Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts
and New York

February 24, 2023

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **PETITION NO. 1508 – Enfield Solar One, LLC and VCP, LLC d/b/a Verogy petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 4.0-megawatt AC solar photovoltaic electric generating facility located at 110 North Street, Enfield, Connecticut, and associated electrical interconnection.**

Proposed Facility Changes

Dear Attorney Bachman:

Enclosed please find the original copy of materials describing proposed changes to the approved Enfield Solar One, LLC facility at 110 North Street in Enfield Connecticut. An electronic copy of these materials was sent to the Siting Council's office earlier today. If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Enclosures

PETITION NO. 1508 – ENFIELD SOLAR ONE, LLC

PROPOSED PROJECT CHANGES

Enfield Solar One, LLC ("Enfield Solar One" or "Petitioner") hereby submits proposed changes to the 4.0 megawatt ("MW") alternating current ("AC") ground mounted solar photovoltaic ("PV") power generating facility ("Facility") approved to be located at 110 North Street in Enfield, Connecticut ("Site"). The Connecticut Siting Council ("Council") approved the Facility by Declaratory Ruling on July 21, 2022, and subsequently modified the decision, on its own motion on August 4, 2022. Condition No. 1 of the Council's decision requires that any changes to the approved Facility be submitted to the Council staff for approval.

The output capacity of Facility will remain at 4.0 MW AC. However, for the reasons discussed further below, Enfield Solar One is proposing to change the project layout from a fixed tilt racking system to a single-axis tracker racking system. The modified Facility will consist of 10,452, 545-Watt ("W") PV modules, forty (40) solar inverters, six (6) AC Disconnect Switches and Panel Boards, two (2) 2000 kVA transformers and one (1) electrical service interconnection. *See* Attachment A for proposed tracker layout.

The change from the 540W modules approved by the Council to 545W modules and the change to a single-axis tracker racking system allows for Petitioner to reduce the number of modules installed at the facility from 11,050 to 10,452, while allowing for the AC capacity factor to increase from approximately 21.4% to 22.8%. The new 545 W modules will still be manufactured by Phono Solar.

Due to the reduction in the total number PV solar panels installed, the Facility will be changing from the Solectria 150kW and 125kW solar inverters to the Chint Power Systems 100kW solar inverters. Although the number of inverters at the Facility will increased, the acoustic noise rating of the Facility will decrease from 73 dBA at one meter to 65 dBA at one meter. The new inverters will be relocated further south on the Site, increasing the distance between the inverters and the nearest residential property, from approximately 607 feet to more than 800 feet. Attachment B contains the specification sheet for the new inverters and 545W panels.

The proposed Facility changes will also involve the replacement of two (2) pad mounted Disconnect Switches to six (6) AC Disconnect Switches and Panel Boards which will occupy approximately the same footprint.

The Facility is proposing to use Solar Flex Rack's FlexTrack – S Series trackers. The trackers are single-axis in the north-south direction and will have 1 module in portrait orientation along the axis. The tracker will have a maximum tilt in the east /west direction of 55 degrees with the lower edge being approximately 24 inches above grade. The upper edge of the panel will be approximately 8.25 feet above grade. *See* Attachment C for tracker specification sheet.

Utilizing the proposed tracker system also requires the layout of the proposed Facility to change. The northern and western fence lines will remain in approximately the same locations, while the eastern and southern fence lines will be relocated to accommodate the panel layout changes. A majority of the Facility fence line changes occur to the south. The eastern fence will be relocated to approximately the original limits

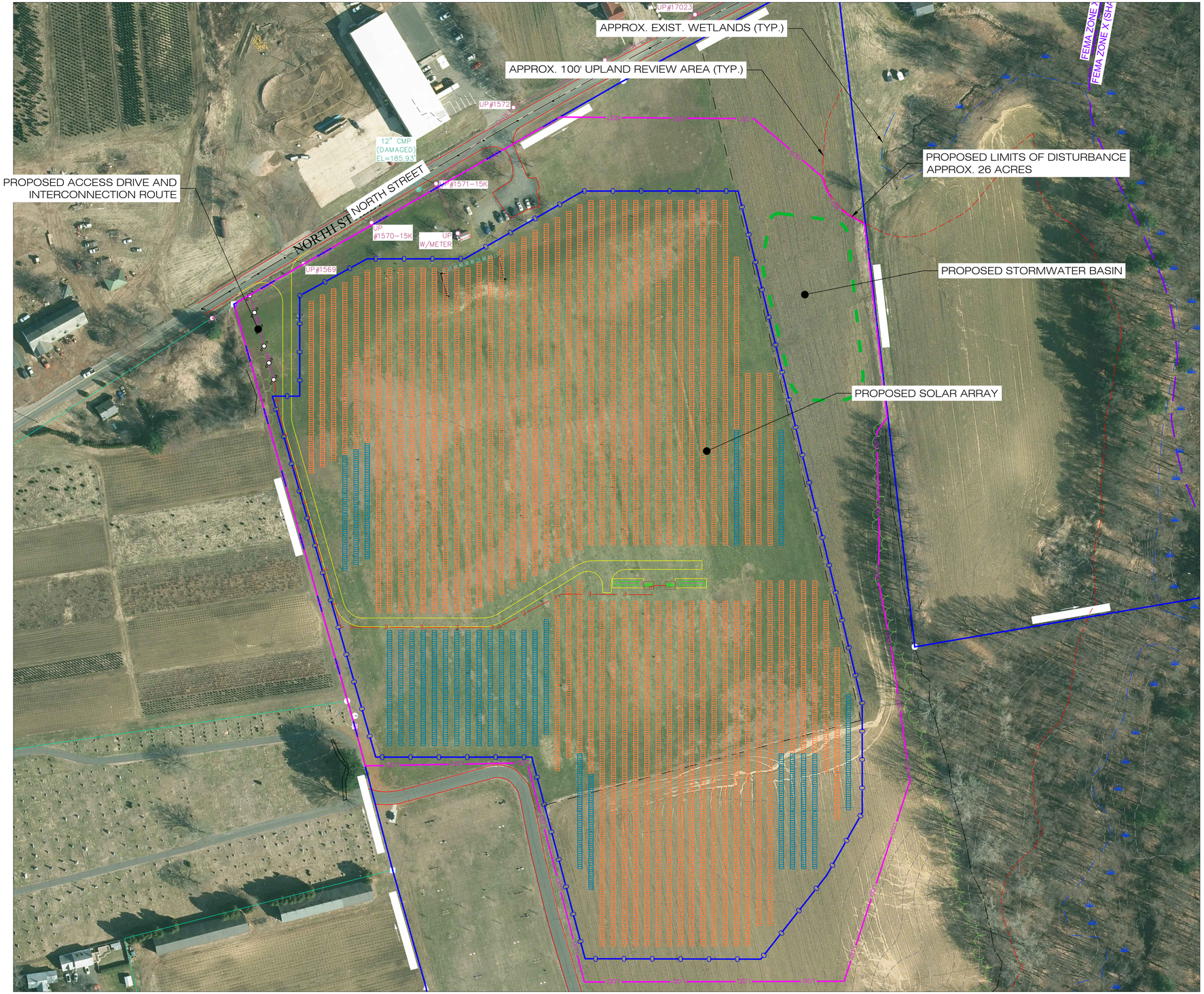
of disturbance ("LOD") in the eastern portion of the Site. *See* Attachment D for a comparison of the approved LOD and proposed changes to the LOD and fence lines.

The proposed change results in an overall change of the LOD from approximately 19.6 acres for the approved Facility to approximately 28.57 acres for the modified Facility. The increase to the LOD is necessary to accommodate the increased Facility footprint along with the proposed changes to the soil erosion and sedimentation control measures proposed and the new stormwater management system that are required as a result of the change. The larger LOD remain continue to remain outside the 100-foot buffer to any area wetland. Revised civil site drawing and a new stormwater report both prepared by All-Points Technology Corporation are included as Attachment E.

The Facility approved by the Council had previously received CT DEEP Stormwater approval, which permits will be issued as soon as the Petitioner submits of the required letter of credit. CT DEEP has been made aware of the proposed Facility changes. The revised civil site plans and stormwater report have been sent to CT DEEP Stormwater for review and approval.

The proposed civil site drawings have also been revised to include additional landscape screening in the northeast corner of the Site as required by Condition No. 4 of the Council's approval.

ATTACHMENT A



ENFIELD SOLAR ONE - TRACKER

CP-1

SCALE: 1"=80'

General Notes	
SYSTEM SPECIFICATIONS	
DC SYSTEM SIZE	5,696.34 kW
AC SYSTEM SIZE	4,000.0 kW
MODULE QUANTITY	10,452
MODULE POWER	545 W
TILT	TRACKER
AZIMUTH	0°
INTER ROW SPACING	11.75 FT
NOTES	INTERCONNECTION AT STREET. NO UPGRADES OR EXTENSIONS ASSUMED

No.	Revision/Issue	Date

Firm Name and Address

VEROGY

150 TRUMBULL STREET
HARTFORD, CT 06103

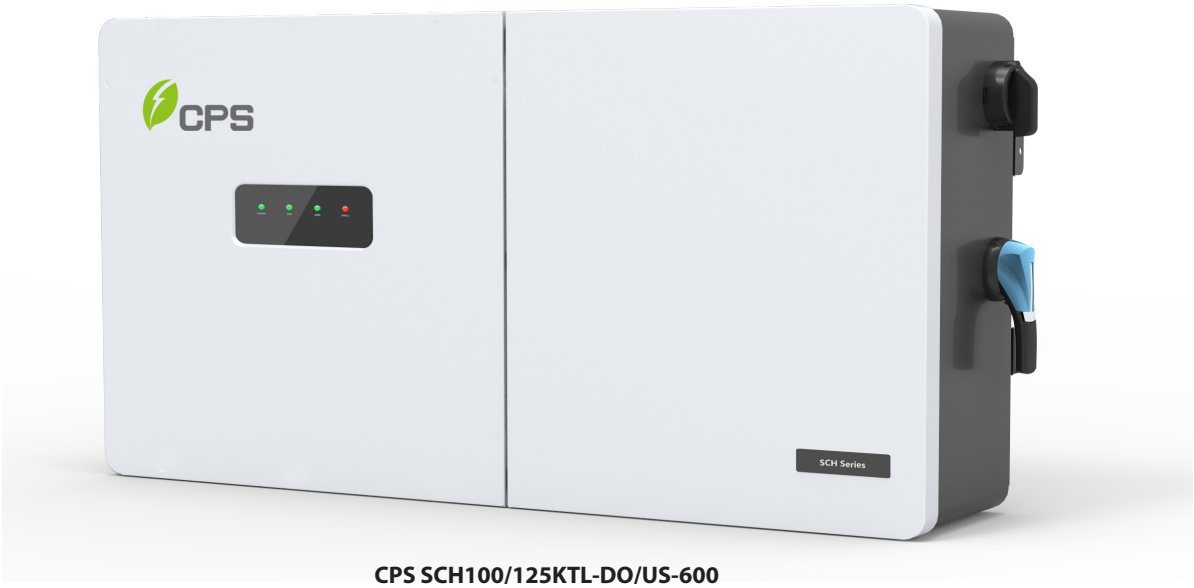
Project Name and Address

ENFIELD SOLAR ONE
110 NORTH STREET
ENFIELD, CT 06082
41.9949019509, -72.5252682994

Project: ENFIELD SOLAR ONE	Sheet: CP-1
Date: 2/08/2023	
Drawn By: BJP	

ATTACHMENT B

100/125kW, 1500Vdc String Inverters for North America



CPS SCH100/125KTL-DO/US-600

The 100 & 125kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box includes touch safe fusing for up to 20 strings. The CPS FlexOM Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2014 and 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA Headroom yields 100kW @ 0.9PF and 125kW @ 0.95PF
- Generous 1.87 and 1.5 DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years

100/125KTL Standard Wire-box

100/125KTL Centralized Wire-box

C SP US

This device complies with part 15 of the FCC Rules

Chint Power Systems America
6800 Koll Center Parkway, Suite 235 Pleasanton, CA 94566
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV Power	187.5kW	
Max. DC Input Voltage	1500V	
Operating DC Input Voltage Range	860-1450Vdc	
Start-up DC Input Voltage / Power	900V / 250W	
Number of MPP Trackers	1	
MPPT Voltage Range[1]	870-1300Vdc	
Max. PV Input Current (Isc x1.25)	275A	
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box) 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
AC Output		
Rated AC Output Power	100kW	125kW
Max. AC Output Power[2]	100kVA (111KVA @ PF>0.9)	125kVA (132KVA @ PF>0.95)
Rated Output Voltage	600Vac	
Output Voltage Range[3]	528-660Vac	
Grid Connection Type[4]	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @600Vac	96.2/106.8A	120.3/127.0A
Rated Output Frequency	60Hz	
Output Frequency Range[3]	57-63Hz	
Power Factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. Fault Current Contribution (1-cycle RMS)	41.47A	
Max. OCPD Rating	200A	
AC Disconnection Type	Load-rated AC switch	
AC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
System		
Topology	Transformerless	
Max. Efficiency	99.1%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<4W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +108°F / +42°C)	
Non-Operating Temperature Range[5]	-40°F to +158°F / -40°C to +70°C maximum	
Operating Humidity	0-100%	
Operating Altitude	8202ft / 2500m (no derating)	
Audible Noise	<65dBA@1m and 25°C	
Display and Communication		
User Interface and Display	LED Indicators, WiFi + APP	
Inverter Monitoring	Modbus RS485	
Site Level Monitoring	CPS FlexOM Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box	
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box); 33lbs / 15kg (Centralized Wire-box)	
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)	
AC Termination	M10 Stud Type Terminal [3Φ] (Wire range:1/0AWG - 500kcmil CU/AL, Lugs not supplied) Screw Clamp Terminal Block [N] (#12 - 1/0AWG CU/AL)	
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box Busbar, M10 Bolts (Wire range: #1AWG - 500kcmil CU/AL [1 termination per pole], #1AWG - 300kcmil CU/AL [2 terminations per pole], Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	20A fuses provided (Fuse values up to 30A acceptable)	
Safety		
Safety and EMC Standard	UL1741-SA-2016, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAr, Freq-Watt, Volt-Watt	
Warranty		
Standard[6]	5 years	
Extended Terms	10, 15 and 20 years	

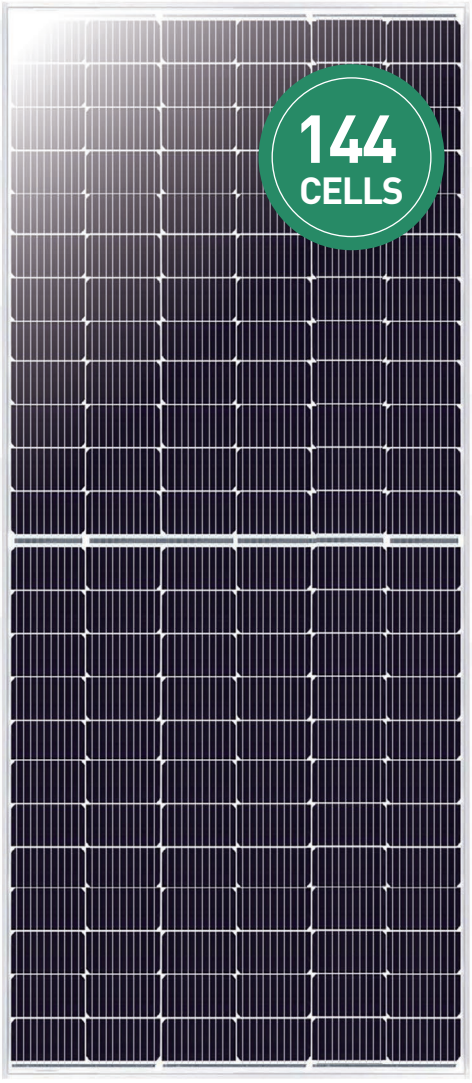
1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF
2) "Max. AC Apparent Power" rating valid within MPPT voltage range and temperature range of -30°C to +40°C (-22°F to +104°F) for 100KW PF $\geq$0.9 and 125KW PF $\geq$0.95
3) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.
4) Wye neutral-grounded, Delta may not be corner-grounded.
5) See user manual for further requirements regarding non-operating conditions.
6) 5 year warranty effective for units purchased after October 1st, 2019.

Phono® Solar

BIFACIAL TWINPLUS MODULE SERIES

HIGH EFFICIENCY MONO-PERC BM6-10B-T

535-555W



EXTRAORDINARY PRODUCT PERFORMANCE

- Up to 25% additional power yield benefited from bifacial technology
- Lower power loss in cell connection and under shading conditions
- Competitive high-temperature performance with ameliorated temperature coefficient
- Higher power generation with multi-busbar and half-cut technology

HIGH QUALITY RELIABILITY

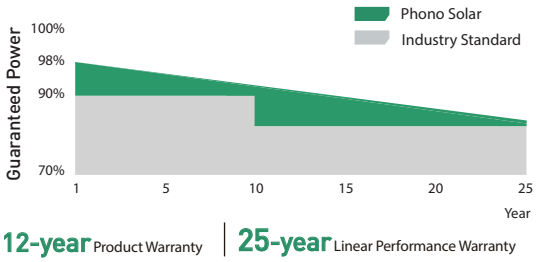
- Optimized electrical design lowers hot spot risk and operating current
- Corrosion resistance guarantees enhanced reliability in harsh environments
- Minimized Risk of microcrack and snail trail

EASY INSTALLATION

- Framed design improves mounting and racking method compatibility
- Safer and easier handling during transportation and installation

PID RESISTANT

- Industry-leading cell processing techonology and electrical design ensures solid PID resistance



12-year Product Warranty | **25-year** Linear Performance Warranty

MANAGEMENT SYSTEM CERTIFICATES

IEC 61215, IEC 61730, UL 61730
ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
ISO 45001:2018 / International standards for occupational health & safety

Bloomberg NEW ENERGY FINANCE Tier 1

TOP PERFORMER 2022 PVEL PV MODULE RELIABILITY SCORECARD

www.phonosolar.com info@phonosolar.com

ELECTRICAL TYPICAL VALUES

Model	1000V	PS535M8-24/THB		PS540M8-24/THB		PS545M8-24/THB		PS550M8-24/THB		PS555M8-24/THB	
	1500V	PS535M8H-24/THB		PS540M8H-24/THB		PS545M8H-24/THB		PS550M8H-24/THB		PS555M8H-24/THB	
Testing Condition		STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Rated Power (Pmpp)		535	398	540	402	545	405	550	409	555	413
Rated Current (Impp)		12.97	10.48	13.06	10.55	13.15	10.63	13.24	10.70	13.33	10.77
Rated Voltage (Vmpp)		41.25	37.98	41.35	38.07	41.45	38.16	41.55	38.25	41.64	38.34
Short Circuit Current (Isc)		13.52	10.92	13.62	11.00	13.72	11.09	13.82	11.17	13.92	11.25
Open Circuit Voltage (Voc)		49.29	46.53	49.39	46.62	49.49	46.72	49.59	46.81	49.69	46.91
Module Efficiency (%)		20.71		20.90		21.10		21.29		21.48	

STC(Standard Testing Conditions):Irrandance 1000W/m², AM 1.5, Cell Temerature 25°C

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/S

BIFACIAL ELECTRICAL VALUES

5%	Maximum Power (W)	554	559	564	569	574
	Module Efficiency (%)	21.44	21.64	21.84	22.04	22.24
15%	Maximum Power (W)	591	597	602	608	613
	Module Efficiency (%)	22.88	23.10	23.31	23.53	23.74
25%	Maximum Power (W)	629	635	640	646	652
	Module Efficiency (%)	24.33	24.56	24.79	25.02	25.24

MECHANICAL CHARACTERISTICS

Cell Type	Monocrystalline 182mm x 91mm
Dimension (L× W × H)	Length: 2278mm (89.69 inch) Width: 1134mm (44.65 inch) Height: 35mm (1.38 inch)
Weight	27.8kg (61.29 lbs)
Front Glass	3.2mm Toughened Glass
Frame	Anodized Aluminium Alloy
Cable	4mm² (IEC) , (+):450mm,(-):250mm or Customized Length
Junction Box	IP 68 Rated

TEMPERATURE RATINGS

Voltage Temperature Coefficient	-0.28%/°C
Current Temperature Coefficient	+0.05%/°C
Power Temperature Coefficient	-0.35%/°C
Tolerance	0~+5w
NOCT	45±2°C
Bifaciality	70±5%

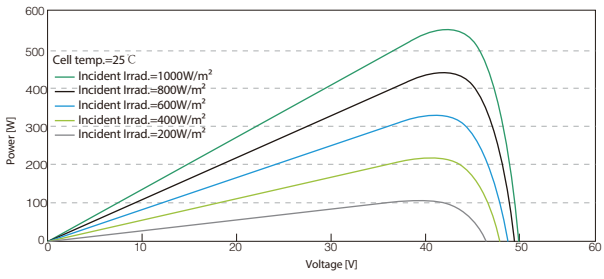
ABSOLUTE MAXIMUM RATING

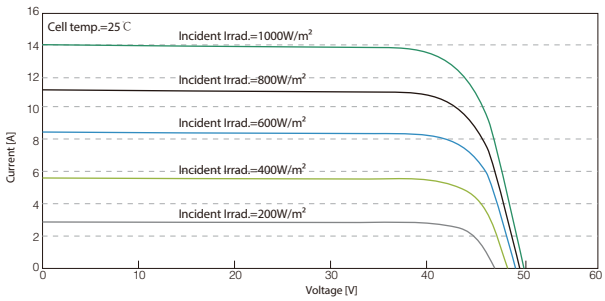
Operating Temperature	From -40 to +85°C
Hail Diameter @ 80km/h	Up to 25mm
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Maximum Series Fuse Rating	30A
PV Module Classification	II
Module Fire Performance(UL 61730)	Type 4
Maximum System Voltage	DC 1000V/1500V

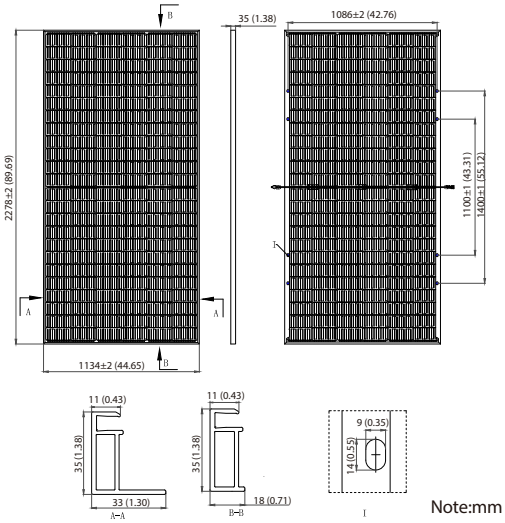
PACKING CONFIGURATION

Container	20' GP	40' HQ
Pieces/Container	155	620

ELECTRICAL CHARACTERISTICS







Note:mm (inch)

Phono® Solar

PHONO SOLAR TECHNOLOGY CO.,LTD reserves the right to make necessary adjustments to the information described herein at any time without further notice. The specifications and certificates contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Please be sure to use the most recent version of data.

ATTACHMENT C

TRACKER S-SERIES

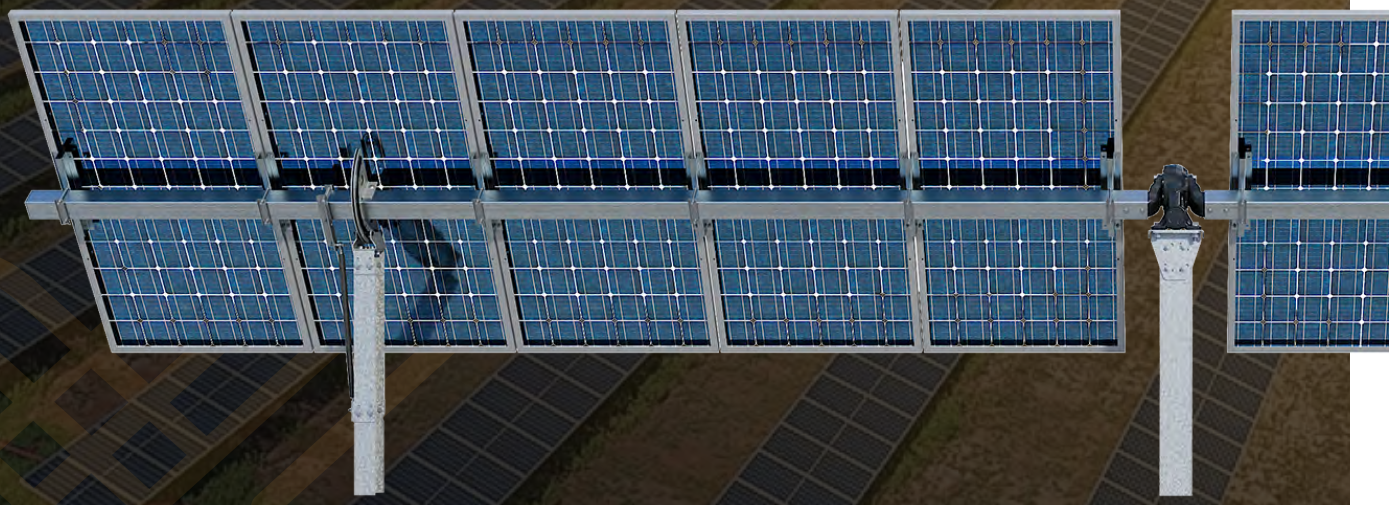
SOLAR FLEXRACK

FLEXRACK SERIES

FlexTrack - S Series

Tough, Reliable Tracker & Team of Experts at Your Service

- Single row, central slew drive balanced system
- Engineered for long term durability and reliability
- Low cost to maintain
- Flexible to accommodate and optimize all your project design and generation needs
- Superior land density with no gaps at the bearings
- Available in Self-Powered and Grid-Powered options
- Designed with intuitive constructability which translates to superior installation times and lower project costs



Get in contact with the Solar FlexRack team today!

1-888-380-8138 | SOLARFLEXRACK.COM

CONTROL SYSTEM

Data Feed	Ethernet to Network Control Unit
Power Consumption	Grid-Powered: 31kWh per tracker per year
Tracker Controller	1 Controller to DC motor per tracker
Size	230 x 100 x 150 mm
Battery (self-powered)	LiFePO4 (Lithium Iron Phosphate) Rechargeable 3Ah
Battery Charging (self-powered)	Optimum charging through CC/CV algorithm for LiFePO4 Chemistries which contributes to extended battery life
SoC Monitoring (self-powered)	SoC achieved through OCV and Coulomb counting algorithms
Operating Temperatures	Self-Powered: Charging: 0°C to 60°C / Discharge: -10°C to 60°C
Interface	HMI (includes enclosure mounted keypad LED visual interface)
Communication	Zigbee Wireless
PV Module (self-powered)	Crystalline Silicon 30W

SERVICES

Geotechnical Services	**Configuration of Tracker Controls**
Structural Analysis	**Project Management**
Layout and Design Services	**PE Stamp**
Foundation Design Services	**On-site Training**
Post Driving	**Commissioning of Tracker System**
Pull Testing	
Tracking System Installation	

UL COMPLIANCE

All Solar FlexRack systems have gone through UL testing. Each component-connection point within the system conforms to NEC codes for electrically bonded and conductive systems. Testing is performed by Solar PTL in accordance with UL 3703.

Certification covers both United States and Canada.

TRACKING

Tracking Method	Single-axis horizontal, distributed drive
Backtracking	Smart backtracking - customized to terrain for maximum production
Tracking Range	Up to 110° (± 55°)
Ground Coverage Ratio (GCR)	Configurable
Tracking Accuracy	2°
Stow Angle	Configurable

ARRAY CONFIGURATION

Panels per Tracker	Up to 90 (72 Cell Modules)
Trackers per Controller	1
String Voltage	Up to 1,500 volts
Posts per Tracker	Approximately 15 for 90 modules
Panel Configurations*	1 in portrait (crystalline) 2 in landscape (crystalline) 4 in landscape (thin film)
Drive Type	Slew 24 Volts DC

OPERATIONS AND MAINTENANCE

Scheduled Maintenance	None
Warranty	10 Years: Structural 5 Years: Drives and Electrical
Certifications	UL 3703
Dynamic Load Management	Limited progressive dampening technology
Snow Management	Programmable snow shedding

INSTALLATION TOLERANCES

North-south Slope Tolerance	Up to 10%
North-south Post Spacing	± 1.5 inches (.038 meter)
East-west Post Alignment	+/- 0.75 inches
Post Height	± 1 inch (0.025 meter)
Post Plumb	± 1°

CONSTRUCTION

Structural Materials	Hot dip galvanized steel
Bearings	UV-rated engineering plastic, no lubrication needed
Mechanical Connections	Bolted - no welding, drilling or cutting required

ENVIRONMENTAL

Operating Temperature	-30° C to +60° C (Grid) -10° C to +60° C (Self-Powered)
Wind (IBC-2012/ASCE 7-10)	Up to 130 mph 35 mph stow position
Snow Load	10 psf (standard) / Higher snow load available upon request

TESTING

Rain, wind, sleet, snow, heat – every day and everywhere, our products are battling the elements. We perform ongoing extensive testing in these key areas: wind tunnel, structural load, electrical bonding, and life cycle. Solar FlexRack trackers also undergo wind tunnel testing performed by RWDI and CPP, per American Society of Civil Engineers Standard ASCE 7.

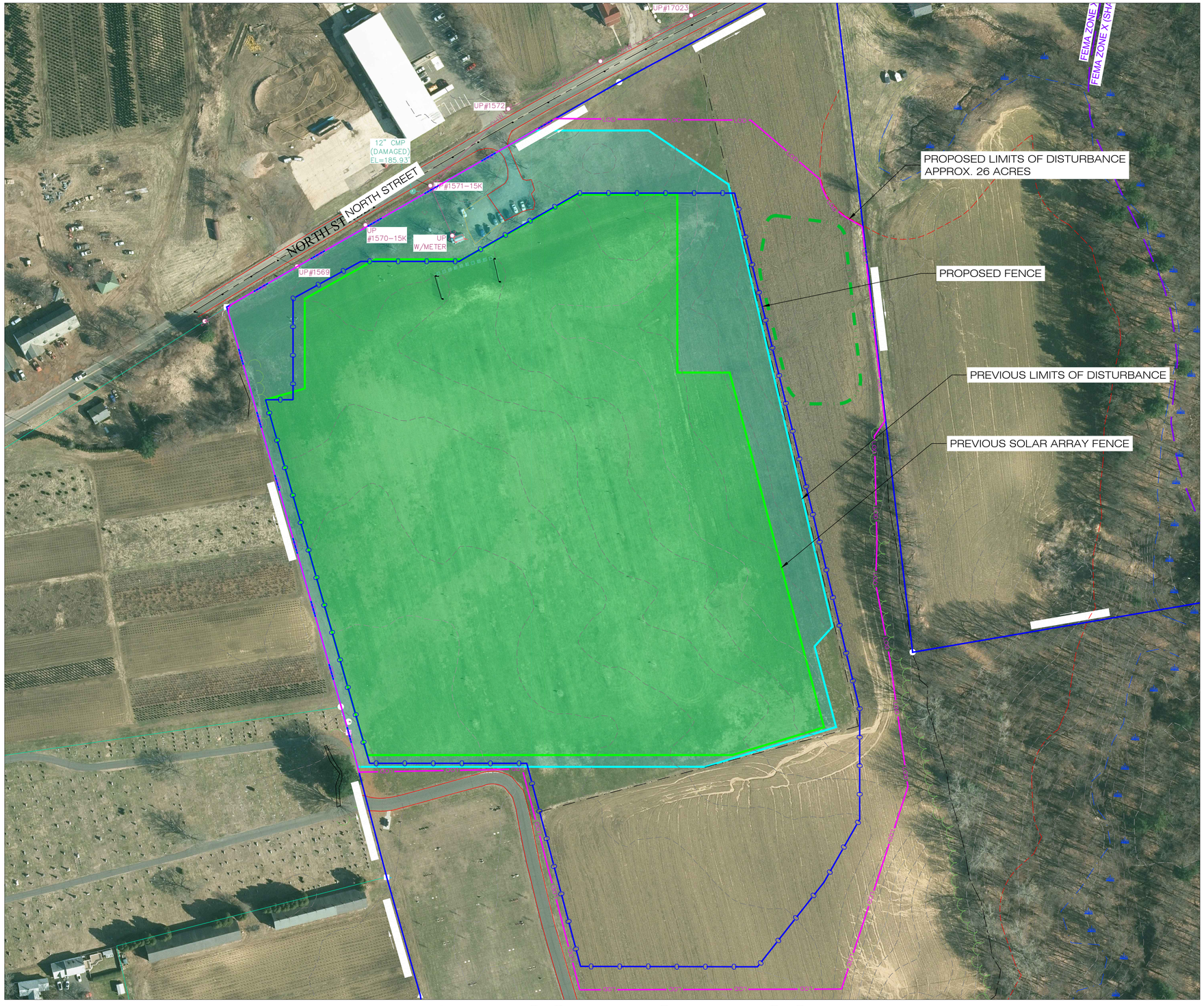
*Adaptable to all module sizes

NEARLY 50 YEARS & OVER 3 GIGAWATTS

Solar FlexRack, a division of Northern States Metals, is an integrated solar company that offers custom-designed, fixed tilt ground mount and single-axis solar tracking systems in the commercial and utility-scale solar mounting industries. Solar FlexRack also offers full services, including engineering, geotechnical, pullout testing, field, and layout design services to address the actual site conditions of a project site. Solar FlexRack has completed over 3 GW of solar racking installations in over 40 U.S. states and across the globe.

SOLAR FLEXRACK™
A Division of Northern States Metals

ATTACHMENT D



ENFIELD SOLAR ONE - COMPARE

CP-2

SCALE: 1"=80'

General Notes

No.	Revision/Issue	Date

Firm Name and Address

VEROGY

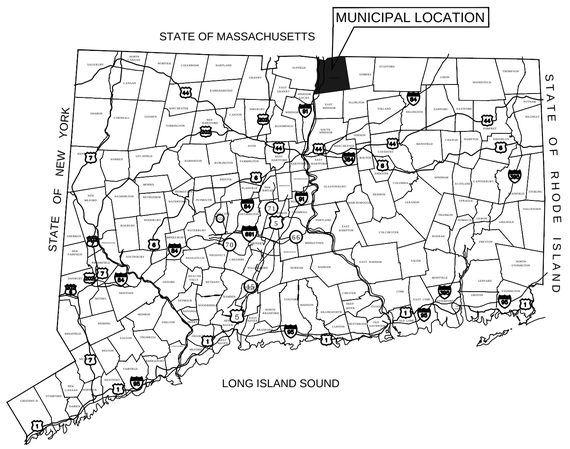
150 TRUMBULL STREET
HARTFORD, CT 06103

Project Name and Address

ENFIELD SOLAR ONE
110 NORTH STREET
ENFIELD, CT 06082
41.9949019509, -72.5252682994

Project	Sheet
ENFIELD SOLAR ONE	CP-2
Date: 02/08/2023	
Drawn By: BJP	

ATTACHMENT E



ENFIELD SOLAR ONE, LLC

"ENFIELD SOLAR ONE, LLC"
110 NORTH STREET
ENFIELD, CT 06082

CSC PETITION PLAN SET
APRIL 11, 2022

LIST OF DRAWINGS

SITE INFORMATION

SITE NAME: "ENFIELD SOLAR ONE, LLC"

LOCATION: 110 NORTH STREET
ENFIELD, CT 06082

SITE TYPE/DESCRIPTION: ADD GROUND MOUNTED SOLAR PANEL ARRAY W/ ASSOCIATED EQUIPMENT, GRAVEL ACCESS ROAD, AND STORMWATER MANAGEMENT.

PROPERTY OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
700 MIDDLETOWN AVE.
NORTH HAVEN, CT 06473

APPLICANT: ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET, 4TH FLOOR
HARTFORD, CT 06103

ENGINEER CONTACT: ROBERT C. BURNS, P.E.
(860) 552-2036

LATITUDE: 41°59'41.79" N
LONGITUDE: 72°31'31.83" W
ELEVATION: 188'± AMSL

MBLU: 100-5
ZONE: R33
EXISTING LAND USE: RESIDENTIAL - CEMETERY
PROPOSED LAND USE: COMMUNICATIONS, TRANSPORTATION AND PUBLIC UTILITY USES
- LARGE SCALE GROUND MOUNTED SOLAR PHOTOVOLTAIC INSTALLATIONS

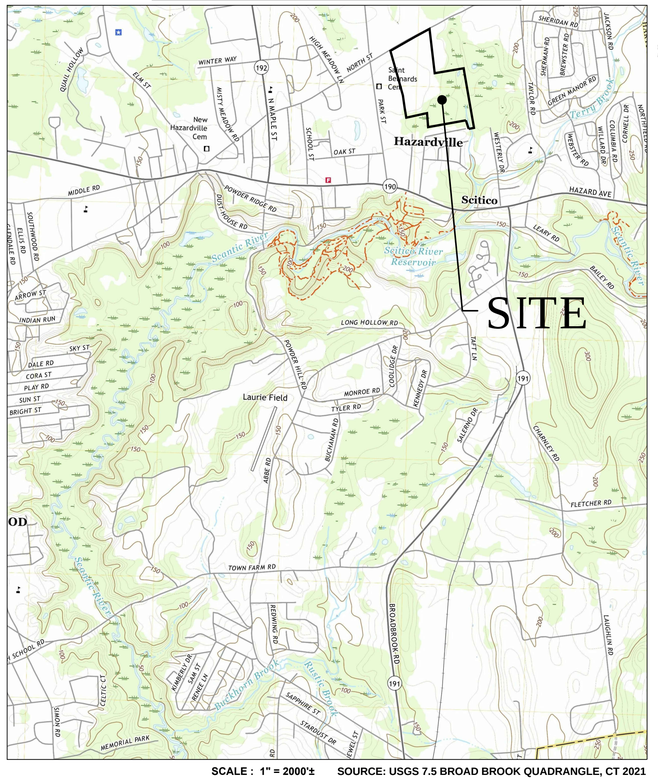
TOTAL SITE: 73.88± AC.
TOTAL DISTURBED AREA: 28.40± AC.

