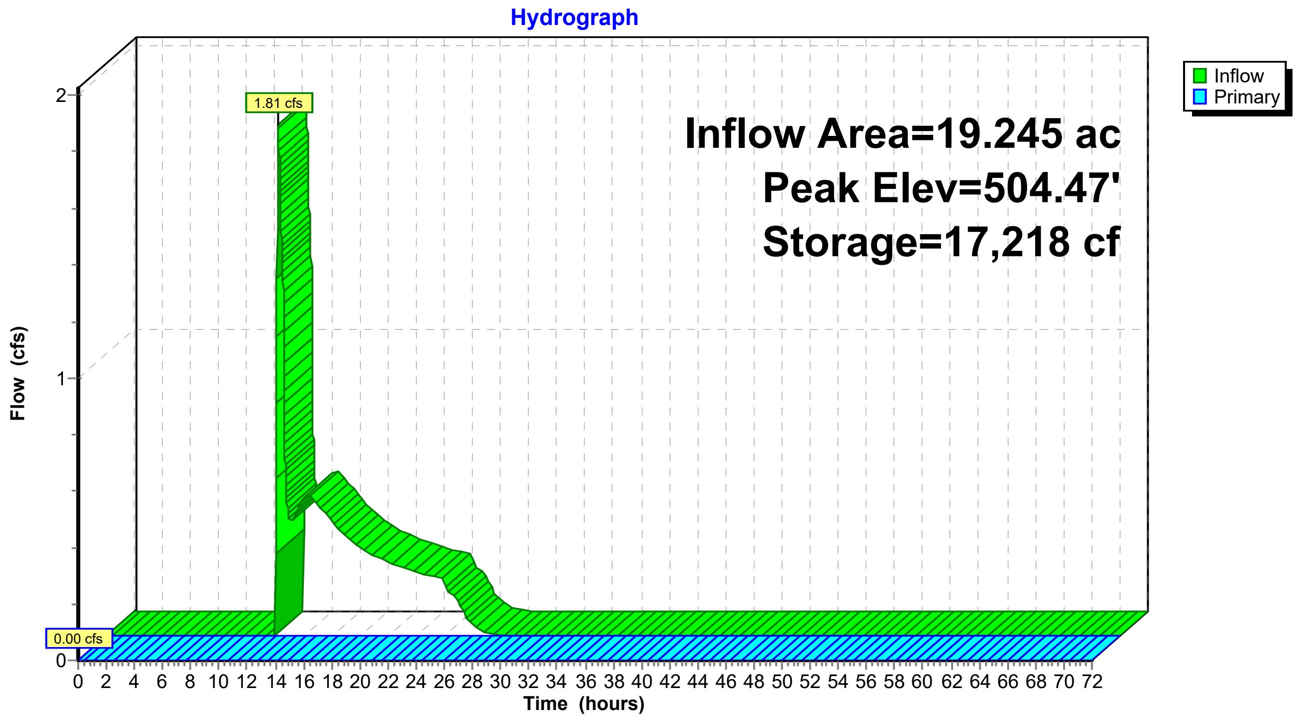
Volume	Invert	Avail.Storage	Storage Description
#1	501.00'	32,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
501.00	3,564	0	0
502.00	4,330	3,947	3,947
503.00	5,155	4,743	8,690
504.00	6,035	5,595	14,285
505.00	6,973	6,504	20,789
506.00	7,967	7,470	28,259
506.50	8,838	4,201	32,460

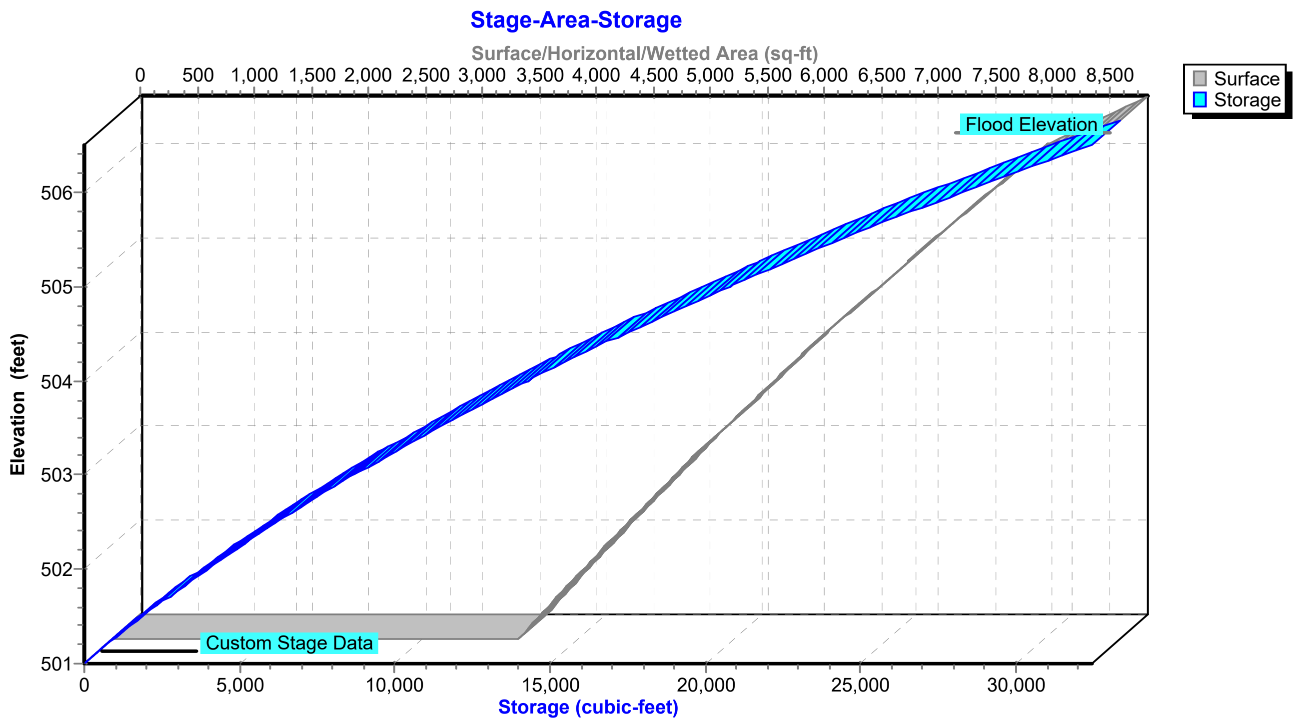
Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=501.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1: Detention Basin



Pond P-1: Detention Basin



Hydrograph for Pond P-1: Detention Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	501.00	**0.00**
2.00	0.00	0	501.00	0.00
4.00	0.00	0	501.00	0.00
6.00	0.00	0	501.00	0.00
8.00	0.00	0	501.00	0.00
10.00	0.00	0	501.00	0.00
12.00	**0.00**	0	501.00	0.00
14.00	**0.49**	5,029	502.24	0.00
16.00	0.41	8,368	502.94	0.00
18.00	0.32	10,940	503.42	0.00
20.00	0.26	13,004	503.78	0.00
22.00	0.23	14,759	504.08	0.00
24.00	0.20	16,303	504.33	0.00
26.00	0.04	17,126	504.45	0.00
28.00	0.00	**17,214**	**504.47**	0.00
30.00	0.00	**17,218**	**504.47**	0.00
32.00	0.00	17,218	504.47	0.00
34.00	0.00	17,218	504.47	0.00
36.00	0.00	17,218	504.47	0.00
38.00	0.00	17,218	504.47	0.00
40.00	0.00	17,218	504.47	0.00
42.00	0.00	17,218	504.47	0.00
44.00	0.00	17,218	504.47	0.00
46.00	0.00	17,218	504.47	0.00
48.00	0.00	17,218	504.47	0.00
50.00	0.00	17,218	504.47	0.00
52.00	0.00	17,218	504.47	0.00
54.00	0.00	17,218	504.47	0.00
56.00	0.00	17,218	504.47	0.00
58.00	0.00	17,218	504.47	0.00
60.00	0.00	17,218	504.47	0.00
62.00	0.00	17,218	504.47	0.00
64.00	0.00	17,218	504.47	0.00
66.00	0.00	17,218	504.47	0.00
68.00	0.00	17,218	504.47	0.00
70.00	0.00	17,218	504.47	0.00
72.00	0.00	17,218	504.47	0.00

Summary for Pond P-2: Detention Basin

Inflow Area = 19.412 ac, 0.00% Impervious, Inflow Depth = 0.22" for 100-yr event
Inflow = 1.05 cfs @ 12.95 hrs, Volume= 0.364 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP-1 : Analysis Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 498.95' @ 26.26 hrs Surf.Area= 6,923 sf Storage= 15,854 cf
Flood Elev= 499.50' Surf.Area= 7,923 sf Storage= 19,936 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

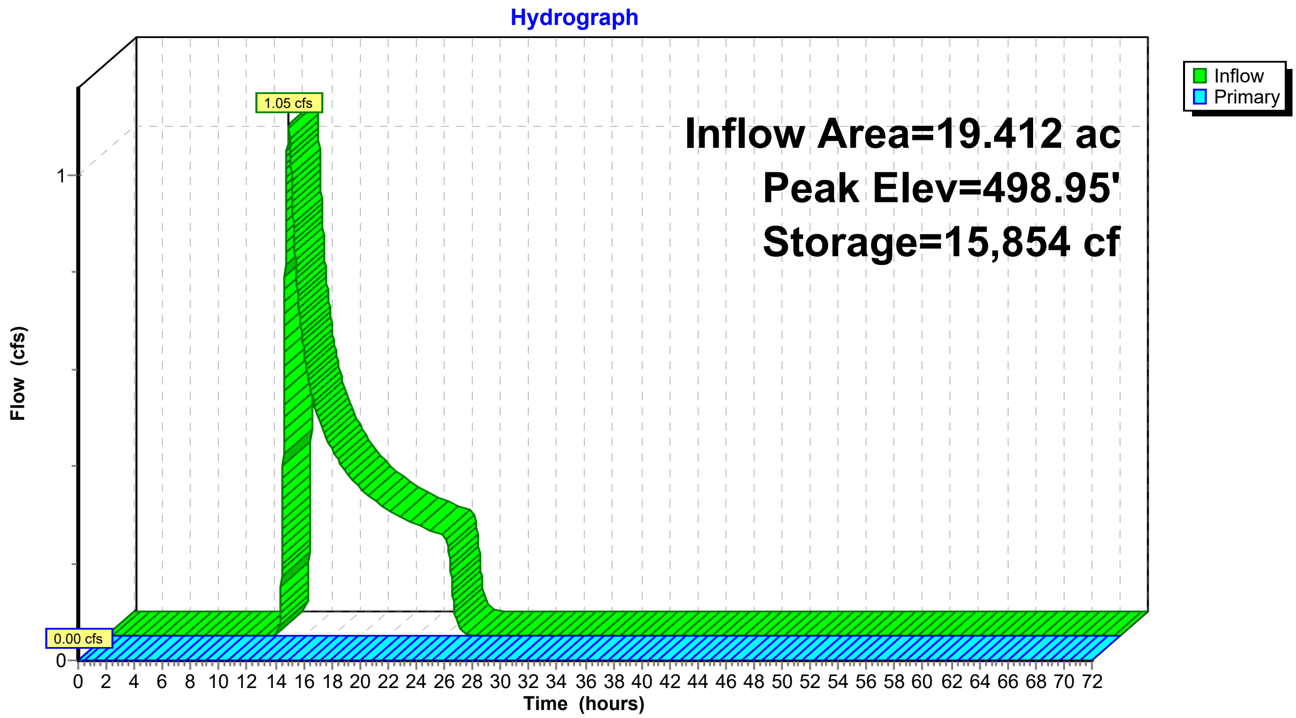
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	19,936 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	3,905	0	0
497.00	4,872	4,389	4,389
498.00	5,897	5,385	9,773
499.00	6,978	6,438	16,211
499.50	7,923	3,725	19,936

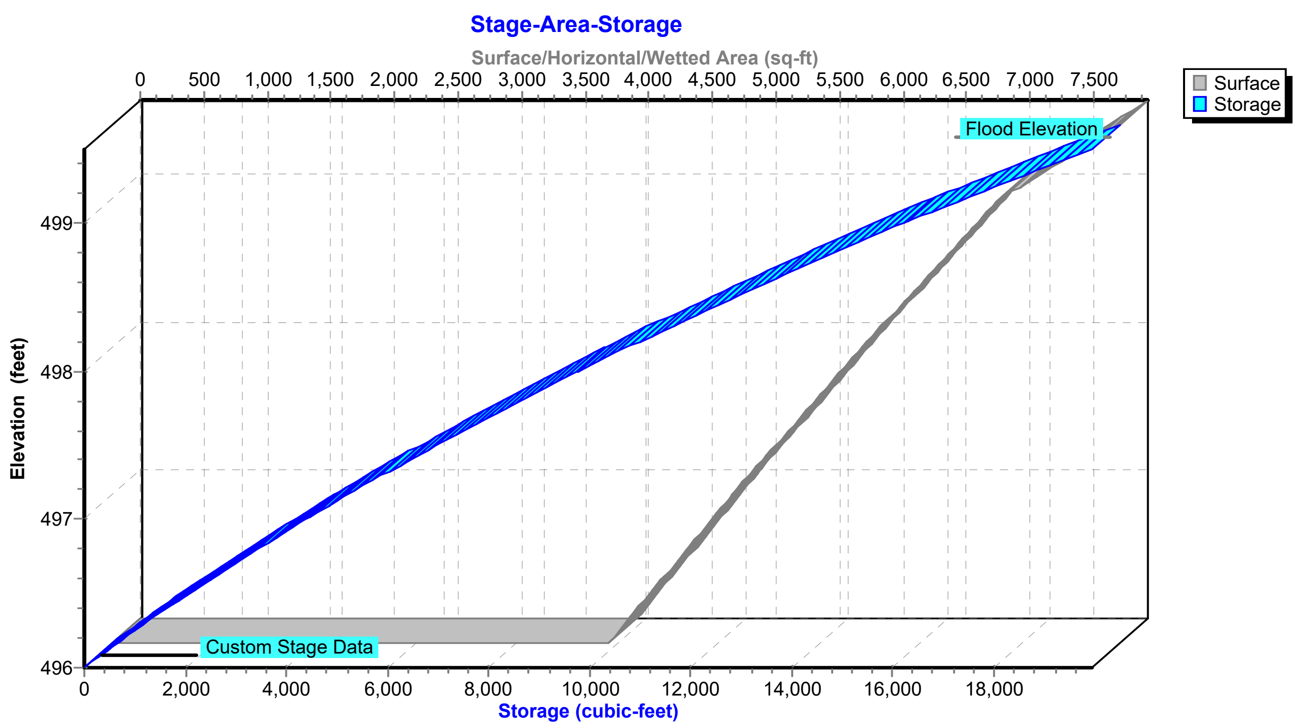
Device	Routing	Invert	Outlet Devices
#1	Primary	499.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: Detention Basin



Pond P-2: Detention Basin



Hydrograph for Pond P-2: Detention Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	496.00	**0.00**
2.00	0.00	0	496.00	0.00
4.00	0.00	0	496.00	0.00
6.00	0.00	0	496.00	0.00
8.00	0.00	0	496.00	0.00
10.00	0.00	0	496.00	0.00
12.00	**0.00**	0	496.00	0.00
14.00	**0.60**	4,215	496.96	0.00
16.00	0.39	7,576	497.61	0.00
18.00	0.31	10,033	498.04	0.00
20.00	0.26	12,062	498.38	0.00
22.00	0.23	13,825	498.65	0.00
24.00	0.21	15,401	498.88	0.00
26.00	0.00	**15,854**	**498.95**	0.00
28.00	0.00	**15,854**	**498.95**	0.00
30.00	0.00	15,854	498.95	0.00
32.00	0.00	15,854	498.95	0.00
34.00	0.00	15,854	498.95	0.00
36.00	0.00	15,854	498.95	0.00
38.00	0.00	15,854	498.95	0.00
40.00	0.00	15,854	498.95	0.00
42.00	0.00	15,854	498.95	0.00
44.00	0.00	15,854	498.95	0.00
46.00	0.00	15,854	498.95	0.00
48.00	0.00	15,854	498.95	0.00
50.00	0.00	15,854	498.95	0.00
52.00	0.00	15,854	498.95	0.00
54.00	0.00	15,854	498.95	0.00
56.00	0.00	15,854	498.95	0.00
58.00	0.00	15,854	498.95	0.00
60.00	0.00	15,854	498.95	0.00
62.00	0.00	15,854	498.95	0.00
64.00	0.00	15,854	498.95	0.00
66.00	0.00	15,854	498.95	0.00
68.00	0.00	15,854	498.95	0.00
70.00	0.00	15,854	498.95	0.00
72.00	0.00	15,854	498.95	0.00

APPENDIX F:
SWPPP INSPECTION REPORT
(SAMPLE FORM)

LaBella
Powered by partnership.

This Page Intentionally Left Blank

Prepared by:
LaBella Associates
4 British American Boulevard
Latham, NY 12110
(518) 273-0055

LaBella
Powered by partnership.

