AUTOMATIC TRANSFER SWITCH

REPLACEMENT FOR

SOMERS HIGH SCHOOL

SOMERS, CT

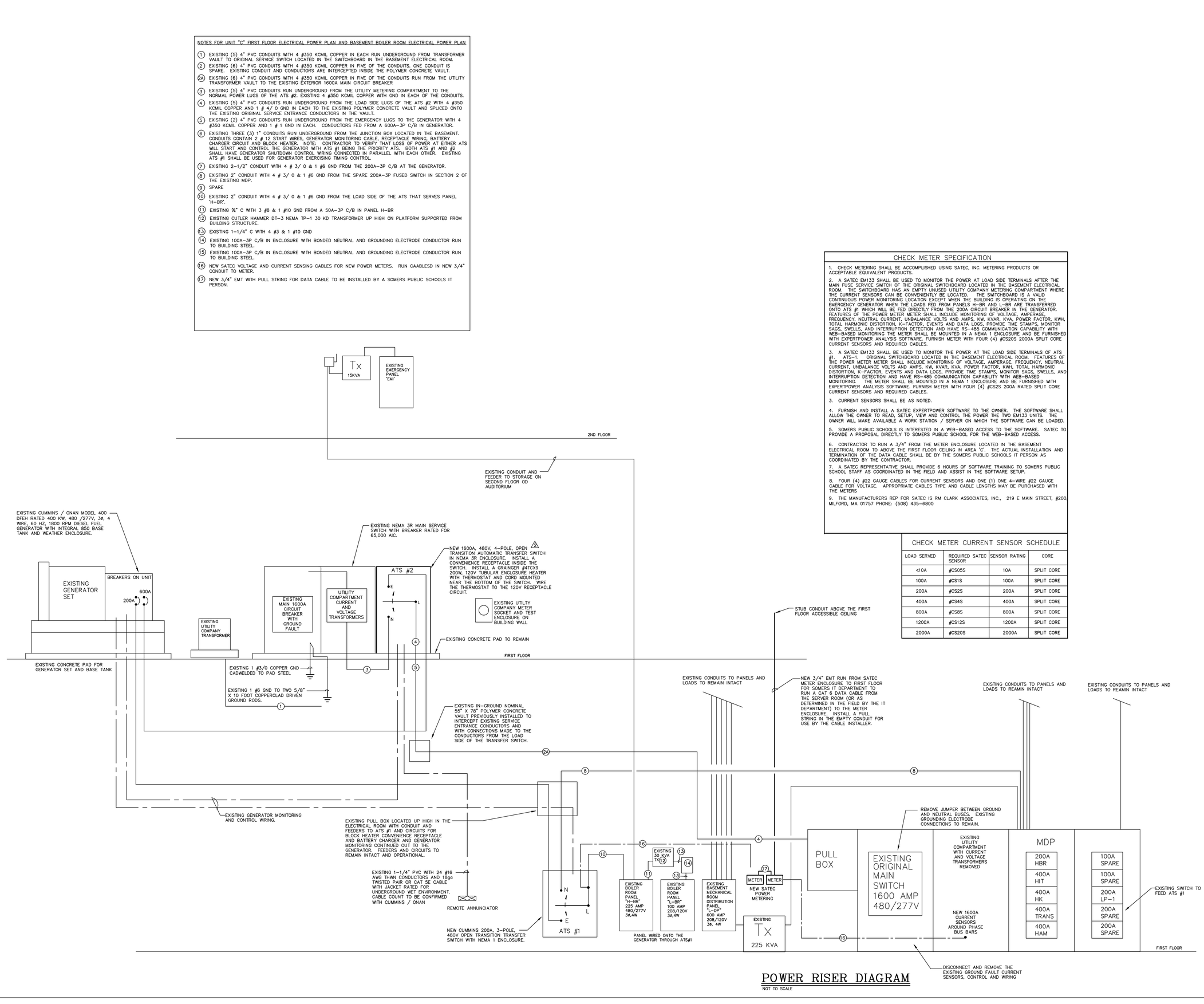
SEPTEMBER 1, 2023

FACILITY SERVICES & ENGINEERING, INC.

