



CITY OF SOMERVILLE

Commonwealth of Massachusetts

93 Highland Avenue

Somerville, MA 02143

(617) 625-6600

BUSINESS LICENSE APPLICATION - Small Wireless Facility

File #: 19-014836

License #: BL19-000089

Address: 10 RADCLIFFE RD

Licensee: Matthew Pricco Network Building + Consulting

DBA Name: ExteNet Systems, Inc.

Business Ownership Type: Corporation

Legal Name of Entity: ExteNet Systems, Inc.

Owners/Officers: James A. Hyde, H. Anthony Lehv, Daniel L. Timm,

License Information:

Do you believe this to be a 6409(a) application?: No

Describe the reason for the work, and the intended beneficiaries:

Provide the detailed description of the work that should appear on the License: Extenet proposes to replace existing streetlight pole and install a small cell wireless facility. The principal elements of the proposed facility are an antenna housed in a 24 inch long shroud side-mounted on the pole, including an additional 6 feet of base mounting equipment and three radios in a shroud also mounted on the pole. See the plans accompanying this application for details. This proposal improves wireless capacity for residents, businesses and visitors.

of installations on existing poles:

of installations on new poles: 1

Provide the legal name of the entity that will own the License: ExteNet Systems, Inc.

Approval Conditions:

Approved By:

Hans Jensen, Approved

Karla Cuarezma, Approved

Malik Drayton, Approved with Conditions

APPROVAL CONDITION: MD20200325: Contractor shall take all necessary precautions to avoid damaging any tree or tree part with equipment.

APPROVAL CONDITION: MD20200325: All nearby street tree(s) shall be protected prior to and during all construction activities using TREE BOX or TREE WRAPS. . TREE BOX shall be constructed from 2 in. x 4 in. lumber creating a box around the border of the tree pit with 2 in. x 4 in. lumber standing

straight up at the corners and wrapped with orange snow fence. Detail attached. . TREE WRAPS (TREE TRUNK WRAPPING PROTECTION LUMBER) shall consist of 2 in. x 4 in. and 8 ft. height lumber wired together in close spacing with zip ties or 16 gauge galvanized steel wire to form a protective enclosure around tree trunks. Use burlap to separate the wood from the bark if necessary to prevent wood from scraping or bruising bark. Do not use staples or puncture the trunk in any way.

APPROVAL CONDITION: MD20200325: Any tree roots less than two (2) inches in diameter that cannot be avoided during construction shall be carefully and cleanly cut with a clean pair of pruning shears or loppers. Roots are to be cut back flush with the edge of the trench. If any tree roots greater than two (2) inches in diameter are encountered, stop work immediately and contact the City Urban Forester. Any and all pruning of roots greater than 2 inches in diameter must be completed under the supervision of the City Urban Forester.

John Power, Approved

Mark Lawhorne, Approved

John J. Long, Approved

Utility
+
Ward 4



CITY OF SOMERVILLE, MASSACHUSETTS
CITY CLERK'S OFFICE

JOSEPH A. CURTATONE
MAYOR

JOHN J. LONG
CITY CLERK

March 30, 2020

NOTICE OF PUBLIC HEARING

You are hereby notified that the Somerville City Council will hold a Public Hearing on the following Petition. You are receiving this Notice because the Petitioner has reported that you own property that abuts the work that is being proposed. You and other members of the public are invited to attend and be heard at this Hearing.

Because of Governor Baker's and Mayor Curtatone's recent orders limiting the number of people that may gather in one place, **this meeting of the City Council will be conducted via remote participation, online in a webinar hosted on the GoToWebinar platform.**

You have two ways to be heard at this meeting:

1. To attend and be heard, enter the link exactly as it appears below into your internet browser anytime before the meeting. You will then be asked to register for the meeting. After registering, you will receive an email with instructions to join the webinar when it starts.
2. If you are unable to attend but wish to be heard, you may send written comments by US mail to the City Clerk at the address below, or by email to cityclerk@somervillema.gov. Your comments must arrive no later than 12 Noon on the day of the Hearing, in order to be sure they are conveyed to the Council.

PETITION: Extenet seeks a Grant of Location to replace existing streetlight pole and install a small cell wireless antenna on a new streetlight pole located at the intersection of 10 Radcliffe Road and James Street.

PLACE: <https://attendee.gotowebinar.com/register/826423032073642508>

TIME: Tuesday, April 7, 2020, at 7:00 PM.

PURPOSE: The work is necessary to provide or improve wireless communication to the immediate area.



