Bloomenergy

February 14, 2020

Melanie Bachman, Esq.
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **PETITION NO. 1387,** Bloom Energy Corporation petition for a declaratory ruling, pursuant to Connecticut General Statutes § 4-176 and § 16-50k, for the proposed construction, maintenance, and operation of a grid-side 10-megawatt (MW) fuel cell facility and associated equipment to be located at Eversource Energy's existing Judd Brook electrical distribution substation, 160 Old Amston Road, Colchester, Connecticut – Development and Management Plan

Dear Attorney Bachman:

On January 6, 2020, the Connecticut Siting Council ("Council") issued a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance and operation for the above-reference project. In compliance with Condition No. 3 of the Decision, Bloom Energy Corporation ("Bloom") is submitting the following and enclosed information as its Development and Management Plan for the approved Facility.

a) A final site plan including but not limited to, final fuel cell layout, access road, electrical, water, and natural gas connections from the facility to the street, and equipment pads.

   Please see the attached construction drawings, dated December 20, 2019, which contain the requested details.

b) Copy of DEEP General Permit.

   Bloom submitted the application for the Stormwater General Permit to DEEP on January 2, 2020. Based on the typical 60-day review period, Bloom anticipates a response on or about March 2, 2020. Bloom will forward the final DEEP General Permit to the Council upon receipt. See attached Stormwater General Permit application and submission receipt.

c) Construction site plans that comply with the DEEP-approved Stormwater Pollution Control Plan that include, but are not limited to, site clearing, grading, site phasing, construction laydown areas, erosion and sedimentation controls, and details regarding construction-related environmental mitigation measures that include the final culvert replacement plans.

   Please see the attached construction drawings, dated December 20, 2019, which contain the requested details. Note that Bloom has determined, after additional investigation, that no culvert replacement will be necessary.

d) Final Wetland and Vernal Pool Protection Plan.

Please see the attached Erosion and Sedimentation Control Plan, dated February 13, 2020, which contain the Wetland and Vernal Pool Protection Plan prepared by All-Points Technology Corp., P.C.

e) Final Emergency Response Plan.

See attached Server Operating and Emergency Planning document.

f) Final results of ISO-NE project interconnection review.

The ISO-NE project interconnection review is still in the study phase. Results of the review will be forwarded to the Council upon receipt.

g) Post-construction restoration plan for all disturbed areas of the site.

Post-construction restoration activities are incorporated in appropriate locations in the attached construction drawings including the erosion and sedimentation control plan, dated February 13, 2020.

h) Contact information for the spill response contractor.

The spill response contractor is:
McVac Environmental
481 Grand Avenue, New Haven, CT 06513
Phone: (203) 498.1427

i) Contact information for the construction contractor.

The construction contractor is:
A/Z Corporation
46 Norwich Westerly Road, North Stonington, CT 06359
Phone: 800.400.2420

Should you have any questions, concerns, or require additional information, please contact me at (860) 839-8373.

Respectfully,
Bloom Energy

Justin Adams justin.adams@bloomenergy.com
(860) 839-8373

cc: The Honorable Mary Bylone, First Selectman, Town of Colchester
Matthew Bordeaux, Town Planner, Town of Colchester

811 Know what's below. Call before you dig.

PRIOR TO COMMENCING ANY EXCAVATION OR DEMOLITION, THE CONTRACTOR SHALL CONTACT LOCAL UTILITIES, INCLUDING BUT NOT LIMITED TO ELECTRICAL, GAS, WATER, CABLE, AND TELEPHONE, REQUESTING A UTILITY MARK OUT AND AS NECESSARY RETAIN THE SERVICES OF A PRIVATE UTILITY MARK OUT COMPANY TO PERFORM SUCH MARK OUT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE LOCATION OF UTILITIES, IRRIGATION, SITE LIGHTING, AND ELECTRICAL LINES IN THE VICINITY OF THE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR ANY AND ALL UTILITIES DAMAGED BY THE CONTRACTOR'S OPERATION AT NO ADDITIONAL EXPENSE.

EVERSOURCE

160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

Bloomenergy®

Bloomenergy®
4353 N 1ST STREET
SAN JOSE, CA 95134

GreenbergFarrow
153 Cordaville Road, Suite 210
Southborough, MA 01772
t: 508 229 0032

ENGINEER OF RECORD
STEPHEN POWERS, P.E.
LICENSE # 0030199

CUSTOMER SITE
EVERSOURCE
160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

EVERSOURCE

SITE INFORMATION

PARCEL INFORMATION

PROPERTY OWNER	EVERSOURCE
COUNTY	NEW LONDON
TAX MAP #	06-06

PROPERTY DESCRIPTION

PROPERTY AREA	12.7 ACRES
DISTURBED AREA	39,097 S.F.

PARKING INFORMATION

EXISTING PARKING*	0
REQUIRED PARKING*	0
REMOVED PARKING	0
ADDED PARKING	0
FINAL PARKING COUNT	0

*BASED ON PLAN ENTITLED "PROPERTY & TOPOGRAPHIC SURVEY, LAND OF CONNECTICUT LIGHT & POWER", PREPARED BY MARTIN SURVEY ASSOCIATES, LLC, DATED 09/25/2018.

PERMITTING INFORMATION

MUNICIPAL

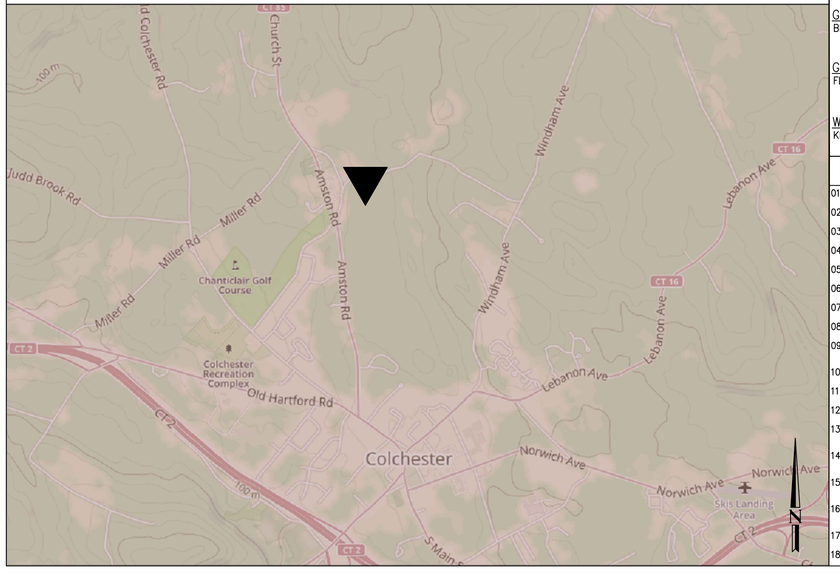
AGENCY	DEPARTMENT
PLANNING	TOWN OF COLCHESTER
BUILDING	TOWN OF COLCHESTER
FIRE	COLCHESTER FIRE DEPARTMENT

UTILITY

TYPE	COMPANY
NATURAL GAS	EVERSOURCE (CT)
ELECTRICAL	EVERSOURCE (CT)
WATER	TOWN OF COLCHESTER SEWER & WATER DEPARTMENT

VICINITY MAP (NTS)

▼ PROJECT SITE



CODES

BUILDING	2012 INTERNATIONAL BUILDING CODE
BUILDING	2012 INTERNATIONAL EXISTING BUILDING CODE
ENERGY	2012 INTERNATIONAL ENERGY CONSERVATION CODE
PLUMBING	2012 INTERNATIONAL PLUMBING CODE
FUEL GAS	2012 INTERNATIONAL FUEL GAS CODE
ELECTRICAL	2014 NATIONAL ELECTRICAL CODE (NFPA 70)
FIRE	2016 CONNECTICUT STATE FIRE SAFETY CODE
FIRE	2015 CONNECTICUT STATE FIRE PREVENTION CODE
MECHANICAL	2012 INTERNATIONAL MECHANICAL CODE

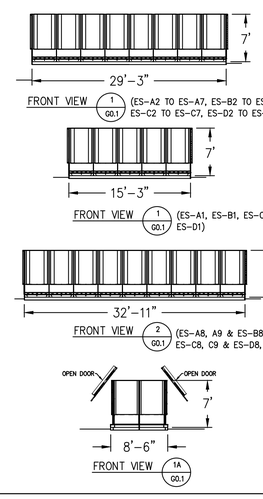
PROJECT TEAM CONTACTS

FIRM	ADDRESS	CONTACT INFO
MANUFACTURER		
BLOOM ENERGY	1299 ORLEANS DR. SUNNYVALE, CA 94089	(408) 543-1500
CUSTOMER		
EVERSOURCE	160 OLD AMSTON ROAD, COLCHESTER, CT 06415 UNITED STATES	(800) 286-2000
GREENBERGFARROW (MECHANICAL)		
STEPHEN POWERS, PEN.0030199	153 CORDAVILLE ROAD SUITE 210 SOUTHBOROUGH, MA 01772	(508) 229-0032
GREENBERGFARROW (CIVIL)		
STEPHEN POWERS, PEN.0030199	153 CORDAVILLE ROAD SUITE 210 SOUTHBOROUGH, MA 01772	(508) 229-0032
GREENBERGFARROW (STRUCTURAL)		
BILL BORNHORST, P.E.	1430 W. PEACHTREE ST. SUITE 200 ATLANTA, CA 30309	(404) 601-4000
GREENBERGFARROW (ELECTRICAL)		
FLOYD KEELS, P.E.	1430 PEACHTREE STREET, SUITE 200 ATLANTA, GA 30309	(404) 601-4000
WHITESTONE ASSOC.,INC. (GEOTECHNICAL CONSULTANT)		
KEVIN A.FEATH, P.E,	35 TECHNOLOGY DRIVE WARREN, NJ 07059	(908) 668-7777

DRAWING INDEX

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE INSTALLATION OF THIRTY SIX (36) BLOOM ENERGY ES5 OUTDOOR NATURAL GAS CLEAN ENERGY SERVERS. THE CLEAN ENERGY SERVERS ARE SUPPORTED ON CONCRETE PADS. THE WORK INCLUDES ALL ITEMS LISTED IN THE SCOPE OF WORK.



SCOPE OF WORK

THE SCOPE OF THIS PROJECT WILL CONSIST OF THE FOLLOWING:

1. CIVIL WORK
   - CONTRACTOR TO REMOVE TREES AND CLEAR AREA FOR INSTALLATION OF ENERGY SERVERS AND ASSOCIATED EQUIPMENT.
   - EXISTING SUBGRADE AT LANDSCAPE REMOVAL WILL BE PREPARED FOR THE NEW EQUIPMENT WEIGHT.
   - NEW TRENCH FROM BLOOM ENERGY SERVER TO EXISTING SUBSTATION FOR GAS, WATER AND ELECTRICAL CONNECTIONS BETWEEN BLOOM ENERGY SERVER AND EXISTING SUBSTATION. TRENCH TO BE BACKFILLED AND NEW LANDSCAPE COVER TO BE PROVIDED.
   - NEW ENERGY SERVER PRECAST CONCRETE PADS AND ANCILLARY CAST-IN-PLACE CONCRETE PADS TO BE PLACED AT PREPARED SURFACE AT LANDSCAPE REMOVAL.
2. ELECTRICAL WORK
   - NEW ELECTRICAL FEEDERS BETWEEN BLOOM ENERGY SERVER AND EXISTING MAIN SERVICE SWITCHBOARD.
3. PLUMBING WORK
   - NEW WATER CONNECTION FROM NEW 8" WATER MAIN TO BLOOM ENERGY SERVER.
   - NEW NATURAL GAS CONNECTION. NEW METER AND REGULATOR REQUIRED.

BLOOM ENERGY FAQ's

Q: WHAT IS A BLOOM ENERGY SERVER?
A: THE BLOOM ENERGY SERVER IS A STATIONARY FUEL CELL POWER SYSTEM.
Q: IS THE BLOOM PRODUCT LISTED OR CERTIFIED?
A: YES. ES-5XXX SERIES:
- THE FUEL CELL IS UL LISTED AS A "STATIONARY FUEL CELL POWER SYSTEM" TO ANSI/CSA AMERICA FC 1-2004.
- IT IS UL LISTED UNDER UL CATEGORY IRGZ AND UL FILE NUMBER MH45102.

ES5 SERIES:
- THE FUEL CELL IS UL LISTED AS A "STATIONARY FUEL CELL POWER SYSTEM" TO ANSI/CSA FC 1-2014.
- IT IS UL LISTED UNDER UL CATEGORY IRGZ AND UL FILE NUMBER MH45102.

Q: WHERE ARE FUEL CELLS COVERED IN THE NATIONAL ELECTRICAL CODE (NEC)?
A: FUEL CELLS ARE COVERED IN ARTICLE 692 OF THE NEC (NFPA 70). FUEL CELLS HAVE BEEN INCORPORATED INTO THE NEC SINCE 2002.
Q: WHAT IS THE MODEL NUMBER OF THIS PRODUCT?
A: PLEASE SEE THE DATA SHEET PROVIDED WITH THIS FAQ.
Q: WHAT IS THE NOISE LEVEL OF THE FUEL CELL SYSTEM?
A: FOR SPECIFIC DB RANGES, PLEASE REFER TO THE DATA SHEET PROVIDED WITH THIS FAQ.
Q: DO BLOOM FUEL CELL SYSTEMS PROVIDE LIFE SAFETY POWER?
A: NO. WE ARE NOT LIFE SAFETY AND DO NOT PROVIDE LIFE SAFETY POWER, EVEN WHEN A UPM IS INSTALLED. WE ARE NOT ALTERING WHATEVER LIFE SAFETY IS CURRENTLY PRESENT AT THE FACILITY.
Q: IS THE BLOOM FUEL CELL SYSTEM TAMPER-PROOF?
A: YES. THE FUEL CELLS ARE SECURED IN PLACE AND DOORS ARE SECURED AND LOCKED. ONLY BLOOM SERVICE PERSONNEL HAVE THE KEYS AND CAN BE ON-SITE WITHIN 24 HOURS.
Q: WHAT HAPPENS TO THE CUSTOMER FACILITY POWER IF THE FUEL CELLS SHUT DOWN?
A: THE FUEL CELL SYSTEM IS OPERATED IN GRID-PARALLEL MODE. IF THE UTILITY GRID IS OPERATIONAL, THE CUSTOMER FACILITY WILL RECEIVE POWER FROM THE GRID AND NOTICE NO DIFFERENCE.
Q: WHAT HAPPENS TO THE FUEL CELL SYSTEM WHEN THE UTILITY POWER SHUTS DOWN?
A: IF UTILITY PROVIDED POWER IS LOST FOR ANY REASON, THE FUEL CELL SYSTEM WILL ALSO STOP PRODUCING POWER. THE FUEL CELL SYSTEM WILL REMAIN IN STAND-BY MODE UNTIL IT AUTOMATICALLY SENSES THE UTILITY GRID HAS BEEN RESTORED.
Q: WHAT HAPPENS TO THE FUEL CELL SYSTEM WHEN THE UTILITY GAS SHUTS DOWN?
A: IF THE UTILITY GAS IS INTERRUPTED, THE FUEL CELL SYSTEM WILL AUTOMATICALLY SHUT DOWN AS WELL.
Q: CAN THE FUEL CELL SYSTEM BE SHUT DOWN LOCALLY IN CASE OF AN EMERGENCY?
A: YES. IF THE FUEL CELL MUST BE SHUT DOWN RIGHT AWAY--FOR EXAMPLE, IN CASE OF A BUILDING FIRE OR ELECTRICAL HAZARD--TWO SHUTOFF CONTROLS ARE INSTALLED AT THE FACILITY EXTERNAL TO THE SYSTEM. THE LOCATIONS OF THESE TWO CONTROLS SHOULD BE KNOWN TO THE FACILITIES MANAGER BEFORE OPERATION AND SHOULD BE NOTED ON THE SITE DIAGRAM THAT IS CREATED FOR EACH SITE DURING INSTALLATION. THE TWO SHUTOFFS ARE:
(1) THE ELECTRICAL DISCONNECT SWITCH AND
(2) THE MANUAL NATURAL GAS SHUTOFF VALVE. A THIRD SHUTOFF, AN EMERGENCY POWER OFF (EPO) BUTTON, MAY BE PROVIDED ON-SITE.
Q: DOES THE BLOOM FUEL CELL SYSTEM OPERATE 24/7?
A: YES.
Q: ARE THE BLOOM FUEL CELL SYSTEMS MONITORED?
A: YES. BLOOM FUEL CELL SYSTEMS ARE CONTROLLED REMOTELY AND HAVE INTERNAL SENSORS THAT CONTINUOUSLY MONITOR SYSTEM OPERATION. IF SAFETY CIRCUITS DETECT A CONDITION OUTSIDE NORMAL OPERATING PARAMETERS, THE FUEL SUPPLY IS STOPPED AND INDIVIDUAL SYSTEM COMPONENTS ARE AUTOMATICALLY SHUT DOWN. A BLOOM ENERGY REMOTE OPERATOR CAN ALSO REMOTELY INITIATE ANY EMERGENCY SEQUENCE. AN EMERGENCY STOP ALARM INITIATES AN AUTOMATIC SHUTDOWN SEQUENCE THAT PUTS THE SYSTEM INTO "SAFE MODE" AND CAUSES IT TO STOP EXPORTING POWER. IF YOU HAVE QUESTIONS ABOUT ANY OF THESE SAFETY FEATURES, PLEASE CONTACT BLOOM ENERGY AT CUSTOMERCARE@BLOOMENERGY.COM.
Q: WHAT ARE THE EMISSIONS GENERATED BY BLOOM FUEL CELL SYSTEMS?
A: THE SPECIFIC PERCENTAGE OF CARBON EMISSION REDUCTIONS ARE DEPENDENT ON YOUR STATE'S GENERATION MIX, BUT BLOOM FUEL CELL SYSTEMS VIRTUALLY ELIMINATE NOX, SOX, AND OTHER CRITICAL AIR POLLUTANTS THAT ARE FOUND IN TRADITIONAL ELECTRICITY GENERATION METHODS. FOR SPECIFIC EMISSIONS RANGES, PLEASE REFER TO THE DATA SHEET PROVIDED WITH THIS FAQ.
Q: WHAT IS THE SUSTAINABILITY IMPACT OF BLOOM FUEL CELL SYSTEMS?
A: BLOOM FUEL CELL SYSTEMS GENERATE ELECTRICITY ON-SITE THROUGH AN EFFICIENT ELECTROCHEMICAL REACTION WITHOUT COMBUSTION. DUE TO THE HIGH EFFICIENCY (65%-53% COMPARED TO A COMBINED CYCLE NATURAL GAS PLANT WITH EFFICIENCY OF 40-45% OR COAL PLANTS AT 35%) BLOOM ENERGY SERVERS REDUCE CARBON EMISSIONS BY 20-50% COMPARED TO THE US GRID EMISSION RATES. THE VARIATION IN EMISSIONS REDUCTION IS DUE TO THE VARIATION IN HOW DIFFERENT STATES GENERATE ELECTRICITY. IN ADDITION, BLOOM FUEL CELL SYSTEMS USE NO WATER DURING NORMAL OPERATION

REVISION HISTORY

REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE
COVER SHEET

DRAWING NUMBER
G0.1

BLOOM DOCUMENT
DOC-1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 01 OF 18

GENERAL CONSTRUCTION NOTES

1. IN THE EVENT OF DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS, OR SCOPE OF WORK SUMMARY IN THIS PACKAGE, NOTIFY BLOOM ENERGY IMMEDIATELY. REFERENCE SEPARATE BLOOM ENERGY DOC-1008337 FOR ASSOCIATED ENERGY SERVER INSTALLATION SPECIFICATIONS.
2. THE EXISTING SITE PLAN FEATURES ARE BASED ON DESIGN DRAWINGS, AS-BUILT PLANS, AERIAL PHOTOGRAPHS AND FIELD MEASUREMENTS UNLESS OTHERWISE NOTED. THE LOCATIONS OF ALL FEATURES AND STRUCTURES ON THE PLANS ARE APPROXIMATE.
3. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WORK IS DONE IN ACCORDANCE WITH CURRENT APPLICABLE NATIONAL, STATE AND LOCAL CODES, ORDINANCES AND REQUIREMENTS AT A MINIMUM; EVEN IF NOT SPECIFICALLY REFERENCED IN THESE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS. MORE STRINGENT REQUIREMENTS MAY BE SPECIFIED. IN SITUATIONS WHERE THERE IS A CONFLICT BETWEEN THE MINIMUM REGULATORY REQUIREMENTS AND INFORMATION PROVIDED IN THESE DRAWINGS OR SPECIFICATIONS CONSULT BLOOM ENERGY FOR RESOLUTION BEFORE COMMENCING WORK.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING ITEMS AND FACILITIES TO REMAIN THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL REPAIR AND/OR REPLACE, AT CONTRACTOR'S EXPENSE, ANY EXISTING ITEMS AND FACILITIES TO REMAIN THAT ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS, TO THE SATISFACTION OF PROPERTY OWNER AND BLOOM ENERGY.
5. UNLESS DELIVERY IS SPECIFIED BY BLOOM ENERGY TO THE JOB SITE, CONTRACTOR SHALL DELIVER ALL EQUIPMENT, DAMAGE-FREE TO THE JOB SITE.
6. PRIOR TO COMMENCING ANY EXCAVATION OR DEMOLITION, THE CONTRACTOR SHALL CONTACT LOCAL UTILITIES, INCLUDING BUT NOT LIMITED TO, ELECTRICAL, GAS, WATER, CABLE, AND TELEPHONE, CONTRACTOR SHALL REQUEST A UTILITY MARK OUT AND AS NECESSARY RETAIN THE SERVICES OF A PRIVATE UTILITY MARK OUT COMPANY TO PERFORM SUCH MARK OUT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE LOCATION OF UTILITIES, IRRIGATION, SITE LIGHTING, AND ELECTRICAL LINES IN THE VICINITY OF THE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY AND ALL UTILITIES DAMAGED BY THE CONTRACTOR'S OPERATION AT NO ADDITIONAL EXPENSE.
7. BLOOM ENERGY WILL PROVIDE THE CONTRACTOR WITH COPIES OF ALL PERMITS AND PROVIDE THE CONTRACTOR ANY CONDITIONS OF APPROVAL BY THE PLANNING DEPARTMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING JURISDICTIONS AS REQUIRED FOR INSPECTIONS.
9. THE CONTRACTOR SHALL PROVIDE BLOOM ENERGY WITH
   - A CONSTRUCTION SCHEDULE PRIOR TO STARTING THE WORK
   - A QUALIFIED JOB SUPERINTENDENT THROUGHOUT THE WORK
   - PHOTOS SHOWING TRENCHES PRIOR TO BACKFILL, SLOPE OF STEEL OR PRECAST PADS
   - FINAL AS BUILT DRAWINGS OF ALL UNDERGROUND CONSTRUCTION.
9. THE CONTRACTOR SHALL PROVIDE BARRICADES AND SAFETY SIGNS PER OSHA REQUIREMENTS.
10. THE CONTRACTOR IS RESPONSIBLE FOR OVERALL CONSTRUCTION SITE CLEANLINESS, INCLUDING PROVISIONS OF A DEBRIS BOX WITH WEEKLY SERVICING, REMOVAL OF ALL CONTRACTOR/SUBCONTRACTOR REFUSE AND DEBRIS, AND SWEEPING OF THE ENTIRE YARD AREA AT THE COMPLETION OF THE WORK.
11. UNLESS STATED OTHERWISE IN THE SCOPE OF WORK SUMMARY, ALL OTHER PROCEDURES, TESTING, MATERIALS AND EQUIPMENT SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
12. THE PLAN VIEW DRAWINGS PROVIDED IN THIS SET INCLUDE A ROUGH SCALE REPRESENTATION OF EXISTING AND PROPOSED CONDITIONS AND SHOULD NOT BE SCALED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS ON SITE. ALL DRAWINGS MARKED "NTS" HAVE NO RELATIVE SCALE AND ONLY LISTED DIMENSIONS SHOULD BE USED.
13. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF DAMAGE TO THE WORK OF OTHER TRADES CAUSED BY THEIR OPERATIONS. ALL REPAIRS SHALL BE PERFORMED AT THE COST OF THE CONTRACTOR RESPONSIBLE FOR THE DAMAGES. WORK SHALL ONLY BE PERFORMED AFTER APPROVAL OF A REPRESENTATIVE OF THE TRADE WHOSE WORK WAS DAMAGED.
14. THE CONTRACTOR SHALL NOTIFY BLOOM ENERGY IF SITE CONDITIONS OR DIMENSIONS DISAGREE WITH INFORMATION SHOWN ON THE DRAWINGS. WORK IS NOT TO PROCEED UNTIL SUCH DIFFERENCES ARE RESOLVED.
15. THE CONTRACTOR SHALL EXAMINE THE SITE AND FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS, AND BE PREPARED TO PERFORM THE WORK WITHIN THE EXISTING CONDITIONS.
16. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL INSPECT WORK PREVIOUSLY PREPARED OR INSTALLED BY OTHERS BEFORE APPLYING SUBSEQUENT MATERIALS OR FINISHES. IF UNSATISFACTORY, NOTIFY BLOOM ENERGY. DO NOT PROCEED UNTIL THE DEFECTIVE WORK HAS BEEN CORRECTED.
17. THE CONTRACTOR REMAINS RESPONSIBLE FOR FAULTY MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER FINAL PROJECT PAYMENT IS MADE. ANY DEFECT OR DAMAGE FOUND EVEN AFTER THE FINAL ACCEPTANCE, CERTIFICATION AND PAYMENT FOR THIS PROJECT WILL BE REMEDIED AT THE CONTRACTOR'S EXPENSE. REPAIRS OR REPLACEMENTS REQUIRED WILL SUBSEQUENTLY BE WARRANTED FOR ONE YEAR AFTER WORK COMPLETION AND ACCEPTANCE.
18. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES AND OSHA REQUIREMENTS, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.
19. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY LANDSCAPED AREAS TO PRE-CONSTRUCTION CONDITION AS ASSESSED BY THE PROPERTY OWNER OR CUSTOMER. CUSTOMER APPROVAL OF AN ACCEPTABLE STATE IS REQUIRED TO CONFIRM COMPLETION OF WORK. THE CONTRACTOR SHALL SCHEDULE A POST CONSTRUCTION WALK TO EVALUATE THE LANDSCAPING FUNCTIONALITY WITH CUSTOMER'S LANDSCAPER.
20. GENERAL HOUSEKEEPING OF THE SITE, INCLUDING SWEEPING AND CONTROL OF SEDIMENT, TRASH, AND DEBRIS SHALL BE PERFORMED DAILY OR IMMEDIATELY UPON THE OCCURRENCE.
21. DURING CONSTRUCTION ALL EXITS AND DOORWAYS MUST REMAIN UNOBSTRUCTED.
22. THE TYPES, LOCATION, SIZES, AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENTS, SIZED , LOCATIONS AND DEPTHS OF SUCH GROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY BLOOM ENERGY IF WORK CANNOT PROCEED AS PROPOSED.

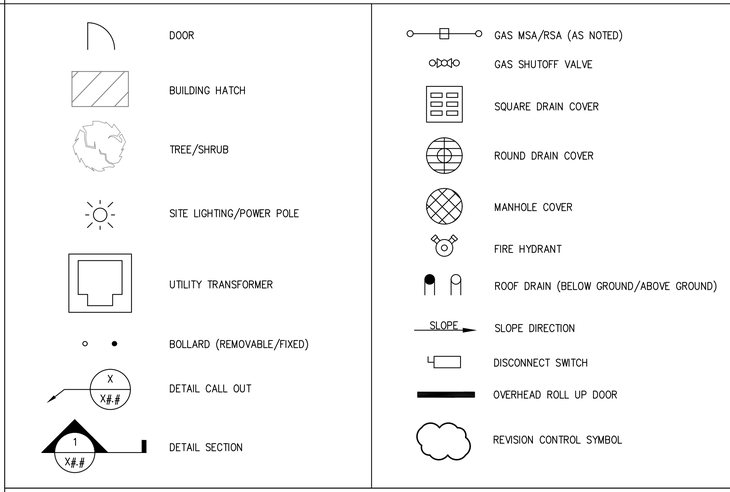
SITE SPECIFIC CONSTRUCTION NOTES

1. CONSTRUCTION SUPERINTENDENT SHALL CONTACT THE CUSTOMER REPRESENTATIVE FOR A PRE-CONSTRUCTION CONFERENCE TWO WEEKS PRIOR TO THE START OF THE WORK. THE SCOPE OF WORK AND TIMELINE SHALL BE DISCUSSED WITH RESPECT TO ANY COORDINATION ISSUES WHICH SHALL DISRUPT THE FACILITY OPERATIONS. THE SUPERINTENDENT SHALL SUBMIT A WEEKLY STATUS REPORT TO THE CUSTOMER, WITH PICTURES, VIA EMAIL TO THE CUSTOMER REPRESENTATIVE. THIS INCLUDES ANY FACILITY EQUIPMENT WHICH ARE IN CLOSE PROXIMITY TO THE CONSTRUCTION WORK WHICH WILL BE MOVED BY THE FACILITY REPRESENTATIVES.
2. TRENCHING:
   2.1 UTILITY TRENCH WORK IN ROADWAY SHALL BE DONE AT NIGHT BETWEEN 10PM AND 6 AM.
   2.2 TRENCHING SHOULD BE DONE IN STAGES, TO ENSURE TRAFFIC FLOW IS NOT IMPEDED.
   2.3 WHEN THE TRENCH IS OPEN, IT SHALL BE COVERED DURING THE DAY (6 AM – 10 PM) WITH PLATES THAT ARE CAPABLE OF SUPPORTING THE WEIGHT OF TRUCK TRAFFIC.
2. UTILITY CONNECTIONS THAT REQUIRE TAPPING ON LIVE LINES SHALL BE PERFORMED AT NIGHT AND BE COORDINATED WITH AND APPROVED BY THE CUSTOMER PRIOR TO MAKING UTILITY CONNECTIONS. ANY PRECAUTIONARY MEASURES REQUIRED DUE TO UTILITY SHUT-OFF NEED TO BE COMPLETED BY CONTRACTOR.
3. STABILIZATION:
   3.1. SEDIMENT, EROSION AND TRASH CONTROL SHALL BE PERFORMED AT ALL TIMES. BEST MANAGEMENT PRACTICES (BMPS) SHALL BE INSTALLED PRIOR TO WORK START AND REMOVED ONLY WHEN THE SITE IS FULLY STABILIZED.
   3.2. THE SITE SHALL BE CONSIDERED "FULLY STABILIZED" WHEN THE CUSTOMER REPRESENTATIVES HAS REVIEWED SUBMITTED PICTURES AND ACCEPT THE STABILIZATION.
4. ALL SITE RELATED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PAVEMENT RESTORATION, CURB INSTALLATION, AND TURF RESTORATION SHALL BE IN CONFORMANCE TO THE AHJ SITE DEVELOPMENT STANDARDS, SPECIFICATIONS, AND DETAILS, UNLESS MORE STRINGENTLY SPECIFIED HEREIN.