SWPPP INSPECTION REPORT NUMBER 01
CATALYZE AUSABLE GROVE STREET MICROGRID, LLC
KEESEVILLE SOLAR
217 GROVE STREET, TOWN OF AUSABLE, CLINTON COUNTY, NY

Performed:	7/12/2024 @ 12:00 AM
Report Issued:	7/12/2024

Status: SATISFACTORY (All erosion control measures are installed and in working order)

Qualified Inspector (name and title)	Qualified Professional (name and title)
Date	Date
Signature	Signature

NYSDEC Documentation and SWPPP Forms

NYSDEC Issued Permit Identification Number: NYRXXXXXX

5-Acre Waiver: N/A (No 5-acre waiver for this project - Contractor not authorized to disturb >5 acres)

303d Status: Project does not directly discharge to a 303d impaired waterbody

Number of Inspections required: 1 / week

Location of SWPPP and Site Log Book on-site:

YES	NO	N/A	CONTAINED IN SITE LOG BOOK?
☐	☐	☐	Preconstruction Assessment
☐	☐	☐	NOI Acknowledgement letter
☐	☐	☐	Copy of eNOI
☐	☐	☐	Owner / Operator Certification
☐	☐	☐	SWPPP Preparer Certification
☐	☐	☐	MS4 SWPPP Acceptance Form
☐	☐	☐	Contractor and Subcontractor Certifications
☐	☐	☐	SPDES General Permit
☐	☐	☐	5 Acre Waiver
☐	☐	☐	NOT

Comments:

Site Conditions

Approximate Disturbed Area at Time of Inspection: XX Acres			
Allowable Disturbed Area Per NOI and/or 5-acre waiver: XX Acres			
Current Status of Construction: Description			
Weather Conditions: Conditions	**Temperature:** XX ^{o}F	**Soil Conditions:** Choose an item.	
Description of Discharge Point/Natural Surface Waterbody	**Condition of Runoff**	**Sediment Discharge Noted Y / N**	**Corrective Action**

Erosion and Sediment Control Deficiencies and Corrective Actions

SWPPP Component	Functional Y / N / NA	Deficiency (See Checklist and/or note)	Deficiency Location	Initial Date	Corrective Action	Corrected Y / N
General Site Conditions						
Silt Fence						
Stabilized Construction Access						
Compost Filter Sock						
Inlet Protection						
Soil Stockpiles						
Temporary Stabilization						
Permanent Stabilization						
Dewatering Operations						
Stone Check Dams						
Rock Outlet Protection						
Sediment Traps and Basins						
Temporary Stream Crossing						
Pavement Sweeping						
Concrete Washout						
Filter Strips						
Slope Protection Measures						
Temporary Swales and Berms						
Temporary Parking Areas						
Fiber Roll						
Permanent Turf Reinforcement						
Water Bars						
Flow Diffusers						
Other:						

SWPPP Inspection Checklist and Deficiency Numbers

1	General Site Conditions
1A	Adjoining properties are not protected from erosion and sediment deposition
1B	Downstream waterways are not protected from erosion and sediment deposition
1C	All E&SC measures have not been constructed as detailed in the SWPPP
1D	Dust is not adequately controlled
1E	Storage areas contain spills, leaks, or harmful materials
1F	Garbage and waste building materials are not being managed properly
1G	Temporary control measures that are no longer needed have not been removed
1H	Permanent SWM practices not constructed per plans

2	Silt Fence
2A	Silt fence not installed on contour
2B	Silt fence not across conveyance channels
2C	Silt fence not at least 10 feet from toe of slope
2D	Silt fence not at appropriate spacing intervals based on slope
2E	Silt fence ends are not wrapped for continuous support
2F	Silt fence fabric is loose or contains rips or frayed areas
2G	Silt fence posts are unstable
2H	Silt fence is not buried 6 inches minimum
2I	Silt fence contains bulges or material buildup

3	Stabilized Construction Access
3A	Temporary construction access not installed or not per NYS standards
3B	Other access areas have not been stabilized immediately as work takes place
3C	Sediment has tracked onto public streets and is not being cleaned daily
3D	Stone is not clean enough to effectively remove mud from vehicles
3E	Adequate drainage not provided to prevent ponding

4	Compost Filter Sock
4A	Filter sock not installed on contour
4B	Filter sock terminal ends do not extended 8’ upslope at 45˚ angle
4C	Inappropriate diameter based on slope steepness and slope length
4D	Filter sock not anchored at 10’ intervals
4E	More than 50% sediment has built up

5	Inlet Protection
5A	Inlet protection not installed or installation is not per SWPPP or Blue Book specifications
5B	Incorrect type(s) of inlet control installed or is inappropriate for location
5C	Drainage area for inlet protection is greater than 1 acre
5D	Sediment has not been removed when 50% of storage volume has been achieved
5E	A 2” x 4” wood frame and wood posts has not been installed
5F	Filter fabric is not buried a minimum of 1 foot below ground or secured to frame/posts
5G	Posts are unstable, fabric is loose, and contains rips or frayed areas
5H	Post spacing exceeds maximum 3’ spacing

6	Soil Stockpiles
6A	No sediment controls at downhill slope

7	Temporary Stabilization
7A	Areas inactive for 14 days or more have not been stabilized (If <5 acres disturbed)
7B	Areas inactive for 7 days or more have not been stabilized (If >5 acres disturbed or 303d)
7C	Soil preparation has not been applied as specified in the SWPPP or the Blue Book
7D	Rolled EC products specified for steep slopes or channels have not been installed

8	Permanent Stabilization
8A	Lawn in disturbed areas has not been established to 80% germination
8B	Soil preparation has not been applied as specified in the SWPPP or the Blue Book
8C	Rolled EC products specified for steep slopes or channels have not been installed

9	Dewatering Operations
9A	Upstream and downstream berms are not installed or functioning poorly
9B	Clean water from upstream pool is not being pumped to the downstream pool
9C	Sediment laden water from work area is not being discharged to a silt-trapping device
9D	Groundwater from excavations managed improperly (No sumps/sediment control)

10	Stone Check Dam
10A	Not installed per standards
10B	Channel is unstable (flow is eroding soil underneath or around the structure)
10C	Check dam in poor condition (rocks not in place or lack of geotextile fabric)
10D	Sediment needs to be removed

11	Rock Outlet Protection
11A	Rock outlet protection not installed per plan or Blue Book
11B	Rock outlet protection not installed concurrently with pipe installation

12	Sediment Traps and Basins
12A	Outlet structure constructed improperly
12B	Geotextile fabric has not been placed beneath rock fill
12C	Depth of sediment in basin has exceeded allowable threshold
12D	Basin and outlet structure not constructed per the approved plan
12E	Basin side slopes are not stabilized with seed/mulch
12F	More than 50% capacity has built up

13	Temporary Stream Crossing
13A	Construction crossings at concentrated flow areas have not been culverted

14	Pavement Sweeping
14A	Pavement has not been swept daily and sediment has traveled into road

Stormwater Management Practice Deficiencies and Corrective Actions

Practice	Sign Y / N	Current Phase of Construction	Items Not in Conformance with SWPPP	Deficiency Location	Initial Date	Corrective Action	Corrected Y / N
Practice 1:							
Practice 2:							
Practice 3:							
Practice 4:							
Practice 5:							
Practice 6:							

Photo Log

Photo 1 *Date – Item in need of repair or maintenance:*	*Photo 1A* *Date – Corrected Action:*
Photo 2 *Date – Item in need of repair or maintenance:*	*Photo 2A* *Date – Corrected Action:*
Photo 3 *Date – Item in need of repair or maintenance:*	*Photo 3A* *Date – Corrected Action:*

Photo Log (continued)

Photo 4 *Date – Item in need of repair or maintenance:*	*Photo 4A* *Date – Corrected Action:*
Photo 5 *Date – Item in need of repair or maintenance:*	*Photo 5A* *Date – Corrected Action:*
Photo 6 *Date – Item in need of repair or maintenance:*	*Photo 6A* *Date – Corrected Action:*

Disturbance / Photo Location Map

Replace this page to include an 11x17 erosion control plan sketch to scale showing:

1. Areas with active soil disturbance activity
2. Areas that have been disturbed but are inactive at the time of the inspection
3. Areas that have been stabilized (temporary and/or final) since the last inspection
4. Limit of disturbance line per the SWPPP and the grading plan
5. Photo locations

Use Bluebeam template with standard colors to indicate limits

APPENDIX G:
POST-CONSTRUCTION
INSPECTIONS AND MAINTENANCE

LaBella
Powered by partnership.

This Page Intentionally Left Blank

Bioretention (Bioretention Cell, Dry Swale, Rain Garden, Stormwater Planters, Tree Pits)

Table 2.7.1 BR Drainage Area

Problem (Check if Present)		Follow-Up Actions
	☐ Bare soil, erosion of the ground (rills washing out the dirt)	☐ Seed and mulch areas of bare soil to establish vegetation. ☐ Fill in erosion areas with soil, compact, and seed and straw to establish vegetation. ☐ If a rill or small channel is forming, try to redirect water flowing to this area by creating a small berm or adding topsoil to areas that are heavily compacted. ☐ Other:
		☐ Kick-Out to Level 2 Inspection: Large areas of soil have been eroded, or larger channels are forming. May require rerouting of flow paths.
	☐ Piles of grass clippings, mulch, dirt, salt, or other materials	☐ Remove or cover piles of grass clippings, mulch, dirt, etc. ☐ Other:
	☐ Open containers of oil, grease, paint, or other substances	☐ Cover or properly dispose of materials; consult your local solid waste authority for guidance on materials that may be toxic or hazardous. ☐ Other:

Table 2.7.2 BR Inlets	
Problem (Check if Present)	**Follow-Up Actions**
 ☐ Inlets collect grit and debris or grass/weeds. Some water may not be getting into the Bioretention cell. The objective is to have a clear pathway for water to flow into the cell.	☐ Use a flat shovel to remove grit and debris (especially at curb inlets or openings). Parking lots generate fine grit that will accumulate at these spots. ☐ Pull out clumps of growing grass or weeds and scoop out the soil or grit that the plants are growing in. ☐ Remove any grass clippings, leaves, sticks, and other debris that is collecting at inlets. ☐ For pipes and ditches, remove sediment and debris that is partially blocking the pipe or ditch opening where it enters the Bioretention cell. ☐ Dispose of all material properly where it will not re-enter the Bioretention cell. ☐ Other: ☐ Kick-Out to Level 2 Inspection: Inlets are blocked to the extent that most of the water does not seem to be entering the Bioretention cell.
 ☐ Some or all of the inlets are eroding so that rills, gullies, and other erosion is present, or there is bare dirt that is washing into the Bioretention cell.	☐ For small areas of erosion, smooth out the eroded part and apply rock or stone (e.g., river cobble) to prevent further erosion. Usually, filter fabric is placed under the rock or stone. ☐ In some cases, reseeding and applying erosion-control matting can be used to prevent further erosion. Some of these materials may be available at a garden center, but it may be best to consult a landscape contractor. ☐ Other: ☐ Kick-Out to Level 2 Inspection: Erosion is occurring at most of the inlets, and it looks like there is too much water that is concentrating at these points. The inlet design may have to be modified.

Table 2.7.3 BR Ponding Area

Problem (Check if Present)	Follow-Up Actions
 ☐ Mulch (if used) needs to be replaced or replenished. The mulch layer had decomposed or is less than 1-inch thick.	☐ Add new mulch to a total depth (including any existing mulch that is left) of 2 to 3 inches. The mulch should be shredded hardwood mulch that is less likely to float away during rainstorms. ☐ Avoid adding too much mulch so that inlets are obstructed or certain areas become higher than the rest of the Bioretention surface. ☐ Other:
 ☐ Minor areas of sediment, grit, trash, or other debris are accumulating on the bottom.	☐ Use a shovel to scoop out minor areas of sediment or grit, especially in the spring after winter sanding materials may wash in and accumulate. Dispose of the material where it cannot re-enter the Bioretention cell. ☐ If removing the material creates a hole or low area, fill with soil mix that matches original mix and cover with mulch so that the Bioretention surface area is as flat as possible. ☐ Remove trash, vegetative debris, and other undesirable materials. ☐ Other: ☐ Kick-Out to Level 2 Inspection: Sediment has accumulated more than 2-inches deep and covers 25% or more of the Bioretention surface. ☐ Kick-Out to Level 2 Inspection: The Bioretention cell is too densely vegetated to assess sediment accumulation or ponding; see BR-4, Vegetation.
 ☐ There is erosion in the bottom or on the side slopes. Water seems to be carving out rills as it flows across the Bioretention surface or on the slopes, or sinkholes are forming in certain areas. ☐ Source: Stormwater Maintenance, LLC.	☐ Try filling the eroded areas with clean topsoil or sand, and cover with mulch. ☐ If the problem recurs, you may have to use stone (e.g., river cobble) to fill in problem areas. ☐ If the erosion is on a side slope, fill with clay that can be compacted and seed and mulch the area. ☐ Other: ☐ Kick-Out to Level 2 Inspection: The problem persists or the erosion is more than 3-inches deep and seems to be an issue with how water enters and moves through the Bioretention cell. ☐ Kick-Out to Level 2 Inspection: The problem does not seem to be caused by flowing water, but a collapse or sinking of the surface (e.g., "sinkhole") due to some underground problem.

 ☐ The bottom of the Bioretention cell is not flat, and the water pools at one end, along an edge, or in certain pockets. The whole bottom is not uniformly covered with water. See design plan to verify that Bioretention surface is intended to be flat. Check during or immediately after a rainstorm.	☐ If the problem is minor (just small, isolated areas are not covered with water), try raking the surface OR adding mulch to low spots to create a more level surface. You may need to remove and replace plantings in order to properly even off the surface. ☐ Check the surface with a string and bubble level to get the surface as flat as possible. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: Ponding water is isolated to less than half of the Bioretention surface area, and there seem to be elevation differences of more than a couple of inches across the surface.
 ☐ Water stands on the surface more than 72 hours after a rainstorm and /or wetland-type vegetation is present. The Bioretention cell does not appear to be draining properly.	☐ Kick-Out to Level 2 Inspection: This is generally a serious problem, and it will be necessary to activate a Level 2 Inspection.

Table 2.7.4 BR Vegetation

Problem (Check if Present)	Follow-Up Actions
 ☐ Vegetation requires regular maintenance—pulling weeds, removing dead and diseased plants, replacing mulch around plants, adding plants to fill in areas that are not well vegetated, etc.	☐ If you can identify which plants are weeds or not intended to be part of the planting plan, eliminate these, preferably by hand pulling. ☐ If weeds are widespread, check with the local stormwater authority and/or Extension Office about proper use of herbicides for areas connected with the flow of water. ☐ Even vegetation that is intended to be present can become large, overgrown, and/or crowd out surrounding plants. Prune and thin accordingly. ☐ If weeds or invasive plants have overtaken the whole Bioretention cell, bush-hog the entire area before seedheads form in the spring. It will be necessary to remove the root mat manually or with appropriate herbicides, as noted above. ☐ Re-plant with species that are aesthetically pleasing and seem to be doing well in the Bioretention cell. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: You are unsure of the original planting design, or the vegetation maintenance task is beyond your capabilities of time, expertise, or resources. If you are unsure of the health of the vegetation (e.g. salt damage, invasives, which plants are undesirable) or the appropriate season to conduct vegetation management, consult a landscape professional before undertaking any cutting, pruning, mowing, or brush hogging.
 ☐ Vegetation is too thin, is not healthy, and there are many spots that are not well vegetated.	☐ The original plants are likely not suited for the actual conditions within the Bioretention cell. If you are knowledgeable about plants, select and plant more appropriate vegetation (preferably native plants) so that almost the entire surface area will be covered by the end of the second growing season. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: For all but small practices (e.g., rain gardens), this task will likely require a landscape design professional or horticulturalist.

<table>
<tr><th colspan="2">Table 2.7.5 BR Outlets</th></tr>
<tr><th>Problem (Check if Present)</th><th>Follow-Up Actions</th></tr>
<tr><td rowspan="2">☐ Erosion at outlet</td><td>☐ Add stone to reduce the impact from the water flowing out of the outlet pipe or weir during storms.
☐ Other:</td></tr>
<tr><td>☐ Kick-Out to Level 2 Inspection: Rills have formed and erosion problem becomes more severe.</td></tr>
<tr><td rowspan="2">
☐ Outlet obstructed with mulch, sediment, debris, trash, etc.</td><td>☐ Remove the debris and dispose of it where it cannot re-enter the Bioretention cell.
☐ Other:</td></tr>
<tr><td>☐ Kick-Out to Level 2 Inspection: Outlet is completely clogged or obstructed; there is too much material to remove by hand or with simple hand tools.</td></tr>
</table>

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bioretention Stormwater Management Practices Level 1 Inspection Checklist

SMP ID #		**SMP Owner**		☐ Private ☐ Public

SMP Location (Address; Latitude & Longitude)				
	Latitude		**Longitude**	

Party Responsible for Maintenance	**System Type**		**Type of Site**
☐ Same as SMP Owner ☐ Other __________________	☐ Seasonal ☐ Continuous Use ☐ Other	☐ Above Ground ☐ Below Ground	☐ Commercial ☐ Industrial ☐ Residential ☐ State

Inspection Date		**Inspection Time**	
Inspector			
Date of Last Inspection			

BR Drainage Area

Look for areas that are uphill from the Bioretention cell.

Problem (Check if Present)		**Follow-Up Actions**
	☐ Bare soil, erosion of the ground (rills washing out the dirt)	☐ Seed and mulch areas of bare soil to establish vegetation. ☐ Fill in erosion areas with soil, compact, and seed and straw to establish vegetation. ☐ If a rill or small channel is forming, try to redirect water flowing to this area by creating a small berm or adding topsoil to areas that are heavily compacted. ☐ Other:

BR Drainage Area

Look for areas that are uphill from the Bioretention cell.