42 RIDGEBROOK DRIVE
COVENTRY, CT
(860) 742-4170

NOTES FOR UNIT "C" FIRST FLOOR ELECTRICAL POWER PLAN AND BASEMENT BOILER ROOM ELECTRICAL POWER PLAN

1. EXISTING (5) 4" PVC CONDUITS WITH 4 #350 KCMIL COPPER IN EACH RUN UNDERGROUND FROM TRANSFORMER VAULT TO ORIGINAL SERVICE SWITCH LOCATED IN THE SWITCHBOARD IN THE BASEMENT ELECTRICAL ROOM.
2. EXISTING (6) 4" PVC CONDUITS WITH 4 #350 KCMIL COPPER IN FIVE OF THE CONDUITS. ONE CONDUIT IS SPARE. EXISTING CONDUIT AND CONDUCTORS ARE INTERCEPTED INSIDE THE POLYMER CONCRETE VAULT.
2A. EXISTING (6) 4" PVC CONDUITS WITH 4 #350 KCMIL COPPER IN FIVE OF THE CONDUITS RUN FROM THE UTILITY TRANSFORMER VAULT TO THE EXISTING EXTERIOR 1600A MAIN CIRCUIT BREAKER
3. EXISTING (5) 4" PVC CONDUITS RUN UNDERGROUND FROM THE UTILITY METERING COMPARTMENT TO THE NORMAL POWER LUGS OF THE ATS #2. EXISTING 4 #350 KCMIL COPPER WITH GND IN EACH OF THE CONDUITS.
4. EXISTING (5) 4" PVC CONDUITS RUN UNDERGROUND FROM THE LOAD SIDE LUGS OF THE ATS #2 WITH 4 #350 KCMIL COPPER AND 1 # 4/ 0 GND IN EACH TO THE EXISTING POLYMER CONCRETE VAULT AND SPLICED ONTO THE EXISTING ORIGINAL SERVICE ENTRANCE CONDUCTORS IN THE VAULT.
5. EXISTING (2) 4" PVC CONDUITS RUN UNDERGROUND FROM THE EMERGENCY LUGS TO THE GENERATOR WITH 4 #350 KCMIL COPPER AND 1 # 1 GND IN EACH. CONDUCTORS FED FROM A 600A–3P C/B IN GENERATOR.
6. EXISTING THREE (3) 1" CONDUITS RUN UNDERGROUND FROM THE JUNCTION BOX LOCATED IN THE BASEMENT. CONDUITS CONTAIN 2 # 12 START WIRES, GENERATOR MONITORING CABLE, RECEPTACLE WIRING, BATTERY CHARGER CIRCUIT AND BLOCK HEATER. NOTE: CONTRACTOR TO VERIFY THAT LOSS OF POWER AT EITHER ATS WILL START AND CONTROL THE GENERATOR WITH ATS #1 BEING THE PRIORITY ATS. BOTH ATS #1 AND #2 SHALL HAVE GENERATOR SHUTDOWN CONTROL WIRING CONNECTED IN PARALLEL WITH EACH OTHER. EXISTING ATS #1 SHALL BE USED FOR GENERATOR EXERCISING TIMING CONTROL.
7. EXISTING 2–1/2" CONDUIT WITH 4 # 3/ 0 & 1 #6 GND FROM THE 200A–3P C/B AT THE GENERATOR.
8. EXISTING 2" CONDUIT WITH 4 # 3/ 0 & 1 #6 GND FROM THE SPARE 200A–3P FUSED SWITCH IN SECTION 2 OF THE EXISTING MDP.
9. SPARE
10. EXISTING 2" CONDUIT WITH 4 # 3/ 0 & 1 #6 GND FROM THE LOAD SIDE OF THE ATS THAT SERVES PANEL 'H–BR'.
11. EXISTING ¾" C WITH 3 #8 & 1 #10 GND FROM A 50A–3P C/B IN PANEL H–BR
12. EXISTING CUTLER HAMMER DT–3 NEMA TP–1 30 KD TRANSFORMER UP HIGH ON PLATFORM SUPPORTED FROM BUILDING STRUCTURE.
13. EXISTING 1–1/4" C WITH 4 #3 & 1 #10 GND
14. EXISTING 100A–3P C/B IN ENCLOSURE WITH BONDED NEUTRAL AND GROUNDING ELECTRODE CONDUCTOR RUN TO BUILDING STEEL.
15. EXISTING 100A–3P C/B IN ENCLOSURE WITH BONDED NEUTRAL AND GROUNDING ELECTRODE CONDUCTOR RUN TO BUILDING STEEL.
16. NEW SATEC VOLTAGE AND CURRENT SENSING CABLES FOR NEW POWER METERS. RUN CAABLESD IN NEW 3/4" CONDUIT TO METER.
17. NEW 3/4" EMT WITH PULL STRING FOR DATA CABLE TO BE INSTALLED BY A SOMERS PUBLIC SCHOOLS IT PERSON.