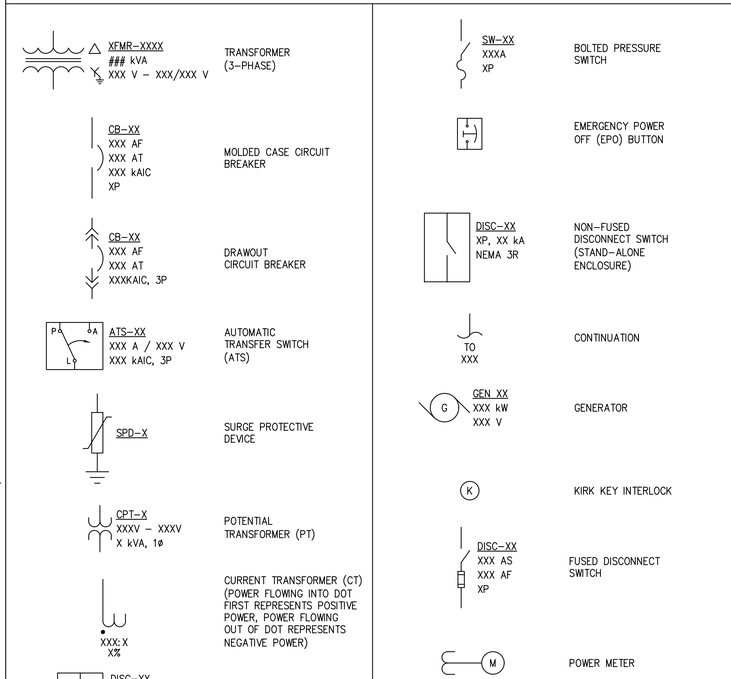
ABBREVIATIONS

°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
A	AMPS
AC	ALTERNATING CURRENT, ASPHALT CONCRETE
AC5	ES5 AC POWER SECTION
AHJ	AUTHORITIES HAVING JURISDICTION
AL	ALUMINUM
ASTM	AMERICAN SOCIETY OF THE INTERNATIONAL ASSOCIATION FOR TESTING AND MATERIALS
ATM	ATMOSPHERE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BASE COURSE
BMPS	BEST MANAGEMENT PRACTICES
C	CONDUIT
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DI	DEIONIZED
ECM	ELECTRICAL COMBINATION MODULE
EDM	ELECTRICAL DISTRIBUTION MODULE
ELEV	ELEVATION
EMT	ELECTRICAL METAL TUBING
EPO	EMERGENCY POWER OFF
ES	ENERGY SERVER
FH	FIRE HYDRANT
FNPT	FEMALE NATIONAL PIPE THREAD
FPS	ES5 FUEL PROCESSING MODULE
FPM	FUEL CELL POWER MODULE
G	GROUND
GAL	GALLON
GF	GROUND FAULT
GFEP	GROUND FAULT EQUIPMENT PROTECTION
GND	GROUND
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HR	HOUR
HZ	HERTZ
ID	INNER DIAMETER
IEEE	INSTITUTE FOR ELECTRICAL & ELECTRONIC ENGR.
IOM	INPUT OUTPUT MODULE
ISC	SHORT CIRCUIT CURRENT
ISS	INTEGRATED STEEL SKID
K	KILO
KA	KILOAMPERE
KAIC	KILOAMPERE INTERRUPTING CAPACITY
KVA	KILOVOLT-AMPS
KW	KILOWATTS
LBS	POUNDS
LSIG	LONG, SHORT, INSTANTANEOUS, GROUND FAULT
MA	MILLIAMPERES
MDPE	MEDIUM DENSITY POLYETHYLENE
MIN	MINUTE/MINIMUM
MMBTU	MILLION BRITISH THERMAL UNITS
MNPT	MALE NATIONAL PIPE THREAD
MSA	METER SET ASSEMBLY
MTS	MANUAL TRANSFER SWITCH
MW	MEGAWATTS
N	NEW
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION AGENCY
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTER DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMIN.
P	POLE
PEX	CROSS-LINED POLYETHYLENE
PDS	POWER DISTRIBUTION SECTION
PH	PHASE
PM5	ES5 POWER MODULE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
PWM	POWER MODULE
QDC	QUICK DISCONNECT
RSA	REGULATOR SET ASSEMBLY
RMC	RIGID METAL CONDUIT
SD	STORM DRAIN
SF	SQUARE FEET
SPD	SURGE PROTECTIVE DEVICE
SS	STAINLESS STEEL, SANITARY SEWER

SITE PLAN SYMBOLS



ELECTRICAL SINGLE LINE SYMBOLS



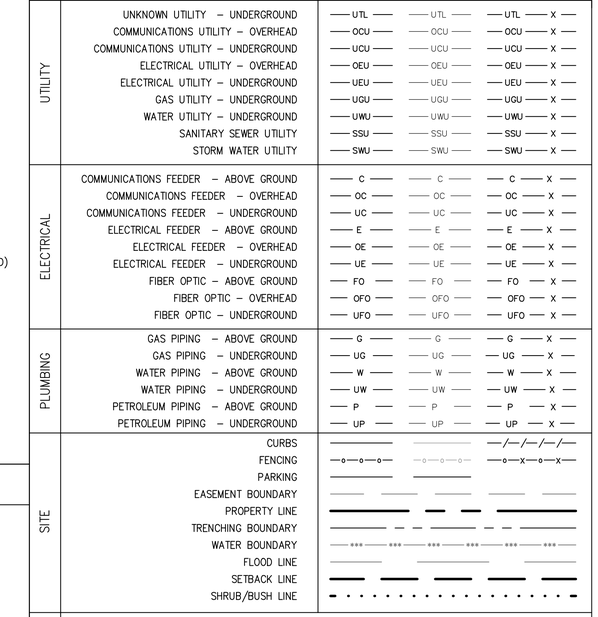
ABBREVIATIONS (CONTINUED)

SWPP	STORM WATER POLLUTION PROTECTION
TBD	TO BE DETERMINED
TC	TELEMETRY CABINET
TM#	TAX MAP NUMBER
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UL	UNDERWRITER'S LABORATORY
UPM	UNINTERRUPTIBLE POWER MODULE
V	VOLTS
VAC	VOLTS (AC)
VDC	VOLTS (DC)

ABBREVIATIONS (CONTINUED)

VIF	VERIFY IN FIELD
W	WIRE
WDM	WATER DISTRIBUTION MODULE
XFMR	TRANSFORMER

LINETYPES



ES5-YA8AAN ENERGY SERVER SYSTEM X 8 (ES-A8, A9 & A17, A18, B8, B9, B17 & B18)

GROSS OUTPUT POWER	300 kW	TOTAL SYSTEM WEIGHT (LESS PAD)	29,761 LBS
NET OUTPUT POWER	300 kW	WEIGHT – POWER MODULE PM5	3,577 LBS
VOLTAGE	480 VAC	WEIGHT – AC MODULE AC5	3,161 LBS
MAXIMUM OUTPUT CURRENT	361 Amps	WEIGHT – FUEL PROCESSING MODULE FP5	2,569 LBS
FREQUENCY	60 Hz	WEIGHT – ANCILLARY EQUIPMENT (WDM, PDS, & TC) (LESS PAD)	3,130 LBS
		WEIGHT – PRECAST LINER SERVER PAD	SEE STRUCTURAL DRAWINGS

ES5-YA1AAN ENERGY SERVER SYSTEM x 12 (ES-A5, A7, A14, A16, B5, B7, B14, B16)

GROSS OUTPUT POWER	300 kW	TOTAL SYSTEM WEIGHT (LESS PAD)	27,192 LBS
NET OUTPUT POWER	300 kW	WEIGHT – POWER MODULE PM5	3,577 LBS
VOLTAGE	480 VAC	WEIGHT – AC MODULE AC5	3,161 LBS
MAXIMUM OUTPUT CURRENT	361 Amps	WEIGHT – FUEL PROCESSING MODULE FP5	2,569 LBS
FREQUENCY	60 Hz	WEIGHT – PRECAST LINER SERVER PAD	SEE STRUCTURAL DRAWINGS

ES5-AA2AAN ENERGY SERVER SYSTEM x 16 (ES-A1, A4, A10, A13, B1, B4, B10, B13)

GROSS OUTPUT POWER	262.5 kW	TOTAL SYSTEM WEIGHT (LESS PAD)	27,192 LBS
NET OUTPUT POWER	250 kW	WEIGHT – POWER MODULE PM5	3,577 LBS
VOLTAGE	480 VAC	WEIGHT – AC MODULE AC5	3,161 LBS
MAXIMUM OUTPUT CURRENT	316 Amps	WEIGHT – FUEL PROCESSING MODULE FP5	2,569 LBS
FREQUENCY	60 Hz	WEIGHT – PRECAST CLASSIC SERVER PAD	SEE STRUCTURAL DRAWINGS

FUEL REQUIREMENTS

CONNECTION	2" FLANGE	PRESSURE	15 (+3/-5) psig
FUEL TYPE	NATURAL GAS	AVERAGE CONSUMPTION RATE (60°F, 1 atm)	1.686 MMBtu/hr
PIPE SIZE – SUPPLY	SIZE SITE DEPENDENT	MAX CONSUMPTION RATE (60°F, 1 atm)	1.871 MMBtu/hr

WATER REQUIREMENTS

CONNECTION	1/2" MNPT	FLOW – STARTUP	0.8 gal/min MAXIMUM
WATER TYPE	MUNICIPAL GRADE	FLOW – CONTINUOUS	0 gal/min
MINIMUM PRESSURE	35 psi	WATER DISCHARGE	0 gal/min
MAXIMUM PRESSURE	150 psi	PIPE SIZE – SUPPLY	SIZE SITE DEPENDENT, USE STAINLESS STEEL OR PVC

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CUSTOMER SITE
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160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

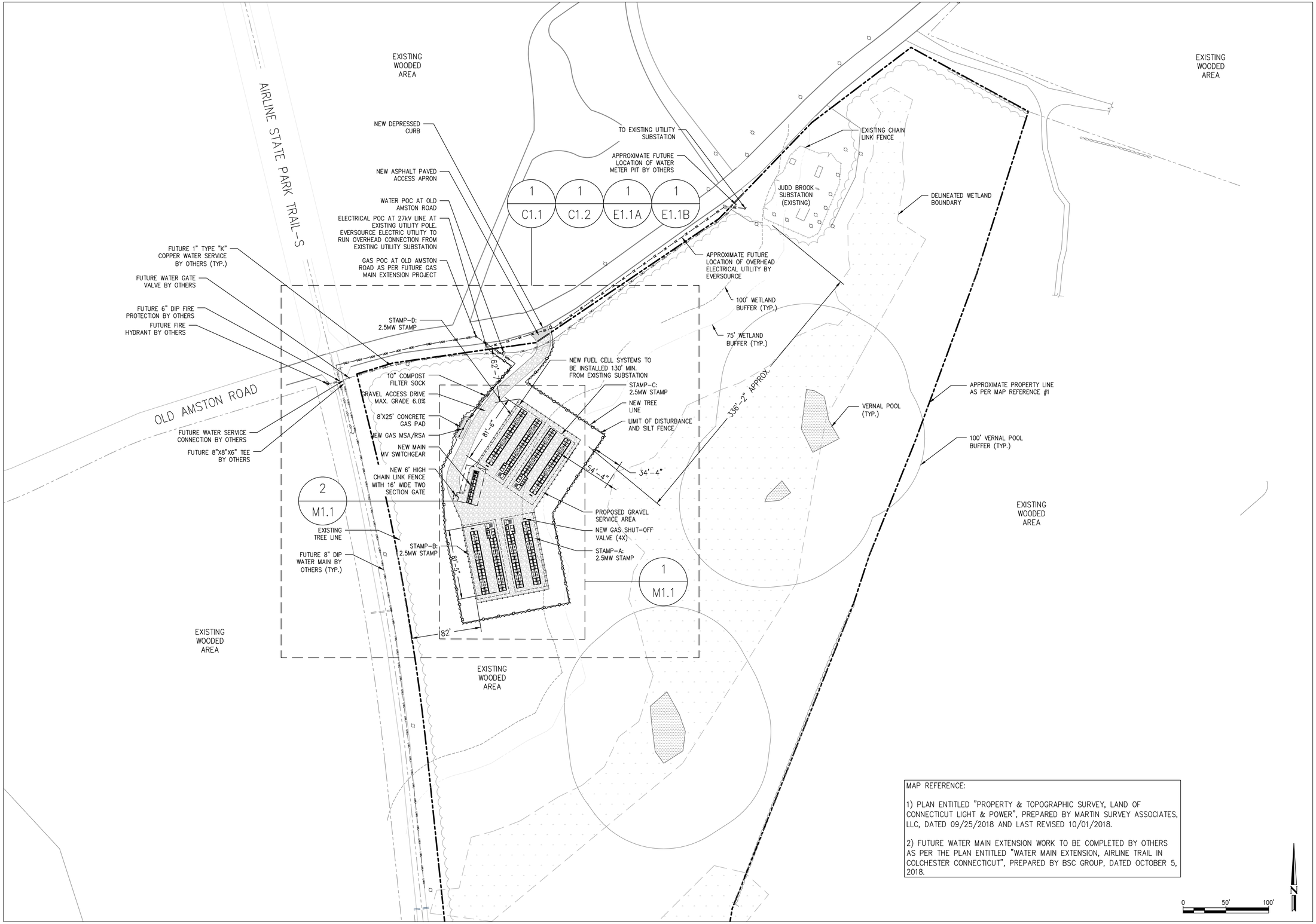
SHEET TITLE
GENERAL CONSTRUCTION NOTES

DRAWING NUMBER
G0.2

BLOOM DOCUMENT
DOC-1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 02 OF 18



OVERALL SITE PLAN

SCALE: 1" = 50'

1 G1.1

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DRAWING NUMBER

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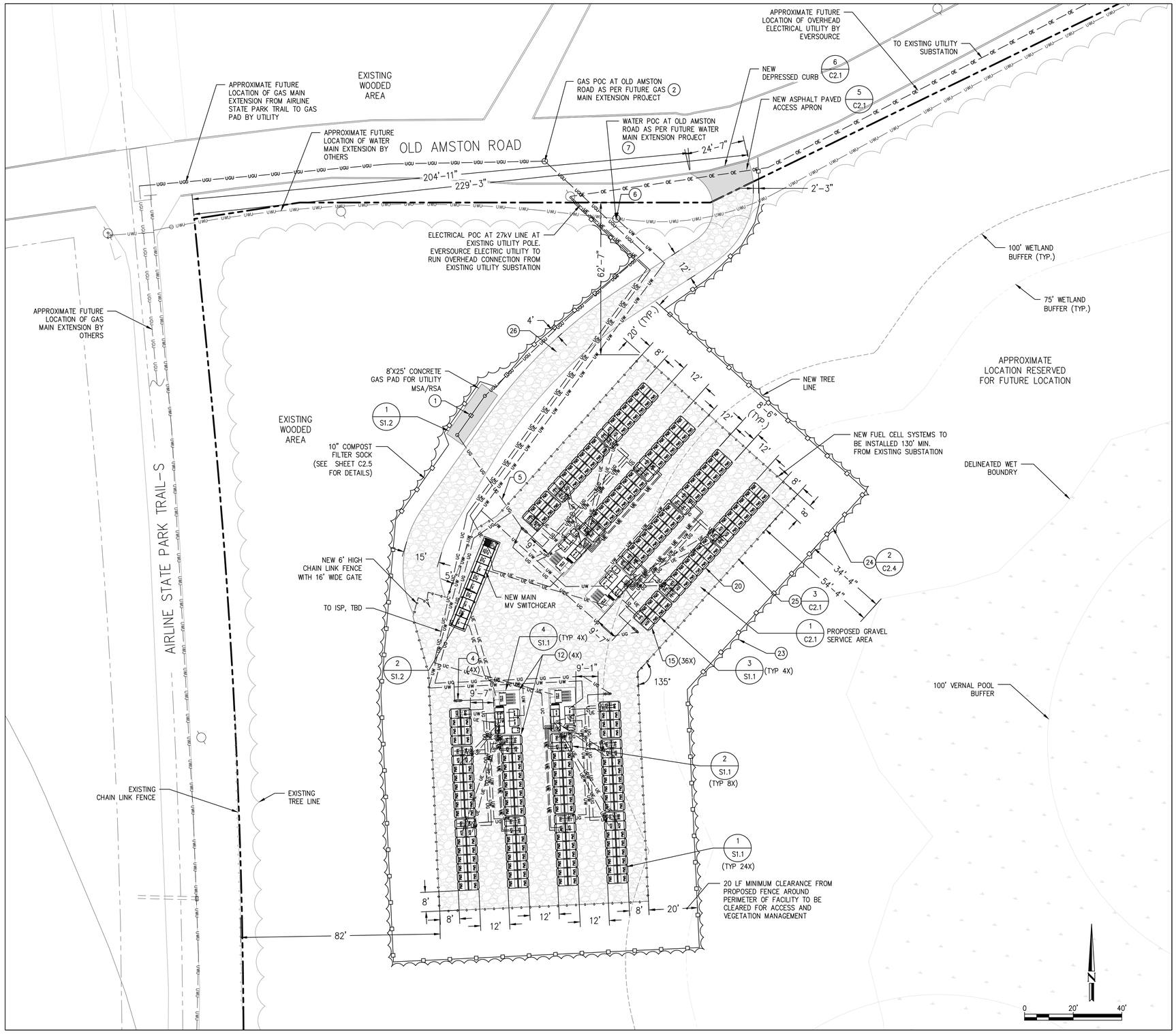

DETAILED SITE PLAN

SCALE: 1" = 20'

1 / C1.1

GENERAL NOTES

1. CLEAN AND PRIME ALL NEW WIRE MOUNTED PIPING AND CONDUIT. PIPING AND CONDUIT SHALL BE PAINTED WITH EXTERIOR GRADE PAINT TO MATCH EXISTING.
2. CONDUITS AND PIPES MOUNTED TO BUILDING WALL SHALL BE SUPPORTED AS PER LOCAL CODE, RUN AT HEIGHT ABOVE DOORWAYS, AND STAND OFF WALL TO AVOID EXISTING CONDUITS AND PIPES.
3. SLOPE LINES SHOWN ARE APPROXIMATE AND INTENDED TO SHOW THE GENERAL DIRECTION OF WATER RUN OFF; SLOPE LINES ARE DRAWN PER VISUAL SURVEY OF SURROUNDING AREA.
4. SEE BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR UTILITY CONNECTIONS TO ANCILLARY EQUIPMENT AND ENERGY SERVER.
5. ALL ABOVE FROST LINE SECTIONS OF WATER PIPES SHALL HAVE POWERED HEAT TRACE AND INSULATION, ENSURE UNDERGROUND WATER PIPE DEPTHS ARE BELOW FROST LINE.
6. VAULTS/PULL BOXES SHOWN OR NOT SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL FURNISH AND INSTALL VAULT/PULL BOX TO CONDUIT RUN WITH MORE THAN 360-DEG BENDS. COORDINATE EXACT LOCATION WITH CUSTOMER REPRESENTATIVE IN THE FIELD. CONTRACTOR SHALL SIZE VAULT/PULL BOX IN COMPLIANCE WITH NEC CODE REQUIREMENTS. ALL VAULTS AND COVERS IN DRIVE AISLES SHALL BE HEAVY DUTY IN CONFORMANCE WITH AASHTO H20 LOADING.

REFERENCE SHEET NOTES

(1) NEW UTILITY PROVIDED AND INSTALLED GAS METER & REGULATOR ASSEMBLY WITH SHUT-OFF VALVE. CONTRACTOR SHALL PROVIDE PAD PER DETAILS IF REQUIRED BY UTILITY COMPANY. COORDINATE ALL CONNECTIONS WITH GAS UTILITY.

(2) NEW UNDERGROUND GAS SERVICE TAP BY UTILITY COMPANY. COORDINATE WITH GAS UTILITY. CONTRACTOR SHALL PERFORM COMPACTION AND MATCH EXISTING SURFACE AND GRADE. CONTRACTOR SHALL COORDINATE GAS PIPE SIZING AND INSTALLATION REQUIREMENTS WITH UTILITY. UTILITY TO INSTALL 8" MAIN IN STREET AND 6" GAS LINE ON PROPERTY TO GAS PAD.

(4) NEW PRIVATE GAS SHUT-OFF VALVE. REFER TO GAS RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(5) NEW GAS PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO GAS RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(6) TAP EXISTING WATER LINE AT WATER METER PIT WITH A LOCAL SHUT-OFF VALVE. REFER TO DOMESTIC WATER CONNECTION DETAIL FOR ADDITIONAL REQUIREMENTS.

(7) NEW WATER PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO WATER RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(12) CONTRACTOR SHALL PROVIDE TWO GROUNDING RODS TO BE PLACED 6' APART MINIMUM. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

(13) NEW ELECTRICAL FEEDER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

(15) NEW BLOOM ENERGY SERVER. REFER TO BLOOM STANDARD INSTALLATION DRAWING SET FOR ADDITIONAL ENERGY SERVER DETAILS.

(16) FACTORY WIRED ENERGY SERVER EMERGENCY POWER-OFF SWITCH (EPO).

(20) CONTRACTOR SHALL EXCAVATE UNDER ENERGY SERVER AND ANCILLARY PAD LOCATIONS. REFER TO PAD DETAIL FOR ADDITIONAL EXCAVATION AND BACKFILL REQUIREMENTS.

(23) CONTRACTOR TO REMOVE TREES AND CLEAR AREA FOR INSTALLATION OF ENERGY SERVERS AND ASSOCIATED EQUIPMENT. PROVIDE 10' MINIMUM CLEARANCE FROM PROPOSED ENERGY SERVER TO DRIP LINE OF ANY EXISTING TREES.

(24) PROPOSED LIMIT OF DISTURBANCE AND SEDIMENT CONTROL BARRIER.

(25) NEW 6' HIGH CHAIN LINK FENCE WITH PRIVACY SCREENING.

(26) PROPOSED GRAVEL ACCESS DRIVE (MAX GRADE 6%) FOR SERVICE VEHICLES. SEE DETAIL 1/C2.1 FOR ADDITIONAL INFORMATION.

EXISTING UTILITY NOTE:
THE LOCATION OF EXISTING UTILITIES IS SHOWN FOR THE CONTRACTOR'S REFERENCE. EXACT LOCATION, DEPTH AND SIZE OF ALL EXISTING UTILITIES IS NOT KNOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES NOT SHOWN ON THESE DRAWINGS. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING UNDERGROUND UTILITIES AND PROTECT THE EXISTING UNDERGROUND UTILITY LINES FROM DAMAGE WHEN CROSSING WITH NEW UNDERGROUND UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY DAMAGED LINES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON. SUCH CONDITIONS COULD RENDER THE DESIGNS HEREON IN APPROPRIATE AND MAY REQUIRE ADJUSTMENTS TO AVOID CONFLICTS.

MAP REFERENCE:
1) PLAN ENTITLED "PROPERTY & TOPOGRAPHIC SURVEY, LAND OF CONNECTICUT LIGHT & POWER", PREPARED BY MARTIN SURVEY ASSOCIATES, LLC, DATED 09/25/2018.
2) FUTURE WATER MAIN EXTENSION WORK TO BE COMPLETED BY OTHERS AS PER THE PLAN ENTITLED "WATER MAIN EXTENSION, AIRLINE TRAIL IN COLCHESTER CONNECTICUT", PREPARED BY BSC GROUP, DATED OCTOBER 5, 2018.

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REVISION HISTORY		
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DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE
DETAILED SITE PLAN

DRAWING NUMBER
C1.1

BLOOM DOCUMENT
DOC-1010853

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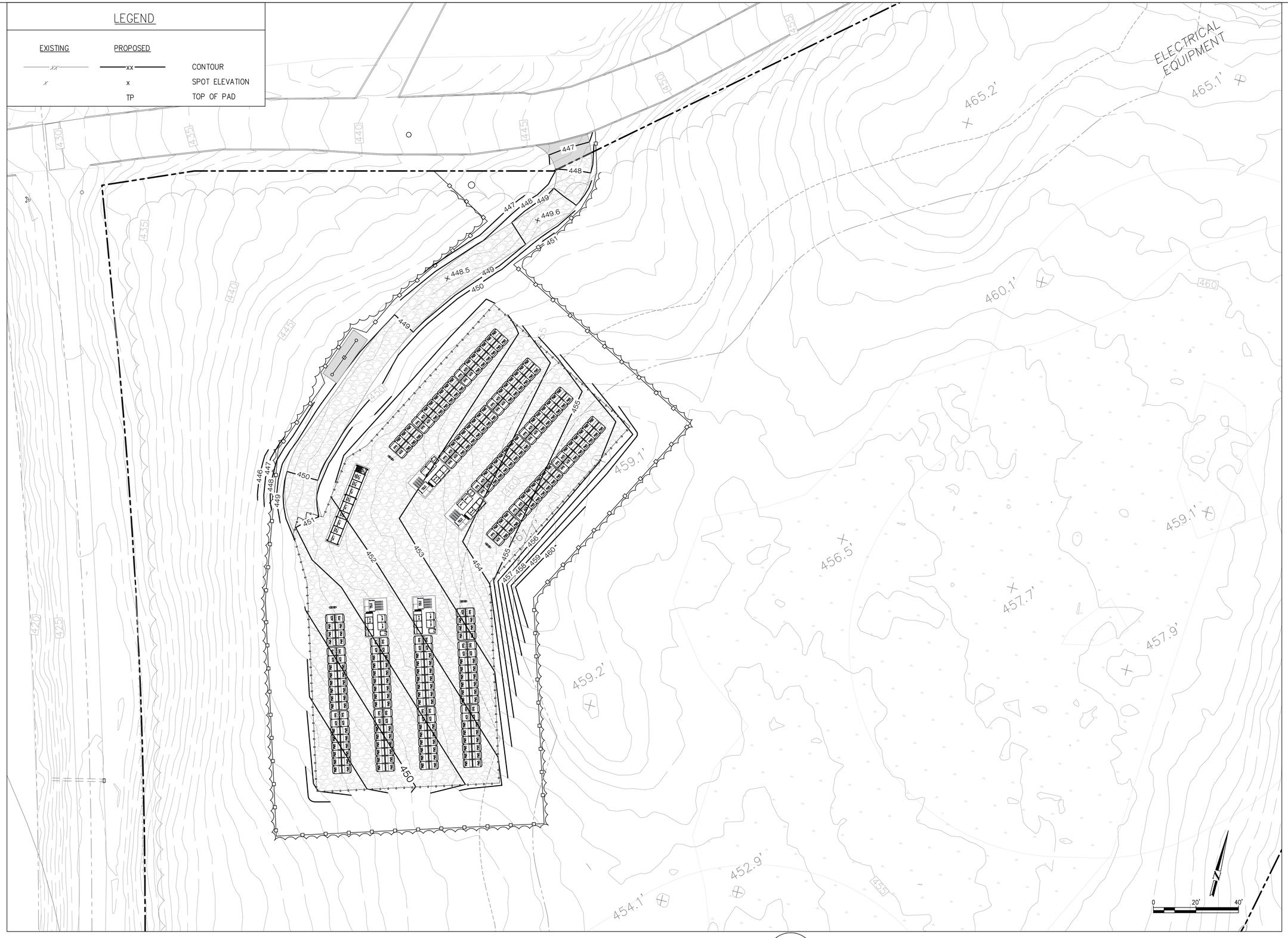
SITE ID: EVS000.0 | SHEET 04 OF 18

LEGEND

EXISTING	PROPOSED	
xx	xx	CONTOUR
x	x	SPOT ELEVATION
	TP	TOP OF PAD



GRADING PLAN

SCALE: 1" = 20'

1
C1.2

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GRADING PLAN

DRAWING NUMBER

C1.2

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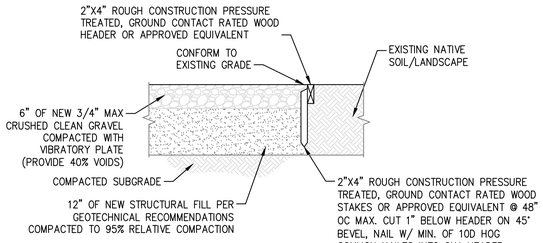


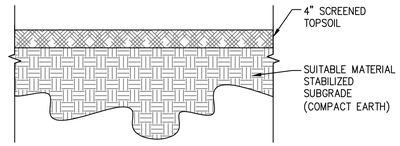
DETAIL NOTES:

1. 1"X4"X36" CONSTRUCTION PRESSURE TREATED, GROUND CONTACT RATED WOOD OR APPROVED EQUIVALENT SCAB AT ALL BUTT JOINTS. INSTALL SCABS ON STAKE SIDE OF JOINTS ON STRAIGHT RUNS. BUTT JOINTS SHALL OCCUR AT STAKES. NAIL W/ 8D HOG COMMON NAILS SPACED AT 4" OC INTO 2X4 HEADER.
2. TWO (2) STAKES AT ALL JOINTS 18" EACH SIDE OF JOINT.

