

ALTERNATE METHOD FOR ELECTRIC & COMMUNICATIONS SEPARATION

FINISHED GRADE

36" MIN.

42"

12" MIN.

X-

ONE ELECTRIC PRI., SEC. OR SERVICE

ONE TELEPHONE CABLE

ONE TELEVISION CABLE

SEE NOTE 6

ONE ELECTRIC PRI., SEC. OR SERVICE

ONE TELEPHONE CABLE

ONE TELEVISION CABLE

36"

42"

12"

ONE ELECTRIC PRI., SEC. OR SERVICE

ONE TELEPHONE CABLE

ONE TELEVISION CABLE

LEGEND

ⓔ CONDUITS(S) FOR ELECTRICAL CABLE

Ⓣ TELEPHONE CABLE

Ⓢ TELEVISION CABLE

X- UNDERGROUND ELECTRICAL CABLE MARKING TAPE

1. ALL TRENCHES AND ELECTRICAL CONDUIT(S) REQUIRE APPROVAL BY UTILITY INSPECTOR BEFORE BACKFILLING.
2. ALL TRENCHES SHALL BE 18 INCH MINIMUM WIDTH, THE CONDUIT SHALL BE EMBEDDED IN UNFROZEN SAND OR GRAVEL TO A MINIMUM DEPTH OF 12 INCHES. THE TRENCH SHALL BE BACKFILLED WITH UNFROZEN SAND OR GRAVEL ON ALL SIDES OF THE CONDUIT. THE REMAINDER OF THE BACKFILL SHALL BE CLEAN, AND, SHALL NOT CONTAIN ROCKS LARGER THAN 8 INCHES IN ANY DIMENSION. CAREFULLY COMPACT THE FULL DEPTH OF BACKFILL, TO A MINIMUM OF 15 INCHES. THE TRENCH SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF UNFROZEN SAND, RATHER THAN 36 INCHES, MOUNTING THE TRENCH, TO PROVIDE THE REQUIRED DEPTH, IS NOT ALLOWED.
3. CONDUIT SHALL BE ENCASED IN A 4 INCH ENVELOPE OF CONCRETE UNDER THE FOLLOWING CONDITIONS:
 - A. BROOK CROSSINGS
 - B. CROSSINGS OF RIVER, SEWER, AND GAS PIPELINES. CROSSINGS SHALL BE DONE AT NINETY DEGREES IF POSSIBLE. NORMALLY, THE ELECTRICAL CONDUIT SHALL BE A MINIMUM OF 18 INCHES ABOVE THE PIPE. CAREFULLY COMPACT THE FILL BELOW THE ELECTRICAL CONDUIT. CONCRETE ENCASEMENT IS REQUIRED TO A MINIMUM OF 4 FEET ON EITHER SIDE OF THE CROSSING.
 - C. UNDER THE TRAVELLED WAY OF CITY STREETS, AND, UNDER TOWN HIGHWAYS, IF REQUIRED BY THE TOWN. A PIPE SLEEVE, SURROUNDING THE CONDUIT, MAY BE SUBSTITUTED.
 - D. CROSSINGS WITHIN THE UTILITY RIGHT-OF-WAY. THESE TANKS MAY BE ABOVE OR BELOW GRADE. THIS REQUIREMENT DOES NOT APPLY TO URD SERVICES.
4. TRENCHES SHOULD BE LOCATED TO FEET FROM ANY STRUCTURE, UNLESS THE CONDUIT IS GOING TO THE STRUCTURE. WITHIN THE UTILITY RIGHT-OF-WAY, TRENCHES SHOULD BE LOCATED TO FEET FROM ANY STRUCTURE.
5. TRENCHES SHOULD BE LOCATED TO FEET FROM ANY WATER, SEWER, OR GAS PIPELINE THAT PARALLELS THE TRENCH. CONTACT THE UTILITY IF CLOSER APPROACHES ARE NECESSARY.
6. TRENCHES SHALL BE LOCATED TO FEET FROM ANY STRUCTURE OR TRENCH WITH ELECTRIC CABLES OR CONDUITS. A MINIMUM HORIZONTAL OR VERTICAL SEPARATION OF 12 INCHES IS REQUIRED. ELECTRICAL CONDUITS SHALL BE SEPARATED BY 4 INCHES. THESE DISTANCES ARE MEASURED SURFACE-TO-SURFACE, AND NOT CENTER-TO-CENTER.
7. DEPTHS SHALLower THAN 36 INCHES MAY BE ALLOWED WHERE OBSTRUCTIONS SUCH AS LEDGE ARE ENCOUNTERED. ANY PORTION OF THE CONDUIT SHALLower THAN 24 INCHES SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF UNFROZEN SAND OR GRAVEL. DEPTHS SHALLower THAN 12 INCHES.
8. CHECK WITH THE LOCAL UTILITY FOR SPECIFIC REQUIREMENTS.