LATITUDE: 42.388454°
LONGITUDE: -71.093394°

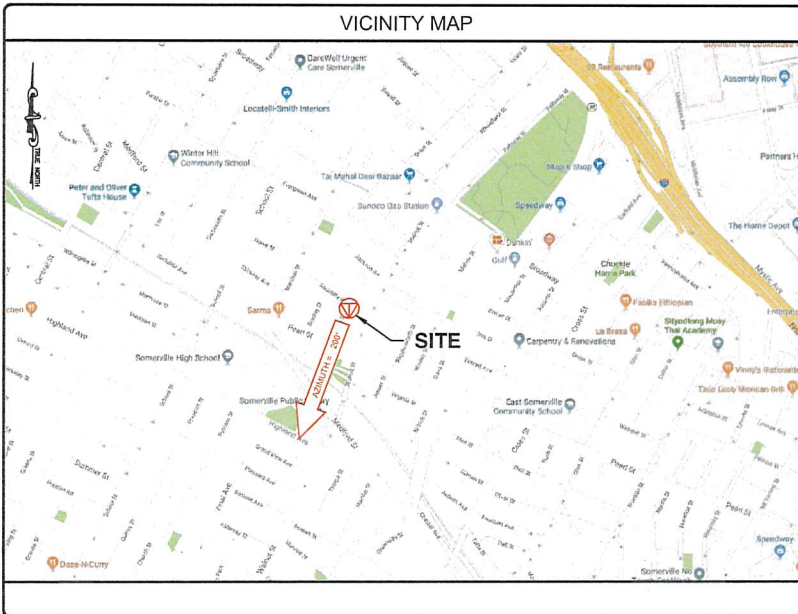
NE-MA-BSTN3N01-TMO NE-MA-BSTN3N01-03335 / NE3206BA_31LAB

PROPOSED SMALL CELL NODE
10 RADCLIFFE ROAD, SOMERVILLE, MA 02145
CITY OF SOMERVILLE, MIDDLESEX COUNTY

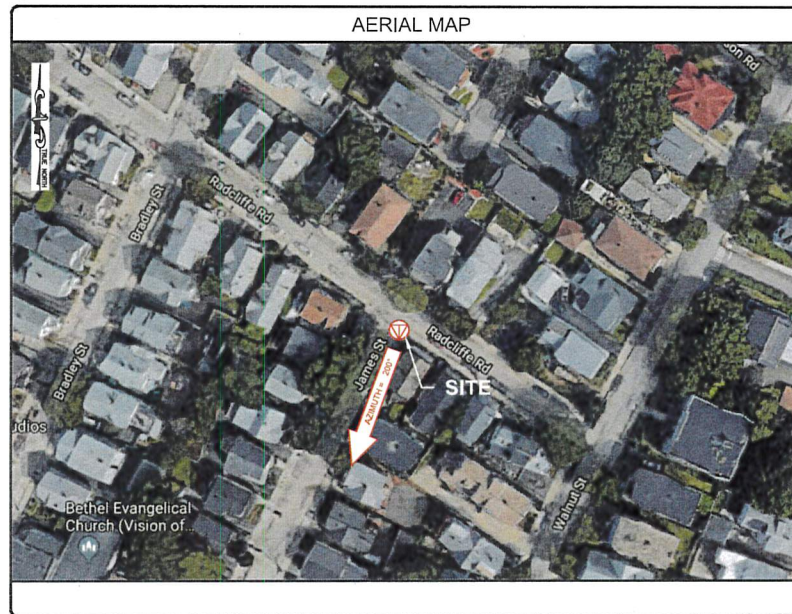


Know what's below.
Call before you dig.

VICINITY MAP



AERIAL MAP



PROJECT INFORMATION

PROJECT NAME: NE-MA-BSTN3N01-TMO
POLE TAG: 11
LATITUDE: 42.388454°
LONGITUDE: -71.093394°
JURISDICTION: CITY OF SOMERVILLE
MIDDLESEX COUNTY
EXTENET PROJECT MANAGER: RICK ANGELINI
3030 WARRENVILLE RD, SUITE 340
LISLE, IL 60532
NOC: (888) 892-5327
HUB LOCATION: HUB: 48S0365B
422 MYSTIC AVENUE
SOMERVILLE, MA 02145
ELECTRIC COMPANY: EVERSOURCE

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2015 INTERNATIONAL BUILDING CODE (MASSACHUSETTS AMENDED 9TH EDITION)
- 2017 NATIONAL ELECTRICAL CODE
- NFPA 1-2015 EDITION
- 2015 IFC - REFERENCE 527 CMR
- AMERICAN CONCRETE INSTITUTE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- MANUAL OF STEEL CONSTRUCTION 13TH EDITION
- ANSI/ITIA-222-G
- TIA 607
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- TELECORDIA GR-1275
- ANSI/T 311

DRAWING INDEX

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| 05 | ELECTRICAL & GROUNDING DETAILS |

ENGINEERING FIRM

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
3030 WARRENVILLE ROAD, SUITE 340
LISLE, IL 60532
(815) 555-3000

APPLICANT

extenet
SYSTEMS
YOUR NETWORK. EVERYWHERE.