GRAVEL SERVICE AREA

SCALE: NTS

1 / C2.1

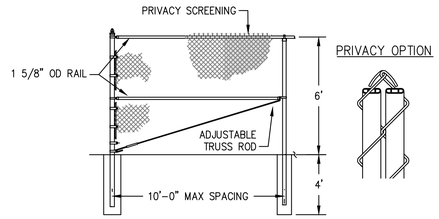


LANDSCAPE RESTORATION

SCALE: NTS

2 / C2.1

ELEVATION VIEW



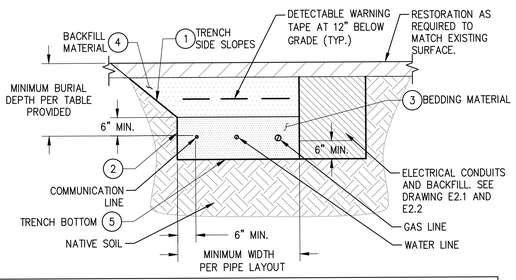
DETAIL NOTES:

1. FOOTING WIDTH TO BE (4)X POST WIDTH. MINIMUM DEPTH 48".

CHAIN LINK FENCE

SCALE: NTS

3 / C2.1



MINIMUM BURIAL DEPTHS AND CLEARANCES TABLE

UTILITY	MINIMUM BURIAL DEPTH	MINIMUM HORIZONTAL DISTANCE TO LIKE UTILITY	MINIMUM HORIZONTAL DISTANCE TO DIFFERING UTILITY	MINIMUM VERTICAL DISTANCE TO LIKE UTILITY	VERTICAL DISTANCE TO DIFFERING UTILITY
COMMUNICATION	24"	6"	12"	3"	12"
GAS	24"	6"	12"	6"	12"
WATER	48"	6"	12"	6"	12"

UTILITY TRENCH EXCAVATION SPACING & BACKFILL DETAIL

SCALE: NTS

4 / C2.1

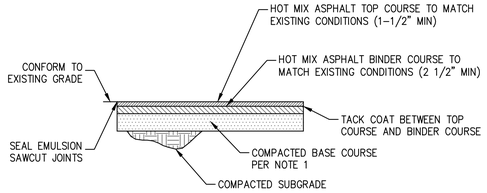
DETAIL NOTES

1. CONTRACTOR SHALL HIRE A THIRD PARTY SOILS INSPECTION AND TESTING AGENCY TO ASSURE COMPLIANCE OF MATERIALS AND PLACEMENT PROCEDURES WITH DESIGN DRAWINGS, SPECIFICATIONS, AND LOCAL CODES. WORK SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
   - –PHOTOGRAPH EXCAVATION BOTTOM
   - –VERIFY SOIL SUITABILITY
   - –VERIFY AND REPORT COMPACTION
   - –SUBMIT INSPECTION REPORTS DATED AND SIGNED BY TESTING AGENCY
2. TESTING SERVICE DOCUMENTATION SHALL INCLUDE THE FOLLOWING:
   - –DAILY RECORDS AND REPORT
   - –TESTING RECORDS AND DATA SHEETS
   - –PHOTOGRAPHIC RECORDS
   - –FINAL REPORT

   ALL RECORDS SHALL AT A MINIMUM BEAR THE PROJECT NAME, LOCATION, DATE, WRITTEN DESCRIPTION OF VISUAL OBSERVATIONS, AND SIGNATURE OF PREPARED OR DESIGNATED AUTHORITY.
3. ALL CLEARANCES ARE EDGE TO EDGE AND NOT CENTER TO CENTER.
4. ANY DEVIATION FROM HORIZONTAL OR VERTICAL UTILITY SEPARATION DISTANCES TO ACCOMMODATE FIELD CONDITIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO BLOOM ENERGY FOR APPROVAL PRIOR TO UTILITY PLACEMENT.

DETAIL REFERENCE NOTES

1. TRENCH SHALL BE EXCAVATED AND PROTECTED PER OSHA STANDARD 1926 SUBPART P. OPEN TRENCHES SHALL NOT EXCEED OSHA MAXIMUM SIDE SLOPES. CONTRACTOR TO SHORE AND PROTECT ALL VERTICAL EXCAVATIONS AS REQUIRED BY OSHA. TRENCH WALLS SHALL BE VERTICAL FROM BOTTOM OF EXCAVATION TO TOP OF PIPE OR CONDUIT.
2. TRENCH WALLS SHALL BE VERTICAL FROM BOTTOM OF EXCAVATION TO TOP OF PIPE OR CONDUIT BACKFILL.
3. BEDDING MATERIALS SHALL BE PLACED IN 6" MAXIMUM LIFTS AND MATCH ADJACENT DUCT BANK BEDDING MATERIALS WHERE APPLICABLE. ACCEPTABLE BEDDING GRADATIONS ARE:
   a. 3/4" MAXIMUM AGGREGATE BASE.
   b. ASTM C–33–FINE CONCRETE AGGREGATE (WELL GRADED SAND).
   c. ASTM C–33–GRADATION NO. 67 OR NO. 7.
   d. GRADATIONS SIMILAR TO WELL GRADED FINE ROAD BASE MATERIAL, ASTM D–1241 GRADATION C AND D.
4. BACKFILL MATERIALS SHALL BE 3/4" MAX AGGREGATE BASE MATERIAL, ASTM C33 SAND, OR NATIVE SOIL IF APPROVED BY GEOTECHNICAL ENGINEER, AS NOTED PLACE BACKFILL IN 6" MAX. LIFTS AND TO BE COMPACTED TO 95% RELATIVE COMPACTION AT ± 2% OPTIMAL MOISTURE CONTENT PER ASTM D1557. SAND LAYER BELOW CONDUIT SHALL BE A MINIMUM DEPTH OF 3".
5. IF THE BOTTOM OF THE TRENCH IS SOFT AND COMPACTION CANNOT BE ACHIEVED, CONTRACTOR TO OBTAIN RECOMMENDATION FROM THIRD PARTY SOILS TESTING AND INSPECTION AGENCY AND SUBMIT RECCOMENDATION TO ENGINEER OF RECORD FOR CONFIRMATION.



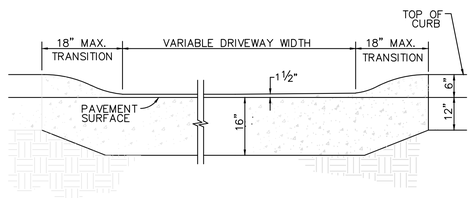
DETAIL NOTES:

1. REFER TO UNDERGROUND/TRENCH CONDUIT AND PIPING DETAIL OR ENERGY SERVER AND ANCILLARY PRECAST PAD GRADING FOR COMPACTED BASE COURSE REQUIREMENTS.
2. ASPHALT BINDER COURSE IN ACCORDANCE WITH CURRENT APPLICABLE NATIONAL, STATE AND LOCAL CODES.

ASPHALT PAVING

SCALE: NTS

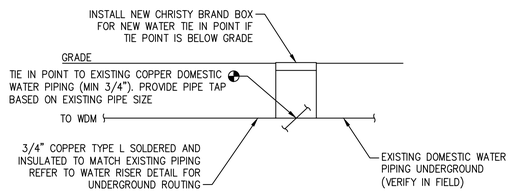
5 / C2.1



DEPRESSED CURB DETAIL

SCALE: NTS

6 / C2.1



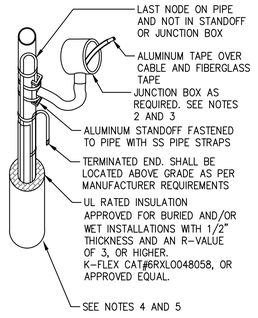
DETAIL NOTES:

1. WHERE WATER PRESSURE EXCEEDS 150PSI A PRESSURE REGULATOR MUST BE PROVIDED AND INSTALLED BETWEEN THE POINT OF CONNECTION AND THE WDM.

DOMESTIC WATER CONNECTION

SCALE: NTS

7 / C2.1



DETAIL NOTES:

1. SELF REGULATING HEAT TRACE, OUTDOOR RATED, 5 WATTS/FT., 120VAC, RAYCHEM 5BTV–CT/CR OR EQUAL. HEAT TRACE SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR ON ALL EXTERIOR WATER PIPING INSTALLED ABOVE THE FROST LINE (48" DEPTH). WHERE INSTALLATIONS HAVE NEW WATER PIPING PENETRATING EXTERIOR FACILITY WALLS HEAT TRACE SHALL BE EXTENDED 18" INTO THE BUILDING. HEAT TRACE FOR BLOOM ENERGY SERVER PAD PLUMBING SHALL BE OFCI, ENSURE HEAT TRACE IS PROVIDED AT WATER JUMPER BETWEEN BLOOM ENERGY SERVER PLUMBING AND CONTRACTOR PROVIDED PLUMBING.
2. JUNCTION BOX SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR AT ENDS OF HEAT TRACE LINES THAT TERMINATE AT A POWER SOURCE, COORDINATE MOUNTING REQUIREMENTS IN THE FIELD. JUNCTION BOX AT ENERGY SERVER SHALL BE OFCI AND MOUNTED WITH SELF TAPPING SCREWS.
3. IN WDM THE HEAT TRACE LINE SHALL LAND DIRECTLY AT CABLE GLAND, ALLOW 10' ADDITIONAL HEAT TRACE LENGTH AT WDM INLET AND OUTLET TO COVER ALL WDM PIPING AND LENGTH TO TERMINATION AT CABLE GLAND.
4. HEAT TRACE INSTALLED FROM THE FROST LINE TO 6" ABOVE GRADE SHALL BE PROVIDED WITH 4" PVC JACKET FILLED WITH 3/4" STONE FOR DRAINAGE. PVC JACKET SHALL EXTEND BEYOND HEAT TRACE TO FULL WATER PIPE BURIAL DEPTH. PVC JACKET SHALL NOT BE PROVIDED AT STUB UP TO ENERGY SERVER WATER CONNECTION.
5. WHERE HEAT TRACE IS INSTALLED BEYOND 6" ABOVE GRADE AND EXPOSED TO THE ELEMENTS (NOT WITHIN EQUIPMENT) IT SHALL BE PROVIDED WITH ALUMINUM ROLL JACKETING FOR PROTECTION.

HEAT TRACE

SCALE: NTS

8 / C2.1

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1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE

DETAILS
SHEET 1

DRAWING NUMBER

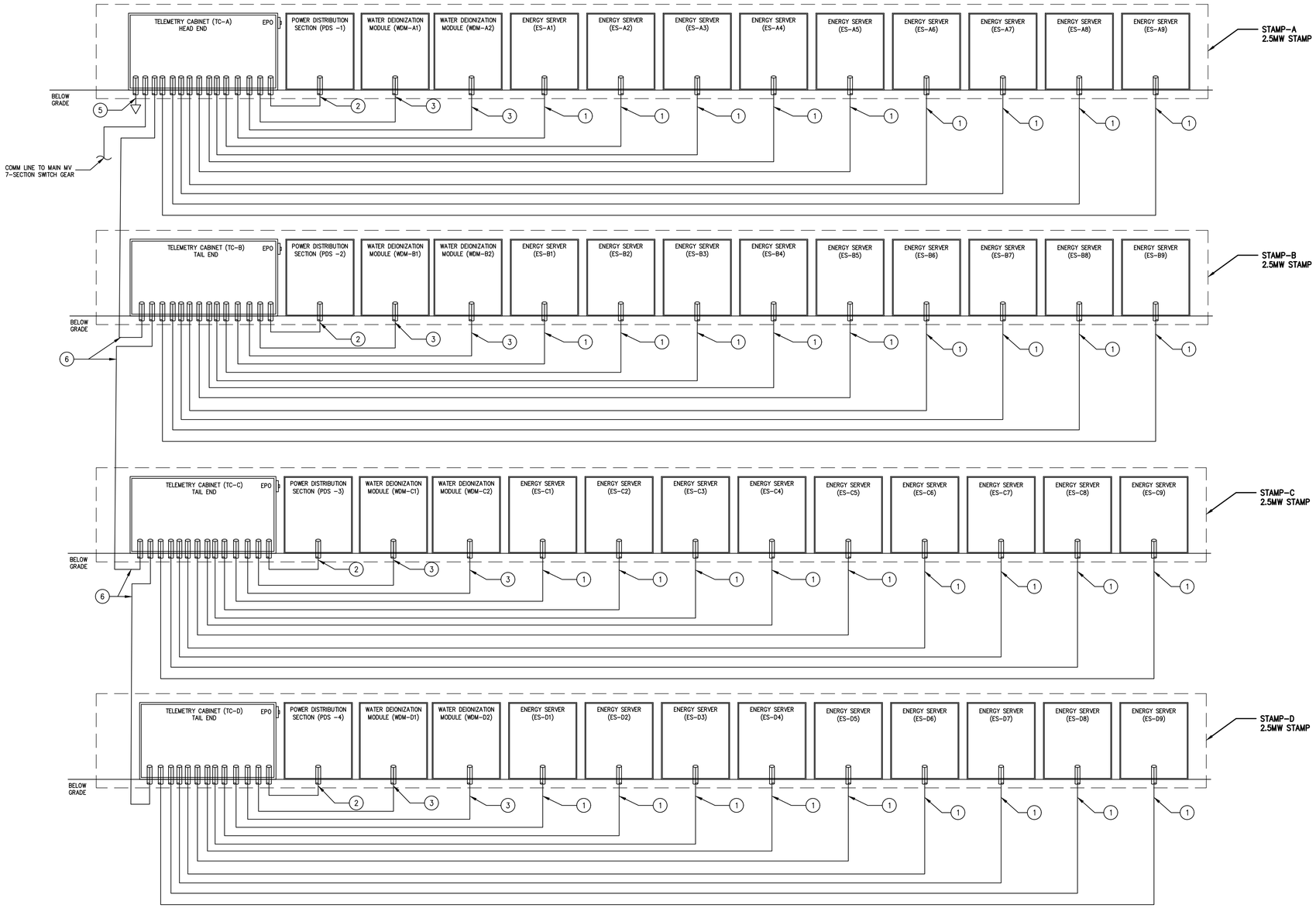
C2.1

BLOOM DOCUMENT

DOC–1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 06 OF 18



DETAIL REFERENCE NOTES

(1) PER ENERGY SERVER: 1" CONDUIT BETWEEN TC AND ES WITH TWO (2) OUTDOOR RATED CAT5E CABLES AND ONE (1) OUTDOOR RATED SHIELDED CAT5E CABLE WITH RJ-45 (MALE/MALE) ENDS.

(2) 1" CONDUIT BETWEEN TC AND PDS WITH ONE (1) OUTDOOR RATED SHIELDED CAT5E CABLE WITH RJ-45 (MALE/MALE) ENDS.

(3) 1" CONDUIT BETWEEN TC AND PDS WITH ONE (1) OUTDOOR RATED SHIELDED CAT5E CABLE WITH RJ-45 (MALE/MALE) ENDS.

(4) 1" CONDUIT BETWEEN TC AND WDM WITH ONE (1) OUTDOOR RATED SHIELDED CAT5E CABLE WITH RJ-45 (MALE/MALE) END ON WDM SIDE.

(5) 1" CONDUIT BETWEEN TC AND DEMARC TO BE DETERMINED FOR HARDWIRED COMMUNICATIONS. WITH ONE (1) OUTDOOR RATED 4 STRAND MULTIMODE FIBER OPTIC TIE INTO EXISTING FIBER BACKBONE AT INTERCEPT LOCATION FOR T1 CONNECTION.

(6) 1" CONDUIT BETWEEN ALL TC WITH (1) OUTDOOR RATED CAT5 CABLE FOR COMMUNICATION AND (2) 18/2 TWISTED, SHIELDED FOR EPO SERIES CONNECTION.

DETAIL NOTES

1. ALL CONDUIT AND WIRE TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
2. REFER TO THE DETAILED SITE PLAN FOR EQUIPMENT LOCATIONS.
3. ROUTING SHALL BE DETERMINED IN THE FIELD BASED ON PREVAILING FIELD CONDITIONS.
4. ANODELESS RISERS SHALL BE CSA AND IAPMO/UPC LISTED.
5. CAT6 IS ACCEPTABLE IN LIEU OF CAT5E. IF INSTALLING SHALL VERIFY CONDUIT FILL RATIO AND UPSIZE CONDUIT AS NECESSARY.
6. ALL SHIELDED CONDUCTORS SHALL HAVE THE SHIELD GROUNDED ON ONE END.
7. ALL OUTDOOR RATED SHIELDED CAT5E CABLES SHALL BE TYPE F/UTP WITH DRAIN WIRE, OSP RATED.
8. CONTRACTOR SHALL TEST THE FIBER OPTIC CABLE FOR INSERTION LOSS PER TIS OFSTP-14.

COMMUNICATIONS RISER DIAGRAM

SCALE: NTS

1
C2.2

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EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE
DETAILS
SHEET 2

DRAWING NUMBER
C2.2

BLOOM DOCUMENT
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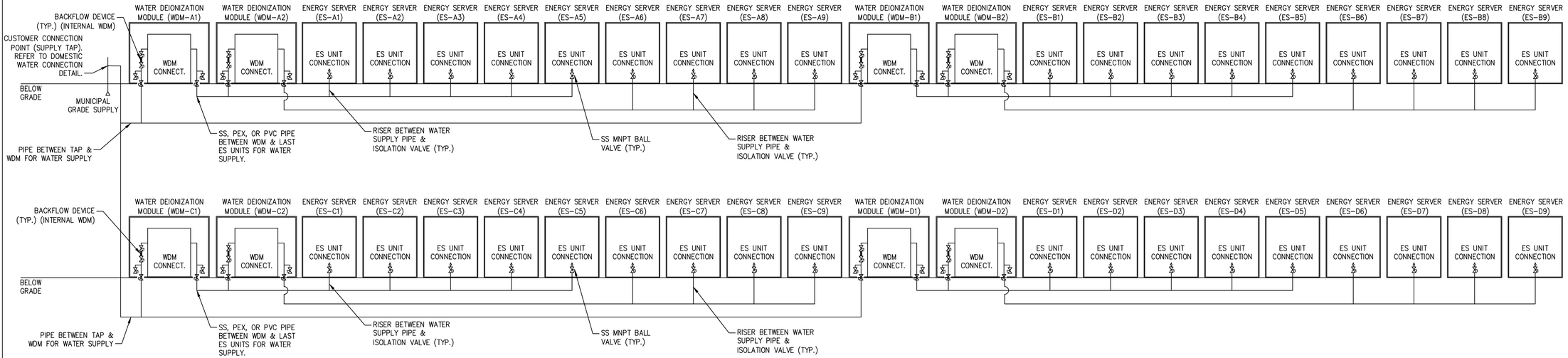

DETAIL NOTES:
1. LIMIT 5 ENERGY SERVER UNITS FOR 1 WDM. ADDITIONAL WDMS REQUIRED FOR ADDITIONAL UNITS.
2. PROVIDE HEAT TRACE FOR ALL ABOVE FROST LINE BURIED WATER PIPES. FOR STUB-UP LOCATIONS, PROVIDE ADEQUATE EXTRA LENGTH OF HEAT TRACE TO PROPERLY HEAT TRACE ANY VALVES AND OVERLAP WITH BLOOM PROVIDED HEAT TRACE INSIDE BLOOM PROVIDED EQUIPMENT.

WATER RISER

SCALE: NTS

1 / C2.3

DETAIL NOTES:
1. THIS DRAWING DOES NOT EXCUSE THE CONTRACTOR FROM INSTALLATION PER APPLICABLE BUILDING CODES OR MANUFACTURER REQUIREMENTS. IN THE EVENT OF A DISCREPANCY NOTIFY BLOOM ENERGY.
2. CONTRACTOR TO ENSURE ANODELESS RISERS ARE INSTALLED IN COMPLIANCE WITH THE MANUFACTURE'S REQUIRED MAXIMUM AND MINIMUM BURIAL DEPTHS.
3. ANODELESS RISERS SHALL CONFORM TO ASTMD2513 AND USDOT 1921.281, 192.283, 192.375. ANODELESS RISERS SHALL BE CSA AND IAMPO/UPC LISTED.
4. GAS HOUSE LINE SHALL BE RATED FOR 25 PSIG.
5. ALL GAS PIPING IS SIZED IN ACCORDANCE WITH NATIONAL FUEL GAS CODE. IT IS THE RESPONSIBILITY OF THE PIPING CONTRACTOR TO INSTALL SAID PIPING SYSTEM IN ACCORDANCE WITH THE GAS CODE AND ACCEPTABLE PIPING PRACTICES. THIS DRAWING DOES NOT EXCUSE THE CONTRACTOR FROM INSTALLATION PER APPLICABLE BUILDING CODES OR MANUFACTURER REQUIRMENTS. IN THE EVENT OF A DISCREPANCY, CONTRACTOR SHALL NOTIFY BLOOM ENERGY.
6. ALL NEW HIGH PRESSURE GAS PIPE SHALL BE SCHEDULE 40 BLACK STEEL, ASTM A53 TYPE E, GALVANIZED WITH FLANGED AND WELDED JOINTS. ABOVE GROUND PIPE SHALL BE PAINTED YELLOW. UNDERGROUND GAS PIPE SHALL BE HDPE.
7. ALL ABOVE GROUND CONNECTIONS TO BE FLANGED AND WELDED AT COMPONENTS DOWNSTREAM OF NEW UTILITY METER/REGULATOR ASSEMBLY.
8. ALL SHUT-OFFS SHALL BE FLANGED WITH WELDED CONNECTION AND ANODLESS RISERS TO THE GROUND..
9. THE USE OF NATURAL GAS AS A FUEL SYSTEM CLEANING MEDIUM DURING FUEL CELL CONSTRUCTION, INSTALLATION OR MODIFICATION IS PROHIBITED. CONTRACTOR IS PROHIBITED FROM USING PIPELINE GAS AND SHALL PURGE SYSTEM WITH NITROGEN.

GAS RISER – FIXED DELIVERY WITH LOCAL SHUT-OFF VALVES

SCALE: NTS

2 / C2.3

LEGEND
- GAS REGULATOR
- GAS METER
- SHUT OFF VALVE
- PRESSURE INDICATION
- FLANGE

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SHEET TITLE
DETAILS SHEET 3

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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 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. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN ARE SHOWN IN A GENERAL SIZE AND LOCATION ONLY. 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. SEE SEDIMENT AND EROSION CONTROL DETAILS AND SUGGESTED CONSTRUCTION SEQUENCE FOR MORE INFORMATION. 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 MANOR.
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 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. TURF ESTABLISHMENT SHALL BE PERFORMED OVER 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 NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES, OR APPROVED EQUAL BY OWNER.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INVOLVES THE CONSTRUCTION OF A FUEL CELL POWER GENERATION FACILITY WITH ASSOCIATED EQUIPMENT, INCLUDING THE CLEARING, GRUBBING AND GRADING OF APPROXIMATELY 0.69± ACRES OF EXISTING LOT.

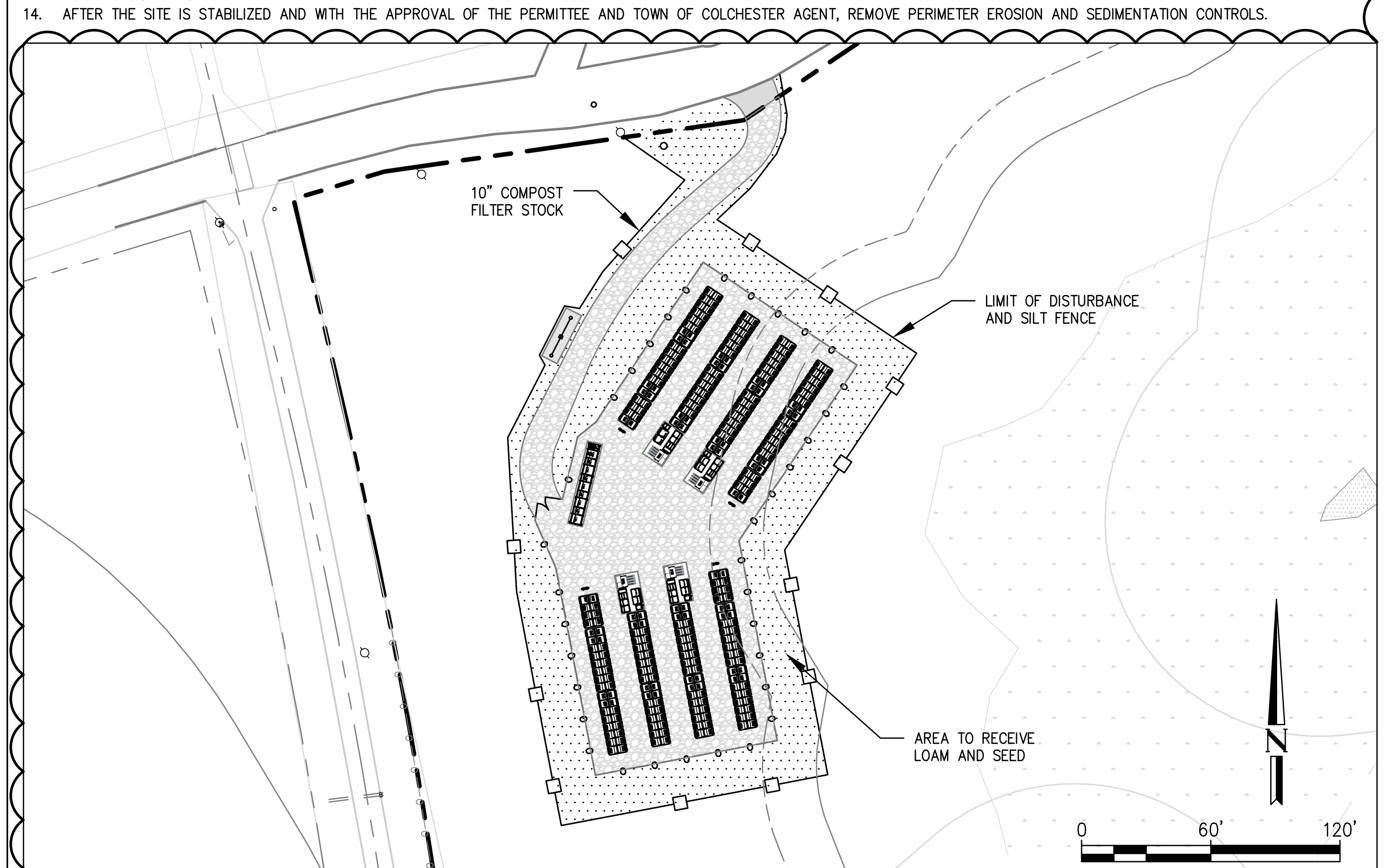
THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:

1. CLEARING, GRUBBING, AND GRADING OF EXISTING LOT.
   A. CONSTRUCTION OF FUEL CELL POWER GENERATION FACILITY WITH ASSOCIATED EQUIPMENT.
   B. THE STABILIZATION OF DISTURBED AREAS WITH PERMANENT TREATMENTS.
2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 0.69± ACRE 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 EQUIPMENT.
3. THE PROJECT SITE, AS MAPPED IN THE SOIL SURVEY OF STATE OF CONNECTICUT (NRCS, VERSION 18, DEC 6, 2018), CONTAINS TYPE 38E (HYDROLOGIC SOIL GROUP A), 61C (HYDROLOGIC SOIL GROUP B) AND 701B (HYDROLOGIC SOIL GROUP C). A GEOTECHNICAL ENGINEERING REPORT HAS NOT BEEN COMPLETED.
4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 6-8 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 COLCHESTER 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 AREA:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS TO THE EXTENT PRACTICABLE DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE WITH TEMPORARY OR PERMANENT MEASURES;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

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.

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 REPRESENTATIVE(S), THE MUNICIPALITY, 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 TOWN OF COLCHESTER AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT.
4. NOTIFY DIG SAFE AT 811, AS REQUIRED, PRIOR TO THE START OF CONSTRUCTION.
5. REMOVE EXISTING IMPEDIMENTS AS NECESSARY AND PROVIDE MINIMAL CLEARING AND GRUBBING TO INSTALL THE REQUIRED CONSTRUCTION ENTRANCES.
6. CLEAR ONLY AS NEEDED TO INSTALL THE PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES AND, IF APPLICABLE, TREE PROTECTION. ALL WETLAND AREAS SHALL BE PROTECTED BEFORE MAJOR CONSTRUCTION BEGINS.
7. INSTALL REMAINING PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES.
8. PERFORM THE REMAINING CLEARING AND GRUBBING AS NECESSARY. REMOVE CUT WOOD AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF DEMOLITION DEBRIS OFF-SITE IN ACCORDANCE WITH APPLICABLE LAWS.
9. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.
10. INSTALL ELECTRICAL CONDUIT, GAS PIPES AND CONCRETE PADS.
11. INSTALL FUEL CELLS AND COMPLETE GAS AND ELECTRICAL INSTALLATION.
12. AFTER SUBSTANTIAL COMPLETION OF THE INSTALLATION OF THE FUEL CELLS, COMPLETE REMAINING SITE WORK, 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 TOWN OF COLCHESTER AGENT, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.