Problem (Check if Present)		Follow-Up Actions
		☐ Kick-Out to Level 2 Inspection: Large areas of soil have been eroded, or larger channels are forming. May require rerouting of flow paths.
	☐ Piles of grass clippings, mulch, dirt, salt, or other materials	☐ Remove or cover piles of grass clippings, mulch, dirt, etc. ☐ Other:
	☐ Open containers of oil, grease, paint, or other substances	☐ Cover or properly dispose of materials; consult your local solid waste authority for guidance on materials that may be toxic or hazardous. ☐ Other:

BR Inlets

Stand in the Bioretention cell itself and look for all the places where water flows in. Often there will be multiple points of inflow to the practice.

<table>
<tr><th>Problem (Check if Present)</th><th>Follow-Up Actions</th></tr>
<tr><td rowspan="2">
☐ Inlets collect grit and debris or grass/weeds. Some water may not be getting into the Bioretention cell. The objective is to have a clear pathway for water to flow into the cell.</td><td>☐ Use a flat shovel to remove grit and debris (especially at curb inlets or openings). Parking lots generate fine grit that will accumulate at these spots.
☐ Pull out clumps of growing grass or weeds and scoop out the soil or grit that the plants are growing in.
☐ Remove any grass clippings, leaves, sticks, and other debris that is collecting at inlets.
☐ For pipes and ditches, remove sediment and debris that is partially blocking the pipe or ditch opening where it enters the Bioretention cell.
☐ Dispose of all material properly where it will not re-enter the Bioretention cell.
☐ Other:</td></tr>
<tr><td>☐ Kick-Out to Level 2 Inspection: Inlets are blocked to the extent that most of the water does not seem to be entering the Bioretention cell.</td></tr>
<tr><td rowspan="2">
☐ Some or all of the inlets are eroding so that rills, gullies, and other erosion is present, or there is bare dirt that is washing into the Bioretention cell.</td><td>☐ For small areas of erosion, smooth out the eroded part and apply rock or stone (e.g., river cobble) to prevent further erosion. Usually, filter fabric is placed under the rock or stone.
☐ In some cases, reseeding and applying erosion-control matting can be used to prevent further erosion. Some of these materials may be available at a garden center, but it may be best to consult a landscape contractor.
☐ Other:</td></tr>
<tr><td>☐ Kick-Out to Level 2 Inspection: Erosion is occurring at most of the inlets, and it looks like there is too much water that is concentrating at these points. The inlet design may have to be modified.</td></tr>
</table>

BR Ponding Area

Examine the entire Bioretention surface and side slopes

Problem (Check if Present)	Follow-Up Actions
 ☐ Mulch (if used) needs to be replaced or replenished. The mulch layer had decomposed or is less than 1-inch thick.	☐ Add new mulch to a total depth (including any existing mulch that is left) of 2 to 3 inches. The mulch should be shredded hardwood mulch that is less likely to float away during rainstorms. ☐ Avoid adding too much mulch so that inlets are obstructed or certain areas become higher than the rest of the Bioretention surface. ☐ Other:
 ☐ Minor areas of sediment, grit, trash, or other debris are accumulating on the bottom.	☐ Use a shovel to scoop out minor areas of sediment or grit, especially in the spring after winter sanding materials may wash in and accumulate. Dispose of the material where it cannot re-enter the Bioretention cell . ☐ If removing the material creates a hole or low area, fill with soil mix that matches original mix and cover with mulch so that the Bioretention surface area is as flat as possible. ☐ Remove trash, vegetative debris, and other undesirable materials. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: Sediment has accumulated more than 2-inches deep and covers 25% or more of the Bioretention surface. ☐ Kick-Out to Level 2 Inspection: The Bioretention cell is too densely vegetated to assess sediment accumulation or ponding; see BR-4, Vegetation.

BR Ponding Area

Examine the entire Bioretention surface and side slopes

Problem (Check if Present)	Follow-Up Actions
 ☐ There is erosion in the bottom or on the side slopes. Water seems to be carving out rills as it flows across the Bioretention surface or on the slopes, or sinkholes are forming in certain areas. ☐ Source: Stormwater Maintenance, LLC.	☐ Try filling the eroded areas with clean topsoil or sand, and cover with mulch. ☐ If the problem recurs, you may have to use stone (e.g., river cobble) to fill in problem areas. ☐ If the erosion is on a side slope, fill with clay that can be compacted and seed and mulch the area. ☐ Other: ☐ Kick-Out to Level 2 Inspection: The problem persists or the erosion is more than 3-inches deep and seems to be an issue with how water enters and moves through the Bioretention cell. ☐ Kick-Out to Level 2 Inspection: The problem does not seem to be caused by flowing water, but a collapse or sinking of the surface (e.g., "sinkhole") due to some underground problem.
 ☐ The bottom of the Bioretention cell is not flat, and the water pools at one end, along an edge, or in certain pockets. The whole bottom is not uniformly covered with water. See design plan to verify that bioretention surface is intended to be flat. Check during or immediately after a rainstorm.	☐ If the problem is minor (just small, isolated areas are not covered with water), try raking the surface OR adding mulch to low spots to create a more level surface. You may need to remove and replace plantings in order to properly even off the surface. ☐ Check the surface with a string and bubble level to get the surface as flat as possible. ☐ Other: ☐ Kick-Out to Level 2 Inspection: Ponding water is isolated to less than half of the Bioretention surface area, and there seem to be elevation differences of more than a couple of inches across the surface.

BR Ponding Area

Examine the entire Bioretention surface and side slopes

Problem (Check if Present)	Follow-Up Actions
 ☐ Water stands on the surface more than 72 hours after a rainstorm and /or wetland-type vegetation is present. The Bioretention cell does not appear to be draining properly.	☐ Kick-Out to Level 2 Inspection: This is generally a serious problem, and it will be necessary to activate a Level 2 Inspection.

BR Vegetation

Examine all Bioretention cell vegetation.

Problem (Check if Present)	Follow-Up Actions
 ☐ Vegetation requires regular maintenance—pulling weeds, removing dead and diseased plants, replacing mulch around plants, adding plants to fill in areas that are not well vegetated, etc.	☐ If you can identify which plants are weeds or not intended to be part of the planting plan, eliminate these, preferably by hand pulling. ☐ If weeds are widespread, check with the local stormwater authority and/or Extension Office about proper use of herbicides for areas connected with the flow of water. ☐ Even vegetation that is intended to be present can become large, overgrown, and/or crowd out surrounding plants. Prune and thin accordingly. ☐ If weeds or invasive plants have overtaken the whole Bioretention cell , bush-hog the entire area before seedheads form in the spring. It will be necessary to remove the root mat manually or with appropriate herbicides, as noted above. ☐ Re-plant with species that are aesthetically pleasing and seem to be doing well in the Bioretention cell. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: You are unsure of the original planting design, or the vegetation maintenance task is beyond your capabilities of time, expertise, or resources. If you are unsure of the health of the vegetation (e.g. salt damage, invasives, which plants are undesirable) or the appropriate season to conduct vegetation management, consult a landscape professional before undertaking any cutting, pruning, mowing, or brush hogging.

BR Vegetation

Examine all Bioretention cell vegetation.

Problem (Check if Present)	Follow-Up Actions
 ☐ Vegetation is too thin, is not healthy, and there are many spots that are not well vegetated.	☐ The original plants are likely not suited for the actual conditions within the Bioretention cell . If you are knowledgeable about plants, select and plant more appropriate vegetation (preferably native plants) so that almost the entire surface area will be covered by the end of the second growing season. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: For all but small practices (e.g., rain gardens), this task will likely require a landscape design professional or horticulturalist.

BR Outlets

Examine outlets that release water out of the Bioretention cell.

Problem (Check if Present)	Follow-Up Actions
☐ Erosion at outlet	☐ Add stone to reduce the impact from the water flowing out of the outlet pipe or weir during storms. ☐ Other:
	☐ Kick-Out to Level 2 Inspection: Rills have formed and erosion problem becomes more severe.
 ☐ Outlet obstructed with mulch, sediment, debris, trash, etc.	☐ Remove the debris and dispose of it where it cannot re-enter the Bioretention cell . ☐ Other:
	☐ Kick-Out to Level 2 Inspection: Outlet is completely clogged or obstructed; there is too much material to remove by hand or with simple hand tools.

Additional Notes:

Inspector:______________________________ Date: ______________

Complete the following if follow-up/corrective actions were identified during this inspection:

Certified Completion of Follow-Up Actions:

"I hereby certify that the follow-up/corrective actions identified in the inspection performed on ______________ (DATE) have been completed and any required maintenance deficiencies have been adequately corrected."

Inspector/Operator: ______________________________ Date: ______________

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bioretention Stormwater Management Practices
Level 2 Inspection Checklist

SMP ID #		**SMP Owner**		☐ Private ☐ Public

SMP Location (Address; Latitude & Longitude)				
	Latitude		**Longitude**	

Party Responsible for Maintenance	**System Type**		**Type of Site**
☐ Same as SMP Owner ☐ Other ______________________	☐ Seasonal ☐ Continuous Use ☐ Other	☐ Above Ground ☐ Below Ground	☐ Commercial ☐ Industrial ☐ Residential ☐ State

Inspection Date		**Inspection Time**	
Inspector			
Date of Last Inspection			

Level 2 Inspection: BIORETENTION NOTE: Key Source for this Information *(CSN, 2013)*	
Recommended Repairs	**Triggers for Level 3 Inspection**
Observed Condition: Water Stands on Surface for More than 72 Hours after Storm	
☐ Condition 1: Small pockets of standing water Use a soil probe or auger to examine the soil profile. If isolated areas have accumulated grit, fines, or vegetative debris or have bad soil media, try scraping off top 3 inches of media and replacing with clean material. Also check to see that surface is level and water is not ponding selectively in certain areas. ☐ Condition 2: Standing water is widespread or covers entire surface Requires diagnosis and resolution of problem: • Clogged underdrain? • Filter fabric between soil media and underdrain stone? • Need to install underdrain if not present? • Too much sediment/grit washing in from drainage area? • Too much ponding depth? • Improper soil media?	• Soil media is clogged and problem is not evident from Level 2 inspection. • Level 2 inspection identifies problem, but it cannot be resolved easily or is associated with the original design of the practice. ☐ Level 3 inspection necessary
Observed Condition: Vegetation is sparse or out of control	
☐ Condition 1: Original design planting plan seems good but has not been maintained, so there are many invasives and/or dead plants Will require some horticultural experience to restore vegetation to intended condition by weeding, pruning, removing plants, and adding new plants. ☐ Condition 2: Original design planting plan is unknown or cannot be actualized A landscape architect or horticulturalist will be needed to redo the planting plan. Will likely require analysis of soil pH, moisture, organic content, sun/shade, and other conditions to make sure plants match conditions. Plan should include invasive plant management and maintenance plan to include mulching, watering, disease intervention, periodic thinning/pruning, etc.	• Vegetation deviates significantly from original planting plan; Bioretention has been neglected and suffered from deferred maintenance. • Owner/responsible party does not know how to maintain the practice. ☐ Level 3 inspection necessary
Observed Condition: Bioretention does not conform to original design plan in surface area or storage	
☐ Condition 1: Level 2 Inspection reveals that practice is too small based on design dimension, does not have adequate storage (e.g., ponding depth) based on the plan, and/or does not treat the drainage area runoff as indicated on the plan Small areas of deviation can be corrected by the property owner or responsible party, but it is likely that a Qualified Professional will have to revisit the design and attempt a redesign that meets original objectives or that can be resubmitted to the municipality for approval.	• More than a 25% departure from the approved plan in surface area, storage, or drainage area; sometimes less than this threshold at the discretion of the Level 2 inspector. ☐ Level 3 inspection necessary

<table>
<tr><th colspan="2">Level 2 Inspection: BIORETENTION
NOTE: Key Source for this Information (CSN, 2013)</th></tr>
<tr><th>Recommended Repairs</th><th>Triggers for Level 3 Inspection</th></tr>
<tr><td colspan="2">Observed Condition: Severe erosion of filter bed, inlets, or around outlets</td></tr>
<tr><td>☐ Condition 1: Erosion at inlets

The lining (e.g., grass, matting, stone, rock) may not be adequate for the actual flow velocities coming through the inlets. First line of defense is to try a more non-erosive lining and/or to extend the lining further down to where inlet slopes meet the Bioretention surface. If problem persists, analysis by a Qualified Professional is warranted.

☐ Condition 2: Erosion of Bioretention filter bed

This is often caused by “preferential flow paths” through and along the Bioretention surface. The source of flow should be analyzed and methods employed to dissipate energy and disperse the flow (e.g., check dams, rock splash pads).

☐ Condition 3: Erosion on side slopes

Again, the issue is likely linked with unanticipated flow paths down the side slopes (probably overland flow that concentrates as it hits the edge of the slope). For small or isolated areas, try filling, compacting, and re-establishing healthy ground cover vegetation. If the problem is more widespread, further analysis is required to determine how to redirect the flow.</td><td>• Erosion (rills, gullies) is more than 12 inches deep at inlets or the filter bed or more than 3 inches deep on side slopes.
• If the issue is not caused by moving water but some sort of subsurface defect. This may manifest as a sinkhole or linear depression and be associated with problems with the underdrain stone or pipe or underlying soil.

☐ Level 3 inspection necessary</td></tr>
<tr><td colspan="2">Observed Condition: Significant sediment accumulation, indicating an uncontrolled source of sediment</td></tr>
<tr><td>☐ Condition 1: Isolated areas of sediment accumulation, generally less than 3-inches deep

Sediment source may be from a one-time or isolated event. Remove accumulated sediment and top 2 to 3 inches of Bioretention soil media; replace with clean material. Check drainage area for any ongoing sources of sediment.

☐ Condition 2: Majority of the surface is caked with “hard pan” (thin layer of clogging material) or accumulated sediment that is 3-inches deep or more

This can be caused by an improper construction sequence (drainage area not fully stabilized prior to installation of Bioretention soil media) or another chronic source of sediment in the drainage area. Augering several holes down through the media can indicate how severe the problem is; often the damage is confined to the first several inches of soil media. Removing and replacing this top layer (or to the depth where sediment incursion is seen in auger holes) can be adequate, as long as the problem does not recur.</td><td>• More than 2 inches of accumulated sediment cover 25% or more of the Bioretention surface area.
• “Hard pan” of thin, crusty layer covers majority of Bioretention surface area and seems to be impeding flow of water down through the soil media.
• New sources of sediment seem to be accumulating with each significant rainfall event.

☐ Level 3 inspection necessary</td></tr>
</table>

Notes:

Inspector:____ Date: ____________________

Complete the following if follow-up/corrective actions were identified during this inspection:

Certified Completion of Follow-Up Actions:

"I hereby certify that the follow-up/corrective actions identified in the inspection performed on ______________ (DATE) have been completed and any required maintenance deficiencies have been adequately corrected."

Inspector/Operator: __________________________________ Date: ____________________

APPENDIX H:
NYSDEC "DEEP-RIPPING AND DECOMPACTION," APRIL 2008

LaBella
Powered by partnership.

This Page Intentionally Left Blank

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Deep-Ripping and Decompaction

April 2008

New York State
Department of Environmental Conservation

Document Prepared by:

John E. Lacey,
Land Resource Consultant and Environmental Compliance Monitor
(Formerly with the Division of Agricultural Protection and Development Services,
NYS Dept. of Agriculture & Markets)

Alternative Stormwater Management
Deep-Ripping and Decompaction

Description

The two-phase practice of 1) “Deep Ripping;” and 2) “Decompaction” (deep subsoiling), of the soil material as a step in the cleanup and restoration/landscaping of a construction site, helps mitigate the physically induced impacts of soil compression; i.e.: soil compaction or the substantial increase in the bulk density of the soil material.

Deep Ripping and Decompaction are key factors which help in restoring soil pore space and permeability for water infiltration. Conversely, the physical actions of cut-and-fill work, land grading, the ongoing movement of construction equipment and the transport of building materials throughout a site alter the architecture and structure of the soil, resulting in: the mixing of layers (horizons) of soil materials, compression of those materials and diminished soil porosity which, if left unchecked, severely impairs the soil’s water holding capacity and vertical drainage (rainfall infiltration), from the surface downward.

In a humid climate region, compaction damage on a site is virtually guaranteed over the duration of a project. Soil in very moist to wet condition when compacted, will have severely reduced permeability. Figure 1 displays the early stage of the deep-ripping phase (Note that all topsoil was stripped prior to construction access, and it remains stockpiled until the next phase – decompaction – is complete). A heavy-duty tractor is pulling a three-shank ripper on the first of several series of incrementally deepening passes through the construction access corridor's densely compressed subsoil material. Figure 2 illustrates the approximate volumetric composition of a loam surface soil when conditions are good for plant growth, with adequate natural pore space for fluctuating moisture conditions.

Fig. 1. A typical deep ripping phase of this practice, during the first in a series of progressively deeper “rips” through severely compressed subsoil.

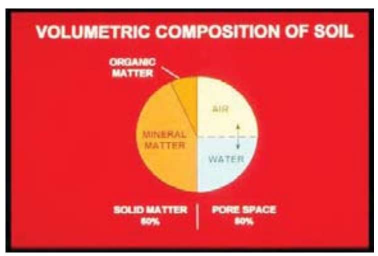


Fig. 2. About 50% of the volume of undisturbed loam surface soil is pore space, when soil is in good condition for plant growth. Brady, 2002.