3030 WARRENVILLE ROAD, SUITE 340
LISLE, IL 60532
(815) 555-3000

SITE INFORMATION

NE-MA-BSTN3N01-03335
TMO ID: NE3206BA_31LAB
10 RADCLIFFE ROAD
SOMERVILLE, MA 02145
MIDDLESEX COUNTY

REVISIONS

REV	DATE	DESCRIPTION	BY
6	03/19/20	15' COMPLIANCE ADDED	DRG
4	01/28/20	MOUNT REVISED	DRG
3	09/23/19	REVISED	NSB
2	08/06/19	STAMP ADDED	CIVE
1	05/15/19	FOC REVISED	NSB
0	04/12/19	PRELIMINARY	NSB

PROFESSIONAL STAMP



ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.
MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

TITLE SHEET

SHEET NUMBER

SHEET
01 OF 05

GENERAL NOTES:

1. THE CONTRACTOR SHALL GIVE ALL NOTICE AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND ANY LAWS, ORDINANCES OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK, THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS TO BE INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK, THE CONTRACTOR SHOULD BE RESPONSIBLE FOR IDENTIFYING AND CAUTIONING THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND SPECIFICATIONS SHALL NOT EXCLUDE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CONSTRUCTION MANAGER OF ANY CONFLICT, ERROR OR OMISSION PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK UNLESS DIRECTED OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN, EXCEPT FOR FIBER OPTIC CABLE AND OTHER MATERIALS IDENTIFIED BY.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWING/CONTRACT DOCUMENTS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATION UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
9. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
10. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROJECT'S TECHNICAL, SEQUENCING AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND KEEPING A COPY ON SITE, ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE ARCHITECT/ENGINEER, STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EXISTENTS, PAVING, CURBS, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY TO ORIGINAL OR BETTER CONDITION.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. REMAINS SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, STUCCO, OR STAININGS OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS IS NOT TO CONTRIBUTE MATERIAL OR TO CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL IT IS RESOLVED BY THE CONSTRUCTION MANAGER.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE PROJECT.
17. OWNER/CONTRACTOR SHALL CONTACT ONE CALL MINIMUM 72 HOURS PRIOR TO THE START OF CONSTRUCTION FOR LOCATION OF ALL UNDERGROUND UTILITIES.
18. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
19. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
20. CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
21. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT THE PROJECT, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
22. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETELY UNIMPAIRED CONDITION, LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
23. AFTER COMPLETION OF CONSTRUCTION, RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO CONSTRUCTION MANAGER.

ELECTRICAL NOTES:

1. CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
2. VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
3. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABELS OF WHICH ARE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENTLY APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NFPA. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
4. ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
5. ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
6. PROPERLY SEAL ALL PENETRATIONS, PROVIDE UL LISTED FIRE-STOPPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USE SILICONE SEALANT.
7. DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT, AFTER MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
8. ALL CONDUCTORS SHALL BE COPPER, MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG, UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHN, RATED IN ACCORDANCE WITH NEC 110-14(C3).
9. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
10. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
11. CONDUIT:
 - a. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE. CONDUIT SHALL BE USED UNDER PAVEMENTS, DRIVEWAYS IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2" LAPPED WRAPPED WITH HEAVY WRAP PROCESS NO. 3.
 - b. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE CLAMP RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
 - c. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECEPTORS BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.

- d. CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILING OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL BE PROTECTED FROM MECHANICAL DAMAGE BY CULVERTS OR BEAMS. VERIFY EXISTING ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLATION.
 - e. PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS, PROVIDE EMT OR APPROVED EQUIVALENT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHOD FOR REDUCING THE RESISTANCE VALUE.
12. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
 13. UPON COMPLETION OF WORK, CONDUIT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. EQUIPMENT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHOD FOR REDUCING THE RESISTANCE VALUE.
 14. COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
 15. VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.