ENVIRONMENTAL NOTES

WETLAND AND VERNAL POOL PROTECTION PLAN

AS A RESULT OF THE PROPOSED DEVELOPMENT'S LOCATION IN THE VICINITY OF WETLANDS AND VERNAL POOL HABITAT, THE FOLLOWING BEST MANAGEMENT PRACTICES ("BMPS") ARE RECOMMENDED TO AVOID UNINTENTIONAL IMPACT TO WETLAND HABITATS OR MORTALITY TO VERNAL POOL HERPETOFAUNA (I.E., SPOTTED SALAMANDER, WOOD FROG, TURTLES, ETC.) DURING CONSTRUCTION ACTIVITIES. THIS PLAN INCLUDES ELEMENTS THAT WILL PROTECT HERPETOFAUNA SHOULD CONSTRUCTION ACTIVITIES OCCUR DURING PEAK AMPHIBIAN MOVEMENT PERIODS (EARLY SPRING BREEDING [MARCH 1ST TO MAY 15TH] AND LATE SUMMER DISPERSAL [JULY 15TH TO SEPTEMBER 15TH]) AS WELL AS WETLANDS REGARDLESS OF THE TIME OF YEAR. COMPLETE DETAILS OF THE RECOMMENDED BMPS ARE PROVIDED BELOW, WHICH WILL BE INCORPORATED INTO THE CONSTRUCTION DRAWINGS TO ENSURE THE CONTRACTOR IS FULLY AWARE OF THE PROJECT'S ENVIRONMENTALLY SENSITIVE SETTING.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLIES WITH THE REQUIREMENT OF THIS VERNAL POOL PROTECTION PLAN. A WETLAND SCIENTIST FROM ALL-POINTS TECHNOLOGY CORP. ("APT") EXPERIENCED IN COMPLIANCE MONITORING OF CONSTRUCTION ACTIVITIES WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT THE FOLLOWING BMPS ARE IMPLEMENTED PROPERLY. THE CONTRACTOR SHALL CONTACT DEAN GUSTAFSON, SENIOR WETLAND SCIENTIST 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.

THE PROPOSED WETLAND AND VERNAL POOL PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS INCLUDING: EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; ISOLATION OF THE TOWER/COMPOUND PERIMETER; HERPETOFAUNA SWEEPS; PERIODIC INSPECTION AND MAINTENANCE OF EROSION CONTROLS AND ISOLATION STRUCTURES; PROTECTIVE MEASURES; 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 THE ENVIRONMENTAL MONITOR. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF INFORMATION SUCH AS, BUT NOT LIMITED TO: REPRESENTATIVE PHOTOGRAPHS OF TYPICAL HERPETOFAUNA THAT MAY BE ENCOUNTERED, RARE THAT COULD BE ENCOUNTERED (IF POSSIBLE), TYPICAL SPECIES BEHAVIOR, AND PROPER PROCEDURES TO PROTECT SUCH SPECIES IF THEY 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 SECTION 4 BELOW. THE CONTRACTOR WILL DESIGNATE ONE OF ITS WORKERS AS THE "PROJECT MONITOR", WHO WILL RECEIVE MORE INTENSE TRAINING ON THE IDENTIFICATION AND PROPER HANDLING OF HERPETOFAUNA.
   B. THE CONTRACTOR WILL DESIGNATE A MEMBER OF ITS CREW AS THE PROJECT MONITOR TO BE RESPONSIBLE FOR THE DAILY "SWEEPS" FOR HERPETOFAUNA WITHIN THE WORK ZONE EACH MORNING, DURING ANY AND ALL TRANSPORTATION OF VEHICLES ALONG THE ACCESS DRIVE, AND FOR ANY GROUND DISTURBANCE WORK. THIS INDIVIDUAL WILL RECEIVE MORE INTENSE TRAINING FROM THE ENVIRONMENTAL MONITOR ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA IN ORDER TO PERFORM SWEEPS. ANY HERPETOFAUNA DISCOVERED WILL BE REPORTED TO THE ENVIRONMENTAL MONITOR, PHOTOGRAPHED IF POSSIBLE, AND RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.
   C. THE ENVIRONMENTAL MONITOR WILL ALSO POST CAUTION SIGNS THROUGHOUT THE PROJECT SITE AND MAINTAIN THEM FOR THE DURATION OF CONSTRUCTION TO PROVIDE 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.
   D. THE CONTRACTOR WILL BE PROVIDED WITH THE ENVIRONMENTAL MONITOR'S CELL PHONE AND EMAIL CONTACT INFORMATION TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH HERPETOFAUNA.
2. EROSION AND SEDIMENTATION CONTROLS
   A. PLASTIC NETTING WITH LARGE MESH OPENINGS (> ¼") 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 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 WITH A MESH SIZE <¼" SUCH AS THAT TYPICALLY USED IN COMPOST FILTER SOCKS TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.
   B. INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS, REQUIRED FOR EROSION CONTROL COMPLIANCE AND CREATION OF A BARRIER TO POSSIBLE MIGRATING/DISPERSING HERPETOFAUNA, SHALL BE PERFORMED BY THE CONTRACTOR FOLLOWING CLEARING ACTIVITIES AND PRIOR TO ANY EARTHWORK. THE ENVIRONMENTAL MONITOR WILL INSPECT THE WORK ZONE AREA 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.
   C. IF A STAGING AREA FOR EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS IS REQUIRED FOR THIS PROJECT, SUCH AREA(S) SHALL BE LOCATED OUTSIDE OF ANY WETLAND RESOURCE BUFFER ZONE AND SURROUNDED BY SILT FENCE TO ISOLATE THE AREA FROM POSSIBLE MIGRATING HERPETOFAUNA.
   D. ALL EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS SO THAT HERPETOFAUNA MOVEMENTS BETWEEN UPLANDS AND WETLANDS ARE NOT RESTRICTED.
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 SENSITIVE 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
      2. REFUELING OF VEHICLES OR MACHINERY SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
      3. ANY REFUELING DRUMS/TANKS 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.

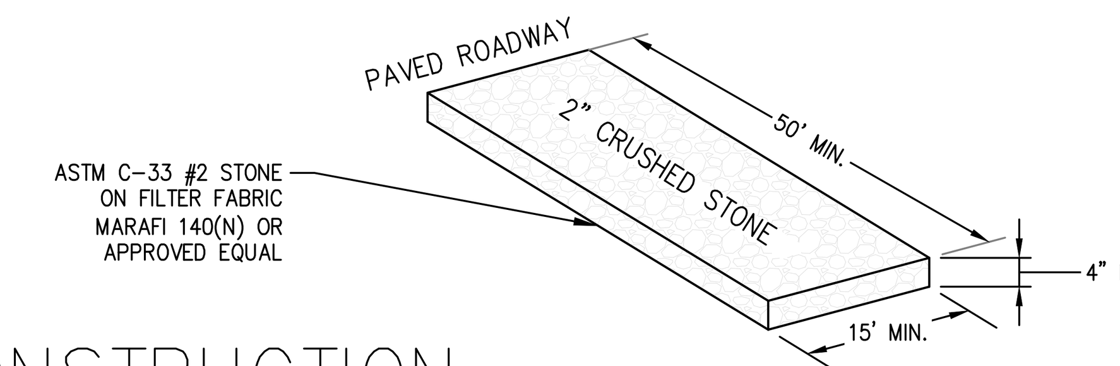
   IV. REPORTING
      1. COMPLETE AN INCIDENT REPORT.
      2. SUBMIT A COMPLETED INCIDENT REPORT TO LOCAL, STATE AND FEDERAL AGENCIES, AS REQUIRED.
      3. PROTECTIVE MEASURES
         A. A THOROUGH COVER SEARCH OF THE CONSTRUCTION AREA WILL BE PERFORMED BY THE ENVIRONMENTAL MONITOR FOR HERPETOFAUNA PRIOR TO AND FOLLOWING INSTALLATION OF EROSION CONTROL MEASURES/SILT FENCING BARRIERS TO REMOVE ANY SPECIES FROM THE WORK ZONE PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED. PERIODIC INSPECTIONS WILL BE PERFORMED BY THE ENVIRONMENTAL MONITOR THROUGHOUT THE DURATION OF CONSTRUCTION.
         B. THE CONTRACTOR'S PROJECT MONITOR WILL INSPECT THE WORK AREA EACH MORNING AND ESCORT INITIAL VEHICLE ACCESS INTO THE SITE EACH MORNING ALONG THE ACCESS DRIVE TO VISUALLY INSPECT FOR ANY HERPETOFAUNA. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED. ANY HERPETOFAUNA REQUIRING RELOCATION OUT OF THE WORK ZONE WILL BE CAPTURED WITH THE USE OF A NET OR CLEAN PLASTIC BAG THAT HAS BEEN MOISTENED WITH CLEAN WATER FOR CAREFUL HANDLING AND PLACEMENT OUT OF THE WORK ZONE IN THE GENERAL DIRECTION IT WAS OBSERVED HEADING.
         C. ANY STORMWATER MANAGEMENT FEATURES, RUTS OR ARTIFICIAL DEPRESSIONS THAT COULD HOLD WATER CREATED INTENTIONALLY OR UNINTENTIONALLY BY SITE CLEARING/CONSTRUCTION ACTIVITIES 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.
      4. REPORTING
         A. INSPECTION REPORTS (BRIEF NARRATIVE AND APPLICABLE PHOTOS) WILL BE PREPARED BY THE ENVIRONMENTAL MONITOR DOCUMENTING EACH INSPECTION AND SUBMITTED TO THE PERMITTEE FOR COMPLIANCE VERIFICATION. 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.
         B. ANY INCIDENTS OF RELEASE OF SEDIMENT OR OTHER MATERIALS INTO WETLAND RESOURCE AREAS SHALL BE REPORTED BY THE PERMITTEE WITHIN 24 HOURS OF THE OBSERVATION OF SUCH RELEASE TO THE CONNECTICUT SITING COUNCIL.
         C. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION'S NATURAL DIVERSITY DATA BASE PROGRAM BY THE PERMITTEE.
         D. FOLLOWING COMPLETION OF THE PROJECT, A SUMMARY REPORT WILL BE PREPARED BY THE ENVIRONMENTAL MONITOR DOCUMENTING COMPLIANCE WITH THE WETLAND AND VERNAL POOL PROTECTION PLAN AND SUBMITTED TO THE PERMITTEE, WHO SHALL SUBMIT A COPY TO THE CONNECTICUT SITING COUNCIL.

1

LEGEND

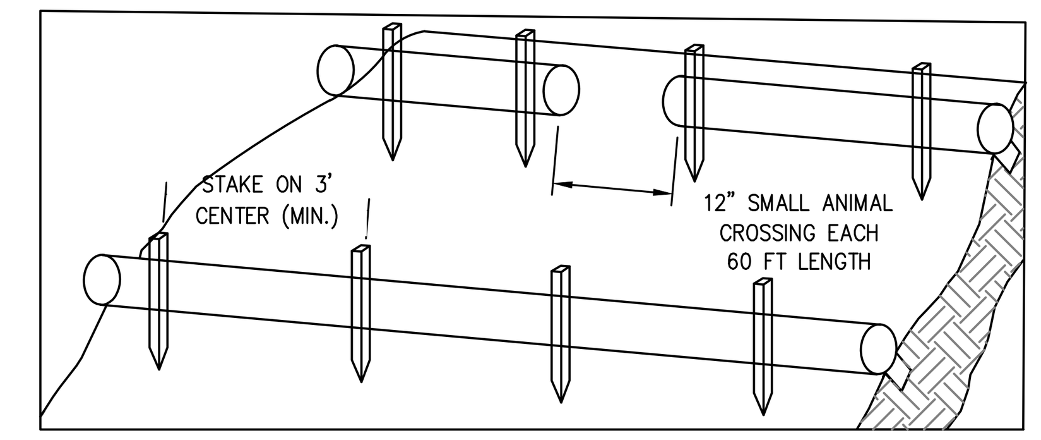
AREA TO RECEIVE LOAM AND SEED

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.
COMPOST FILTER SOCK	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.



CONSTRUCTION ENTRANCE DETAIL — 1 / C2.4

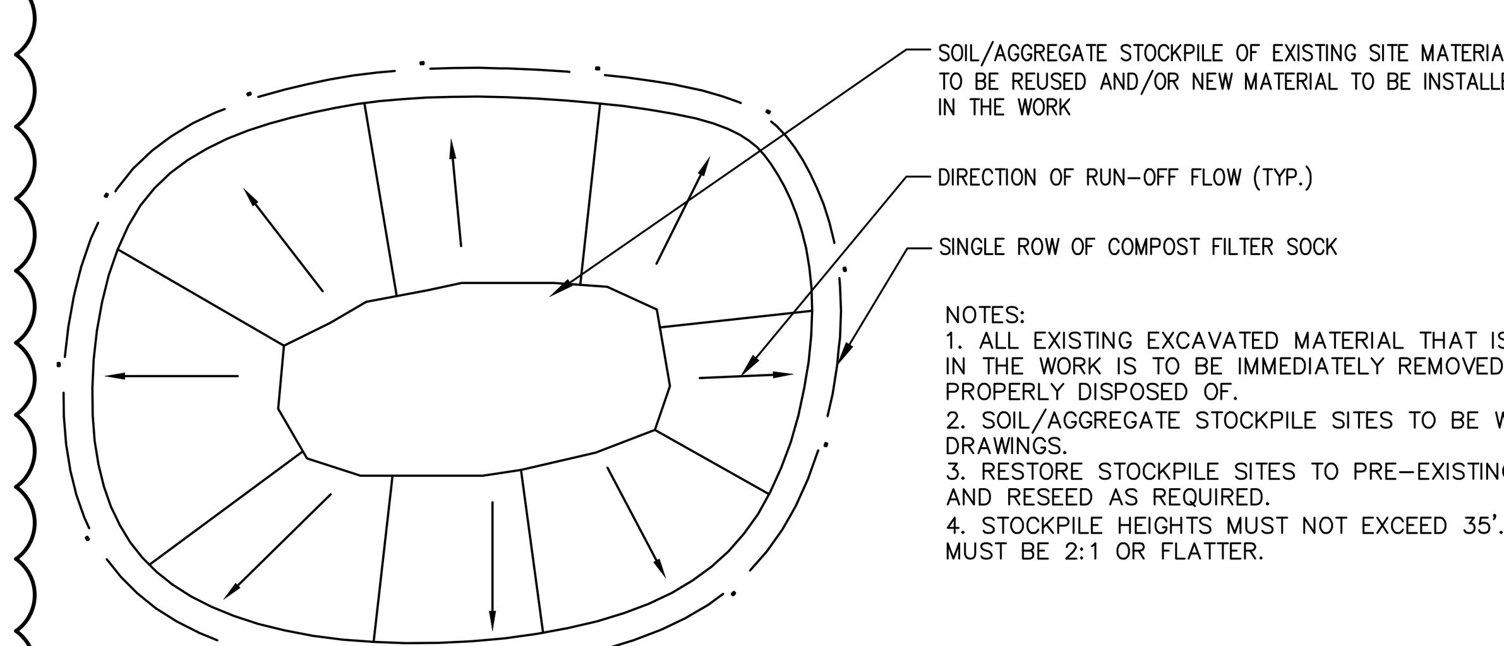
SCALE: NTS



1. BEGIN AT THE LOCATION WHERE THE SOCK IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE SOCK IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE SOCK ON THE UPHILL SIDE. SOCKS SHALL BE INSTALLED IN 60 FT CONTINUOUS LENGTHS WITH ADJACENT SOCKS TIGHTLY ABUT. EVERY 60 FT THE SOCK ROW SHALL BE SPACED 12 INCHES CLEAR, END TO END, FOR AMPHIBIAN AND REPTILE TRAVEL. THE OPEN SPACES SHALL BE STAGGERED MID LENGTH OF THE NEXT DOWN GRADIENT SOCK.
3. SECURE THE SOCK WITH 18-24" (45.7-61 CM) STAKES EVERY 3-4' (0.9 -1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE SOCK. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

COMPOST FILTER SOCK SEDIMENTATION CONTROL BARRIER — 2 / C2.4

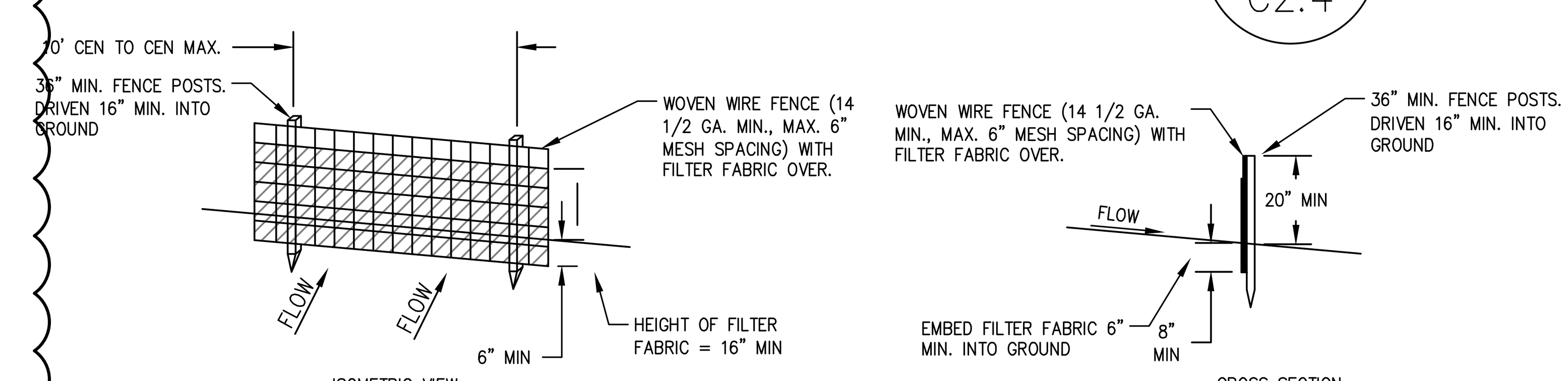
SCALE: NTS



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.

MATERIALS STOCKPILE DETAIL — 3 / C2.4

SCALE: NTS



DETAIL NOTES:
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD.
6. FENCE: WOVEN WIRE, 14 1/2 GA. 6" MAX.MESH OPENING.
7. FILTER CLOTH SHALL BE A WOVEN GEOTEXTILE COMPOSED OF POLYPROPYLENE CONFORMING TO AASHTO M288.

SILT FENCE — 4 / C2.4

SCALE: NTS

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CUSTOMER SITE

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EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
–	INITIAL RELEASE	01/03/2020
1	REVISED FOR IFC SET	02/13/2020

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE

SOIL EROSION AND SEDIMENT CONTROL DETAILS

DRAWING NUMBER

C2.4

BLOOM DOCUMENT

DOC-1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 09 OF 18

STRUCTURAL GENERAL NOTES

MISCELLANEOUS:

1. THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
2. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND CONSTRUCTION.
3. NO OPENINGS SHALL BE MADE/MODIFIED IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL OF RECORD.
4. NO CHANGE IN SIZE, MATERIAL OR DIMENSION OF STRUCTURAL MEMBERS HALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL OF RECORD.
5. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL SUPPORT. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE SUPPORT AT THE TIME LOADS ARE IMPOSED. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF CONTRACTORS CONSTRUCTION METHODS AND/OR SEQUENCES.
6. DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.
7. CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.
8. THE CONTRACTOR SHALL INFORM THE PROFESSIONAL OF RECORD IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE PROFESSIONAL OF RECORD, REVIEW OF SHOP DRAWINGS. PRODUCT DATA , ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL OF RECORD OF SUCH DEVIATION AT THE TIME SUBMISSION, AND THE PROFESSIONAL OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.
9. CONNECTIONS OF ALL ITEMS SUPPORTED BY THE STRUCTURE ARE THE RESPONSIBILITY OF THE DISCIPLINES WHO ARE MAKING THESE ATTACHMENTS. THESE ATTACHMENTS SHALL BE DESIGNED TO RESIST ALL GRAVITY, WIND, WIND UPLIFT, SEISMIC, THERMAL LOADS, ETC.
10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS.
11. UNLESS OTHERWISE NOTED, SUBMIT SHOP DRAWINGS OF ALL FABRICATED MATERIALS FOR REVIEW. DESIGN DRAWINGS SHALL NOT BE REPRODUCES FOR USE AS SHOP DRAWINGS. SHOP DRAWINGS WILL NOT BE REVIEWED UNLESS THEY WERE CHECKED, BEAR THE INITIAL OF THE CHECKER AND ARE STAMPED "APPROVED" BY THE GENERAL CONTRACTOR.

DESIGN BASIS

BUILDING CODE: INTERNATIONAL BUILDING CODE: 2015 EDITION (IBC)

1. DESIGN GRAVITY LOADS
   A. DEAD LOADS
      CONCRETE PAD = 150 PCF
   B. LIVE LOADS
      GROUND SNOW LOAD = 30 PSF
      PAD LIVE LOAD = 250 PSF
2. WIND DESIGN
   BASIC WIND SPEED (3 SECOND GUST) = 108 MPH (ULT)
   ULTIMATE WIND SPEED = 139 MPH (ULT)
   WIND IMPORTANCE FACTOR (IE) =1.00
   EXPOSURE = C
3. SEISMIC DESIGN
   s_s = 0.174 s_{ds} = 0.186
   s_1 = 0.062 s_{d1} = 0.099
   SEISMIC IMPORTANCE FACTOR (I_P) 1.5
   SEISMIC SITE CLASS D (ASSUMED)
   SEISMIC DESIGN CATEGORY B
   MECHANICAL EQUIPMENT SEISMIC FORCE (FP) = $0.3*S_{DS}*I_P*W$

FOUNDATIONS

1. CAST IN PLACE PADS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE LATEST IBC, CH 18 AND RECOMMENDATIONS MADE IN THE GEOTECHNICAL INVESTIGATION REPORT (#GJ1816027.000) PREPARED BY WHITESTONE ASSOCIATES, INC. DATED 11-21-2018, WITH THE FOLLOWING PARAMETERS:

ALLOWABLE SOIL BEARING CAPACITY	1500 psf (ASSUMED)
MODULUS OF SUBGRADE REACTION	150 psi/in
SOIL FRICTION COEFFICIENT	0.35

2. ALL BEARING MATERIAL SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER OR INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE GEOTECHNICAL ENGINEER OR INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE BEARING MATERIAL. FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE ADJUSTED AS REQUIRED.

CONCRETE AND REINFORCING STEEL:

1. CONCRETE SHALL CONFIRM TO ACI BUILDING CODE (318R-14) AND SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH AND DENSITY, IN ACCORDANCE WITH THE FOLLOWING (UNLESS OTHERWISE NOTED):

	STRENGTH	DENSITY	MAX W/C
	psi	PCF	RATIO
EXTERIOR SLABS	4500	145	0.45

2. REINFORCED CONCRETE PADS SHALL BE AIR ENTRAINED (6%, ±1.5%) AND SHALL CONFORM TO THE RECOMMENDATIONS MADE IN ACI-318 FOR EXPOSURE CLASS F-2 CONCRETE. REBAR SHALL CONFORM TO ASTM A615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, UNLESS OTHERWISE NOTED.
3. MINIMUM CONCRETE COVER, UNLESS OTHERWISE NOTED.
   UNFORMED SURFACE IN CONTACT WITH THE GROUND: 3 IN.
   FORMED SURFACES EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER 2 IN.
   #5 BARS AND SMALLER 2 IN.
   FORMED SURFACE NOT EXPOSED TO EARTH OR WEATHER:
   BEAMS, GIRDERS AND COLUMNS 1-1/2 IN.
   SLABS, WALLS AND JOISTS
   #11 BARS AND SMALLER 3 /4 IN.
   #14 AND #18 BARS 1-1/2 IN.
4. LAP SPLICES SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLES, UNLESS OTHERWISE NOTED. WHERE CLASSES ARE NOT CALLED OUT ON DRAWINGS, USE CLASS "B" SPLICES. SPLICES SHALL BE STAGGERED AT LEAST 24 INCHES.

TENSION SPLICES (INCHES)					COMPRESSION SPLICES
BAR	TOP BARS		OTHER BARS		(INCHES)
SIZE	"A"	"B"	"A"	"B"	
#3	16	21	12	16	12
#4	21	28	16	21	15
#5	27	35	21	27	19
#6	35	46	27	35	23
#7	48	62	37	48	26
#8	63	82	48	63	30
#9	80	104	61	80	34
#10	101	131	78	101	38
#11	125	162	96	125	42

   COMPRESSION DOWEL EMBEDMENT: 22 BAR DIAMETERS
   LAP WELDED WIRE REINFORCEMENT 1 SPACING OF CROSS WIRES PLUS 2".
5. BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES ETC., BELOW GRADE SHALL BE COVERED WITH MINIMUM OF 3" OF CONCRETE, UNLESS OTHERWISE NOTED.

ANCHORING SYSTEM

1. ALL ANCHORS IN CONCRETE SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ WEDGE ANCHORS OR EQUAL INSTALL PER ICC ESR-1917, UNLESS OTHERWISE NOTED. EMBEDMENT FOR HILTI KWIK BOLT TZ SHALL BE AS FOLLOWS:
   1/2" ø - 3 1/4"
   5/8" ø - 4"
   3/4" ø - 4 3/4"
2. ANCHOR SPACING (AS) AND ANCHOR EDGE DISTANCE (ED) SHALL BE AT LEAST AS PUBLISHED BY THE MOST CURRENT APPROVED HILTI REPORT IN ORDER TO DEVELOP MAXIMUM WORKING LOAD, UNLESS OTHERWISE NOTED.
3. ALL ANCHORS SHALL BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS IN ORDER TO DEVELOPE THE PUBLISHED WORKING LOADS. NO REINFORCING SHALL BE CUT OR DAMAGED UPON INSTALLATION OF ANY ANCHORS, MAINTAIN A MINIMUM 1 INCH CLEARANCE BETWEEN REINFORCEMENT AND DRILLED-IN ANCHOR.
4. SPECIAL INSPECTIONS SHALL BE PROVIDE IN ACCORDANCE WITH CURRENT BUILDING CODE AND IN ACCORDANCE WITH THE REQUIREMENTS IN THE CURRENT ESR REPORT.
5. MINIMUM CONCRETE COMPRESSIVE STRENGTH REQUIRED AT THE TIME OF INSTALLATION OF ANY ANCHORS SHALL BE 2500 PSI, UNLESS NOTED OTHERWISE.

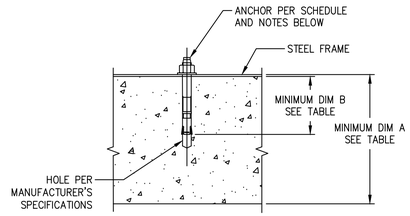
STRUCTURAL INSPECTIONS AND TESTS:

1. REFER TO SECTIONS 107 AND 1704 OF THE INTERNATIONAL BUILDING CODE: 2015 EDITION FOR AMPLIFICATION OF THE FOLLOWING REQUIREMENTS: ALL CERTIFIED SPECIAL INSPECTORS MUST SUBMIT FINAL REPORTS AS SOON AS TESTS AND INSPECTIONS ARE PERFORMED, REPORTS SHALL BE DISTRIBUTED TO THE OWNER, CONTRACTOR, ARCHITECT, STRUCTURAL ENGINEER AND BUILDING DEPARTMENT AS REQUIRED. ALL TEST AND INSPECTION AGENCY EMPLOYED BY THE OWNER OR AGENT OF THE OWNER AND NOT THE CONTRACTOR PER IBC SECTION 1704.
2. SPECIAL INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CHAPTER 17 AND 19 OF THE 2015 IBC AND IS REQUIRED BUT NOT LIMITED TO THE FOLLOWING

   2.1 INSPECTION OF CONCRETE CONSTRUCTION:
   A. INSPECT REINFORCEMENT AND VERIFY PLACEMENT (PERIODIC)
   B. INSPECT ANCHORS CAST IN PLACE (PERIODIC)
   C. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE
      a. ADHESIVE ANCHORS POST-INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. (CONTINUOUS)
      b. MECHANICAL EXPANSION ANCHORS AND ADHESIVE NOT DEFINED (PERIODIC)

   2.2 INSPECTION OF SOILS:
   A. VERIFY MATERIAL BELOW SHALLOW FOUNDATION ARE AEQUATE TO ACHITEVE THE DESIGN BEARING CAPACITY (PERIODIC)
   B. VERIFY EXCAVATION ARE EXTENDED TO PROPER DEPTH AND HAVE REARCHED PROPER MATERIAL (PERIODIC)
   C. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS (PERIODIC)
   D. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL (CONTINUOUS)
   E. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY (PERIODIC)
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE TEST AND INSPECTION FIRM WITH A SCHEDULE TO FACILITATE THE PROPER COORDINATION OF THE WORK. DELIVER THE SPECIAL INSPECTION REPORTS TO THE OWNER'S REPRESENTATIVE.
4. SEC 1901.3.4.3 TEST FREQUENCY: 50 PERCENT OF THE ALL EXPANSION-TYPE ANCHORS SHALL BE TESTED BY OWNERS TESTING LABORATORY FOR THE TORQUE VALUES AS INDICATED IN TABLES BELOW PER SEC 1901.3.4.2 TESTING PROCEDURE, IF ANY ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME TYPE SHALL BE TESTED, WHICH ARE INSTALLED BY THE SAME TRADE, NOT PREVIOUSLY TESTED UNTIL TWENTY CONSECUTIVE ANCHORS PASS, THEN RESUME THE INITIAL TEST FREQUENCY.
5. SEC 1901.3.4.5 TEST ACCEPTANCE CRITERIA: ACCEPTANCE CRITERIA FOR POST INSTALLED ANCHORS SHALL BE BASED ON TORQUE WRENCH METHOD. ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH MUST ATTAIN THE SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT OR ONE-QUARTER (1/4) TURN OF THE NUT FOR A 3/8" SLEEVE ANCHOR ONLY.
6. SEC 1901.3.4.4 TEST LOAD: REQUIRED TEST LOADS ARE DETERMINED BASED ON MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE BASED ON APPROVED EVALUATION REPORT.