VERMONT UTILITIES ELECTRIC SERVICE REQUIREMENTS

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THESE GENERAL NOTES APPLY TO THIS ELECTRICAL SITE
DRAWING.

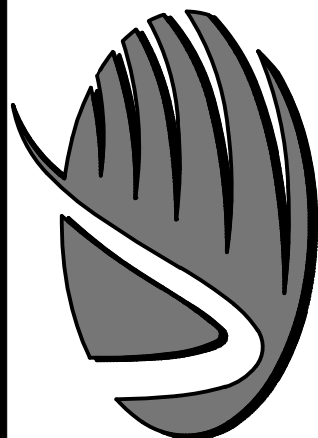
- FOLLOW ALL APPLICABLE CODES AND USE GOOD ELECTRICAL CONSTRUCTION PRACTICES WHEN DETERMINING TYPES OF WIRING METHODS AND SIZING OF CONDUCTORS AND CONDUITS. INSTALL ALL POWER, CONTROL AND SIGNAL WIRING USING METHODS AS FOLLOWS:
- 1.1. UNDERGROUND: INDIVIDUAL CONDUCTORS INSTALLED IN SCHEDULE 40 PVC RIGID NON-METALLIC CONDUIT (RNC) FOR DIRECT BURIAL; TRANSITION TO GALVANIZED STEEL RIGID METALLIC CONDUIT (RMC) WHERE CONDUIT RISES TO PROPOSED ABOVE GRADE OR CONCRETE SLAB, FROM A MINIMUM 24" BELOW TOP OF FINISHED GRADE OF SLAB.
 - 1.2. BENEATH CONCRETE SLAB: UNLESS OTHERWISE NOTED INDIVIDUAL CONDUCTORS INSTALLED IN SCHEDULE 40 RNC NON-METALLIC CONDUIT (RNC) FOR DIRECT BURIAL OR CONCRETE SLEEVE. PROVIDE CONCRETE SLEEVE GALVANIZED RIGID STEEL SLEEVE WHERE CONDUIT PENETRATES CONCRETE FOUNDATION, WALL OR SLAB.
 - 1.3. EXPOSED, EXTERIOR WIRING: INDIVIDUAL CONDUCTORS IN GALVANIZED STEEL RIGID METALLIC CONDUIT (RMC).
 - 1.4. CONTRACTOR SHALL CONSULT WITH ENGINEER REGARDING QUESTIONS REGARDING WIRING METHODS PRIOR TO ROUGH-IN OF WIRING
 2. THE ELECTRIC UTILITY SERVING THIS PROJECT IS THE GREEN MOUNTAIN POWER (GMP). THE GMP FIELD TECHNICIAN FOR THIS PROJECT IS NIKKI HOWE (800-464-1651).
 3. REFER TO THE VERMONT UTILITIES SERVICE REQUIREMENTS MANUAL, AVAILABLE ON THE INTERNET AT WWW.GREENMOUNTAINPOWER.COM FOR MATERIALS REQUIREMENTS, DIRECTION FROM THE ELECTRIC POWER UTILITY AND STANDARD INSTALLATION DETAILS. NOTE THAT THERE MAY BE CODE ADJUSTMENTS TO THE VERMONT UTILITIES SERVICE REQUIREMENTS THAT COULD APPLY TO WORK OF THIS PROJECT.
 4. **ELECTRIC SERVICE INSTALLATION RESPONSIBILITIES:**
 - 4.1. THIS DESCRIPTION OF RESPONSIBILITIES IS TENTATIVE FOR DESIGN PURPOSES. **ACTUAL ASSIGNMENT OF RESPONSIBILITIES WILL BE BY THE CONSTRUCTION MANAGER. VERIFY RESPONSIBILITIES PRIOR TO BIDDING.**
 - 12.2. GMP RESPONSIBILITIES:
 - 12.2.1. PROVIDE POLE TOP TRANSFORMERS TO SERVE THE BUILDING AT A RISER POLE
 - 12.2.2. PROVIDE INSTALLATION OF SECONDARY RISER WIRING ON POLE AND FINAL CONNECTION OF SECONDARY WIRING DUCTBANKS TO THE POLE TOP TRANSFORMERS
 - 12.2.3. PROVIDE CT METERING AT THE POLE FOR BUILDING AND FIRE PUMP SERVICES
 - 12.3. ELECTRICAL CONTRACTOR RESPONSIBILITIES:
 - 12.3.1. COORDINATION BETWEEN GMP, THE SITE CONTRACTOR AND THEMSELVES
 - 12.3.2. COMPLETE SECONDARY WIRING FROM THE POLE MOUNTED TRANSFORMERS TO THE BUILDING SERVICE METER
 - 12.3.3. ELECTRICAL CONTRACTOR SHALL BE PRESENT AND MONITOR THE BACK FILLING OF THE SECONDARY WIRING DUCTBANKS BY THE SITE CONTRACTOR
 - 12.4. SITE CONTRACTOR RESPONSIBILITIES:
 - 12.4.1. TRENCHING AND BACKFILL FOR THE UNDERGROUND ELECTRICAL DUCTBANKS, AND SECONDARY
 - 12.4.2. CONCRETE ENCASEMENT OF SERVICE WIRING WHERE IT IS ROUTED THROUGH DRIVEWAYS, DRIVEWAYS PARKING AS PER GMP REQUIREMENTS