PROP. SITE GRADING
APPROX. VOLUME OF CUT : 2,250± CY
APPROX. VOLUME OF FILL: 1,325± CY

APPROX. OVERALL NET VOLUME: 925± CY OF CUT

PROP. GRAVEL ACCESS ROAD: 1,250± LINEAR FEET
PROP. SILT FENCE: 3,790± LINEAR FEET
TREE CLEARING AREA: 0± ACRE
IMPERVIOUS AREA: 23,200± SQUARE FEET

USGS TOPOGRAPHIC MAP



ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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DESIGN PROFESSIONAL OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300B-1 THROUGH 20-300B-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS INC. ON SEPTEMBER 26, 1997.

TYPE OF SURVEY: IMPROVEMENT LOCATION SURVEY

BOUNDARY SURVEY CATEGORY: DEPENDENT RESURVEY

CLASS OF ACCURACY: HORIZONTAL CLASS A-2
VERTICAL CLASS V-2
TOPOGRAPHIC CLASS T-2

PURPOSE OF SURVEY: PROPOSED SOLAR FACILITY

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE LIVE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED PROFESSIONAL. UNAUTHORIZED ALTERATIONS RENDER ANY DECLARATION NULL AND VOID.

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

CHARLES G. GIDMAN, P.L.S. #70103

STATE OF CONNECTICUT CHARLES G. GIDMAN LICENSED LAND SURVEYOR

NOTES:

1. FIELD SURVEY BY EDM TOTAL STATION & RTK GPS NOVEMBER & DECEMBER 2021.
2. THE HORIZONTAL DATUM IS NAD83. THE VERTICAL DATUM IS NAVD88. BOTH WERE DERIVED FROM RTK GPS OBSERVATIONS TAKEN ON SITE.
3. THE LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE ONLY. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OF THESE UTILITIES AND MAY NOT SHOW ALL OF THE UTILITIES WHICH EXIST WITHIN THE PREMISES SURVEYED. CONTACT DIG-SAFE AT 1-888-344-7233 BEFORE EXCAVATION.
4. THE LOCUS PARCEL IS LOCATED IN THE TOWN OF ENFIELD R-33 ZONING DISTRICT.
5. ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS, THE LOCUS PROPERTY IS LOCATED IN AN AREAS DESIGNATED AS "ZONE X" AND "ZONE X (SHADED). COMMUNITY PANEL NO. 09003C 0232 F, EFFECTIVE ON 9/26/2008.
6. WETLANDS WERE DELINEATED BY ALL POINTS TECHNOLOGY, INC., APPROXIMATELY IN MAY 2021.
7. ALL CONTOURS SHOWN HEREON WERE GENERATED IN QGIS FROM DIGITAL ELEVATION MODELS OF THE 2016 CRCOG LIDAR DATA, DISTRIBUTED BY NOAA.

SHEET NO. 1 OF 1	PLAN OF LAND IN ENFIELD, CT PREPARED FOR VEROGY	SURVEYOR: CGG DRAFTING: JDG FIELD WORK: NAE PROJECT NUMBER: 21-124 DRAWING NAME: 21-124.DWG	ENGINEER: – DESIGN: – HORZ. SCALE: 1"=100' VERT. SCALE: – DATE: 3-11-2022

BOUNDARY SURVEY & LIDAR CONTOURS

NORTHEAST SURVEY CONSULTANTS
3 FERRY STREET
STUDIO 1 EAST
EASTHAMPTON, MA 01027
(413) 203-5144

GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT DEVELOPER STANDARDS, TOWN OF ENFIELD STANDARDS, CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION, CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY.

2. IF NO PROJECT CONSTRUCTION SPECIFICATION PACKAGE IS PROVIDED BY THE PROJECT DEVELOPER OR THEIR REPRESENTATIVE, THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURER, TOWN OF ENFIELD, CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION, OR CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND BE IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.

3. THE PROJECT DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING AND STORMWATER PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL ENFIELD CONSTRUCTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

4. REFER TO PLANS, DETAILS AND REPORTS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE PROJECT DEVELOPER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING/CONSTRUCTION. ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONFIRMED WITH THE PROJECT DEVELOPER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS PER PLANS AND SPECIFICATIONS TO THE PROJECT DEVELOPER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.

6. SHOULD ANY UNKNOWN OR INCORRECTLY LOCATED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE PROJECT DEVELOPER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.

7. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE PROJECT DEVELOPER OR OTHERS DURING OCCUPIED HOURS, EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE PROJECT DEVELOPER AND THE LOCAL MUNICIPALITY. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.

8. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE CONTRACT DRAWINGS.

9. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.

10. THE CONTRACTOR SHALL COMPLY WITH OSHA CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.

11. THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OF PERSONNEL OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.

12. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE PROJECT DEVELOPER OR THE TOWN OF ENFIELD.

13. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE PROJECT DEVELOPER AT THE END OF CONSTRUCTION.

14. ALTERNATIVE METHODS AND PRODUCTS, OTHER THAN THOSE SPECIFIED, MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING/CONSTRUCTION PROCESS.

15. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' 72 HOURS BEFORE COMMENCEMENT OF WORK AT '811' AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.

16. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.

SITE PLAN NOTES

1. THE SURVEY WAS PROVIDED BY NORTHEAST SURVEY CONSULTANTS, DATED MARCH 11, 2022.

2. THERE ARE WETLANDS LOCATED ON THE SITE AS INDICATED ON THE PLANS. WETLAND BOUNDARIES WERE FLAGGED AND LOCATED BY ALL-POINTS TECHNOLOGY CORPORATION, IN MAY 2021.

3. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDED SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN OR SUBMIT AN ALTERNATE PLAN FOR APPROVAL BY THE ENGINEER AND/OR PERMITTING AGENCIES PRIOR TO THE START OF CONSTRUCTION. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.

4. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR WETLANDS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. IN ADDITION, THE CONTRACTOR SHALL ADHERE TO 'EROSION CONTROL PLAN' CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO POST ALL BONDS AS REQUIRED BY GOVERNMENT AGENCIES WHICH WOULD GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN.

5. ALL SITE WORK, MATERIALS OF CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK AND STORM DRAINAGE WORK, SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS MANUAL. OTHERWISE THIS WORK SHALL CONFORM TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION AND PROJECT GEOTECHNICAL REPORT IF THERE IS NO PROJECT SPECIFICATIONS MANUAL. ALL FILL MATERIAL UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE ABOVE STATED APPLICABLE SPECIFICATIONS, AND/OR PROJECT GEOTECHNICAL REPORT, AND SHALL BE PLACED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 AT 95% PERCENT OF OPTIMUM MOISTURE CONTENT.

6. ALL DISTURBANCE INCURRED TO PUBLIC, MUNICIPAL, COUNTY, STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN OF ENFIELD AND STATE OF CONNECTICUT.

7. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPER'S ENVIRONMENTAL CONSULTANT PRIOR TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPER'S ENVIRONMENTAL CONSULTANT.

UTILITY NOTES

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE TOWN OF ENFIELD TO SECURE CONSTRUCTION PERMITS AND FOR PAYMENT OF FEES FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES.
2. REFER TO DRAWINGS BY PROJECT DEVELOPER FOR THE ONSITE ELECTRICAL DRAWINGS AND INTERCONNECTION TO EXISTING ELECTRICAL GRID. SITE CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADAPTERS AS NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT. THESE DETAILS ARE NOT INCLUDED IN THESE PLANS.
3. UTILITY LOCATIONS AND PENETRATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND SHALL BE VERIFIED WITH THE ELECTRICAL ENGINEER AND THE PROJECT DEVELOPER'S CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE PROP. SANITARY SEWERS AND WHERE PROP. STORM PIPING WILL CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE PROJECT DEVELOPER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED SANITARY SEWERS, STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
5. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY PROVIDER AND GOVERNING AUTHORITY STAFF REVIEW.
6. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY PROVIDERS AND GOVERNING AUTHORITY STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COORDINATION WITH THE RESPECTIVE UTILITY PROVIDER.
7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY PROVIDERS FOR SERVICE INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL CONDITIONS OF THE CONTRACT.
8. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT. AFTER UTILITY INSTALLATION IS COMPLETED, THE CONTRACTOR SHALL INSTALL TEMPORARY AND/OR PERMANENT PAVEMENT REPAIR AS DETAILED ON THE DRAWINGS OR AS REQUIRED BY THE TOWN OF ENFIELD.
9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
10. RELOCATION OF UTILITY PROVIDER FACILITIES, SUCH AS POLES, SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY PROVIDER.
11. THE CONTRACTOR SHALL COMPACT PIPE BACKFILL IN 8" LIFTS ACCORDING TO THE PIPE BEDDING DETAILS. TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE USED PER THE TRENCH DETAILS AND IN AREAS OF ROCK EXCAVATION.
12. CONTRACTOR TO PROVIDE STEEL SLEEVES AND ANNULAR SPACE SAND FILL FOR UTILITY PIPE AND CONDUIT CONNECTIONS UNDER FOOTINGS.
13. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE UTILITY PROVIDER REQUIREMENTS.
14. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM PIPING SHALL BE PROVIDED. A SIX-INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN STORM PIPING AND SANITARY SEWER. A 6-INCH TO 18-INCH VERTICAL CLEARANCE BETWEEN SANITARY SEWER PIPING AND STORM PIPING SHALL REQUIRE CONCRETE ENCASEMENT OF THE PROP. SANITARY PIPING.
15. THE CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, DRAINAGE STRUCTURE, SWALE OR LANDSCAPED AREAS DISTURBED DURING CONSTRUCTION, TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE PROJECT DEVELOPER AND THE TOWN OF ENFIELD.
16. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY, AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE INCLUDING SERVICES. CONTACT 'CALL BEFORE YOU DIG' AT 811 72 HOURS PRIOR TO CONSTRUCTION AND VERIFY ALL UNDERGROUND AND OVERHEAD UTILITY AND STORM DRAINAGE LOCATIONS. THE CONTRACTOR SHALL EMPLOY THE USE OF A UTILITY LOCATING COMPANY TO PROVIDE SUBSURFACE UTILITY ENGINEERING CONSISTING OF DESIGNATING UTILITIES AND STORM PIPING ON PRIVATE PROPERTY WITHIN THE CONTRACT LIMIT AND CONSISTING OF DESIGNATING AND LOCATING WHERE PROP. UTILITIES AND STORM PIPING CROSS EXISTING UTILITIES AND STORM PIPING WITHIN THE CONTRACT LIMITS.
17. THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY PROVIDERS FOR WORK TO BE PERFORMED BY UTILITY PROVIDERS. THE CONTRACTOR SHALL PAY ALL UTILITY FEES UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATION MANUAL AND GENERAL CONDITIONS, AND REPAIR PAVEMENTS AS NECESSARY.
18. ELECTRIC DRAWINGS AND REQUIREMENTS ARE NOT INCLUDED AS PART OF THIS DRAWING SET AND SHOULD BE OBTAINED FROM THE PROJECT DEVELOPER.
19. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.
20. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE PROJECT DEVELOPER, TOWN OF ENFIELD, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.

GENERAL LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
BUILDING SETBACK		
EASEMENT		
TREE LINE		
WETLAND		
WETLAND BUFFER		
VERNAL POOL		
VERNAL POOL BUFFER		
WATERCOURSE		
WATERCOURSE BUFFER		
LIMIT OF PLOWED AREA		
MAJOR CONTOUR		
MINOR CONTOUR		
UNDERGROUND ELECTRIC		E E
OVERHEAD ELECTRIC	OHW	OH OH
BASIN		
FENCE		X X X
LIMIT OF DISTURBANCE		LOD
SILT FENCE		SF SF

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DESIGN PROFESSIONAL OF RECORD

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COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

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SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

STATE OF CONNECTICUT ROBERT C. BURNS No. 20071 LICENSED PROFESSIONAL ENGINEER

ENVIRONMENTAL NOTES
RESOURCE PROTECTION MEASURES

VERNAL POOL PROTECTION PROGRAM

AS A RESULT OF THE FACILITY'S LOCATION IN THE VICINITY OF SENSITIVE VERNAL POOL AND WETLAND HABITAT, THE FOLLOWING PROTECTION PROGRAM SHALL BE IMPLEMENTED BY THE CONTRACTOR TO AVOID UNINTENTIONAL IMPACTS TO PROXIMATE WETLAND RESOURCES OR MORTALITY TO VERNAL POOL HERPETOFAUNA (I.E., WOOD FROG, SALAMANDERS, TURTLES, ETC.) DURING CONSTRUCTION ACTIVITIES. IN ADDITION, THIS PROTECTION PLAN WILL ADEQUATELY PROTECT ANY POTENTIAL BLUE-SPOTTED SALAMANDER "COMPLEX" (*AMBYSTOMA LATERALE*) POPULATIONS, A STATE-LISTED SPECIAL CONCERN SPECIES THAT UTILIZES VERNAL POOL HABITAT AND IS AFFORDED PROTECTION UNDER THE CONNECTICUT ENDANGERED SPECIES ACT.

THESE PROTECTION MEASURES SATISFY REQUIREMENTS FROM THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION ("DEEP") WILDLIFE DIVISION IN ACCORDANCE WITH THEIR NATURAL DIVERSITY DATA BASE ("NDDB") DETERMINATION LETTER (NO. 202107713) DATED JUNE 18, 2021 FOR THE PROTECTION OF BLUE-SPOTTED SALAMANDER "COMPLEX". THE NDDB DETERMINATION IS VALID UNTIL JUNE 18, 2023 PROVIDED THE SCOPE OF THE PROJECT HAS NOT CHANGED AND WORK HAS BEGUN ON THE PROJECT PRIOR TO THE EXPIRATION DATE.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLIES WITH THE REQUIREMENT FOR THE INSTALLATION OF PROTECTIVE MEASURES AND THE EDUCATION OF ITS EMPLOYEES AND SUBCONTRACTORS PERFORMING WORK ON THE PROJECT SITE. ALL-POINTS TECHNOLOGY CORPORATION, P.C. ("APT") WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT THESE PROTECTION MEASURES ARE IMPLEMENTED PROPERLY AND WILL PROVIDE AN EDUCATION SESSION ON THE PROJECT'S PROXIMITY TO SENSITIVE WETLAND RESOURCES AND ASSOCIATED VERNAL POOL HERPETOFAUNA PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONTACT DEAN GUSTAFSON, SENIOR BIOLOGIST AT APT, AT LEAST 5 BUSINESS DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. MR. GUSTAFSON CAN BE REACHED BY PHONE AT (860) 552-2033 OR VIA EMAIL AT DGUSTAFSON@ALLPOINTSTECH.COM.

THIS RESOURCES PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS INCLUDING: EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; INSTALLATION OF EROSION CONTROLS; PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION; PROTECTIVE MEASURES; HERBICIDE AND PESTICIDE RESTRICTIONS; AND, REPORTING.

1. CONTRACTOR EDUCATION:

   a. PRIOR TO WORK ON SITE AND INITIAL DEPLOYMENT/MOBILIZATION OF EQUIPMENT AND MATERIALS, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH APT. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF INFORMATION SUCH AS, BUT NOT LIMITED TO: IDENTIFICATION OF VERNAL POOL AND WETLAND RESOURCES PROXIMATE TO WORK AREAS, REPRESENTATIVE PHOTOGRAPHS OF TYPICAL HERPETOFAUNA THAT MAY BE ENCOUNTERED, CONNECTICUT AND FEDERAL LISTING STATUS OF SPECIES THAT COULD BE ENCOUNTERED, TYPICAL SPECIES BEHAVIOR, AND PROPER PROCEDURES IF SPECIES ARE ENCOUNTERED. THE MEETING WILL FURTHER EMPHASIZE THE NON-AGGRESSIVE NATURE OF THESE SPECIES, THE ABSENCE OF NEED TO DESTROY SUCH ANIMALS AND THE NEED TO FOLLOW PROTECTIVE MEASURES AS DESCRIBED IN FOLLOWING SECTIONS. THE CONTRACTOR WILL DESIGNATE ONE OF ITS WORKERS AS THE "PROJECT MONITOR", WHO WILL RECEIVE MORE INTENSE TRAINING ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA.

   b. THE CONTRACTOR WILL DESIGNATE A MEMBER OF ITS CREW AS THE PROJECT MONITOR TO BE RESPONSIBLE FOR THE PERIODIC "SWEEPS" FOR HERPETOFAUNA WITHIN THE CONSTRUCTION ZONE EACH MORNING AND FOR ANY GROUND DISTURBANCE WORK. THIS INDIVIDUAL WILL RECEIVE MORE INTENSE TRAINING FROM APT ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA IN ORDER TO PERFORM SWEEPS. ANY HERPETOFAUNA DISCOVERED WOULD BE TRANSLOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

   c. THE CONTRACTOR'S PROJECT MONITOR WILL BE PROVIDED WITH CELL PHONE AND EMAIL CONTACTS FOR APT PERSONNEL TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH HERPETOFAUNA. EDUCATIONAL POSTER MATERIALS WILL BE PROVIDED BY APT AND DISPLAYED ON THE JOB SITE TO MAINTAIN WORKER AWARENESS AS THE PROJECT PROGRESSES.

   d. APT WILL ALSO POST CAUTION SIGNS THROUGHOUT THE PROJECT SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT PROVIDING NOTICE OF THE ENVIRONMENTALLY SENSITIVE NATURE OF THE WORK AREA, THE POTENTIAL FOR ENCOUNTERING VARIOUS AMPHIBIANS AND REPTILES AND PRECAUTIONS TO BE TAKEN TO AVOID INJURY TO OR MORTALITY OF THESE ANIMALS.

2. EROSION AND SEDIMENTATION CONTROLS

   a. PLASTIC NETTING USED IN A VARIETY OF EROSION CONTROL PRODUCTS (I.E., EROSION CONTROL BLANKETS, FIBER ROLLS [WATTLES], REINFORCED SILT FENCE) HAS BEEN FOUND TO ENTANGLE WILDLIFE, INCLUDING REPTILES, AMPHIBIANS, BIRDS AND SMALL MAMMALS. NO PERMANENT EROSION CONTROL PRODUCTS OR REINFORCED SILT FENCE WILL BE USED ON THE PROJECT. TEMPORARY EROSION CONTROL PRODUCTS THAT WILL BE EXPOSED AT THE GROUND SURFACE AND REPRESENT A POTENTIAL FOR WILDLIFE ENTANGLEMENT WILL USE EITHER EROSION CONTROL BLANKETS AND FIBER ROLLS COMPOSED OF PROCESSED FIBERS MECHANICALLY BOUND TOGETHER TO FORM A CONTINUOUS MATRIX (NETLESS) OR NETTING COMPOSED OF PLANAR WOVEN NATURAL BIODEGRADABLE FIBER TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.

   b. THE EXTENT OF EROSION CONTROLS WILL BE AS SHOWN ON THE SITE PLANS. THE CONTRACTOR SHALL HAVE ADDITIONAL SEDIMENTATION AND EROSION CONTROLS STOCKPILED ON SITE SHOULD FIELD OR CONSTRUCTION CONDITIONS WARRANT EXTENDING DEVICES. IN ADDITION TO THE CONTRACTOR MAKING THESE DETERMINATIONS, REQUESTS FOR ADDITIONAL CONTROLS WILL ALSO BE AT THE DISCRETION OF THE ENVIRONMENTAL MONITOR.

   c. INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS, REQUIRED FOR EROSION CONTROL COMPLIANCE AND CREATION OF A BARRIER TOO POSSIBLE MIGRATING/DISPERSING HERPETOFAUNA (ONLY APPLICABLE DURING THE SEASONAL RESTRICTION PERIOD AND WILL BE INSTALLED AT THE DISCRETION OF THE ENVIRONMENTAL MONITOR), SHALL BE PERFORMED BY THE CONTRACTOR IF ANY SOIL DISTURBANCE OCCURS OR HEAVY MACHINERY IS ANTICIPATED TO BE USED ON SLOPES. THE ENVIRONMENTAL MONITOR WILL INSPECT THE WORK ZONE AREA PRIOR TO AND FOLLOWING EROSION CONTROL BARRIER INSTALLATION. IN ADDITION, WORK ZONES IN PROXIMITY TO VERNAL POOL RESOURCES WILL BE INSPECTED PRIOR TO AND FOLLOWING EROSION CONTROL BARRIER INSTALLATION TO ENSURE THE AREA IS FREE OF HERPETOFAUNA AND SATISFACTORILY INSTALLED. THE INTENT OF THE BARRIER IS TO SEGREGATE THE MAJORITY OF THE WORK ZONE FROM MIGRATING/DISPERSING HERPETOFAUNA. OFTENTIMES COMPLETE ISOLATION OF A WORK ZONE IS NOT FEASIBLE DUE TO ACCESSIBILITY NEEDS AND LOCATIONS OF STAGING/MATERIAL STORAGE AREAS, ETC. IN THOSE CIRCUMSTANCES, THE BARRIERS WILL BE POSITIONED TO DEFLECT MIGRATING/DISPERSAL ROUTES AWAY FROM THE WORK ZONE TO MINIMIZE POTENTIAL ENCOUNTERS WITH HERPETOFAUNA AT THE DISCRETION OF THE ENVIRONMENTAL MONITOR.

   d. NO EQUIPMENT, VEHICLES, CONSTRUCTION MATERIALS, OR STAGING AREAS SHALL BE STORED/LOCATED WITHIN 100 FEET OF WETLAND RESOURCES.

   e. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS, INCLUDING BUT NOT LIMITED TO FOR TEARS OR BREECHES AND ACCUMULATION LEVELS OF SEDIMENT, PARTICULARLY FOLLOWING STORM EVENTS THAT GENERATE A DISCHARGE AS DEFINED BY AND IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR SHALL NOTIFY THE ENVIRONMENTAL MONITOR WITHIN 24 HOURS OF ANY BREECHES OF THE SEDIMENTATION AND EROSION CONTROLS AND ANY SEDIMENT RELEASES BEYOND THE PERIMETER CONTROLS THAT IMPACT WETLANDS, WATERCOURSES OR WITHIN 100 FEET OF WETLANDS AND WATERCOURSES. THE ENVIRONMENTAL MONITOR WILL PROVIDE PERIODIC INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES ONLY AS IT PERTAINS TO PROTECTION OF NEARBY WETLANDS, WHICH WILL GENERALLY OCCUR ON A MONTHLY BASIS. IF APT IS NOTIFIED BY THE CONTRACTOR OF A SEDIMENT RELEASE, AN INSPECTION WILL BE SCHEDULED SPECIFICALLY TO INVESTIGATE AND EVALUATE POSSIBLE IMPACTS TO WETLAND RESOURCES.

   f. ALL SILT FENCING OR OTHER POTENTIAL BARRIERS TO SAFE HERPETOFAUNA MIGRATION SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS SO THAT REPTILE AND AMPHIBIAN MOVEMENT BETWEEN UPLANDS AND WETLANDS IS NOT RESTRICTED. IF FIBER ROLLS/WATTLES, STRAW BALES, OR OTHER NATURAL MATERIAL EROSION CONTROL PRODUCTS ARE USED, SUCH DEVICES WILL NOT BE LEFT IN PLACE TO BIODEGRADE AND SHALL BE PROMPTLY REMOVED AFTER SOILS ARE STABLE SO AS NOT TO CREATE A BARRIER TO MIGRATING WILDLIFE. SEED FROM SEEDING OF SOILS SHOULD NOT SPREAD OVER FIBER ROLLS/WATTLES AS IT MAKES THEM HARDER TO REMOVE ONCE SOILS ARE STABILIZED BY VEGETATION.

3. PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION

   a. CERTAIN PRECAUTIONS ARE NECESSARY TO STORE PETROLEUM MATERIALS, REFUEL AND CONTAIN AND PROPERLY CLEAN UP ANY INADVERTENT FUEL OR PETROLEUM (I.E., OIL, HYDRAULIC FLUID, ETC.) SPILL DUE TO THE PROJECT'S LOCATION IN PROXIMITY TO WETLAND RESOURCES.

   b. A SPILL CONTAINMENT KIT CONSISTING OF A SUFFICIENT SUPPLY OF ABSORBENT PADS AND ABSORBENT MATERIAL WILL BE MAINTAINED BY THE CONTRACTOR AT THE CONSTRUCTION SITE THROUGHOUT THE DURATION OF THE PROJECT. IN ADDITION, A WASTE DRUM WILL BE KEPT ON SITE TO CONTAIN ANY USED ABSORBENT PADS/MATERIAL FOR PROPER AND TIMELY DISPOSAL OFF SITE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL LAWS.

   c. THE FOLLOWING PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING RESTRICTIONS AND SPILL RESPONSE PROCEDURES WILL BE ADHERED TO BY THE CONTRACTOR.

   i. PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING

1. REFUELING OF VEHICLES OR MACHINERY SHALL OCCUR A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES AND SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
2. ANY FUEL OR HAZARDOUS MATERIALS THAT MUST BE KEPT ON SITE SHALL BE STORED ON AN IMPERVIOUS SURFACE UTILIZING SECONDARY CONTAINMENT A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES.

   ii. INITIAL SPILL RESPONSE PROCEDURES

1. STOP OPERATIONS AND SHUT OFF EQUIPMENT.
2. REMOVE ANY SOURCES OF SPARK OR FLAME.
3. CONTAIN THE SOURCE OF THE SPILL.
4. DETERMINE THE APPROXIMATE VOLUME OF THE SPILL.
5. IDENTIFY THE LOCATION OF NATURAL FLOW PATHS TO PREVENT THE RELEASE OF THE SPILL TO SENSITIVE NEARBY WATERWAYS OR WETLANDS.
6. ENSURE THAT FELLOW WORKERS ARE NOTIFIED OF THE SPILL.

   iii. SPILL CLEAN UP & CONTAINMENT

1. OBTAIN SPILL RESPONSE MATERIALS FROM THE ON-SITE SPILL RESPONSE KIT. PLACE ABSORBENT MATERIALS DIRECTLY ON THE RELEASE AREA.
2. LIMIT THE SPREAD OF THE SPILL BY PLACING ABSORBENT MATERIALS AROUND THE PERIMETER OF THE SPILL.
3. ISOLATE AND ELIMINATE THE SPILL SOURCE.
4. CONTACT THE APPROPRIATE LOCAL, STATE AND/OR FEDERAL AGENCIES, AS NECESSARY.
5. CONTACT A DISPOSAL COMPANY TO PROPERLY DISPOSE OF CONTAMINATED MATERIALS.

   iv. REPORTING

1. COMPLETE AN INCIDENT REPORT.
2. SUBMIT A COMPLETED INCIDENT REPORT TO LOCAL, STATE AND FEDERAL AGENCIES, AS NECESSARY, INCLUDING THE CONNECTICUT SITING COUNCIL.

4. VERNAL POOL AND WETLAND PROTECTIVE MEASURES

   a. A THOROUGH COVER SEARCH OF THE CONSTRUCTION AREA WILL BE PERFORMED BY APT'S ENVIRONMENTAL MONITOR FOR HERPETOFAUNA PRIOR TO AND FOLLOWING INSTALLATION OF THE SILT FENCING BARRIER TO REMOVE ANY SPECIES FROM THE WORK ZONE PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES. ANY HERPETOFAUNA DISCOVERED WOULD BE TRANSLOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED. PERIODIC INSPECTIONS WILL BE PERFORMED BY APT'S ENVIRONMENTAL MONITOR THROUGHOUT THE DURATION OF THE CONSTRUCTION.

   b. ANY STORMWATER MANAGEMENT FEATURES, RUTS OR ARTIFICIAL DEPRESSIONS THAT COULD HOLD WATER CREATED INTENTIONALLY OR UNINTENTIONALLY BY SITE CLEARING/CONSTRUCTION ACTIVITIES LOCATED WITHIN 750 FEET OF VERNAL POOL HABITAT (ALSO KNOWN AS THE CRITICAL TERRESTRIAL HABITAT) WILL BE PROPERLY FILLED IN AND PERMANENTLY STABILIZED WITH VEGETATION TO AVOID THE CREATION OF VERNAL POOL "DECOY POOLS" THAT COULD INTERCEPT AMPHIBIANS MOVING TOWARD THE VERNAL POOLS. STORMWATER MANAGEMENT FEATURES SUCH AS LEVEL SPREADERS WILL BE CAREFULLY REVIEWED IN THE FIELD TO ENSURE THAT STANDING WATER DOES NOT ENDURE FOR MORE THAN A 24-HOUR PERIOD TO AVOID CREATION OF DECOY POOLS AND MAY BE SUBJECT TO FIELD DESIGN CHANGES. ANY SUCH PROPOSED DESIGN CHANGES WILL BE REVIEWED BY THE DESIGN ENGINEER TO ENSURE STORMWATER MANAGEMENT FUNCTIONS ARE MAINTAINED.

   c. EROSION CONTROL MEASURES WILL BE REMOVED NO LATER THAN 30 DAYS FOLLOWING FINAL SITE STABILIZATION SO AS NOT TO IMPEDE MIGRATION OF HERPETOFAUNA OR OTHER WILDLIFE.

5. HERBICIDE AND PESTICIDE RESTRICTIONS

   a. THE USE OF HERBICIDES AND PESTICIDES AT THE FACILITY SHALL BE AVOIDED WHEN POSSIBLE. IN THE EVENT HERBICIDES AND/OR PESTICIDES ARE REQUIRED AT THE FACILITY, THEIR USE WILL BE USED IN ACCORDANCE WITH CURRENT INTEGRATED PEST MANAGEMENT ("IPM") PRINCIPLES WITH PARTICULAR ATTENTION TO MINIMIZE APPLICATIONS WITHIN 100 FEET OF WETLAND OR WATERCOURSE RESOURCES. NO APPLICATIONS OF HERBICIDES OR PESTICIDES ARE ALLOWED WITHIN ACTUAL WETLAND OR WATERCOURSE RESOURCES.

6. REPORTING

   a. COMPLIANCE MONITORING REPORTS (BRIEF NARRATIVE AND APPLICABLE PHOTOS) DOCUMENTING EACH APT INSPECTION WILL BE SUBMITTED BY APT TO THE PERMITTEE AND ITS CONTRACTOR FOR COMPLIANCE VERIFICATION OF THESE PROTECTION MEASURES. THESE REPORTS ARE NOT TO BE USED TO DOCUMENT COMPLIANCE WITH ANY OTHER PERMIT AGENCY APPROVAL CONDITIONS (I.E., DEEP STORMWATER PERMIT MONITORING, ETC.). ANY NON-COMPLIANCE OBSERVATIONS OF EROSION CONTROL MEASURES OR EVIDENCE OF EROSION OR SEDIMENT RELEASE WILL BE IMMEDIATELY REPORTED TO THE PERMITTEE AND ITS CONTRACTOR AND INCLUDED IN THE REPORTS ALONG WITH ANY OBSERVATIONS OF VERNAL POOL HERPETOFAUNA.

   b. FOLLOWING COMPLETION OF THE CONSTRUCTION PROJECT, APT WILL PROVIDE A FINAL COMPLIANCE MONITORING REPORT TO THE PERMITTEE DOCUMENTING IMPLEMENTATION OF THE VERNAL POOL AND WETLAND PROTECTION PROGRAM AND MONITORING OBSERVATIONS. THE PERMITTEE IS RESPONSIBLE FOR PROVIDING A COPY OF THE FINAL COMPLIANCE MONITORING REPORT TO THE CONNECTICUT SITING COUNCIL FOR COMPLIANCE VERIFICATION.

   c. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO CTDEEP BY APT, WITH PHOTO-DOCUMENTATION (IF POSSIBLE) AND WITH SPECIFIC INFORMATION ON THE LOCATION AND DISPOSITION OF THE ANIMAL.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	02/04/22	DRAFT SET FOR REVIEW: RCB
1	03/16/22	FOR PERMIT: RCB
2	04/11/22	FOR PERMIT: RCB
3	02/13/23	REVISED LAYOUT: RCB
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET, ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22
CHECKED BY: RCB

SHEET TITLE:
ENVIRONMENTAL NOTES RESOURCE PROTECTION MEASURES

SHEET NUMBER:
GN-2

STATE OF CONNECTICUT — ROBERT CHARLES BURNS — No. 20071 — LICENSED PROFESSIONAL ENGINEER

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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DATE: 02/04/22

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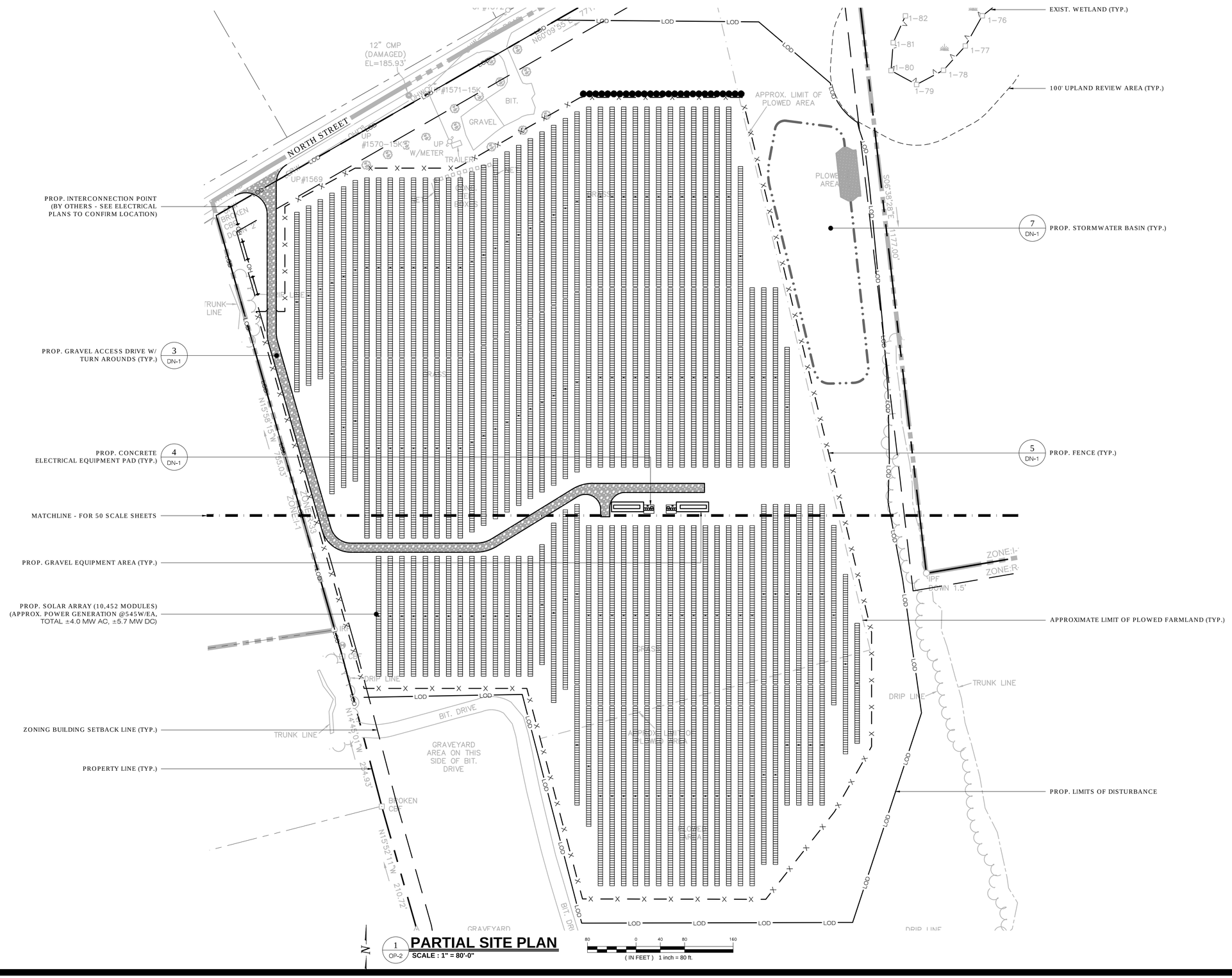
SHEET TITLE:

OVERALL LOCUS MAP

SHEET NUMBER:

OP-1

STATE OF CONNECTICUT ROBERT CHARLES BURNS NO. 20071 LICENSED PROFESSIONAL ENGINEER



1 OP-2 **PARTIAL SITE PLAN**
SCALE : 1" = 80'-0"

80 0 40 80 160
(IN FEET) 1 inch = 80 ft.

N

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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SHEET TITLE:
PARTIAL SITE PLAN

SHEET NUMBER:
OP-2

STATE OF CONNECTICUT ROBERT C. BURNS No. 20071 LICENSED PROFESSIONAL ENGINEER

EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE TOWN OF ENFIELD, PERMITTEE, AND/OR SWPCP MONITOR. ALL PERIMETER SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. THESE DRAWINGS ARE ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL MEASURES FOR THIS SITE. SEE CONSTRUCTION SEQUENCE FOR ADDITIONAL INFORMATION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN ARE SHOWN AS REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EROSION CONTROL MEASURES ARE CONFIGURED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION OF SOILS AND PREVENT THE TRANSPORT OF SEDIMENTS AND OTHER POLLUTANTS TO STORM DRAINAGE SYSTEMS AND/OR WATERCOURSES. ACTUAL SITE CONDITIONS OR SEASONAL AND CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS, AS REQUIRED, AND AS DIRECTED BY THE PERMITTEE AND/OR SWPCP MONITOR. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

3. A BOND OR LETTER OF CREDIT MAY BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL APPLY THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN IN CONJUNCTION WITH CONSTRUCTION SEQUENCING, SUCH THAT ALL ACTIVE WORK ZONES ARE PROTECTED. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPAL OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CONSTRUCTION SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR INSTALLED SEDIMENTATION AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS WEEKLY AND WITHIN 24 HOURS OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS AS NECESSARY IN A TIMELY MANNER.

