TOWN OF GLASTONBURY
GL-2015-18
Transfer Station Electrical Service Upgrade

ADDENDUM NO. 1
12/18/14

Bid Due Date: 12/23/14 @ 11:00 A.M.

The attention of bidders submitting proposals for the above-referenced project is called to the following Addendum to the specifications. The items set forth herein, whether of omission, addition, substitution or other change, are all to be included in and form a part of the proposed Contract Documents for the work. Bidders shall acknowledge this Addendum in the Bid Proposal by inserting its number on Page BP-1.

Question 1: ***Who will provide temporary power?***

Answer: Temporary power for the entire site is the responsibility of the bidder.

REVISED SPECIFICATION AND DRAWING ATTACHED:

- **Replace:** Specification Section 16400 with the attached **REVISED** Section 16400 in its entirety.
- **Replace:** Drawing E-1 with the attached **REVISED** Drawing E-1

Note: This addendum consists of 5 pages including the above text and 1 revised drawing (see attached)

END OF TEXT

REVISED SECTION 16400 – SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements. Apply to the work specified in this Section.

B. The General Requirements in Section 16000 shall also govern the work under this Section.

C. Examine all drawings, data, and coordinate the work of this Section with all related and adjoining work.

1.2 DESCRIPTION OF WORK

A. Includes but is not limited to:

1. Underground secondary service conduits and cables.
2. Grounding.
3. Feeder distribution.
4. Main service disconnect.
5. Panelboards.
6. Encapsulated transformer
7. Generator connection cabinet (GCC).
8. Mini-power center
9. Double throw switch.
10. Free standing disconnect enclosure.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Refer to Section 16000.

B. Northeast Utilities construction and installation standards.

1.4 SUBMITTALS

A. Shop Drawings: Submit for all items listed in paragraph 1.2, Description of Work.

PART 2 - PRODUCTS

2.1 SECONDARY ELECTRICAL SERVICE

A. Secondary electrical service will be 200 amp, 3 phase, 4 wire, 480Y/277 volts.

B. Furnish and install secondary underground service conduit in accordance with Utility Company requirements. Secondary service conductors up to the main service disconnect furnished and installed by the Utility Company.

C. Secondary service conduits shall be rigid galvanized steel or rigid schedule 40 PVC.

2.2 GROUNDING

A. Provide #2 AWG copper service ground cable in conduit to grounding rod system.

B. Refer to Section 16060 for equipment, conduit, and panelboard grounding.

2.3 ENCLOSED MAIN DISCONNECT SWITCH (200A.).

A. 200A rated, 3 pole circuit breaker in NEMA 3R enclosure as manufactured by Cutler-Hammer.

2.4 PANELBOARDS

A. Distribution panels shall be furnished in Cutler-Hammer or equal in General Electric or Square D. Specific types for various applications listed in panel schedule.

B. Panelboards shall be equipped with the following features:

1. Bolt-on circuit breakers.
2. Symmetrical interiors.
3. Surface or flush trim as called for in schedule, door-in-door type.
4. Flush key catch lock.
5. Painted finish, ANSI-61 gray.
6. Metal frame/plastic cover index card holder.
7. Separate equipment ground bus.
8. Fast latch trim and jacking screw adjustment.
9. Split neutral.
10. Connection accessible from front.
11. Screw type mechanical lugs.
12. Density rated 1000A/sq. in. copper busses.
13. AL/CU ground bus.
14. Black face/white core engraved nameplate fixed to panel with two screws or rivets.

D. Mini power center shall be as scheduled on the drawings. Proposed equals in General Electric or Square D will be considered only if all aspects of the specification are met.

E. Indexing and Identification: After installations are complete, provide and mount under sturdy transparent shield in the directory frame of each panel door a neat, accurate and carefully typed directory properly identifying the lighting, receptacles, outlets and equipment which each branch circuit breaker controls.

F. All circuit breakers feeding mechanical equipment shall be 'HCAR' rated.

G. All circuit breakers shall be fully rated. Series rated breakers shall not be permitted.

2.5 CIRCUIT BREAKERS

A. All circuit breakers in distribution panels shall be bolt-on type. Circuit breakers in load centers shall be plug-on type.