POWER RISER DIAGRAM

NOT TO SCALE

CHECK METER SPECIFICATION

1. CHECK METERING SHALL BE ACCOMPLISHED USING SATEC, INC. METERING PRODUCTS OR ACCEPTABLE EQUIVALENT PRODUCTS.
2. A SATEC EM133 SHALL BE USED TO MONITOR THE POWER AT LOAD SIDE TERMINALS AFTER THE MAIN FUSE SERVICE SWITCH OF THE ORIGINAL SWITCHBOARD LOCATED IN THE BASEMENT ELECTRICAL ROOM. THE SWITCHBOARD HAS AN EMPTY UNUSED UTILITY COMPANY METERING COMPARTMENT WHERE THE CURRENT SENSORS CAN BE CONVENIENTLY BE LOCATED. THE SWITCHBOARD IS A VALID CONTINUOUS POWER MONITORING LOCATION EXCEPT WHEN THE BUILDING IS OPERATING ON THE EMERGENCY GENERATOR WHEN THE LOADS FED FROM PANELS H–BR AND L–BR ARE TRANSFERRED ONTO ATS #1 WHICH WILL BE FED DIRECTLY FROM THE 200A CIRCUIT BREAKER IN THE GENERATOR. FEATURES OF THE POWER METER METER SHALL INCLUDE MONITORING OF VOLTAGE, AMPERAGE, FREQUENCY, NEUTRAL CURRENT, UNBALANCE VOLTS AND AMPS, KW, KVAR, KVA, POWER FACTOR, KWH, TOTAL HARMONIC DISTORTION, K–FACTOR, EVENTS AND DATA LOGS, PROVIDE TIME STAMPS, MONITOR SAGS, SWELLS, AND INTERRUPTION DETECTION AND HAVE RS–485 COMMUNICATION CAPABILITY WITH WEB–BASED MONITORING THE METER SHALL BE MOUNTED IN A NEMA 1 ENCLOSURE AND BE FURNISHED WITH EXPERTPOWER ANALYSIS SOFTWARE. FURNISH METER WITH FOUR (4) #CS2OS 2000A SPLIT CORE CURRENT SENSORS AND REQUIRED CABLES.
3. A SATEC EM133 SHALL BE USED TO MONITOR THE POWER AT THE LOAD SIDE TERMINALS OF ATS #1. ATS–1. ORIGINAL SWITCHBOARD LOCATED IN THE BASEMENT ELECTRICAL ROOM. FEATURES OF THE POWER METER METER SHALL INCLUDE MONITORING OF VOLTAGE, AMPERAGE, FREQUENCY, NEUTRAL CURRENT, UNBALANCE VOLTS AND AMPS, KW, KVAR, KVA, POWER FACTOR, KWH, TOTAL HARMONIC DISTORTION, K–FACTOR, EVENTS AND DATA LOGS, PROVIDE TIME STAMPS, MONITOR SAGS, SWELLS, AND INTERRUPTION DETECTION AND HAVE RS–485 COMMUNICATION CAPABILITY WITH WEB–BASED MONITORING. THE METER SHALL BE MOUNTED IN A NEMA 1 ENCLOSURE AND BE FURNISHED WITH EXPERTPOWER ANALYSIS SOFTWARE. FURNISH METER WITH FOUR (4) #CS2S 200A RATED SPLIT CORE CURRENT SENSORS AND REQUIRED CABLES.
3. CURRENT SENSORS SHALL BE AS NOTED.
4. FURNISH AND INSTALL A SATEC EXPERTPOWER SOFTWARE TO THE OWNER. THE SOFTWARE SHALL ALLOW THE OWNER TO READ, SETUP, VIEW AND CONTROL THE POWER THE TWO EM133 UNITS. THE OWNER WILL MAKE AVAILABLE A WORK STATION / SERVER ON WHICH THE SOFTWARE CAN BE LOADED.
5. SOMERS PUBLIC SCHOOLS IS INTERESTED IN A WEB–BASED ACCESS TO THE SOFTWARE. SATEC TO PROVIDE A PROPOSAL DIRECTLY TO SOMERS PUBLIC SCHOOL FOR THE WEB–BASED ACCESS.
6. CONTRACTOR TO RUN A 3/4" FROM THE METER ENCLOSURE LOCATED IN THE BASEMENT ELECTRICAL ROOM TO ABOVE THE FIRST FLOOR CEILING IN AREA 'C'. THE ACTUAL INSTALLATION AND TERMINATION OF THE DATA CABLE SHALL BE BY THE SOMERS PUBLIC SCHOOLS IT PERSON AS COORDINATED BY THE CONTRACTOR.
7. A SATEC REPRESENTATIVE SHALL PROVIDE 6 HOURS OF SOFTWARE TRAINING TO SOMERS PUBLIC SCHOOL STAFF AS COORDINATED IN THE FIELD AND ASSIST IN THE SOFTWARE SETUP.
8. FOUR (4) #22 GAUGE CABLES FOR CURRENT SENSORS AND ONE (1) ONE 4–WIRE #22 GAUGE CABLE FOR VOLTAGE. APPROPRIATE CABLES TYPE AND CABLE LENGTHS MAY BE PURCHASED WITH THE METERS
9. THE MANUFACTURERS REP FOR SATEC IS RM CLARK ASSOCIATES, INC., 219 E MAIN STREET, #200, MILFORD, MA 01757 PHONE: (508) 435–6800