Recommended Application of Practice

The objective of Deep Ripping and Decompaction is to effectively fracture (vertically and laterallly) through the thickness of the physically compressed subsoil material (see Figure 3), restoring soil porosity and permeability and aiding infiltration to help reduce runoff. Together with topsoil stripping, the “two-phase” practice of Deep Ripping and Decompaction first became established as a “best management practice” through ongoing success on commercial farmlands affected by heavy utility construction right-of-way projects (transmission pipelines and large power lines).

Fig. 3. Construction site with significant compaction of the deep basal till subsoil extends 24 inches below this exposed cut-and-fill work surface.

Soil permeability, soil drainage and cropland productivity were restored. For broader construction application, the two-phase practice of Deep Ripping and Decompaction is best adapted to areas impacted with significant soil compaction, on contiguous open portions of large construction sites and inside long, open construction corridors used as temporary access over the duration of construction. Each mitigation area should have minimal above-and-below-ground obstructions for the easy avoidance and maneuvering of a large tractor and ripping/decompacting implements. Conversely, the complete two-phase practice is not recommended in congested or obstructed areas due to the limitations on tractor and implement movement.

Benefits

Aggressive “deep ripping” through the compressed thickness of exposed subsoil before the replacement/respreading of the topsoil layer, followed by “decompaction,” i.e.: “sub-soiling,” through the restored topsoil layer down into the subsoil, offers the following benefits:

- Increases the project (larger size) area’s direct surface infiltration of rainfall by providing the open site’s mitigated soil condition and lowers the demand on concentrated runoff control structures
- Enhances direct groundwater recharge through greater dispersion across and through a broader surface than afforded by some runoff-control structural measures
- Decreases runoff volume generated and provides hydrologic source control
- May be planned for application in feasible open locations either alone or in

conjunction with plans for structural practices (e.g., subsurface drain line or infiltration basin) serving the same or contiguous areas

- Promotes successful long-term revegetation by restoring soil permeability, drainage and water holding capacity for healthy (rather than restricted) root-system development of trees, shrubs and deep rooted ground cover, minimizing plant drowning during wet periods and burnout during dry periods.

Feasibility / Limitations

The effectiveness of Deep Ripping and Decompaction is governed mostly by site factors such as: the original (undisturbed) soil's hydrologic characteristics; the general slope; local weather/timing (soil moisture) for implementation; the space-related freedom of equipment/implement maneuverability (noted above in **Recommended Application of Practice**), and by the proper selection and operation of tractor and implements (explained below in **Design Guidance**). The more notable site-related factors include:

Soil

In the undisturbed condition, each identified soil type comprising a site is grouped into one of four categories of soil hydrology, Hydrologic Soil Group A, B, C or D, determined primarily by a range of characteristics including soil texture, drainage capability when thoroughly wet, and depth to water table. The natural rates of infiltration and transmission of soil-water through the undisturbed soil layers for Group A is "high" with a low runoff potential while soils in Group B are moderate in infiltration and the transmission of soil-water with a moderate runoff potential, depending somewhat on slope. Soils in Group C have slow rates of infiltration and transmission of soil-water and a moderately high runoff potential influenced by soil texture and slope; while soils in Group D have exceptionally slow rates of infiltration and transmission of soil-water, and high runoff potential.

In Figure 4, the profile displays the undisturbed horizons of a soil in Hydrologic Soil Group C and the naturally slow rate of infiltration through the subsoil. The slow rate of infiltration begins immediately below the topsoil horizon (30 cm), due to the limited amount of macro pores, e.g.: natural subsoil fractures, worm holes and root channels. Infiltration after the construction-induced mixing and compression of such subsoil material is virtually absent; but can be restored back to this natural level with the two-phase practice of deep ripping and decompaction, followed by the permanent establishment of an appropriate, deep taproot

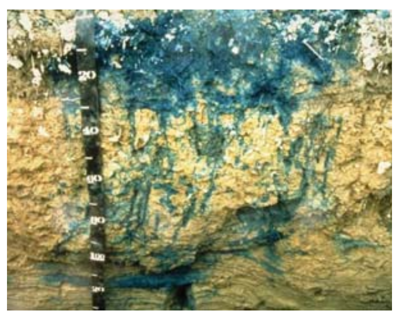


Fig. 4. Profile (in centimeters) displaying the infiltration test result of the natural undisturbed horizons of a soil in Hydrologic Soil Group C.

lawn/ground cover to help maintain the restored subsoil structure. Infiltration after construction-induced mixing and compression of such subsoil material can be notably rehabilitated with the Deep Ripping and Decompaction practice, which prepares the site for the appropriate long-term lawn/ground cover mix including deep taproot plants such as clover, fescue or trefoil, etc. needed for all rehabilitated soils.

Generally, soils in Hydrologic Soil Groups A and B, which respectively may include deep, well-drained, sandy-gravelly materials or deep, moderately well-drained basal till materials, are among the easier ones to restore permeability and infiltration, by deep ripping and decompaction. Among the many different soils in Hydrologic Soil Group C are those unique glacial tills having a natural fragipan zone, beginning about 12 to 18 inches (30 – 45cm), below surface. Although soils in Hydrologic Soil Group C do require a somewhat more carefully applied level of the Deep Ripping and Decompaction practice, it can greatly benefit such affected areas by reducing the runoff and fostering infiltration to a level equal to that of pre-disturbance.

Soils in Hydrologic Soil Group D typically have a permanent high water table close to the surface, influenced by a clay or other highly impervious layer of material. In many locations with clay subsoil material, the bulk density is so naturally high that heavy trafficking has little or no added impact on infiltration; and structural runoff control practices rather than Deep Ripping and Decompaction should be considered.

The information about Hydrologic Soil Groups is merely a general guideline. Site-specific data such as limited depths of cut-and-fill grading with minimal removal or translocation of the inherent subsoil materials (as analyzed in the county soil survey) or, conversely, the excavation and translocation of deeper, unconsolidated substratum or consolidated bedrock materials (unlike the analyzed subsoil horizons' materials referred to in the county soil survey) should always be taken into account.

Sites made up with significant quantities of large rocks, or having a very shallow depth to bedrock, are not conducive to deep ripping and decompation (subsoiling); and other measures may be more practical.

Slope

The two-phase application of 1) deep ripping and 2) decompaction (deep subsoiling), is most practical on flat, gentle and moderate slopes. In some situations, such as but not limited to temporary construction access corridors, inclusion areas that are moderately steep along a project's otherwise gentle or moderate slope may also be deep ripped and decompacted. For limited instances of moderate steepness on other projects, however, the post-construction land use and the relative alignment of the potential ripping and decompaction work in relation to the lay of the slope should be reviewed for safety and practicality. In broad construction areas predominated by moderately steep or steep slopes, the practice is generally not used.

Local Weather/Timing/Soil Moisture

Effective fracturing of compressed subsoil material from the exposed work surface, laterally and vertically down through the affected zone is achieved only when the soil material is moderately dry to moderately moist. Neither one of the two-phases, deep ripping nor decompaction (deep subsoiling), can be effectively conducted when the soil material (subsoil or replaced topsoil) is in either a "plastic" or "liquid" state of soil consistency. Pulling the respective implements legs through the soil when it is overly moist only results in the "slicing and smearing" of the material or added "squeezing and compression" instead of the necessary fracturing. Ample drying time is needed for a "rippable" soil condition not merely in the material close to the surface, but throughout the material located down to the bottom of the physically compressed zone of the subsoil.

The "poor man's Atterberg field test" for soil plasticity is a simple "hand-roll" method used for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for: effective deep ripping of subsoil; respreading of topsoil in a friable state; and final decompaction (deep subsoiling). Using a sample of soil material obtained from the planned bottom depth of ripping, e.g.: 20 - 24 inches below exposed subsoil surface, the sample is hand rolled between the palms down to a 1/8-inch diameter thread. (Use the same test for stored topsoil material before respreading on the site.) If the respective soil sample crumbles apart in segments no greater than 3/8 of an inch long, by the time it is rolled down to 1/8 inch diameter, it is low enough in moisture for deep ripping (or topsoil replacement), and decompaction. Conversely, as shown in Figure 5, if the rolled sample stretches out in increments greater than 3/8 of an inch long before crumbling, it is in a "plastic" state of soil consistency and is too wet for subsoil ripping (as well as topsoil replacement) and final decompaction.

Fig. 5. Augered from a depth of 19 inches below the surface of the replaced topsoil, this subsoil sample was hand rolled to a 1/8-inch diameter. The test shows the soil at this site stretches out too far without crumbling; it indicates the material is in a plastic state of consistence, too wet for final decompaction (deep subsoiling) at this time.

Design Guidance

Beyond the above-noted site factors, a vital requirement for the effective Deep Ripping and Decompaction (deep subsoiling), is implementing the practice in its distinct, two-phase process:

1) Deep rip the affected thickness of exposed subsoil material (see Figure 10 and 11), aggressively fracturing it before the protected topsoil is reapplied on the site (see Figure 12); and

2) Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil (Figure 13). The second phase, "decompaction," mitigates the partial recompaction which occurs during the heavy process of topsoil spreading/grading. Prior to deep ripping and decompacting the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking (Figure 14), should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area's soil permeability and

rainfall infiltration are being restored, a policy limiting all further traffic to permanent travel lanes is maintained.

The other critical elements, outlined below, are: using the proper implements (deep, heavy-duty rippers and subsoilers), and ample pulling-power equipment (tractors); and conducting the practice at the appropriate speed, depth and pattern(s) of movement.

Note that an appropriate plan for the separate practice of establishing a healthy perennial ground cover, with deep rooting to help maintain the restored soil structure, should be developed in advance. This may require the assistance of an agronomist or landscape horticulturist.

Implements

Avoid the use of all undersize implements. The small-to-medium, light-duty tool will, at best, only "scarify" the uppermost surface portion of the mass of compacted subsoil material. The term "chisel plow" is commonly but incorrectly applied to a broad range of implements. While a few may be adapted for the moderate subsoiling of non-impacted soils, the majority are less durable and used for only lighter land-fitting (see Figure 6).

Fig. 6. A light duty chisel implement, not adequate for either the deep ripping or decompaction (deep subsoiling) phase.

Fig. 7. One of several variations of an agricultural ripper. This unit has long, rugged shanks mounted on a steel V-frame for deep, aggressive fracturing through Phase 1.

Use a "heavy duty" agricultural-grade, deep ripper (see Figures 7,9,10 and 11) for the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversize rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) Like the heavy-duty class of implement for the first phase, the decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. More preferable is the angled-leg variety of deep subsoiler (shown in Figures 8 and 13). It minimizes the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like "lifting and shattering" action up through the soil layers as it is pulled.

Pulling-Power of Equipment
Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/ leg.

Using the examples of a 3-shank and a 5-shank implement, the respective tractors should have 120 and 200 hp available for fracturing down to the final depth of 20-to-24 inches per phase. Final depth for the deep ripping in Phase 1 is achieved incrementally by a progressive series of passes (see Depth and Patterns of Movement, below); while for Phase 2, the full operating depth of the deep subsoiler is applied from the beginning.

The operating speed for pulling both types of implement should not exceed 2 to 3 mph. At this slow and managed rate of operating speed, maximum functional performance is sustained by the tractor and the implement performing the soil fracturing. Referring to Figure 8, the implement is the 6-leg version of the deep angled-leg subsoiler. Its two outside legs are "chained up" so that only four legs will be engaged (at the maximum depth), requiring no less than 160 hp, (rather than 240 hp) of pull. The 4-wheel drive, articulated-frame tractor in Figure 8 is 174 hp. It will be decompacting this unobstructed, former construction access area simultaneously through 11 inches of replaced topsoil and the upper 12 inches of the previously deep-ripped subsoil. In constricted areas of Phase 1) Deep Ripping, a medium-size tractor with adequate hp, such as the one in Figure 9 pulling a 3-shank deep ripper, may be more maneuverable.


Fig. 8. A deep, angled-leg subsoiler, ideal for Phase 2 decompaction of after the topsoil layer is graded on top of the ripped subsoil.


Fig. 9. This medium tractor is pulling a 3-shank deep ripper. The severely compacted construction access corridor is narrow, and the 120 hp tractor is more maneuverable for Phase 1 deep ripping (subsoil fracturing), here.

Some industrial-grade variations of ripping implements are attached to power graders and bulldozers. Although highly durable, they are generally not recommended. Typically, the shanks or "teeth" of these rippers are too short and stout; and they are mounted too far apart to achieve the well-distributed type of lateral and vertical fracturing of the soil materials necessary to restore soil permeability and infiltration. In addition, the power graders and bulldozers, as pullers, are far less maneuverable for turns and patterns than the tractor.

Depth and Patterns of Movement
As previously noted both Phase 1 Deep Ripping through significantly compressed, exposed subsoil and Phase 2 Decompaction (deep subsoiling) through the replaced topsoil and upper subsoil need to be performed at maximum capable depth of each implement. With an implement's guide wheels attached, some have a "normal" maximum operating depth of 18 inches, while others may go deeper. In many situations, however, the tractor/implement operator must first remove the guide wheels and other non essential elements from the implement. This adapts the ripper or the deep subsoiler for skillful pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-to-24 inches deep.

There may be construction sites where the depth of the exposed subsoil's compression is moderate, e.g.: 12 inches, rather than deep. This can be verified by using a ¾ inch cone penetrometer and a shovel to test the subsoil for its level of compaction, incrementally, every three inches of increasing depth. Once the full thickness of the subsoil's compacted zone is finally "pieced" and there is a significant drop in the psi measurements of the soil penetrometer, the depth/thickness of compaction is determined. This is repeated at several representative locations of the construction site. If the thickness of the site's subsoil compaction is verified as, for example, ten inches, then the Phase 1 Deep Ripping can be correspondingly reduced to the implement's minimum operable depth of 12 inches. However, the Phase 2 simultaneous Decompation (subsoiling) of an 11 inch thick layer of replaced topsoil and the upper subsoil should run at the subsoiling implements full operating depth.


Fig. 10. An early pass with a 3-shank deep ripper penetrating only 8 inches into this worksite's severely compressed subsoil.


Fig. 11. A repeat run of the 3-shank ripper along the same patterned pass area as Fig. 9; here, incrementally reaching 18 of the needed 22 inches of subsoil fracture.

Typically, three separate series (patterns) are used for both the Phase 1 Deep Ripping and the Phase 2 Decompaction on significantly compacted sites. For Phase 1, each series begins with a moderate depth of rip and, by repeat-pass, continues until full depth is reached. Phase 2 applies the full depth of Decompation (subsoiling), from the beginning.

Every separate series (pattern) consists of parallel, forward-and-return runs, with each progressive pass of the implement's legs or shanks evenly staggered between those from the previous pass. This compensates for the shank or leg-spacing on the implement, e.g., with 24-to-30 inches between each shank or leg. The staggered return pass ensures lateral and vertical fracturing actuated every 12 to 15 inches across the densely compressed soil mass.

Large, Unobstructed Areas
For larger easy areas, use the standard patterns of movement:

- The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.

- The second series runs obliquely, crossing the first series at an angle of about 45 degrees.

- The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted sites, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetrometer.)

Fig. 12. Moderately dry topsoil is being replaced on the affected site now that Phase 1 deep ripping of the compressed subsoil is complete.


Fig. 13. The same deep, angled-leg subsoiler shown in Fig. 7 is engaged at maximum depth for Phase 2, decompaction (deep soiling), of the replaced topsoil and the upper subsoil materials.

Corridors
In long corridors of limited width and less maneuverability than larger sites, e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

- First, apply the same initial lengthwise, parallel series of passes described above.

- A second series of passes makes a broad "S" shaped pattern of rips, continually and gradually alternating the "S" curves between opposite edges inside the compacted corridor.

- The third and final series again uses the broad, alternating S pattern, but it is "flip-flopped" to continually cross the previous S pattern along the corridor's centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

Maintenance and Cost

Once the two-phase practice of Deep Ripping and Decompation is completed, two items are essential for maintaining a site's soil porosity and permeability for infiltration. They are: planting and maintaining the appropriate ground cover with deep roots to maintain the soil structure (see Figure 15); and keeping the site free of traffic or other weight loads.

Note that site-specific choice of an appropriate vegetative ground-cover seed mix, including the proper seeding ratio of one or more perennial species with a deep taproot system and the proper amount of lime and soil nutrients (fertilizer mix) adapted to the soil-needs, are basic to the final practice of landscaping, i.e: surface tillage, seeding/planting/fertilizing and culti-packing or mulching is applied. The "maintenance" of an effectively deep-ripped and decompacted area is generally limited to the successful perennial (long-term) landscape ground cover; as long as no weight-bearing force of soil compaction is applied.

Fig. 14. The severely compacted soil of a temporary construction yard used daily by heavy equipment for four months; shown before deep ripping, topsoil replacement, and decompaction.


Fig. 15. The same site as Fig. 14 after deep ripping of the exposed subsoil, topsoil replacement, decompaction through the topsoil and upper subsoil and final surface tillage and revegetation to maintain soil permeability and infiltration.

The Deep Ripping and Decompaction practice is, by necessity, more extensive than periodic subsoiling of farmland.The cost of deep ripping and decompacting (deep subsoiling), will vary according to the depth and severity of soil-material compression and the relative amount of tractor and implement time that is required. In some instances, depending on open maneuverability, two-to-three acres of compacted project area may be deep-ripped in one day. In other situations of more severe compaction and - or less maneuverability, as little as one acre may be fully ripped in a day. Generally, if the Phase 1) Deep Ripping is fully effective, the Phase 2) Decompaction should be completed in 2/3 to 3/4 of the time required for Phase 1.