B. Circuit breakers shall be fully rated. Series ratings are not acceptable.

C. Circuit breakers serving motorized equipment shall be ‘HACR’ rated.

D. 20 Amp, 1-Pole circuit breakers shall be listed by the Manufacturer for use with #12AWG through #8AWG conductor sizes.

PART 3 - EXECUTION

3.1 INSTALLATION OF CONDUITS

A. Contractor, before proceeding with installation of underground conduits, shall ensure that all trenching and excavation is free of rock.

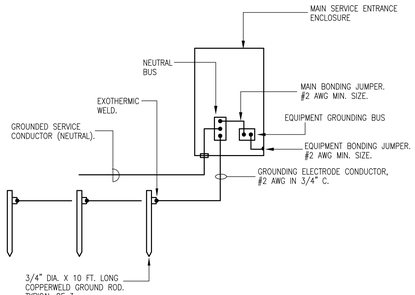
B. Conduits shall be run in a neat and orderly manner, plumb and true.

3.2 PANELBOARDS

A. Mount panel 4'-0" to panel center but with maximum height of 6'-0" to handle of topmost switching device.

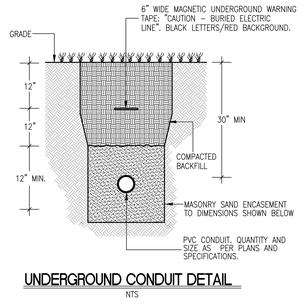
B. Provide double locknuts and insulated throat grounding bushings on each conduit entering panel. Run No. 4 stranded bare copper ground wire through each grounding lug and connect to panel box grounding lug.

END OF SECTION 16400



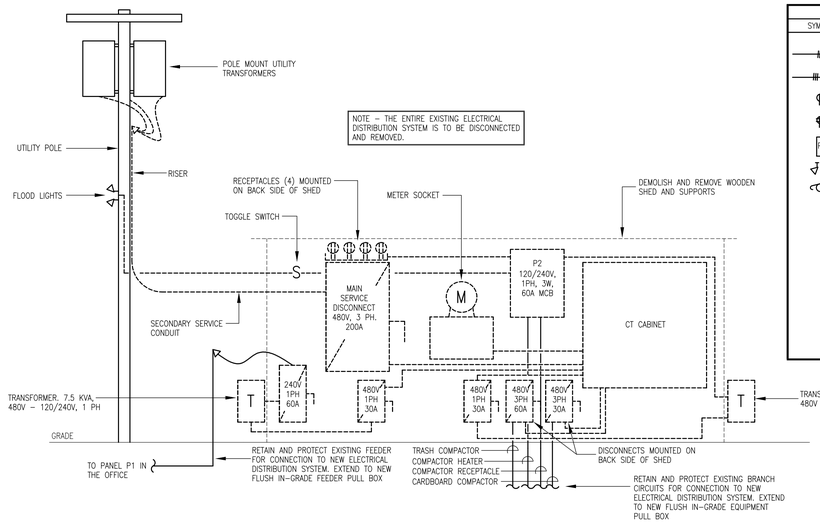
GROUNDING ELECTRODE SYSTEM SCHEMATIC

NTS



UNDERGROUND CONDUIT DETAIL

NTS



EXISTING CONDITIONS POWER RISER DIAGRAM

N.T.S.

DRAWING LEGEND

SYMBOL	DESCRIPTION
###	BRANCH CIRCUIT WIRING. CROSS LINES INDICATE NUMBER OF CONDUCTORS.
###	BRANCH CIRCUIT WIRING HOMERUN. CROSS LINES INDICATE NUMBER OF CONDUCTORS.
	DUPLEX RECEPTACLE, 18" AFF UNLESS NOTED DIFFERENTLY.
	QUADRUPLEX RECEPTACLE, 18" AFF UNLESS NOTED DIFFERENTLY.
PB	PULL BOX
	FLOOD LIGHTS
	UTILITY POLE