GROUNDING NOTES:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. ALL WIRES SHALL BE AWG AND THIN COPPER UNLESS NOTED OTHERWISE.
4. GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC (COLDWELD) UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL, WHERE GROUND WIRES ARE CAMELWELDED TO GALVANIZED SURFACES, SPRAY CAMELWELDED WITH GALVANIZING PAINT.
5. GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTIONS WITH STAINLESS STEEL WASHERS INCLUDING SLOW SET CLEAN GROUND BAR TO SHINY METAL AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTI-OXIDANT COATING.
6. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
7. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
8. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 THINNED SOLID COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
9. REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC (COLDWELD) TO ANTERIOR MOUNTED AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
10. THE GROUNDING ELECTRICAL SYSTEM SHALL CONSIST OF BROWN GROUND RODS POSITIONED ACCORDING TO THE GROUNDING PLAN. THE GROUNDING ROD SHALL BE 5/8"X10'-0" COPPER OR STEEL INTERCONNECTED WITH #2 THINNED SOLID COPPER WIRE BURIED 36" BELOW GRADE. BURIED GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 4' APART.
11. IF ROCK IS DISCONTINUED GROUND RODS SHALL BE PLACED AT AN OBlique ANGLE NOT TO EXCEED 45°.
12. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERDC PRODUCTS BULLETIN A-4T OR EQUAL.
13. CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE CONSTRUCTION MANAGER.
14. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 THINNED SOLID COPPER WIRE. ALL EXTERIOR GROUND BARS THINNED COPPER.
15. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
16. ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED THE OHMS TO GROUND BY MEANS OF FALL OF POTENTIAL TEST. TEST SHALL BE WITNESSED BY A REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST FORM".
17. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
18. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDATION PAINT.
19. ANY SITE WHERE THE EQUIPMENT (ITS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 8 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 AWG THINNED COPPER WIRE.

GROUNDING GUIDELINES:

- ALL EQUIPMENT THAT IS INSTALLED AND MAY CAUSE ANY KIND OF ELECTRICAL CHARGE OR BUILD UP MUST HAVE PROPER AND ADEQUATE GROUNDING IN PLACE TO PREVENT FROM EQUIPMENT DAMAGE AND SHOCK HAZARDS.
- BBT'S**
- BEHIND TO BE GROUND TO A MAIN BUSS BAR OR HOME RUN GROUND FROM THE GROUND PIN OR STUD THAT IS ON THE CHASSIS. IF ANY EQUIPMENT HAS A GROUND POINT ON IT, IT SHOULD BE GROUND. THE GROUNDING CABLE SIZE SHOULD FOLLOW LOCAL GUIDELINES ON EQUIPMENT GROUNDING. NORMALLY THE STANDARD IS 8 AWG RATED STRANDED GROUND CABLE TO BE USED ON RIB'S. THE LUG NEEDS TO FIT THE PROPER CABLE SIZE, AS WELL AS THE HOLE SIZE FOR THE STUD. IF IT'S A SINGLE STUD IT SHOULD BE A ONE HOLE LUG. IF IT HAS A PLATE FOR TWO HOLE LUG THEN THAT SHOULD BE USED. (IE COMBOSCOPE ION N HAS A SINGLE STUD GROUND, IT PRESEN HAS A GROUND FOR A 2 HOLE LUG) DO NOT CUT THE LUGS TO FIT. THEY MAKE LUGS IN ALL SIZES AND SEES. ORDER THE CORRECT ONE AND ATTACH IT PROPERLY.
- COAX GROUNDING**
- IN LINE GROUNDING SHOULD BE INSTALLED WITH THE PROPER SIZE GROUND KITS ON ALL COAX CABLES. THE KITS ARE INSTALLED ON FRONT AND BACK OF COAX RINGS OVER APPROXIMATELY 15 FEET. ANYTHING OVER 300 FEET NEEDS AN ADDITIONAL GROUND AROUND THE 150 FOOT MARK.
- SURGE ARRESTORS**
- IF IT HAS A PLACE FOR A GROUND - GROUND IT.
- MAST PIPES**
- ALL MAST PIPES SHOULD BE GROUND WITH BEAR METAL ON THE PLACE THE GROUND IS ATTACHED AND THEN COLD GALVANIZATION OVER THE GALVANIZATION OVER THE MAST. THE GROUND CAN BE EITHER MECHANICAL OR AN EXOTHERMIC WELD (COLD WELD) MAY BE USED. IF THE MAST PIPE IS THE TALLEST POINT ON A BUILDING IT SHOULD ALSO HAVE A LIGHTNING ROD ATTACHED TO IT AS WELL.
- DEPLETERS/DUPLEXERS/SPLITTERS/PASSIVE COMPONENTS**
- IF IT HAS A PLACE FOR A GROUND TO BE INSTALLED - INSTALL IT.
- ANY STRUCTURE OR FRAME SHOULD HAVE 2 GROUND WIRE, I.E. MAST PIPES, OUTDOOR ENCLOSURES, SHROUDS, BUSS BAR HOME RUN TO EARTH GROUND. ALL EQUIPMENT HAS 8 TO BUSS BARS.
- ALL BUSS BARS NEED TO HAVE A LINK TO AN EARTH GROUND SYSTEM AND MUST BE ISOLATED IF MOUNTED ON ANYTHING THAT MAY RETAIN AN ELECTRIC CHARGE. NO EXCEPTIONS. ALL EQUIPMENT SHOULD RUN TO BUSS BARS. LUGS ON BUSS BARS SHOULD HAVE FRONT AND BACK FLAT WASHERS SANDWICHING THE LUGS) TO THE BAR AND NOT OVERLAPPING CAUSING IT TO BE UNDER OTHER LUGS ON THE BAR. THERE SHOULD ALWAYS BE A LOCK WASHER CLOSEST TO THE NUT ON THE BOLT FOR A LUG. NEVER IS IT OK TO STACK LUGS ON TOP OF EACH OTHER. IF THERE IS A BREAKER OR SWITCH ON THE BAR, IT SHOULD BE A BIG BREAKER AND A BIG SWITCH AND A BUSS BAR WITH NO-COAT COATED BETWEEN THE LUG AND THE BUSS BAR. ALL GROUNDING SHOULD HAVE HEAT TREATED SHIMMING UNDER THE LUGS. LUGS NEED TO BE TO CRIMPED TO THE BAR. CRIMPING SHOULD BE THE PROPER DYE AND TOOL (NOT CHANNEL LOCK CRIMPERS). THERE SHOULD BE NO MORE THAN 1/16 INCH BARE INSIDE THE SHIMMING CHANNEL. THE LUGS NEED TO BE CRIMPED TO THE BAR. CRIMPING SHOULD BE THE PROPER DYE AND TOOL. INSIDE LUGS SHOULD HAVE INSPECTION WINDOWS TO SHOW THE GROUND WIRE IS INSERTED INTO THE LUG ALL THE WAY AND IS PROPERLY INSTALLED. OUTDOOR LUGS MAY HAVE BLACK OR GREEN HEAT SHRINK.