Using the example of two acres of Phase 1) Deep Ripping in one day, at $1800 per day, the net cost is $900 per acre. If the Phase 2) Decompacting or deep subsoiling takes 3/4 the time as Phase 1, it costs $675 per acre for a combined total of $1575 per acre to complete the practice (these figures do not include the cost of the separate practice of topsoil stripping and replacement). Due to the many variables, it must be recognized that cost will be determined by the specific conditions or constraints of the site and the availability of proper equipment.

Resources

Publications:

- American Society of Agricultural Engineers. 1971. *Compaction of Agricultural Soils.* ASAE.
- Brady, N.C., and R.R. Weil. 2002. *The Nature and Properties of Soils. 13th ed.* Pearson Education, Inc.
- Baver, L.D. 1948. *Soil Physics.* John Wiley & Sons.
- Carpachi, N. 1987 (1995 fifth printing). *Excavation and Grading Handbook, Revised. 2nd ed.* Craftsman Book Company
- Ellis, B. (Editor). 1997. Safe & Easy Lawn Care: The Complete Guide to Organic Low Maintenance Lawn. Houghton Mifflin.
- Harpstead, M.I., T.J. Sauer, and W.F. Bennett. 2001. *Soil Science Simplified. 4th ed.* Iowa State University Press.
- Magdoff, F., and H. van Es. 2000. *Building Soils for Better Crops. 2nd ed.* Sustainable Agricultural Networks
- McCarthy, D.F. 1993. *Essentials of Soil Mechanics and Foundations, Basic Geotechnics 4th ed.* Regents/Prentice Hall.
- Plaster, E.J. 1992. *Soil Science & Management. 3rd ed.* Delmar Publishers.
- Union Gas Limited, Ontario, Canada. 1984. *Rehabilitation of Agricultural Lands, Dawn-Kerwood Loop Pipeline; Technical Report*. Ecological Services for Planning, Ltd.; Robinson, Merritt & Devries, Ltd. and Smith, Hoffman Associates, Ltd.
- US Department of Agriculture in cooperation with Cornell University Agricultural Experiment Station. Various years. *Soil Survey of (various names) County, New York.* USDA.

Internet Access:

- Examples of implements:

V-Rippers. Access by internet search of *John Deere Ag -New Equipment for 915* (larger-frame model) *V-Rippe*; and, *for 913* (smaller-frame model) *V-Ripper*. Deep, angled-leg subsoiler. Access by internet search of: B*igham Brothers Shear Bolt Paratill-Subsoiler*. http://salesmanual.deere.com/sales/salesmanual/en_NA/primary_tillage/2008/feature/rippers/915v_pattern_frame.html?sbu=ag&link=prodcat Last visited March 08.

- Soils data of USDA Natural Resources Conservation Service. *NRCS Web Soil Survey.* http://websoilsurvey.nrcs.usda.gov/app/ and *USDA-NRCS Official Soil Series Descriptions; View by Name.* http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi . *Last visited Jan. 08.*
- Soil penetrometer information. Access by internet searches of: *Diagnosing Soil Compaction using a Penetrometer (soil compaction tester), PSU Extension;* as well as *Dickey-john Soil Compaction Tester*. http://www.dickey-johnproducts.com/pdf/SoilCompactionTest.pdf and http://cropsoil.psu.edu/Extension/Facts/uc178pdf Last visited Sept. 07

This Page Intentionally Left Blank

APPENDIX I:
LABELLA CERTIFYING PROFESSIONALS LETTER

This Page Intentionally Left Blank

LaBella
Powered by partnership.

February 21, 2025

RE: LaBella Certifying Professionals for NYSDEC SPDES GP-0-25-001

To Whom it May Concern:

In accordance with the NYSDEC SPDES General Permit GP-0-25-001, Part VII.J.2, Walter Kubow, PE, a New York State Qualified Professional employed by LaBella Associates, is duly authorized to sign and seal Stormwater Pollution Prevention Plans (SWPPPs), Notice of Intents (NOIs) and Notice of Terminations (NOTs).

Respectfully submitted,

LaBella Associates

Timothy Webber
Vice President, Civil Division Director

Walter Kubow, PE
Senior Civil Engineer

This Page Intentionally Left Blank

APPENDIX J:
NYSDEC SPDES GENERAL PERMIT
GP-0-25-001

LaBella
Powered by partnership.

This Page Intentionally Left Blank

Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *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 State 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 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

Construction activities constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. 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 CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

   a. one or more acres; or

   b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

   c. less than one acre where NYSDEC 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*.

      i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

      ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

      iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

      iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

   a. already covered by a different SPDES permit; or

   b. covered under a different SPDES permit that was denied, terminated, or revoked; or

   c. identified in an expired individual SPDES permit that was not renewed; or

   d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

   a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

   b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

   a. documentation that the *construction activity* is not within an archeological buffer 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:

      i. 1-5 acres of disturbance - 20 feet; or

      ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (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 or 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).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

a. obtain all such necessary permits; or

b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

a. For linear transportation and linear utility project types, the *construction activities*:

i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

ii. are undertaken on land with no existing *impervious cover*; and

iii. disturb two or more acres of *steep slope*.

b. For all other project types, the *construction activities*:

i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

ii. are undertaken on land with no existing *impervious cover*; and

iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

    a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part **II.** and Part **III.**

    b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

        i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

        ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

        iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

        iv. *Stormwater* controls are implemented in accordance with Part **II.** and Part **III.** for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

    a. Non-*stormwater discharges* 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"; and

    b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

    c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part **I.**D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part **II.** have been met; demonstrate consideration of the future risks due to climate change in accordance with Part **III.**A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part **III.** have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

- b. an entire *common plan of development or sale*; or
- c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:
  - i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and
  - ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and
  - iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or
- d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:
  - i. meets all other eligibility requirements of Part I.A.; and
  - ii. will occur in NYSDEC's Regions 3-9; and
  - iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and
  - iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:
   - a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and
   - b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:
     - i. for all eNOIs:
       1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

       2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and
     - ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:
       1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:
          - a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or
          - b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or
          - c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 "Governmental Immunity from Zoning and Other Legislation"; and
       2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:
          - a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does <u>not</u> have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do <u>not</u> have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

a. all areas of disturbance have achieved *final stabilization;* and

b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

a. all documentation necessary to demonstrate eligibility with this permit; and

b. this permit; and

c. the *SWPPP*; and

d. the signed SWPPP Preparer Certification Form; and

e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. 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. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

      i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

      ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

      iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

   b. The written Request to Disturb Greater Than Five Acres must include:

      i. The SPDES permit identification number (Permit ID); and

      ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

      iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

      iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

      v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

      vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

   c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. 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).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), 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 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.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

   a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

   b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

   c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

   d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

   e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

   f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

      i. the revised area of disturbance and/or *impervious area(s)*; and

      ii. the revised SMP information, if applicable; and

      iii. a narrative description of what has changed; and

      iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

   Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements 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 the following *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:

1. There must be no increase in turbidity that will cause a substantial visible contrast to natural conditions; and

2. There must be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There must 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 standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this 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 NYSDEC determines that a modification of this 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, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

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 II.B.1.a., b., c., d., and e. 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 II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), 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 *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

   a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

      i. *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s; and

      ii. Control *stormwater discharge*s, including both peak flow rates and total *stormwater* volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points; and

      iii. *Minimize* the amount of soil exposed during *construction activity*; and

      iv. *Minimize* the disturbance of *steep slope*; and

      v. *Minimize* sediment *discharge*s from the site; and

      vi. Provide and maintain *natural buffers* around surface waters, direct *stormwater* to vegetated areas and maximize *stormwater* infiltration to reduce *pollutant discharge*s, unless *infeasible*; and

      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; and

      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 ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar 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 D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity 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**. Select, 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 selected, designed, installed, implemented, and maintained to:

      i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

      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. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must 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 (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, 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 SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must 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 must 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 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. 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 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *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 *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. 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 *directly discharges* 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 Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the 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 must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must 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 must 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 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. 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 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *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 *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. 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 *directly discharges* 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* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

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 DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP 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 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases 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*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. 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 II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

   a. The owner or operator must consider:

      i. the following physical risks due to climate change:

         (i) increasing temperature; and

         (ii) increasing precipitation; and

         (iii) increasing variability in precipitation, including chance of drought; and

         (iv) increasing frequency and severity of flooding; and

         (v) rising sea level; and

         (vi) increasing storm surge; and

         (vii) shifting ecology.

      ii. for each of the following:

         (i) overall site planning; and

         (ii) location, elevation, and sizing of:

            a. control measures and practices; and

            b. conveyance system(s); and

            c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   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*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC 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 must 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 NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC 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.

7. 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 SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements 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 requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges 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* must 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 the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component **-** The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

   a. Erosion and sediment control practices must be designed:

      i. in conformance with the BB; or

      ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

   b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

   c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

      i. Background information about the scope of the project, including the location, type and size of project; and

      ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must 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) and receiving surface water(s); and

      iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

      iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*, and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. 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; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. 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; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. 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*; and

x. 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

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. 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. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

    a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

    b. SMPs must be designed in conformance with the *performance criteria*:

        i. in the DM; or

        ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

        iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

   a. subject to governmental review and approval:

      i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

      ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

   b. not subject to governmental review and approval:

      i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

      ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

   i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

   ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

   iii. 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; and

      (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

      (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; and

      (iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

      (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

      (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. 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 DM.

   iv. Soil testing results and locations (test pits, borings); and

   v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

   vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

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 accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

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 SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must 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 must:

a. if the corrective action does not require engineering design:

   i. begin implementing corrective actions within one business day; and

   ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

   i. begin the engineering design process within five business days; and

   ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

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 in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. 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 in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

   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 or equal to 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 D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to 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 D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

a. For *construction sites* where soil disturbance activities are on-going, the *qualified inspector* must conduct a site inspection at least once every seven (7) calendar days; or

b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

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* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

c. all areas of disturbance that have not achieved *final stabilization*; and

d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

   c. Name and title of person(s) performing inspection; and

   d. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection; and

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must 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; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. 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; and

   i. Description and sketch (map) 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; and

   j. Estimates, in square feet or acres, of the following areas:

      i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

      ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

      iii. Total area that has achieved *temporary stabilization*; and

      iv. Total area that has achieved *final stabilization*; and

   k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

   l. 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 SMP(s); and

   m. Identification and status of all corrective actions that were required by previous inspection; and

   n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach 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* must 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* must 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* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

   a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

i. all soil disturbance activities have ceased; and

ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice(s)" certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the "MS4 Acceptance" statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

   a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

   b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

   c. for SMP(s) 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; or

   d. for SMP(s) 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 policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

   a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

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 monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must 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.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

    i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

    ii. the size of the *discharge(s)*; and

    iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

    iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

   a. For a corporation. 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 Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

   Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

   b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

   1. the chief executive officer of the agency; or

   2. 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. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., 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.J.1. or using the Duly Authorized Form, found on the DEC website; and

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, 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 is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

   manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, 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 requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. 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, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
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)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the 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
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
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. If a word is not italicized in the permit, use its common definition.

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 – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – 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 System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – 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.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "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 (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal.

Construction activity does <u>not</u> include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- 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); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- 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; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- 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*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – 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)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – 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 – 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.

Historic Property – 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) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – 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 System (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):

1. owned or operated by a State, city, town, village, 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*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – 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.

Nonpoint Source(s) – 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 – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – 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 requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – 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(s) – 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 – 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 NYSDEC 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 NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC 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 SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – 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 NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP 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 <u>licensed to practice in the State of New York.</u>

Redevelopment Activity(ies) – 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.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – 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 – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description 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.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – 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) – 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 SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements 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 – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – 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 Load (TMDL) **–** 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 and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – 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).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC 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.7., 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 NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – 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 and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- 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 D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

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 New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- 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, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, 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.

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *alter hydrology from pre- to post-development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* <u>and</u> do not *alter hydrology from pre- to post-development* conditions
- Demolition where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* <u>and</u> do not *alter hydrology from pre- to post-development* conditions.
- 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 (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, <u>and</u> do not *alter hydrology from pre- to post-development* conditions, <u>and</u> are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPs)

The following *construction activities*:

- 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 D
- 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 D
- 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 between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC 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 *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- 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) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Table 2 (Continued)

***CONSTRUCTION ACTIVITIES* THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)**

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- 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 overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- All other *construction activities* that include the construction or reconstruction of *impervious area* <u>or</u> *alter the hydrology from pre- to post-development* conditions, <u>and</u> 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 SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- 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