WEDGE ANCHOR EXPANSION BOLTS - HILTI KWIK BOLT TZ		
ANCHOR DIA (IN.)	MINIMUM EMBEDMENT (IN.)	TORQUE TEST PER MANUFACTURER RECOMENDATIONS (FT-LBS.) STAINLESS STEEL
3/8 ø	3	25 (CONCRETE) 15 (CMU)
1/2 ø	3-3/4	40 (CONCRETE) 25 (CMU)
5/8 ø	4	60 (CONCRETE) 35 (CMU)
3/4 ø	4-3/4	110 (CONCRETE) 70 (CMU)



ANCHOR SCHEDULE				
PAD TYPES	DIM A PAD THICKNESS	BOLT SIZE DIAMETER	DIM B - BOLT MIN EMBEDMENT	MIN CLR TO SLAB EDGE OR OPENING
ANCILLARY EQUIPMENT (PDS, WDM & TC)	12"	1/2"	3 1/4"	3"
MEDIUM VOLTAGE SWITCHGEAR	12"	3/4"	4 3/4"	9"
TRANSFORMER (3750KVA)	12"	3/4"	4 3/4"	10"

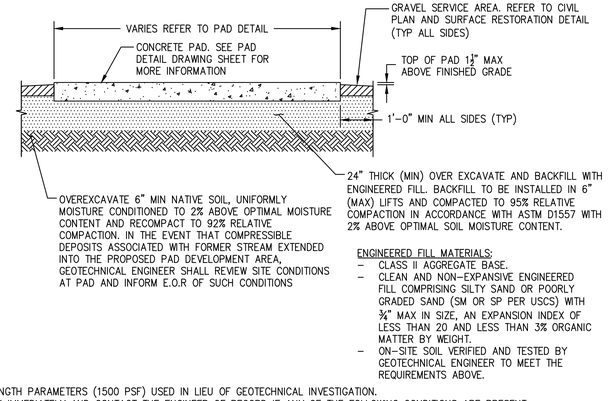
ANCHOR NOTES:

1. ALL ANCHORS IN CONCRETE SHALL BE 316 STAINLESS STEEL HILTI KWIK BOLT TZ ICC ESR-1917 ANCHOR (OR APPROVED EQUIVALENT). UNLESS NOTED OTHERWISE.
2. MINIMUM ANCHOR SPACING (AS) AND ANCHOR EDGE DISTANCE (ED) SHALL BE AS PUBLISHED BY THE MOST CURRENT APPROVED HILTI REPORT IN ORDER TO DEVELOP MAXIMUM WORKING LOAD. UNLESS NOTED OTHERWISE.
3. ALL ANCHORS SHALL BE INSTALLED AS PER MANUFACTURERS' INSTRUCTIONS IN ORDER TO DEVELOP THE PUBLISHED WORKING LOADS. NO REINFORCING SHALL BE CUT OR DAMAGED UPON INSTALLATION OF ANY ANCHORS. SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH BUILDING CODE AND IN ACCORDANCE WITH THE REQUIREMENTS IN THE CURRENT ESR REPORT.
4. MINIMUM CONCRETE COMPRESSIVE STRENGTH REQUIRED AT THE TIME OF INSTALLATION OF ANY ANCHORS SHALL BE 2500 PSI.

TYPICAL ANCHOR DETAIL (APPLIES TO ALL CAST-IN-PLACE PADS)

SCALE: NTS

1 / S0.1



ENGINEERED FILL MATERIALS:
- CLASS II AGGREGATE BASE.
- CLEAN AND NON-EXPANSIVE ENGINEERED FILL COMPRISING SILTY SAND OR POORLY GRADED SAND (SM OR SP PER USCS) WITH ¾" MAX IN SIZE, AN EXPANSION INDEX OF LESS THAN 20 AND LESS THAN 3% ORGANIC MATTER BY WEIGHT.
- ON-SITE SOIL VERIFIED AND TESTED BY GEOTECHNICAL ENGINEER TO MEET THE REQUIREMENTS ABOVE.

DETAIL NOTES:

1. ASSUME MINIMUM SOIL STRENGTH PARAMETERS (1500 PSF) USED IN LIEU OF GEOTECHNICAL INVESTIGATION.
2. CONTRACTOR TO STOP WORK IMMEDIATELY AND CONTACT THE ENGINEER OF RECORD IF ANY OF THE FOLLOWING CONDITIONS ARE PRESENT:
   A) CONTAMINATED SOIL INDICATED BY ODOR, DARK SOIL OR THE PRESENCE OF TAR LIKE SUBSTANCES;
   B) INDICATIONS THAT THE WATER TABLE IS WITHIN 5' OF THE SOIL SURFACE.
3. BACKFILL MATERIALS MUST BE CLEAN AND FREE OF ORGANIC MATERIALS AND CONTAMINANTS.
4. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR DIRECTION IN THE EVENT PADS ARE LOCATED WITHIN 15' OF SLOPES EXCEEDING 5' IN HEIGHT.
5. SUBGRADE AND AGGREGATE BASE SHALL BE SAMPLED AND TESTED TO VERIFY COMPLIANCE WITH THE PROJECT PLANS. IN ADDITION, IN-PLACE COMPACTION TEST SHOULD BE CONDUCTED FOR THE SUBGRADE.
6. EQUIPMENT PAD SLOPE SHALL HAVE A MAXIMUM 2% GRADE IN ANY DIRECTION.
7. CONTRACTOR SHALL HIRE A THIRD PARTY SOILS INSPECTION AND TESTING AGENCY TO PHOTOGRAPH BOTTOM OF EXCAVATION, VERIFY SOILS ARE SUITABLE, AND VERIFY AND REPORT COMPACTION PER LOCAL CODE. TEST REPORTS AND INSPECTION REPORTS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER.
8. CONTRACTOR SHALL ENSURE FINISH GRADE OR PAVING ADJACENT TO EQUIPMENT PAD DRAINS AT MINIMUM 1% SLOPE AWAY FROM PAD.
9. BACKFILL MATERIALS MUST BE CLEAN AND FREE OF ORGANIC MATERIALS AND CONTAMINANTS.
10. CONCRETE PADS SHALL BE AIR ENTRAINED (6% +/- 1.5% AND SHALL CONFORM TO THE RECOMMENDATIONS MADE IN ACI-318 FOR EXPOSURE CLASS F-2 CONCRETE.
11. FOR ORIENTATION OF EQUIPMENT PADS: REFER TO CIVIL DRAWINGS.

TYPICAL PAD SUBGRADE PREPARATION DETAIL (APPLIES TO ALL EQUIPMENT PADS)

SCALE: NTS

2 / S0.1

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EVERSOURCE
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EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

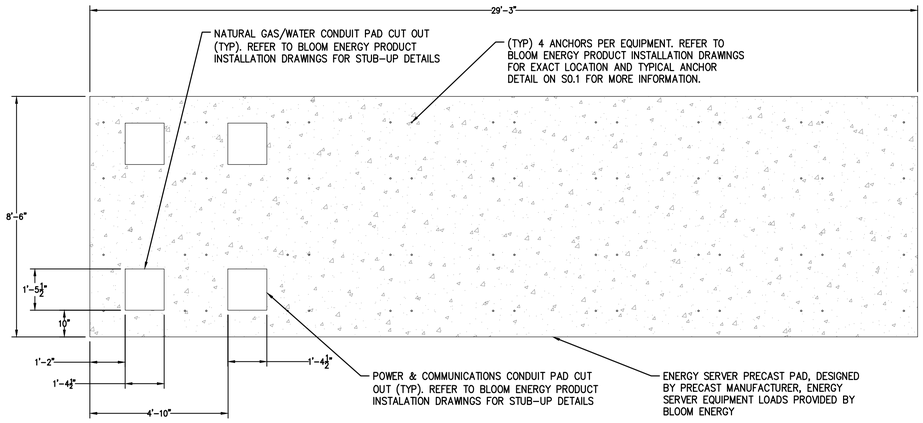
SHEET TITLE
EQUIPMENT PAD GENERAL NOTES AND DETAILS

DRAWING NUMBER
S0.1

BLOOM DOCUMENT
DOC-1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

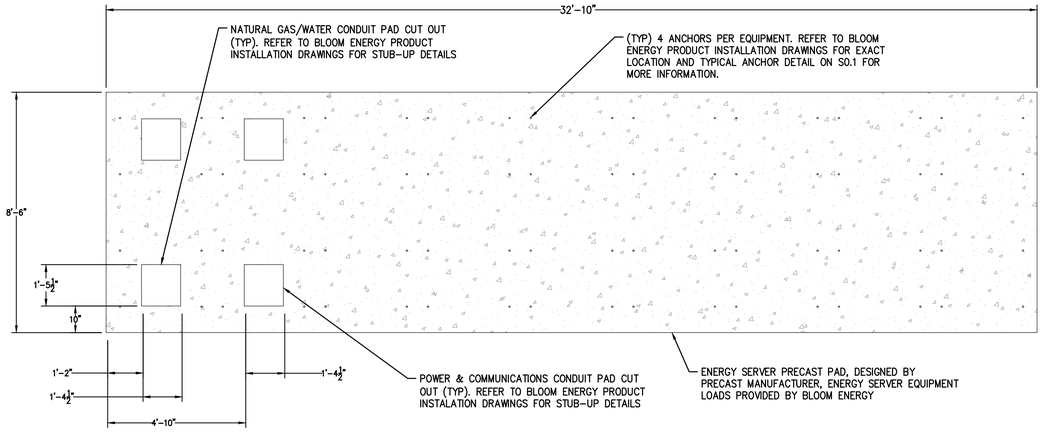
SITE ID: EVS000.0 | SHEET 10 OF 18



BACK TO BACK LINEAR ES5 ENERGY SERVER (16 MODULES)
PRECAST CONCRETE PAD

SCALE: NTS

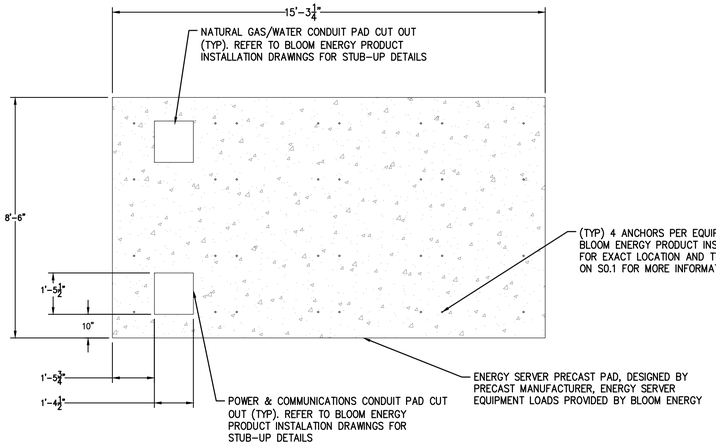
1 / S1.1



BACK TO BACK LINEAR ES5 ENERGY SERVER (18 MODULES)
PRECAST CONCRETE PAD

SCALE: NTS

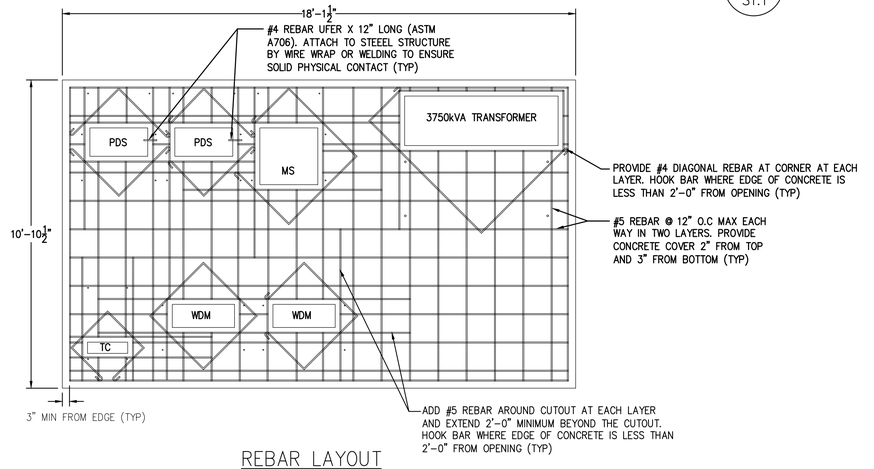
2 / S1.1



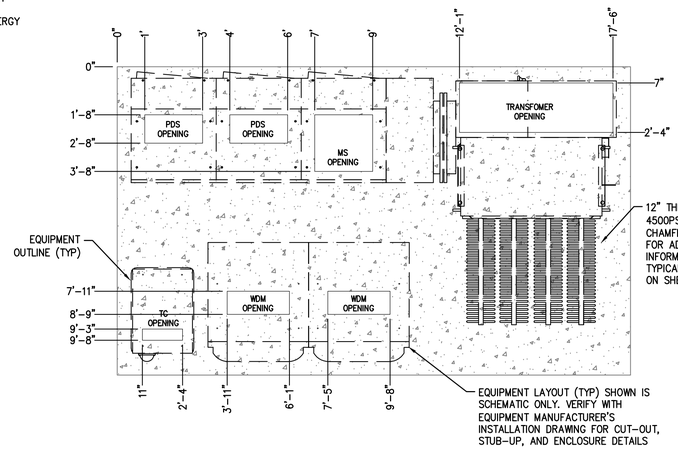
CLASSIC ES5 ENERGY SERVER
PRECAST CONCRETE PAD

SCALE: NTS

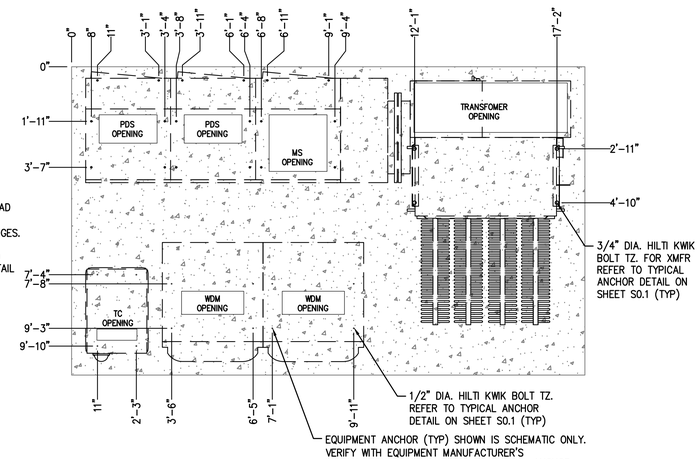
3 / S1.1



REBAR LAYOUT



CUTOUT LAYOUT



ANCHOR LAYOUT

ANCILLARY EQUIPMENT & TRANSFOMER
CAST IN PLACE PAD

SCALE: NTS

4 / S1.1

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SHEET TITLE

EQUIPMENT PAD DETAILS-1

DRAWING NUMBER

S1.1

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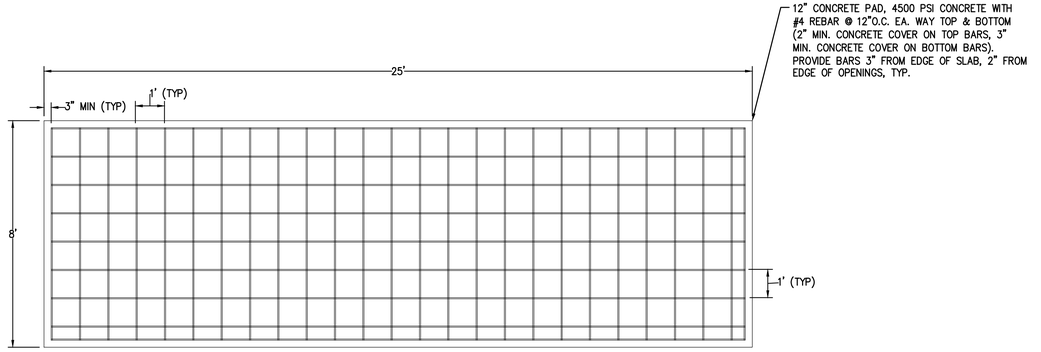
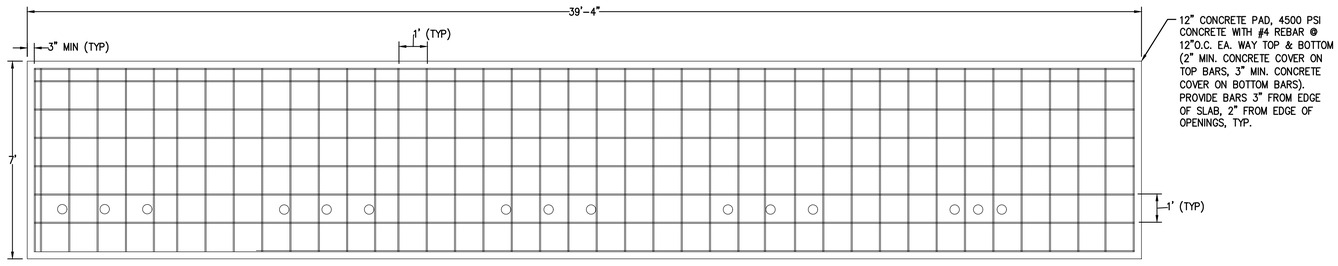


REBAR LAYOUT

GAS PAD DETAIL
CAST-IN-PLACE CONCRETE PAD — 1 / S1.2

SCALE: NTS



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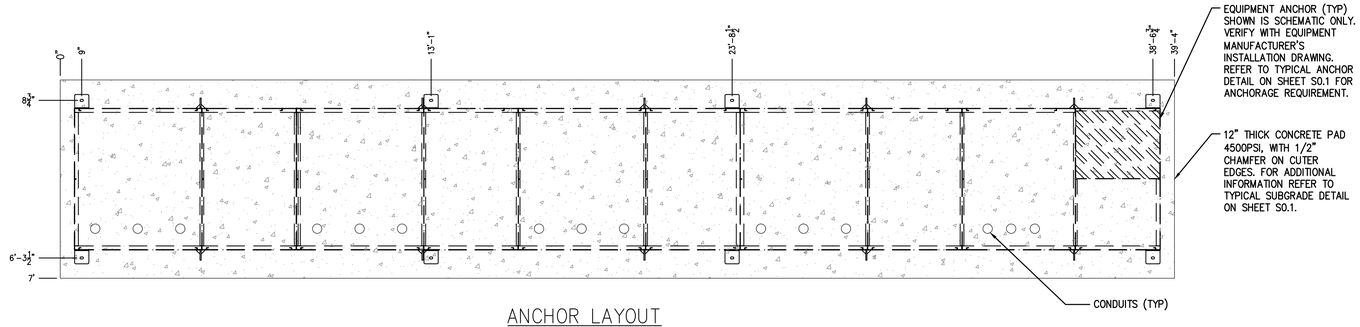

ANCHOR LAYOUT

NEW MV SWITCHGEAR
CAST-IN-PLACE CONCRETE PAD — 2 / S1.2

SCALE: NTS

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EQUIPMENT PAD
DETAILS-2

DRAWING NUMBER

S1.2

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DOC-1010853

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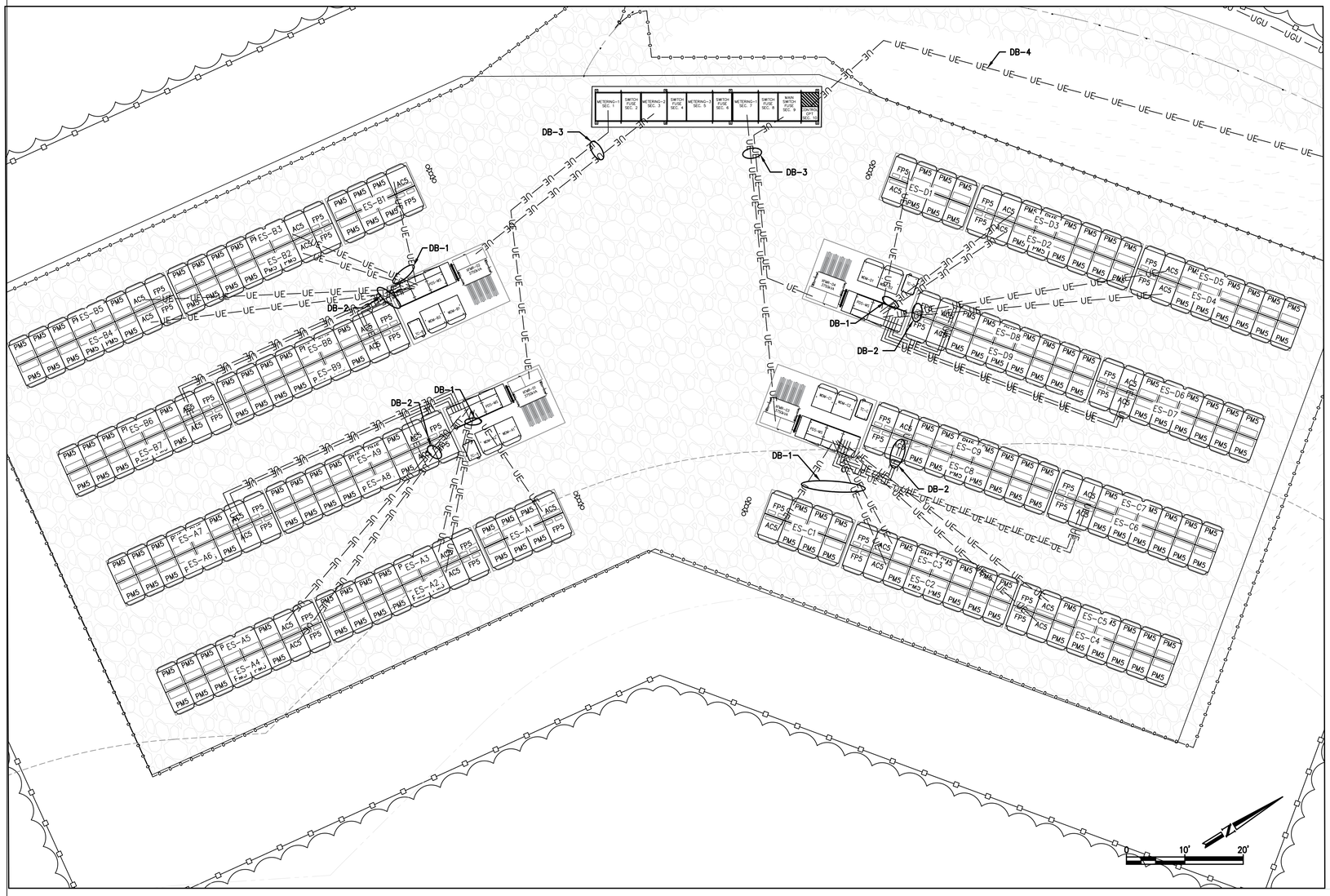
GENERAL NOTES

1. CLEAN AND PRIME ALL NEW WIRE MOUNTED PIPING AND CONDUIT. PIPING AND CONDUIT SHALL BE PAINTED WITH EXTERIOR GRADE PAINT TO MATCH EXISTING.
2. CONDUITS AND PIPES MOUNTED TO BUILDING WALL SHALL BE SUPPORTED AS PER LOCAL CODE, RUN AT HEIGHT ABOVE DOORWAYS, AND STAND OFF WALL TO AVOID EXISTING CONDUITS AND PIPES.
3. SLOPE LINES SHOWN ARE APPROXIMATE AND INTENDED TO SHOW THE GENERAL DIRECTION OF WATER RUN OFF; SLOPE LINES ARE DRAWN PER VISUAL SURVEY OF SURROUNDING AREA.
4. SEE BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR UTILITY CONNECTIONS TO ANCILLARY EQUIPMENT AND ENERGY SERVER.
5. SEE SHEETS C1.1, C1.2 FOR DETAILED WATER, GAS AND COMMUNICATION CONDUIT RUNS AND GENERAL ELECTRICAL CONDUIT RUNS.
6. CONTRACTOR SHALL PROVIDE PULL BOX WHERE ELECTRICAL CONDUIT RUNS EXCEED 360-DEG BENDS.

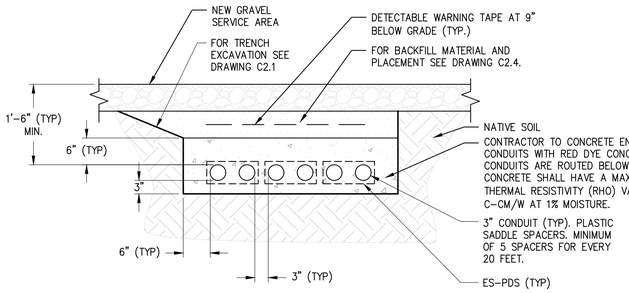
ANTICIPATED DUCT BANKS SHOWN FOR INFORMATION PURPOSED. GC SHALL PROVIDE ACTUAL DUCT BANK LAYOUT AND SECTIONS FOR APPROVAL BY ENGINEER PRIOR TO INSTALLATION



ELECTRICAL CONDUIT LAYOUT AND DUCT BANK DETAILS

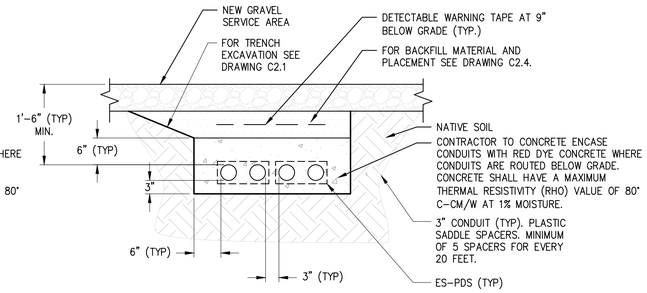
SCALE: 1" = 10'

1 / E1.1A



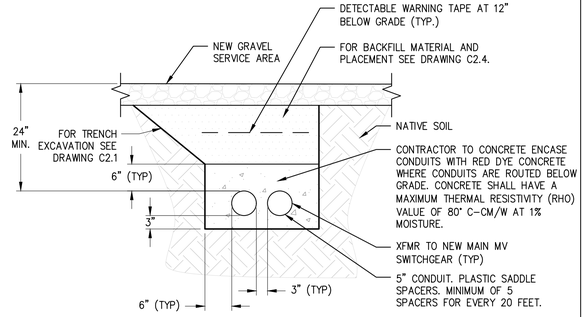
OVERALL DUCT BANK DIMENSIONS:
[4'-0"]W X [2'-1"]H

CROSS-SECTION
DB-DETAIL #1



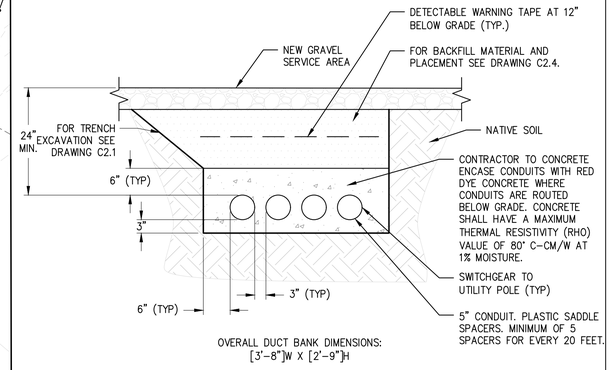
OVERALL DUCT BANK DIMENSIONS:
[2'-11"]W X [2'-7"]H

CROSS-SECTION
DB-DETAIL #2



OVERALL DUCT BANK DIMENSIONS:
[2'-3"]W X [2'-9"]H

CROSS-SECTION
DB-DETAIL #3



OVERALL DUCT BANK DIMENSIONS:
[3'-8"]W X [2'-9"]H

CROSS-SECTION
DB-DETAIL #4

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REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE

ELECTRICAL CONDUIT LAYOUT AND DUCT BANK DETAILS

DRAWING NUMBER

E1.1A

BLOOM DOCUMENT

DOC-1010853

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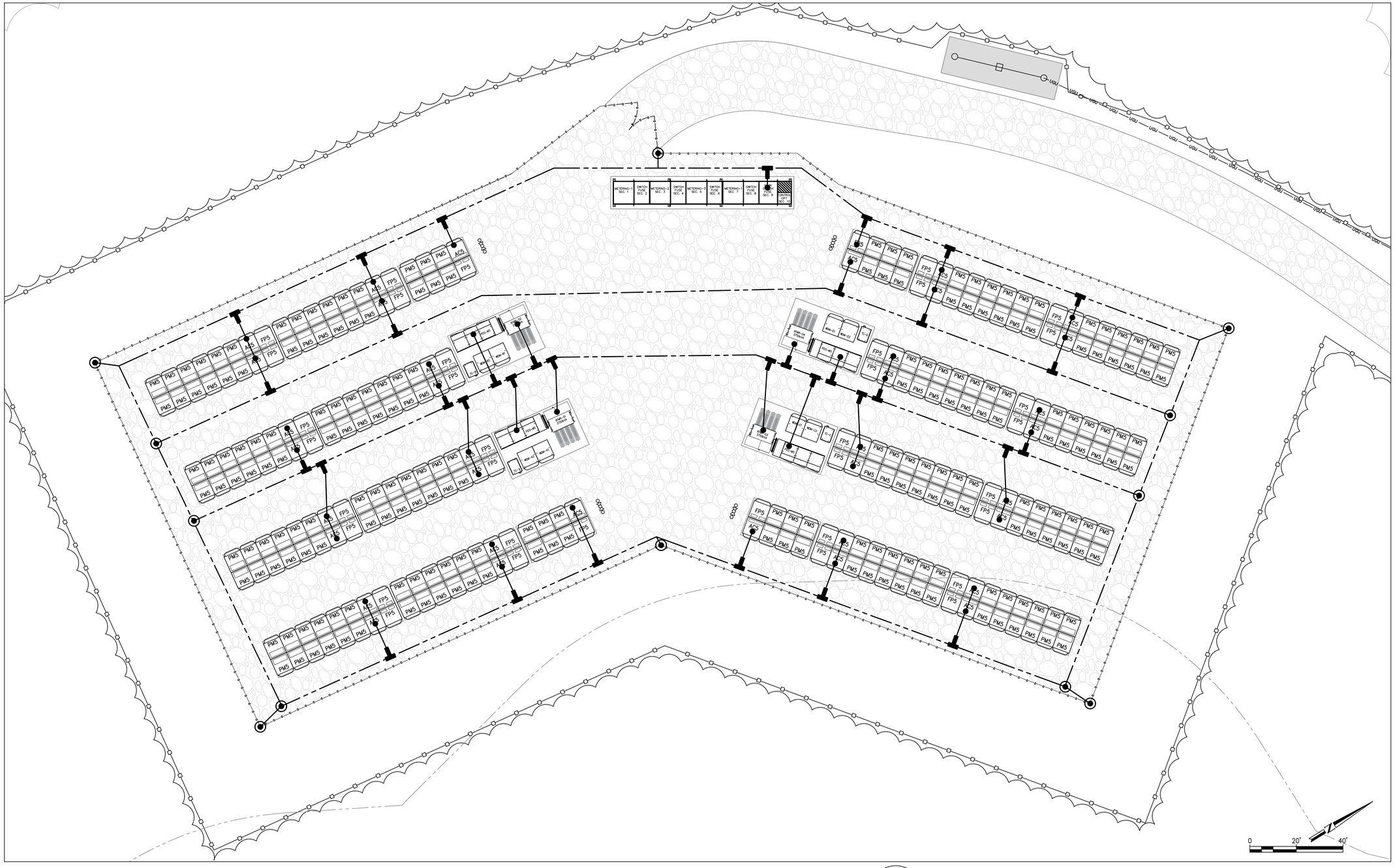

