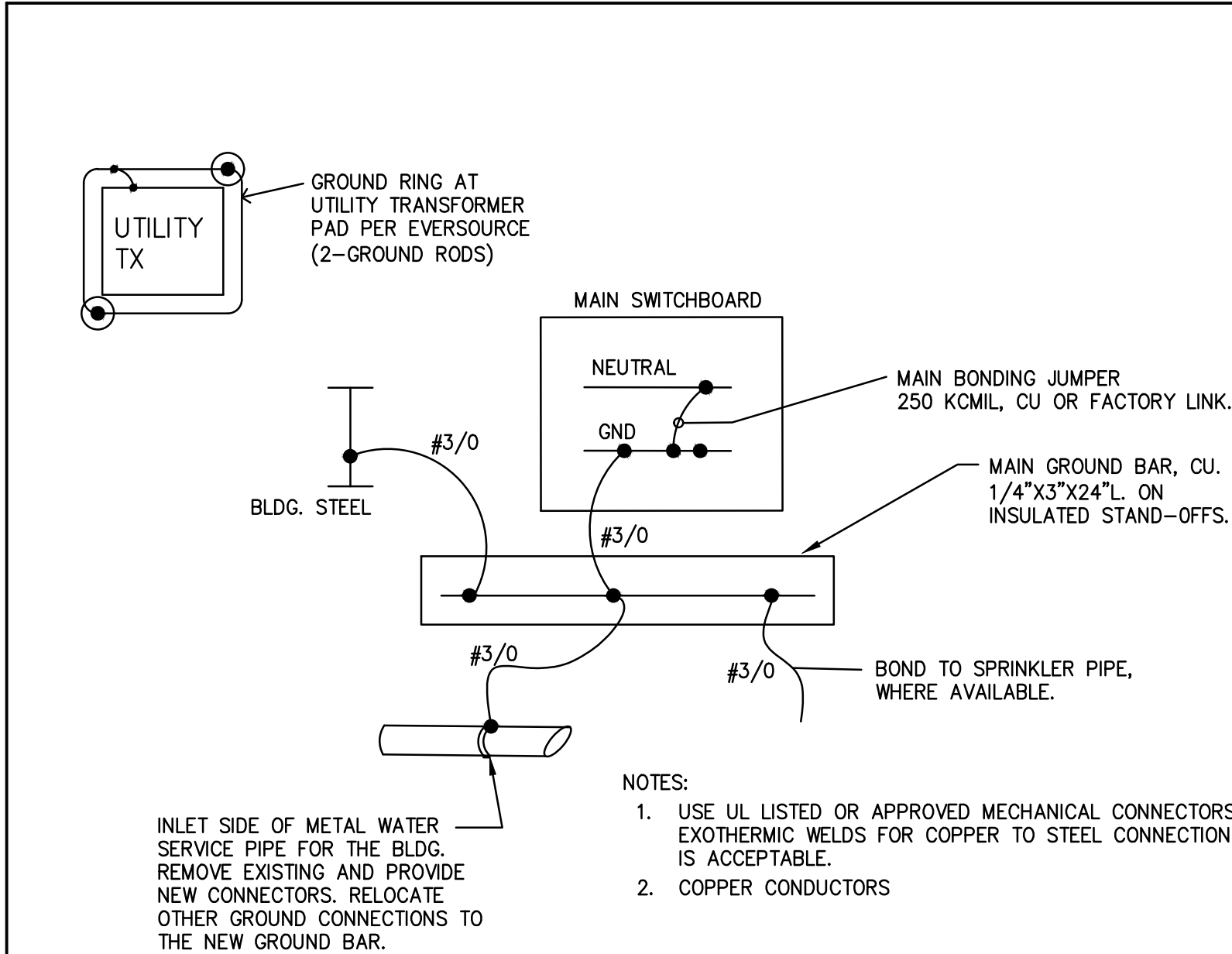