CHECK METER CURRENT SENSOR SCHEDULE

LOAD SERVED	REQUIRED SATEC SENSOR	SENSOR RATING	CORE
<10A	#CS05S	10A	SPLIT CORE
100A	#CS1S	100A	SPLIT CORE
200A	#CS2S	200A	SPLIT CORE
400A	#CS4S	400A	SPLIT CORE
800A	#CS8S	800A	SPLIT CORE
1200A	#CS12S	1200A	SPLIT CORE
2000A	#CS20S	2000A	SPLIT CORE

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AUTOMATIC TRANSFER SWITCH REPLACEMENT FOR SOMERS HIGH SCHOOL

NINTH DISTRICT ROAD
SOMERS, CT

Title:

ELECTRICAL RISER DIAGRAM

Project Number: SOMERS HIGH SCHOOL ATS
Issue Date:
Scale: AS NOTED
CAD File:
Drown By: JSS
Checked By: JSS

Revisions:

1	9/1/23	ISSUED FOR BIDDING
2	9/3/23	GENERAL REVISIONS

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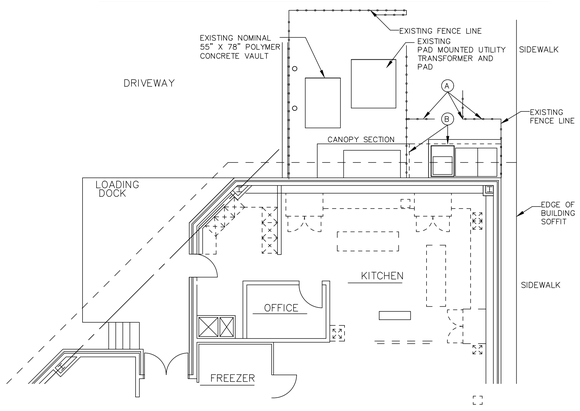
NOTES FOR GENERAL TRADES PART PLAN

(A) SECTION OF CHAIN LINK FENCE AND TO BE REMOVED TO FACILITATE READY ACCESS TO THE TRANSFER SWITCH LOCATION AND TO ALLOW FOR EASE REMOVAL OF THE EXISTING SWITCH AND INSTALLATION OF THE NEW SWITCH.