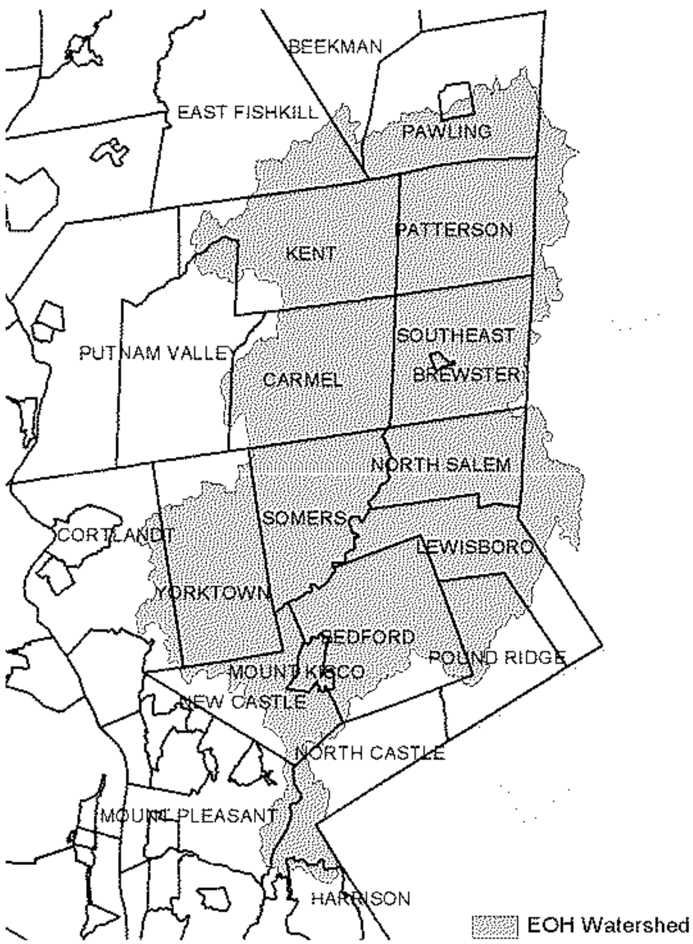


Figure 2 - Onondaga Lake Watershed

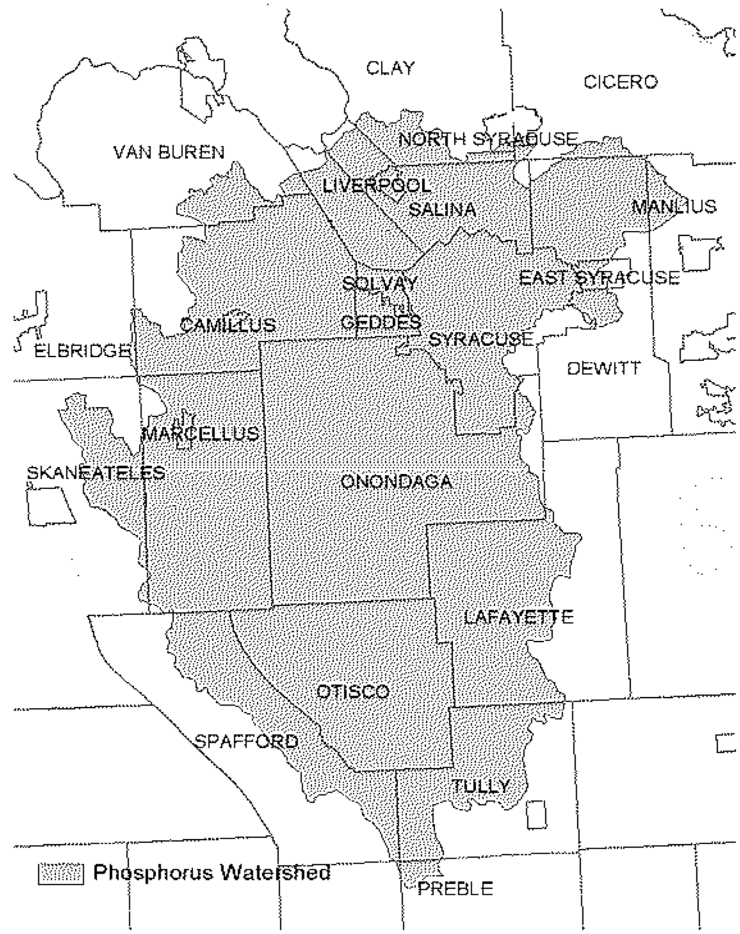


Figure 3 - Greenwood Lake Watershed

Figure 4 - Oscawana Lake Watershed

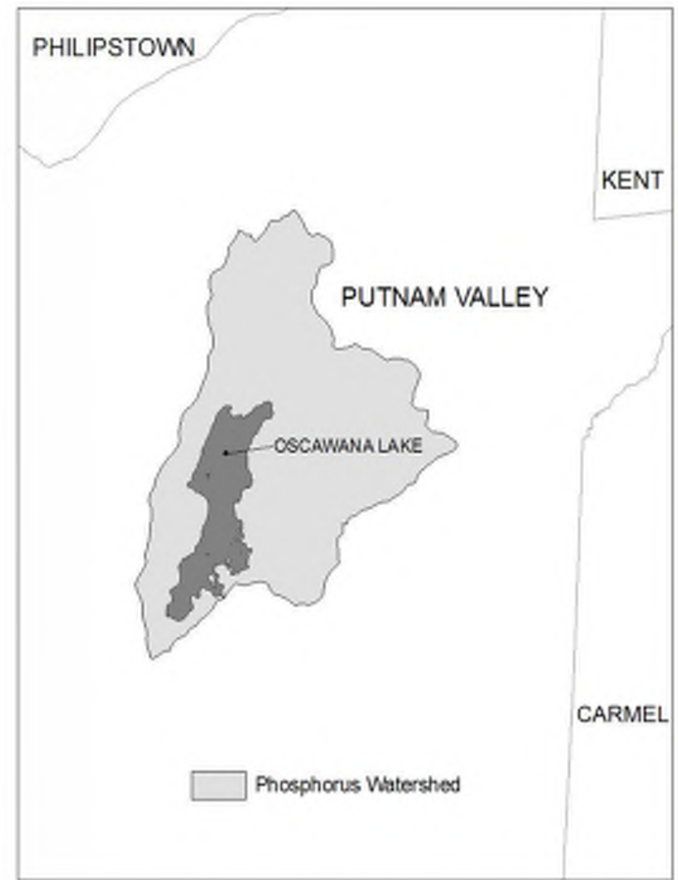
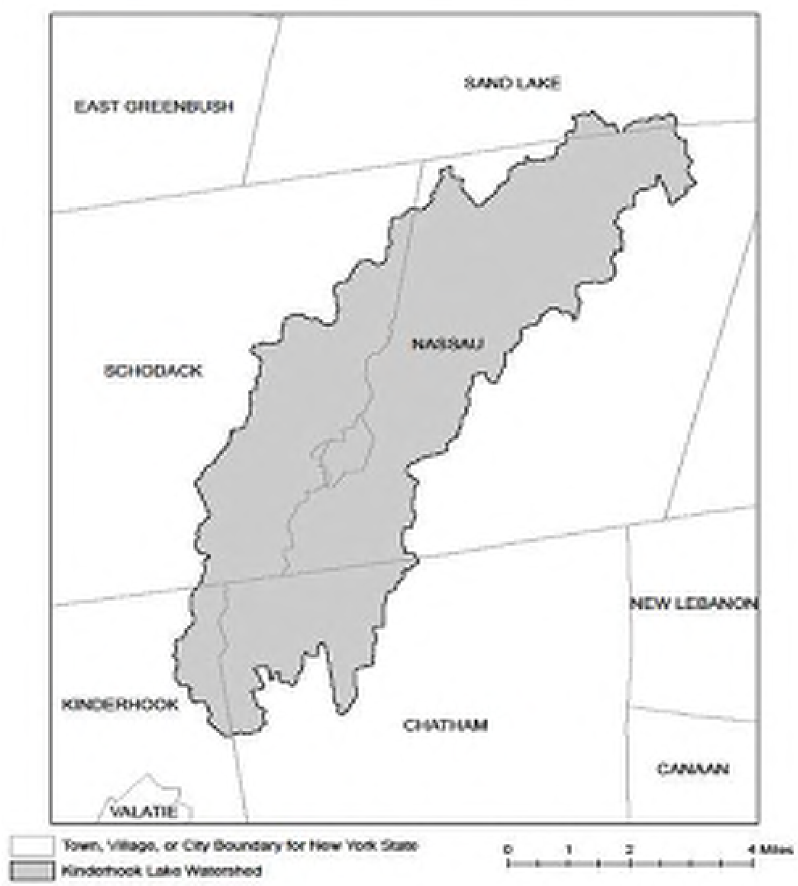


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC 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	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 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	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 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	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX F – SWPPP Preparer Certification Form

The SWPPP Preparer Certification Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:

eNOI Submission ID:

Owner/Operator Name:

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name | MI | SWPPP Preparer Last Name

Signature | Date

APPENDIX G – MS4 SWPPP Acceptance Form

The MS4 SWPPP Acceptance Form required by this permit begins on the following page.

New York State Department of Environmental Conservation

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4 Operator:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Street Address:
14. City/State/Zip:
15. Telephone Number:

MS4 SWPPP Acceptance Form - continued
V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative
I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.
Printed Name[1]:
Title/Position:
Signature:
Date:
VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

APPENDIX H – NYCDEP SWPPP Acceptance/Approval Form

The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval form required by this permit begins on the following page.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

SWPPP Acceptance/Approval

Application Number:

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance/Approval
8. SWPPP Reviewed by:
9. Title/Position: /
10. Date Final SWPPP Reviewed and Accepted:
11. Acceptance/Approval Expiration Date:
IV. Regulated MS4 Information for projects that require coverage under the NY State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity
12. Name of MS4: *CITY OF NEW YORK*
13. MS4 SPDES Permit Identification Number: *NY-0287890*
14. Contact Person:
15. Street Address: *59-17 Junction Blvd. 9th Floor*
16. City/State/Zip: *Flushing, NY 11373*
17. Telephone Number:

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative
I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.
Printed Name:
Title/Position:
Signature:
Date:
VI. Conditions of Acceptance/Approval and Additional Information

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

APPENDIX I – MS4 No Jurisdiction Form

The MS4 No Jurisdiction Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

MS4 No Jurisdiction Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information

a. Owner/Operator Name:

b. Contact Person:

c. Street Address:

d. City/State/Zip:

II. Project Site Information

a. Project/Site Name:

b. Street Address:

c. City/State/Zip:

d. eNOI Submission ID:

III. Traditional Land Use Control MS4 Operator Information

a. Name of MS4 Operator:

b. MS4 SPDES Permit ID Number: NYR20A

c. Street Address:

d. City/State/Zip:

e. Telephone Number:

IV. Certification Statement

In accordance with CGP Part I.D.2.b.ii.3., I hereby certify that the Traditional Land Use Control MS4 Operator identified in section III. of this form does not have review authority over the construction project identified in section II. of this form, which is owned/operated by the entity identified in section I. of this form. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

a. Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.:

b. Title/Position:

c. Signature:

d. Date:

APPENDIX J – Owner/Operator Certification Form

The Owner/Operator Certification Form required by this permit begins on the following page.

Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: ____________________

eNOI Submission ID: ____________________

eNOI Submitted by: ☐ **Owner/Operator** ☐ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

____
Signature

____
Date

Revised: January 2025

APPENDIX K:
NYSDEC SOLAR GUIDANCE

NYSDEC Memorandum - Solar Panel Construction Stormwater Permitting/SWPPP Guidance
MDE – Stormwater Design Guidance – Solar Panel Installations

This Page Intentionally Left Blank

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

MEMORANDUM

TO: Regional Water Engineers

FROM: Robert Wither, Chief, South Permit Section

SUBJECT: Solar Panel Construction Stormwater Permitting/SWPPP Guidance

DATE: January 17, 2020

Issue

The Department is seeing an increase in the number of solar panel construction projects across New York State. This has resulted in an increase in the number of questions on Construction General Permit (CGP) and Stormwater Pollution Prevention Plan (SWPPP) requirements from design professionals because the current CGP (GP-0-15-002) does not include a specific reference to the SWPPP requirements for solar panel projects in Tables 1 and 2 of Appendix B. To address this issue, the Division of Water (DOW) has developed the following guidance on CGP/SWPPP requirements for the different types of solar panel projects.

Scenario 1

The DOW considers solar panel projects designed and constructed in accordance with the following criteria to be a "*Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields)*" type project as listed in Table 1, Appendix B of the CGP. Therefore, the SWPPP for this type of project will typically just need to address erosion and sediment controls.

1. Solar panels are constructed on post or rack systems and elevated off the ground surface,
2. The panels are spaced apart so that rain water can flow off the down gradient side of the panel and continue as sheet flow across the ground surface*,
3. For solar panels constructed on slopes, the individual rows of solar panels are generally installed along the contour so rain water sheet flows down slope*,
4. The ground surface below the panels consist of a well-established vegetative cover (see "Final Stabilization" definition in Appendix A of the CGP),
5. The project does not include the construction of any traditional impervious areas (i.e. buildings, substation pads, gravel access roads or parking areas, etc.),
6. Construction of the solar panels will not alter the hydrology from pre-to post development conditions (see Appendix A of the CGP, for definition of "Alter the hydrology…"). Note: The design professional shall perform the necessary site assessment/hydrology analysis to make this determination.

*Refer to Maryland's "Stormwater Design Guidance- Solar Panel Installations" attached for guidance on panel installation.
**See notes below for additional criteria.

<u>**Scenario 2**</u>
If the design and construction of the solar panels meets all the criteria above, except for item 6, the project will fall under the "*All other construction activities that include the construction or reconstruction of impervious area or <u>alter the hydrology from pre-to post development conditions</u>, and are not listed in Table 1*" project type as listed in Table 2, Appendix B of the CGP. Therefore, the SWPPP for this type of project must address post-construction stormwater practices designed in accordance with the sizing criteria in Chapter 4 of the NYS Stormwater Management Design Manual, dated January 2015 (Note: Chapter 10 for projects in NYC EOH Watershed). The Water Quality Volume (WQv)/Runoff Reduction Volume (RRv) sizing criteria can be addressed by designing and constructing the solar panels in accordance with the criteria in items 1 – 4 above, however, the quantity control sizing criteria (Cpv, Qp and Qf) from Chapter 4 (or 10) of the Design Manual must still be addressed, unless one of the waiver criteria from Chapter 4 can be applied. **See notes below for additional criteria.

<u>**** Notes**</u>

- Item 1: For solar panel projects where the panels are mounted directly to the ground (i.e. no space below panel to allow for infiltration of runoff), the SWPPP must address post-construction stormwater management controls designed in accordance with the sizing criteria in Chapter 4 of the NYS Stormwater Management Design Manual, dated January 2015 (Note: Chapter 10 for projects in NYC EOH Watershed).

- Item 5: For solar panel projects that include the construction of traditional impervious areas (i.e. buildings, substation pads, gravel access roads or parking areas, etc.), the SWPPP must address post-construction stormwater management controls for those areas of the project. This applies to both Scenario 1 and 2 above.

cc: Carol Lamb-Lafay, BWP
Dave Gasper, BWP

Stormwater Design Guidance – Solar Panel Installations

Revisions to Maryland's stormwater management regulations in 2010 require that environmental site design (ESD) be used to the maximum extent practicable (MEP) to mimic natural hydrology, reduce runoff to reflect forested wooded conditions, and minimize the impact of land development on water resources. This applies to any residential, commercial, industrial, or institutional development where more than 5,000 square feet of land area is disturbed. Consequently, stormwater management must be addressed even when permeable features like solar panel installations exceed 5,000 square feet of land disturbance.

Depending on local soil conditions and proposed imperviousness, the amount of rainfall that stormwater requirements are based on varies from 1.0 to 2.6 inches. However, addressing stormwater management does not mean that structural or micro-scale practices must be constructed to capture and treat large volumes of runoff. Using nonstructural techniques like disconnecting impervious cover reduces runoff by promoting overland filtering and infiltration. Commonly used with smaller or narrower impervious areas like driveways or open roads, the Disconnection of Non-Rooftop Runoff technique (see pp. 5.61 to 5.65 of the **2000 Maryland Stormwater Design Manual**[1]) is a low cost alternative for treating runoff in situations like rows of solar panels.

When non-rooftop disconnection is used to treat runoff, the following factors should be considered:

- The vegetated area receiving runoff must be equal to or greater in length than the disconnected surface (e.g., width of the row of solar panels)
- Runoff must sheet flow onto and across vegetated areas to maintain the disconnection
- Disconnections should be located on gradual slopes (≤ 5%) to maintain sheetflow. Level spreaders, terraces, or berms may be used to maintain sheetflow conditions if the average slope is steeper than 5%. However, installations on slopes greater than 10% will require an engineered plan that ensures adequate treatment and the safe and non-erosive conveyance of runoff to the property line or downstream stormwater management practice.
- Disconnecting impervious surfaces works best in undisturbed soils. To minimize disturbance and compaction, construction vehicles and equipment should avoid areas used for disconnection during installation of the solar panels.
- Groundcover vegetation must be maintained in good condition in those areas receiving disconnected runoff. Typically this maintenance is no different than other lawn or landscaped areas. However, areas receiving runoff should be protected (e.g., planting shrubs or trees along the perimeter) from future compaction.

Depending on the layout and number of panels installed, the disconnection of non-rooftop runoff technique may address some or all of the stormwater management requirements for an individual project. Where the imperviousness is high or there is other infrastructure (e.g., access roads, transformers), additional runoff may need to be treated. In these situations, other ESD techniques or micro-scale practices may be needed to provide stormwater management for these features.

Example 1 – Using Non-Rooftop Disconnection Where the Average Slope ≤ 5%

Several rows of solar panels will be installed in an existing meadow. The soils within the meadow are hydrologic soil group (HSG) B and the average slope does not exceed 5%. Each row of panels is 10 feet wide and the distance between rows is 20 feet. The rows of solar panels will be installed according to Figure 1 below. In this scenario, the disconnection length is the same as the distance between rows (20 feet) and is greater than the width of each row (10 feet). Therefore, each row of panels is adequately disconnected and the runoff from 1.0 inch of rainfall is treated.

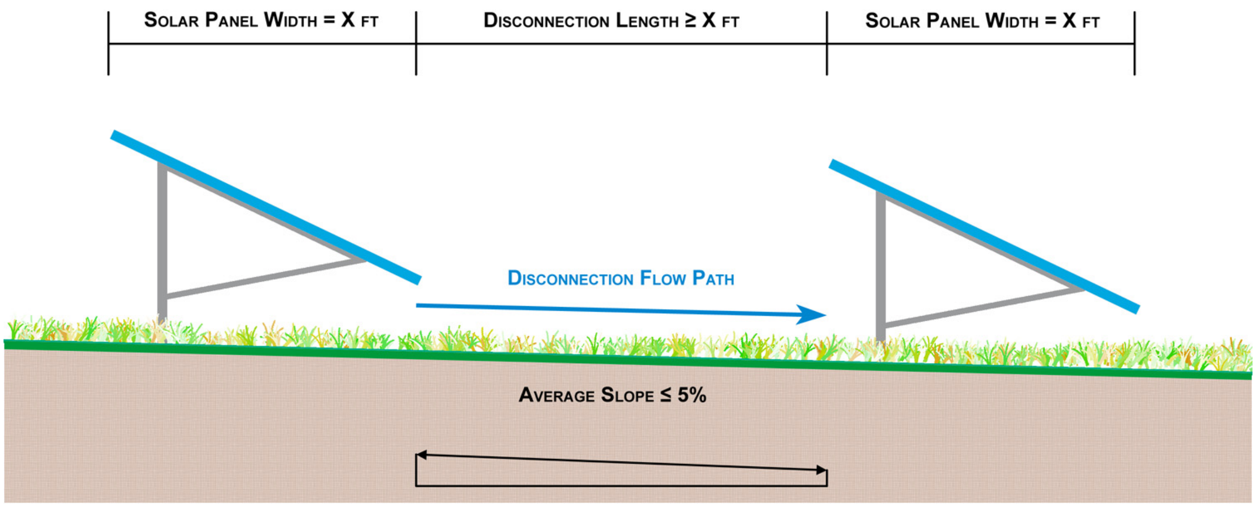


Figure 1. Typical Installation - Slope ≤ 5%

Example 2 – Using Non-Rooftop Disconnection Where the Average Slope ≥ 5% but ≤ 10%

Several rows of solar panels will be installed in an existing meadow. The soils within the meadow are hydrologic soil group (HSG) B and the average slope is greater than 5% but less than 10%. Each row of panels is 10 feet wide and the distance between rows is 20 feet. The rows of solar panels will be installed as shown in Figure 2 below. The disconnection length is the same as the distance between rows (20 feet) and is greater than the width of each row (10 feet). However, in this example, a level spreader (typically 1 to 2-foot wide and 1 foot deep) has been located at the drip edge of each row of panels to dissipate energy and maintain sheetflow.

Discussion

To meet State and local stormwater management requirements, ESD must be used to the MEP to reduce runoff to reflect forested conditions. While all reasonable options for implementing ESD must be investigated, minimally, the runoff from 1 inch of rainfall must be treated. In each of the examples above, there may be additional opportunities to implement ESD techniques or practices and reduce runoff that should be explored. However, simply disconnecting the runoff from the solar panel arrays captures and treats the runoff from 1.0 inch of rainfall. Where imperviousness is low and soil conditions less optimal (e.g., HSG C or D), this may be sufficient to completely address stormwater management requirements. In more dense applications or in sandy soils, additional stormwater management may be required.