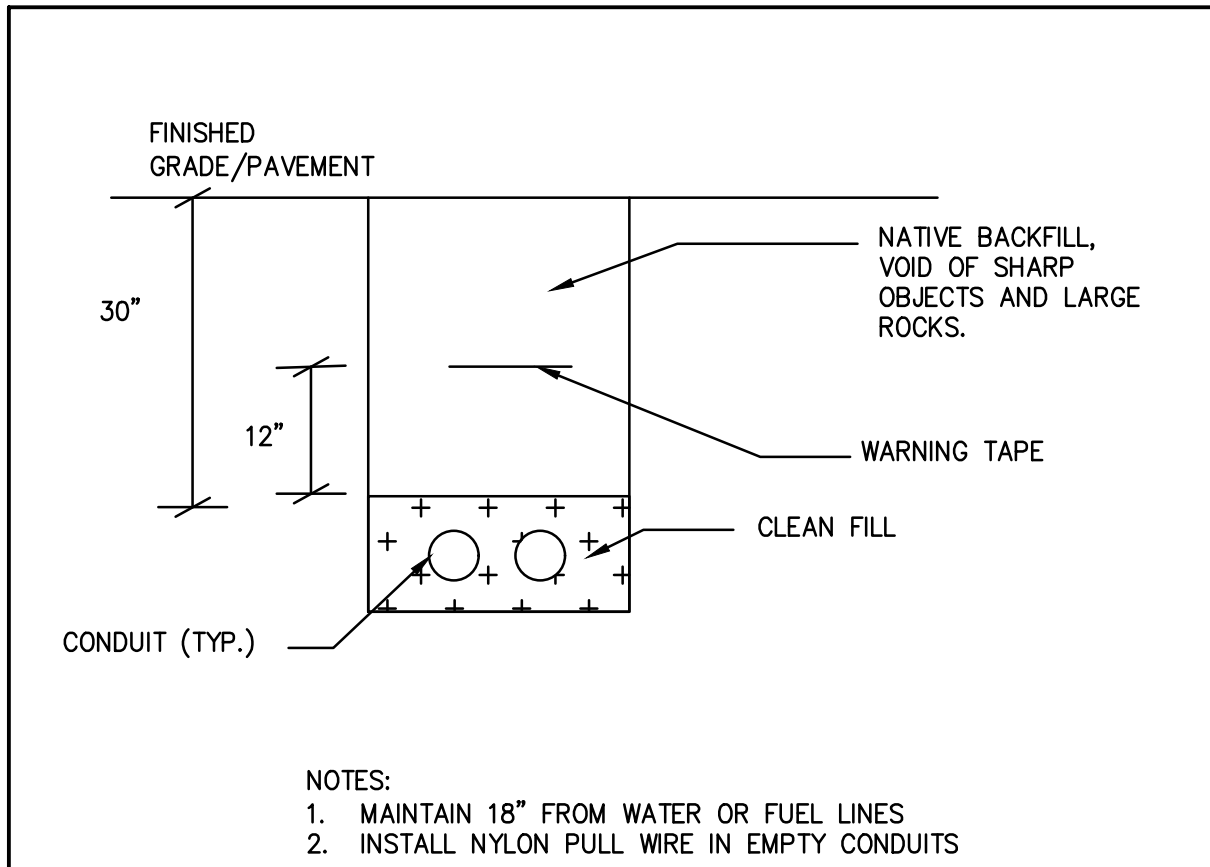