(B) SECTION OF OVERHEAD CANOPY TO BE REMOVED TO FACILITATE THE REMOVAL OF THE EXISTING TRANSFER SWITCH AND THE INSTALLATION OF THE NEW SWITCH. THE SERVICES OF THE ORIGINAL CANOPY INSTALLER, MANCHESTER AWNING, SHALL BE USED FOR THE CANOPY REMOVAL AND THE REINSTALLATION WHEN THE NEW SWITCH IS INSTALLED. SEE ADDITIONAL INFORMATION NOTED IN THE SPECIFICATIONS.

(C) SPARE



GENERAL TRADES PART PLAN

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

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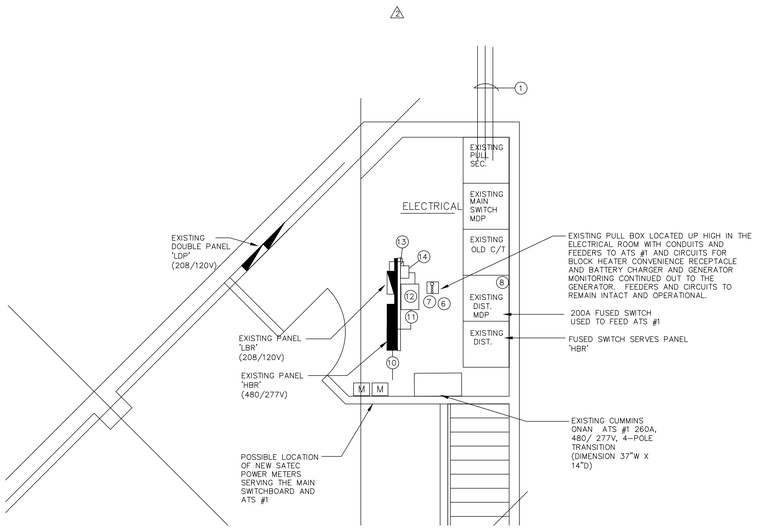
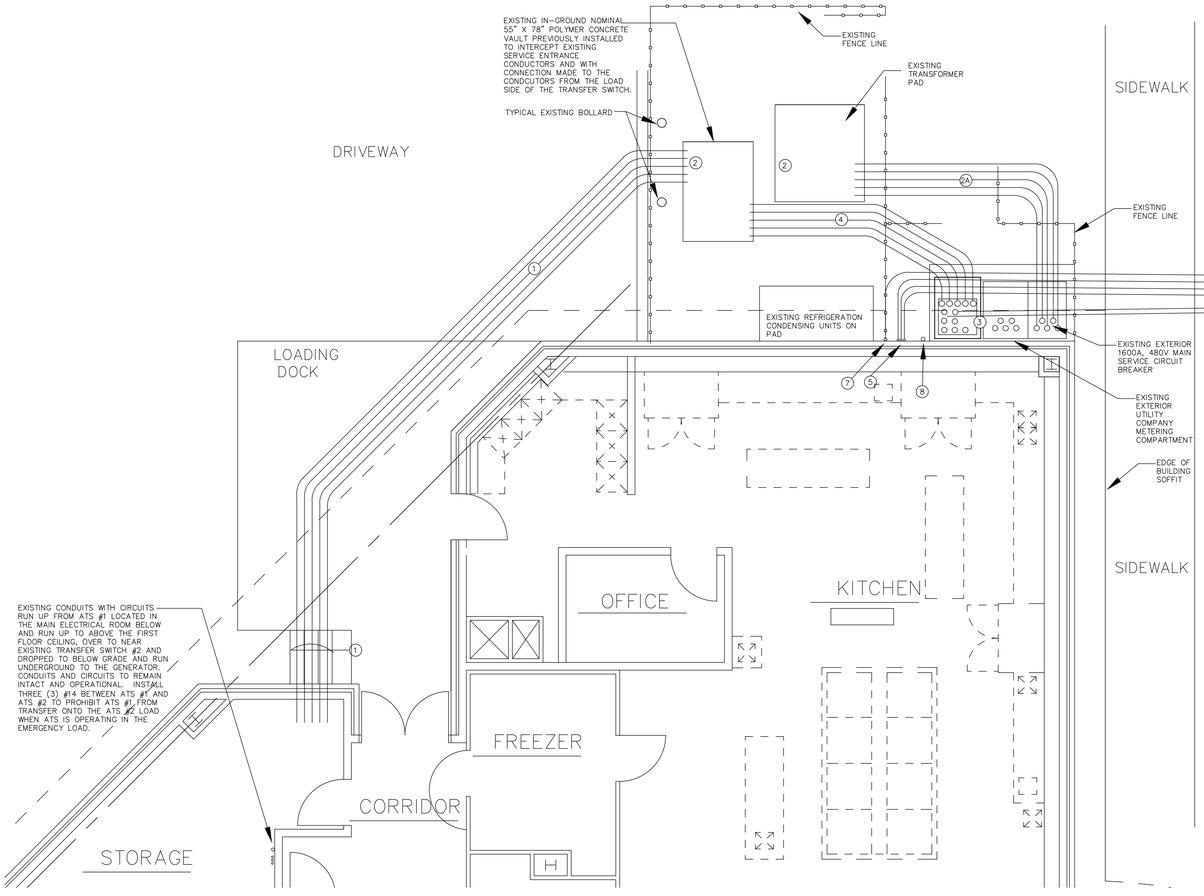
13. EXISTING 1–1/4" C WITH 4 #3 7 1 # 10 GND
14. EXSTING 100A–3P C/B IN ENCLOSURE. BOND NEUTRAL AND GROUNDING ELECTRODE CONDUCTOR FOR SEPARATELY DERIVED SYSTEM. RUN A #6 GROUNDING ELECTRODE CONDUCTOR TO BUILDING STEEL.
15. SPARE
16. EXISTING VERTICAL OIL TANK VENT PIPE CAN BE REMOVED. A NEW FUEL OIL TANK WILL BE SURFACE MOUNTED AND VENT PIPE BECOMES OBSOLETE AS PART OF ANOTHER PROJECT.