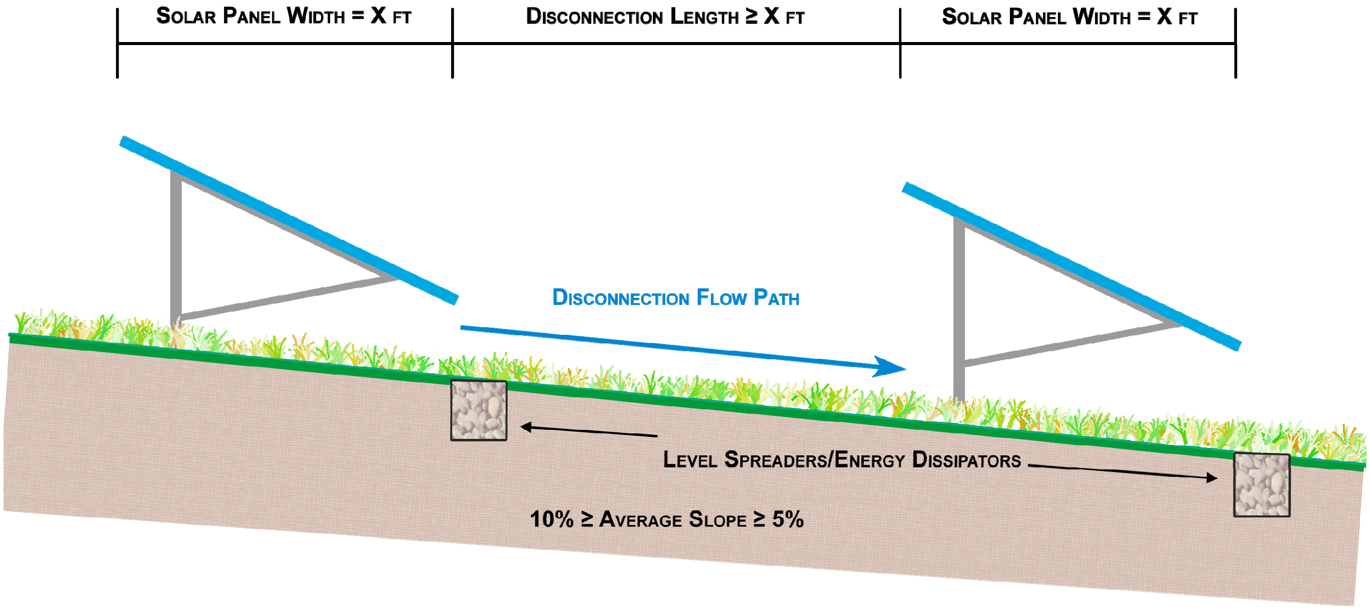


Figure 2. Typical Installation – Slope ≥ 5% but ≤ 10%

Conclusion

The primary purpose of Maryland's stormwater management program is to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources. Any land development project that exceeds 5,000 square feet of disturbance, including solar panel projects, must address stormwater management. However, for solar panels, stormwater management may be provided in a cost-effective manner by disconnecting each row of panels and directing runoff over the vegetated areas between the individual rows.

Resources

[1] 2000 Maryland Stormwater Design Manual, Volumes I and II, MDE, October 2000 (http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/MarylandStormwaterDesignManual/Pages/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.aspx)

CATALYZE

NEW YORK STATE OF OPPORTUNITY. Adirondack Park Agency
RECEIVED
Date: July 7, 2025

Catalyze Ausable Grove Street Microgrid, LLC
217 Grove St, Keeseville, NY 12944
Operation and Maintenance Plan

6/23/2025

Exhibit 1

Statement of Services No. [___]

Pursuant to the terms and conditions of the Umbrella Services Agreement (the "USA") executed and made effective as of the day of Day, Month, 2025, by and between Catalyze GBH Developer, LLC ("Owner") and Contractor Name ("Contractor"). Owner's Affiliate, Project Company Name hereby requests Contractor to perform the following Services:

A. **Services.** Statement of Work is attached hereto as Exhibit A.

B. **Commencement and Completion Dates**. Services shall commence upon execution of this Statement of Services (the "Commencement Date") and shall terminate five years following the Commencement Date unless extended or terminated in accordance with the USA.

C. **Service Fee.** Owner's Affiliate shall pay Contractor for the satisfactory performance of the Services, subject to additions and deductions allowed by Change Orders, in accordance with the following milestone payment schedule ("Fee").

Milestone Description	**Anticipated Milestone Date**	**Payment Amount Due**
Commercial Operation Date		

D. **Agreement Controlling Document;** To the extent that any conflict exists between any term in the USA and Exhibit A, the USA shall control.

Owner:

[SPV], LLC

By: Catalyze Holdings, LLC, sole member

____
Signature

____
Printed Name

____
Title

____
Date

Contractor:

____
Signature

____
Printed Name

____
Title

____
Date

Exhibit A

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
1.0	**Environmental, Health and Safety (EHS)**		
1.1	Ensure that all regulatory required policies/procedures/plans are written, certified when applicable, and maintained for the Site as required.	Ongoing	
1.2	Operator will submit all health and safety reports to Customer, or its Affiliates governmental authorities required from the Operator as it pertains to the asset(s) for which Operator provides Services.	Ongoing	
1.3	Inspect and replace as necessary signs and labels in accordance with regulatory requirements.	Ongoing	Replacement of Signage
1.4	Allow Customer or Customer's representative to access Site and site personnel to perform EHS auditing on a periodic basis. Customer and/or its representative shall follow the Project's safety procedures, including use of appropriate PPE.	Ongoing	
1.5	All safety, environmental and emergency response equipment must be maintained by Operator throughout the Term. This includes but is not limited to fire extinguishers, spill kits, PPE, eyewash & shower stations, etc. Response equipment not on-site at hand over to Operator may be provided as an Additional Service. Re-charging or re-stocking of emergency response equipment used in response to an emergency event will be billed as an Additional Service.	Ongoing	
2.0	**System Monitoring, Alarm Response & System Analysis**		
2.1	Owner to supply Operator with administrative rights to Owner's Data Acquisition System	Ongoing	
2.2	Active monitoring 24 hours per day, 365 days per year	Ongoing	
2.3	Alarm Notification	Ongoing	
2.4	Remote Corrective Diagnostics	Ongoing	
2.5	Remote Power Plant Operation when available	Ongoing	

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
2.6	Dispatch to technicians for Corrective Actions. Dispatch times and details as per Contract Documents	Ongoing	
2.7	Communications with Utility	Ongoing	
2.8	Remote system analysis	Ongoing	
3.0	**Operation Reporting**		
3.1	Owner will be provided remote web access to Operator’s CMMS to view all testing, inspection and preventative maintenance performed, all site equipment details, all service reports, and performance data	Ongoing	
3.2	Work Order Reports – A detailed report that includes time, date, technician, work performed and photos.	Ongoing	
3.4	***Quarterly Reporting*** Environmental issues, Safety Issues, Work Order Summary and a Production Table that includes QTD and YTD Actual to Forecast and Actual to Weather-Adjusted.	Quarterly	
3.5	***Annual Reporting*** Digital checklist of all items detailed in the Scope of Work below, including photos, pass/fail, when fail, a description of the issue and whether or not it was repaired while on site and a summary of corrective actions required after the inspection with detailed pricing to make recommended repairs.	Annually	
3.6	***Record Keeping*** Perform comprehensive record keeping of all relevant project documentation provided by customer and generated by Operator including, but not limited to, as-built drawings, equipment specifications, safety manuals, detailed maintenance and repair logs, preventative maintenance logs, Owner Inventory and equipment operating manuals.	Ongoing	
4.0	**PV Modules**		
4.1	***Aerial Thermal Imaging:*** Perform, or cause to be performed, aerial infrared (“IR”) thermal imaging of the Project to identify sub-module, module and string-level performance deficiencies. Operator shall evaluate the IR imaging results and provide a detailed report with its findings including, but not limited to, a site plan displaying faults/issues and a summary of the faults/issues found, their location, and loss impact of non-compliant equipment. Corrective action to remediate deficiencies found during the imaging audit will be subject	As Needed	Corrective Actions

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
	to Customer's approval and performed by Operator as Additional Services. For systems less than 500 KWP DC, Operator may elect to perform 100% IV Curve Tracing in lieu of Aerial Thermal Imaging		
4.2	***Module Inspection, Front*** Inspect front of modules for broken glass, delamination, yellowing or browning, burnt or oxidized cell, or cracks in cells	Annually	
4.3	***Module Inspection, Frame*** Inspect module frames for damage or misalignment	Annually	
4.4	***Module Inspection, Back*** Inspect back of modules for delamination or burnt marks. For roof-top systems, inspection of end of row modules only.	Annually	
4.5	***Module Inspection, J-Box*** Inspect junction boxes for loose attachment, evidence of overheating and corrosion	Annually	
4.6	***Module Inspection, Connector*** Inspect wire connectors for detachment, evidence of overheating and exposed electrical parts	Annually	
4.7	***Module, Cleaning*** Perform, or cause to be performed, cleaning of 100% of the PV modules following manufacturer's recommendations as needed and approved by owner as an additional system service.	A.S.S.	As needed and approved by owner
5.0	**Mounting System**		
5.1	***Mounting System, Support Structure*** Visually inspect support posts and structural components for evidence of rust, corrosion, settling and tilt	Annually	
5.2	***Mounting System, Hardware*** Visually inspect hardware for tightness and evidence of rust and corrosion	Annually	
5.3	***Grounding*** Inspect and test rack grounding, check for torque levels, re-torque as necessary. Measure and record earth to ground resistance between rack and ground rod with low-resistance ohmmeter.	Annually	

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
6.0	**DC Combiner**		
6.1	***DC Combiner, Enclosure*** Inspect enclosure and devices for corrosion, moisture entry, insect and rodent infestation, and exterior damage. Confirm that all signage and labeling are in place.	Annually	
6.2	***DC Combiner, SPD*** Inspect Surge Protection Devices for indication of failure. If any single SPD indicates failure mode, replace all SPD modules.	Annually	Replacement of SPDs
6.3	***DC Combiner, IR*** Perform thermographic survey of all terminations and over current protection devices.	Annually	
6.4	**Open Circuit Voltage Testing of All Connected Strings** Verify balance of expected voltage inputs of all strings in combiner box or string inverter wiring.	Annually	
7.0	**DC Raceway**		
7.1	***DC Raceway*** Inspect all DC raceways for loose connections, missing sealant, corrosion and above-grade intrusions.	Annually	
8.0	**PV Output Connector**		
8.1	***PV Output Connector, Insulation*** Inspect exposed insulation jacket for physical damage and evidence of overheating.	Annually	
8.2	***PV Output Connector, Compression Connector*** Inspect compression-applied connectors for correct cable match and indentation.	Annually	

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
8.3	***PV Output Conductor, IR*** Perform thermographic survey of all terminations and overcurrent protective devices not covered elsewhere in scope.	Annually	
9.0	**DC Disconnect**		
9.1	***DC Disconnect, Enclosure*** Inspect enclosure and devices for corrosion, heat distortion, moisture entry, insect and rodent infestation and exterior damage. Confirm that all signage and labeling are in place.	Annually	
9.2	***DC Disconnect, IR Annual*** Perform thermographic survey of all terminations and overcurrent devices.	Annually	
10.0	**Inverter**		
10.1	**Open Circuit Voltage Testing of All Connected Strings** Verify balance of expected voltage inputs of all strings in combiner box or string inverter wiring.	Annually	
10.2	***Inverter, Enclosure*** Inspect enclosure, door seals, latches and door stops for signs of corrosion, heat distortion, moisture entry, insect and rodent infestation, and exterior damage. Confirm that all sings and labeling are in place.	Annually	
10.3	***Inverter, Cleaning*** Clean all ventilation plates, air ducts, screens, devices and seals in accordance with manufacturer's recommendations. Replace filters as necessary.	Annually	Filters
10.4	***Inverter, SPD*** Inspect Sure Protection Devices for indication of failure. If any single SPD indicates failure mode, replace all SPD modules.	Annually	Replacement of SPDs
10.5	Inverter, IR Perform thermographic survey of all readily available terminations and overcurrent protection devices.	Annually	
11.0	**AC Raceways**		
11.1	***AC Raceways, Visual*** Inspect all AC raceways for loose connections, missing sealant. Corrosion and above-grad moisture intrusion.	Annually	
12.0	**AC Disconnect**		
12.1	***AC Disconnect, Enclosure*** Inspect enclosure and devices for corrosion, heat distortion, moisture entry, insect and rodent infestation, and exterior damage. Confirm that all signage and labeling are in place.	Annually	
12.2	***DC Disconnect, IR***	Annually	

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
	Perform thermographic survey of all terminations and overcurrent protection devices.		
13.0	**Data Acquisition Service**		
13.1	***Metering Device*** Inspect meter and case for physical damage	Annually	
13.2	***Metering Device*** Clean front panel	Annually	
13.3	***Metering Device*** Check tightness of electrical connections	Annually	
13.4	***Metering Device*** Record model number, serial number, firmware revision, software revision and rated control voltage	Annually	
13.5	***Metering Device*** Verify operation of display and indicating devices	Annually	
13.6	***Metering Device*** Record Passwords	Annually	
13.7	***Metering Device*** Verify unit is grounded in accordance with manufacturer's instructions	Annually	
13.8	***Meteorological Station, Alignment*** Inspect weather station and all sensors for proper alignment. Realign sensors as required.	Annually	
13.9	***Meteorological Station, Housing*** Inspect instrument housings and base supports for evidence of corrosion or damage	Annually	
13.10	***Meteorological Station, Cleaning*** Clean pyranometers and irradiance sensors with isopropyl alcohol and lint-free cloth.	Annually	
13.11	***Meteorological Station, Desiccant*** Check desiccant of pyranometer drying cartridge and replace if necessary	Annually	
14.0	**Medium-Voltage Transformers, Switchgear and Protection Devices**		
14.1	***Transformer, Enclosure*** Inspect enclosure and devices for corrosion, heat distortion, moisture entry, insect and rodent infestation, and exterior damage.	Annually	
14.2	***Transformer, Signage*** Confirm that all signage and labeling are in place	Annually	
14.3	***Transformer, Anchorage*** Inspect structural mounting pad, anchorage and alignment	Annually	
14.4	***Transformer, Bushings*** Inspect bushings	Annually	

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
14.5	***Transformer, IR*** Perform thermographic survey of all field terminations visually available from the opening of the cabinet	Annually	
14.6	***Transformer, Tap-changer*** Verify tap-changer position is set as specified	Annually	
14.7	***Transformer, Measurements*** Check and record high-temperature pressure and fluid level	Annually	
14.8	***Transformer, Fluid and Gas Analysis*** Test dissolved gases of oil, water content, color number, interfacial tension, neutralization number, power factor @ ROTC○C, relative density/specific gravity, furanic compounds in oil and inhibitor content.	Annually	
14.9	***Switchgear and Protection Devices, Enclosure*** Inspect enclosure and devices for corrosion, heat distortion, moisture entry, insect and rodent infestation, and exterior damage.	Annually	
14.10	***Switchgear and Protection Devices, Signage*** Confirm that all signage and labeling are in place	Annually	
14.11	***Switchgear and Protection Devices, Device*** Record model number, serial number, firmware revision, software revision and rated control voltage	Annually	
14.12	***Switchgear and Protection Devices, Battery*** Perform visual and mechanical testing of battery back-up system	Annually	
14.13	***Switchgear and Protection Devices, Data*** Download current data logs	Annually	
15.0	**Warranty Administration**		
15.1	Support the Owner in its management, supervision and verification of all Contractors, Manufacturer and OEM warranties on the equipment installed. *Office Administration included in Basic System Services. Field support an additional System Service.	Ongoing*	Ongoing*
15.2	Manage and supervise all repairs and replacement of all equipment. *Office Administration included in Basic System Services. Field support, Packaging and Shipping an Additional System Service.	Ongoing*	Ongoing*
16.0	**Corrective Maintenance**		
16.1	Troubleshoot and Repair equipment and site conditions out of compliance as per the contract documents.		A.S.S.
17.0	**Inventory and Spare Parts**		

#	Service Area/Item Description	BASIC SYSTEM	ADDITIONAL SYSTEM SERVICES
17.1	Operator’s technician to carry typical consumables in their vehicles at Operator’s Expense and only billed to Owner as needed.	Ongoing	A.S.S. as noted
17.2	Create a list of recommended Spare Parts (other than Consumables) to purchase, warehouse and purchase upon Owner’s Approval. Administration and 10’ x 10’ warehouse area included in Basic System Services. Costs of Spare Parts, Shipping and Delivery to site to be an Additional System Service.	Ongoing	A.S.S. as noted
17.3	All Owner Inventory/Spare Parts to be tracked in Operator’s CMMS System and detailed in Quarterly Reports.	Ongoing	
18.0	**Site Maintenance**		
18.1	Visually inspect access and interior roads associated with Project. Inspect all roads for soil erosion concerns, such as potholes and settlement changes which will be repaired within 60 days of inspection.	Annually	
18.2	Visually inspect equipment foundations of all equipment/ground interfaces for evidence of erosion.	Annually	
18.3	Visually inspect storm water management system (e.g., drainage channels, culverts, etc.) and erosion and sediment controls.	Annually	
18.3.1	Grassed Swales maintenance: Swale maintenance will include periodic mowing, occasional spot reseeding and weed control to keep grass cover dense and vigorous. Resultant yard waste shall be collected and disposed of off-site. Application of fertilizers and pesticides should be restricted or limited.	Annually	
18.3.2	Rip-Rap Dissipation Structures: Rip-rap used to dissipate energy shall be cleaned or replaced when it becomes overburdened with silt or sediment.	Annually	
18.3.3	Bioretention Filter: A. Checking embankments for subsidence, erosion, cracking, undesirable tree and shrub growth and the presence of burrowing animals. ii. Check inlet for erosion. Iii. Evidence of standing water (i.e. does it dewater between storms). Iv. Health and vigor of vegetation (trees, shrubs, grass, flowers, mulch). V. Accumulation of sediment or yard waste. Vi. Evidence of clogging at inlets or outlets. Vii. Condition of the overflow spillway. Viii. Ensure grass is well established. Ix. Grass height not greater than six inches. B. Mowing C. Mow grass areas within bioretention facility to ensure that grass height does not exceed 6-inches. Undesirable trees and shrubs should be removed. Resultant yard wastes shall be collected and disposed of off-site D. C. Debris, trash and litter control E. Removal of debris and litter shall be accomplished during mowing operations. Inlet structures should be cleared of all debris and litter. F. D. Structural repairs and replacement G. Components of the bioretention fil tier, which require repair or replacement, should be addressed immediately following identification. This includes treating and or replacing diseased tree and shrub, fertilizing as necessary, replacing mulch where bare spots appear, filter beds. H. Erosion and sediment control	Quarterly and after all major storm events	

	I. Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective. J. Soil slumpage, erosion of the embankments or around inlets/outlets, and cracking should be stabilized and repaired immediately upon identification. K. Sediment removal L. Sediments that accumulate in the bioretention filter should be removed annually to prevent clogging of inlet or outlet structures. Disposal of material removed from bioretention filter shall be in accordance with local, statie, and federal guidelines.		
18.4	Inspect all fencing for signs of damage and intrusion. Inspect signage to ensure all originally installed signs are present and legible. Repairs made upon inspection.	Annually	
18.4.1	Inspect all fencing and clear of vegetation as needed	2 X per Year	
18.5	Visually inspect vegetation and weed growth.	2 X per Year	
18.7	***Mowing & Trimming*** Mow and trim all areas and equipment inside the fence line, up to but not including the fence.	2 X between Nov 1 – May 1	Vegetation not to shade the panels. Trimming as needed to not shade the panels

Additional System Services:

- All troubleshooting, repair and other work not covered in Basic System Services.