6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, COMPOST FILTER SOCK, EROSION CONTROL BLANKET, ETC.) ON-SITE FOR PERIODIC MAINTENANCE AND EMERGENCY REPAIRS.

7. ALL FILL MATERIAL PLACED ADJACENT TO ANY WETLAND AREA SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING, ORANGE SAFETY FENCE, CONSTRUCTION TAPE, OR EQUIVALENT FENCING/TAPE. ANY LIMB TRIMMING SHOULD BE DONE AFTER CONSULTATION WITH AN ARBORIST AND BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. CONSTRUCTION ENTRANCES (ANTI-TRACKING PADS) SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF ALL CONSTRUCTION IF REQUIRED. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED. CONTRACTOR SHALL ENSURE THAT ALL VEHICLES EXITING THE SITE ARE PASSING OVER THE ANTI-TRACKING PADS PRIOR TO EXISTING.

10. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SEDIMENT BARRIER UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE BARRIER.

11. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS. ALL SLOPES SHALL BE SEEDED AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

12. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE CONFORMING TO THE GUIDELINES WITHIN THE APPROVED LIMIT OF DISTURBANCE IF REQUIRED. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE PERMITTEE OR MUNICIPALITY.

13. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ON-SITE AT ALL TIMES AND SECURED APPROPRIATELY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE/CONTAINMENT.

14. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

15. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAYS DAMP. CALCIUM CHLORIDE MAY ALSO BE APPLIED TO ACCESS ROADS. DUMP TRUCK LOADS EXITING THE SITE SHALL BE COVERED.

16. VEGETATIVE ESTABLISHMENT SHALL OCCUR ON ALL DISTURBED SOIL, UNLESS THE AREA IS UNDER ACTIVE CONSTRUCTION, IT IS COVERED IN STONE OR SCHEDULED FOR PAVING WITHIN 30 DAYS. TEMPORARY SEEDING OR NON-LIVING SOIL PROTECTION OF ALL EXPOSED SOILS AND SLOPES SHALL BE INITIATED WITHIN THE FIRST 7 DAYS OF SUSPENDING WORK IN AREAS TO BE LEFT LONGER THAN 30 DAYS.

17. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP CONCRETE PADS, CLEAN THE STORMWATER MANAGEMENT SYSTEMS AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS ONCE THE SITE IS FULLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM PERMITTEE OR THE MUNICIPALITY.

18. SEEDING MIXTURES SHALL BE FUZZ & BUZZ MIX - PREMIUM - ERNMX-147, OR APPROVED EQUAL. NEW ENGLAND EROSION CONTROL/ RESTORATION MIX FOR DETENTION BASINS & MOIST SITES, OR APPROVED EQUAL, SHALL BE UTILIZED ON THE BOTTOM OF THE BASIN & FUZZ & BUZZ MIX - PREMIUM - ERNMX-147, OR APPROVED EQUAL, ON THE SIDE SLOPES OF THE BASIN. SEE SHEET DN-2 FOR ALL SEED MIXTURES.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN - BY CONTRACTOR

E&S MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
CONSTRUCTION ENTRANCE	DAILY	PLACE ADDITIONAL STONE, EXTEND THE LENGTH OR REMOVE AND REPLACE THE STONE. CLEAN PAVED SURFACES OF TRACKED SEDIMENT.
SILT FENCE	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.
TEMPORARY SEDIMENT BASIN	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SEDIMENT TRAP	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SOIL PROTECTION	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR ERODED OR BARE AREAS IMMEDIATELY. RESEED AND MULCH.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INVOLVES THE CONSTRUCTION OF A GROUND MOUNTED SOLAR PANEL FACILITY WITH ASSOCIATED EQUIPMENT, INCLUDING GRADING OF APPROXIMATELY 28.40± ACRES OF EXISTING LOT.

THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:

A. CLEARING, GRUBBING, AND GRADING OF EXISTING LOT.
B. CONSTRUCTION OF 10,452 GROUND MOUNTED SOLAR PANELS AND ASSOCIATED EQUIPMENT.
B. THE STABILIZATION OF DISTURBED AREAS WITH PERMANENT VEGETATIVE TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 28.40± ACRES OF THE SITE BEING DISTURBED WITH NEGLIGIBLE INCREASE IN THE IMPERVIOUS AREA OF THE SITE, AS ALL ACCESS THOUGH THE SITE WILL BE GRAVEL. IMPERVIOUS AREAS ARE LIMITED TO THE CONCRETE PADS FOR ELECTRICAL EQUIPMENT & GRAVEL ACCESS DRIVE.

3. THE PROJECT SITE, AS MAPPED IN THE SOIL SURVEY OF STATE OF CONNECTICUT (NRCS, VERSION 18, DEC 6, 2018), CONTAINS TYPE 29A (HYDROLOGIC SOIL GROUP B) AND 701A (HYDROLOGIC SOIL GROUP C). A GEOTECHNICAL ENGINEERING REPORT IS AVAILABLE UNDER SEPARATE COVER.

4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 4-6 MONTHS.

5. REFER TO THE CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION NOTES FOR INFORMATION REGARDING SEQUENCING OF MAJOR OPERATIONS IN THE ON-SITE CONSTRUCTION PHASES.

6. STORMWATER MANAGEMENT DESIGN CRITERIA UTILIZES THE APPLICABLE SECTIONS OF THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL AND THE TOWN OF ENFIELD STANDARDS, TO THE EXTENT POSSIBLE AND PRACTICABLE FOR THIS PROJECT ON THIS SITE. EROSION AND SEDIMENTATION MEASURES ARE BASED UPON ENGINEERING PRACTICE, JUDGEMENT AND THE APPLICABLE SECTIONS OF THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, LATEST EDITION.

7. DETAILS FOR THE TYPICAL STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION MEASURES ARE SHOWN ON THE PLAN SHEETS OR PROVIDED AS SEPARATE SUPPORT DOCUMENTATION FOR REVIEW IN THIS PLAN.

8. CONSERVATION PRACTICES TO BE USED DURING CONSTRUCTION:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS TO THE EXTENT PRACTICABLE DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT MEASURES AS SOON AS POSSIBLE, BUT NO LATER THAN 7-DAYS FOLLOWING DISTURBANCE;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

9. THE FOLLOWING SEPARATE DOCUMENTS ARE TO BE CONSIDERED A PART OF THE EROSION AND SEDIMENTATION PLAN:
   A. STORMWATER MANAGEMENT REPORT DATED MARCH 2022, REVISED APRIL 2022 & MARCH 2023.
   B. SWPCP, TO BE ISSUED AT A LATER DATE.

SUGGESTED CONSTRUCTION SEQUENCE

THE FOLLOWING SUGGESTED SEQUENCE OF CONSTRUCTION ACTIVITIES IS PROJECTED BASED UPON ENGINEERING JUDGEMENT AND BEST MANAGEMENT PRACTICES. THE CONTRACTOR MAY ELECT TO ALTER THE SEQUENCING TO BEST MEET THE CONSTRUCTION SCHEDULE, THE EXISTING SITE ACTIVITIES AND WEATHER CONDITIONS. SHOULD THE CONTRACTOR ALTER THE CONSTRUCTION SEQUENCE OR ANY EROSION AND SEDIMENTATION CONTROL MEASURES THEY SHALL MODIFY THE STORMWATER POLLUTION CONTROL PLAN ("SWPCP") AS REQUIRED BY THE GENERAL PERMIT. MAJOR CHANGES IN SEQUENCING AND/OR METHODS MAY REQUIRE REGULATORY APPROVAL PRIOR TO IMPLEMENTATION.

1. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING. PHYSICALLY FLAG THE LIMITS OF DISTURBANCE IN THE FIELD AS NECESSARY TO FACILITATE THE PRE-CONSTRUCTION MEETING.

2. CONDUCT A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED WORK AND EROSION AND SEDIMENTATION CONTROL MEASURES. THE MEETING SHOULD BE ATTENDED BY THE OWNER, THE OWNER'S REPRESENTATIVE(S), THE GENERAL CONTRACTOR, DESIGNATED SUB-CONTRACTORS AND THE PERSON, OR PERSONS, RESPONSIBLE FOR THE IMPLEMENTATION, OPERATION, MONITORING AND MAINTENANCE OF THE EROSION AND SEDIMENTATION MEASURES. THE CONSTRUCTION PROCEDURES FOR THE ENTIRE PROJECT SHALL BE REVIEWED AT THIS MEETING.

3. NOTIFY CALL BEFORE YOU DIG AT 811, AS REQUIRED, PRIOR TO THE START OF CONSTRUCTION.

PHASE 1

4. REMOVE EXISTING IMPEDIMENTS AS NECESSARY AND PROVIDE MINIMAL DISTURBANCE TO INSTALL THE REQUIRED CONSTRUCTION ENTRANCE/S.

5. INSTALL PERIMETER EROSION CONTROL.

6. INSTALL TEMPORARY SEDIMENT TRAPS.

7. INSTALL ACCESS DRIVE.

8. INSTALL ELECTRICAL CONDUIT, RACKING POSTS FOR GROUND MOUNTED SOLAR PANELS & GROUND MOUNTED SOLAR PANELS AND COMPLETE ELECTRICAL INSTALLATION.

9. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.

PHASE 2

10. REMOVE TEMPORARY SEDIMENT TRAPS.

11. INSTALL STORMWATER BASIN B-1.

12. AFTER SUBSTANTIAL COMPLETION OF THE INSTALLATION OF THE SOLAR PANELS, COMPLETE REMAINING SITE WORK, INCLUDING ANY REQUIRED LANDSCAPE SCREENING, ACCESS DRIVE, CHAIN LINK FENCE, AND STABILIZE ALL DISTURBED AREAS.

13. FINE GRADE, RAKE, SEED AND MULCH ALL REMAINING DISTURBED AREAS.

14. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE PERMITTEE AND IF NECESSARY THE CONSERVATION AGENT, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

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DESIGN PROFESSIONAL OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

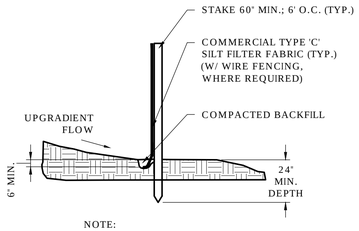
APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22
CHECKED BY: RCB

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL NOTES

SHEET NUMBER:
EC-1

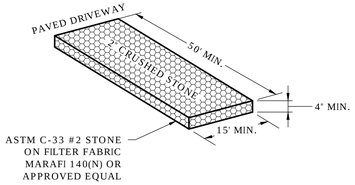
STATE OF CONNECTICUT ROBERT CHARLES BURNS 20071 LICENSED PROFESSIONAL ENGINEER



NOTE:
SILT FENCE SHALL BE LAPPED ONLY WHEN NECESSARY PER THE MANUFACTURER RECOMMENDATIONS.

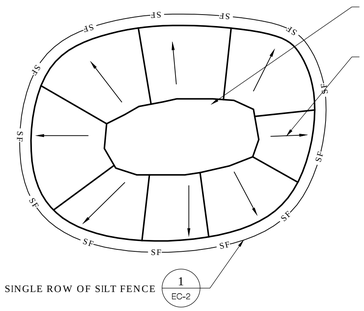
1 EC-2 SILT FENCE DETAIL

SCALE : N.T.S.



2 EC-2 CONSTRUCTION ENTRANCE DETAIL

SCALE : N.T.S.



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

3 EC-2 MATERIALS STOCKPILE DETAIL

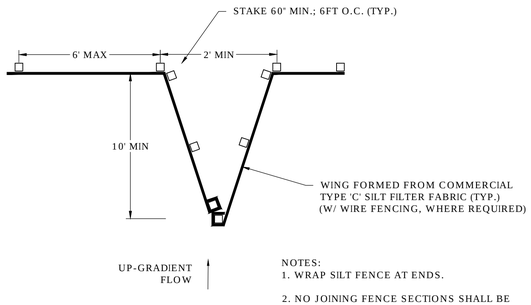
SCALE : N.T.S.

EROSION CONTROL BLANKET INSTALLATION

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6' DEEP X 6' WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS DOWN HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON THE RECPS TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPS WIDTH.

NOTES:

1. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
3. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
4. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

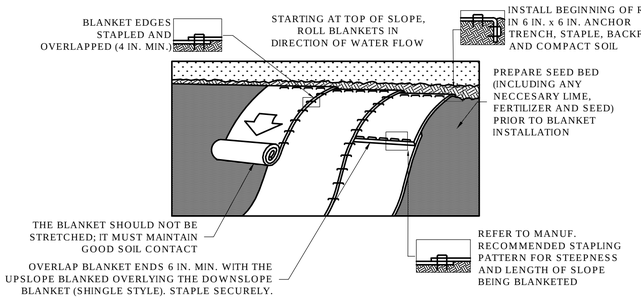


NOTES:
1. WRAP SILT FENCE AT ENDS.

2. NO JOINING FENCE SECTIONS SHALL BE INSTALLED WITHIN 30 FEET OF WING.

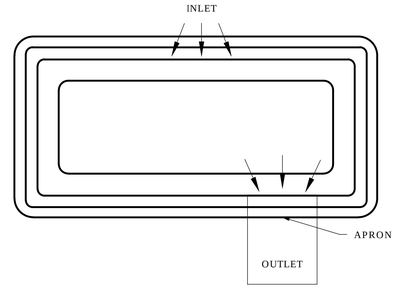
4 EC-2 SILT FENCE WING DETAIL

SCALE : N.T.S.

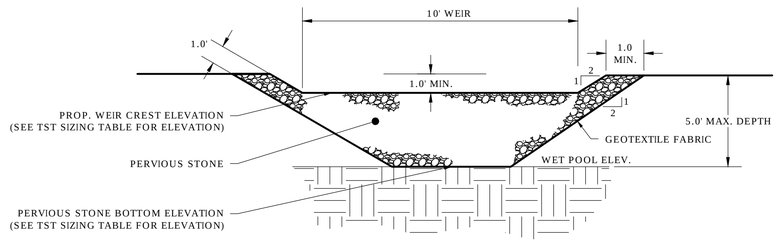


5 EC-2 EROSION CONTROL BLANKET STEEP SLOPES

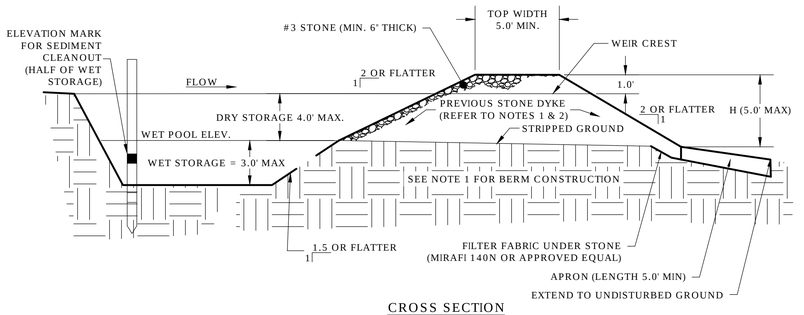
SCALE : N.T.S.



TOP VIEW



OUTLET ELEVATION



CROSS SECTION

NOTES:
1. CONSTRUCT TEMPORARY SEDIMENT TRAP BERMS AND SIDEWALLS PER THE INFILTRATION BASIN DETAIL.
2. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIP-RAP WITH #3 STONE ON FACE.
3. SEE TST SIZING TABLE FOR WET AND DRY STORAGE VOLUMES.

6 EC-2 TEMPORARY SEDIMENT TRAP

SCALE : N.T.S.

TEMPORARY SEDIMENT TRAP SIZING TABLE

NAME	DRAINAGE AREA (AC)	SEDIMENT VOLUME/ACRE AREA (CY)	REQ. VOLUME (CY)	REQ. WET VOLUME (CY)	PROP. BTM. ELEV. (FT)	PROP. STONE DIKE BTM. ELEV. (FT)	PROP. WEIR CREST ELEV. (FT)	PROP. TOP ELEV. (FT)	WET VOL. PROVIDED (CY)	TOTAL VOL. PROVIDED. (CY)
TST-1	4.87 AC	134 CY	653 CY	327 CY	177.0'	179.5'	180.0'	181.0'	424 CY	657 CY
TST-2	4.87 AC	134 CY	653 CY	327 CY	177.0'	179.5'	180.0'	181.0'	413 CY	675 CY
TST-3	4.40 AC	134 CY	590 CY	295 CY	179.0'	181.5'	182.0'	183.0'	386 CY	623 CY
TST-3	4.35 AC	134 CY	583 CY	292 CY	180.0'	182.5'	183.0'	184.0'	371 CY	592 CY

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APT FILING NUMBER: CT590230

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DATE: 02/04/22
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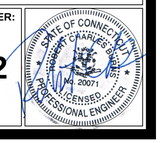
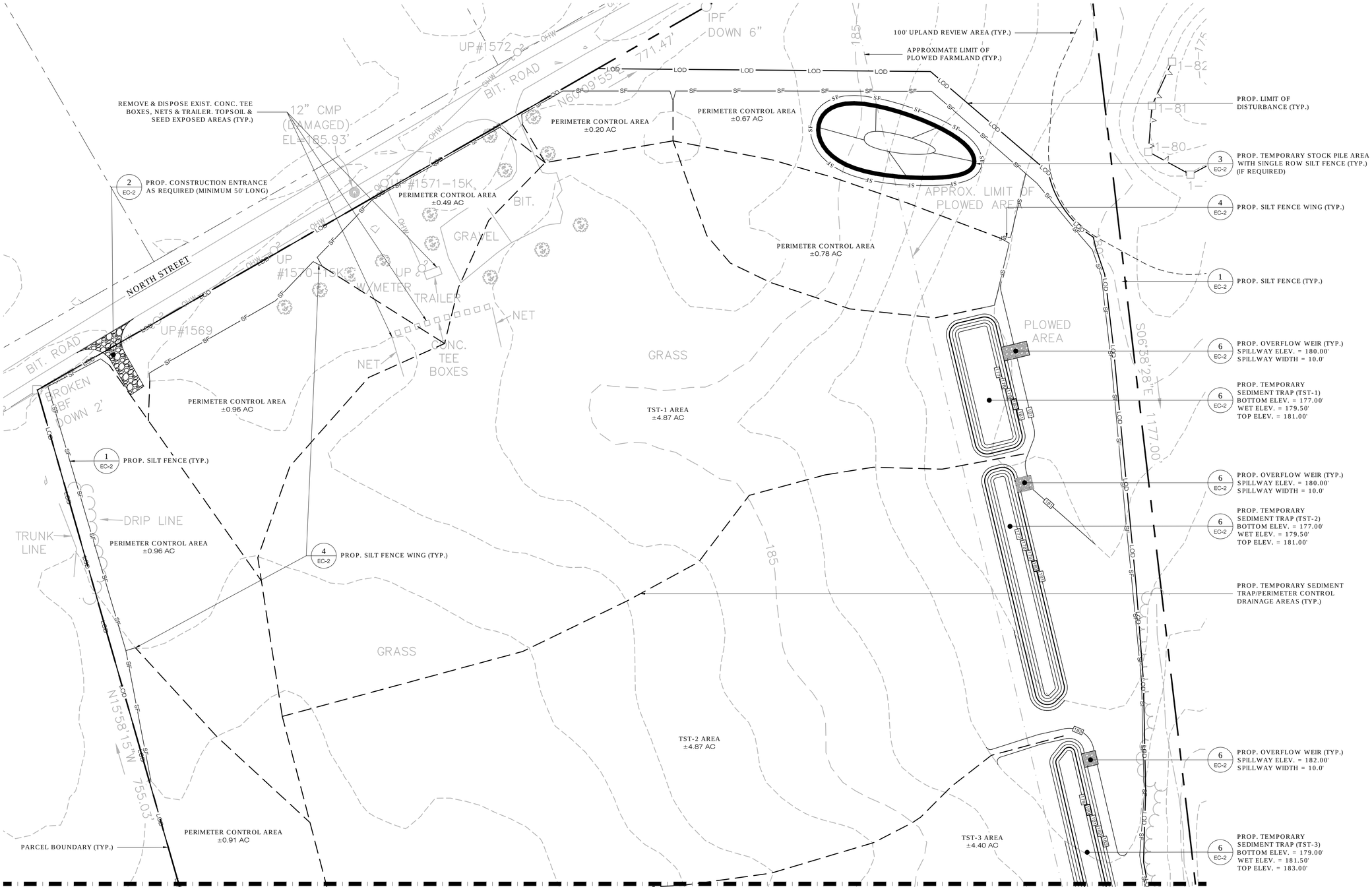
SHEET TITLE:
SEDIMENTATION & EROSION CONTROL DETAILS

SHEET NUMBER:
EC-2





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1 EC-3 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 50'-0"

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
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DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-3

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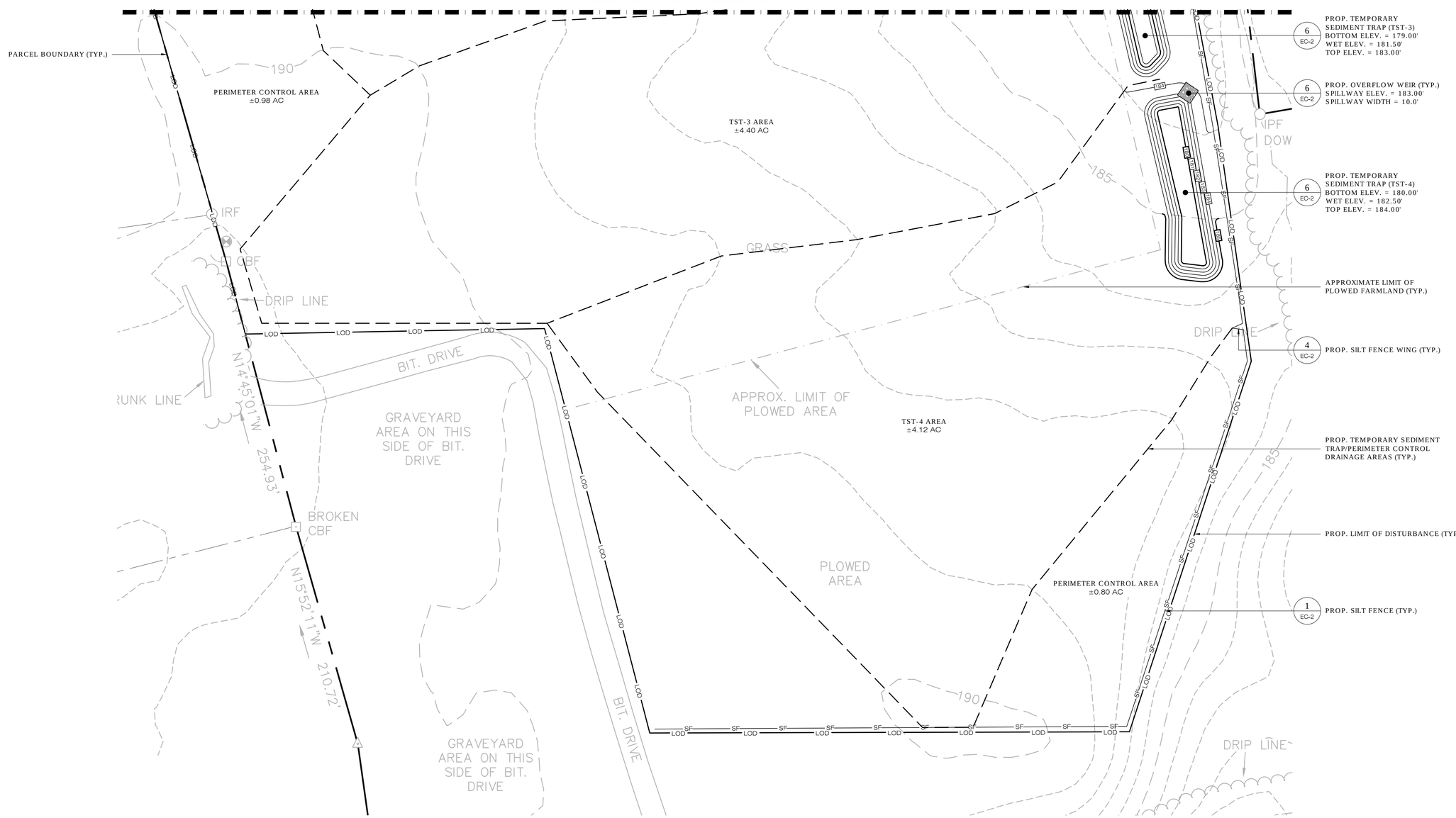

1 EC-4 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 50'-0"

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
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HARTFORD, CT, 06103

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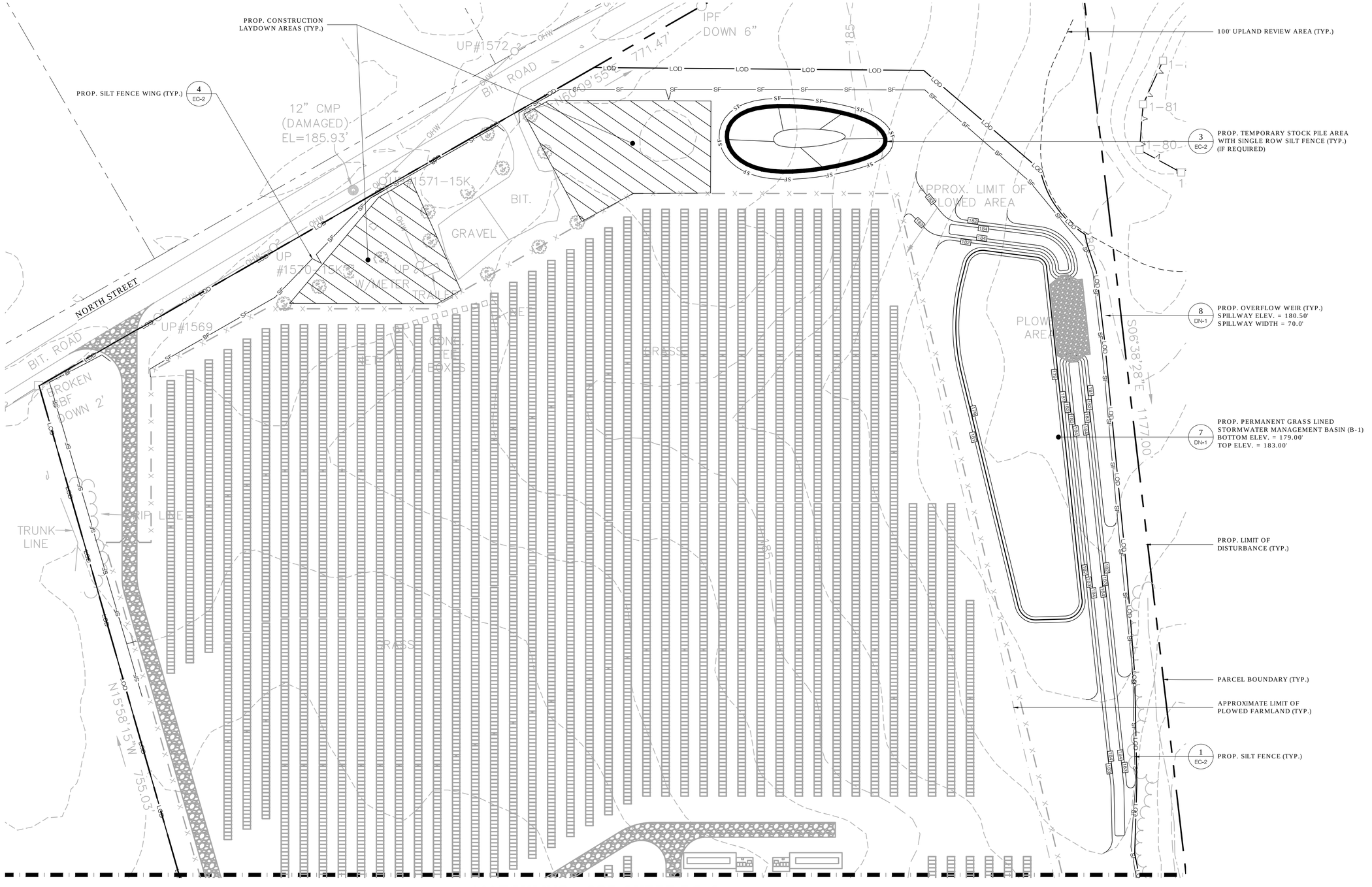
SHEET TITLE:
PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-4

STATE OF CONNECTICUT ROBERT CHARLES BURNS No. 20071 LICENSED PROFESSIONAL ENGINEER



MATCHLINE - SEE SHEET EC-6

1 EC-5 **PHASE 2 - SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1" = 50'-0"

50 0 25 50 100
(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
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HARTFORD, CT, 06103

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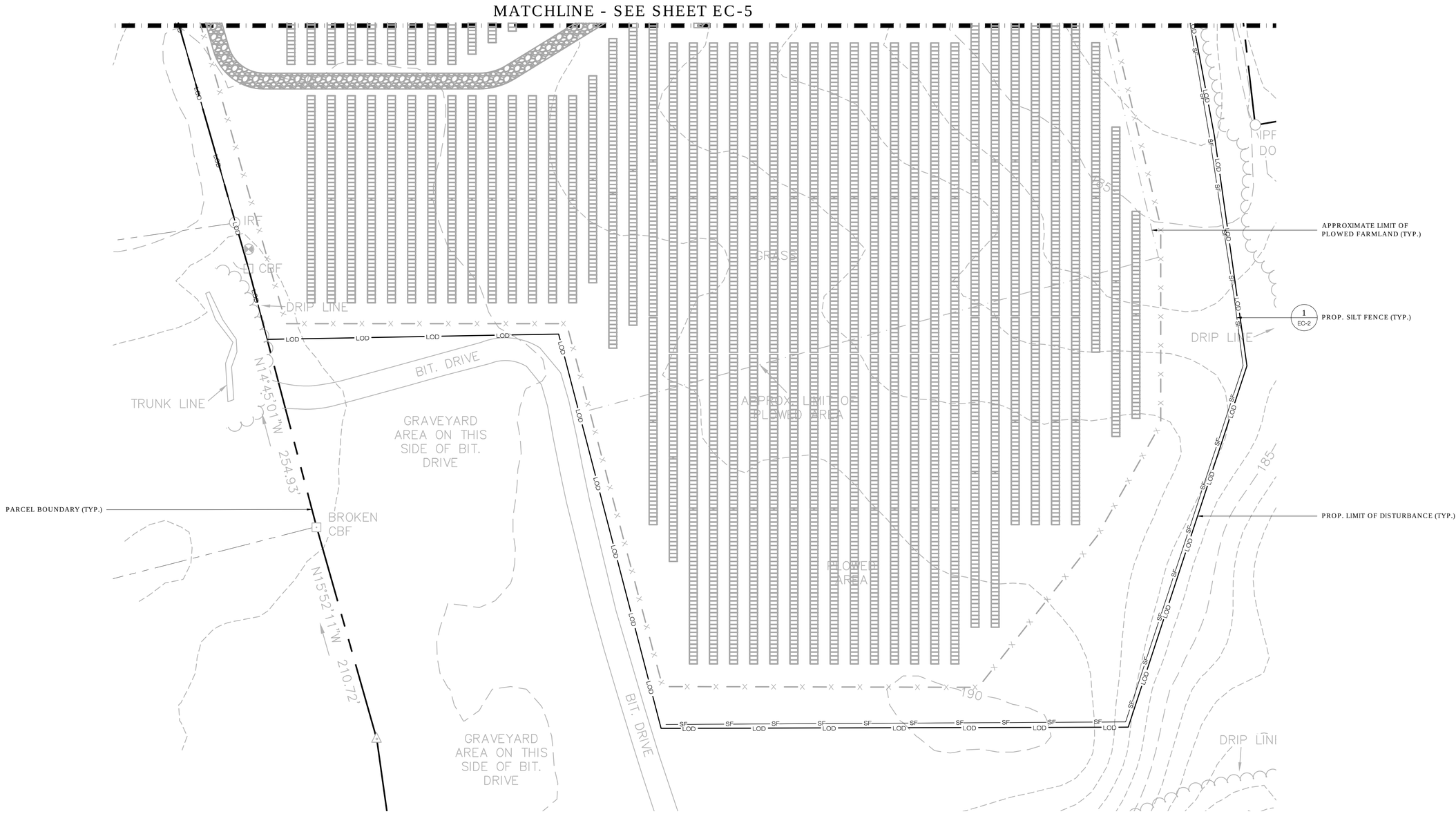
SHEET TITLE:
PHASE 2 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-5

STATE OF CONNECTICUT ROBERT C. BURNS 20071 LICENSED PROFESSIONAL ENGINEER



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1 EC-6 **PHASE 2 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 50'-0"

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

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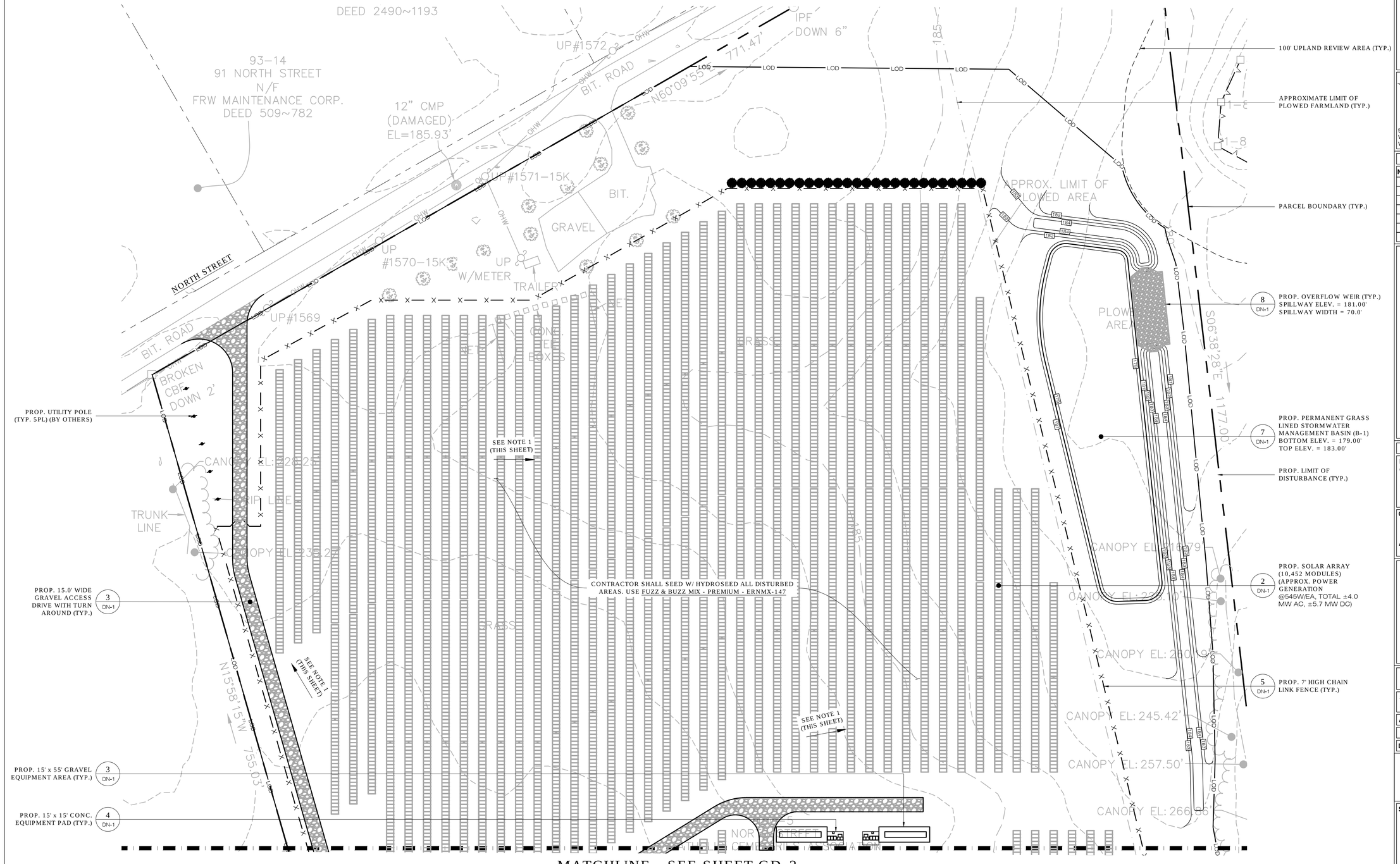
SHEET TITLE:
PHASE 2 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-6

STATE OF CONNECTICUT ROBERT C. BURNS 20071 LICENSED PROFESSIONAL ENGINEER



MATCHLINE - SEE SHEET GD-2

NOTES:
1. GRADE/SHAPE AREA AS REQUIRED TO MAINTAIN EXIST. DRAINAGE PATTERNS.