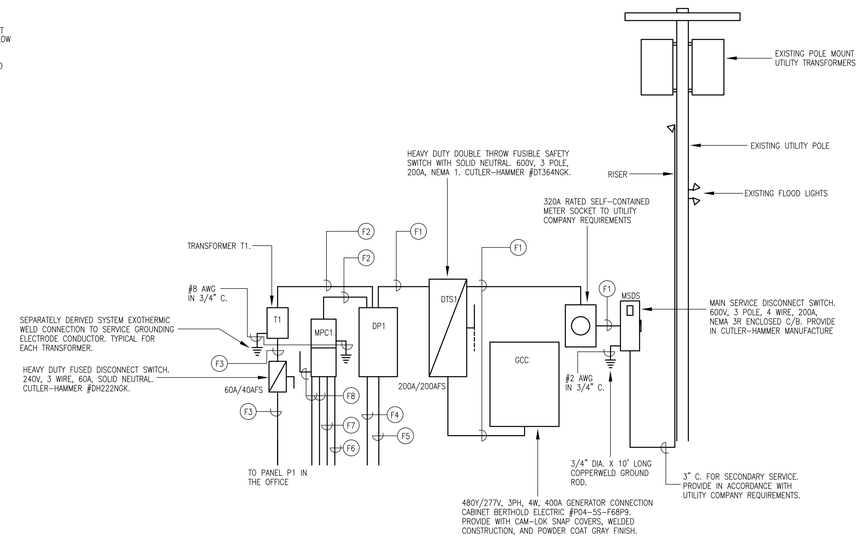
ABBREVIATION	DESCRIPTION
A	AMPS.
AFF	ABOVE FINISHED FLOOR.
C	CONDUIT.
CKT.	CIRCUIT.
C/B	CIRCUIT BREAKER.
ER	EXISTING TO REMAIN.
GEC	GROUNDING ELECTRODE CONDUCTOR.
GFCI	INDICATES RECEPTACLE WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER.
GND	GROUND.
NTS	NOT TO SCALE.
P	POLE.
SWBD	SWITCHBOARD.
V	VOLTS.

GENERAL SPECIFICATION NOTES – POWER

1. THE CONTRACTOR SHALL VERIFY AND OBTAIN ALL NECESSARY DIMENSIONS AT THE BUILDING.
2. FINISHED WORK: THE INTENT OF THE SPECIFICATIONS AND DRAWINGS IS TO CALL FOR FINISHED WORK, COMPLETED, TESTED AND READY FOR OPERATION.
3. GOOD PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHOW EVERY CONDUIT, JUNCTION BOX, FITTING OR MINOR DETAIL AND IT IS UNDERSTOOD THAT WHILE THE DRAWINGS MUST BE FOLLOWED AS CLOSELY AS CIRCUMSTANCES WILL PERMIT, THE SYSTEMS SHALL BE INSTALLED ACCORDING TO THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH GOOD PRACTICE.
4. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
5. CODES AND STANDARDS – COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES AND STANDARDS WHEREVER APPLICABLE INCLUDING THE FOLLOWING: 2009 AMENDMENT TO THE 2005 CONNECTICUT STATE BUILDING CODE SUPPLEMENT, 2003 INTERNATIONAL BUILDING CODE, 2005 CONNECTICUT FIRE SAFETY CODE, 2003 INTERNATIONAL FIRE CODE, 2011 NATIONAL ELECTRICAL CODE, ICC/ANSI A117.1-2003 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, ADA, NFPA, ILLUMINATING ENGINEERING SOCIETY LIGHTING HANDBOOK, UNDERWRITERS LABORATORIES, FACTORY MUTUAL INSURANCE COMPANY, NEMA STANDARDS.
6. NOTE THAT THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL EQUIPMENT AND SYSTEMS, WITHOUT SHOWING EVERY DETAIL AND FITTING.
7. ALL POWER CONDUCTORS SHALL BE COPPER, RATED 600 VOLTS, 90 DEG. C., COLOR CODED, TYPE XHHW-2.
8. MINIMUM SIZE CONDUCTORS FOR POWER AND LIGHTING SHALL BE #12 AWG. PROVIDE MINIMUM #10 AWG SIZE FOR RUNS EXCEEDING 75' IN CONDUCTOR LENGTH, AND #8 AWG SIZE FOR RUNS EXCEEDING 150' IN CONDUCTOR LENGTH. PROVIDE LARGER SIZE CONDUCTORS AS SCHEDULED OR AS NOTED ON THE DRAWINGS.
9. THE NUMBER OF WIRES ON A CONDUIT/CABLE RUN IS INDICATED ON THE DRAWINGS BY CROSS LINES ON THE CONDUIT/CABLE RUNS. PROVIDE CODE-SIZED CONDUIT FOR THE NUMBER AND SIZE OF WIRES UNLESS A LARGER SIZE IS SHOWN ON THE DRAWINGS. MINIMUM CONDUIT SIZE SHALL BE 3/4".
13. CONDUITS SHALL BE SCHEDULE 40 PVC FOR ELECTRICAL SERVICE AND WHERE RUN BELOW GRADE, AND EMT WHERE RUN INSIDE THE SERVICE ENCLOSURE AND WHERE EXPOSED ABOVE GRADE. EMT CONNECTORS AND COUPLINGS SHALL BE GLAND COMPRESSION TYPE.
14. OUTLET BOXES SHALL BE DIE-CAST ALUMINUM.
15. SET BOXES AND COVERS SQUARE AND PLUMB.
16. ALL DEVICES SHALL BE FURNISHED IN HUBBELL OR APPROVED EQUAL IN COOPER, PASS & SEYMOUR, OR LEVITON. DEVICES SPECIFIED HEREIN ARE BASED ON HUBBELL UNLESS OTHERWISE NOTED. RECEPTACLE AND SWITCH COLORS SHALL BE AS DIRECTED BY THE ARCHITECT.