Title	Unit	M-F	Weekends & Holidays
Electrician – Low Voltage	Hourly – Portal to Portal		
Electrician – Medium Voltage	Hourly – Portal to Portal		
Electrician - Apprentice	Hourly – Portal to Portal		
Site Work Foreman	Hourly – Portal to Portal		
Site Work Assistant	Hourly – Portal to Portal		

Photo 1- Adirondack Northway Overpass
EXISTING CONDITION

SARATOGA ASSOCIATES

Photograph Information

Date: March 21, 2025
Time: 13:12 PM
Focal Length: 24 MM
Photo Location: 44° 31' 00.8400" N, 73° 29' 54.3588" W
Distance to fence: 1,350 Feet

NEW YORK STATE OF OPPORTUNITY. Adirondack Park Agency
RECEIVED
Date: July 7, 2025

Figure A1
PHOTO SIMULATIONS
Catalyze Solar Project
Keeseville, NY

Photo 1- Adirondack Northway Overpass
SIMULATED CONDITION

Photograph Information
Date: March 21, 2025
Time: 13:12 PM
Focal Length: 24 MM
Photo Location: 44° 31′ 00.8400″ N, 73° 29′ 54.3588″ W
Distance to fence: 1,350 Feet

Figure A2
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

SARATOGA ASSOCIATES

Photo 2- Ouelette Circle near #11
EXISTING CONDITION

SARATOGA
ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 13:25 PM
Focal Length: 50 MM
Photo Location: 44° 31' 00.4044" N, 73° 29' 38.9400" W
Distance to fence: 280 Feet

Figure A3
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

Photo 2- Ouelette Circle near #11
SIMULATED CONDITION

SARATOGA
ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 13:25 PM
Focal Length: 50 MM
Photo Location: 44° 31’ 00.4044” N, 73° 29’ 38.9400” W
Distance to fence: 280 Feet

Figure A4
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

Photo 3- NY-22 At Project Entrance
EXISTING CONDITION

SARATOGA
ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 13:39 PM
Focal Length: 24 MM
Photo Location: 44° 30' 49.1868" N, 73° 29' 40.4448" W
Distance to fence: 780 Feet

Figure A5
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

Photo 3- NY-22 At Project Entrance
SIMULATED CONDITION

SARATOGA ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 13:39 PM
Focal Length: 24 MM
Photo Location: 44° 30' 49.1868" N, 73° 29' 40.4448" W
Distance to fence: 780 Feet

Figure A6
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

Photo 4- NY-22 near #1923
EXISTING CONDITION

Photograph Information
Date: March 21, 2025
Time: 13:46 PM
Focal Length: 50 MM
Photo Location: 44° 30' 45.8388" N, 73° 29' 36.8808" W
Distance to fence: 980 Feet

Figure A7
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

SARATOGA ASSOCIATES

Photo 4- NY-22 near #1923
SIMULATED CONDITION

Photograph Information
Date: March 21, 2025
Time: 13:46 PM
Focal Length: 50 MM
Photo Location: 44° 30' 45.8388" N, 73° 29' 36.8808" W
Distance to fence: 980 Feet

Figure A8
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

SARATOGA ASSOCIATES

Photo 5- Grove St. near #168
EXISTING CONDITION

SARATOGA ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 12:59 PM
Focal Length: 50 MM
Photo Location: 44° 31' 08.9832" N, 73° 29' 01.4316" W
Distance to fence: 980 Feet

Figure A9
PHOTO SIMULATIONS

Catalyze Solar Project
Keeseville, NY

Photo 5- Grove St. near #168
SIMULATED CONDITION

SARATOGA ASSOCIATES

Photograph Information
Date: March 21, 2025
Time: 12:59 PM
Focal Length: 50 MM
Photo Location: 44° 31′ 08.9832″ N, 73° 29′ 01.4316″ W
Distance to fence: 980 Feet

Figure A10
PHOTO SIMULATIONS
Catalyze Solar Project
Keeseville, NY

Keeseville (5.0 MW AC) Community Solar Project

Appendix S5 - Decommissioning

Grove Street, Keeseville, NY 12944

Prepared by Sophia Mazurek, Catalyze Ausable Grove Street Microgrid, LLC
Reviewed by Timothy Botting, Labella Associates
Created on December 11, 2024
Modified on N/A

Keeseville Solar Project
Decommissioning Plan

11/18/2024

Introduction

Catalyze Ausable Grove Street Microgrid, Inc proposes to build a ground-mounted photovoltaic (PV) solar facility ("Solar Facility") in the Town of AuSable, referred to as the "Keeseville Solar Project." The Solar Facility is planned to connect to the local electrical grid and have a nameplate capacity of 5.0 megawatts (MW) alternating current (AC). Two electrical transformers and twenty-six string inverters will be included as part of the final design. The Solar Facility is proposed to occupy approximately 35.66 acres of a 64.81 acre parcel of land located at 217 Grove Street. The tax parcel number is 305-6-1.9 in the Town of Ausable, Clinton County, NY (the "Facility Site").

This Decommissioning Plan ("Plan") provides an overview of activities that will occur during the decommissioning phase of the Solar Facility, including: activities related to the restoration of land, the management of materials and waste, projected costs, and a decommissioning cost and bond.

This Plan assumes that the Solar Facility will have a maturity date of thirty (30) years; however, its useful lifetime maybe longer. Upon decommissioning the Solar Facility will be dismantled and the Facility Site restored to a state similar to its pre-construction condition. The Plan also covers the case of the abandonment of a Solar Facility, for any reason, prior to the 30-year maturity date. It is designed to provide a level of financial protection for the Town of Ausable.

Decommissioning of the Solar Facility will include the disconnection of the Solar Facility from the electrical grid and the removal of all Solar Facility components including:

- Photovoltaic (PV) modules, panel racking and supports;
- Inverter units, transformers, and other electrical equipment;
- Access roads*, wiring cables, perimeter fence; and,
- Concrete foundations for fencing, Bioretention area
- Landscaping.

*Note that access roads may be left in place as described later in this document.

Existing town roads in the vicinity of the project will be televised prior to the start of decommissioning and after decommissioning to determine if any impact to the road was caused due to the decommissioning process and will be reviewed with the Town Highway Superintendent.

This Decommissioning Plan is based on current best management practices and procedures. The Plan may be subject to revision based on new standards and emergent best management practices at the time of decommissioning. Permits will be obtained as required and notification will be given to stakeholders prior to decommissioning.

Decommissioning of the Solar Facility

The project may be decommissioned under the following conditions:

1. Keeseville Solar decides to retire the Solar Facility in accordance with The Town of Ausable;
2. Commercial operation of the Solar Facility has not commenced within six (6) months of the project construction completion;

At the time of decommissioning, the installed components will be removed, reused, disposed of, and recycled, where possible. The Facility Site will be restored to a state similar to its pre-construction condition, as further described in the Site Restoration sub-section below. All removal of equipment will be done in accordance with any applicable regulations and manufacturer recommendations. All applicable permits will be acquired, and compliance with the State Environmental Quality Review (SEQR) requirements will be achieved. A Stormwater Pollution Prevention Plan (SWPPP) and coverage under the latest version of the Construction General Permit shall be established prior to start of decommissioning.

In the unlikely scenario that Keeseville Solar cannot execute the decommissioning, the Town of Ausable may commence the decommissioning through the bond established to cover the expenses.

Equipment Dismantling and Removal

During the decommissioning phase, all project components, in Exhibit 1, will be removed. Preliminary Site Plan Drawings are attached in Exhibit 2. The sequence of decommissioning of the Solar Facility proceeds in the reverse order of the sequence of construction as described on the General Notes, sheet C001. The sequence of decommissioning is as follows:

- The Solar Facility shall be disconnected from the utility power grid by disconnecting the undergrounded electrical line at the riser utility pole.
- PV modules shall be disconnected, collected, and disposed at an approved solar module recycler or reused / resold on the market. Although the PV modules will not be cutting edge technology at the time of decommissioning, they are estimated to still produce 80% of the original electricity output at year 25 and add value for many years.
- All aboveground electrical interconnection and distribution cables and poles shall be removed and disposed off-site by an approved facility.
- Underground electric conduits and direct buried conductors shall be removed. These will be sealed or capped in accordance with best practices at the time of decommissioning.
- Galvanized steel PV module support and racking system support posts shall be removed and disposed off-site by an approved facility.
- Electrical and electronic devices, including transformers, inverters, batteries, switchgear, and support structures shall be removed. Transformers and inverter components will be returned to the power authority. Other components not required for return to the power authority will be disposed off-site at an approved facility.
- Concrete foundations shall be removed and disposed off-site by an approved facility.
- Access roads can be left in place at the landowner's discretion. Access roads can remain with approval from the Town of Ausable. This version of the decommissioning plan includes the removal of the access road and fill that was brought into the site for the roads construction.

- Fencing and gates shall be removed and will be disposed off-site by an approved facility.
- All vegetative screening installed as part of this project shall be removed and disposed off-site by an approved facility. Landscaping can remain with approval from the Town of Ausable.

Site Restoration

Following decommissioning phase and removal of all project components, the Facility Site will be restored to a state similar to its pre-construction condition. The existing (pre-construction) condition is identified as undeveloped, fallow agricultural land adjacent to undeveloped agricultural, forested, and residential land.

Following removal of solar equipment, the land surface shall be restored in accordance with the latest revisions of the NYS Standards and Specifications for Erosion and Sediment Control and the New York State Agriculture and Market (NYSDAM) standards. With this site being on agricultural land and in compliance with the NYSDAM standards, the existing topsoil on site is to be tested prior to commencing construction. Imported topsoil used on site during decommissioning is to match the properties (pH, % organics, Nitrogen content, etc.) of the original topsoil material on site.

If the landowner wishes to keep the access road to aid in agricultural activities on this property, it can be negotiated at the time of the decommissioning of the site with the Town of Ausable. The landowner will need to request written approval from the Town.

Managing Materials and Waste

Through the decommissioning phase, a variety of excess materials and wastes will be generated (Exhibit 1). Most of the materials used in a Solar Facility are reusable or recyclable and some equipment may have manufacturer take-back and recycling requirements. Any remaining materials will be removed and disposed of off-site at an appropriate facility. Abundant Solar will establish policies and procedures to maximize recycling and reuse and will work with manufacturers, local subcontractors, and waste firms to segregate material to be disposed of, recycled, or reused.

Keeseville Solar will be responsible for the logistics of collecting and recycling the PV modules and to minimize the potential for modules to be discarded in the municipal waste stream. Currently, some manufacturers and new companies are looking for ways to recycle and/or reuse solar modules when they have reached the end of their lifespan. It is anticipated there will be more recycling options available for solar modules at the end of the project lifespan. Keeseville Solar proposes to determine the best way of disposing of the solar modules using best management practices at the time of decommissioning. Keeseville Solar will coordinate with the municipality if the disposal of any project component at the municipal waste facility is necessary.

Decommissioning Notification

Decommissioning activities generally require the notification of stakeholders given the nature of the works at the Facility Site. The Town of Ausable will be notified prior to commencement of any decommissioning activities.

Notification activities will be initiated six months prior to decommissioning. At this time, Keeseville Solar will update their list of stakeholders and notify appropriate jurisdictions and overseeing agencies of decommissioning activities. Federal, county, and local authorities, including the utility company, will be notified as needed to discuss the potential approvals required to engage in decommissioning activities.

Approvals

Well-planned and well-managed renewable energy facilities are not expected to pose environmental risks at the time of decommissioning. Decommissioning of a Solar Facility will follow the regulatory standards of the day. Keeseville Solar will ensure that any required permits are obtained prior to decommissioning.

This Decommissioning Report will be updated as necessary in the future, but not less than every five years, to ensure that changes in technology and site restoration methods are taken into consideration.

Estimated Timeline

Keeseville Solar has prepared a timeline for the major actions to be undertaken during decommissioning. As it is difficult to know what specific approvals and protocols will be in place in 30 years when decommissioning would begin, the timing of these actions is estimated based on best available information.

- Notifications to Stakeholders: Months 0 to 6 (Town notified 6 months prior to decommissioning activities)
- Permitting and environmental review: Months 2 to 6
- Physical Decommissioning and Removal of Equipment: Months 6 to 9
- Restoration: Months 6 to 15 (depending on timing of growing season)

Decommissioning During Construction or Abandonment Before Maturity

In case of abandonment of the Solar Facility during construction or before its 30 year maturity, the same decommissioning procedures as for decommissioning after ceasing operation will be undertaken and the same decommissioning and restoration program will be honored, in as far as construction proceeded before abandonment. The determination of the abandonment or non-operation of the Solar Facility shall be made by the Town Building Inspector, in accordance with the Town of Ausable. The Solar Facility will be dismantled, materials removed and recycled/disposed, the soil that was removed will be graded, and the site restored to a state similar to its preconstruction condition.

Costs of Decommissioning & Decommissioning Bond

The current cost to decommission the 5.0 MW Solar Facility has been estimated on behalf of Keeseville Solar by their engineering consultants and construction contractors, following industry standards and using guidance from NYSERDA. It is important to acknowledge that decommissioning of solar arrays has not been undertaken to any significant extent in New York State (or other States), and therefore, actual data and cost estimating models are not available. Moreover, there is great uncertainty in many factors that will come into play at the time of future decommissioning, such as the regulatory climate, changes in technology, repowering opportunities etc. The cost estimate, as a result, is based upon the best available information and engineering and demolition experience with other types of construction projects. In addition, the salvage values of valuable recyclable materials (aluminum, copper, etc.) have *not* been factored into the decommissioning cost estimate, and the scrap value will be determined on current market rates at the time of salvage.

Keeseville Solar will provide a financial guarantee to the Town of Ausable prior to undertaking construction in the form of a bond to guarantee that monies are available to perform the Solar Facility decommissioning. Although Keeseville Solar intends to perform the decommissioning, unforeseen circumstances such Keeseville Solar selling the project to another party or Keeseville Solar going out of business are possible. The bond will be renewed annually and will remain available to any party performing the decommissioning, such as a municipality or a landowner.

Decommissioning of the solar PV system shall be implemented in accordance with the Decommission Plan process as described below. The lease term is for 25 years with two possible 5 year extensions. At year 28 Keeseville Solar will communicate with the Town of Ausable the intent to either decommission the project by year 30 or will request an extension from the Town Planning Board to extend the Special Use permit and Site Plan approval. This approval is not guaranteed. Should the Operating Term be extended Abundant Solar will retain an engineer, at their own expense, to review the decommissioning cost estimate, and confirm if the established value is still sufficient to decommission the project. Keeseville Solar will provide this report to the Town of Ausable and the decommissioning bond will continue to the held by the Town of Ausable in the amount recommended by the engineer's report.

As a financial assurance measure, Keeseville Solar has agreed to provide a financial surety bond of the provided decommissioning cost estimate after a period of 30 years at a 2.5% rate of inflation. The corresponding decommissioning cost for the purposes of financial assurance would be $560,716. The decommissioning estimate was based on professional judgement and knowledge of solar construction activities in New York State. Exhibit 3 is the decommissioning estimate outline that supports the financial surety bond estimate noted above.

The Town of Ausable shall receive a copy of the security document. Keeseville Solar Power, Inc will be responsible for the decommissioning costs and will list the Town of Ausable as having access to the security. Keeseville Solar Power, Inc will retain ownership of the property for the life of the solar energy array and through decommissioning completion.

Decommissioning Agreement

All parties identified are aware and will adhere to the Decommissioning Plan.

Developer:		
	Print Name	Sign Name
Landowner:		
	Print Name	Sign Name