GROUNDING PLAN

SCALE: 1" = 10'

1
E1.1B

GENERAL NOTES

1. DEPTH OF GROUND RING SHALL BE MINIMUM 18" BELOW GRADE.
2. GROUND RING SHALL BE EXOTHERMICALLY WELDED TO GROUND RODS

REFERENCE SHEET NOTES

LEGEND

- #4/0 AWG BARE STRANDED COPPER
- GROUND GRID TEE EXOTHERMIC CONNECTION
- #4/0 AWG BARE STRANDED COPPER
- GROUND ROD, 3/4"D X 10'L
- BONDING CONNECTION POINT FROM GROUND GRID TO EQUIPMENT

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GROUNDING PLAN

DRAWING NUMBER
E1.1B

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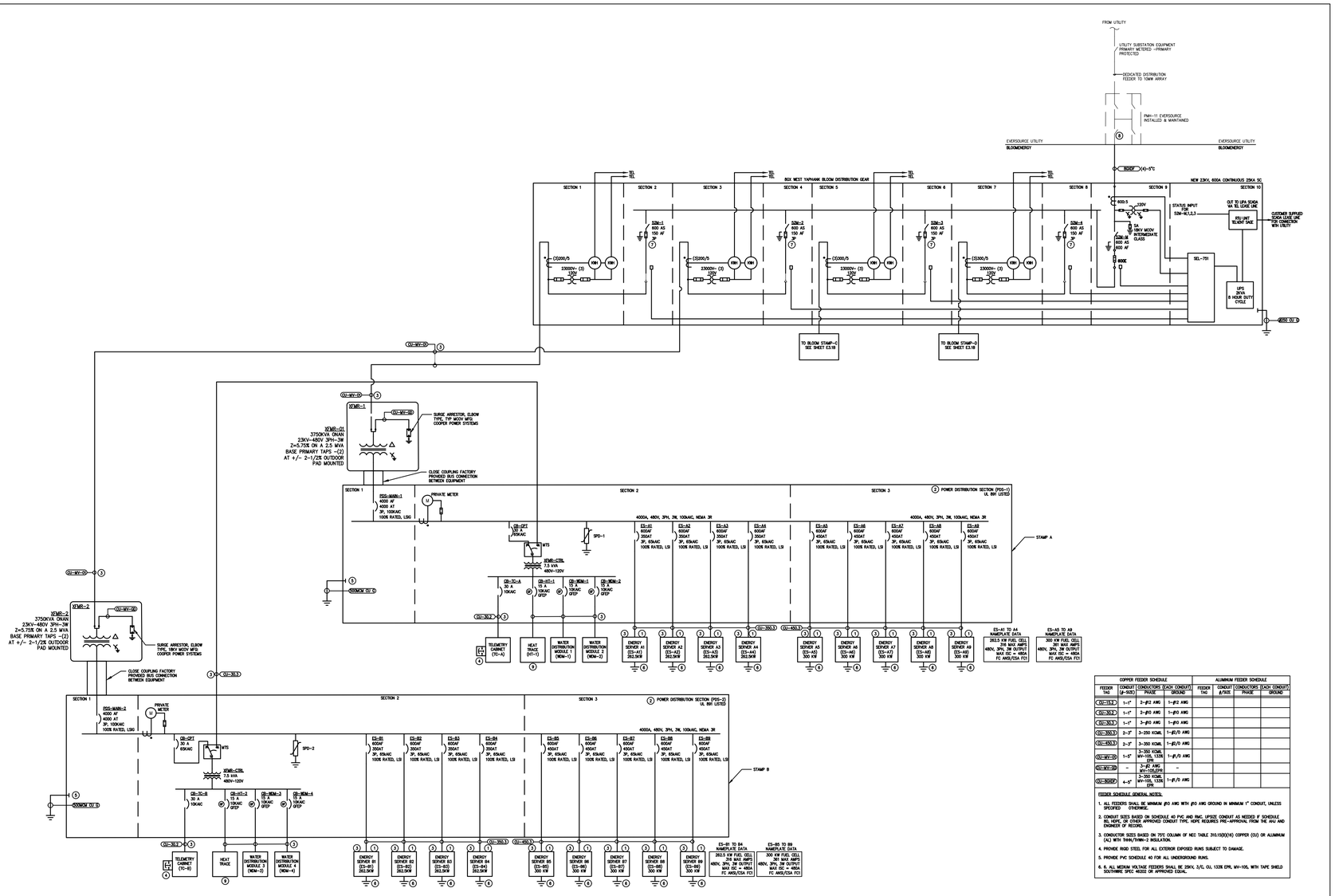

COPPER FEEDER SCHEDULE					ALUMINUM FEEDER SCHEDULE			
FEEDER TAG	CONDUIT (#-SIZE)	CONDUCTORS (EACH CONDUIT) PHASE	GROUND		FEEDER TAG	CONDUIT #/SIZE	CONDUCTORS (EACH CONDUIT) PHASE	GROUND
(X)-30-A	1-1"	3-#12 AWG	1-#12 AWG					
(X)-30-B	1-1"	3-#10 AWG	1-#10 AWG					
(X)-30-C	1-1"	3-#10 AWG	1-#10 AWG					
(X)-300-A	2-3"	3-250 KCMIL	1-#1/0 AWG					
(X)-300-B	2-3"	3-250 KCMIL	1-#1/0 AWG					
(X)-400-A	2-3"	3-350 KCMIL	1-#1/0 AWG					
(X)-MV-20	1-5"	3-350 KCMIL WV-105, 133% EPR	1-#1/0 AWG					
(X)-MV-30	-	3-#1 AWG WV-105,EPR	-					
(X)-NODE-F	4-5"	3-350 KCMIL WV-105, 133% EPR	1-#1/0 AWG					

FEEDER SCHEDULE GENERAL NOTES:

1. ALL FEEDERS SHALL BE MINIMUM #10 AWG WITH #10 AWG GROUND IN MINIMUM 1" CONDUIT, UNLESS SPECIFIED OTHERWISE.
2. CONDUIT SIZES BASED ON SCHEDULE 40 PVC AND RMC. UPSIZE CONDUIT AS NEEDED IF SCHEDULE 80, HDPE, OR OTHER APPROVED CONDUIT TYPE. HDPE REQUIRES PRE-APPROVAL FROM THE AHJ AND ENGINEER OF RECORD.
3. CONDUCTOR SIZES BASED ON 75°C COLUMN OF NEC TABLE 310.15(B)(16) COPPER (CU) OR ALUMINUM (AL) WITH THHN/THWN-2 INSULATION.
4. PROVIDE RIGID STEEL FOR ALL EXTERIOR EXPOSED RUNS SUBJECT TO DAMAGE.
5. PROVIDE PVC SCHEDULE 40 FOR ALL UNDERGROUND RUNS.
6. 6. ALL MEDIUM VOLTAGE FEEDERS SHALL BE 25KV, 3/C, CU, 133% EPR, WV-105, WITH TAPE SHIELD SOUTHWIRE SPEC 46202 OR APPROVED EQUAL.

SINGLE LINE DIAGRAM

SCALE: NTS

1
E3.1A

GENERAL NOTES

1. FEEDER SHALL NOT BE ROUTED THROUGH THE UTILITY PULL OR UTILITY METER SECTIONS. FEEDER SHALL NOT BE ROUTED THROUGH ANY OTHER SECTION THAN THAT IN WHICH IT TERMINATES UNLESS BARRIERS ARE PROVIDED PER NEC 408.3.
2. THE ENERGY SERVER INVERTER OUTPUT CHARACTERISTICS SHALL BE IN ACCORDANCE WITH NEC 705.14.
3. INTERCONNECTIONS SHALL BE IN ACCORDANCE WITH NEC 705.10.
4. THE ENERGY SERVER OUTPUT IS EQUIPPED WITH UTILITY-INTERACTIVE INVERTERS RECOGNIZED BY UL TO UL1741 AND IEEE 1547 AND COMPLIES WITH NEC 692.62. INVERTER SETTINGS PER THE PROVIDED TABLE BELOW.
5. THE ENERGY SERVER IS NOT A SEPERATELY DERIVED SYSTEM PER NEC 250.30 [ART. 100]

REFERENCE SHEET NOTES

1. ALL CONNECTIONS FROM FUEL CELLS TO INVERTER ARE FACTORY WIRED AND ALL MAINTENANCE CABINETS ARE ACTIVELY PRESSURIZED; THEREFORE, NO CLASS 1, DIVISION 2 WIRING IS REQUIRED.
2. ALL COMPONENTS SHOWN IN THIS BOUNDARY SHALL BE UL LISTED TOGETHER AS A SINGLE, COMPLETE, ALL INCLUSIVE UNIT. ALL ELECTRICAL CONDUIT/CABLE CONNECTIONS WITHIN THIS BOUNDARY SHALL BE FACTORY INSTALLED WITH SOME FINAL CONNECTIONS TO BE COMPLETED BY THE CONTRACTOR IN THE FIELD. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS.
3. CONTRACTOR SHALL PROVIDE CONDUIT AND CONDUCTORS AS INDICATED. SELECTION OF CONDUIT TYPE SHALL BE PER NEC REQUIREMENTS. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS AT BLOOM PROVIDED EQUIPMENT.
4. MANUFACTURER INSTALLED, PRE-WIRED EPO BUTTON LOCATED IN READILY ACCESSIBLE LOCATION AT ENERGY SERVER PLATFORM AND CONNECTED TO TELEMETRY CABINET TERMINAL STRIP.
5. PROVIDE NEW GROUND CONDUCTOR FROM THE POWER DISTRIBUTION SECTION TO THE UFER GROUND ROD IN THE PRE-CAST ANCILLARY PAD.
6. PROVIDE (1) #1/0 AWG CU FROM ENERGY SERVER GROUND TO UFER GROUND IN ENERGY SERVER PAD, TYP.
7. THE UTILITY-INTERACTIVE INVERTER POINT OF CONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12.
8. CONTRACTOR TO INSTALL FEEDER TO EXISTING PMH-11, TERMINATIONS BY UTILITY.
9. ONE 15A GFEP CIRCUIT FOR EVERY TWO ENERGY SERVER PAIR.

MANUFACTURER SUPPLIED INVERTER SETTINGS

FUNCTION	TRIP VALUE	TRIP TIME
UNDERVOLTAGE (27-1)	240V (<50%)	0.16 SECONDS (10 CYCLES)
UNDERVOLTAGE (27-2)	423V (88%)	2.00 SECONDS (120 CYCLES)
OVERVOLTAGE (59-1)	528V (>110%)	2.00 SECONDS (120 CYCLES)
OVERVOLTAGE (59-2)	576V (>120%)	0.16 SECONDS (10 CYCLES)
UNDERFREQUENCY 1 (81U-1)	61.2 HZ	300 SECONDS (18,000 CYCLES)
UNDERFREQUENCY 2 (81U-2)	62.0 HZ	0.16 SECONDS (10 CYCLES)
OVERFREQUENCY 1 (810-1)	58.5 HZ	300 SECONDS (18,000 CYCLES)
OVERFREQUENCY 2 (810-2)	56.5 HZ	0.16 SECONDS (10 CYCLES)
RECONNECT TIMER (79)	N/A	5.00 MINUTES (36,000 CYCLES)

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STAMP A & B

DRAWING NUMBER
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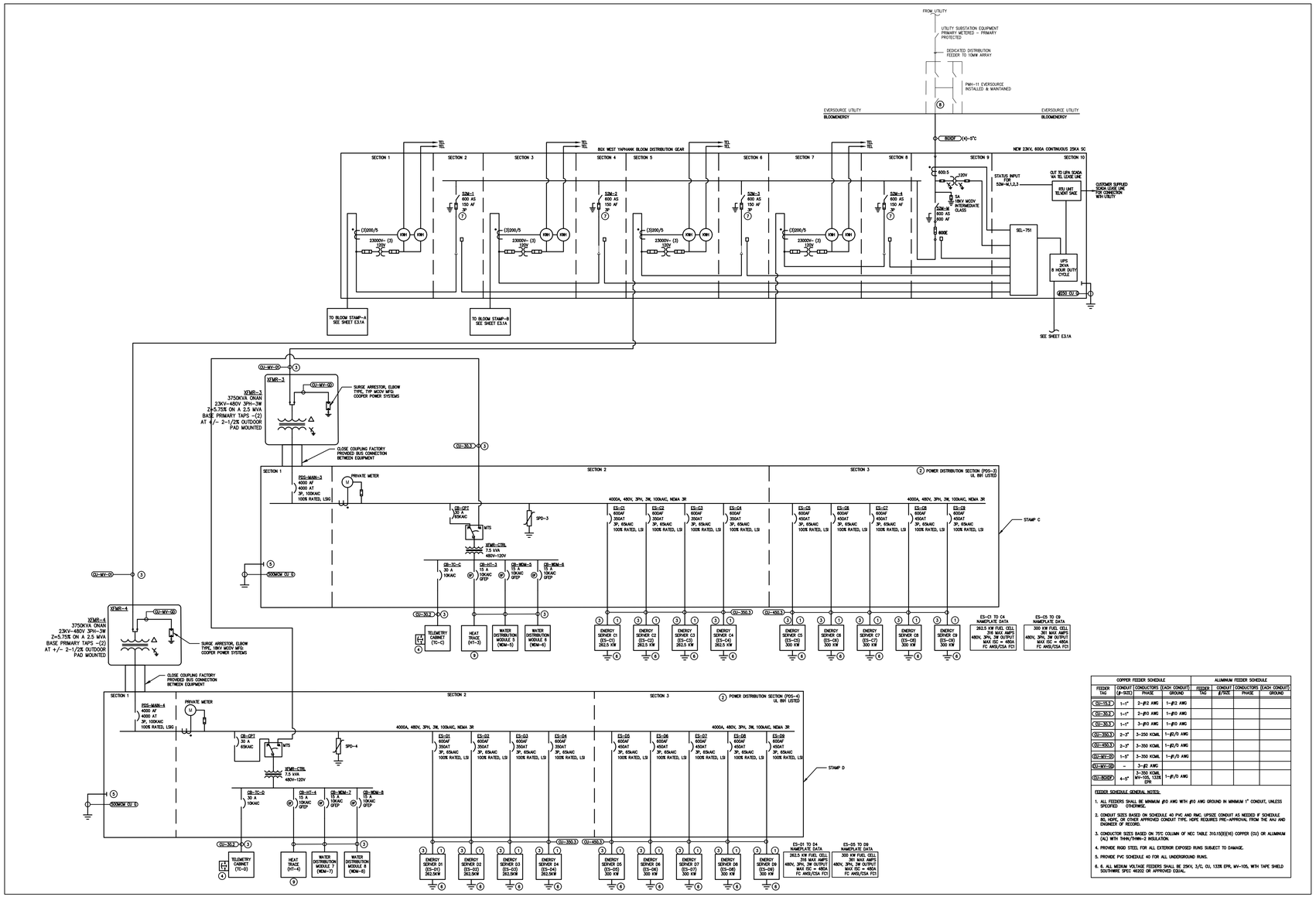
THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 15 OF 18



SINGLE LINE DIAGRAM

SCALE: NTS

1
E3.1B

COPPER FEEDER SCHEDULE			
FEEDER TAG	CONDUIT (Ø–SCH)	CONDUCTORS (EACH CONDUIT) PHASE	GROUND
(G)–15.3	1–1"	2–#12 AWG	1–#12 AWG
(G)–30.3	1–1"	2–#10 AWG	1–#10 AWG
(G)–50.3	1–1"	3–#10 AWG	1–#10 AWG
(G)–100.3	2–3"	3–250 KCMIL	1–#2/0 AWG
(G)–400.3	2–3"	3–350 KCMIL	1–#2/0 AWG
(G)–MV–20	1–5"	3–350 KCMIL	1–#1/0 AWG
(G)–MV–20	–	3–#2 AWG	
(G)–ROOF	4–5"	3–350 KCMIL MV–105, 133% EPR	1–#1/0 AWG

ALUMINUM FEEDER SCHEDULE			
FEEDER TAG	CONDUIT (Ø–SCH)	CONDUCTORS (EACH CONDUIT) PHASE	GROUND

FEEDER SCHEDULE GENERAL NOTES:

1. ALL FEEDERS SHALL BE MINIMUM #10 AWG WITH #10 AWG GROUND IN MINIMUM 1" CONDUIT, UNLESS SPECIFIED OTHERWISE.
2. CONDUIT SIZES BASED ON SCHEDULE 40 PVC AND RMC. UPSIZE CONDUIT AS NEEDED IF SCHEDULE 80, HDPE, OR OTHER APPROVED CONDUIT TYPE. HDPE REQUIRES PRE–APPROVAL FROM THE AHJ AND ENGINEER OF RECORD.
3. CONDUCTOR SIZES BASED ON 75°C COLUMN OF NEC TABLE 310.15(B)(16) COPPER (CU) OR ALUMINUM (AL) WITH THHN/THWN–2 INSULATION.
4. PROVIDE ROD STEEL FOR ALL EXTERIOR EXPOSED RUNS SUBJECT TO DAMAGE.
5. PROVIDE PVC SCHEDULE 40 FOR ALL UNDERGROUND RUNS.
6. 6. ALL MEDIUM VOLTAGE FEEDERS SHALL BE 25KV, 3/C, CU, 133% EPR, MV–105, WITH TAPE SHIELD SOUTHWIRE SPEC 46202 OR APPROVED EQUAL.

GENERAL NOTES

1. FEEDER SHALL NOT BE ROUTED THROUGH THE UTILITY PULL OR UTILITY METER SECTIONS. FEEDER SHALL NOT BE ROUTED THROUGH ANY OTHER SECTION THAN THAT IN WHICH IT TERMINATES UNLESS BARRIERS ARE PROVIDED PER NEC 408.3.
2. THE ENERGY SERVER INVERTER OUTPUT CHARACTERISTICS SHALL BE IN ACCORDANCE WITH NEC 705.14.
3. INTERCONNECTIONS SHALL BE IN ACCORDANCE WITH NEC 705.10.
4. THE ENERGY SERVER OUTPUT IS EQUIPPED WITH UTILITY–INTERACTIVE INVERTERS RECOGNIZED BY UL TO UL1741 AND IEEE 1547 AND COMPLIES WITH NEC 692.62. INVERTER SETTINGS PER THE PROVIDED TABLE BELOW.
5. THE ENERGY SERVER IS NOT A SEPERATELY DERIVED SYSTEM PER NEC 250.30 [ART. 100]

REFERENCE SHEET NOTES

1. ALL CONNECTIONS FROM FUEL CELLS TO INVERTER ARE FACTORY WIRED AND ALL MAINTENANCE CABINETS ARE ACTIVELY PRESSURIZED; THEREFORE, NO CLASS 1, DIVISION 2 WIRING IS REQUIRED.
2. ALL COMPONENTS SHOWN IN THIS BOUNDARY SHALL BE UL LISTED TOGETHER AS A SINGLE, COMPLETE, ALL INCLUSIVE UNIT. ALL ELECTRICAL CONDUIT/CABLE CONNECTIONS WITHIN THIS BOUNDARY SHALL BE FACTORY INSTALLED WITH SOME FINAL CONNECTIONS TO BE COMPLETED BY THE CONTRACTOR IN THE FIELD. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS.
3. CONTRACTOR SHALL PROVIDE CONDUIT AND CONDUCTORS AS INDICATED. SELECTION OF CONDUIT TYPE SHALL BE PER NEC REQUIREMENTS. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS AT BLOOM PROVIDED EQUIPMENT.
4. MANUFACTURER INSTALLED, PRE–WIRED EPO BUTTON LOCATED IN READILY ACCESSIBLE LOCATION AT ENERGY SERVER PLATFORM AND CONNECTED TO TELEMETRY CABINET TERMINAL STRIP.
5. PROVIDE NEW GROUND CONDUCTOR FROM THE POWER DISTRIBUTION SECTION TO THE UFER GROUND ROD IN THE PRE–CAST ANCILLARY PAD.
6. PROVIDE (1) #1/0 AWG CU FROM ENERGY SERVER GROUND TO UFER GROUND IN ENERGY SERVER PAD, TYP.
7. THE UTILITY–INTERACTIVE INVERTER POINT OF CONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12.
8. CONTRACTOR TO INSTALL FEEDER TO EXISTING PMH–11, TERMINATIONS BY UTILITY.
9. ONE 15A GFEP CIRCUIT FOR EVERY TWO ENERGY SERVER PAIR.

MANUFACTURER SUPPLIED INVERTER SETTINGS

FUNCTION	TRIP VALUE	TRIP TIME
UNDERVOLTAGE (27–1)	240V (<50%)	0.16 SECONDS (10 CYCLES)
UNDERVOLTAGE (27–2)	423V (88%)	2.00 SECONDS (120 CYCLES)
OVERVOLTAGE (59–1)	528V (>110%)	2.00 SECONDS (120 CYCLES)
OVERVOLTAGE (59–2)	576V (>120%)	0.16 SECONDS (10 CYCLES)
UNDERFREQUENCY 1 (81U–1)	61.2 HZ	300 SECONDS (18,000 CYCLES)
UNDERFREQUENCY 2 (81U–2)	62.0 HZ	0.16 SECONDS (10 CYCLES)
OVERFREQUENCY 1 (81O–1)	58.5 HZ	300 SECONDS (18,000 CYCLES)
OVERFREQUENCY 2 (81O–2)	56.5 HZ	0.16 SECONDS (10 CYCLES)
RECONNECT TIMER (79)	N/A	5.00 MINUTES (36,000 CYCLES)

Bloomenergy
4353 N 1ST STREET
SAN JOSE, CA 95134

GreenbergFarrow
1430 Peachtree Street
Suite 200 Atlanta, GA 30309
t: (404) 601-4000 f: (404) 601-3980

ENGINEER OF RECORD
FLOYD KEELS, P.E.
LICENSE # 19958

CUSTOMER SITE
EVERSOURCE
160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

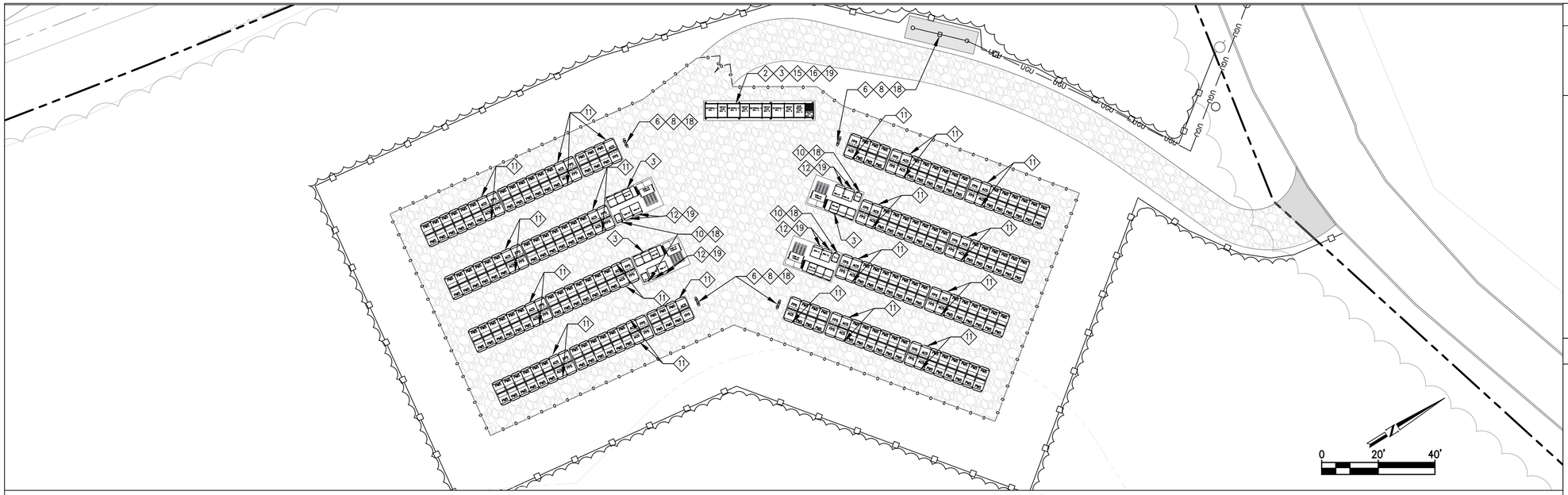
SHEET TITLE
ELECTRICAL SINGLE LINE DIAGRAM
STAMP C & D

DRAWING NUMBER
E3.1B

BLOOM DOCUMENT
DOC–1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

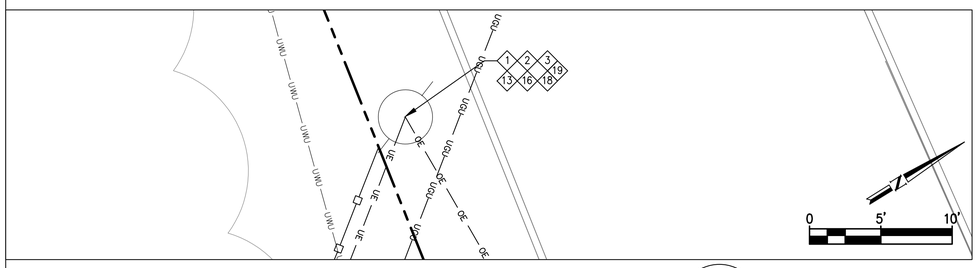
SITE ID: EVS000.0 | SHEET 16 OF 18



ES AREA & GAS METER PLACARD PLAN

SCALE: 1" = 20'

1 / M1.1



ELEC TIE IN PLACARD PLAN

SCALE: 1" = 5'

2 / M1.1

GENERAL NOTES

1. BELOW SIGNS ARE FURNISHED BY BLOOM ENERGY AND INSTALLED BY THE CONTRACTOR.
2. ANY ADDITIONAL SIGNS NEEDED BY AHJS AND UTILITIES TO BE PROVIDED AND INSTALLED BY CONTRACTOR.

1"–2"

WARNING – GENERATOR INSTALLED ON PREMISES

FUEL CELL POWER SYSTEM PRODUCES ELECTRICAL ENERGY

POSSIBLE DANGER OF ELECTRICAL BACKFEED

CHECK INSTALLATION BEFORE PERFORMING ANY WORK DISCONNECT SWITCH IS LOCATED –

[OPEN LINE FOR WRITE IN]

10"

TEXT: 1/2" HIGH RED LETTERING
BACKGROUND: WHITE
MATERIAL: SELF–ADHESIVE VINYL

SIGN SHOULD BE MOUNTED AT POINT OF COMMON COUPLING, NEAR UTILITY METER. PLACE 5' FROM THE GROUND OR AS SPACE IS PROVIDED CENTERED ON UNIT.

◇1

10"

WARNING

FUEL CELL POWER SYSTEM

OUTPUT. DO NOT RELOCATE

THIS CIRCUIT BREAKER

7"

TEXT: 1/2" HIGH RED LETTERING
BACKGROUND: WHITE
MATERIAL: SELF–ADHESIVE VINYL

SIGN SHOULD BE MOUNTED ON INTERCONNECTION CIRCUIT BREAKER IN MAIN SWITCHBOARD (LOAD SIDE TAPS ONLY)

◇2

7"

DANGER

ELECTRICAL SHOCK HAZARD – DO NOT TOUCH TERMINALS – BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

5"

HEADER: DANGER
TEXT: BLACK AND WHITE LETTERING
BACKGROUND: WHITE, BLACK, & RED
MATERIAL: SELF–ADHESIVE VINYL

SIGN SHOULD BE MOUNTED ON ALL ELECTRICAL PROTECTIVE DEVICES, PLACED 5' FROM THE GROUND CENTERED ON UNIT.

◇3

NOT IN USE

NOT IN USE

7"

NOTICE

FUEL CELL GAS SHUT–OFF

5"

HEADER: NOTICE
TEXT: BLACK AND WHITE LETTERING
BACKGROUND: WHITE & BLUE
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED ON OR AS NEAR AS POSSIBLE TO THE POINT OF CONNECTION TO THE GAS UTILITY.

◇6

8"

WATER

TEXT: WHITE LETTERING
BACKGROUND: GREEN
MATERIAL: ROLL FORM PIPE MARKERS

SIGN SHOULD BE MOUNTED ON THE FRONT OF THE WATER TAP & SHUT OFF VALVE.

◇7

8"

GAS

TEXT: WHITE LETTERING
BACKGROUND: YELLOW
MATERIAL: ROLL FORM PIPE MARKERS

SIGN SHOULD BE MOUNTED ON OR AS NEAR AS POSSIBLE TO UTILITY GAS METER

◇8

NOT IN USE

◇9

7"

NOTICE

FUEL CELL EMERGENCY SHUT DOWN

5"

HEADER: NOTICE
TEXT: BLACK & WHITE LETTERING
BACKGROUND: WHITE & BLUE
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED ON THE FRONT OF THE ENERGY SERVER EMERGENCY POWER–OFF SWITCH (EPO), PLACED 5' FROM THE GROUND.