BASIC ELECTRICAL REQUIREMENTS

- A. ELECTRICAL WORK SHALL WITH NEC 2020 WITH APPLICABLE STATE OF CONNECTICUT SUPPLEMENTS AND AMENDMENTS. COMPLY WITH APPLICABLE 2022 STATE OF CONNECTICUT BUILDING AND FIRE CODES AND LOCAL REGULATIONS, AS WELL AS OWNER'S REQUIREMENTS.
- B. COMPLY WITH OSHA FOR WORK PLACE SAFETY DURING CONSTRUCTION.
- C. COORDINATE ALL WORK WITH CONSTRUCTION MANAGER, THE OWNER AND AND EVERSOURCE.
- D. PROVIDE ALL MATERIAL AND LABOR TO COMPLETE THE WORK AS SPECIFIED AND INTENDED. THIS INCLUDES SPECIFIED EQUIPMENT AND WIRING AS WELL AS CONSTRUCTION HARDWARE AND ACCESSORIES REQUIRED FOR PROPER INSTALLATION, WHETHER OR NOT SPECIFICALLY SPECIFIED.
- E. NEW MATERIAL, EQUIPMENT AND ASSEMBLIES SHALL BE NEW AND UL LISTED OR APPROVED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND AHJ FOR INTENDED USE.
- F. BE RESPONSIBLE FOR ALL WORK RELATED TO THE NEW WORK, INCLUDING, BUT NOT LIMITED TO, PURCHASING, TRANSPORTATION, HANDLING, STORAGE, INSTALLATION, TESTING AND REQUIRED FIELD INVESTIGATION OF EXISTING CONDITIONS, ETC.
- G. SUBMIT PRODUCT DATA AND DETAILED SHOP DRAWINGS FOR NEW PRODUCTS AND THEIR COMPONENTS FOR REVIEW AND APPROVAL BY THE ENGINEER AND OWNER, PRIOR TO ORDERING. SUBMITTAL SHALL BE IN ELECTRONIC PDF FORMAT, UNLESS REQUESTED OTHERWISE.
- H. ITEMS FOR WHICH SUBMITTALS ARE REQUIRED INCLUDE, BUT NOT LIMITED TO, UPS SYSTEMS, SWITCHBOARDS, PANELBOARDS, BREAKERS, FUSES, RELAYS, RACEWAYS, CONDUCTORS AND CABLES, ENCLOSURES, LARGE JUNCTION, PULL BOXES, ETC. AS APPLICABLE.
- I. INSTALL WORK IN A PROFESSIONAL WORKMANLIKE MANNER.
- J. DO NOT SCALE PLANS.
- K. COORDINATE AND VERIFY EXACT LOCATIONS, DIMENSIONS AND CLEARANCES IN FIELD.
- L. MINIMIZE POWER SHUT DOWNS. SCHEDULE ANY POWER SHUT DOWN IN CLOSE COORDINATION WITH THE OWNER AND EVERSOURCE.
- M. EXCAVATION: EXCAVATE WITH CARE SO AS NOT TO DAMAGE EXISTING UNDERGROUND UTILITIES. COORDINATE NEW WORK TO AVOID CONFLICT WITH EXISTING UNDERGROUND UTILITIES.
- M.1. SCAN GROUND AS REQUIRED TO LOCATED EXISTING UNDERGROUND UTILITIES.
- M.2. PROVIDE SERVICES OF CALL-BEFORE-YOU-DIG OR SIMILAR AGENCY BEFORE EXCAVATION.
- M.3. REPAIR DISTURBED SURFACES, PAVED OR OTHERWISE, TO MATCH ADJACENT FINISH AND CONSTRUCTION. THIS INCLUDES BUT NOT LIMITED TO, GRASS, ASPHALT AND SIDEWALKS.
- N. DISPOSE OFF REFUSE AND REMOVED MATERIAL OFF SITE, IN ACCORDANCE WITH LAW.
- O. RESTORE SERVICES OR ITEMS DISRUPTED BY THE PROJECT WORK.
- P. PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR FOR EACH NEW CIRCUIT.
- Q. EXCEPT AS NOTED OTHERWISE, PROVIDE COPPER CONDUCTORS.
- R. COLOR CODE CONDUCTORS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. PHASE CONDUCTORS OF EACH VOLTAGE SYSTEM MUST BE OF A DIFFERENT COLORS.
- S. UNDERGROUND WIRING SHALL BE IN PVC, SCH. 40 CONDUITS, EXPOSED EXTERIOR SHALL BE RMC OR EMT WITH WATERTIGHT FITTINGS. INTERIOR WIRING SHALL BE IN EMT.