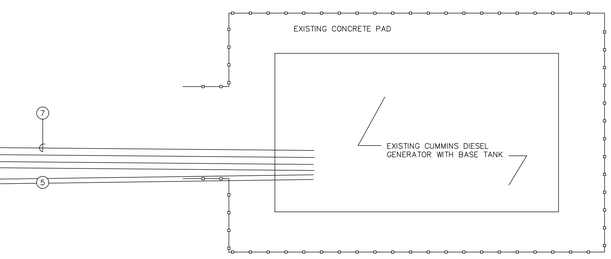
BASEMENT BOILER ROOM ELECTRICAL POWER PLAN

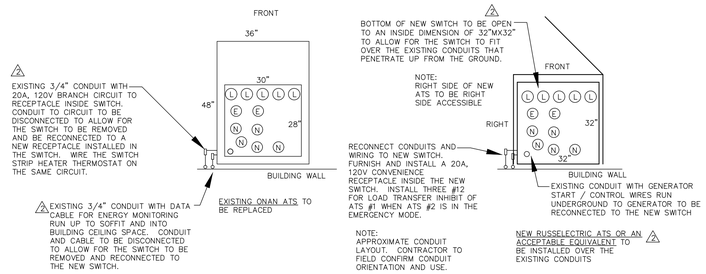
SCALE: 1/4"=1'-0"



PARTIAL UNIT "C" FIRST FLOOR ELECTRICAL POWER PLAN

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





EXISTING ATS #2 SLAB CONDUIT LAYOUT

SCALE: 1/2"=1'-0"

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Title:

ELECTRICAL SITE AND ROOM PART PLANS

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