WEATHER SEAL GUIDELINES:

BUTYL

1. PRE WRAP ALL CONNECTIONS WITH BLACK ELECTRICAL TAPE TO COVER ALL METAL SHOWING TO PREVENT DAMAGE TO CONNECTION WHEN WEATHER SEAL IS TO BE REMOVED. 3/4" INCH OR 2" INCH TAPE CAN BE USED FOR THIS PROCESS.
2. WRAP CONNECTIONS WITH BUTYL WEATHER SEALANT WITH TWO LAYERS TO FORM A CONE LIKE SHAPE. OVER LAPPING THE LAYERS BY AT LEAST 50%. MOLD SEALANT TO PROPER SHAPE. THIS STEP IS CRUCIAL OR THE BUTYL WILL LEAK OVER TIME.
3. WRAP SEALANT WITH 2 LAYERS OF 2 INCH TAP. YOU CAN CUT INTO STRIPS IN TIGHT AREAS. FIRST WRAP SHOULD BE PULLED SMOOTH TO MAKE FINAL WRAPS CLEAN AND CRISP. 2ND WRAP SHOULD BE PULLED TIGHTER THAN FIRST TO HOLD SEALANT INTO TIGHTER (CONE LIKE) SHAPE. OVER LAPPING TAPE SHOULD COVER AT LEAST 50% OF EACH LAYER OF TAPE PRIOR.
4. UPON COMPLETION OF 2 LAYERS OF 2 INCH TAPE FINALIZE WITH AT LEAST 3 LAYERS OF 3/4" INCH TAPE. EACH WRAP OF TAPE SHOULD BE PULLED TIGHTER THAN WRAP BEFORE TO SQUEEZE SEALANT INTO A MOLD AND WILL PREVENT ANY SEALANT FROM LEAKING OUT THE SIDES OVER TIME. EACH LAYER SHOULD COVER PRIOR LAYERS AT LEAST 50%.
5. OVERLAP THE TAPE 50% OF THE PREVIOUS LAYER.
6. ALWAYS FINISH THE LAST WRAP OF TAPE GOING UP TO CREATE A SHINGLING OF THE TAPE SO IN THE WEATHER ANYTHING THAT RUNS DOWN THE CABLE WILL NOT LEAK INTO THE SEALANT. CUT THE END OF THE TAPE AND LAY IT ONTO THE FINISH. DO NOT STRETCH THE END OF THE TAPE. THIS WILL CAUSE THE TAPE TO PULL OFF OVER TIME AND CREATE A FLAGGING EFFECT.