N

1 GD-1 **FINAL GRADING & DRAINAGE PLAN**
SCALE : 1" = 50'-0"

50 0 25 50 100
(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	02/04/22	DRAFT SET FOR REVIEW: RCB
1	03/16/22	FOR PERMIT: RCB
2	04/11/22	FOR PERMIT: RCB
3	02/13/23	REVISED LAYOUT: RCB
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

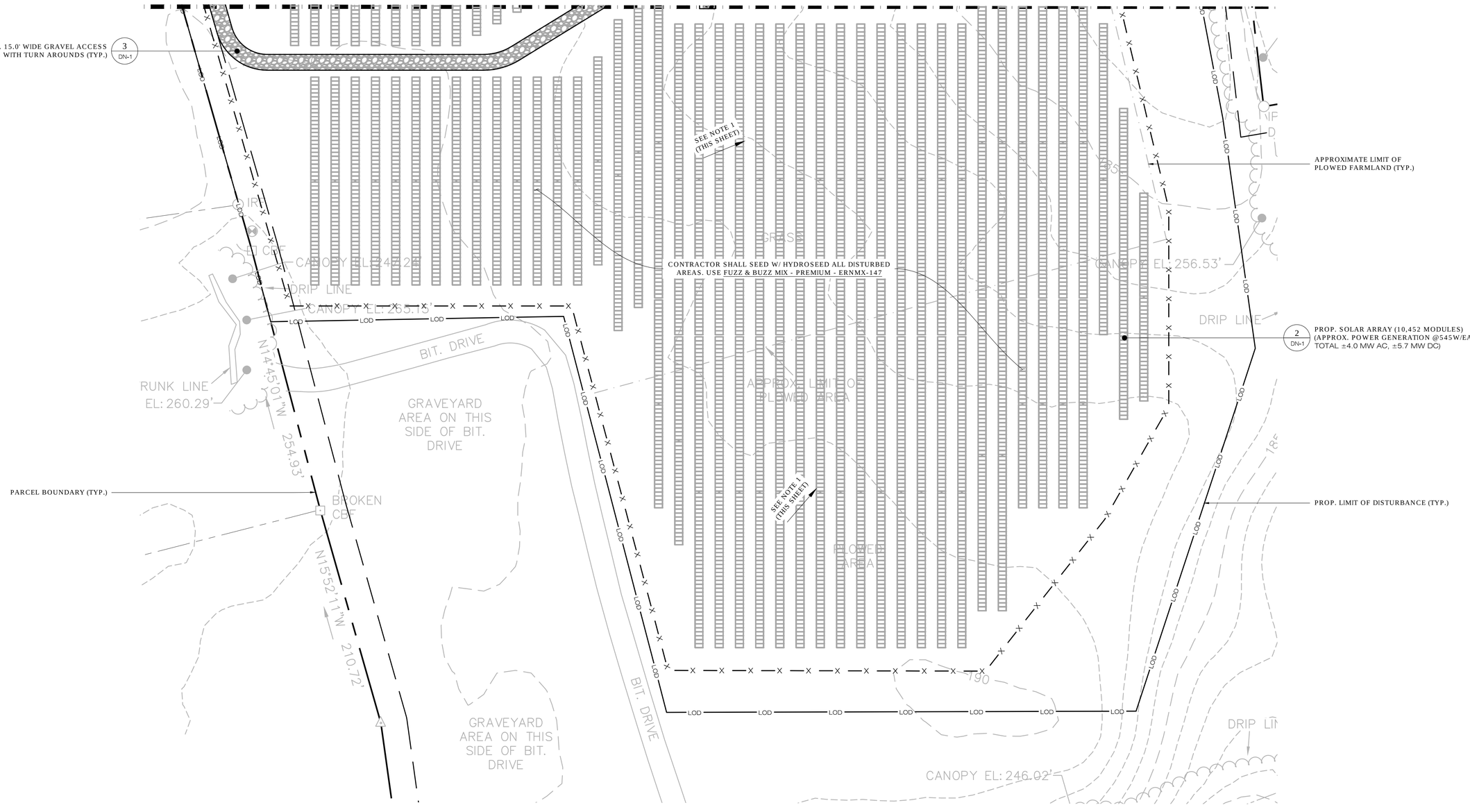
DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
FINAL GRADING & DRAINAGE PLAN

SHEET NUMBER:
GD-1

STATE OF CONNECTICUT ROBERT CHARLES BURNS No. 20071 LICENSED PROFESSIONAL ENGINEER

MATCHLINE - SEE SHEET GD-1



NOTES:
1. GRADE/SHAPE AREA AS REQUIRED TO MAINTAIN EXIST. DRAINAGE PATTERNS.

N

1 / GD-2 **FINAL GRADING & DRAINAGE PLAN**
SCALE : 1" = 50'-0"

50 0 25 50 100
(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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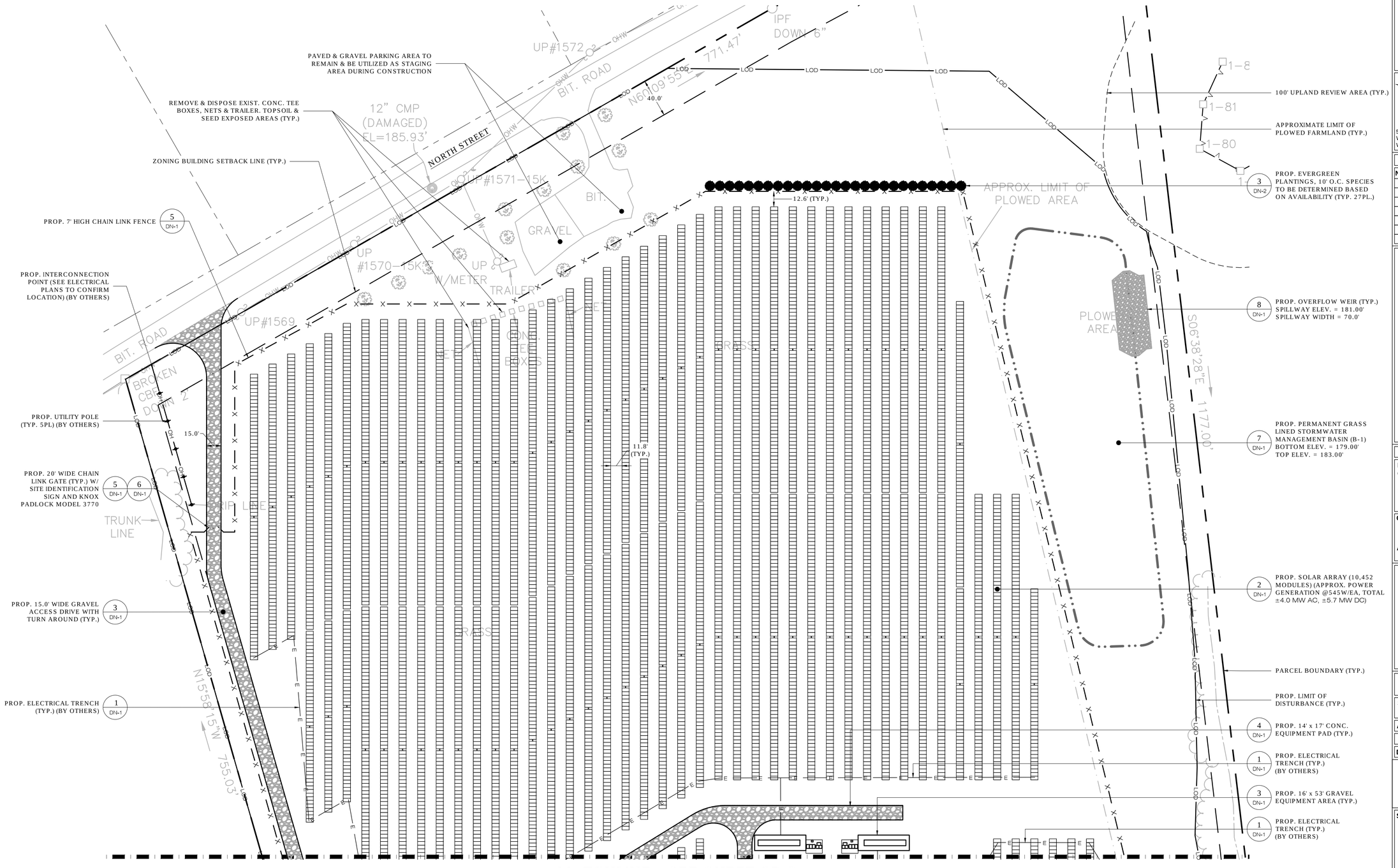
DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
FINAL GRADING & DRAINAGE PLAN

SHEET NUMBER:
GD-2

STATE OF CONNECTICUT ROBERT CHARLES BURNS No. 20071 LICENSED PROFESSIONAL ENGINEER



SITE & UTILITY PLAN

SCALE : 1" = 50'-0"

(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
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ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

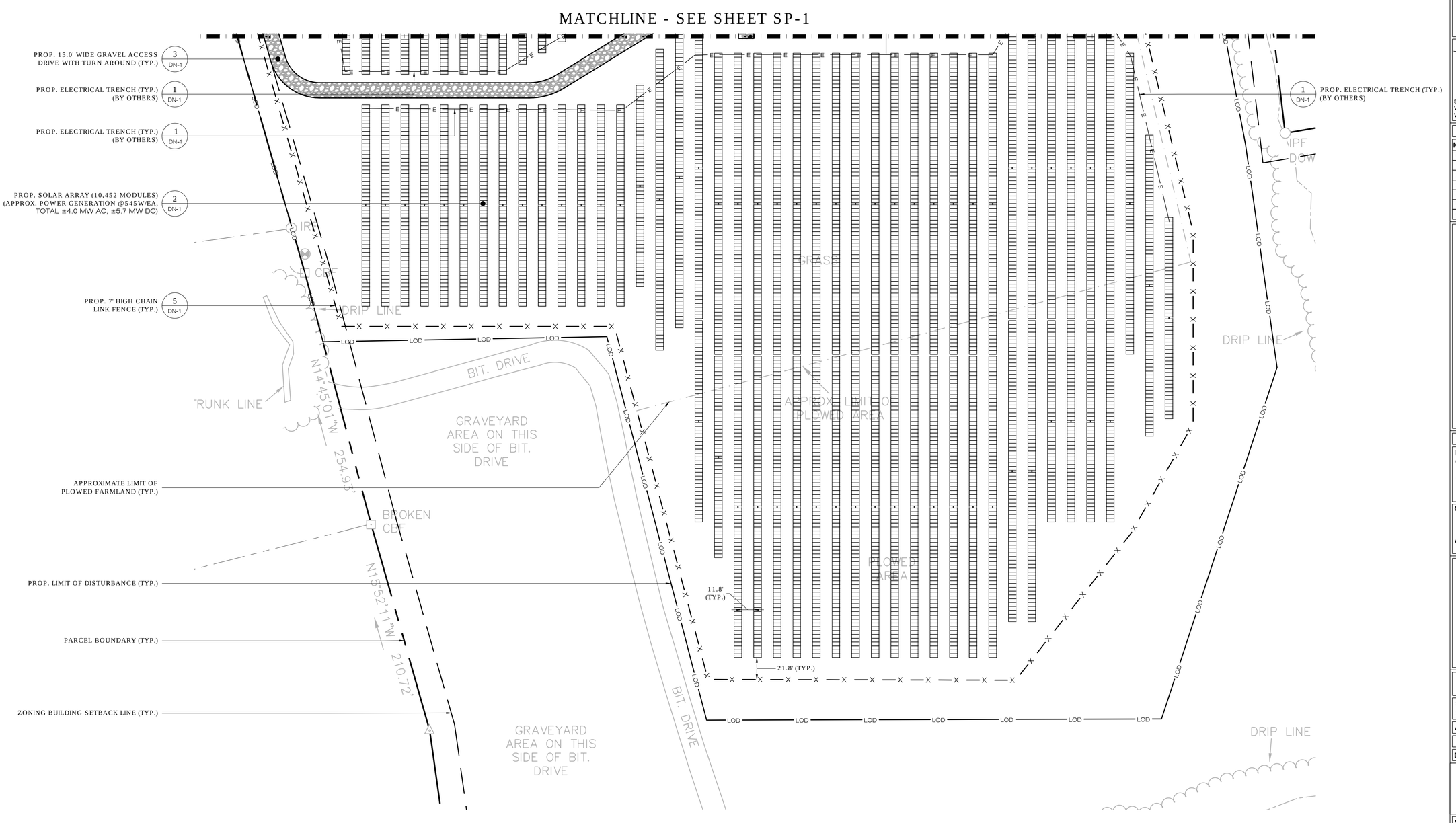
APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
SITE & UTILITY PLAN

SHEET NUMBER:
SP-1

STATE OF CONNECTICUT ROBERT C. BURNS 22071 LICENSED PROFESSIONAL ENGINEER



N

1 SP-2 **SITE & UTILITY PLAN**
SCALE : 1" = 50'-0"

50 0 25 50 100
(IN FEET) 1 inch = 50 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

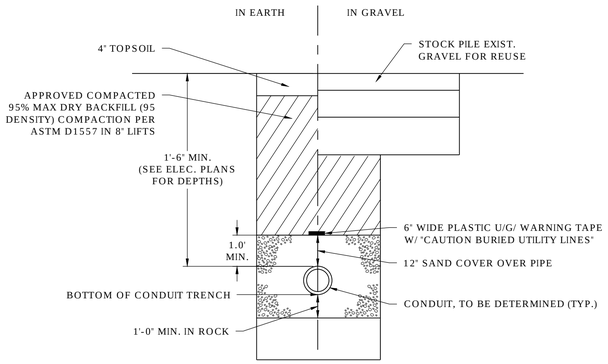
APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

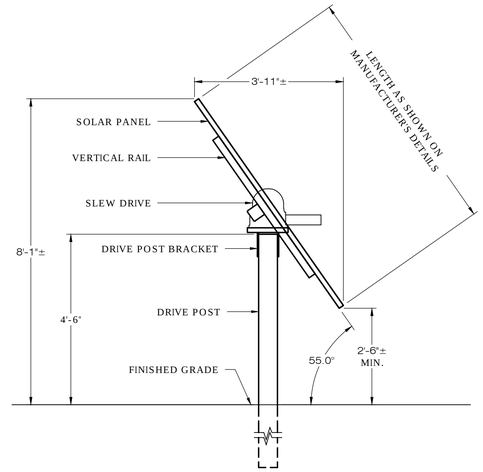
SHEET TITLE:
SITE & UTILITY PLAN

SHEET NUMBER:
SP-2

STATE OF CONNECTICUT ROBERT C. BURNS 20071 REGISTERED PROFESSIONAL ENGINEER

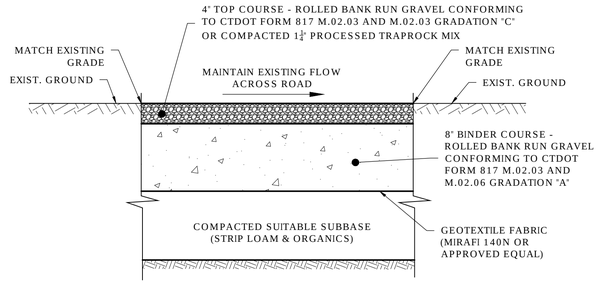


1 DN-1 **ELECTRICAL TRENCH DETAIL**
SCALE : N.T.S.



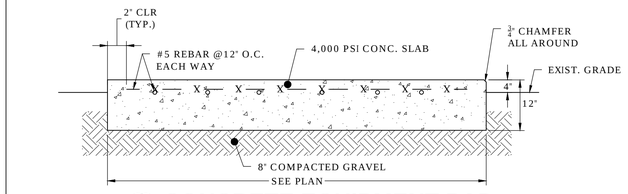
NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

2 DN-1 **TYPICAL TRACKER POST MOUNTED RACKING SYSTEM**
SCALE : N.T.S.

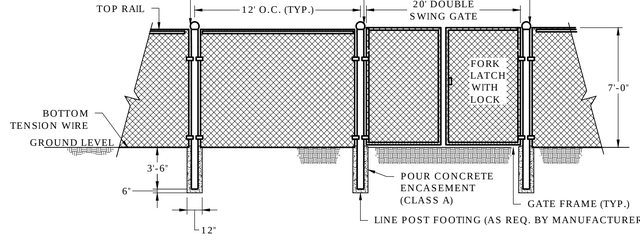


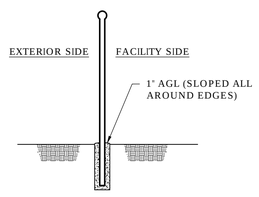
NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.
3. CONTRACTOR SHALL INSTALL ACCESS ROAD FLUSH WITH EXISTING GRADE TO ENSURE DRAINAGE FLOW PATHS ARE MAINTAINED.
4. SEE PLAN VIEW SHEETS FOR ROAD WIDTH.

3 DN-1 **GRAVEL ACCESS DRIVE SECTION**
SCALE : N.T.S.

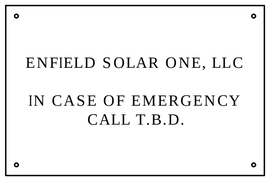


4 DN-1 **CONCRETE EQUIPMENT PAD**
SCALE : N.T.S.



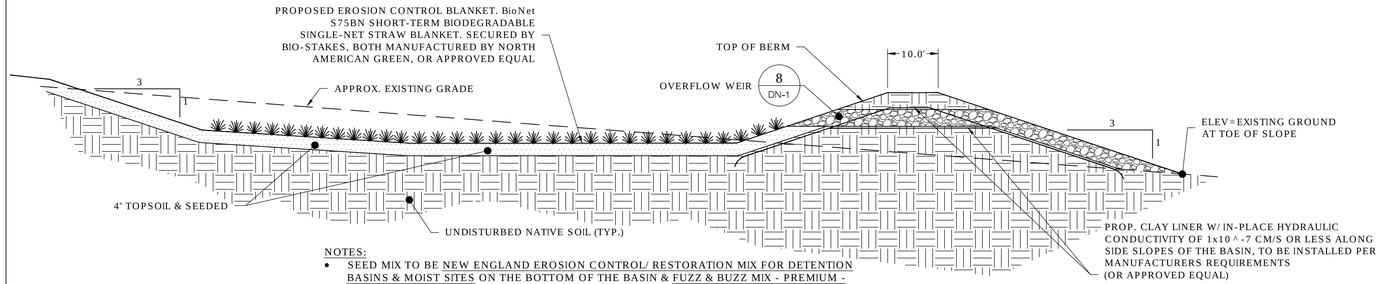


5 DN-1 **CHAIN-LINK FENCE & GATE DETAIL**
SCALE : N.T.S.



NOTES:
EMERGENCY CALL NUMBER TO BE PROVIDED ONCE DETERMINED.

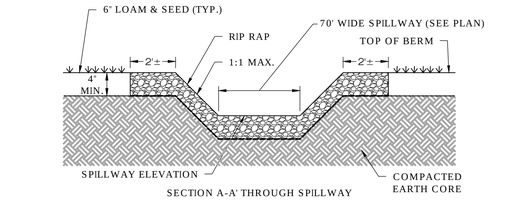
6 DN-1 **NOTIFICATION SIGN DETAIL**
SCALE : N.T.S.

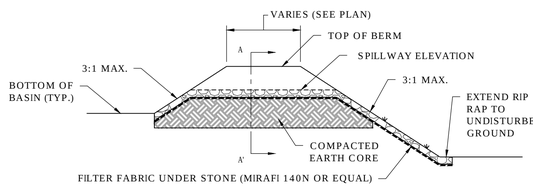


NOTE: LINER SHALL EXTEND TO NATIVE SUBGRADE FOR BERMS WHOLLY OR PARTIALLY CONSTRUCTED WITH FILL MATERIAL.

NOTES:
- SEED MIX TO BE NEW ENGLAND EROSION CONTROL/ RESTORATION MIX FOR DETENTION BASINS & MOIST SITES ON THE BOTTOM OF THE BASIN & FUZZ & BUZZ MIX - PREMIUM - ERNMX-147 ON THE SIDE SLOPES OR APPROVED EQUAL. SEE SHEET DN-2 FOR SEED MIXTURES.
- CONTRACTOR SHALL NOT COMPACT OR ROLL THE BOTTOM OF THE BASIN SO THAT THE EXISTING MEASURED INFILTRATION RATES CAN BE ACHIEVED POST CONSTRUCTION.

7 DN-1 **GRASS LINED BASIN**
SCALE : N.T.S.





8 DN-1 **OVERFLOW WEIR DETAIL**
SCALE : N.T.S.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

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COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 02/04/22 CHECKED BY: RCB

SHEET TITLE:
SITE DETAILS

SHEET NUMBER:
DN-1

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: April 14, 2021

Fuzz & Buzz Mix - Premium - ERNMX-147

	Botanical Name	Common Name	Price/lb
24.20 %	*Lolium perenne, 'Crave', Tetraploid*	Perennial Ryegrass, 'Crave', Tetraploid	3.48
17.70 %	*Dactylis glomerata, 'Pennlate'*	Orchardgrass, 'Pennlate'	3.00
17.70 %	*Festuca elatior*	Meadow Fescue	4.80
17.70 %	*Poa pratensis, 'Ginger'*	Kentucky Bluegrass, 'Ginger' (pasture type)	3.36
5.40 %	*Trifolium hybridum*	Alsike Clover	3.90
4.90 %	*Trifolium incarnatum, Variety Not Stated*	Crimson Clover, Variety Not Stated	1.92
4.50 %	*Trifolium pratense, Medium, Variety Not Stated*	Red Clover, Medium, Variety Not Stated	3.00
2.00 %	*Lotus corniculatus, 'Leo'*	Bird's Foot Trefoil, 'Leo'	7.50
1.30 %	*Chrysanthemum leucanthemum*	Oxeye Daisy	33.60
1.30 %	*Cichorium intybus*	Blue Chicory	19.20
0.80 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	7.20
0.40 %	*Aster oblongifolius, PA Ecotype*	Aromatic Aster, PA Ecotype	336.00
0.40 %	*Aster prenanthoides, PA Ecotype*	Zigzag Aster, PA Ecotype	432.00
0.40 %	*Coreopsis lanceolata*	Lanceleaf Coreopsis	28.80
0.40 %	*Tradescantia ohiensis, PA Ecotype*	Ohio Spiderwort, PA Ecotype	192.00
0.40 %	*Zizia aurea*	Golden Alexanders	288.00
0.30 %	*Solidago nemoralis, PA Ecotype*	Gray Goldenrod, PA Ecotype	336.00
0.10 %	*Asclepias syriaca*	Common Milkweed	163.20
0.10 %	*Penstemon hirsutus*	Hairy Beardtongue	480.00
100.00 %		**Mix Price/lb Bulk:**	**$10.91**

Seeding Rate: Expect to apply about 42 lbs per acre with a cover crop of annual ryegrass at 12 lbs/acre.

Forage & Pasture Sites; Solar Sites

1 DN-2 **FUZZ & BUZZ MIX**
SCALE : N.T.S.

NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites

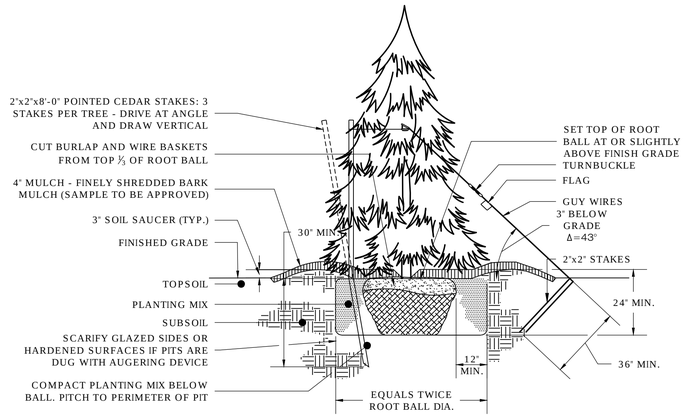
Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York Ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens frondosa	Beggar Ticks	FACW
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+

PRICE PER LB. $37.00 MIN. QUANITY 3 LBS. **TOTAL:** $111.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize generally moist, recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an appropriate seed mix for ecologically sensitive restorations that require stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not hold standing water. Many of the plants in this mix can tolerate infrequent inundation, but not constant flooding. The mix may be applied by hand, by mechanical spreader, or by hydro-seeder. After sowing, lightly rake, roll or cultipack to insure good seed-to-soil contact. Best results are obtained with a Spring or late Summer seeding. Late Fall and Winter dormant seeding requires an increase in the application rate. A light mulching of clean, weed-free straw is recommended

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

2 DN-2 **STORMWATER MANAGEMENT BASIN MIX**
SCALE : N.T.S.



STAKING
STAKING FOR EVERGREEN TREES OVER 6' HIGH

GUYING
GUYING FOR EVERGREEN TREES OVER 10' HIGH

NOTE:
TREE SPECIES TO BE CHOSEN FROM THE FOLLOWING LIST DEPENDING ON AVAILABILITY AT TIME OF CONSTRUCTION:

- SPARTAN JUNIPER
- BRANDON'S ARBORVITAE
- EMERALD GREEN ARBORVITAE
- STAR POWER JUNIPER
- CHALET SWISS STONE PINE
- IOWA JUNIPER
- SUNKIST ARBORVITAE
- DRAGON LADY HOLLY

3 DN-2 **TYPICAL PLANTING DETAIL**
SCALE : N.T.S.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
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COMP: ALL-POINTS TECHNOLOGY CORPORATION
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ENFIELD SOLAR ONE, LLC

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APT FILING NUMBER: CT590230

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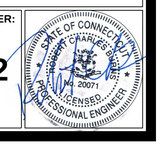
SHEET TITLE:
LANDSCAPING DETAILS

SHEET NUMBER:
DN-2



STORMWATER MANAGEMENT REPORT

PROPOSED

ENFIELD SOLAR ONE

SOLAR PROJECT

110 NORTH STREET
ENFIELD, CONNECTICUT
HARTFORD COUNTY

Prepared for:

Enfield Solar One, LLC
150 Trumbull Street, 4th Floor
Hartford, CT 06103

Prepared by:

All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension, Suite 311
Waterford, CT 06385

March 2022
Rev. April 2022
Rev. March 2023

Table of Contents

Tables

Appendices

Introduction

At the request of Enfield Solar One, LLC, All-Points Technology Corporation, P.C. ("APT") has undertaken analysis of and design to address stormwater impacts resulting from development of a solar electric generating facilities with a combined output of approximately 4.00 megawatts (MW) alternating current (AC) herein referred to as Enfield Solar One (the "Project") located off of North Street, in Enfield, Connecticut (the "Site").

The purpose of this report is to provide an analysis of the potential stormwater drainage impacts associated with the Project, as well as a description of the design to mitigate such potential stormwater drainage impacts. The design is intended to be in full compliance with the State and Town regulations while taking prevailing site conditions and practical factors into account. In addition, this report will also describe how the proposed Project adheres to the updated Connecticut Department of Energy & Environmental Projection ("CT DEEP") Appendix I, Stormwater Management at Solar Array Construction Projects.

Existing Site Conditions

The Site is located on one (1) privately-owned irregular shaped parcel that encompasses approximately 73.88 acres identified as 110 North Street. The Project will be entirely located within the northern portion of the property within an existing short grass field, currently used as a golf driving range. Project limit of disturbance is approximately 28.57± acres of the overall site area. See Appendix A for an Overall Site Plan.

The Project area's existing topography gradually slopes between 0.5%-1% down in a west to east direction, with ground elevations ranging from approximately 191 feet above mean sea level ("AMSL") on its west side to approximately 182 feet AMSL on the east side of the Site.

Developed Site Conditions

The Project will be constructed in the northern & central portion of the Site, within an existing short grass field, currently used as a golf driving range & plowed fields, currently used for farming. Access to the Project will be provided via one (1) new 15-foot-wide gravel drive off of North Street located at the northwestern edge of the Site area. The Project includes the installation of 10,452 545W modules and associated fencing, access road, utility and stormwater management features, within 28.57± acres of the Site. Due to the nature of the existing grass field & plowed fields, no clearing or grubbing is required for the development of the Project.

The proposed modules will be installed on a post driven ground mounted racking system, with no changes to the existing grades. As a result, the post-development site conditions will mimic the pre-developed site conditions. Any existing ground cover that is disturbed during construction will be reseeded with Fuzz & Buzz Mix – ERNMX-147, or approved equal.

Stormwater Management

Analysis Methodology

The hydrologic analysis was performed using the HydroCAD stormwater modeling system computer program developed by HydroCAD Software Solutions, LLC.

Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with a Type III rainfall distribution. Hydrographs were developed for the NOAA Atlas 14, Volume 10, Version 2 Precipitation 2-, 25-, 50-, and 100-year storm event with rainfall depths of 3.17, 6.23, 7.08, and 8.04 inches respectively.

The existing and proposed drainage areas used in the calculations are illustrated on the Existing and Proposed Drainage Area Maps (EDA-1 & PDA-1). These maps and the corresponding HydroCAD output are attached.

Utilizing CT DEEP Appendix I, this hydrologic analysis will reflect a reduction of the Hydrologic Soil Group ("HSG") present on-site by a half (1/2) step (e.g., half the difference between the runoff curve number for HSG B versus HSG C). This reduction, as indicated by CT DEEP, is intended to account for the compaction of soils that results from extensive machinery traffic during construction of the array. The Water Quality Volume ("WQV") for the site will be calculated assuming that the gravel surfaces and concrete equipment pads are effectively impervious cover. Additional Appendix I regulations and proposed compliance are presented in Appendix F herein.

Existing Drainage Patterns

The proposed Project area drains generally from the west to the east, ultimately to a wetland system to the east of the Site. The Site was modeled to discharge at one (1) Analysis Point ("AP-1"), associated with wetland system to the east. Peak discharges have been computed at the points of study for the 2-, 25-, 50-, and 100-year storm events.

The Project area soils identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Service consists of map unit symbols 29A and 701A. 29A is classified as "Agawam fine sandy loam, 0 to 3 percent slopes" and has a HSG rating of "B". 701A is classified as "Ninigret fine sandy loam, 0 to 3 percent slopes" and has a HSG rating of "C". Specific details for each soil Map Unit Symbol are provided in Appendix B.

The pre-developed discharges at AP-1 are tabulated in Table 1.

Table 1

Analysis Point	**Pre-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	9.72	46.33	58.26	72.20

Proposed Drainage Patterns

The Project will require no clearing and grubbing for the installation of the solar facility. All disturbed areas associated with the proposed solar installation, including necessary utilities, access road, and stormwater management features will be reseeded utilizing a Fuzz & Buzz Mix – ERNMX-147, or approved equal.

Hydrologically, the post-developed condition is designed to mimic the pre-developed condition. To manage the increase in post-development runoff due to the CT DEEP Appendix I requirement of a change in cover type associated with converting grass to meadow with a (1/2) increase in HSG within the fenced array limits, one (1) grass-lined stormwater management basin is proposed. Basin B-1 is located at the natural low point on the east side of the project limits. The existing topography will be utilized to direct water to the basin. The basin has been designed to provide the required Water Quality Volume (WQV) needed for the proposed impervious surfaces associated with the gravel access drive and concrete equipment pads. Flow and volume control out of the basin is provided via a rip-rap lined overflow weir and level spreader. See attached calculations.

The grass-lined stormwater management basin has been modeled with an infiltration rate of 3.50 inches/hour. The estimated infiltration rate was determined using the Kozeny-Carmen methodology and was conducted by Down to Earth Consulting, LLC, Inc and can be found in the Geotechnical Report dated March 2022 available under separate cover.

Since the proposed development mimics the existing conditions, the post-development condition was modeled using the same Analysis Point. Peak discharges have been computed at AP-1 for the 2-year, 25-year, 50-year, and 100-year storm events. The post-development discharges at AP-1 are tabulated in Table 2.

Table 2

Analysis Point	**Post-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	3.45	27.00	43.01	60.44

The reduction in runoff achieved by the post-development discharges in comparison with the pre-development discharges are tabulated in Table 3.

Table 3

Analysis Point	**Peak Storm Runoff (Q) Comparison Pre- and Post-, cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	-6.27	-19.33	-15.25	-11.76

CT DEEP Appendix I Design Regulations/Compliance

The following identifies and details the regulations and proposed compliance measures within CT DEEP Appendix I that pertain specifically to civil, stormwater, and erosion control designs. Additionally, a checklist of the same is available herein in Appendix F.

(I) Design and construction requirements:

1. Roadways, gravel surfaces, transformer pads are considered effective impervious cover for the purposes of calculating the WQV. The proposed solar panels in the array that are within existing and post-construction slopes that are greater than 15% are considered impervious for the purposes of calculating the WQV. The remainder of the proposed solar panels that are proposed within existing and post-construction slopes that are less than 15% are not considered impervious cover for the purposes of calculating the WQV because the following have been met:
    a. Vegetative areas between the rows of solar panels have a width of 14 feet which is greater than the solar panel width of 13.6 feet.
    b. The post-development stormwater runoff will be less than that of the pre-development stormwater runoff due to the proposed stormwater management basin.
    c. The Project meets (iv) of this requirement as the plan includes specific engineered phased construction plans and detailed erosion control measures.
    d. The panels are spaced and provide a minimum height of 3 feet from the ground to provide growth of native vegetation.
2. Setback and buffer requirements have been met following the below:
    a. See subsection requirements below:
        i. No wetlands or waters are located within 100 feet of the proposed solar facility area. No solar panels are located within the 50-foot setback of any property boundary that is located downgradient of the construction activity.
        ii. No wetlands or waters are located within 100 feet of the proposed solar facility area.
        iii. A 10-foot buffer is maintained between the proposed access road and electrical interconnection path.

   b. No wetland or waters are located within 100 feet of the proposed solar facility area.
   c. The existing wetlands and waters were delineated by All-Points Technology Corporation in May of 2021. The location of delineated resources, as well as buffers, are present on the development plans.
3. The lowest vertical clearance of the solar panels above the ground is proposed to be 3 feet.

II. Design requirements for post-construction stormwater management measures.

1. Post-construction stormwater control measures have been designed and will be constructed to provide permanent stabilization and non-erosive conveyance of runoff from the site.
2. The orientation of the panels follows the existing slopes on the site to the extent practicable.
3. The hydrologic analysis has been completed, as described above, with the following details:
   a. The Project evaluates and controls the 2, 25, 50, and 100-year 24-hour rainfall events in accordance with the CT Stormwater Quality Manual. Maximum sheet flow was kept to 100 feet and shallow concentrated flows are calculated using values for grassed waterways within HydroCAD.
   b. NRCS soil mapping was used for the stormwater/erosion control design.
   c. With the modeled half-drop (1/2) in HSG for the facility area and the change in curve number associated with the ground cover change from grass to meadow results in an increase in post-development runoff in comparison to pre-development runoff. Therefore, a stormwater management basin is needed.
   d. Pre-and post-development drainage area maps & computations are provided in Appendices B and C.
   e. The analysis above demonstrates that the Project will have no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

Sediment and Erosion Control During Construction

For drainage areas that are under 1.0-acre, sediment and erosion control will be provided by perimeter silt fence with wings, as needed. For drainage areas that are between 1.0 and 5.0 acres, sediment and erosion control will be provided by temporary sediment traps. The sediment traps will provide the requisite sediment treatment volumes, based on 134 cubic yards per acre of disturbance.

Conclusion

The stormwater management for the proposed site has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100- year storm events are less than the pre-development peak discharges. In addition, the Project adheres to the regulations and guidelines presented by CT DEEP's Appendix I as described above. As a result, the proposed solar array will not result in any adverse conditions to the surrounding areas and properties.