    LIGHTING SWITCHES SHALL BE TOGGLE TYPE, EXTRA HEAVY DUTY INDUSTRIAL GRADE, 20 AMP, 120-277V AC, #HBL1201I FOR SINGLE POLE.

    RECEPTACLES SHALL BE HEAVY DUTY SPECIFICATION GRADE, 2 POLE, 3 WIRE GROUNDING, NEMA 5-20R, RATED 20 AMPS AT 125 VOLTS AC, #HBL5361 FOR SINGLE RECEPTACLES, #HBL5362 FOR DUPLEX RECEPTACLES, TWO (2) #HBL5362 FOR QUADRUPLEX RECEPTACLES, AND #GFR5362SGI FOR DUPLEX GFCI RECEPTACLES.
17. BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS HAS BEEN DESIGNED FOR MAXIMUM ECONOMY CONSISTENT WITH ADEQUATE SIZING FOR VOLTAGE DROPS, CIRCUIT AMPACITIES, AND OTHER CONSIDERATIONS. INSTALL THE WIRING WITH CIRCUITS ARRANGED AS SHOWN ON THE DRAWINGS, EXCEPT AS APPROVED IN ADVANCE BY THE ARCHITECT AND ENGINEER. DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL.
18. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH 120V SINGLE PHASE CIRCUIT. DO NOT USE A COMMON NEUTRAL FOR GROUPS OF CIRCUITS. PROVIDE A SEPARATE GROUND WIRE FOR EACH CIRCUIT BACK TO THE RESPECTIVE PANEL GROUND. IF MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN ONE CONDUIT THEY SHALL BE DE-RATED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. DO NOT INSTALL MORE THAN THREE 30 AMP SINGLE PHASE OR FOUR 20 AMP SINGLE PHASE CIRCUITS IN THE SAME CONDUIT. DO NOT MIX LIGHTING AND POWER CIRCUITS IN THE SAME CONDUIT.



NEW CONDITIONS POWER RISER DIAGRAM

N.T.S.