FUSION TAPE

1. CHECK TO MAKE SURE ALL CONNECTORS ARE TORQUED TO PROPER SPECIFICATIONS BEFORE YOU BEGIN.
2. NOTE: THIS STEP DOES NOT NEED A CURTIS WRAP BECAUSE THE TAPE DOES NOT ACTUALLY ADHERE TO THE CONNECTOR ITSELF BUT BINDS TO ITSELF, ALSO KNOWN AS "SELF-MALGAMATING TAPE".
3. WRAP CONNECTIONS FUSION TAPE SEALANT WITH TWO LAYERS TO FORM A CONE LIKE SHAPE. FUSION TAPE MUST OVER LAP AT LEAST 50% TO FORM A PROPER SEAL. COVER ALL OF THE BARE METAL SHOWING (AT LEAST 1-1/2 INCH PAST END OF CONNECTOR).
4. IF THIS "TAPE" IS NOT PULLED TIGHT WHILE WRAPPING YOU WILL NOT CREATE A PROPER SEAL. IT MUST BE STRETCHED TO CREATE BOND TO ITSELF.
5. WRAP AT LEAST 2 LAYERS OF 3/4" INCH TAPE. EACH LAYER SHOULD COVER AT LEAST 50% OF PREVIOUS TAPE WRAP.
6. ALWAYS FINISH THE LAST WRAP OF TAPE GOING UP TO CREATE A SHINGLING OF THE TAPE SO IN THE WEATHER ANYTHING THAT RUNS DOWN THE CABLE WILL NOT LEAK INTO THE SEALANT. CUT THE END OF THE TAPE AND LAY IT ONTO THE FINISH. DO NOT STRETCH THE END OF THE TAPE. THIS WILL CAUSE THE TAPE TO PULL OFF OVER TIME AND CREATE A FLAGGING EFFECT.

HEAT SHRINK

1. PRE WRAP ALL CONNECTIONS WITH BLACK ELECTRICAL TAPE TO COVER ALL METAL SHOWING TO PREVENT DAMAGE TO CONNECTION WHEN WEATHER SEAL IS TO BE REMOVED. 3/4" INCH OR 2" INCH TAPE CAN BE USED FOR THIS PROCESS.
2. USE ONLY OUTDOOR RATED HEAT SHRINK THAT HAS THE SELF-ADHESIVE WHEN HEATED PROPERLY. THIS IS WHAT WILL CREATE THE SEAL TO THE CONNECTOR.
3. MAKE SURE HEAT SHRINK COVERS ALL OF THE COUPLERS AND CONNECTIONS. HEAT THE HEAT SHRINK TO SHRINK TIGHTLY TO THE CONNECTIONS AND CABLE. MAKE SURE THE HEAT SHRINK IS SEALED TOP AND BOTTOM OF THE CONNECTIONS. ALSO CHECK TO MAKE SURE HEAT SHRINK WAS NOT OVER HEATED AND THERE ARE NO BREAKS IN SEAL THROUGH-OUT THE SHRINK TUBING.

ANDERSON CLAM SHALL

1. PROPERLY TORQUE CONNECTOR TO SPECIFICATION.
2. APPLY ONE LAYER OF 3/4" INCH BLACK TAPE AROUND ENTIRE CONNECTOR ENDING AT LEAST 1-1/2 INCHES PAST TOP AND BOTTOM OF CONNECTOR TO PREVENT ANY MOISTURE FROM STOPPING TO THE CONNECTOR.
3. INSPECT THE DEVICE TO MAKE SURE IT IS NOT CHIPPED, CRACKED OR ANY SIGNS OF NEGLIGENCE THAT WILL TAKE AWAY FROM MAKING A FULL SEAL AROUND THE CONNECTOR.
4. USE ONLY CORRECT SIZE PER CABLE AND CONNECTOR TYPE - I.E. 1/2 INCH FOR 1/2 INCH NOT 7/8TH FOR 1/2 INCH.
5. FOLLOW DIRECTIONS THAT COME WITH PRODUCT - MOST CLAM SHELL TYPE SEALANT DEVICES WRAP AROUND OR CLAMP AROUND A CONNECTION POINT.
6. BE CAREFUL WHEN SETTING LOCKING DEVICE INTO PLACE ON CLAM SHELL STYLE SEALANTS THEY ARE PLASTIC AND TEND TO BREAK OR CRACK IN EXTREME WEATHER CONDITIONS WHEN LOCKING DEVICE CLOSED TO CREATE THE SEAL. IF THE LOCKING MECHANISM CRACKS OR BREAKS, REPLACE IT. DO NOT TRY THE CLAM CLOSED OR TRY TO RE-ENGINEER IT.
7. ONCE THE CLAMP IS ON AND LOCKED AROUND THE CONNECTOR THE PROCESS IS COMPLETE.