◇10

6"

ES 1 UPM 1 2"

ES 2 UPM 2

TEXT: ENGRAVED WHITE LETTERING
BACKGROUND: BLACK
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED ON THE EDGE AND IN THE CENTER OF EACH ENERGY SERVER AND UPM PAD FACING THE ENTRANCE SIDE OF SITE

◇11

11"

NO SMOKING

8.5"

TEXT: BLACK & RED LETTERING
BACKGROUND: WHITE
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED AT ENTRANCE TO ES UNIT AREA (COMMONLY WDM), PLACE 5' FROM THE GROUND CENTERED ON UNIT.

◇12

8"

WARNING!
(2) SOURCES OF POWER:
FUEL CELL BACKFEED

3"

TEXT: 1/2" HIGH WHITE LETTERING
BACKGROUND: RED
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED AT POINT OF COMMON COUPLING, NEAR UTILITY METER. CENTERED ON UNIT AS SPACE IS AVAILABLE.

◇13

NOT IN USE

NOT IN USE

7"

SOURCE 2

2"

TEXT: 1/2" HIGH WHITE LETTERING
BACKGROUND: RED
MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED ON FUEL CELL INTERCONNECTION CIRCUIT BREAKER (IF LOAD SIDE TAP) OR FUEL CELL DISCONNECT SWITCH (IF LINE SIDE TAP) AND CENTERED.

◇16

NOT IN USE

4"

CALL BLOOM ENERGY BEFORE TURNING OFF. (408) 543–1678

1.5"

TEXT: 1/4" HIGH RED LETTERING
BACKGROUND: WHITE
MATERIAL: SELF ADHESIVE VINYL

SIGN SHOULD BE MOUNTED AT ANY AND ALL ELECTRICAL DISCONNECTING MEANS, ALL WATER VALVES, ALL GAS VALVES AND EPO SWITCH, CENTERED IF POSSIBLE.

◇18

SITE SPECIFIC SITE MAP

MATERIAL: PLASTIC

SIGN SHOULD BE MOUNTED ON THE FRONT DOOR OF THE MAIN SWITCHBOARD AND AT THE ENTRANCE TO THE ES AREA (COMMONLY WDM), CENTERED ON UNIT AS SPACE IS AVAILABLE.

◇19

NOT IN USE

NOT IN USE

Bloomenergy

4353 N 1ST STREET
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GreenbergFarrow

153 Cordaville Road, Suite 210
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t: 508 229 0032

ENGINEER OF RECORD
STEPHEN POWERS, P.E.
LICENSE # 0030199

CUSTOMER SITE

EVERSOURCE
160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE

PLACARD PLAN

DRAWING NUMBER

M1.1

BLOOM DOCUMENT

DOC–1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 17 OF 18

Bloomenergy

PRODUCT DATASHEET

Energy Server™ 5

Always On, Clean Energy
Using Patented Solid Oxide
Fuel Cell Technology

The Energy Server 5 provides combustion-free electric power with these benefits

Clean
Our systems produce near zero criteria pollutants (NOx, SOx, and particulate matter) and far fewer carbon emissions than legacy technologies.

Reliable
Bloom Energy Servers are designed around a modular architecture of simple repeating elements. This enables us to generate power 24 x 7 x 365 and can be configured to eliminate the need for traditional backup power equipment.

Resilient
Our system operates at very high availability due to its fault-tolerant design and use of the robust natural gas pipeline system. Bloom Energy Servers have survived extreme weather events and other incidences and have continued providing power to our customers.

Simple Installation and Maintenance
Our Energy Servers are 'plug and play' and have been designed in compliance with a variety of safety standards. Bloom Energy manages all aspects of installation, operation and maintenance of the systems.

Bloom Energy
4353 North First Street
San Jose, CA 95134

T 408 543 1500
F 408 543 1501

info@bloomenergy.com
www.bloomenergy.com

Energy Server 5	Technical Highlights (ES5-AA2AAN)
Outputs	
Nameplate power output (net AC)[1]	262.5 kW
Load output (net AC)	250 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	13.6 tons
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 28'8" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
An Energy Server is a Stationary Fuel Cell Power System. It is Listed by Underwriters Laboratories, Inc. (UL) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.	
Additional Notes	
Access to a secure website to monitor system performance & environmental benefits	
Remotely managed and monitored by Bloom Energy	
Capable of emergency stop based on input from the site	

[1] 65% LHV efficiency verified by ASME PTC 50 Fuel Cell Power Systems Performance Test
[2] NOx and CO measured per CARB Method 100, VOCs measured as hexane by SCAQMD Method 25.3

About Bloom Energy
Bloom Energy's mission is to make reliable, clean energy affordable for everyone in the world. The company's product, the Bloom Energy Server, delivers highly reliable and resilient, Always On electric power that is clean and sustainable. Bloom's customers include twenty-five of the Fortune 100 companies and leaders in cloud services and data centers, healthcare, retail, financial services, utilities and many other industries.

Bloom Energy
4353 North First Street
San Jose, CA 95134

T 408 543 1500
F 408 543 1501

info@bloomenergy.com
www.bloomenergy.com

Energy Server 5	Technical Highlights (ES5-AA2AAN)
Outputs	
Nameplate power output (net AC)[1]	262.5 kW
Load output (net AC)	250 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	15.8 tons
Dimensions (variable layouts)	17'11" x 8'8" x 6'9" or 32'3" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
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Energy Server 5	Technical Highlights (ES5-YA1AAN)
Outputs	
Nameplate power output (net AC)[1]	300 kW
Load output (net AC)	300 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	13.6 tons
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 28'8" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
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CUSTOMER SITE

EVERSOURCE
160 OLD AMSTON ROAD
COLCHESTOR, CT 06415

EVERSOURCE

REVISION HISTORY		
REV	REVISION ISSUE	DATE
1	INITIAL RELEASE	12/18/2019

DESIGNED BY KATE TAYLOR	REVIEWED BY CHAD PEARSON
DRAWN BY SURESH KUMAR	APPROVED BY GREENBERG FARROW

SHEET TITLE

BLOOM ENERGY PRODUCT DATA SHEET

DRAWING NUMBER

R0.1

BLOOM DOCUMENT

DOC-1010853

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: EVS000.0 | SHEET 18 OF 18

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, effective 10/1/13 (electronic form)

Prior to completing this form, you **must** read the instructions for the subject general permit at **DEEP-WPED-INST-015**.
This form must be filled out electronically before being printed.
You must submit the registration fee along with this form.

The status of your registration can be checked on the DEEP's ezFile. Portal. Please note that DEEP will no longer mail certificates of registration.

CPPU USE ONLY

App #: _____

Doc #: _____

Check #: _____

Program: **Stormwater**

Part I: Registration Type

Select the appropriate boxes identifying the registration type and registration deadline.

	Registration Type			Registration Timeline
☐	**Re-registration** **Existing Permit No. GSN** _____			**On or before February 1, 2014*** *Note: Failure to renew a permit by this date will require submission of new registration. Re-registrants must only complete Parts I, II, III, IV - Question 1, VII and submit Attachment A.
☑	**New Registration** (Refer to Section 2 of the permit for definitions of Locally Exempt and Locally Approvable Projects)	☐ **Locally Approvable** **Size of soil disturbance:** _____		**New registration - Sixty (60) days prior to the initiation of the construction activity for:** For sites with a total soil disturbance area of 5 or more acres
		☑ **Locally Exempt** **Size of soil disturbance:** 1.36	☑	**New registration - Sixty (60) days prior to the initiation of the construction activity for:** Sites with a total disturbance area of one (1) to twenty (20) acres except those with discharges to impaired waters or tidal wetlands
			☐	**New registration - Ninety (90) days prior to the initiation of the construction activity for:** (i) Sites with a total soil disturbance area greater than twenty (20) acres, or (ii) Sites discharging to a tidal wetland (that is not fresh-tidal and is located within 500 feet), or (iii) Sites discharging to the impaired water listed in the "Impaired Waters Table for Construction Stormwater Discharges"

Part II: Fee Information

1. New Registrations

   a. Locally approvable projects (registration only):

☐ $625

   b. Locally exempt projects (registration and Plan):

☑ $3,000 total soil disturbance area ≥ one (1) and < twenty (20) acres.

☐ $4,000 total soil disturbance ≥ twenty (20) acres and < fifty (50) acres.

☐ $5,000 total soil disturbance ≥ fifty (50) acres.

2. Re-Registrations

☐ $625 (sites previously registered prior to September 1, 2012)

☐ $0 (sites previously registered between to September 1, 2012 and effective date of this permit)

Total Fee: $3,000.00

The fees for municipalities shall be half of those indicated in subsections (a), (b) and (c) above pursuant to Section 22a-6(b) of the Connecticut General Statutes. State and Federal agencies shall pay the full fees specified in this subsection. The registration will not be processed without the fee. The fee shall be non-refundable and shall be paid by certified check or money order payable to the Department of Energy and Environmental Protection.

Part III: Registrant Information

- If a registrant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of the State. If applicable, the registrant's name shall be stated **exactly** as it is registered with the Secretary of the State. This information can be accessed at **CONCORD**
- If a registrant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

1. Registrant /Client Name: BLOOM ENERGY CORPORATION

   Registrant Type: Business Entity

   Secretary of the State business ID #: 0718523

   Mailing Address: 4353 N 1st St

   City/Town: San Jose State: CA Zip Code: 95134

   Business Phone: (860) 839-8373 ext.:

   Example:(xxx) xxx-xxxx

   Contact Person: JUSTIN ADAMS Title :

   E-Mail: justin.adams@bloomenergy.com

2. List billing contact:

   Name: BLOOM ENERGY CORPORATION

   Mailing Address: 4353 N 1st St

   City/Town: San Jose State: CA Zip Code: 95134

   Business Phone: (860) 839-8373 ext.:

   Contact Person: JUSTIN ADAMS Title :

3. List primary contact for departmental correspondence and inquiries:
   Name: BLOOM ENERGY CORPORATION
   Mailing Address: 4353 N 1st St
   City/Town: San Jose State: CA Zip Code: 95134
   Business Phone: (860) 839-8373 ext.
   Contact Person: JUSTIN ADAMS Title:

4. List owner of the property on which the activity will take place:
   Name: THE CONNECTICUT LIGHT AND POWER COMPANY
   Mailing Address: 107 SELDEN ST
   City/Town: BERLIN State: CT Zip Code: 06037
   Business Phone: (800)286-2000 ext.
   Contact Person: IAN COLE
5. List preparer:
   Name: Rodney Galton
   Mailing Address: 3 Saddlebrook Dr
   City/Town: Killingworth State: CT Zip Code: 06419
   Business Phone: (860)663-1697 ext. 228
   Contact Person: Rodney Galton Title: Project Manager
6. List design professional:
   Name: Bradley Parsons
   Mailing Address: 3 Saddlebrook Dr
   City/Town: Killingworth State: CT Zip Code: 06419
   Business Phone: (860) 663-1697 ext. 208
   Contact Person: Bradley Parsons Title: Project Manager
7. List Reviewing Qualified Professional (for locally approvable projects only):
   Name:
   Mailing Address:
   City/Town: State: Zip Code:
   Business Phone: ext.
   Contact Person: Title:

Part IV: Site Information

1. Site Name: Bloom Energy 10 MW Fuel Cell
   Street Address or Description of Location: 160 Old Amston Rd
   City/Town: Colchester State: CT Zip Code: 06415
   Brief Description of construction activity:
   Installation of a fuel cell power generation facility and all associated appurtenances.

   Project Start Date: 16 Mar 2020 Anticipated Completion Date: 30 Nov 2020
   Normal working hours: 7 AM to 7 PM

2. **MINING** : Is the activity on the site in question part of mining operations (i.e. sand and gravel)? ☐Yes ☑No

If yes, mining is not authorized by this general permit. You must submit the Registration Form for the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

3. **COMBINED OR SANITARY SEWER:** Does all of the stormwater from the proposed activity discharge to a combined or sanitary sewer (i.e. a sewage treatment plant)? ☐ Yes ☑No

If yes, this activity is not regulated by this permit. Contact the Water Permitting & Enforcement Division at 860-424-3018.

4. **INDIAN LANDS:** Is or will the facility be located on federally recognized Indian lands? ☐ Yes ☑No

5. **COASTAL BOUNDARY:** Is the activity which is the subject of this registration located within the coastal boundary as delineated on DEEP approved coastal boundary maps? ☐ Yes ☑No

The coastal boundaries fall within the following towns: Branford, Bridgeport, Chester, Clinton, Darien, Deep River, East Haven, East Lyme, Essex, Fairfield, Greenwich, Groton (City and Town), Old Lyme, Guilford, Hamden, Ledyard, Lyme, Madison, Milford, Montville, New London, New Haven, North Haven, Norwalk, Norwich, Old Saybrook, Orange, Preston, Shelton, Stamford, Stonington (Borough and Town), Stratford, Waterford, West Haven, Westbrook and Westport.

If "yes", and this registration is for a new authorization or a modification of an existing authorization where the physical footprint of the subject activity is modified, you must provide documentation to the DEEP Office of Long Island Sound Programs or the local governing authority has issued a coastal site plan approval or determined the project is exempt from coastal site plan review. Provide this documentation with your registration as Attachment B. See guidance in Appendix D of the general permit. Information on the coastal boundary is available at the local town hall or on the **Connecticut Coastal Resources Map** . Additional DEEP Maps and Publications are available by contacting DEEP Staff at 860-424-3555.

6. **ENDANGERED OR THREATENED SPECIES:**

In order to be eligible to register for this General permit, each registrant must either perform a self-assessment, obtain a limited one-year determination, or obtain a safe-harbor determination regarding threatened and endangered species. This may include the need to develop and implement a mitigation plan. While each alternative has different limitations, the alternatives are not mutually exclusive; a registrant may register for this General Permit using more than one alternative, See Appendix A of the general Permit. Each registrant must complete this AND Attachment C to this Registration form and a registrant who does not or cannot do so is not eligible to register under this General Permit.

Each registration must perform a review of the Department's Natural Diversity Database maps to determine if the site of the construction activity is located within or in proximity (within ¼ mile) to a shaded area.

a. Provide the date of the NDDB maps were reviewed: 21 Dec 2019 (Print a copy of the NDDB map you viewed since it must be submitted with this registration as part of Attachment C.)

b. For a registrant using a limited one-year determination or safe harbor determination to register for this General Permit, provide the Department's Wildlife Division NDDB identification number for any such determination:

_____ (The number is on the determination issued by the Department's Wildlife Division).

For more information on threatened and endangered species requirements, refer to Appendix A and section 3(b)(2) of this General Permit, Visit the DEEP website at **Natural Diversity Data Base** or call the NDDB at 860-424-3011.

c. I verify that I have completed Attachment C to this Registration Form. ☐ Yes

7. **WILD AND SCENIC RIVERS:** Is the proposed project within the watershed of a designated Wild and Scenic River? (See Appendix H for guidance) ☐ Yes ☑ No

8. **AQUIFER PROTECTION AREAS:** Is the site located within a mapped **Aquifer Protection Area** , as defined in Section 22a-354h of the CT General Statutes? (For additional guidance, please refer to Appendix C of the General Permit) ☐ Yes ☑ No

9. **Connecticut Guidelines for Soil Erosion and Sediment Control Guidelines:** Is the activity in accordance with Connecticut Guidelines for Soil Erosion and Sediment Control Guidelines and local erosion & sediment control ordinances, where applicable? ☑ Yes ☐ No

10. **HISTORIC AND/OR ARCHAEOLOGICAL RESOURCES:**

Has the site of the proposed activity been reviewed (using the process outlined in Appendix G of this permit) for historic and/or archaeological resources? ☑ Yes ☐ No

a. The review indicates the proposed site does not have the potential for historic/ archaeological resources, OR ☑ Yes ☐ No

b. The review indicated historic and/ or archaeological resource potential exists and the proposed activity is being or has been reviewed by the Offices of Culture and Tourism, OR ☐ NA ☐ Yes ☑ No

c. The proposed activity has been reviewed and authorized under an Army Corps of Engineers Section 404 wetland permit. ☐ NA ☐ Yes ☑ No

11. **CONSERVATION OR PRESERVATION RESTRICTION:**

Is the property subject to a conservation or preservation restriction? ☐ Yes ☑ No

If Yes, proof of written notice of this registration to the holder of such restriction or a letter from the holder of such restriction verifying this registration is in compliance with the terms of the restriction, must be submitted as Attachment D.

Part V: Stormwater Discharge Information

Table 1

Outfall #	a) Type	b) Pipe Material	c) Pipe Size	d) Note: To find lat/long, go to: CT ECO . A decimal format is required here. Directions on how to use CT ECO to find lat. /long. and conversions can be found in in Part V, section d of the DEEP-WPED-INST-015 .		e) What method was used to obtain your latitude/longitude information?
				Longitude *(Format: -xx.xxxxx)*	Latitude *(Format: xx.xxxxx)*	
1	Other(Please fill in below) Compost Filter Sock			-72.332999	41.594369	ezFile Portal Map

Part V: Stormwater Discharge Information Continued

Table 2

2. Provide the following information about the receiving water(s)/wetland(s) that receive stormwater runoff from your site, either directly or through the storm sewer system:							
Outfall #	**Dates when this outfall will be active:**	**a) To what system or receiving water does your stormwater runoff discharge? either "storm sewer or wetlands" or "waterbody" (If you select storm sewer or wetlands, columns c.1&2 of this table are not required to be completed)**	**b) What is your watershed ID (freshwater) or 305b ID (estuary)? (Section 3.b, of the DEP-GP-INST-015 explains how to find this information)**	**c.1) Is your receiving water identified as an impaired water in the "Impaired Waters Table for Construction Stormwater Discharges"?**	***If you answered yes to question c.1, then answer the question below*** **c.2) Has any Total Maximum Daily Load (TMDL) been approved for your receiving waterbody?**	**For the drainage area associated with each outfall: Effective Impervious Area Before Construction (sq ft)**	**For the drainage area associated with each outfall: Effective Impervious Area After Construction (sq ft)**
1	Start: 1 Apr 2020 End: 30 Nov 2020	Storm Sewer or Wetlands		☐ Y ☐ N ☑ NA	☐ Y ☐ N ☑ NA	0	0
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
Provide the total effective impervious area for the entire site(sq ft):						0	0

Part V: Stormwater Discharge Information (continued)

Impaired waters: If you answered "yes" to Table 2, question 2.c.1, **verify** that the project's Pollution Control Plan (Plan) addresses the control measures below in Question 1 or 2, as appropriate.

1. **If the impaired water does not have a TMDL,** confirm compliance by selecting 1.a. or 2.b. below:

   a. No more than 3 acres is disturbed at any time; ☐ Yes

   OR

   b. Stormwater runoff from a 2 yr, 24 rain event is **retained.** ☐ Yes

2. **If the impaired water has a TMDL,** confirm compliance by selecting 2.a. and 2.b. below and either question 2.c.1. or 2.c.2. below:

   a. The Plan documents there is sufficient remaining Waste Load Allocations (WLA) in the TMDL for the proposed discharge, ☐ Yes

   AND

   b. Control measures shall be implemented to assure the WLA will not be exceeded, ☐ Yes

   AND

   c. 1. Stormwater discharges will be monitored for the indicator pollutant identified in the TMDL, ☐ Yes

   OR

   2. The Plan documents specific requirements for stormwater discharges specified in the TMDL. ☐ Yes

Part VI: Pollution Control Plan Availability (check one of the following four categories)

☑ I am registering a Locally Exempt project and submitting the required electronic Plan (in Adobe™ PDF or similarly publically available format) pursuant to Section 3(c)(2)(E) of this permit.

- ☑ Plan is attached to this registration form
- ☐ Plan is available at the following Internet Address (URL): _____

☐ I am registering a Locally Approvable project and have chosen not to submit the Plan with this registration pursuant to Section 3(c)(1) of this permit.

☐ I am registering a Locally Approvable project and have chosen to make my Plan electronically available pursuant to Section 4(c)(2)(N) of this permit.

- ☐ Plan is attached to this registration form
- ☐ Plan is available at the following Internet Address (URL): _____

☐ I am registering a Locally exempt project and do not have the capability to submit the Plan electronically. Therefore, I am submitting a paper copy with this registration as Attachment E.

Part VII: Registrant Certification

The registrant *and* the individual(s) responsible for actually preparing the registration must sign this part. A registration will be considered incomplete unless all required signatures are provided.

For New Registrants:

"I hereby certify that I am making this certification in connection with a registration under such general permit, submitted to the commissioner by BLOOM ENERGY CORPORATION for an activity located at 160 Old Amston Rd, Colchester, CT 06415 and that all terms and conditions of the general permit are being met for all discharges which have been initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the registration filed pursuant to this general permit is on complete and accurate forms as prescribed by the commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(b)(8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 3(b) (8) (B) of this general permit. I understand that the registration filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Connecticut General Statutes, as amended by Public Act 12-172. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

For Re-registrants:

"I hereby certify that I am making this certification in connection with a registration under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, submitted to the commissioner by _____ for an activity located at _____ and that all terms and conditions of the general permit are being met for all discharges which have been initiated and such activity is eligible for authorization under such permit. I further certify that all designs and plans for such activity meet the current terms and conditions of the general permit in accordance with Section 5(b)(5)(C) of such general permit and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I verify that the registration filed pursuant to this general permit is on complete and accurate forms as prescribed by the commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(b)(8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this verification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and an other applicable law."

Signature of Registrant	
JUSTIN ADAMS	
Name of Registrant (print or type)	Title (if applicable)
Signature of Preparer and Date (if different than above)	
Rodney Galton	Project Manager
Name of Preparer (print or type)	Title (if applicable)

Part VIII: Professional Engineer (or Landscape Architect, where appropriate) Design Certification (for publically approvable and exempt projects)

The following certification must be signed by a Professional Engineer, or Landscape Architect where appropriate.

"I hereby certify that I am a licensed in the State of Connecticut.
I am making this certification in connection with a registration under such general permit, submitted to the commissioner by BLOOM ENERGY CORPORATION for an activity located at 160 Old Amston Rd, Colchester, CT 06415 .
I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such Plan are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Design Professional and Date	
Bradley Parsons	26025
Name of Professional (print or type)	License Number

Affix P.E/L.A Stamp Here

Part IX: Reviewing Qualified Professional Certification

The following certification must be signed by a) a Conservation District reviewer OR, b) a qualified soil erosion and sediment control and/ or professional engineer

☐ **Review Certification by Conservation District:**

1.) District: _____

Date of Affirmative Determination: _____

" I am making this certification in connection with a registration under General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, submitted to the commissioner by _____ for an activity located at _____. I have personally examined and am familiar with the information that provides the basis for this certification, and I affirm, based on the review described in Section 3(b)(11)(C) of this general permit and on the standard of care for such projects, that the Stormwater Pollution Control Plan is adequate to assure that the activity authorized under this general permit will comply with the terms and conditions of such general permit and that all stormwater management systems: (i) have been designed to control pollution to the maximum extent achievable using measures that are technologically available and economically practicable and that conform to those in the Guidelines and the Stormwater Quality Manual; (ii) will function properly as designed; (iii) are adequate to ensure compliance with the terms and conditions of this general permit; and (iv) will protect the waters of the state from pollution."

_____

Signature of District Professional and Date

_____ _____

Name of District Professional License Number (if applicable)

Or

☐ **Review Certification by Qualified Professional:**

Company Name: _____

Name: _____

License #: _____

Level of independency of professional:

Required for all projects disturbing over 1 acre:

1. I verify I am not an employee of the registrant. ☐ Yes
2. I verify I have no ownership interest of any kind in the project for which the registration is being submitted. ☐ Yes

Required for projects with 15 or more acres of site disturbance (in addition to questions 1&2):

3. I verify I did not engage in any activities associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes
4. I verify I am not under the same employ as any person associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes

Part IX: Reviewing Qualified Professional Certification (continued)

"I hereby certify that I am a qualified professional engineer or qualified soil erosion and sediment control professional, or both, as defined in the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities and as further specified in Sections 3(b)(11)(A) and (B) of such general permit. I am making this certification in connection with a registration under such general permit, submitted to the commissioner by _____ for an activity located at _____ .
I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(b)(11)(C) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify, based on my review of all information described in Section 3(b)(11)(C) of such general permit and on the standard of care for such projects, that I have made an affirmative determination in accordance with Sections 3(b)(11)(D)(i) and (ii) of this general permit. I understand that this certification is part of a registration submitted in accordance with Section 22a-430b of Connecticut General Statutes, as amended by Public Act 12-172, and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

_____

Signature of Reviewing Qualified Professional

_____ _____

Name of Reviewing Qualified Professional License No.

Affix P.E./ L.A. Stamp Here

Note: Please submit the fee along with a completed, printed and signed Registration Form and all additional supporting documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

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        else to use my account, and not share  my PIN with any other person, entity or organization; To change my PIN  if  there is reason to  believe it has or will become
        known to any other person entity or organization; To promptly report to Connecticut DEEP any evidence of the loss, theft, or other compromise of my account or
        PIN  within one business day of becoming aware of such occurrence; To notify Connecticut DEEP, in writing, if my employment is terminated, if I am reassigned or
        if there is any other change that affects my status pursuant to this Agreement or my authorization to submit documents pursuant to this Agreement.  Notification
        shall occur prior to the time that such a change takes effect. To timely review the e-mail and onscreen acknowledgements and copies of electronic filings submitted
        through my account to CT DEEP; and To report any discrepancy, or evidence of a discrepancy, between the electronic filing as submitted and what CT DEEP
        received. I further understand and agree that: In no event will Connecticut DEEP be liable to me or my employer for any special, consequential, indirect or similar
        damages, including any lost profits or lost data arising out of the use or inability to use the software or of any data supplied therewith even if Connecticut DEEP or
        anyone else has been advised of the possibility of such damages, or for any claim by any other party.  The Connecticut DEEP disclaims all warranties, express or
        implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the software and the accompanying
        written materials CERTIFIER SIGNATURE: I understand that I will be held as legally bound, obligated, and responsible by the PIN, which constitutes my
        electronic signature, as by my handwritten signature, and the PIN/electronic signature can be enforced in the same manner as a document submitted with a
        handwritten signature. Further, in submitting this document electronically with my PIN, I certify that I am authorized to submit electronic documents and act as
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Bloomenergy™

Energy Server®

General Safety

Operating & Emergency Planning/Preparedness

Quick Reference Manual

This manual applies to all Energy Servers

FOR ANY EMERGENCY OR SHUTDOWN NOTIFICATION, PLEASE CONTACT

THE REMOTE MONITORING CONTROL CENTER

(408) 543-1678

Table of Contents

FOR ANY EMERGENCY OR SHUTDOWN NOTIFICATION, PLEASE CONTACT

THE REMOTE MONITORING CONTROL CENTER

(408) 543-1678

1 Compliance

Applicable Compliance Standard:

- Bloom Energy Servers comply with ANSI and CSA provide Guidance for fuel cell system design in the United States. That standard is ANSI/CSA FC 1-2014.
- Bloom Energy server sub-systems or components, integrated as part of a fuel cell system also comply with subordinate standards set forth in ANSI/CSA FC 1-2014
- Each generation of the Bloom Energy *Energy Server* has been UL listed as a "Stationary Fuel Cell Power System".
- Each generation of the Bloom Energy *Energy components* have been UL listed as a "Stationary Fuel Cell Power System: Component".
- It is UL Listed under UL Category IRGZ and UL File Number IRGZMH45102 and IRGZ2MH45102.

IRGZ.MH45102	BLOOM ENERGY CORP	STATIONARY FUEL CELL POWER SYSTEMS
IRGZ2.MH45102	BLOOM ENERGY CORP	STATIONARY FUEL CELL POWER SYSTEMS - COMPONENT

- The UL compliance certificate is included as the following page.
- Fed-OSHA 1910 Subchapter A-Z. General Industry Standards (1910.10-1910.1450)
- Fed-OSHA 1926 Subchapter A-CC. Construction Safety Standards (1926.1- 1926.1442)
- Fuel cell systems intended for emergency system use additionally meet the criteria outlined in ANSI/NFPA 101, "Life Safety Code," and are determined to be suitable for the Type, Class and Level of emergency power supply system as defined in ANSI/NFPA 110, "Emergency and Standby Power Systems,"

- NYC CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS SECTION FC 401 (GENERAL)
    - 401.3 Emergency preparedness plans. The emergency preparedness plans required to assure that procedures are in place that can be timely implemented in the event of a fire or non-fire emergency to provide the information, guidance, direction and assistance needed to protect the safety of building occupants, including, if necessary, effecting their evacuation, relocation or sheltering in place.