FEEDER/BRANCH CIRCUIT SCHEDULE – COPPER CONDUCTORS

SYMBOL	FEEDER C/B	FEEDER AMPACITY	FEEDER SIZE	REMARKS
F1	200A	208A	4 X #4/0 XHHW-2 AND 1 X #6 XHHW-2 GND. IN 3" C.	–
F2	30A	50A	2 X #8 XHHW-2 AND 1 X #10 XHHW-2 GND. IN 3/4" C.	–
F3	40A	50A	3 X #8 XHHW-2 AND 1 X #10 XHHW-2 GND. IN 3/4" C.	–
F4	30A	50A	3 X #8 XHHW-2 AND 1 X #10 XHHW-2 GND. IN 3/4" C.	CARDBOARD COMPACTOR BRANCH CIRCUIT.
F5	60A	85A	3 X #4 XHHW-2 AND 1 X #10 XHHW-2 GND. IN 1" C.	TRASH COMPACTOR BRANCH CIRCUIT.
F6	(3) 20A	20A	6 X #12 XHHW-2 AND 3 X #12 XHHW-2 GND. IN 1" C.	2-20A, 1P DEDICATED CKTs. FOR GFCI RECEPTACLES AND 1-20A, 1P DEDICATED CKT. FOR FLOOD LIGHTS.
F7	(2) 20A	20A	4 X #12 XHHW-2 AND 2 X #12 XHHW-2 GND. IN 1" C.	2-20A, 1P DEDICATED CKTs. FOR GFCI RECEPTACLES.
F8	20A	20A	2 X #12 XHHW-2 AND 1 X #12 XHHW-2 GND. IN 3/4" C.	–

TRANSFORMER SCHEDULE

DESIGNATION	CUTLER-HAMMER TRANSFORMERS MODEL #	PRIMARY-SECONDARY VOLTAGE	WINDINGS	KVA	TAPS	TEMP. RISE	SOUND LEVEL	REMARKS
T1	S48D11S07N	480V – 120/240V	COPPER	7.5	2 @ +2.5%	115°C	40dB	

PANEL DP1 – CUTLER-HAMMER TYPE PRL3a, SURFACE, 480Y/277V, 3 PHASE, 4 WIRE, 250A MAIN LUGS, MIN. 22K A.I.C. RATING. (FULLY RATED)

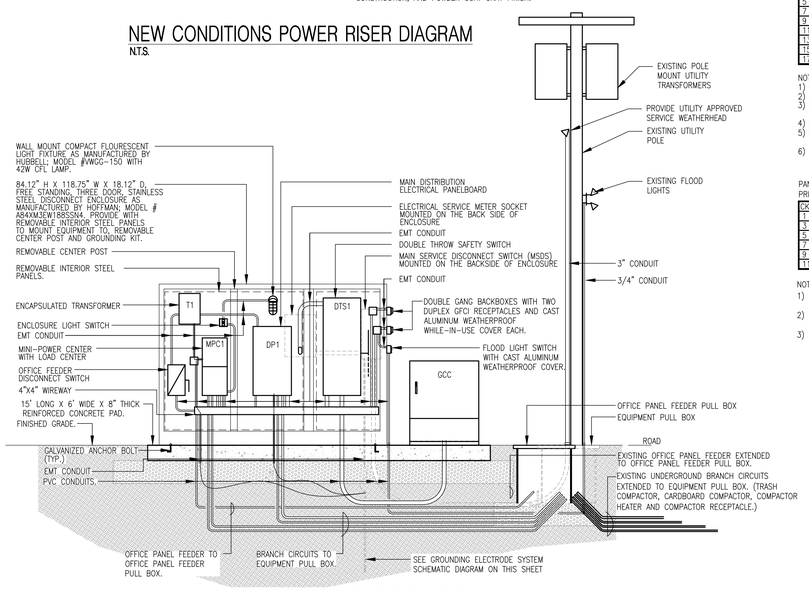
CKT	TRIP	POLE	REMARKS	CKT	TRIP	POLE	REMARKS
1	50	2	T1/PANEL P1	2	30	2	MPC1
3	–	–	–	4	–	–	–
5	30	3	CARDBOARD COMPACT.	6	60	3	TRASH COMPACT.
7	–	–	–	8	–	–	–
9	–	–	–	10	–	–	–
11	20	1	SPARE	12	20	1	SPARE
13	20	1	SPARE	14	20	1	SPARE
15	20	1	SPARE	16	20	1	SPARE
17	20	1	SPARE	18	20	1	SPARE