APPENDIX A: OVERALL SITE PLAN

1 OVERALL LOCUS MAP
OP-1 SCALE : 1" = 200'-0"

200 0 100 200 400
(IN FEET) 1 inch = 200 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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PERMIT SET

NO	DATE	REVISION
0	03/02/22	FOR REVIEW: KAM
1	04/02/22	FOR PERMIT: KAM
2	03/02/23	REVISED LAYOUT: KAM
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE, LLC

SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH

DATE: 03/02/22 CHECKED BY: KAM

SHEET TITLE:

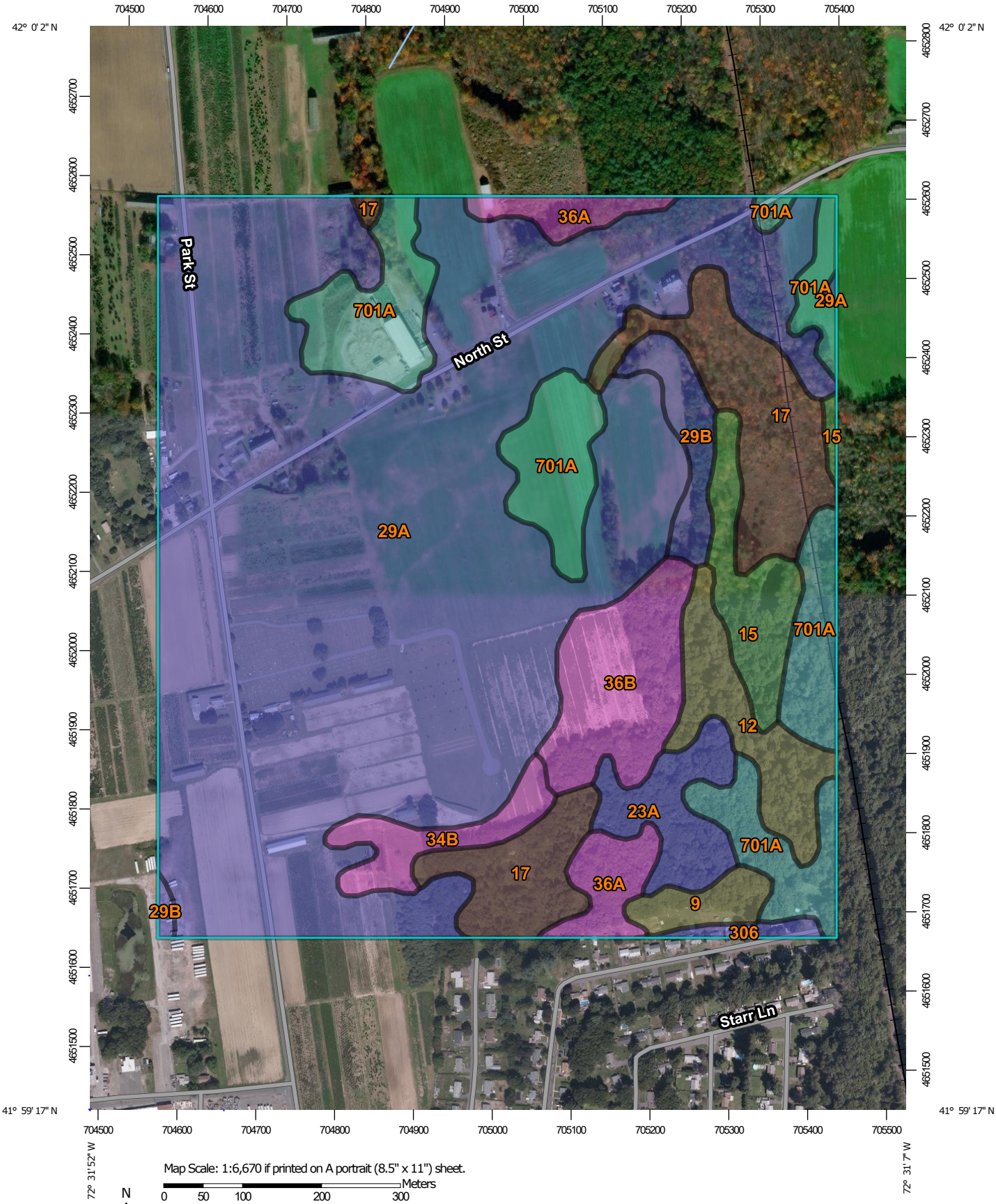
OVERALL SITE PLAN

SHEET NUMBER:

OP-1

APPENDIX B: NRCS SOIL SURVEY

Hydrologic Soil Group—State of Connecticut
(Enfield Solar One)



Map Scale: 1:6,670 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Aug 27, 2016—Oct 24, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
9	Scitico, Shaker, and Maybid soils	C/D	2.4	1.2%
12	Raypol silt loam	C/D	6.3	3.2%
15	Scarboro muck, 0 to 3 percent slopes	A/D	5.9	2.9%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	B/D	16.2	8.1%
23A	Sudbury sandy loam, 0 to 5 percent slopes	B	5.3	2.7%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	118.1	59.1%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	B	4.0	2.0%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	3.9	1.9%
36A	Windsor loamy sand, 0 to 3 percent slopes	A	5.2	2.6%
36B	Windsor loamy sand, 3 to 8 percent slopes	A	9.3	4.6%
306	Udorthents-Urban land complex	B	0.9	0.5%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	C	22.6	11.3%
Totals for Area of Interest			**200.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

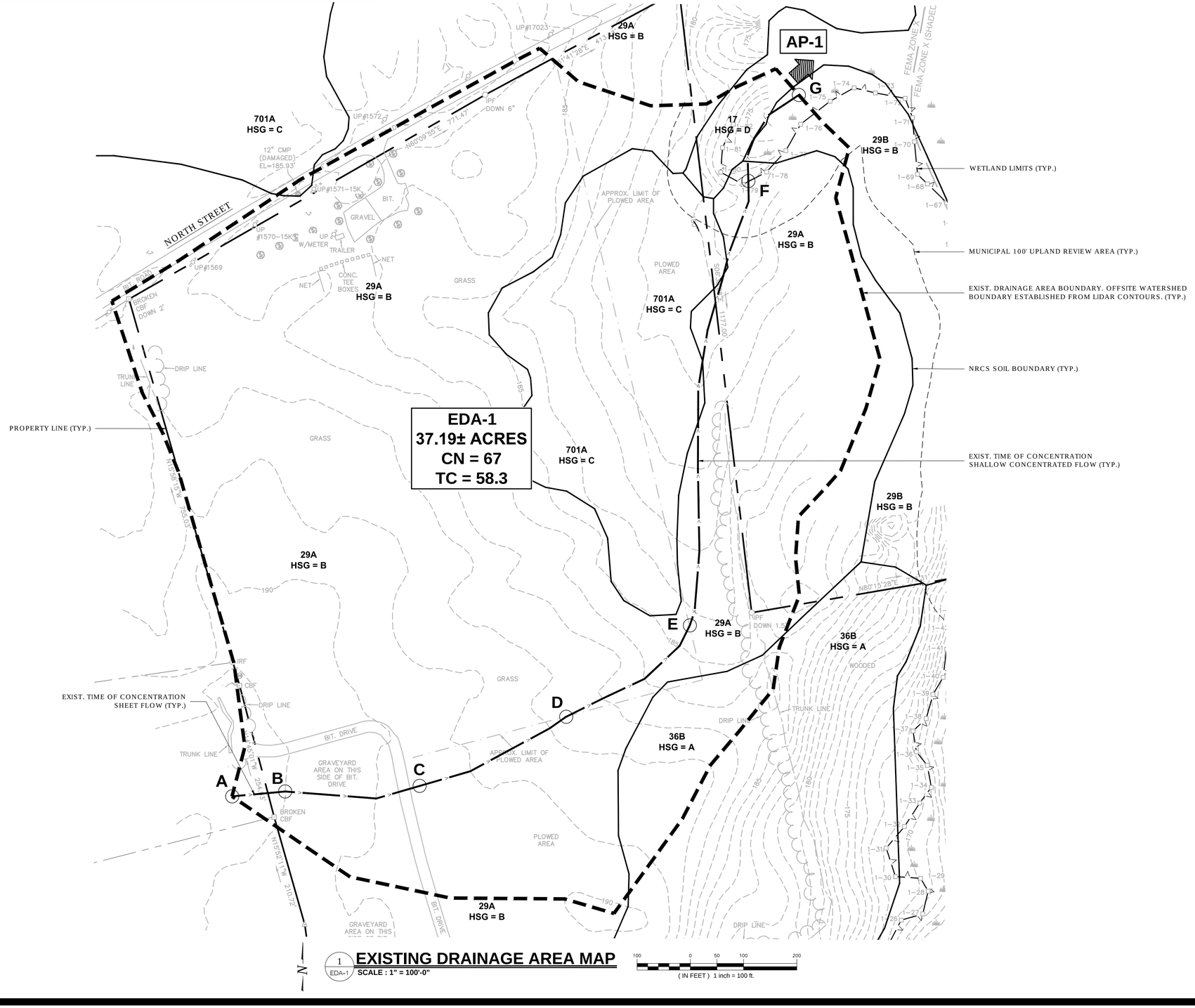
APPENDIX C: EXISTING DRAINAGE AREA MAP (EDA-1) & HYDROLOGIC COMPUTATION (HYDROCAD)

EXISTING DRAINAGE AREAS

	TOTAL AREA (ACRES)	COMPOSITE CN	TC (MINS.)
EDA-1	37.19	67	58.3

EXISTING CONDITION PEAK FLOWS

ANALYSIS POINT	2-YEAR (CFS)	25-YEAR (CFS)	50-YEAR (CFS)	100-YEAR (CFS)
AP-1	9.72	46.33	58.26	72.20



1 EDA-1 **EXISTING DRAINAGE AREA MAP**
SCALE : 1" = 100'-0"

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
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CSC PERMIT SET

NO	DATE	REVISION
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DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
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ENFIELD SOLAR ONE

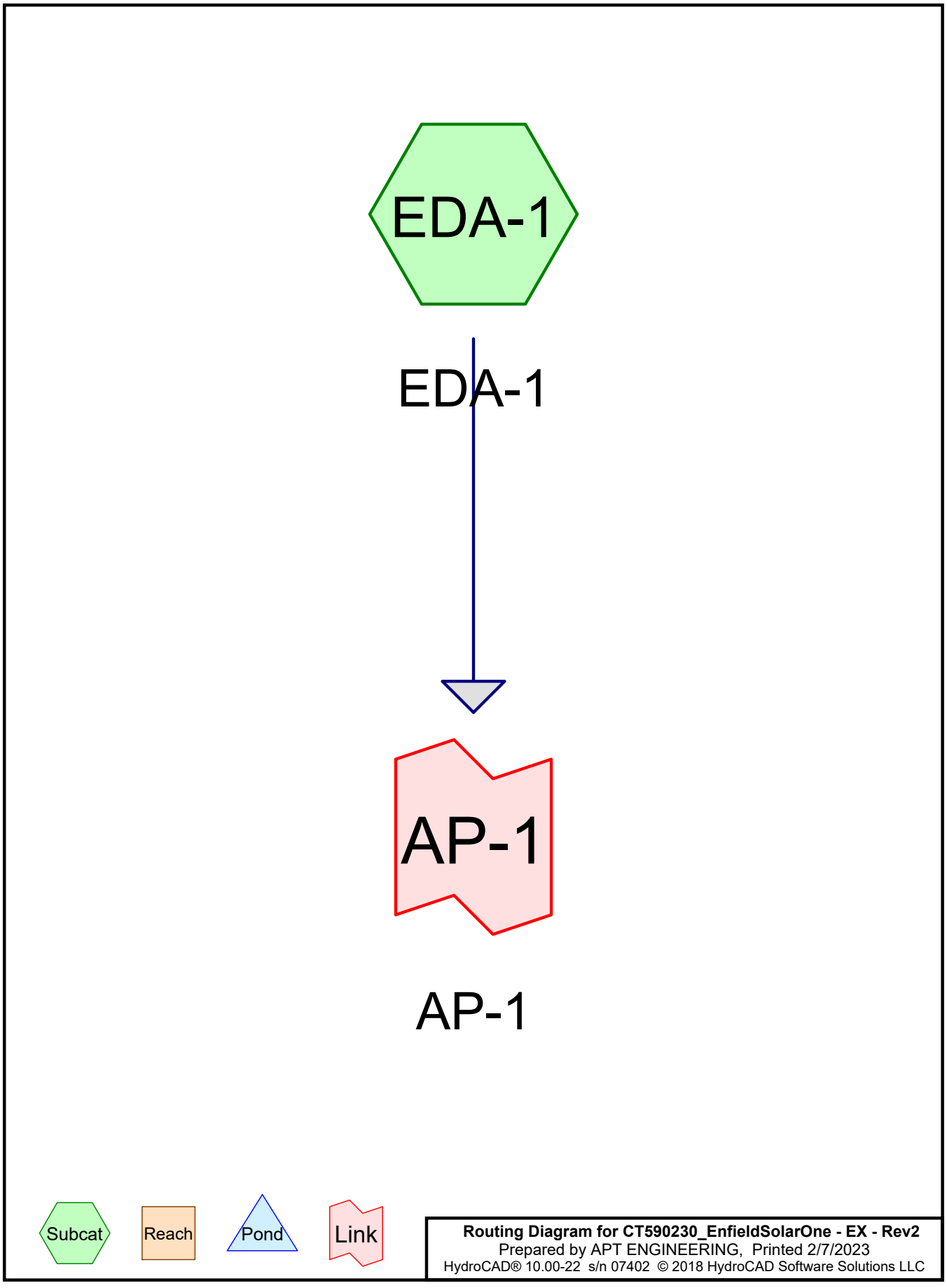
SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 03/02/22 CHECKED BY: KAM

SHEET TITLE:
EXISTING DRAINAGE AREA MAP

SHEET NUMBER:
EDA-1



Routing Diagram for CT590230_EnfieldSolarOne - EX - Rev2
Prepared by APT ENGINEERING, Printed 2/7/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.018	39	>75% Grass cover, Good, HSG A (EDA-1)
19.847	61	>75% Grass cover, Good, HSG B (EDA-1)
3.023	74	>75% Grass cover, Good, HSG C (EDA-1)
0.292	80	>75% Grass cover, Good, HSG D (EDA-1)
0.074	96	Gravel surface, HSG B (EDA-1)
0.023	98	Paved parking, HSG C (EDA-1)
0.618	98	Paved roads w/curbs & sewers, HSG B (EDA-1)
1.063	64	Row crops, SR + CR, Good, HSG A (EDA-1)
8.581	75	Row crops, SR + CR, Good, HSG B (EDA-1)
2.301	82	Row crops, SR + CR, Good, HSG C (EDA-1)
0.084	30	Woods, Good, HSG A (EDA-1)
1.067	55	Woods, Good, HSG B (EDA-1)
0.204	77	Woods, Good, HSG D (EDA-1)
37.195	**67**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.165	HSG A	EDA-1
30.187	HSG B	EDA-1
5.347	HSG C	EDA-1
0.496	HSG D	EDA-1
0.000	Other	
37.195		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.018	19.847	3.023	0.292	0.000	23.180	>75% Grass cover, Good	EDA -1
0.000	0.074	0.000	0.000	0.000	0.074	Gravel surface	EDA -1
0.000	0.000	0.023	0.000	0.000	0.023	Paved parking	EDA -1
0.000	0.618	0.000	0.000	0.000	0.618	Paved roads w/curbs & sewers	EDA -1
1.063	8.581	2.301	0.000	0.000	11.945	Row crops, SR + CR, Good	EDA -1
0.084	1.067	0.000	0.204	0.000	1.355	Woods, Good	EDA -1
1.165	**30.187**	**5.347**	**0.496**	**0.000**	**37.195**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 EDA-1: EDA-1 Runoff Area=37.195 ac 1.72% Impervious Runoff Depth=0.67"
Flow Length=2,011' Tc=58.3 min CN=67 Runoff=9.72 cfs 2.081 af

Link AP-1: AP-1 Inflow=9.72 cfs 2.081 af
Primary=9.72 cfs 2.081 af

Total Runoff Area = 37.195 ac Runoff Volume = 2.081 af Average Runoff Depth = 0.67"
98.28% Pervious = 36.554 ac 1.72% Impervious = 0.641 ac

Summary for Subcatchment EDA-1: EDA-1

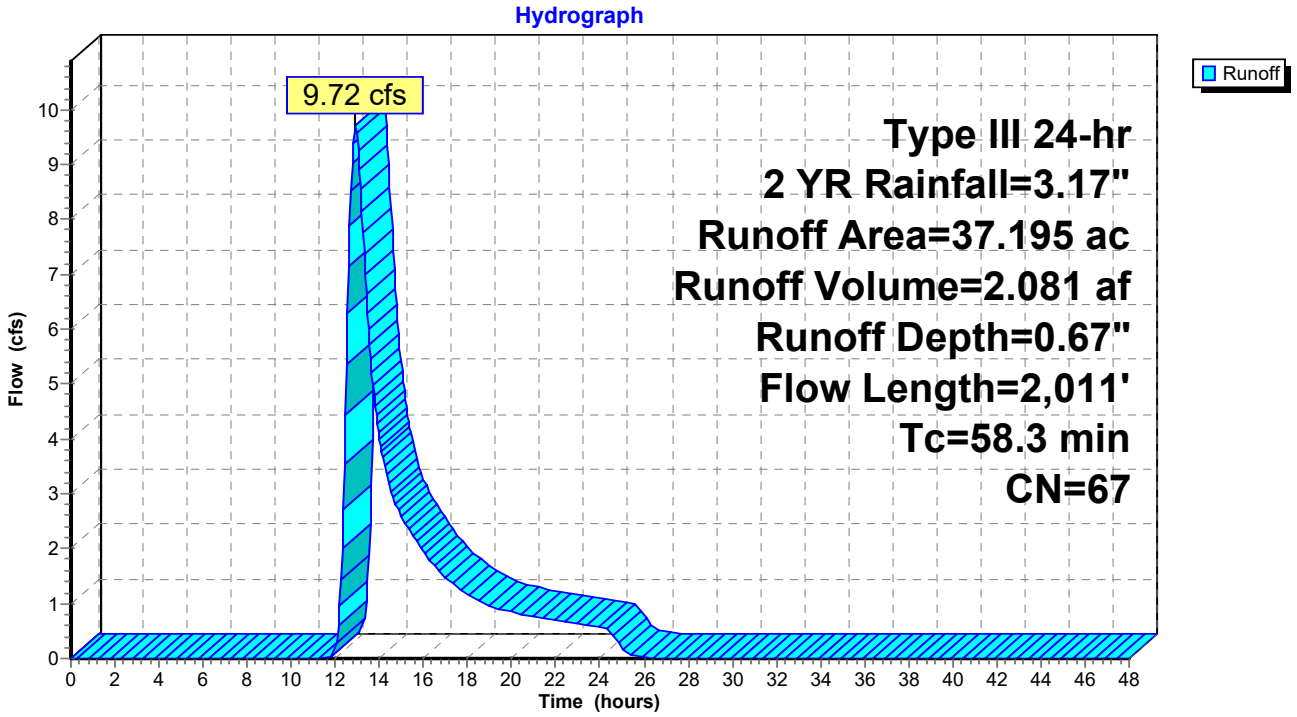
Runoff = 9.72 cfs @ 12.91 hrs, Volume= 2.081 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.17"

Area (ac)	CN	Description
0.018	39	>75% Grass cover, Good, HSG A
1.063	64	Row crops, SR + CR, Good, HSG A
0.084	30	Woods, Good, HSG A
8.581	75	Row crops, SR + CR, Good, HSG B
19.847	61	>75% Grass cover, Good, HSG B
1.067	55	Woods, Good, HSG B
0.074	96	Gravel surface, HSG B
0.618	98	Paved roads w/curbs & sewers, HSG B
2.301	82	Row crops, SR + CR, Good, HSG C
3.023	74	>75% Grass cover, Good, HSG C
0.023	98	Paved parking, HSG C
0.292	80	>75% Grass cover, Good, HSG D
0.204	77	Woods, Good, HSG D
37.195	67	Weighted Average
36.554		98.28% Pervious Area
0.641		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
17.6	850	0.0080	0.80		**Shallow Concentrated Flow, E-F** Cultivated Straight Rows Kv= 9.0 fps
1.3	202	0.0297	2.59		**Shallow Concentrated Flow, F-G** Grassed Waterway Kv= 15.0 fps
58.3	2,011	Total			

Subcatchment EDA-1: EDA-1

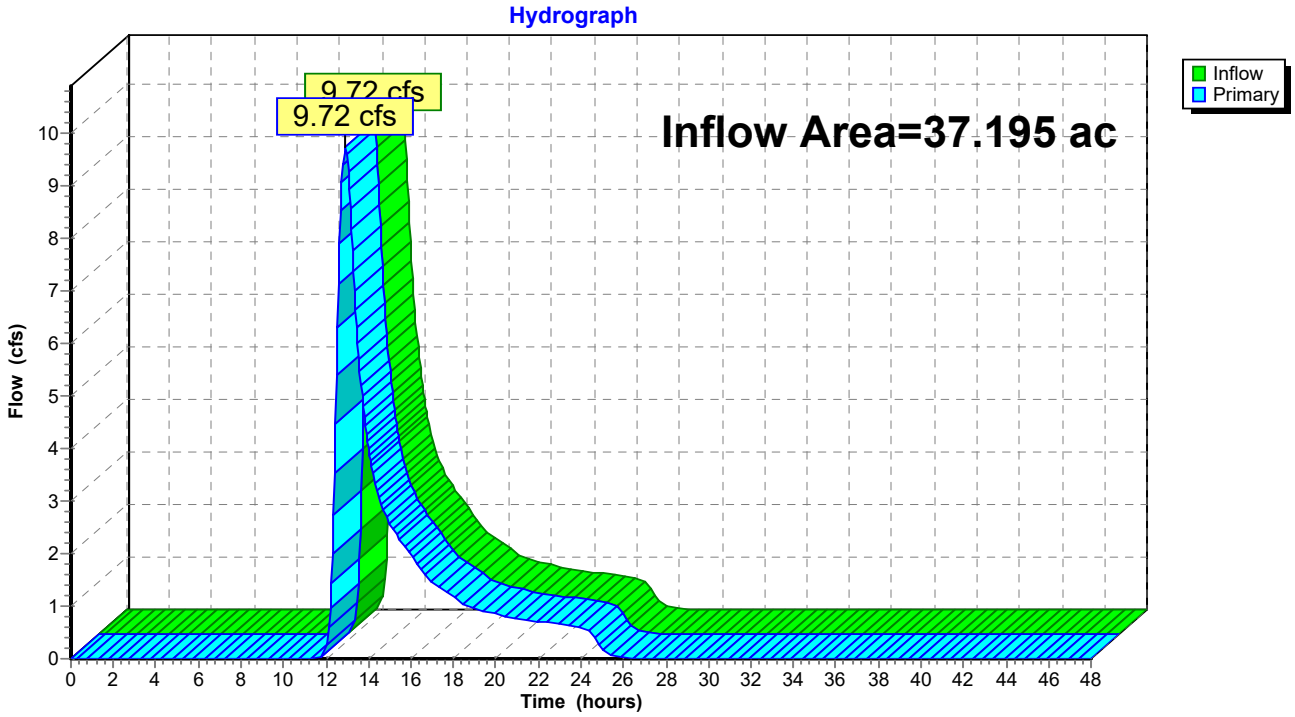


Summary for Link AP-1: AP-1

Inflow Area = 37.195 ac, 1.72% Impervious, Inflow Depth = 0.67" for 2 YR event
Inflow = 9.72 cfs @ 12.91 hrs, Volume= 2.081 af
Primary = 9.72 cfs @ 12.91 hrs, Volume= 2.081 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 EDA-1: EDA-1 Runoff Area=37.195 ac 1.72% Impervious Runoff Depth=2.70"
Flow Length=2,011' Tc=58.3 min CN=67 Runoff=46.33 cfs 8.384 af

Link AP-1: AP-1 Inflow=46.33 cfs 8.384 af
Primary=46.33 cfs 8.384 af

Total Runoff Area = 37.195 ac Runoff Volume = 8.384 af Average Runoff Depth = 2.70"
98.28% Pervious = 36.554 ac 1.72% Impervious = 0.641 ac

Summary for Subcatchment EDA-1: EDA-1

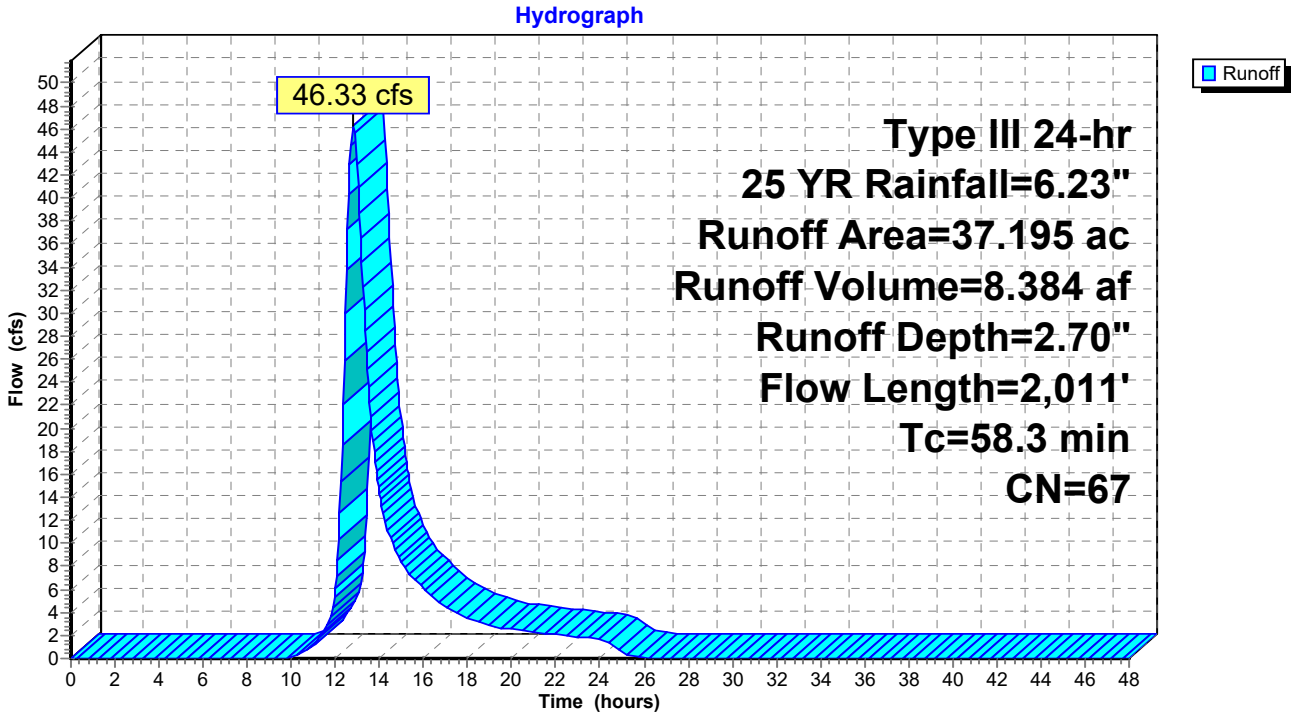
Runoff = 46.33 cfs @ 12.81 hrs, Volume= 8.384 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR Rainfall=6.23"

Area (ac)	CN	Description
0.018	39	>75% Grass cover, Good, HSG A
1.063	64	Row crops, SR + CR, Good, HSG A
0.084	30	Woods, Good, HSG A
8.581	75	Row crops, SR + CR, Good, HSG B
19.847	61	>75% Grass cover, Good, HSG B
1.067	55	Woods, Good, HSG B
0.074	96	Gravel surface, HSG B
0.618	98	Paved roads w/curbs & sewers, HSG B
2.301	82	Row crops, SR + CR, Good, HSG C
3.023	74	>75% Grass cover, Good, HSG C
0.023	98	Paved parking, HSG C
0.292	80	>75% Grass cover, Good, HSG D
0.204	77	Woods, Good, HSG D
37.195	67	Weighted Average
36.554		98.28% Pervious Area
0.641		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
17.6	850	0.0080	0.80		**Shallow Concentrated Flow, E-F** Cultivated Straight Rows Kv= 9.0 fps
1.3	202	0.0297	2.59		**Shallow Concentrated Flow, F-G** Grassed Waterway Kv= 15.0 fps
58.3	2,011	Total			

Subcatchment EDA-1: EDA-1

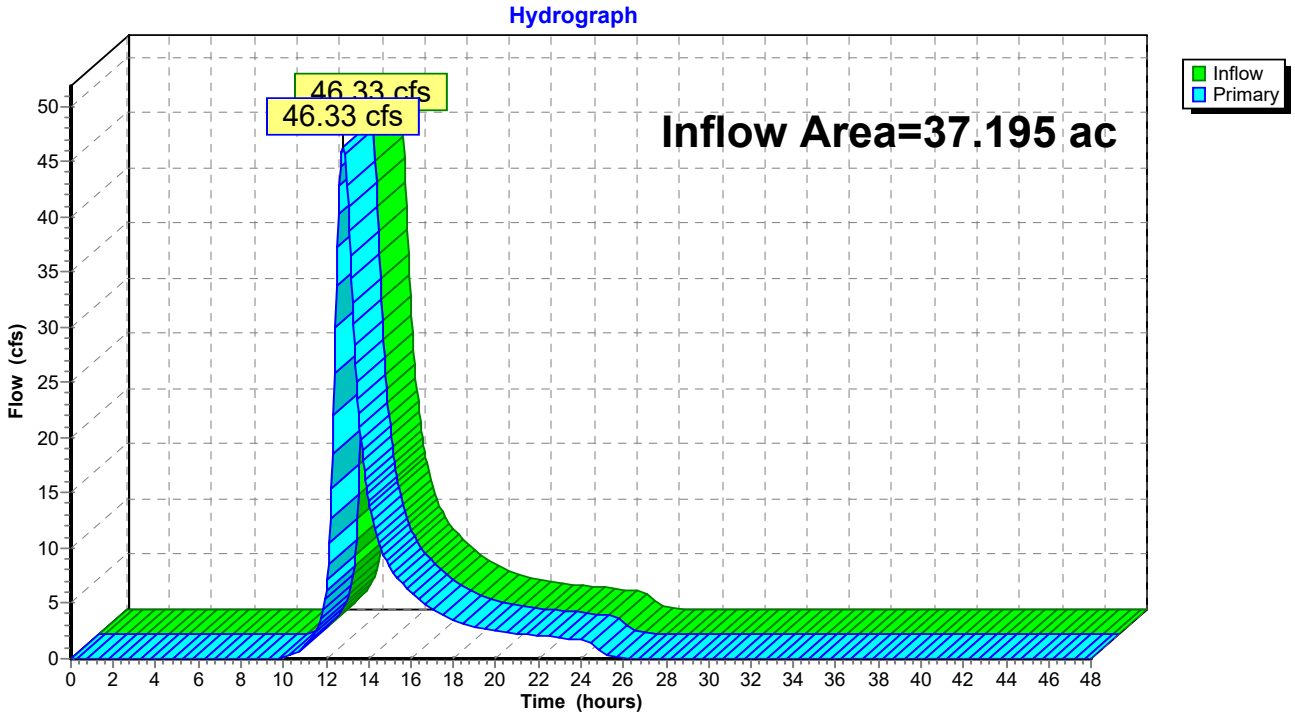


Summary for Link AP-1: AP-1

Inflow Area = 37.195 ac, 1.72% Impervious, Inflow Depth = 2.70" for 25 YR event
Inflow = 46.33 cfs @ 12.81 hrs, Volume= 8.384 af
Primary = 46.33 cfs @ 12.81 hrs, Volume= 8.384 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 EDA-1: EDA-1 Runoff Area=37.195 ac 1.72% Impervious Runoff Depth=3.37"
Flow Length=2,011' Tc=58.3 min CN=67 Runoff=58.26 cfs 10.448 af

Link AP-1: AP-1 Inflow=58.26 cfs 10.448 af
Primary=58.26 cfs 10.448 af

Total Runoff Area = 37.195 ac Runoff Volume = 10.448 af Average Runoff Depth = 3.37"
98.28% Pervious = 36.554 ac 1.72% Impervious = 0.641 ac

Summary for Subcatchment EDA-1: EDA-1

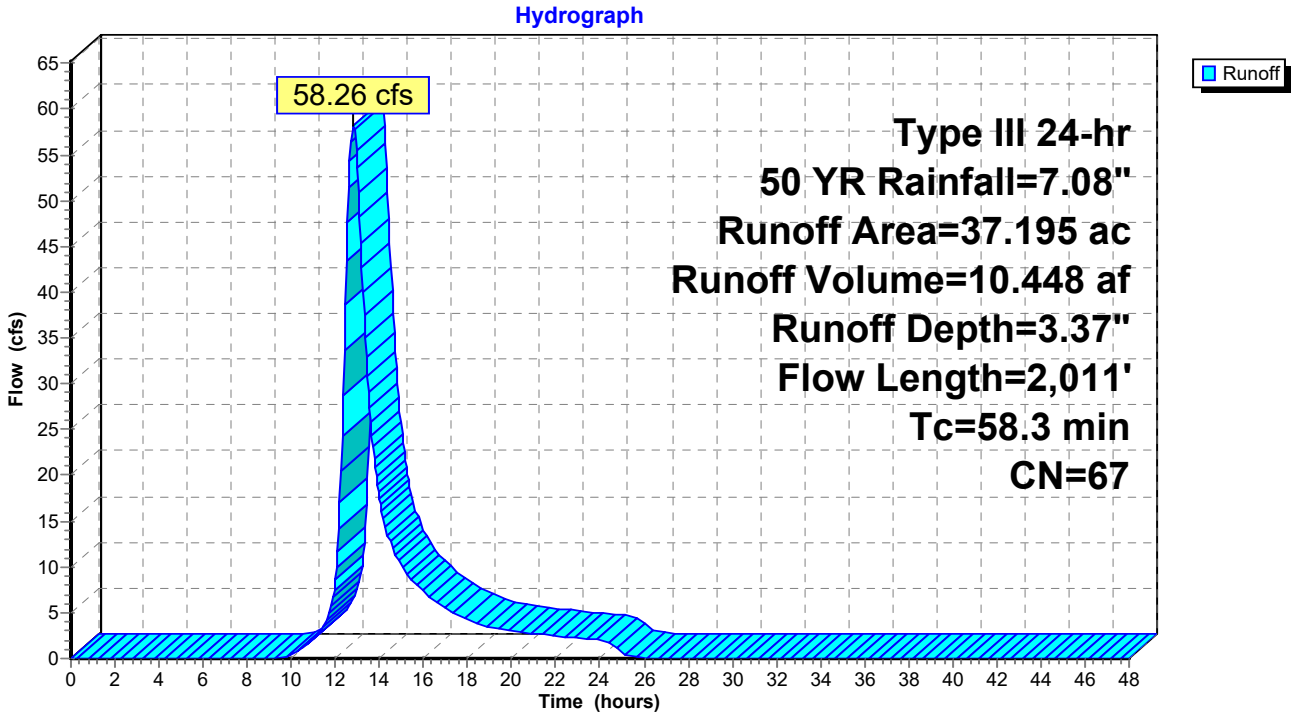
Runoff = 58.26 cfs @ 12.80 hrs, Volume= 10.448 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 YR Rainfall=7.08"

Area (ac)	CN	Description
0.018	39	>75% Grass cover, Good, HSG A
1.063	64	Row crops, SR + CR, Good, HSG A
0.084	30	Woods, Good, HSG A
8.581	75	Row crops, SR + CR, Good, HSG B
19.847	61	>75% Grass cover, Good, HSG B
1.067	55	Woods, Good, HSG B
0.074	96	Gravel surface, HSG B
0.618	98	Paved roads w/curbs & sewers, HSG B
2.301	82	Row crops, SR + CR, Good, HSG C
3.023	74	>75% Grass cover, Good, HSG C
0.023	98	Paved parking, HSG C
0.292	80	>75% Grass cover, Good, HSG D
0.204	77	Woods, Good, HSG D
37.195	67	Weighted Average
36.554		98.28% Pervious Area
0.641		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
17.6	850	0.0080	0.80		**Shallow Concentrated Flow, E-F** Cultivated Straight Rows Kv= 9.0 fps
1.3	202	0.0297	2.59		**Shallow Concentrated Flow, F-G** Grassed Waterway Kv= 15.0 fps
58.3	2,011	Total			

Subcatchment EDA-1: EDA-1

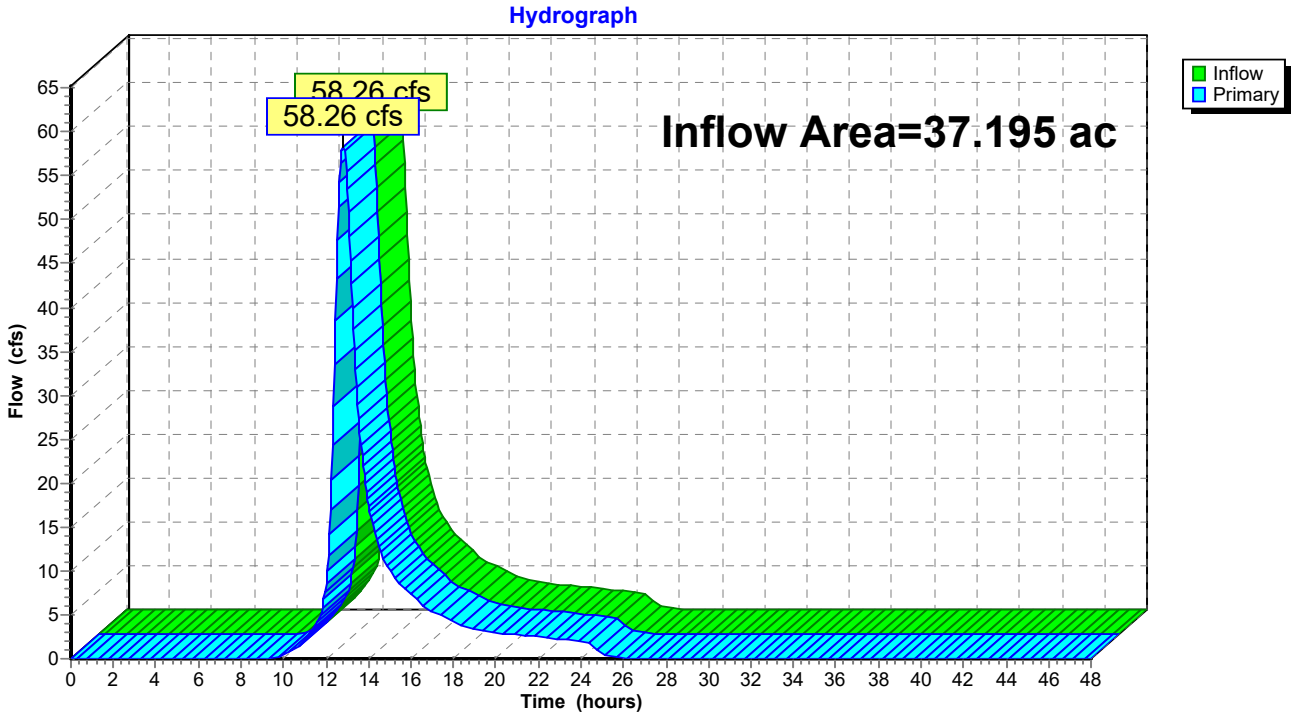


Summary for Link AP-1: AP-1

Inflow Area = 37.195 ac, 1.72% Impervious, Inflow Depth = 3.37" for 50 YR event
Inflow = 58.26 cfs @ 12.80 hrs, Volume= 10.448 af
Primary = 58.26 cfs @ 12.80 hrs, Volume= 10.448 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 EDA-1: EDA-1 Runoff Area=37.195 ac 1.72% Impervious Runoff Depth=4.15"
Flow Length=2,011' Tc=58.3 min CN=67 Runoff=72.20 cfs 12.877 af

Link AP-1: AP-1 Inflow=72.20 cfs 12.877 af
Primary=72.20 cfs 12.877 af

Total Runoff Area = 37.195 ac Runoff Volume = 12.877 af Average Runoff Depth = 4.15"
98.28% Pervious = 36.554 ac 1.72% Impervious = 0.641 ac