CERTIFICATE OF COMPLIANCE

Certificate Number	20190710-MH45102
Report Reference	MH45102-20160826
Issue Date	2019-JULY-10
Issued to:	Bloom Energy Corp 4353 N First St San Jose, CA 95134
This certificate confirms that representative samples of	STATIONARY FUEL CELL POWER SYSTEMS See Addendum Page
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	Standard American National Standard For Fuel Cell Power Systems, ANSI/CSA America FC1-2014/ IEC 62282-3-100:2012
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

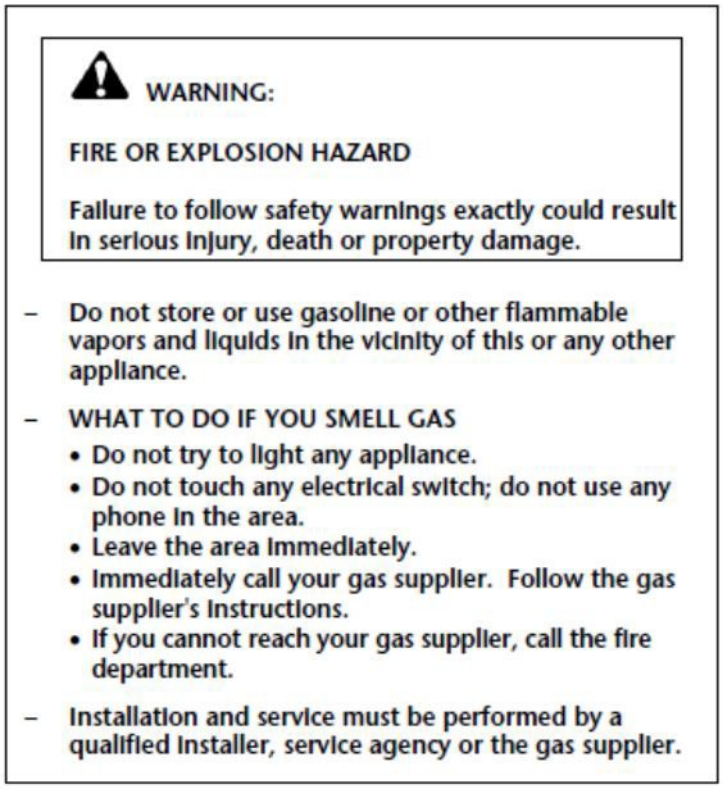
Look for the UL Certification Mark on the product.

Listed – Stationary Fuel Cell Power System, Model ES5-XXXXXX Fuel Cell Module AC5-12X, X may be A, B, C, D, E, F, G, M, U, or Y.

ES5-AA1AAA,ES5-AA2AAA,ES5-AA2AAB,ES5-AA2AAU ,ES5-AS2AAU,ES5-AA8AAA,ES5-AA8AAA,ES5-AACAAA,ES5-AACAAB,ES5-AC2AAU,ES5-BABAAA,ES5-BABAAB,ES5-BABAAU,ES5-BSBAAU,ES5-BADAAA,ES5-BADAAB,ES5-BA2AAA,ES5-BCBAAA,ES5-BCBAAB,ES5-CA2AAA,ES5-CA4AAA,ES5-CA4AAB,ES5-CA4AAU,ES5-DA2AAA,ES5-DA8AAA,ES5-DACAAA,ES5-EA1AAA,ES5-EA2AAA,ES5-EA2AAU,ES5-EA2AKA,ES5-EA8AAA,ES5-EACAAA,ES5-FABAAA,ES5-FABAAB,ES5-FABAAU,ES5-FADAAA,ES5-FADAAB,ES5-FA2AAA,ES5-GA5AAA,ES5-GA5AAB,ES5-MA4AAA,ES5-MA4AAB,ES5-UABAAB,ES5-YA1AAA,ES5-YA7AAA,ES5-YA8AAA,ES5-YA8AAU,ES5-YA8AKA.

General Safety and Operating precautions for Fuel Cell Systems

2 OPERATING PRECAUTIONS AND WARNING SIGNAGE



For safe maintenance of the system, the following safety rules must be observed:

1. You must notify Bloom if you are planning any work at the site that affects **water**, **power**, **internet**, or **gas** to the Energy Server. These elements affect the performance of the fuel cell and lack of notification may cause irreversible damage to the modules.
2. Pay attention to the hazard labeling and warnings and observe all precautionary statements
3. Only Bloom Energy-approved Field Service providers are permitted access to the inside of the system enclosure.

4. Keep the equipment free of surrounding debris. No boxes, crates, vehicles, etc. should be present within 7 feet of the Energy Server in any direction.
5. Field Service providers will periodically clean the equipment; if you wish to clean your system, do not spray with a pressurized hose.
6. Check local fire marshal requirements for code requiring an ABC-type fire extinguisher, well- marked, within sight of the system.
7. Obey all applicable local, state, and national codes and regulations.
8. The area around the Energy Server must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
9. Do not block or obstruct air openings on the equipment or the surrounding 7 feet around the Energy Server that provides clearances to secure and discharge required air. This equipment requires air flow in order to operate.
10. Do not use this equipment if any part has been under water. Flood-damaged equipment is potentially dangerous. Attempts to use it can result in fire or explosion. A qualified service agency should be contacted to inspect the site and to replace all gas controls, control system parts, and electrical parts that have been wet.

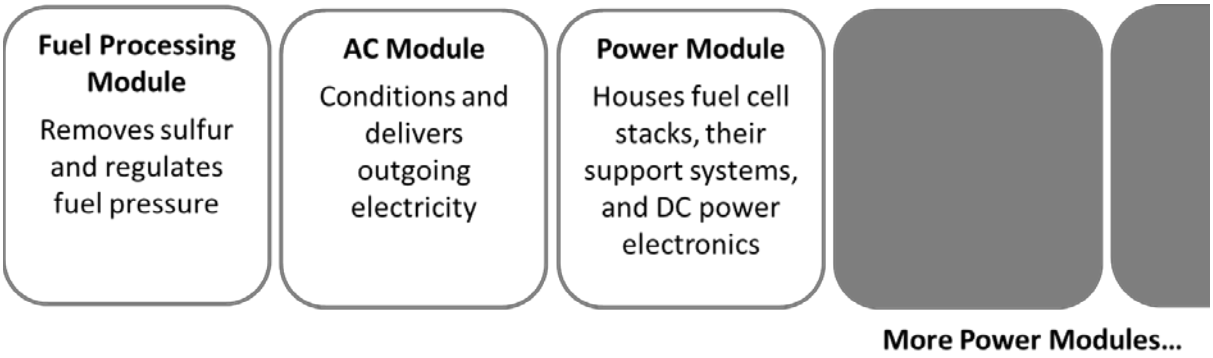
Please contact Bloom Energy's **Remote Monitoring Control Center (RMCC) at (408) 543-1678 / 9** no less than 24 hours prior to any work which will be performed onsite which may affect your Energy Server including but not limited to power supply outages or surges and/or interruption of gas supply, water supply, and/or internet connection. Bloom operators can assess the situation and take the necessary actions to mitigate impact on the fuel cells during work and enable them come back online smoothly and efficiently when work is completed.

Failure to notify RMCC may cause an invalidation of warranty on the Energy Servers and interruption of service to your site.

3 System Modules and Functions

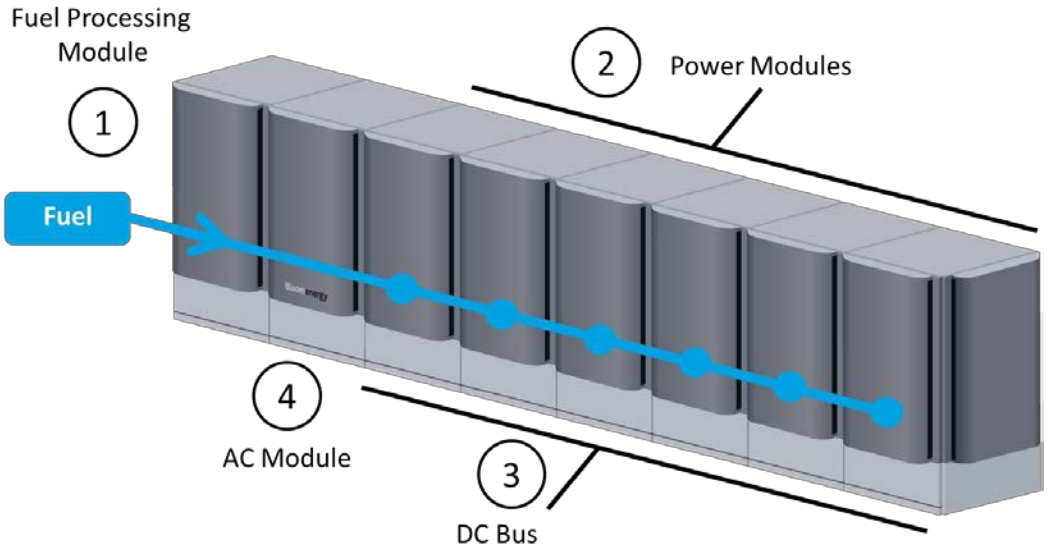
Each Energy Server has three types of modules: one Fuel Processing Module, one AC Module and several identical Power Modules. (Figure 1)

Figure 1 – System Modules



The function of each module can be understood by tracing the fuel through its conversion to electricity (see below).

Fuel Cell Inputs and Outputs



1. Fuel from the facility enters the Energy Server at the Fuel Processing Module. This module regulates fuel pressure and removes trace components, such as sulfur, which can harm the fuel cells.
2. Once processed, the fuel flows to each of the Power Modules. Each Power Module contains stacks of fuel cells, the necessary support components for handling air, heat, water, exhaust, monitoring, and safety, and DC power electronics. Processed fuel enters the fuel cell, reacts with O_2 (from ambient air), and is electrochemically converted into DC electricity.
3. The ensuing DC power is collected by the DC bus and fed to the AC Module.
4. The AC Module converts the DC power to AC power and exports the power to the facility.

This modular architecture allows for maximum availability and power production. If any part of a Power Module needs to be replaced or repaired, the remaining Power Modules can remain operational during service.

Additionally, Energy Server 5 is capable of being installed in a number of different configurations: linear (shown in Figures 1 and 2), compact, and corner.

System Design Specifications

Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water (connection required at all times)	None during normal operation
Outputs	
Electrical connection	480 V, 3-phase, 60 Hz
Efficiency	
Cumulative electrical efficiency (LHV net AC)*	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO2 @ specified efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
An Energy Server is a Stationary Fuel Cell Power System. It is Listed by Underwriters Laboratories, Inc. (UL) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.	
Additional Notes	
Access to a secure website to monitor system performance & environmental benefits	
Remotely managed and monitored by Bloom Energy	
Capable of emergency stop based on input from the site	

* 65% LHV efficiency verified by ASME PTC 50 Fuel Cell Power Systems Performance Test

4 External Modules and Ancillary Equipment

4.1 Water Distribution Module

The Water Distribution Module (WDM) is responsible for purifying water from the utility to a level required for optimal function of the fuel cells. The module takes water from the facility, purifies it using a pair of de-ionization beds, and delivers the purified water to the Energy Server. The WDM is installed on the ancillary pad with the PDS and Telemetry cabinet.

4.2 Power Distribution System / Electrical Distribution Module

The Power Distribution System (PDS) or Electrical Distribution Module (EDM) houses the electrical power connections from the facility, surge protection device, and any required power meters. The PDS is installed on an ancillary pad along with the WDM.

4.3 Telemetry Cabinet

The Telemetry Cabinet houses the communications components that allow Bloom Energy's Remote Monitoring Control Center (RMCC) to constantly monitor the Energy Servers. All reported data from the systems is continuously transmitted to live operators and recorded in our database for data analysis and predictive action. The RMCC operators will communicate any alarms to Field Service personnel if onsite action is required.

5 Safety Features and General Safety and Operating precautions

Every Energy Server has redundant safety features and in-system checks to ensure personnel safety. While the actual fuel cells operate at high temperatures, these components do not move and are contained within many layers of insulation. It is safe to stand adjacent to the equipment as all moving parts and hot surfaces are protected by the outer panels. However, do not attempt to open the doors of the Energy Server or climb on top of it. Parts of the Energy Server, including the exhaust vents at the peak of the roof, are hot during operation. Also, as with any device using flammable fuel, never smoke or create sparks near the equipment.

Bloom Energy Servers are controlled remotely and have internal sensors that continuously monitor system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped and individual system components are automatically shut down. A Bloom Energy RMCC operator can also remotely initiate any emergency sequence. An Emergency Stop alarm initiates an automatic shutdown sequence that puts the system into "safe mode" and causes it to stop exporting power. If a full shutdown is warranted, the system can return to ambient temperature within 18 hours. If you have questions about any of these safety features, please contact Bloom Energy at CustomerCare@bloomenergy.com.

- **Manual controls:**
  - A clearly marked Emergency Power Off button located at site to stop the export of power
  - Manual gas valve located within 50 feet of Energy Server location to control gas inflow
- **Fire hazard mitigation:**
  - Energy Server is plumbed directly to utility-provided natural gas
  - If input gas pressure is compromised, an internal pressure switch triggers an emergency system shutdown and fuel input is isolated through double solenoid isolation valves
  - Equipment contains virtually no stored fuel (internal capacity is < 5 scf)
- **Electrical hazard and mitigation:**
  - System operates at 480 V_{AC}
  - System inverter prevents backfeed to the grid during a power outage
- **Mechanical hazards and mitigation:**
  - All moving parts are located behind secured doors
- **Hazardous material mitigation:**
  - Desulfurizer beds (to remove fuel impurities) are fully enclosed and are only serviced by licensed vendors

6 Emergency Shut Down Procedures

Emergency Actions

Emergency		
Scenario	**Y**	**Bloom Energy**
System Fire	1. Ensure personal safety 2. Call 911 and Bloom Energy RMCC 3. Hit Emergency Power Off button 4. Shut gas isolation valve 5. Open electrical disconnect	1. Remote shutdown 2. Dispatch Field Service team (if safe and necessary) 3. Notify your site contact
Fire in System Vicinity	1. Ensure personal safety 2. Call Bloom Energy RMCC	
Natural Gas Leak		
Major Seismic Event	1. Ensure personal safety 2. Call Bloom Energy RMCC 3. Cut off fuel and electricity (if absolutely necessary)	

If you have to shut down your system right away—for example, in case of a building fire or electrical hazard—three shutoff controls are installed at your facility external to the system. The locations of these three controls should be known to your facilities manager before operation and should be noted on the site diagram that you created with your Bloom Energy account manager. The three shutoffs are: (1) **EPO button**, (2) the **electrical disconnect switch**, and (3) the **manual natural gas shutoff valve**.

The fuel cell system has redundant safety features and in-system checks to ensure that the system will not harm certified technicians or bystanders near the unit. While the actual fuel cells operate at high temperatures, these components do not move, and are contained within many layers of insulation. During normal operation, the unit is cool to the touch and operates quietly.

The fuel cell system is controlled electronically and has internal sensors that continuously measure system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped and individual system components are automatically shut down. A Bloom Energy Remote Monitoring and Control Center (RMCC) operator can also remotely initiate any emergency sequence. An Emergency Stop alarm condition initiates an automatic shutdown sequence that puts the fuel cell system into —safe mode and causes it to stop exporting power. If you have questions about any of these safety features, please contact Bloom Energy.

If you have to shut down your fuel cell system right away—for example, in case of a building fire or electrical hazard—three shutoff controls are installed at your facility external to the system. The locations of these three controls should be known to your facilities manager before operation, and should be noted on your facility diagram that you created with your Bloom Energy account manager. The three shutoffs are: **1) the EPO buttons, 2) the electrical disconnect, and 3) the natural gas shutoff valve.**

1) EPO Button: An Emergency Power Off (EPO) Button cuts all power to all systems and stops them from exporting power to your building. All natural gas flow is also stopped within the systems. (The EPO button is on the front/side of the EDM, if an EDM is installed.) Lift the protective cover and break the glass seal that covers the button with the attached hammer. After the glass seal is broken, the shutdown sequence will automatically begin.

Emergency Power Off Button

Telemetry Emergency Power Off (EPO) button if your system is equipped with (see below) opens each Energy Server's output contactor to stop sending power to the facility. All natural gas flow is also stopped, as cutting power closes two fail-closed natural gas valves inside the system. The EPO button is located on the side of the Telemetry Cabinet. It has a protective plastic cover on it, as well as protective glass that must be broken with its attached hammer before pressing the button. Use this if you want to stop exporting power in the case of an emergency.

2) **Manual Gas Shut off Valve:** The manual natural gas valve shuts off all natural gas at a point upstream of the Energy Server. Removing the gas source will completely shut down the Energy Server. If the valve handle is perpendicular to the pipe, the valve is shut. If the valve handle is parallel with the pipe (as shown below), the valve is open.

Manual Natural Gas Valve

Note	**Some gas shutoff valves are installed without a permanent handle to prevent unauthorized operation. Use an adjustable wrench to operate a valve without a handle.**

3) **Electrical Disconnect switch:** The electrical disconnect switch manually disconnects power to everything downstream of it. The disconnect switch is typically located near the point where the wires from the Energy Server installation meet the facility's electrical framework. This might be next to the Energy Server or in the site's facility room. The location is shown on your site map. The switch is labeled "[Name of Electrical Utility] Lockable Visible Generator Disconnect Switch." Use this if you need to cut power in the line to the EDM/PDS, the EDM/PDS itself, and the electrical connection leading to the Energy Server (see section External Modules for further definitions). Note that opening the electrical disconnect switch places the Energy Server in a Balance of Plant (BOP) state where it does not export power but is still processing fuel. Operating the electrical disconnect should be done to electrically isolate the system, but not to shut it down completely.

Electrical Disconnect Switch

Each site is designed for International Code Council (ICC) Seismic Site Class D. Seismic Zone 4 may also be mentioned for older building codes. Seismic Site Class D is equivalent to Seismic Zone 4 and 1 G lateral acceleration for our design calculations.

Site map:

An overhead site map showing the location of all safety features will be posted throughout the fuel cell installation is provided below:

Bloomenergy®

4353 N 1st Street, San Jose, CA 95134
(408) 543-1500

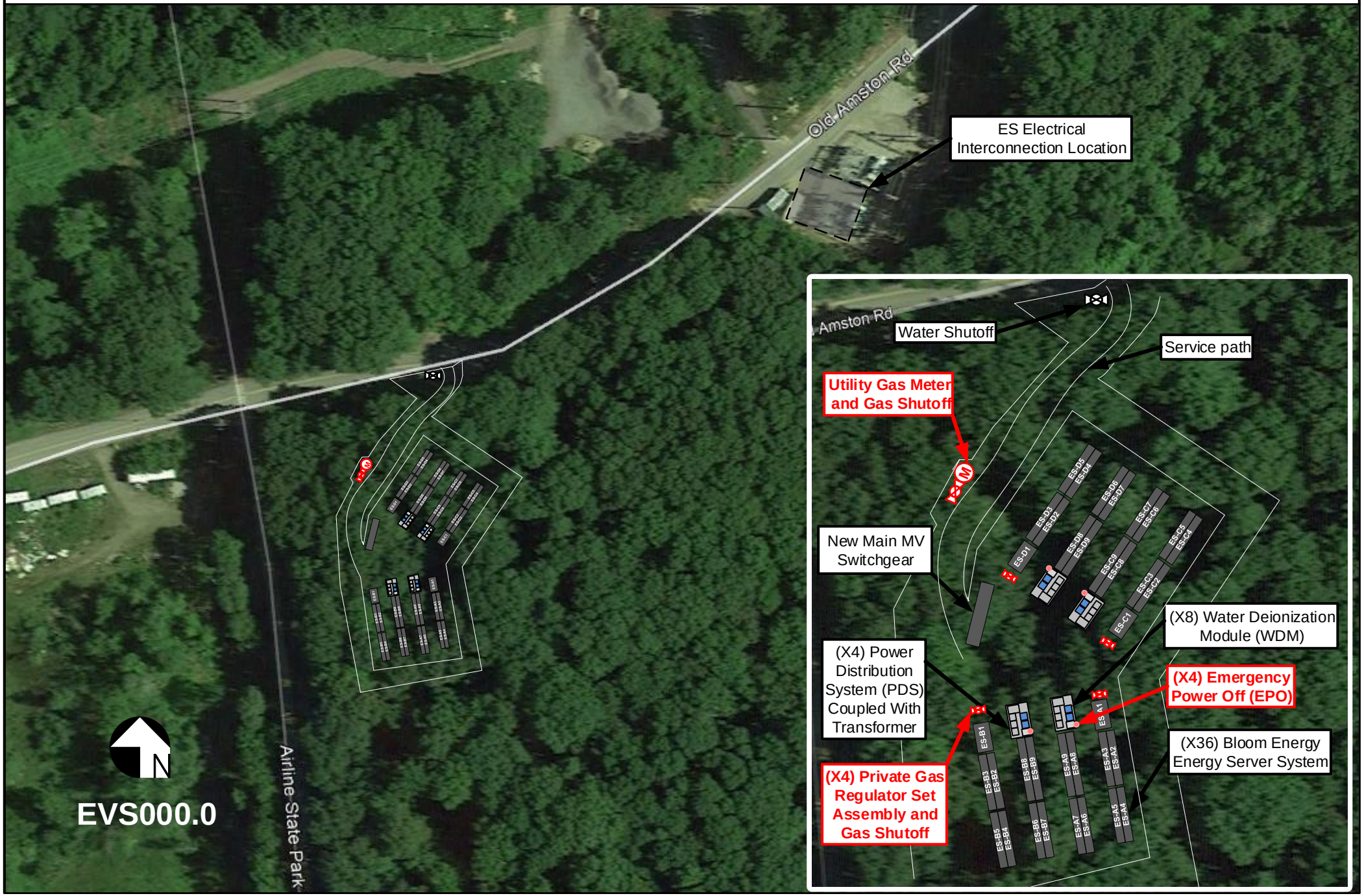
EVERSOURCE

160 Old Amston Road, Colchester, CT 06415
(800) 286-2000

EMERGENCY CALL 911

Fire Department: Colchester Fire Department - (860) 537 - 2512
Gas Utility: Eversource(CT) - (860) 286 - 2000
Electric Utility: Eversource(CT) - (860) 286 - 2000

Bloom Energy Servers are operated and serviced by Qualified Bloom Energy Personnel only. For more information call (408)543-1500.



EMERGENCY NOTIFICATION PLANNING & PROCEDURES

Life-Threatening Emergencies

To report life-threatening emergencies, immediately call:

Fire:	**911**
Ambulance:	**911**
Police:	**911**

Conditions that require automatic emergency notification include:

- Unconscious Victim
- Seizure
- Major Trauma
- Chest Pains
- Difficulty Breathing
- Flames

Non-Life-Threatening Emergencies

For non-life-threatening emergencies, report the incident to the local safety control center.

When you report an emergency, give the following information:

- Exact nature of the emergency (describe as clearly and accurately as possible).
- Exact location (i.e., address, building, floor, area, department, etc.).
- Telephone number from which you are calling.
- Your full name.

FIRE OR SMOKE PROCEDURES

This section describes the procedures involving a fire or smoke. A major fire is one that requires the use of more than one fire extinguisher or takes more than one minute to extinguish.

If you discover a fire or smoke:

1) Activate the nearest fire alarm if not activated already.
2) Activate the fuel cell Emergency Stop if possible.
3) Shut off the fuel cell installation natural gas line if possible.
4) If the fire is small and does not pose an immediate risk to personal safety, you may

attempt to extinguish it with a portable fire extinguisher only if trained to do so.

5) Avoid using water on electrical fires.

6) Report every fire, regardless of size, immediately. Smoke or the smell of smoke should be reported.

   a. From a safe location dial **911**.
   b. Report the incident to the local security safety center.

MEDICAL EMERGENCY PROCEDURES

This section describes the necessary procedures for injuries or illnesses that may occur under extreme conditions.

A serious injury can be life-threatening and will require immediate medical attention. Injuries can include head injuries, spine injuries, broken bones, heart attack, stroke, loss of consciousness, excessive bleeding, chemical exposure, etc.

A non-serious injury is not immediately life-threatening but may still require the attention of a medical doctor. These can include headaches, nausea, itching, cuts, burns, etc.

Life-Threatening Medical Emergency

- Remain calm.
- Immediately dial 911.
- Report the incident to local security safety center.
- Do not move the victim unless it is absolutely necessary.
- Call out for personnel trained in first aid and/or CPR which may include Building Evacuation or Emergency Response team members.
- Ask someone to bring the area first aid kit and Automated External Defibrillator.
- Assist if capable or asked to do so.

Non-Life-Threatening Medical Emergency

- Remain calm.
- Report the incident to the local security safety center.
- Do not move the victim unless it is absolutely necessary.
- Call out for personnel trained in first aid.
- Ask someone to bring the area first aid kit.
- If the victim requires further medical attention, then direct them to the nearest approved

medical clinic or hospital – Contact Security or Human Resources for assistance if needed.

- The injured employee's supervisor/manager is responsible for ensuring injury forms are properly filled out. Complete the forms within 24 hours of incident and submit to the injury reporting system for follow-up. Follow company protocols.

MATERIALS RELEASE PROCEDURES

The fuel cell system does not pose a hazard to health or environment. However, some internal materials when released, may pose a irritation risk to people and a possible risk of fire if not properly handled. This section was designed to address potential material release events:
In case of a material release that poses a direct threat to health, safety, or the environment:

- Report the incident to local safety/security office.
- If extremely life-threatening immediately dial **911** followed with a call to Security.
- Contain the spill.
- Evacuate the area or building if the material release is determined to be life-threatening.

In the event of an unknown indoor smell or odor, report the incident to authorities responsible for HAZMAT and spills.

NATURAL DISASTERS AND SEVERE WEATHER

Earthquake

This section provides information and procedures for earthquake emergencies.

The fuel cell system is designed to automatically shut off if the natural gas supply is compromised.
The natural gas supply line has an external, manual shut-off valve that should be activated if it is safe to do so. This valve will be labeled, "Notice – Fuel Cell Gas Shut Off". The natural gas line will be labeled with the word "gas" on a yellow background with an arrow pointing in the direction of flow.

The nearby Emergency Stop can be activated to stop the flow of fuel and power to/from the fuel cell system.
A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary.

Flood

The fuel cell system support pad is designed to divert water flow. However, if flooding conditions exist, or threaten to exist due to heavy rainfall, creek bank overflows, or pipe breakage, then immediately report the incident to the local safety/security office.

Do not use the fuel cell power system if any part has been under water. If it is safe to reach the Emergency Power Off button for the site without entering the water, stop all systems until a Bloom Energy representative can assess the site.
Precautions to follow after a flood:

- Stay out of flooded areas. Flooded areas remain unsafe. Entering a flooded area places you at risk.
- Notify Bloom Energy. A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary

UTILITY OUTAGE

The fuel cell system is operated in "Grid-Parallel" mode. If utility provided power is lost for any reason, the fuel cell system will go "off-line". The fuel cell system will remain in stand- by mode until it automatically senses the utility grid has been restored. If utility gas is shut down, the fuel cell system will begin to shut down completely.

The Bloom Energy Remote Monitoring Control Centers monitor the fuel cells 24 hours per day and will be alerted to utility grid interruptions via its controls software. A Field Service Engineer will be dispatched to restart the fuel cell system if necessary.
Customer personnel should NOT attempt to start up or operate the fuel cell system.

Before a Planned Outage

1. Notify the Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 at least 24 hours before planned outage.
2. Bloom Energy Remote Monitoring Engineers will reduce power generated by the fuel cell system and take the fuel cell off-line.
3. Abrupt fuel cell system shutdowns may cause significant system damage.

During a Utility Power Loss

1. The fuel cell system will automatically go off-line.
2. The Bloom Energy Remote Monitoring Control Centers will monitor the fuel cell system.
3. Bloom Energy Field Service will be dispatched to start up the fuel cell system as necessary.
4. If the fuel cell system has been automatically shut down and utility power is restored,

there will be no impact to building power delivery: primary power will come from the utility rather than the fuel cells.

Good Housekeeping

Although extremely unlikely, to minimize the risk of fire and any incidents, Facility Managers should take the following precautions around the fuel cell installation:

- What to do if you smell gas:
  - Do not try to light any appliance
  - Do not touch any electrical switch; do not use any phone in the area
  - Leave the area immediately
  - Immediately call your gas supplier. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department
- Notify Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 of any condition that would impair the safety of the fuel cell installation so that mitigation measures could be determined and placed into effect.
- Prohibit smoking within the area of the fuel cell installation. Bloom Energy will furnish No Smoking signs for the area.
- Ensure only Bloom Energy Service Providers are permitted access inside the system.
- Keep the area around the fuel cell installation clear for ten feet in all directions, for safety and ease of maintenance.
- Keep the area around the fuel cell power system clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
- Shut the system down and call Bloom Energy immediately if you suspect a fuel line rupture.
- **Never enclose an operating system** in a tarp, tent, shed, or other structure that would allow air to become trapped. This system runs on natural gas, and produces trace amounts of CO and CO2. The amounts of these gases are safe for normal outdoor operation but could gather in an enclosed place.
- Do not block or obstruct air openings on the fuel cell power system. This system requires air flow in order to operate.
- Do not use this fuel cell power system if any part has been under water. Immediately call qualified service personnel to inspect the fuel cell power system and to replace any functional part which has been under water.
- Please contact Bloom Energy at 408-543-1678 with as much advance notice as possible if you plan, detect, or suspect a prolonged Internet outage.
- The Bloom Energy Field Service team will periodically clean the equipment; do not spray

with pressurized hoses.

Maintenance

Your site has specific Field Service personnel assigned to it for both routine maintenance and troubleshooting. Your site project manager will introduce you to the designated Bloom Energy Field Service team assigned to your site prior to operation.

Bloom Energy Field Service personnel are trained in state Safety Law. They are trained in all the procedures required for the fuel cell installation, and their toolkit includes all the safety equipment required to work around the fuel components and high voltage in our system (480VAC).

Bloom Energy also requires its employees to follow all necessary safety precautions, including:

- Every time a Field Service technician arrives at a site for the first time and opens a service panel, the technician will use a leak detector to determine whether there is any gas buildup in the system and determine that it is safe to work on it.
- Whenever a Field Service technician is removing and replacing a component on a fuel or exhaust line, the technician must keep a CO detector nearby to make sure that no CO is present in the line even after the system has been shut down.

The Field Service team expects to conduct quarterly and yearly preventative maintenance for certain types of consumable or cleanable components such as replacement of air filters, water filters, and desulfurizer beds. Other maintenance will be performed as required. During such times, inspections for any hazards will be conducted including quarterly fire extinguisher inspection (if applicable).

INCIDENT TRAINING

Refer to above sections: Operating precautions, Emergency response plan, Safety and warning signage, Emergency shut down procedure, for training of first responders. The training should be provided initially and annually thereafter.

Prior to system startup, a Bloom Energy representative upon customer request will provide training on the above information to include the location and operation of safety features as well as actions to take during emergencies. We desire this training to provide lasting value and are more than happy to work with you to customize the experience to suit your needs.