NOTES:
1) PROVIDE WITH COPPER BUS BARS AND AL/CU GROUND BAR.
2) PROVIDE WITH DOOR-IN-DOOR TRIM.
3) PROVIDE WITH BLACK FACE, WHITE CORE ENGRAVED NAMEPLATE FIXED TO PANEL WITH TWO SCREWS OR RIVETS.
4) PROVIDE WITH PLASTIC COVER CIRCUIT DIRECTORY FRAME.
5) PROVIDE WITH TYPE WRITTEN CIRCUIT DIRECTORY REPRESENTING CIRCUITS AS ACTUALLY CONNECTED TO PANEL.
6) CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.

PANEL MPC1 – CUTLER-HAMMER MINI POWER CENTER, 7.5 KVA, 480V 1PH PRIMARY, 120/240V SECONDARY, 30A PRIMARY C/B, 30A SECONDARY C/B.

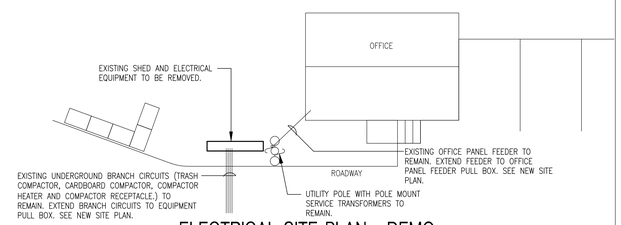
CKT	TRIP	POLE	REMARKS	CKT	TRIP	POLE	REMARKS
1	20	1	RECEPTACLE	2	20	1	RECEPTACLE
3	20	1	RECEPTACLE	4	20	1	RECEPTACLE
5	20	1	LIGHTING	6	20	1	BLOCK HEATER COMPACT
7	20	1	RECEPT. BY COMPACT.	8	20	1	FLOOD LIGHT.
9	20	1	SPARE	10	20	1	SPARE
11	20	1	SPARE	12	20	1	SPARE

NOTES:
1) PROVIDE WITH BLACK FACE, WHITE CORE ENGRAVED NAMEPLATE FIXED TO PANEL WITH TWO SCREWS OR RIVETS.
2) PROVIDE WITH TYPE WRITTEN CIRCUIT DIRECTORY REPRESENTING CIRCUITS AS ACTUALLY CONNECTED TO PANEL.
3) PROVIDE WITH C/B'S AS SCHEDULED.



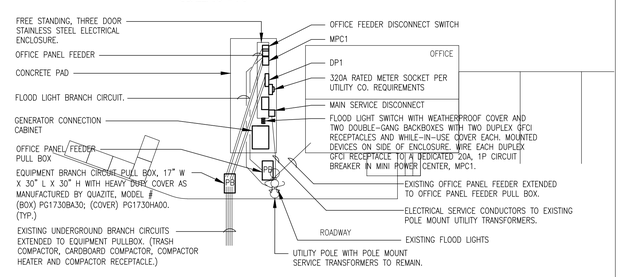
EQUIPMENT LAYOUT ELEVATION

N.T.S.



ELECTRICAL SITE PLAN - DEMO

SCALE: 1/8" = 1'-0"



ELECTRICAL SITE PLAN - NEW

SCALE: 1/8" = 1'-0"

REVISIONS

ADDENDUM #1 – ELECTRIC SERVICE AND DISTRIBUTION REVISIONS.

12/18/14 – ADDENDUM ELECTRIC SERVICE AND DISTRIBUTION REVISIONS.

TRANSFER STATION ELECTRICAL SERVICE UPGRADES

GLASTONBURY, CONNECTICUT

GL-2015-18

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 677-2321
Fax: (860) 321-7070
www.bemisassociates.com

TITLE

ELECTRICAL SITE PLAN, DETAILS, AND SCHEDULES

DATE 12/12/2014

DWG. NO.

E-1