Summary for Subcatchment EDA-1: EDA-1

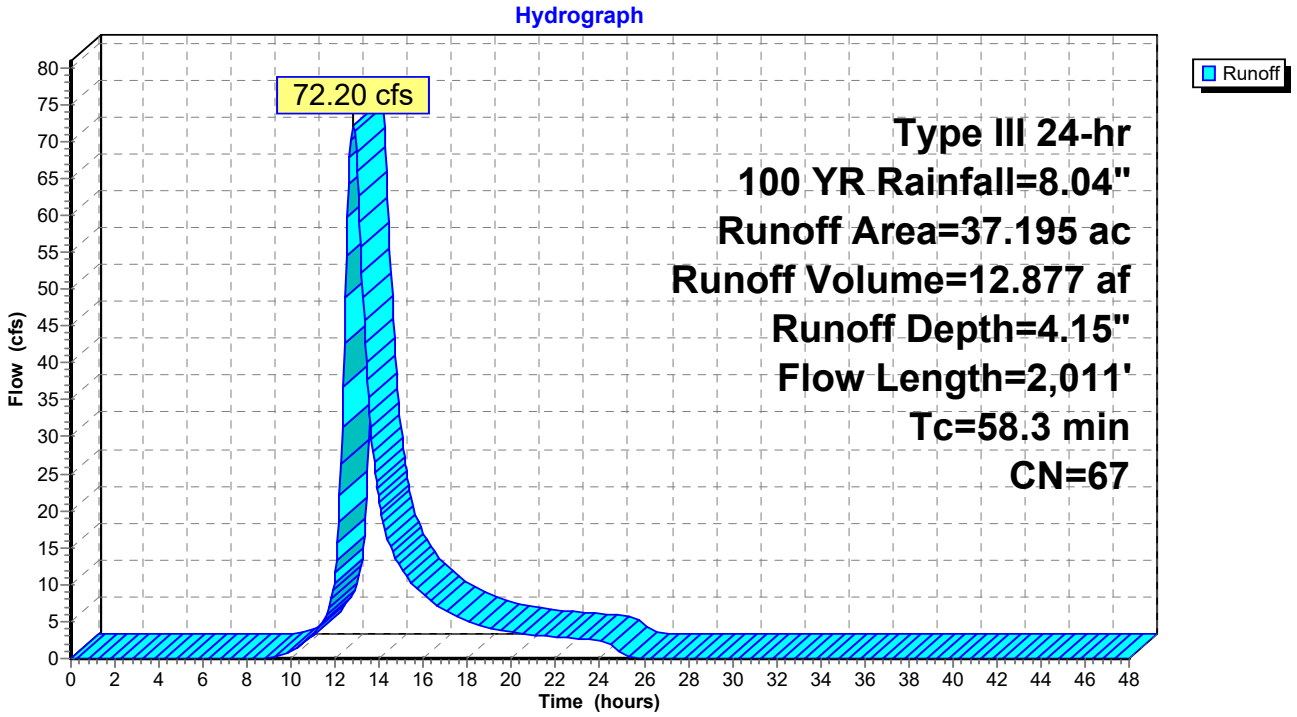
Runoff = 72.20 cfs @ 12.80 hrs, Volume= 12.877 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=8.04"

Area (ac)	CN	Description
0.018	39	>75% Grass cover, Good, HSG A
1.063	64	Row crops, SR + CR, Good, HSG A
0.084	30	Woods, Good, HSG A
8.581	75	Row crops, SR + CR, Good, HSG B
19.847	61	>75% Grass cover, Good, HSG B
1.067	55	Woods, Good, HSG B
0.074	96	Gravel surface, HSG B
0.618	98	Paved roads w/curbs & sewers, HSG B
2.301	82	Row crops, SR + CR, Good, HSG C
3.023	74	>75% Grass cover, Good, HSG C
0.023	98	Paved parking, HSG C
0.292	80	>75% Grass cover, Good, HSG D
0.204	77	Woods, Good, HSG D
37.195	67	Weighted Average
36.554		98.28% Pervious Area
0.641		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
17.6	850	0.0080	0.80		**Shallow Concentrated Flow, E-F** Cultivated Straight Rows Kv= 9.0 fps
1.3	202	0.0297	2.59		**Shallow Concentrated Flow, F-G** Grassed Waterway Kv= 15.0 fps
58.3	2,011	Total			

Subcatchment EDA-1: EDA-1

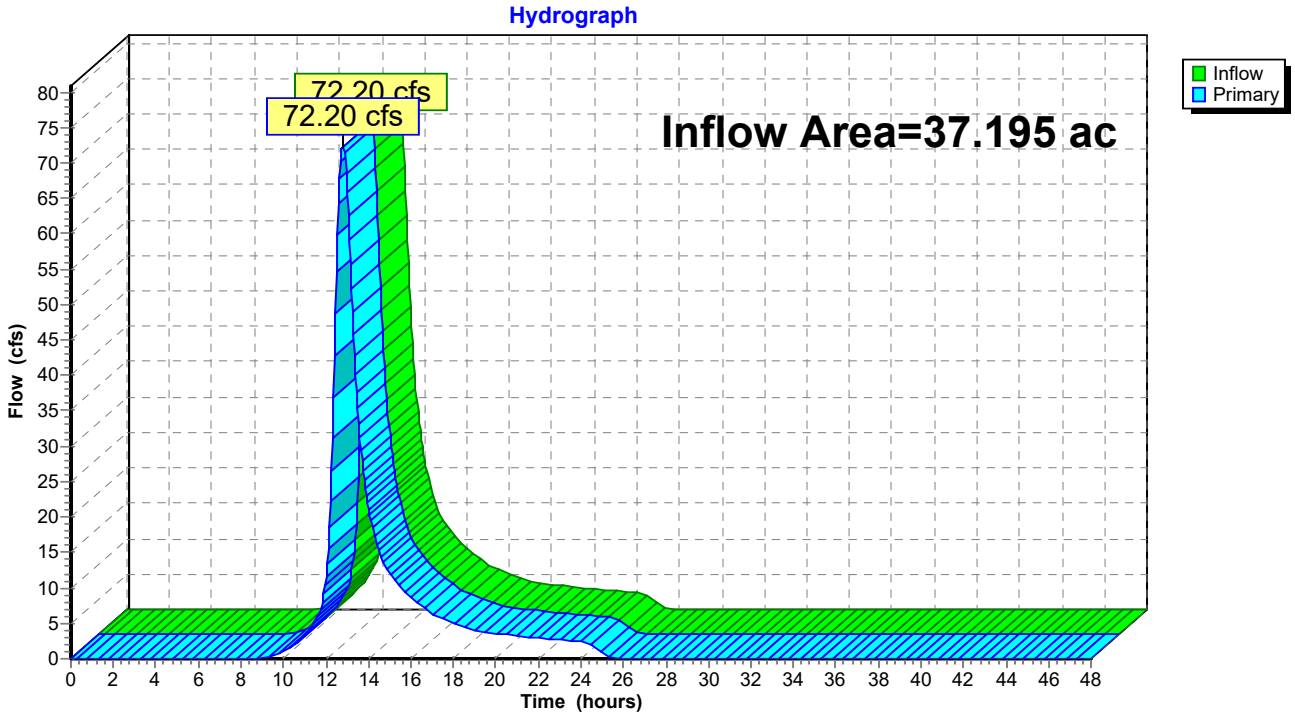


Summary for Link AP-1: AP-1

Inflow Area = 37.195 ac, 1.72% Impervious, Inflow Depth = 4.15" for 100 YR event
Inflow = 72.20 cfs @ 12.80 hrs, Volume= 12.877 af
Primary = 72.20 cfs @ 12.80 hrs, Volume= 12.877 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



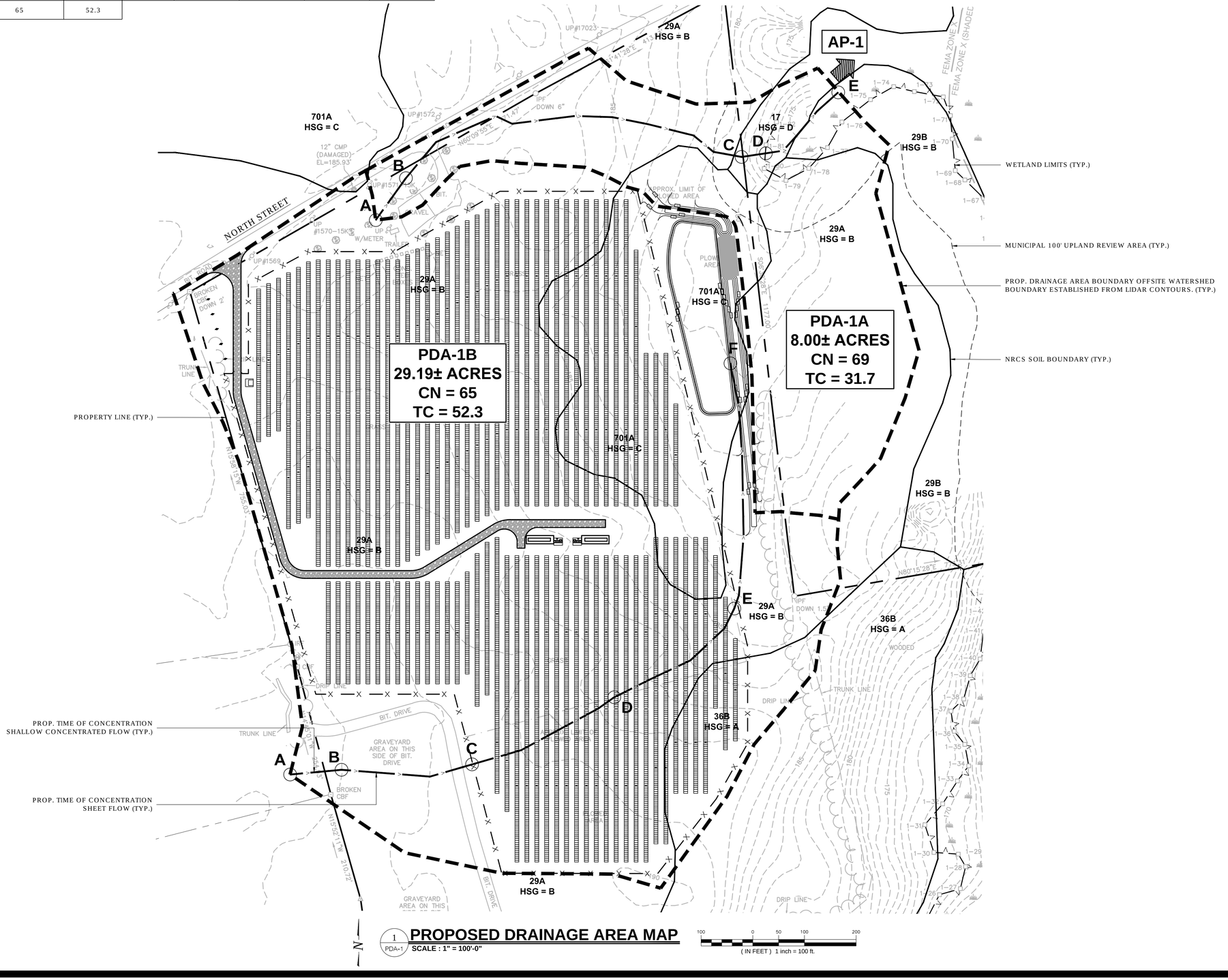
APPENDIX D: PROPOSED DRAINAGE AREA MAP (PDA-1) & HYDROLOGIC COMPUTATION (HYDROCAD)

PROPOSED DRAINAGE AREAS

	TOTAL AREA (ACRES)	COMPOSITE CN	TC (MINS.)
PDA-1A	8.00	69	31.7
PDA-1B	29.19	65	52.3

PROPOSED CONDITION PEAK FLOWS

ANALYSIS POINT	2-YEAR (CFS)	25-YEAR (CFS)	50-YEAR (CFS)	100-YEAR (CFS)
AP-1	3.45	25.38	36.67	49.66



1 PDA-1 **PROPOSED DRAINAGE AREA MAP**
SCALE : 1" = 100'-0"

100 0 50 100 200
(IN FEET) 1 inch = 100 ft.

ENFIELD SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	03/02/22	FOR REVIEW: KAM
1	04/02/22	FOR PERMIT: KAM
2	03/02/23	REVISED LAYOUT: KAM
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
ADDRESS: 700 MIDDLETOWN AVE. NORTH HAVEN, CT 06473

ENFIELD SOLAR ONE

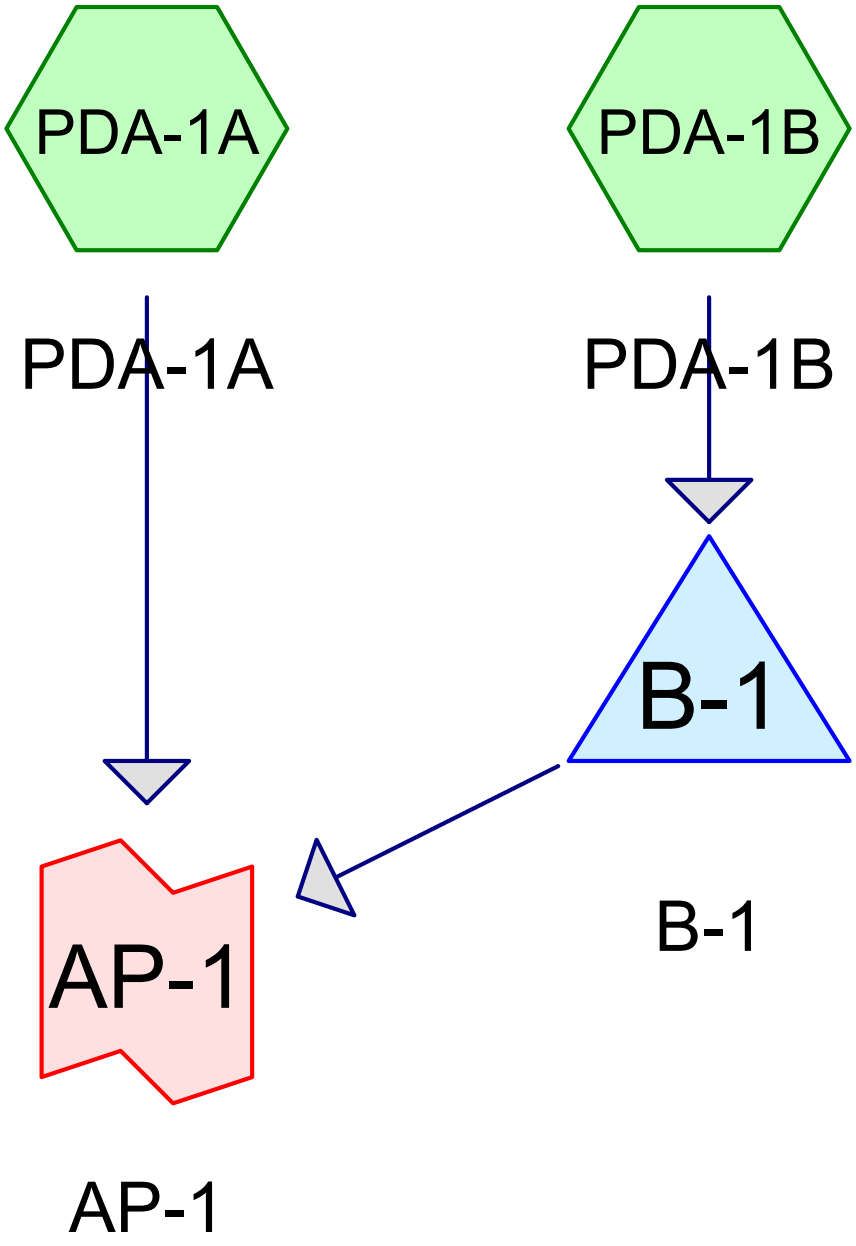
SITE ADDRESS: 110 NORTH STREET ENFIELD, CT 06082

APT FILING NUMBER: CT590230

DRAWN BY: CSH
DATE: 03/02/22 CHECKED BY: KAM

SHEET TITLE:
PROPOSED DRAINAGE AREA MAP

SHEET NUMBER:
PDA-1



Subcat Reach Pond Link

Routing Diagram for CT590230_EnfieldSolarOne - PR - Rev2
Prepared by APT ENGINEERING, Printed 2/10/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.604	61	>75% Grass cover, Good, HSG B (PDA-1B)
0.253	80	>75% Grass cover, Good, HSG D (PDA-1A)
0.602	96	Gravel surface, HSG B (PDA-1A, PDA-1B)
0.402	30	Meadow, non-grazed, HSG A (PDA-1B)
0.873	44	Meadow, non-grazed, HSG A/B (PDA-1B)
4.344	58	Meadow, non-grazed, HSG B (PDA-1A, PDA-1B)
17.002	65	Meadow, non-grazed, HSG B/C (PDA-1B)
2.119	71	Meadow, non-grazed, HSG C (PDA-1A, PDA-1B)
3.117	75	Meadow, non-grazed, HSG C/D (PDA-1B)
0.039	78	Meadow, non-grazed, HSG D (PDA-1A)
0.023	98	Paved parking, HSG C (PDA-1A, PDA-1B)
0.621	98	Paved roads w/curbs & sewers, HSG B (PDA-1A, PDA-1B)
3.754	75	Row crops, SR + CR, Good, HSG B (PDA-1A)
0.089	82	Row crops, SR + CR, Good, HSG C (PDA-1A)
0.084	30	Woods, Good, HSG A (PDA-1B)
1.067	55	Woods, Good, HSG B (PDA-1A, PDA-1B)
0.204	77	Woods, Good, HSG D (PDA-1A)
37.197	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.359	HSG A	PDA-1B
29.994	HSG B	PDA-1A, PDA-1B
5.348	HSG C	PDA-1A, PDA-1B
0.496	HSG D	PDA-1A
0.000	Other	
37.197		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	2.604	0.000	0.253	0.000	2.857	>75% Grass cover, Good	PDA -1A, PDA -1B
0.000	0.602	0.000	0.000	0.000	0.602	Gravel surface	PDA -1A, PDA -1B
1.275	21.346	5.236	0.039	0.000	27.896	Meadow, non-grazed	PDA -1A, PDA -1B
0.000	0.000	0.023	0.000	0.000	0.023	Paved parking	PDA -1A, PDA -1B
0.000	0.621	0.000	0.000	0.000	0.621	Paved roads w/curbs & sewers	PDA -1A, PDA -1B
0.000	3.754	0.089	0.000	0.000	3.843	Row crops, SR + CR, Good	PDA -1A
0.084	1.067	0.000	0.204	0.000	1.355	Woods, Good	PDA -1A, PDA -1B
1.359	**29.994**	**5.348**	**0.496**	**0.000**	**37.197**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 PDA-1A: PDA-1A Runoff Area=7.999 ac 2.54% Impervious Runoff Depth=0.76"
Flow Length=1,053' Tc=31.7 min CN=69 Runoff=3.45 cfs 0.508 af

Subcatchment PDA-1B: PDA-1B Runoff Area=29.198 ac 1.51% Impervious Runoff Depth=0.59"
Flow Length=1,444' Tc=52.3 min CN=65 Runoff=6.73 cfs 1.426 af

Pond B-1: B-1 Peak Elev=179.41' Storage=11,829 cf Inflow=6.73 cfs 1.426 af
Discarded=2.71 cfs 1.428 af Primary=0.00 cfs 0.000 af Outflow=2.71 cfs 1.428 af

Link AP-1: AP-1 Inflow=3.45 cfs 0.508 af
Primary=3.45 cfs 0.508 af

Total Runoff Area = 37.197 ac Runoff Volume = 1.934 af Average Runoff Depth = 0.62"
98.27% Pervious = 36.553 ac 1.73% Impervious = 0.644 ac

Summary for Subcatchment PDA-1A: PDA-1A

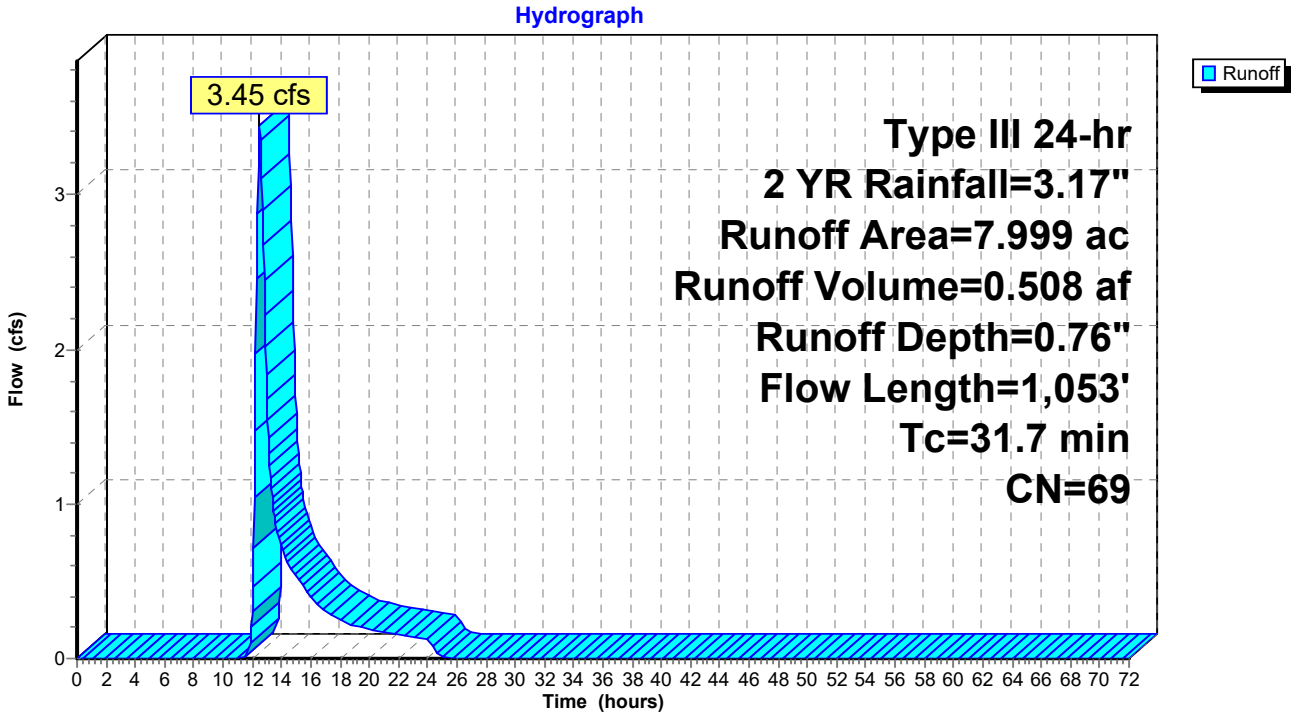
Runoff = 3.45 cfs @ 12.51 hrs, Volume= 0.508 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.17"

Area (ac)	CN	Description
3.754	75	Row crops, SR + CR, Good, HSG B
2.382	58	Meadow, non-grazed, HSG B
0.456	55	Woods, Good, HSG B
0.026	96	Gravel surface, HSG B
0.202	98	Paved roads w/curbs & sewers, HSG B
0.089	82	Row crops, SR + CR, Good, HSG C
0.593	71	Meadow, non-grazed, HSG C
0.001	98	Paved parking, HSG C
0.253	80	>75% Grass cover, Good, HSG D
0.039	78	Meadow, non-grazed, HSG D
0.204	77	Woods, Good, HSG D
7.999	69	Weighted Average
7.796		97.46% Pervious Area
0.203		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
17.0	713	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0600	1.71		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
1.2	190	0.0297	2.59		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
31.7	1,053	Total			

Subcatchment PDA-1A: PDA-1A



Summary for Subcatchment PDA-1B: PDA-1B

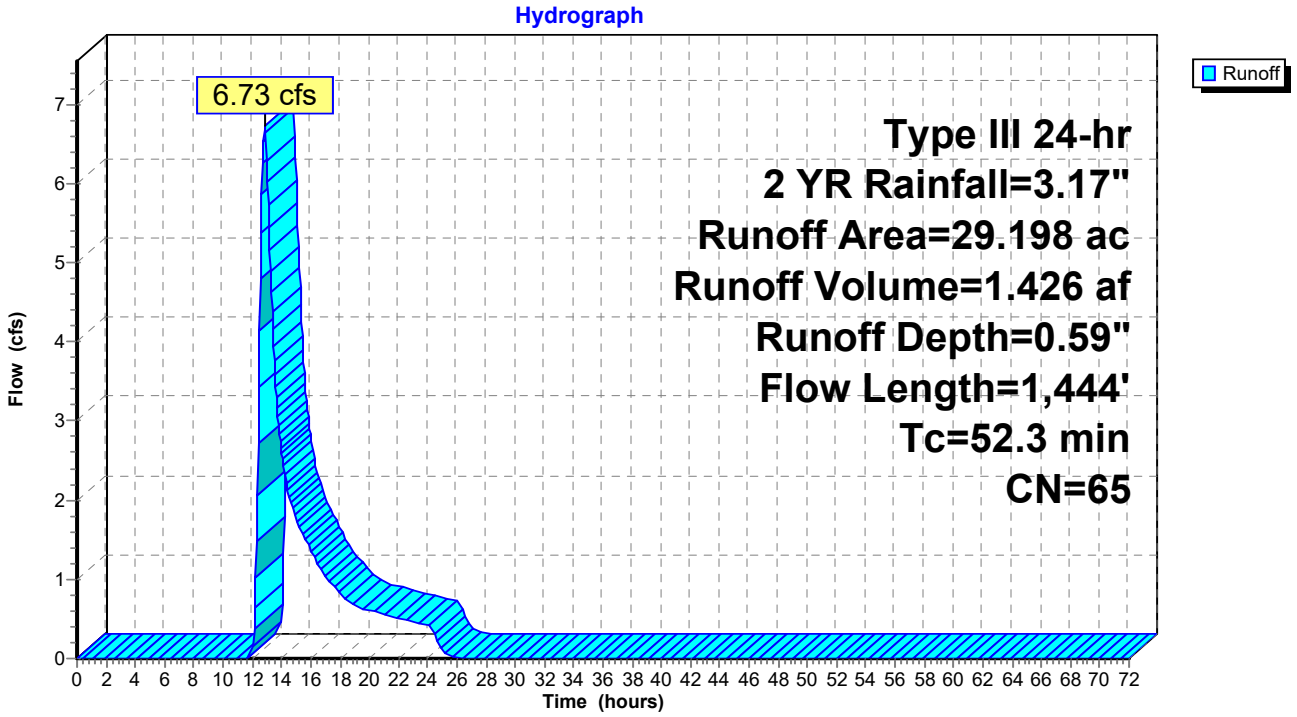
Runoff = 6.73 cfs @ 12.85 hrs, Volume= 1.426 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.17"

	Area (ac)	CN	Description
	0.402	30	Meadow, non-grazed, HSG A
	0.084	30	Woods, Good, HSG A
*	0.873	44	Meadow, non-grazed, HSG A/B
	2.604	61	>75% Grass cover, Good, HSG B
	1.962	58	Meadow, non-grazed, HSG B
	0.611	55	Woods, Good, HSG B
	0.576	96	Gravel surface, HSG B
	0.419	98	Paved roads w/curbs & sewers, HSG B
*	17.002	65	Meadow, non-grazed, HSG B/C
	1.526	71	Meadow, non-grazed, HSG C
	0.022	98	Paved parking, HSG C
*	3.117	75	Meadow, non-grazed, HSG C/D
	29.198	65	Weighted Average
	28.757		98.49% Pervious Area
	0.441		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.9	485	0.0080	0.63		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
52.3	1,444	Total			

Subcatchment PDA-1B: PDA-1B



Summary for Pond B-1: B-1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=84)

Inflow Area = 29.198 ac, 1.51% Impervious, Inflow Depth = 0.59" for 2 YR event
Inflow = 6.73 cfs @ 12.85 hrs, Volume= 1.426 af
Outflow = 2.71 cfs @ 13.92 hrs, Volume= 1.428 af, Atten= 60%, Lag= 64.5 min
Discarded = 2.71 cfs @ 13.92 hrs, Volume= 1.428 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 179.41' @ 13.92 hrs Surf.Area= 29,554 sf Storage= 11,829 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 34.5 min (973.8 - 939.2)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	113,833 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

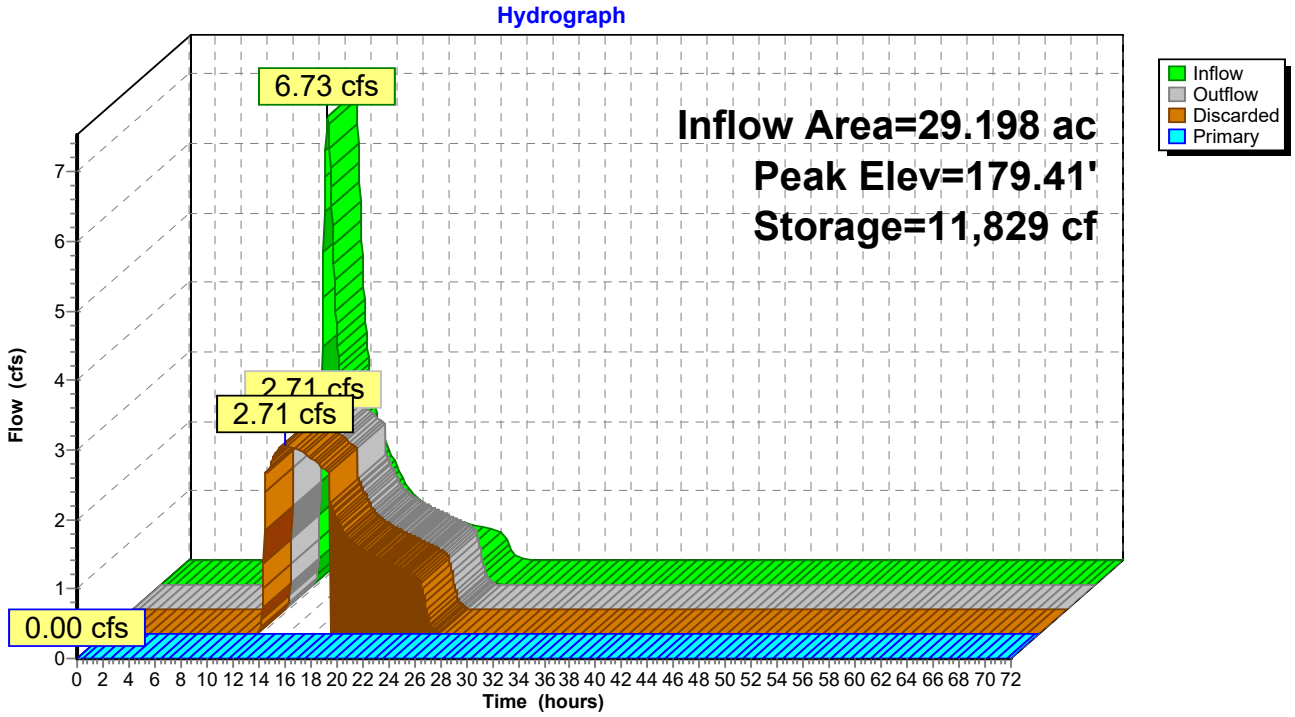
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
179.00	28,503	0	0
180.00	31,081	29,792	29,792
181.00	33,715	32,398	62,190
182.00	69,570	51,643	113,833

Device	Routing	Invert	Outlet Devices
#1	Primary	181.00'	**70.0' long x 33.0' breadth Broad Crested Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	179.00'	**3.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 176.00'

Discarded OutFlow Max=2.71 cfs @ 13.92 hrs HW=179.41' (Free Discharge)
↑—**2=Exfiltration** (Controls 2.71 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad Crested Weir** (Controls 0.00 cfs)

Pond B-1: B-1

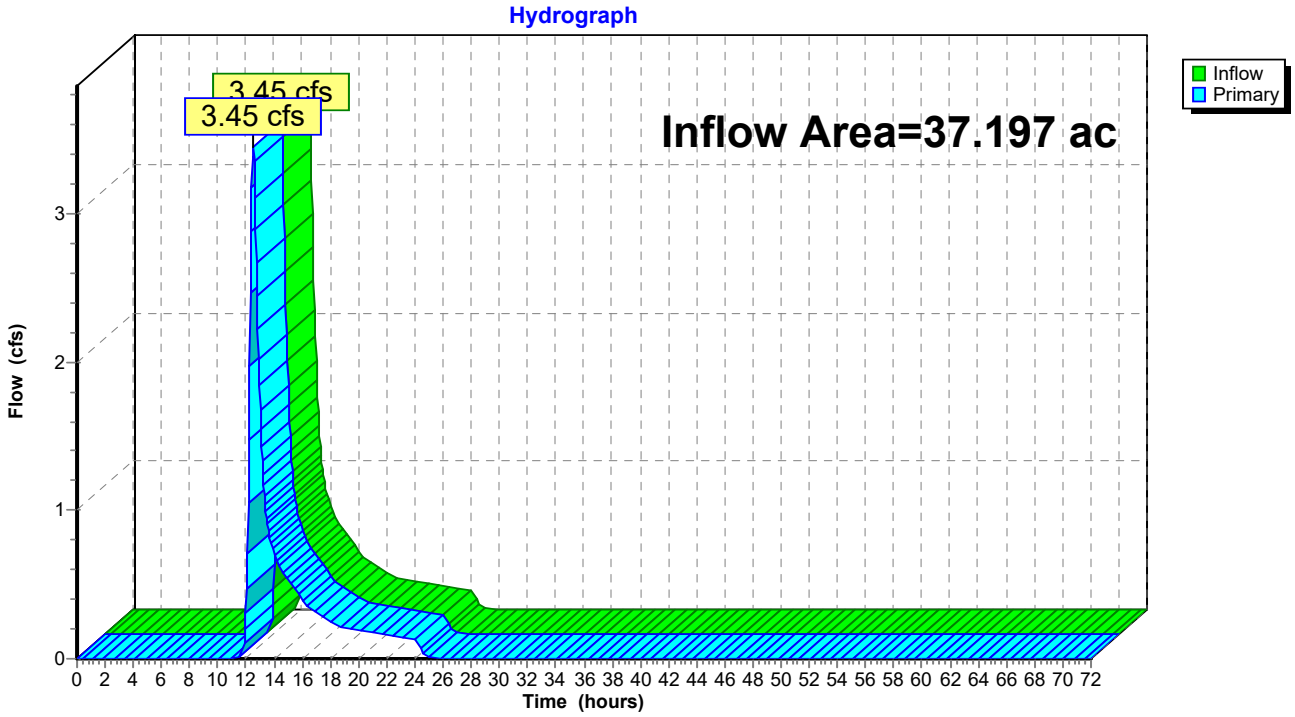

Hydrograph
6.73 cfs
2.71 cfs
2.71 cfs
0.00 cfs
Inflow Area=29.198 ac
Peak Elev=179.41'
Storage=11,829 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0 1 2 3 4 5 6 7
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Link AP-1: AP-1

Inflow Area = 37.197 ac, 1.73% Impervious, Inflow Depth = 0.16" for 2 YR event
Inflow = 3.45 cfs @ 12.51 hrs, Volume= 0.508 af
Primary = 3.45 cfs @ 12.51 hrs, Volume= 0.508 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 PDA-1A: PDA-1A Runoff Area=7.999 ac 2.54% Impervious Runoff Depth=2.89"
Flow Length=1,053' Tc=31.7 min CN=69 Runoff=14.83 cfs 1.929 af

Subcatchment PDA-1B: PDA-1B Runoff Area=29.198 ac 1.51% Impervious Runoff Depth=2.52"
Flow Length=1,444' Tc=52.3 min CN=65 Runoff=35.89 cfs 6.131 af

Pond B-1: B-1 Peak Elev=181.24' Storage=71,213 cf Inflow=35.89 cfs 6.131 af
Discarded=5.30 cfs 4.545 af Primary=21.76 cfs 1.587 af Outflow=27.06 cfs 6.132 af

Link AP-1: AP-1 Inflow=27.00 cfs 3.516 af
Primary=27.00 cfs 3.516 af

Total Runoff Area = 37.197 ac Runoff Volume = 8.060 af Average Runoff Depth = 2.60"
98.27% Pervious = 36.553 ac 1.73% Impervious = 0.644 ac

Summary for Subcatchment PDA-1A: PDA-1A

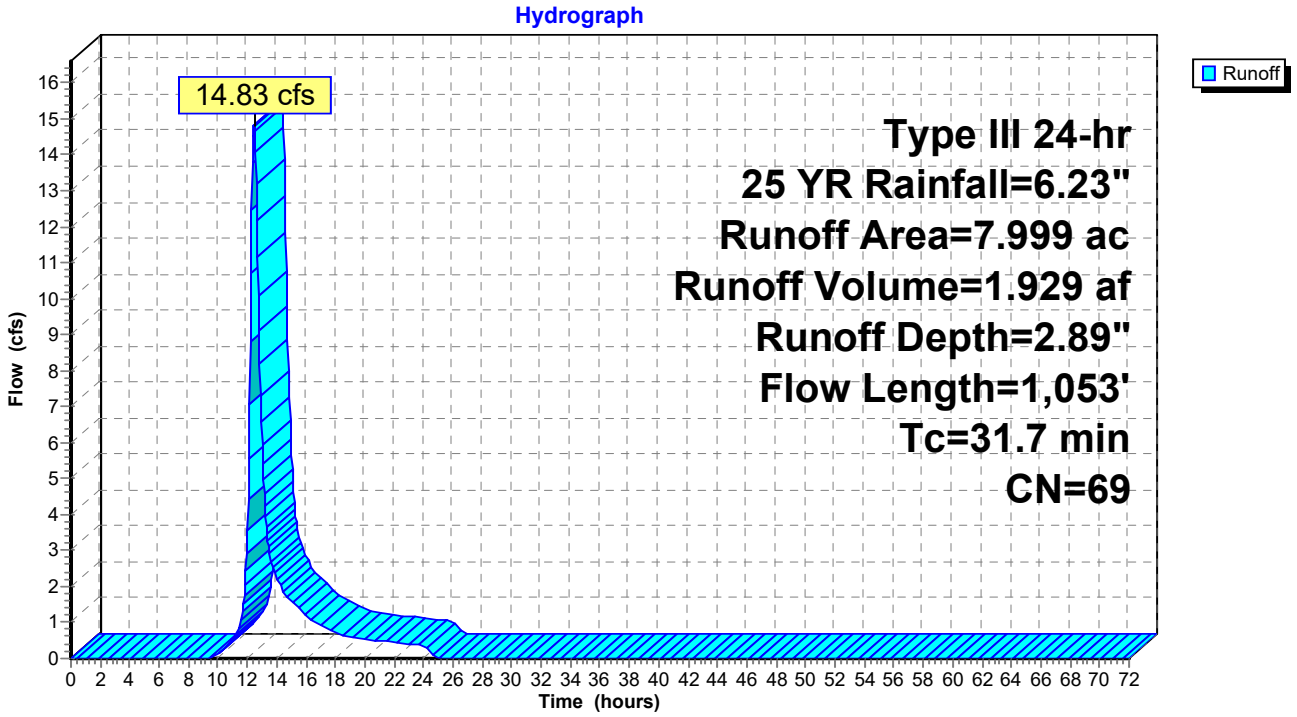
Runoff = 14.83 cfs @ 12.46 hrs, Volume= 1.929 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR Rainfall=6.23"