- T. ROUTE NEW CONDUITS TO AVOID INTERFERENCE WITH OTHER INSTALLATION.
- U. CONDUITS SHOULD BE SUPPORTED SO THAT ITS WEIGHT IS BORNE BY STRUCTURAL BUILDING ELEMENTS. CONDUIT ITSELF SHALL NOT BE USED TO SUPPORT ANY OTHER DEVICE. PROVIDE UNISTRUTS, CHANNELS, RODS AND OTHER HARDWARE AS REQUIRED.
- V. FINAL CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS GENERATOR, MOTORS, UNIT HEATERS AND TRANSFORMERS, ETC., SHALL BE USING A FLEXIBLE METAL CONDUIT, NOT EXCEEDING 4 FEET IN LENGTH.
- W. EACH NEW RACEWAY SHALL HAVE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC.
- X. SEAL PENETRATIONS THROUGH FIRE RESISTANCE RATED BUILDING ELEMENTS, PARTITIONS AND ASSEMBLIES, INCLUDING EMPTY OPENINGS AND OPENINGS CONTAINING CABLES, CONDUITS AND OTHER PENETRATING ITEMS, USING UL LISTED FIRE STOPPING MATERIAL AND ASSEMBLIES TO PRESERVE THE FIRE RESISTANCE RATING OF THE ASSEMBLY.
- Y. CUT AND PATCH AS REQUIRED TO RESTORE DISTURBED ELEMENTS TO ORIGINAL FINISH AND INTEGRITY.
- Z. PROVIDE CONDUIT FITTINGS, JUNCTION BOXES AND PULL BOXES AS REQUIRED AND SIZED IN ACCORDANCE WITH NEC.
- Z.1. ALL JUNCTION AND PULL BOXES SHALL HAVE REMOVABLE COVERS, SIZED SO THAT IT CAN BE HANDLED BY ONE OR TWO PERSONS. PROVIDE SEGMENTED OR HINGED COVERS ON LARGER BOXES.
- Z.2. ALL JUNCTIONS BOXES SHALL BE SECURED TO STRUCTURAL BUILDING ELEMENTS. PROVIDE TRAPEZE SUPPORTS, WHERE REQUIRED.
- AA. SUPPORTING DEVICES : ALL EQUIPMENT SHALL BE FIRMLY MOUNTED USING APPROVED HANGERS AND HARDWARE ATTACHED TO STRUCTURAL ELEMENTS OF THE BUILDING.
- AB. INSTALL NEW EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND CONSTRUCTION DRAWINGS.
- AC. GROUND NEW SERVICE PER CODE AND AS SPECIFIED.
- AD. INSTALL NEW EQUIPMENT LEVEL AND PLUMB. PROVIDE METAL SHIMS AS REQUIRED. DO NOT DEFORM OR DAMAGE SWITCHBOARD FRAME DURING INSTALLATION. ANCHOR UPS SYSTEM ENCLOSURES AND SWITCHBOARDS TO THE CONCRETE FLOOR.
- AE. SEISMIC CONTROLS: PROVIDE SEISMIC CONTROLS FOR ELECTRICAL WORK AS REQUIRED PER APPLICABLE BUILDING CODE. PROVIDE SERVICES OF QUALIFIED VENDOR AND LICENSED STRUCTURAL ENGINEER, WHERE REQUIRED.
- AE.1. ANCHOR THE SWITCHBOARD TO CONCRETE PAD.
- AF. IDENTIFICATION: APPLY LEGIBLE PERMANENT LABELS ON EACH WIRING DEVICE, EQUIPMENT AND ENCLOSURES INDICATING ITS SOURCE PANEL AND CIRCUIT NO. LABELS TO BE SELF ADHESIVE.
- AF.1. LABEL AND LETTERING SIZE AS APPROVED BY THE ENGINEER AND MATCH EXISTING BUILDING STANDARD
- AG. WARRANTY MATERIAL, WORKMANSHIP AND INSTALLATION FOR 2 YEARS FROM ACCEPTANCE OF INSTALLATION. ANY DEFECTS AND DEFICIENCIES FOUND WITHIN THE WARRANTY PERIOD SHALL BE CORRECTED BY THE CONTRACTOR AT NO CHARGE TO THE OWNER.
- AH. PROVIDE ACCURATE "AS BUILT" RECORD DRAWINGS AND INFORMATION TO OWNER AT COMPLETION OF WORK. RECORD DRAWINGS SHALL INCLUDE, BUT NOT LIMITED TO, LOCATION EQUIPMENT, DEVICES, ENCLOSURES, CONTROLLERS, JUNCTION AND PULL BOXES, CONDUIT ROUTES WITH SIZE OF CONDUITS AND CONDUCTORS IN THEM.