THESE DRAWING NOTES APPLY TO THIS DRAWING, ONLY

- ① PROVIDE (1) #2/0 7 STRAND BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" NON-METALLIC RIGID CONDUIT TO BUILDING STEEL. (NEC 250.52(2), 250.66)
- ② PROVIDE (1) #6 7 STRAND BARE COPPER BONDING JUMPER IN 1/2" NON-METALLIC RIGID CONDUIT TO A 1/2" DIAMETER (OR GREATER) MINIMUM 20'-0" LONG CONCRETE ENCASED REINFORCING BAR IN A SLAB OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH. MINIMUM CONCRETE ENCASEMENT, WHERE AVAILABLE REINFORCING ROD IS NOT AVAILABLE, PROVIDE 20' OF #4 COPPER CONDUCTOR INSTALLED IN THE CONCRETE, METALLICALLY TIED TO THE METALLIC REINFORCING RODS. (NEC 250.52(5), 250.66(B)).
- ③ PROVIDE (1) #6 7 STRAND BARE COPPER BONDING JUMPER IN 1/2" NON-METALLIC RIGID CONDUIT TO THREE(3) 3/4" x 10' MINIMUM RESISTANCE TYPE ANODES, EACH CREATING AN EQUILATERAL TRIANGLE. CADWELL ALL GROUND ROD CONNECTIONS. (NEC 250.52(5), 250.66(A))
- ④ PROVIDE (1) #8 7 STRAND BARE COPPER BONDING CONDUCTOR IN 1/2" NON-METALLIC RIGID CONDUIT TO THE GAS SERVICE FOR BONDING OF THE PIPING SYSTEM COORDINATE LOCATION WHERE CONDUCTOR NEEDS TO BE CONNECTED WITH GAS SYSTEM PROVIDE 20' OF BONDING CONNECTION BY THE GAS SYSTEM INSTALLER. (NEC 250.104(B), TABLE 250.122).
- ⑤ PROVIDE ENGRAVED LABELS:
 1. AVAILABLE FAULT CURRENT AND DATE (2017 NEC 110.24(A)).
 2. CONDUCTOR COLOR IDENTIFICATION LEGEND.
 3. PHASE ROTATION
- ⑥ SHORT CIRCUIT CURRENT IS CALCULATED BASED UPON AVAILABLE UTILITIES SHORT CIRCUIT CURRENT, MOTOR CONTRIBUTIONS, ESTIMATED 25KVA PAD MOUNTED UTILITY TRANSFORMER WITH 1.5% IMPEDANCE.
- ⑦ PROVIDE A SURGE PROTECTIVE DEVICE. CONNECT TO A 40A/3P CIRCUIT BREAKER; WIRING SHALL BE (#8B, #10G) 3/4". LOCATE SURGE SUPPRESSION DEVICE ADJACENT TO THE PANEL. PROVIDE SQUARE D #75-IMA WITH COUNTERMOUNTED EPOXY ENCASED EMI FILTER PHASE 4, WIRE, 240KVA PEAK SURGE CURRENT PER PHASE IN A NEMA 1 ENCLOSURE



NTS



CONSULTING ENGINEERS
MECHANICAL - ELECTRICAL

NO	ISSUED FOR	DATE

WILMINGTON PUBLIC SAFETY FACILITY
BEAVER STREET, WILMINGTON, VT 05363

WILMINGTON EMS FACILITY

ELECTRICAL
CONCEPTUAL ONE-LINE

PROJ NO:	1919
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DATE: - - - - -

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