Area (ac)	CN	Description
3.754	75	Row crops, SR + CR, Good, HSG B
2.382	58	Meadow, non-grazed, HSG B
0.456	55	Woods, Good, HSG B
0.026	96	Gravel surface, HSG B
0.202	98	Paved roads w/curbs & sewers, HSG B
0.089	82	Row crops, SR + CR, Good, HSG C
0.593	71	Meadow, non-grazed, HSG C
0.001	98	Paved parking, HSG C
0.253	80	>75% Grass cover, Good, HSG D
0.039	78	Meadow, non-grazed, HSG D
0.204	77	Woods, Good, HSG D
7.999	69	Weighted Average
7.796		97.46% Pervious Area
0.203		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
17.0	713	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0600	1.71		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
1.2	190	0.0297	2.59		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
31.7	1,053	Total			

Subcatchment PDA-1A: PDA-1A



Summary for Subcatchment PDA-1B: PDA-1B

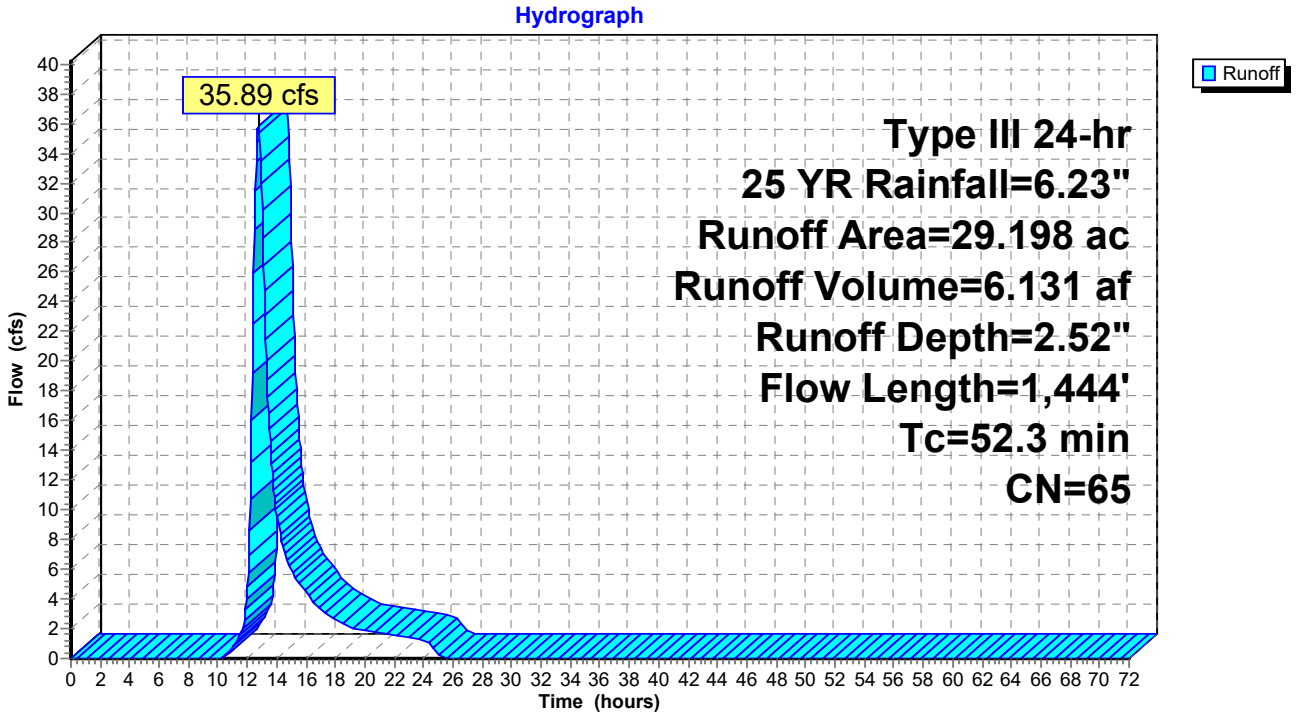
Runoff = 35.89 cfs @ 12.74 hrs, Volume= 6.131 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR Rainfall=6.23"

	Area (ac)	CN	Description
	0.402	30	Meadow, non-grazed, HSG A
	0.084	30	Woods, Good, HSG A
*	0.873	44	Meadow, non-grazed, HSG A/B
	2.604	61	>75% Grass cover, Good, HSG B
	1.962	58	Meadow, non-grazed, HSG B
	0.611	55	Woods, Good, HSG B
	0.576	96	Gravel surface, HSG B
	0.419	98	Paved roads w/curbs & sewers, HSG B
*	17.002	65	Meadow, non-grazed, HSG B/C
	1.526	71	Meadow, non-grazed, HSG C
	0.022	98	Paved parking, HSG C
*	3.117	75	Meadow, non-grazed, HSG C/D
	29.198	65	Weighted Average
	28.757		98.49% Pervious Area
	0.441		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.9	485	0.0080	0.63		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
52.3	1,444	Total			

Subcatchment PDA-1B: PDA-1B



Summary for Pond B-1: B-1

Inflow Area = 29.198 ac, 1.51% Impervious, Inflow Depth = 2.52" for 25 YR event
Inflow = 35.89 cfs @ 12.74 hrs, Volume= 6.131 af
Outflow = 27.06 cfs @ 13.09 hrs, Volume= 6.132 af, Atten= 25%, Lag= 20.7 min
Discarded = 5.30 cfs @ 13.09 hrs, Volume= 4.545 af
Primary = 21.76 cfs @ 13.09 hrs, Volume= 1.587 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 181.24' @ 13.09 hrs Surf.Area= 42,235 sf Storage= 71,213 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 131.1 min (1,022.2 - 891.0)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	113,833 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

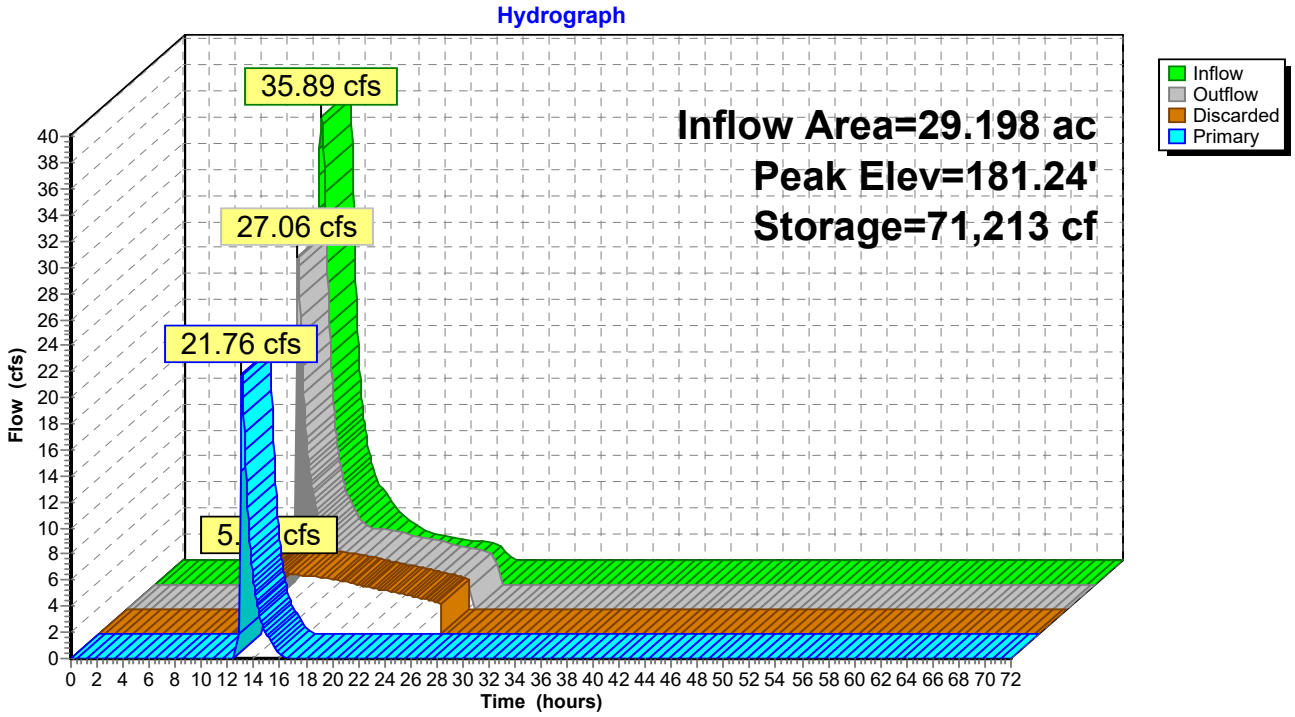
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
179.00	28,503	0	0
180.00	31,081	29,792	29,792
181.00	33,715	32,398	62,190
182.00	69,570	51,643	113,833

Device	Routing	Invert	Outlet Devices
#1	Primary	181.00'	**70.0' long x 33.0' breadth Broad Crested Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	179.00'	**3.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 176.00'

Discarded OutFlow Max=5.30 cfs @ 13.09 hrs HW=181.24' (Free Discharge)
↑—**2=Exfiltration** (Controls 5.30 cfs)

Primary OutFlow Max=21.68 cfs @ 13.09 hrs HW=181.24' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad Crested Weir** (Weir Controls 21.68 cfs @ 1.31 fps)

Pond B-1: B-1

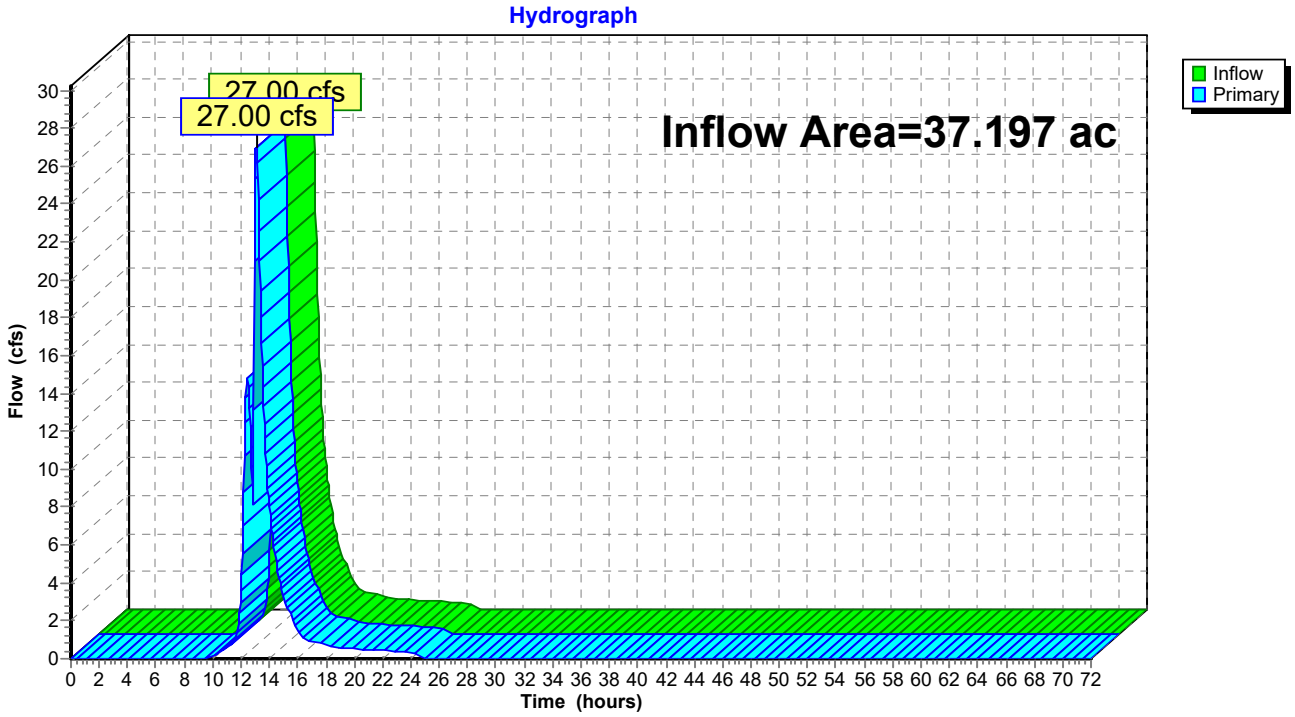

Hydrograph
35.89 cfs
27.06 cfs
21.76 cfs
Inflow Area=29.198 ac
Peak Elev=181.24'
Storage=71,213 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Link AP-1: AP-1

Inflow Area = 37.197 ac, 1.73% Impervious, Inflow Depth = 1.13" for 25 YR event
Inflow = 27.00 cfs @ 13.07 hrs, Volume= 3.516 af
Primary = 27.00 cfs @ 13.07 hrs, Volume= 3.516 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 PDA-1A: PDA-1A Runoff Area=7.999 ac 2.54% Impervious Runoff Depth=3.58"
Flow Length=1,053' Tc=31.7 min CN=69 Runoff=18.44 cfs 2.386 af

Subcatchment PDA-1B: PDA-1B Runoff Area=29.198 ac 1.51% Impervious Runoff Depth=3.16"
Flow Length=1,444' Tc=52.3 min CN=65 Runoff=45.58 cfs 7.700 af

Pond B-1: B-1 Peak Elev=181.32' Storage=74,971 cf Inflow=45.58 cfs 7.700 af
Discarded=5.64 cfs 4.971 af Primary=34.67 cfs 2.732 af Outflow=40.31 cfs 7.703 af

Link AP-1: AP-1 Inflow=43.01 cfs 5.118 af
Primary=43.01 cfs 5.118 af

Total Runoff Area = 37.197 ac Runoff Volume = 10.086 af Average Runoff Depth = 3.25"
98.27% Pervious = 36.553 ac 1.73% Impervious = 0.644 ac

Summary for Subcatchment PDA-1A: PDA-1A

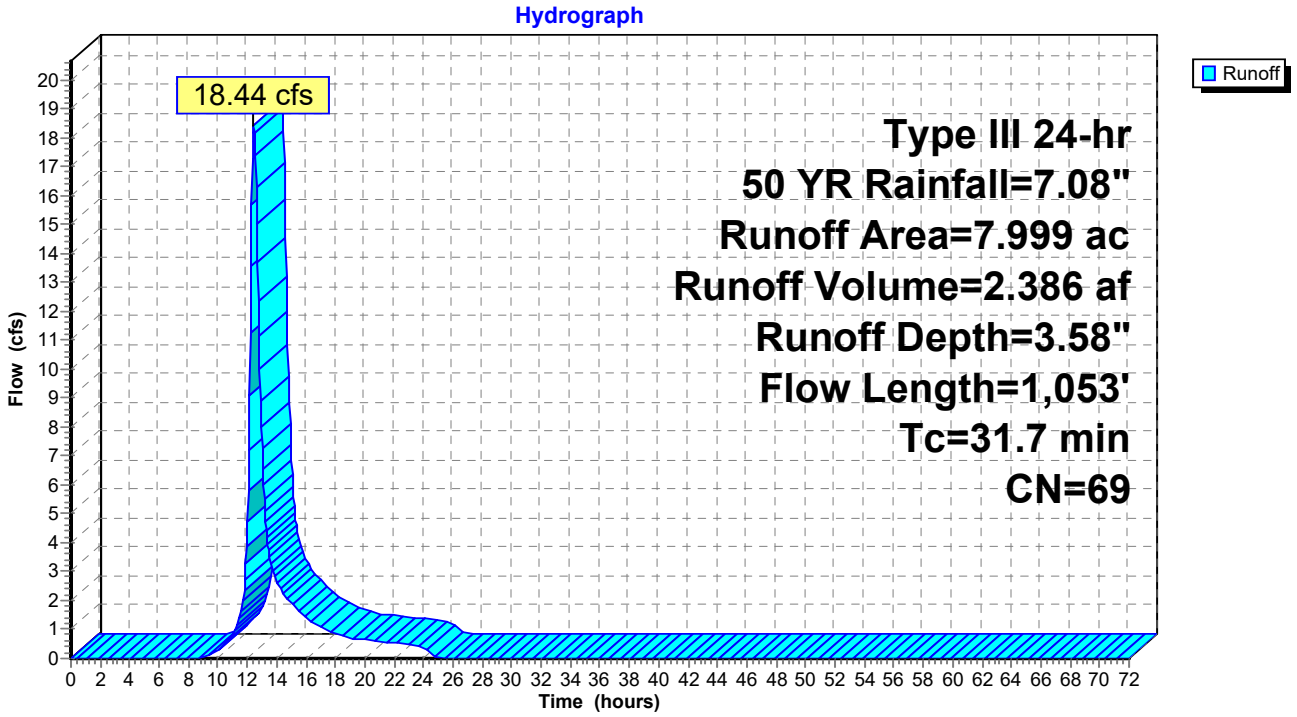
Runoff = 18.44 cfs @ 12.45 hrs, Volume= 2.386 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 YR Rainfall=7.08"

Area (ac)	CN	Description
3.754	75	Row crops, SR + CR, Good, HSG B
2.382	58	Meadow, non-grazed, HSG B
0.456	55	Woods, Good, HSG B
0.026	96	Gravel surface, HSG B
0.202	98	Paved roads w/curbs & sewers, HSG B
0.089	82	Row crops, SR + CR, Good, HSG C
0.593	71	Meadow, non-grazed, HSG C
0.001	98	Paved parking, HSG C
0.253	80	>75% Grass cover, Good, HSG D
0.039	78	Meadow, non-grazed, HSG D
0.204	77	Woods, Good, HSG D
7.999	69	Weighted Average
7.796		97.46% Pervious Area
0.203		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
17.0	713	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0600	1.71		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
1.2	190	0.0297	2.59		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
31.7	1,053	Total			

Subcatchment PDA-1A: PDA-1A



Summary for Subcatchment PDA-1B: PDA-1B

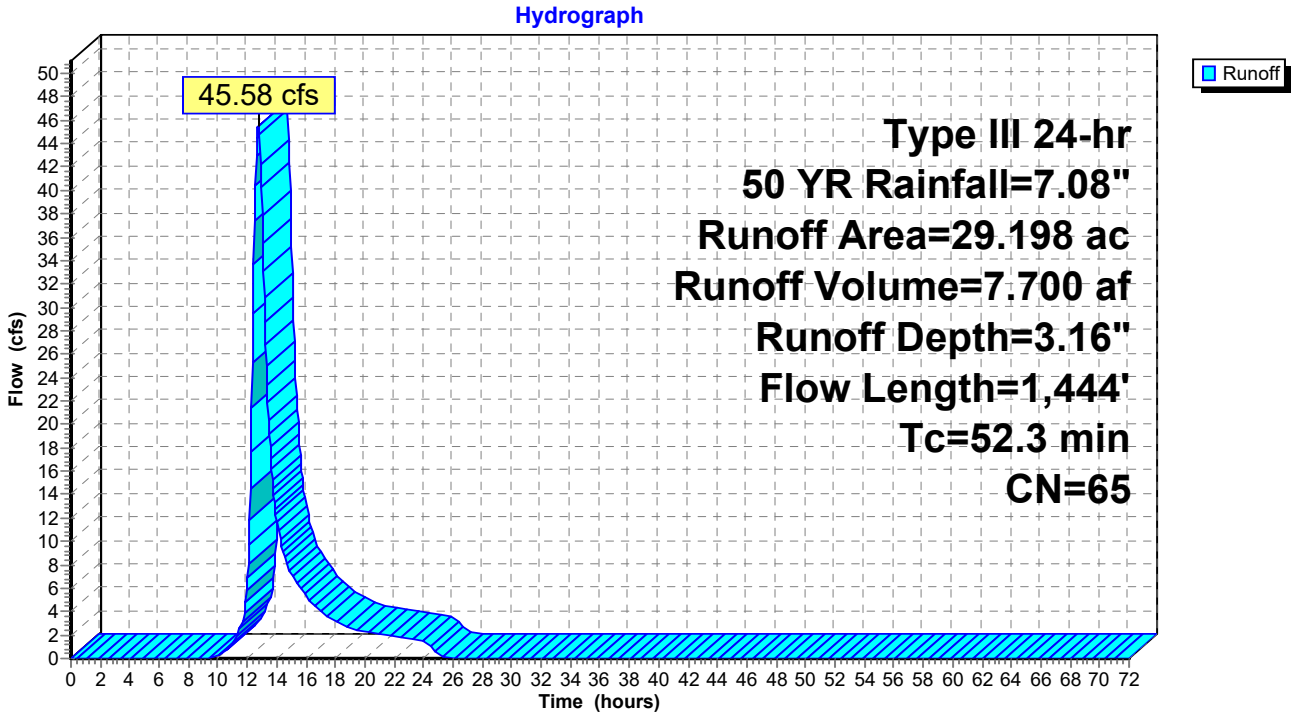
Runoff = 45.58 cfs @ 12.74 hrs, Volume= 7.700 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 YR Rainfall=7.08"

	Area (ac)	CN	Description
	0.402	30	Meadow, non-grazed, HSG A
	0.084	30	Woods, Good, HSG A
*	0.873	44	Meadow, non-grazed, HSG A/B
	2.604	61	>75% Grass cover, Good, HSG B
	1.962	58	Meadow, non-grazed, HSG B
	0.611	55	Woods, Good, HSG B
	0.576	96	Gravel surface, HSG B
	0.419	98	Paved roads w/curbs & sewers, HSG B
*	17.002	65	Meadow, non-grazed, HSG B/C
	1.526	71	Meadow, non-grazed, HSG C
	0.022	98	Paved parking, HSG C
*	3.117	75	Meadow, non-grazed, HSG C/D
	29.198	65	Weighted Average
	28.757		98.49% Pervious Area
	0.441		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.9	485	0.0080	0.63		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
52.3	1,444	Total			

Subcatchment PDA-1B: PDA-1B



Summary for Pond B-1: B-1

Inflow Area = 29.198 ac, 1.51% Impervious, Inflow Depth = 3.16" for 50 YR event
Inflow = 45.58 cfs @ 12.74 hrs, Volume= 7.700 af
Outflow = 40.31 cfs @ 12.95 hrs, Volume= 7.703 af, Atten= 12%, Lag= 13.1 min
Discarded = 5.64 cfs @ 12.95 hrs, Volume= 4.971 af
Primary = 34.67 cfs @ 12.95 hrs, Volume= 2.732 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 181.32' @ 12.95 hrs Surf.Area= 45,313 sf Storage= 74,971 cf

Plug-Flow detention time= 116.4 min calculated for 7.697 af (100% of inflow)
Center-of-Mass det. time= 116.6 min (1,000.9 - 884.3)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	113,833 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

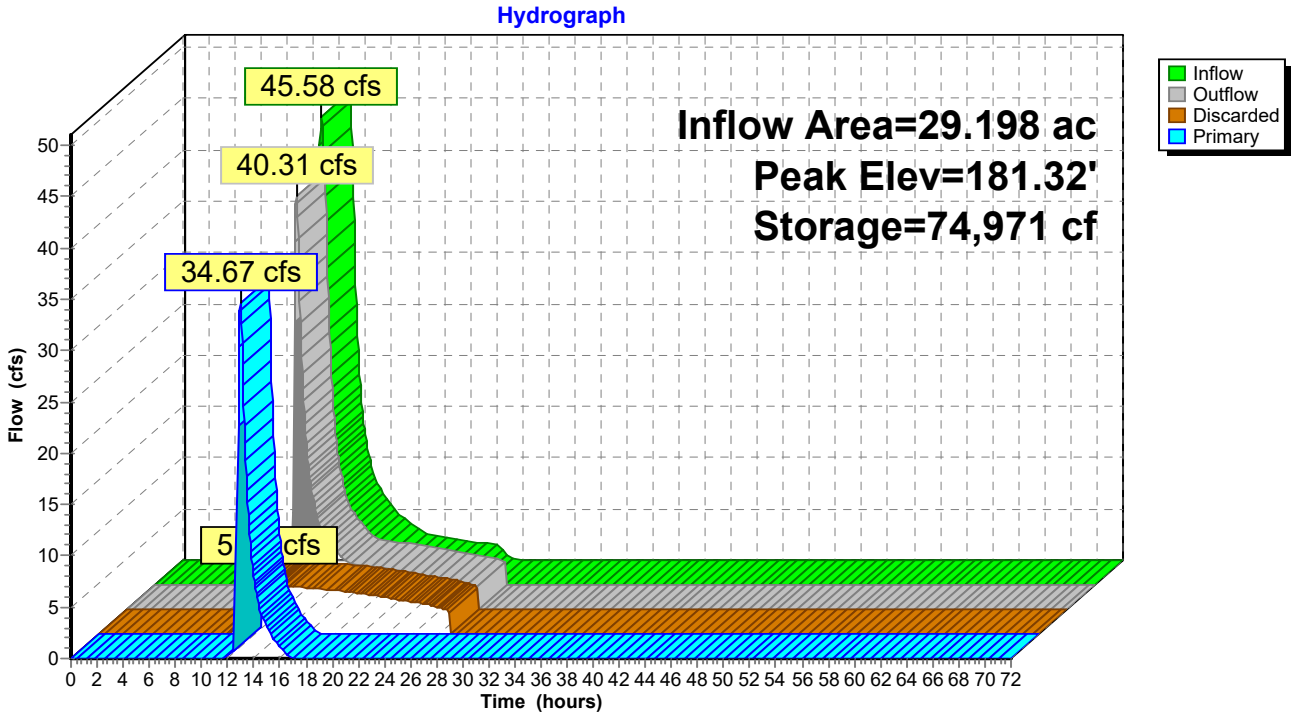
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
179.00	28,503	0	0
180.00	31,081	29,792	29,792
181.00	33,715	32,398	62,190
182.00	69,570	51,643	113,833

Device	Routing	Invert	Outlet Devices
#1	Primary	181.00'	**70.0' long x 33.0' breadth Broad Crested Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	179.00'	**3.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 176.00'

Discarded OutFlow Max=5.63 cfs @ 12.95 hrs HW=181.32' (Free Discharge)
↑—**2=Exfiltration** (Controls 5.63 cfs)

Primary OutFlow Max=34.61 cfs @ 12.95 hrs HW=181.32' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad Crested Weir** (Weir Controls 34.61 cfs @ 1.53 fps)

Pond B-1: B-1

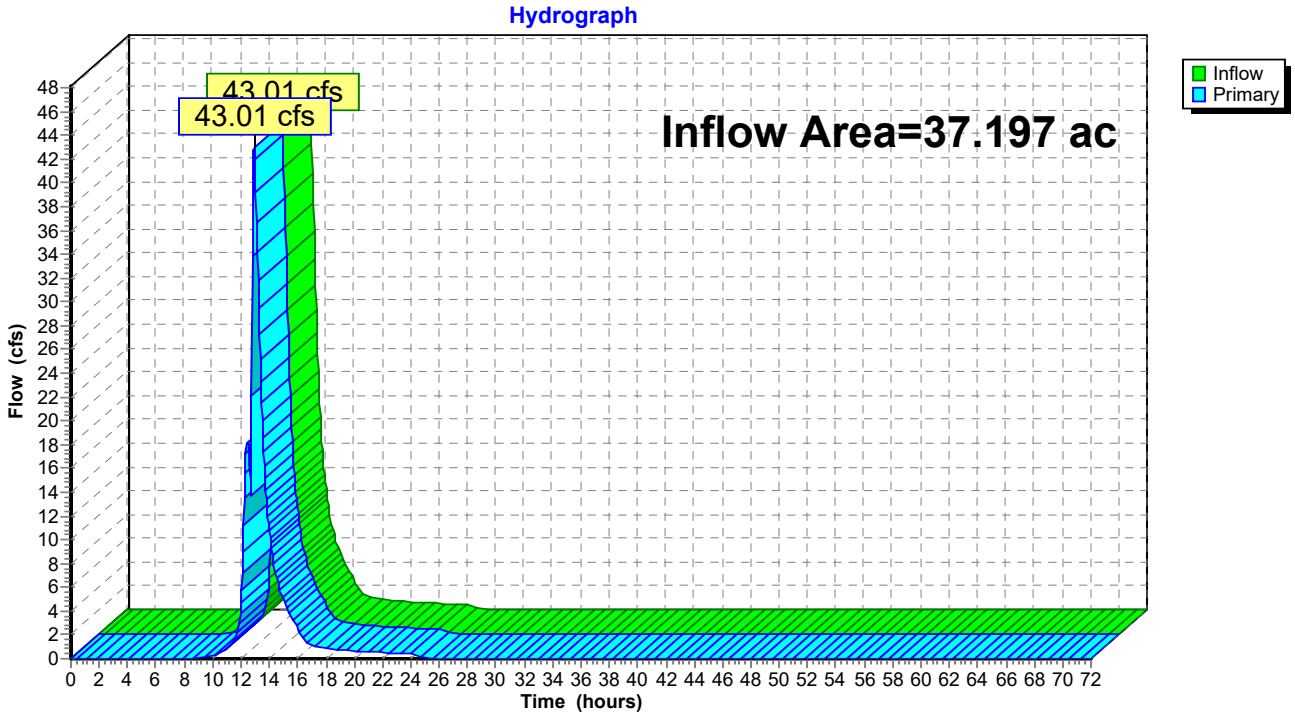

Hydrograph
45.58 cfs
40.31 cfs
34.67 cfs
Inflow Area=29.198 ac
Peak Elev=181.32'
Storage=74,971 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Link AP-1: AP-1

Inflow Area = 37.197 ac, 1.73% Impervious, Inflow Depth = 1.65" for 50 YR event
Inflow = 43.01 cfs @ 12.92 hrs, Volume= 5.118 af
Primary = 43.01 cfs @ 12.92 hrs, Volume= 5.118 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 PDA-1A: PDA-1A Runoff Area=7.999 ac 2.54% Impervious Runoff Depth=4.38"
Flow Length=1,053' Tc=31.7 min CN=69 Runoff=22.64 cfs 2.922 af

Subcatchment PDA-1B: PDA-1B Runoff Area=29.198 ac 1.51% Impervious Runoff Depth=3.93"
Flow Length=1,444' Tc=52.3 min CN=65 Runoff=56.96 cfs 9.554 af

Pond B-1: B-1 Peak Elev=181.40' Storage=78,631 cf Inflow=56.96 cfs 9.554 af
Discarded=5.95 cfs 5.401 af Primary=48.14 cfs 4.154 af Outflow=54.08 cfs 9.555 af

Link AP-1: AP-1 Inflow=60.44 cfs 7.076 af
Primary=60.44 cfs 7.076 af

Total Runoff Area = 37.197 ac Runoff Volume = 12.476 af Average Runoff Depth = 4.02"
98.27% Pervious = 36.553 ac 1.73% Impervious = 0.644 ac

Summary for Subcatchment PDA-1A: PDA-1A

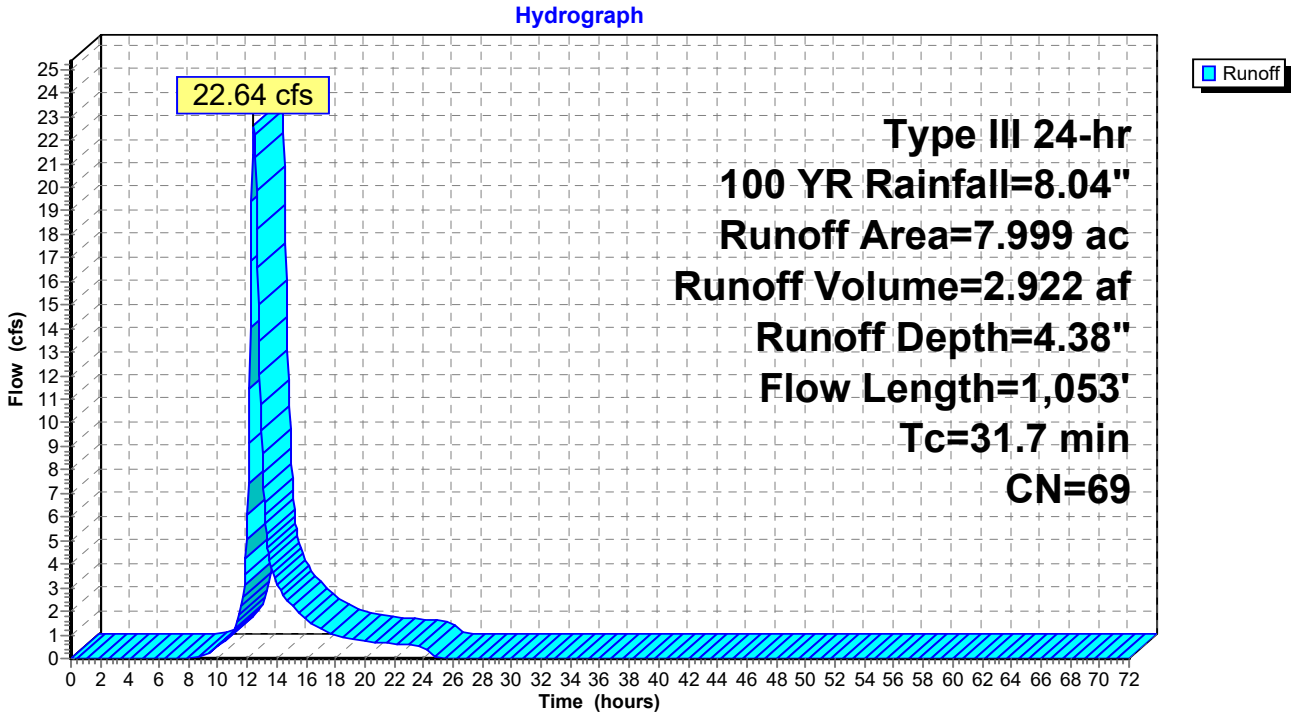
Runoff = 22.64 cfs @ 12.45 hrs, Volume= 2.922 af, Depth= 4.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=8.04"

Area (ac)	CN	Description
3.754	75	Row crops, SR + CR, Good, HSG B
2.382	58	Meadow, non-grazed, HSG B
0.456	55	Woods, Good, HSG B
0.026	96	Gravel surface, HSG B
0.202	98	Paved roads w/curbs & sewers, HSG B
0.089	82	Row crops, SR + CR, Good, HSG C
0.593	71	Meadow, non-grazed, HSG C
0.001	98	Paved parking, HSG C
0.253	80	>75% Grass cover, Good, HSG D
0.039	78	Meadow, non-grazed, HSG D
0.204	77	Woods, Good, HSG D
7.999	69	Weighted Average
7.796		97.46% Pervious Area
0.203		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
17.0	713	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0600	1.71		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
1.2	190	0.0297	2.59		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
31.7	1,053	Total			

Subcatchment PDA-1A: PDA-1A



Summary for Subcatchment PDA-1B: PDA-1B

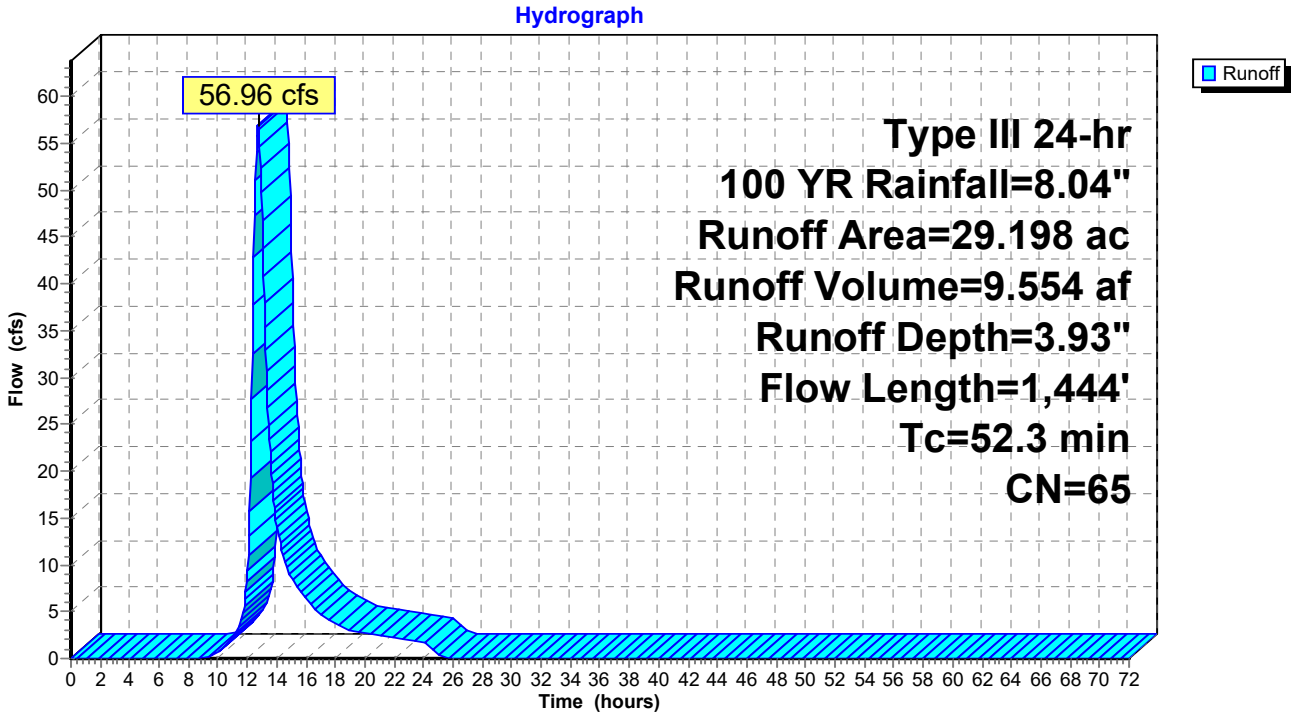
Runoff = 56.96 cfs @ 12.73 hrs, Volume= 9.554 af, Depth= 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=8.04"