NEW SERVICE GROUNDING DETAIL
SCALE: NONE



UNDERGROUND CONDUIT DETAIL
SCALE: NONE

SWITCHBOARD SPECIFICATIONS:

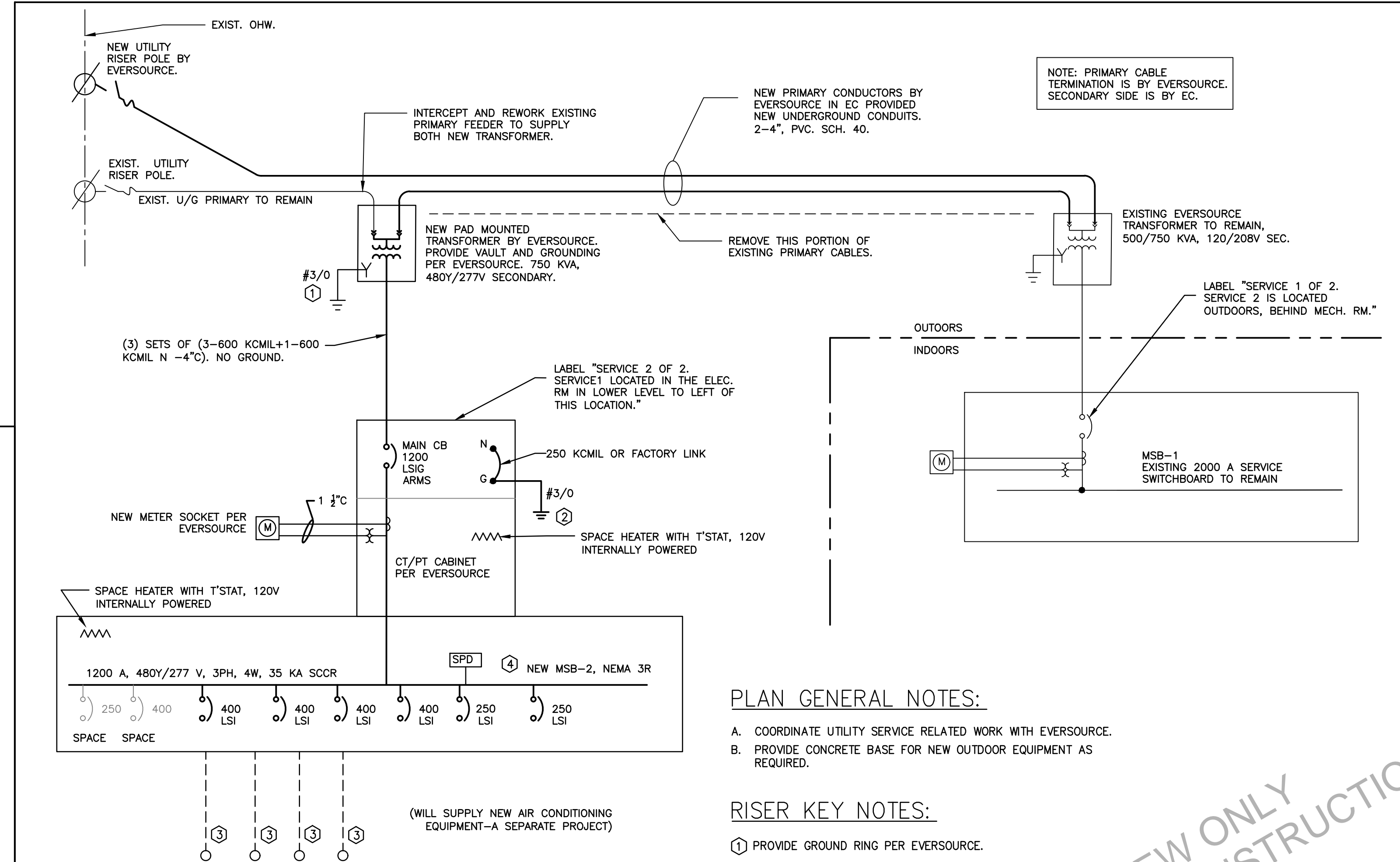
- FREE STANDING SWITCHBOARD UL 891, AL BUS, STATIONARY BREAKERS.
 - NEMA 3R, NON-WALK IN ENCLOSURE. FREE STANDING. NO MORE THAN 118" W.
 - PROVIDE WITH SPACE HEATER, INTERNALLY POWERED, TO AVOID CONDENSATION.
 - FULLY RATED SCOR AS SPECIFIED.
 - MAIN BREAKER - MCCB, LSI AND ARC FLASH REDUCING MAINTENANCE SWITCH WITH FACTORY WIRED INDICATOR LIGHT.
 - COLD SEQUENCE UTILITY CT/PT COMPARTMENT MEETING EVERSOURCE REQUIREMENTS IN CT.
 - FEEDER BREAKERS ARE GROUP MOUNTED MCCB, LSI TRIP UNITS.
 - THERE SHALL BE FULL SELECTIVITY BETWEEN THE MAIN AND FEEDER BREAKERS.
 - 90" NOMINAL HEIGHT. FULL HEIGHT BUSSING.
 - PROVIDE BUSSING FOR SPARE SPACES. SPARE SPACES SHALL HAVE HARDWARE TO ACCEPT FUTURE BREAKERS UP TO 250-400A.
 - BOTTOM FEEDER ENTRIES.
 - SUBMIT DETAILED SHOP DRAWING, INCLUDING BUT LIMITED TO, DIMENSIONS AND BUS ARRANGEMENT, LUGS, ETC. FOR SWITCHBOARDS FOR APPROVAL WITH PROPOSAL AND BEFORE RELEASING FOR FABRICATION.
 - FACTORY POWERED SPACE HEATER WITH THERMOSTAT TO AVOID CONDENSATION.