PPC BOOT

1. PLACE BOOT OVER CABLE BEFORE CONNECTOR IS ATTACHED TO CABLE. THIS IS ONLY RATED FOR PPC TYPE CONNECTORS. (NOTE IF THIS STEP IS SKIPPED OR NOT COMPLETED BEFORE MAKING A CONNECTOR THE SUBCONTRACTOR WILL NOT BE ABLE TO USE THE BOOT STYLE DEVICE TO SEAL THE CONNECTOR. IT IS NOT RECOMMENDED TO WASTE A CONNECTOR AND CUT IT OFF AND START AT STEP NO. 1 AGAIN. SINCE PPC CONNECTORS ARE NOT REUSABLE AND CAN GET QUITE EXPENSIVE. DO NOT TRY TO STRETCH THE BOOT TO SLIDE IT OVER THE CONNECTOR.)
2. PLACE THE BOOT OVER THE CABLE, AND THEN MAKE THE CONNECTOR.
3. TORQUE THE CONNECTION TO PROPER SPECIFICATIONS.
4. SLIDE BOOT UP TO COVER THE ENTIRE CONNECTION, FOLLOWING THE PPC GUIDELINES.
5. THIS PROCESS IS COMPLETE AT THIS TIME.



Know what's below.
Call before you dig.



NB+C ENGINEERING SERVICES, LLC.



NE-MA-BSTN3N01-03335
TMO ID: NE3206BA_31LAB
10 RADCLIFFE ROAD
SOMERVILLE, MA 02145
MIDDLESEX COUNTY

REVISIONS

REV	DATE	DESCRIPTION	BY
5	03/18/20	15' COMPLIANCE ADDED	DRG
4	01/28/20	MOUNT REVISED	DRG
3	09/23/19	REVISED	NSB
2	08/06/19	STAMP ADDED	CWE
1	05/15/19	FOG REVISED	NSB
0	04/12/19	PRELIMINARY	NSB

REV DATE DESCRIPTION BY



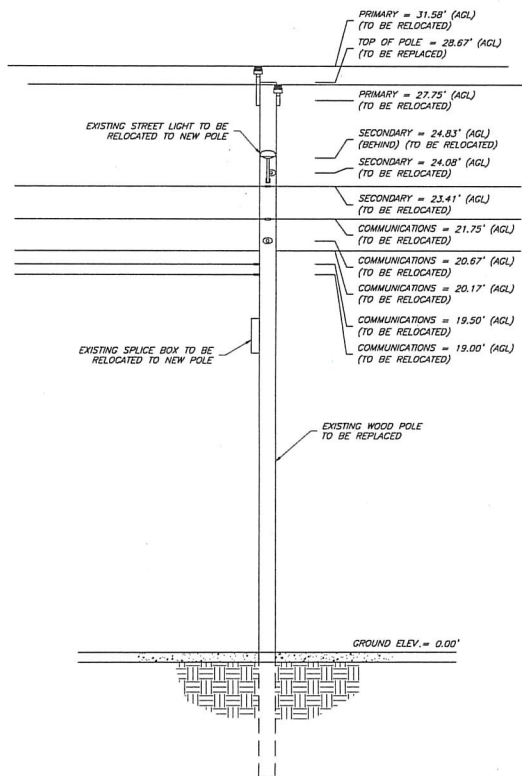
KRUPAKARAN KOLANDAVELU, P.E.
MA PROFESSIONAL ENGINEER LIC. #50019

NOTES

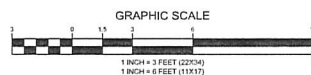
SHEET
02 OF 05

NOTES:

- EQUIPMENT ELEVATION IS SUBJECT TO MAKE READY PERFORMED BY POLE OWNER.
- NEW PLACARD SHALL BE OSHA COMPLIANT AND DISPLAY THE FOLLOWING INFORMATION: TRANSMITTING SYSTEM, EQUIPMENT OWNER & PROPER CONTACT INFORMATION, INSTALL PER UTILITY COMPANY REQUIREMENTS AND VERIFY EXACT MOUNTING HEIGHT IN FIELD.
- MAINTAIN MINIMUM OF 8'-6" FROM GROUND LEVEL TO BOTTOM OF PROPOSED SHROUD.
- MAINTAIN MINIMUM OF 42" FROM TOP COMMUNICATION ATTACHMENT TO BOTTOM SECONDARY POWER ATTACHMENT.
- MAINTAIN MINIMUM OF 48" CLEARANCE IN ANY DIRECTION FROM ANTENNA AND MOUNTING BRACKET TO NEAREST SECONDARY POWER CONNECTION.
- MAINTAIN MINIMUM OF 12" FROM TOP COMMUNICATIONS LINE TO ANY ADDITIONAL COMMUNICATIONS LINE.
- MAINTAIN MINIMUM OF 5' FROM GROUND LEVEL TO METER LOCATION.
- MAINTAIN MINIMUM OF 6' CLEARANCE IN ANY DIRECTION FROM ANTENNA AND MOUNTING BRACKET TO NEAREST PRIMARY POWER CONNECTION.
- EQUIPMENT TO BE INSTALLED ON OPPOSITE SIDE OF TRAFFIC FLOW.
- POWER SUPPLY & WEATHERHEAD SHOULD BE INSTALLED ON THE SAME SIDE OF THE POLE WITH THE SECONDARY(S) AND COMMUNICATION CABLE(S) TO ACCOMMODATE CLIMBING OF THE POLE.