	Area (ac)	CN	Description
	0.402	30	Meadow, non-grazed, HSG A
	0.084	30	Woods, Good, HSG A
*	0.873	44	Meadow, non-grazed, HSG A/B
	2.604	61	>75% Grass cover, Good, HSG B
	1.962	58	Meadow, non-grazed, HSG B
	0.611	55	Woods, Good, HSG B
	0.576	96	Gravel surface, HSG B
	0.419	98	Paved roads w/curbs & sewers, HSG B
*	17.002	65	Meadow, non-grazed, HSG B/C
	1.526	71	Meadow, non-grazed, HSG C
	0.022	98	Paved parking, HSG C
*	3.117	75	Meadow, non-grazed, HSG C/D
	29.198	65	Weighted Average
	28.757		98.49% Pervious Area
	0.441		1.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.18"
7.9	256	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.3	306	0.0060	0.70		**Shallow Concentrated Flow, C-D** Cultivated Straight Rows Kv= 9.0 fps
7.1	297	0.0100	0.70		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.9	485	0.0080	0.63		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
52.3	1,444	Total			

Subcatchment PDA-1B: PDA-1B



Summary for Pond B-1: B-1

Inflow Area = 29.198 ac, 1.51% Impervious, Inflow Depth = 3.93" for 100 YR event
Inflow = 56.96 cfs @ 12.73 hrs, Volume= 9.554 af
Outflow = 54.08 cfs @ 12.87 hrs, Volume= 9.555 af, Atten= 5%, Lag= 8.3 min
Discarded = 5.95 cfs @ 12.87 hrs, Volume= 5.401 af
Primary = 48.14 cfs @ 12.87 hrs, Volume= 4.154 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 181.40' @ 12.87 hrs Surf.Area= 48,121 sf Storage= 78,631 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 103.7 min (981.8 - 878.0)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	113,833 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

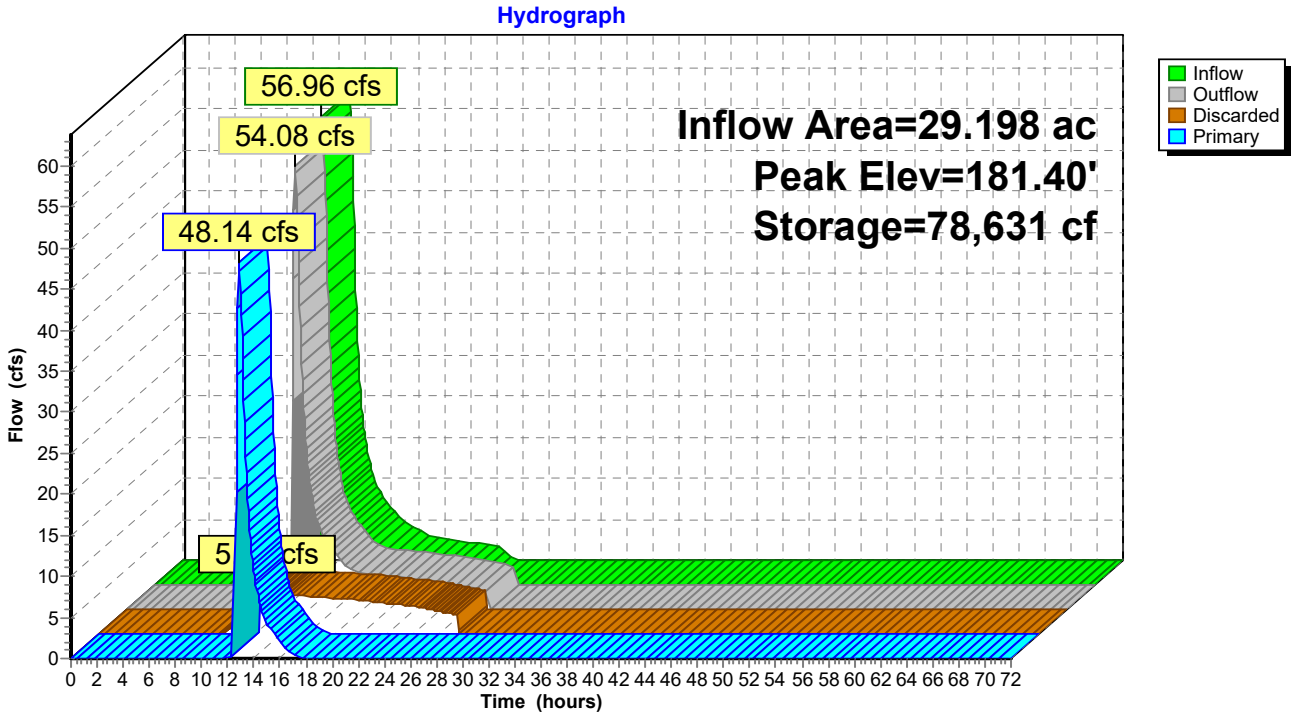
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
179.00	28,503	0	0
180.00	31,081	29,792	29,792
181.00	33,715	32,398	62,190
182.00	69,570	51,643	113,833

Device	Routing	Invert	Outlet Devices
#1	Primary	181.00'	**70.0' long x 33.0' breadth Broad Crested Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	179.00'	**3.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 176.00'

Discarded OutFlow Max=5.94 cfs @ 12.87 hrs HW=181.40' (Free Discharge)
2=Exfiltration (Controls 5.94 cfs)

Primary OutFlow Max=47.96 cfs @ 12.87 hrs HW=181.40' TW=0.00' (Dynamic Tailwater)
1=Broad Crested Weir (Weir Controls 47.96 cfs @ 1.71 fps)

Pond B-1: B-1

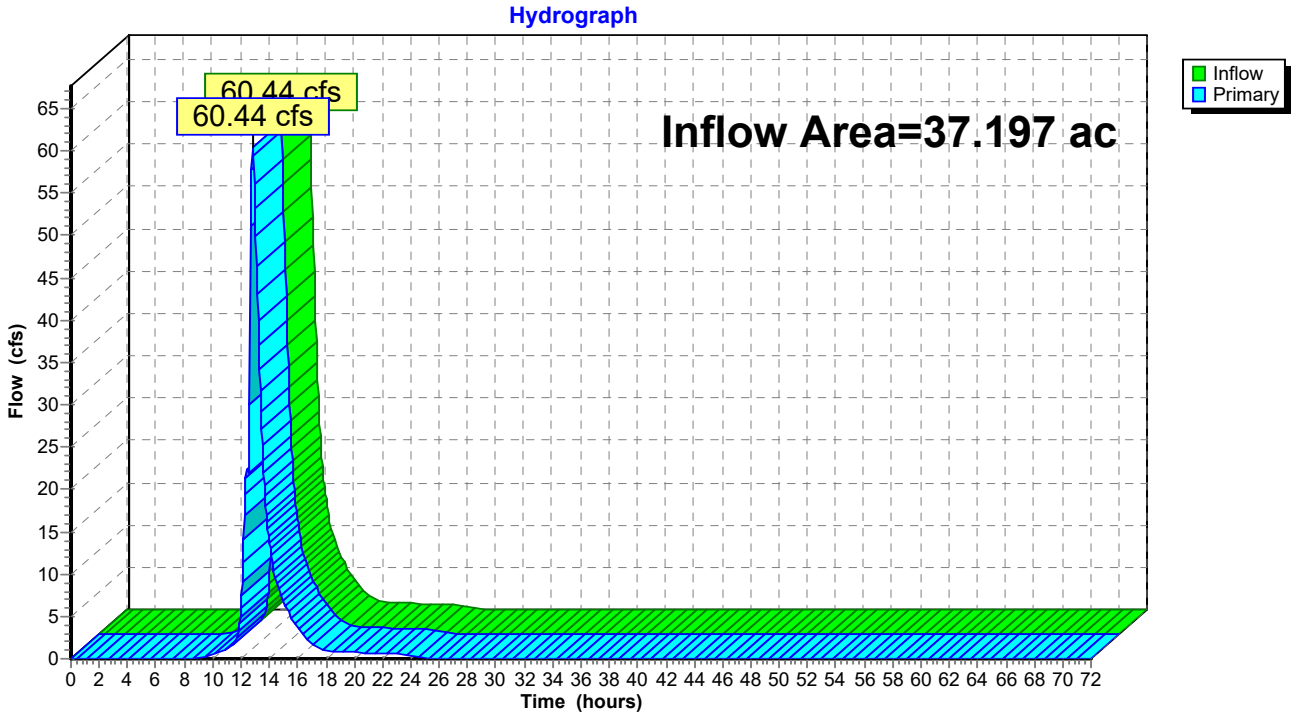

Hydrograph
56.96 cfs
54.08 cfs
48.14 cfs
Inflow Area=29.198 ac
Peak Elev=181.40'
Storage=78,631 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Link AP-1: AP-1

Inflow Area = 37.197 ac, 1.73% Impervious, Inflow Depth = 2.28" for 100 YR event
Inflow = 60.44 cfs @ 12.82 hrs, Volume= 7.076 af
Primary = 60.44 cfs @ 12.82 hrs, Volume= 7.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1



APPENDIX E: WATER QUALITY VOLUME CALCULATIONS

Stage-Area-Storage for Pond B-1: B-1

	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
	179.00	28,503	0
	179.05	28,632	1,428
	179.10	28,761	2,863
	179.15	28,890	4,304
	179.20	29,019	5,752
	179.25	29,148	7,206
	179.30	29,276	8,667
W.Q.V. ELEV.	179.35	29,405	10,134
	179.40	29,534	11,607
	179.45	29,663	13,087
	179.50	29,792	14,574
	179.55	29,921	16,067
	179.60	30,050	17,566
	179.65	30,179	19,072
	179.70	30,308	20,584
	179.75	30,437	22,102
	179.80	30,565	23,627
	179.85	30,694	25,159
	179.90	30,823	26,697
	179.95	30,952	28,241
	180.00	31,081	29,792
	180.05	31,213	31,349
	180.10	31,344	32,913
	180.15	31,476	34,484
	180.20	31,608	36,061
	180.25	31,740	37,645
	180.30	31,871	39,235
	180.35	32,003	40,832
	180.40	32,135	42,435
	180.45	32,266	44,045
	180.50	32,398	45,662
	180.55	32,530	47,285
	180.60	32,661	48,915
	180.65	32,793	50,551
	180.70	32,925	52,194
	180.75	33,057	53,844
	180.80	33,188	55,500
	180.85	33,320	57,162
	180.90	33,452	58,832
	180.95	33,583	60,508
	181.00	33,715	62,190
	181.05	35,508	63,921
	181.10	37,300	65,741
	181.15	39,093	67,651
	181.20	40,886	69,650
	181.25	42,679	71,739
	181.30	44,472	73,918
	181.35	46,264	76,186
	181.40	48,057	78,544
	181.45	49,850	80,992
	181.50	51,643	83,529
	181.55	53,435	86,156
	181.60	55,228	88,873

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.65	57,021	91,679
181.70	58,813	94,575
181.75	60,606	97,560
181.80	62,399	100,636
181.85	64,192	103,800
181.90	65,985	107,055
181.95	67,777	110,399
182.00	**69,570**	**113,833**

APPENDIX F: CT DEEP APPENDIX I CHECKLIST

CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities
APPENDIX I - Stormwater Management at Solar Array Construction Projects

Project Name:
Site Address:

Section #	**Requirements** *(Italicized Text is Paraphrased)*	Site and Stormwater Design Review Notes
I	Design and construction requirements	
1	Roadways, gravel surfaces and transformer pads within the solar array are considered effective impervious cover for the purposes of calculating Water Quality Volume (WQV). In addition to these impervious surfaces, all solar panels in the array shall also be considered effective impervious cover for the purposes of calculating Water Quality Volume if the proposed post-construction slopes at a site are equal to or greater than 15% or if the post-construction slopes at a site are less than 15% and the conditions in (a) – (d), inclusive, below have not been met:	Met
a	The vegetated area receiving runoff between rows of solar panels (see Figures 1 and 2, below) is equal to or greater than the average width of the row of solar panels draining to the vegetated area;	Met
b	Overall site conditions and solar panel configuration within the array are designed and constructed such that stormwater runoff remains as sheet flow across the entire site and flows towards the intended stormwater management controls.	Met
c	The following conditions are satisfied regarding the design of the post-construction slope of the site:	
i	For slopes less than or equal to 5%, appropriate vegetation shall be established, that will ensure sheet flow conditions and that will provide sufficient ground cover throughout the site.	Met
ii	For slopes greater than 5%, but less than 10%, practices including, but not limited to, level spreaders, terraces or berms as described in Figure 2, below, shall be used to ensure long term sheet flow conditions; and	N/A
iii	For sites with slopes greater than or equal to 8%, erosion control blankets or stump grindings or erosion control mix mulch or hydroseed with tackifier shall be applied within 72 hours of final grading, or when a rainfall of 0.5 inches or greater is predicted within 24 hours, whichever time period is less; and	Met
iv	For slopes equal to or greater than 10% and less than 15%, the Plan includes specific engineered stormwater control measures with detailed specifications that are designed to provide permanent stabilization and non-erosive conveyance of runoff to the property line of the site or downgradient from the site.	N/A
d	The solar panels shall be designed and constructed in such a manner as to allow the growth of native vegetation beneath and between the panels. (Pollinator-friendly vegetation is strongly encouraged). With respect to such vegetation, the Permittee shall not use chemical fertilization, herbicides, or pesticides except as necessary to establish such vegetation.	Met
2		
a	Prior to commencing construction activities, the Permittee shall ensure that the following setback and buffer shall be delineated and maintained on the site:	
i	No solar panel associated with a solar array shall be located within one- hundred (100) feet of any wetland or waters ("the 100-foot setback") that, prior to or after construction, is located downgradient of such construction activity or within fifty (50) feet of any property boundary ("the 50-foot setback") that, prior to or after construction, is located downgradient of such construction activity; and	Met
ii	Except as provided in section 2(a)(iii), there shall be an undisturbed buffer of at least fifty (50) feet between any construction activity at a site and any wetland or waters that, prior to or after construction, is located downgradient of such construction activity ("the 50-foot buffer"). Such buffer shall be comprised of existing dense herbaceous vegetative ground cover (e.g. not forested area). If the entirety of such buffer is not comprised of existing dense herbaceous vegetative ground cover, such buffer shall be at least one-hundred (100) feet ("the 100-foot buffer").	Met
iii	There shall be an undisturbed buffer of at least ten (10) feet between any construction activity at a site associated with an access road or the electrical interconnection necessary for the solar array and any wetland or waters that, prior to or after construction, is located downgradient of such construction activity ("10-foot buffer"), except if the access road or electrical interconnection passes between two wetland or waters and the undisturbed buffer cannot be achieved. Any crossing through a wetland or waters for an access road or electrical interconnection is exempt from such buffer requirement.	Met
b	Notwithstanding section 2(a)(ii), the 50-foot buffer or 100-foot buffer, as applicable, may be reduced, only where necessary, but by no more than fifty percent (50%), only if all of the following have been demonstrated to the satisfaction of the commissioner by approval of a Registration	Met, no intrusion of the 50-foot or 100-foot buffer is proposed.
i	Stormwater control measures for managing stormwater discharges that will enter or be received by a wetland or waters shall be designed and installed in accordance with the following conditions	N/A
I	a minimum sediment load reduction of ninety percent (90%) shall be achieved before such discharges enter or are received by a wetland or waters. The required sediment load reduction shall be calculated based solely on the stormwater controls used; no sediment load reduction from conditions on the site (i.e., from any remaining buffer) shall be considered when calculating the sediment load reduction from such stormwater controls. The sediment load reduction may be calculated using a range of available models that are available to facilitate this calculation, including USDA's RUSLE-series programs and the WEPP erosion model, SEDCAD, SEDIMOT, or other equivalent independent third party model or method acceptable to the commissioner	N/A
II	those portions of a solar array from which stormwater discharges enter or will be received by a wetland or waters shall be deemed effective impervious cover for the purposes of calculating Stream Channel Protection in accordance with Section 7.6.1 of the Stormwater Quality Manual, even if those portions of such array are less than one (1) acre; and	N/A
III	the buffer into which stormwater discharges shall have a slope of less than or equal to fifteen percent (15%)	N/A
c	A soil scientist, as that term is defined in Conn. Gen. Stat. § 22a-38, shall delineate all wetland or waters by field survey. The location of all wetland or waters and all required setbacks and buffers shall be shown on all mapping and prior to the start of construction be clearly marked on the site with flags, stakes, tape, or a similar marking device by a surveyor licensed in Connecticut.	Met
d	Delineation of the 100-foot setback and any buffer required under this section shall be measured perpendicularly and laterally from the nearest part of the solar array or construction activity, as applicable, to:	Met
i	in the case of waters, the ordinary high water mark of the water body, defined as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris;	Met
ii	the nearest edge of the stream or river bank, bluff, or cliff, as applicable; and	Met
iii	the nearest edge of any wetland, as determined by a soil scientist.	Met
e	The Plan shall indicate how compliance with this section will be achieved.	Met
f	Prior to the approval of a registration, the commissioner may determine that the 100 foot-setback or any buffer required under this section is not adequate to protect water quality or natural resources (i.e., a vernal pool, cold-water perennial streams, perennial headwater seeps or similar sensitive wetland or waters, or other sensitive habitat). In such a case, the commissioner may reject or disapprove the registration, or may impose additional terms and conditions in the approval of such registration, including, but not limited to, an additional setback, buffer or other control measure.	Waiting for commissioner determination
g	Nothing in this section is intended to or shall prevent improvements, as may be directed by the commissioner in the approval of a registration, to enhance the water quality benefits or the natural resource value of any buffer required under this section.	Met

h	*Section defines wetland and access road.*	*Not a Design Related Concern*
3	*The lowest vertical clearance of the solar panels above the ground should not be greater than ten (10) feet.*	*Met*
4	*Preconstruction Meeting Requirements*	*Not a Design Related Concern*
5	*Plan Implementation and Routine Inspection Requirements*	*Not a Design Related Concern*
6	*Copy of Check List from 5 submitted to DEEP*	*Not a Design Related Concern*
7	*Two Growing Seasons for Notice of Termination*	*Not a Design Related Concern*
8	*Letter of Credit Requirements*	*Not a Design Related Concern*
II	Design requirements for post-construction stormwater management measures.	
1	Post-construction stormwater control measures shall be designed and constructed to provide permanent stabilization and non-erosive conveyance of runoff on the site, to the property line of the site or downgradient from the site to ensure protection of on and off- site wetland, wetlands, waters or other natural resources.	Met
2	Orientation of panels shall be considered with respect to drainage pattern, flow concentration, drainage area and velocity.	Met
3	The permittee shall conduct a hydrologic analysis that:	Met
a	Evaluates and controls the 2, 25, 50 and 100-year 24-hour rainfall event post- development peak discharge to the corresponding pre-development peak discharge rates in accordance with the Stormwater Quality Manual, with the following exceptions: that sheet flow is maintained for a maximum length of 100 feet; shallow concentrated flow is calculated using velocity factors per NRCS Part 630 National Engineering Handbook Chapter 15 (the use of TR-55 paved or unpaved velocity factors are not acceptable); if swales are used to convey or control stormwater, such swales shall convey and control stormwater from a 100-year, 24-hour rainfall event;	Met
b	Is based on site specific soil mapping to confirm soil types; and	Met
c	Is able to determine and confirm the infiltrative capacity of any stormwater management measures. In addition, in areas where grading exceeds a two (2) foot difference between existing and proposed grades, the runoff curve number shall increase by one full HSG (e.g. runoff curve number for soils of HSG B shall be considered HSB C). For the remainder of the entire site, the runoff curve number associated with the Hydrologic Soil Group present on-site shall increase by one half (1/2) the difference between the Hydrologic Soil Group present on-site and the next higher Hydrologic Soil Group (e.g. half the difference between the runoff curve number for HSG B versus HSG C) to account for the compaction of soils that results from extensive machinery traffic over the course of the construction of the array; and	Met
d	Is based on slope gradient, surveyed soil type (adjusted per subparagraph (c), above), infiltration rate, length of slope, occurrence of bedrock, and change in drainage patterns. Pre- and post-development drainage area maps shall be provided showing this information; and	Met
e	For an engineered stormwater management system, demonstrates no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties in accordance with the general permit and the Stormwater Quality Manual.	Met

APPENDIX G: NOAA ATLAS 14 PRECIPITATION FREQUENCY TABLE

NOAA Atlas 14, Volume 10, Version 3
Location name: Enfield, Connecticut, USA*
Latitude: 41.9976°, Longitude: -72.5235°
Elevation: 181.97 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.337 (0.259-0.436)	0.406 (0.312-0.526)	0.519 (0.398-0.676)	0.612 (0.467-0.801)	0.741 (0.548-1.01)	0.838 (0.608-1.17)	0.939 (0.663-1.37)	1.05 (0.706-1.57)	1.21 (0.784-1.88)	1.34 (0.850-2.12)
10-min	0.477 (0.367-0.618)	0.574 (0.442-0.745)	0.733 (0.563-0.955)	0.866 (0.660-1.13)	1.05 (0.776-1.44)	1.19 (0.861-1.66)	1.33 (0.939-1.94)	1.49 (1.00-2.22)	1.72 (1.11-2.66)	1.90 (1.20-3.00)
15-min	0.561 (0.432-0.727)	0.676 (0.520-0.877)	0.864 (0.662-1.13)	1.02 (0.778-1.34)	1.23 (0.913-1.69)	1.40 (1.01-1.96)	1.57 (1.11-2.28)	1.75 (1.18-2.61)	2.02 (1.31-3.13)	2.24 (1.42-3.54)
30-min	0.757 (0.583-0.981)	0.914 (0.703-1.19)	1.17 (0.897-1.52)	1.38 (1.05-1.81)	1.68 (1.24-2.30)	1.90 (1.38-2.66)	2.13 (1.50-3.09)	2.38 (1.60-3.55)	2.75 (1.78-4.25)	3.04 (1.93-4.81)
60-min	0.954 (0.734-1.24)	1.15 (0.886-1.50)	1.48 (1.13-1.92)	1.75 (1.33-2.29)	2.12 (1.57-2.90)	2.40 (1.74-3.36)	2.69 (1.90-3.91)	3.01 (2.02-4.49)	3.47 (2.25-5.37)	3.85 (2.43-6.08)
2-hr	1.22 (0.944-1.57)	1.47 (1.13-1.89)	1.87 (1.44-2.42)	2.20 (1.69-2.87)	2.66 (1.98-3.64)	3.00 (2.20-4.20)	3.37 (2.40-4.91)	3.80 (2.56-5.64)	4.44 (2.88-6.83)	4.98 (3.16-7.82)
3-hr	1.40 (1.09-1.80)	1.68 (1.31-2.16)	2.15 (1.66-2.77)	2.53 (1.95-3.28)	3.06 (2.29-4.17)	3.45 (2.54-4.82)	3.87 (2.78-5.66)	4.39 (2.96-6.49)	5.17 (3.36-7.93)	5.84 (3.71-9.15)
6-hr	1.76 (1.37-2.24)	2.13 (1.66-2.72)	2.74 (2.13-3.51)	3.24 (2.51-4.18)	3.94 (2.97-5.36)	4.45 (3.29-6.21)	5.01 (3.63-7.32)	5.71 (3.86-8.41)	6.81 (4.44-10.4)	7.77 (4.96-12.1)
12-hr	2.16 (1.70-2.75)	2.66 (2.09-3.38)	3.47 (2.72-4.43)	4.15 (3.23-5.32)	5.07 (3.85-6.88)	5.75 (4.29-8.01)	6.51 (4.75-9.49)	7.46 (5.07-10.9)	8.98 (5.87-13.6)	10.3 (6.60-16.0)
24-hr	2.54 (2.01-3.21)	3.17 (2.50-4.00)	4.20 (3.30-5.32)	5.05 (3.95-6.44)	6.23 (4.75-8.40)	7.08 (5.32-9.82)	8.04 (5.92-11.7)	9.27 (6.32-13.5)	11.3 (7.38-17.0)	13.0 (8.35-20.0)
2-day	2.87 (2.28-3.60)	3.61 (2.87-4.53)	4.83 (3.82-6.08)	5.84 (4.59-7.40)	7.22 (5.55-9.71)	8.23 (6.22-11.4)	9.36 (6.95-13.6)	10.9 (7.42-15.7)	13.3 (8.75-20.0)	15.5 (9.96-23.7)
3-day	3.13 (2.50-3.91)	3.94 (3.14-4.93)	5.26 (4.18-6.61)	6.36 (5.03-8.04)	7.88 (6.07-10.6)	8.98 (6.80-12.4)	10.2 (7.60-14.8)	11.8 (8.12-17.1)	14.5 (9.58-21.8)	16.9 (10.9-25.8)
4-day	3.37 (2.69-4.20)	4.23 (3.38-5.28)	5.64 (4.49-7.06)	6.81 (5.39-8.58)	8.42 (6.50-11.3)	9.59 (7.29-13.2)	10.9 (8.13-15.8)	12.6 (8.68-18.2)	15.5 (10.2-23.1)	18.0 (11.7-27.5)
7-day	4.03 (3.24-4.99)	5.00 (4.01-6.21)	6.59 (5.27-8.21)	7.91 (6.29-9.92)	9.73 (7.53-12.9)	11.1 (8.42-15.1)	12.5 (9.35-18.0)	14.5 (9.96-20.7)	17.6 (11.6-26.1)	20.4 (13.2-30.9)
10-day	4.68 (3.77-5.79)	5.72 (4.60-7.07)	7.41 (5.94-9.20)	8.81 (7.03-11.0)	10.7 (8.33-14.2)	12.2 (9.26-16.5)	13.7 (10.2-19.5)	15.7 (10.9-22.5)	18.9 (12.5-28.0)	21.7 (14.1-32.8)
20-day	6.73 (5.46-8.27)	7.84 (6.35-9.64)	9.64 (7.78-11.9)	11.1 (8.93-13.8)	13.2 (10.3-17.2)	14.7 (11.2-19.6)	16.4 (12.1-22.8)	18.3 (12.7-26.0)	21.2 (14.2-31.2)	23.7 (15.4-35.6)
30-day	8.46 (6.89-10.4)	9.60 (7.80-11.8)	11.4 (9.27-14.1)	13.0 (10.4-16.1)	15.1 (11.7-19.5)	16.7 (12.7-22.0)	18.3 (13.5-25.1)	20.2 (14.1-28.5)	22.8 (15.2-33.3)	24.9 (16.2-37.3)
45-day	10.6 (8.68-13.0)	11.8 (9.62-14.4)	13.7 (11.1-16.8)	15.3 (12.3-18.8)	17.5 (13.6-22.4)	19.1 (14.5-25.0)	20.8 (15.2-28.1)	22.5 (15.8-31.6)	24.8 (16.6-36.1)	26.5 (17.3-39.5)
60-day	12.4 (10.2-15.1)	13.6 (11.1-16.6)	15.6 (12.7-19.1)	17.2 (14.0-21.2)	19.5 (15.2-24.8)	21.2 (16.2-27.6)	23.0 (16.8-30.8)	24.6 (17.2-34.4)	26.6 (17.9-38.6)	28.0 (18.3-41.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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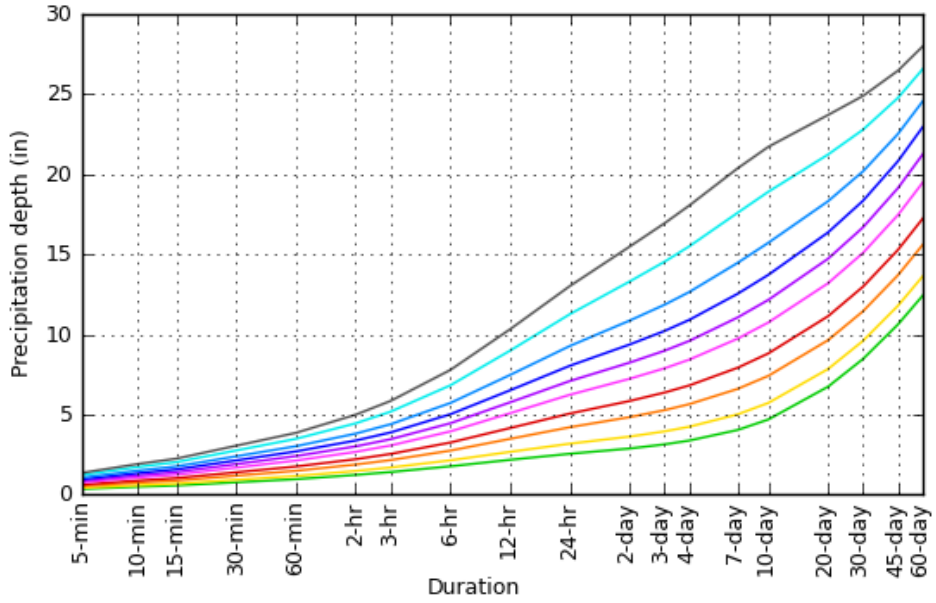
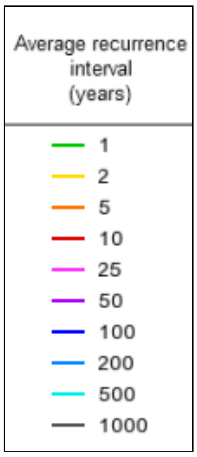
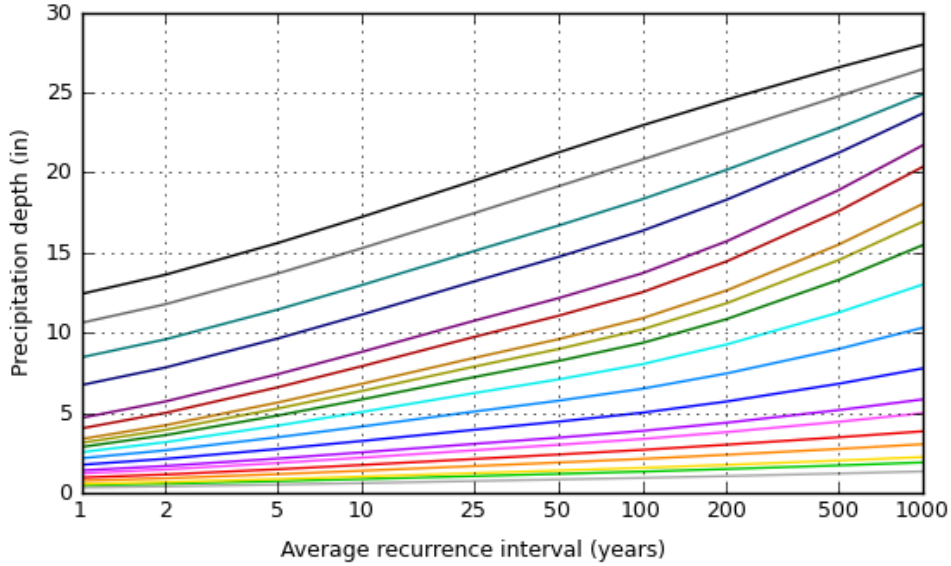
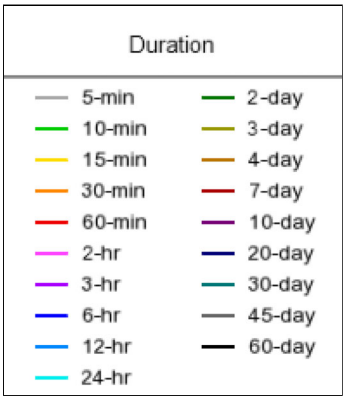
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.9976°, Longitude: -72.5235°









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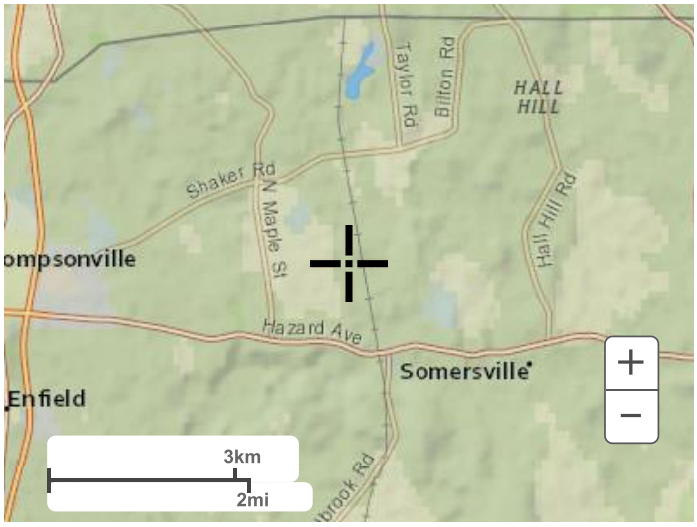
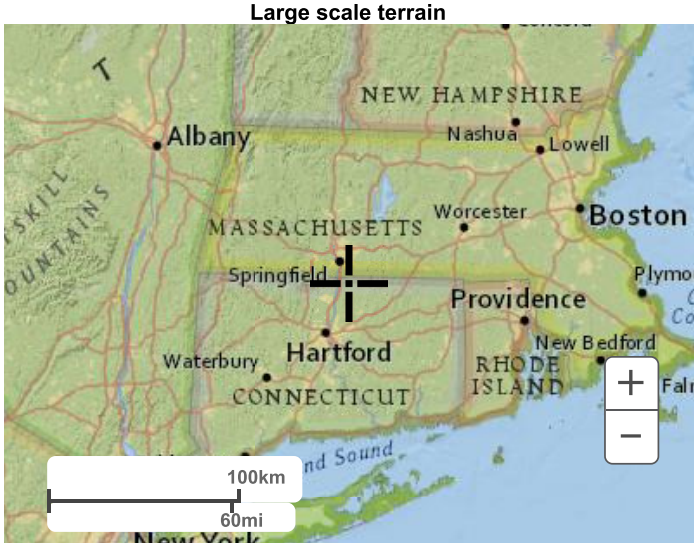
Maps & aerials

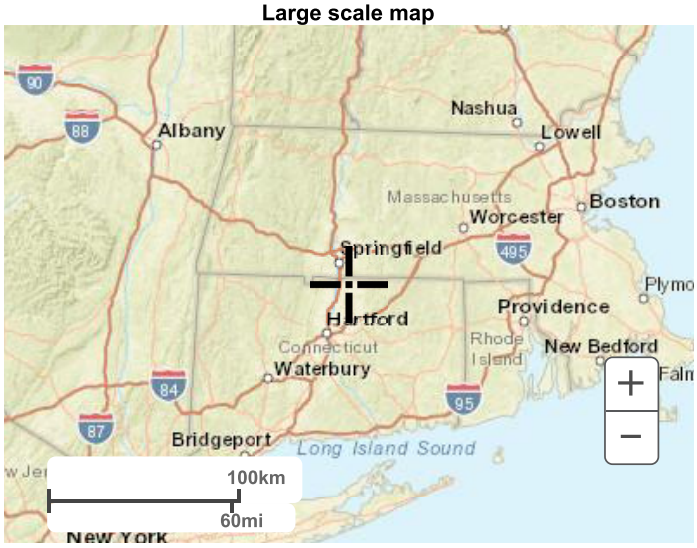
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX H: TEST PIT LOCATION SKETCH

LEGEND

B-1 — TEST BORING NO. AND LOCATION BY DOWN TO EARTH CONSULTING, LLC

LINE-1 — RESISTIVITY TEST LOCATION (TYP.)

NOTES:

1) 1) BASE MAP DEVELOPED FROM AN ELECTRONIC FILE PREPARED BY ALL-POINTS ENTITLED 'PARTIAL SITE PLAN' SHEET NUMBER: OP-2 DATED MARCH XX, 2020. ORIGINAL SCALE 1:80.
2) BORINGS WERE COMPLETED BY GENERAL BORINGS, INC. AND OBSERVED BY DOWN TO EARTH CONSULTING, LLC.
3) THE LOCATIONS OF THE EXPLORATIONS WERE DETERMINED BY TAPING AND VISUAL ESTIMATES FROM EXISTING SITE FEATURES. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

DESIGNED BY OTHERS						
DRAWN BY MF						
CHECKED BY RPJ	NO.	DATE	REVISIONS	DRWN.	CHKD	APPVD
APPROVED BY RPJ						

SCALE 1" = 160'

160 80 0 160

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING
122 CHURCH STREET
NAUGATUCK, CONNECTICUT 06770

PROJECT

PROPOSED SOLAR ARRAY
110 NORTH STREET
ENFIELD, CONNECTICUT

DWG. TITLE.

SITE AND EXPLORATION LOCATION PLAN

FILE NO. 0032-060.00

SCALE AS NOTED

DATE 3/23/2022

FIGURE NO. 2

Table 1
Kozeny - Carman Analyses
to Estimate Hydraulic Conductivity

Solar One
Enfield, Connecticut
Project Number: 0032-060.00

Test Boring No.	Sample No.	Sample Depth (ft.)	D_{10} (mm)	Descriptive Density	Est. Relative Density (%)	in-situ void ratio e	in-situ porosity n	Coefficient of Permability k (cm/sec)	Coefficient of Permability k (ft/day)
B-3	S-2	2'-4'	0.0583	Loose	30	0.637	0.39	2.52E-03	7.15E+00

SPT (bl/ ft)	Descriptive Density	Relative Density (%)
0 to 4	Very loose	0 to 15
4 to 10	Loose	15 to 35
10 to 30	Medium Dense	35 to 65
30 to 50	Dense	65 to 85
50 +	Very dense	85 to 100

e_{min}	e_{max}
0.14	0.85