 - PROVIDE WITH AN SPD- UL 1449, REPLACEABLE MODULES, 300 KA/PH OR 150 KA PER MODE, (L-L, L-N, L-G, N-G), BUILT-IN OVERCURRENT PROTECTION.
 - ACCEPTABLE MFRS: GE/ABB, SQ-D, EATON, SIEMENS.
 - WARRANTY EQUIPMENT AND COMPONENTS AGAINST MANUFACTURING AND WORKMANSHIP DEFECTS FOR AT LEAST 2 YEARS AFTER ACCEPTANCE OF INSTALLATION. COVER PARTS, LABOR AND TRAVEL/SUSTENANCE.
 - BID PROPOSAL SHALL HAVE ADEQUATE TECHNICAL DETAILS INCLUDING BOM, DIMENSIONS AND ONELINE ARRANGEMENT FOR EVALUATION. PROPER DETAILED SHOP DRAWINGS WILL BE REQUIRED AFTER PO FOR REVIEW AND APPROVAL BY THE ENGINEER AND OWNER.
 - ACCEPTANCE TEST: CONTRACTOR SHALL TEST NEW EQUIPMENT AND WRING IN ACCORDANCE WITH APPLICABLE SECTIONS OF NETA-ATS, LATEST EDITION. THIS INCLUDES THE NEW SWITCHBOARD AND BREAKERS. BREAKERS SHALL BE TESTED USING SECONDARY INJECTION METHOD AT SETTINGS ADVISED BY THE ENGINEER OR A COORDINATION STUDY.
 - EC SHALL PROVIDE ARC FLASH LABELS AND AVAILABLE SHORT CIRCUIT CURRENT LABEL ON THE NEW SERVICE EQUIPMENT REQUIRED BY CODE. ENGAGE SERVICES OF A QUALIFIED ENGINEER FOR THE STUDY, LICENSED IN CT. COMPLY WITH NFPA 70E AND IEEE STD. 1584, 2018.

PROJECT DRAWING LIST:

E001 ELECTRICAL RISER & SPECIFICATIONS
E101 ELECTRICAL PLAN

SUMMARY OF PROJECT SCOPE OF WORK

- VISIT SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS, PRIOR TO BID.
- OBJECTIVE OF THIS PROJECT IS TO PROVIDE A NEW 480/277V , 1200 A SERVICE FOR NEW AIR-CONDITIONING EQUIPMENT FOR THE HIGH SCHOOL.
- THE EXISTING 2000 A, 208/120V SERVICE SHALL REMAIN AS IS.
- PROVIDE SERVICES OF APPROPRIATE TRADE FOR INCIDENTAL NON-ELECTRICAL WORK.
- COORDINATE WITH EVERSOURCE AS REQUIRED. USE EXISTING WORK REQUEST #15476364.
- REFER TO ALL BID DRAWINGS AND CONTRACT DOCUMENTS FOR COMPLETE REQUIREMENTS.
- SEE LOAD CALCULATION ON DWG. E101.



PLAN GENERAL NOTES:

- COORDINATE UTILITY SERVICE RELATED WORK WITH EVERSOURCE.
- PROVIDE CONCRETE BASE FOR NEW OUTDOOR EQUIPMENT AS REQUIRED.

RISER KEY NOTES:

- PROVIDE GROUND RING PER EVERSOURCE.
- BOND SERVICE NEUTRAL TO GROUND-INLET SIDE OF THE EXISTING WATER SERVICE PIPE AND THE MAIN GROUND BAR. SEE DETAIL ON THIS SHEET.
- EMPTY CONDUIT, 4"C, WITH PULL WIRE FOR FUTURE FEEDER. SEE PLAN E101 FOR LOCATION AND MORE INFO.

OUTDOOR EQUIPMENT

ELECTRICAL RISER DIAGRAM

SCALE: NONE

Project Manager:

PM Resources, LLC

58 Bukner Hill Road
Canton, CT
PH:860-485-8879

Electrical Engineer:

S&R ENGINEERS, LLC

9 ATWOOD LN
EAST HARTFORD, CT 06108
PH: 860.218.9848
www.srengineersct.com

WESTBROOK HIGH SCHOOL

NEW 480 V SERVICE

156 MCVEAGH RD.
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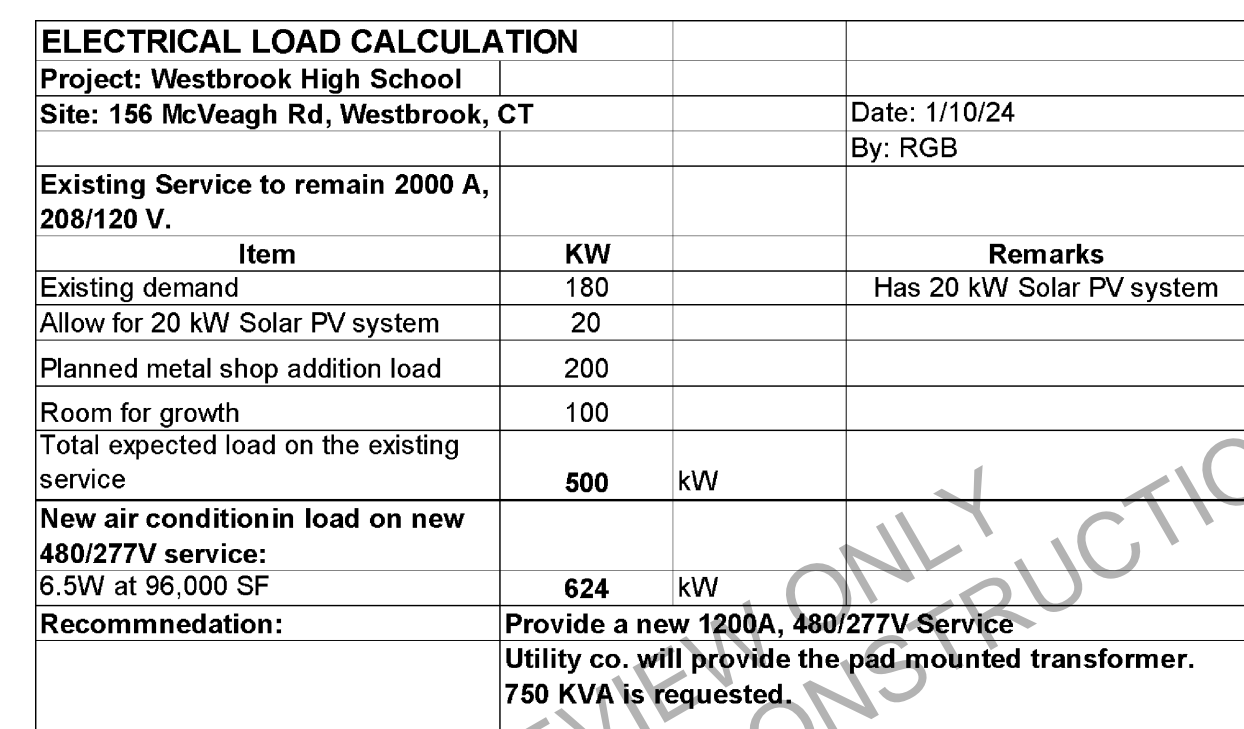
Rev #	Rev	Date	By	Chk	Description
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DATE: 1/10/2024

ELECTRICAL
RISER AND
SPECIFICATIONS

E001

SCALE: AS NOTED



Shop Addition load	200	
Wh	100	
Load on the existing	500	kW
Conditionin load on new		
Service:	624	kW
ation:	Provide a new 1200A, 480/277V Service Utility co. will provide the pad mounted transformer. 750 KVA is requested.	

SCALE: AS NOTED