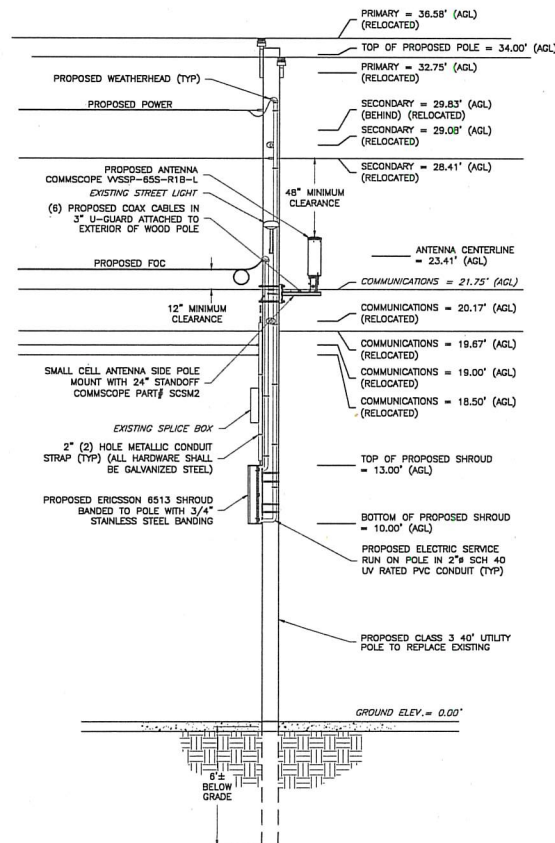


EXISTING ELEVATION (LOOKING SOUTHWEST)

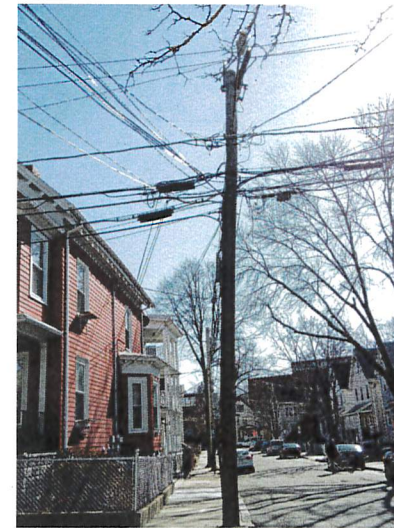
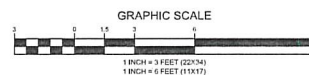


NOTE: NO INSTALLATION SHALL BE PLACED LESS THAN 15 FEET FROM A RESIDENCE'S WINDOW, DOOR OPENING, PORCH, OR BALCONY.

ATTACHMENT HEIGHTS, ANTENNA AND EQUIPMENT LOCATIONS PENDING MAKE-READY AND STRUCTURAL ANALYSIS




PROPOSED ELEVATION (LOOKING SOUTHWEST)

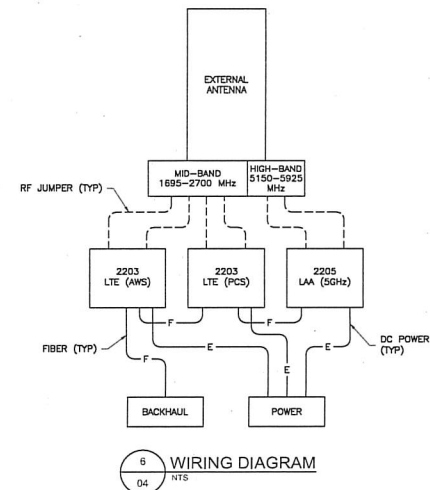
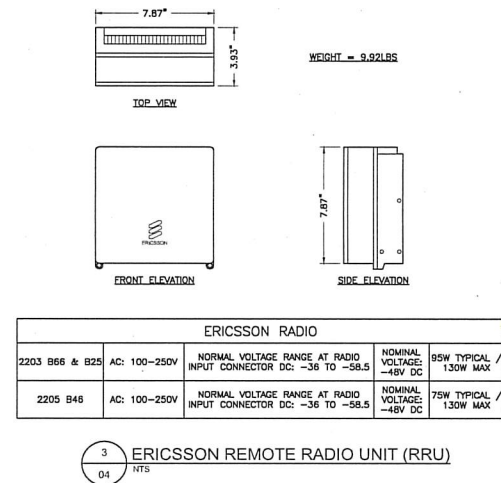





EXISTING CONDITIONS

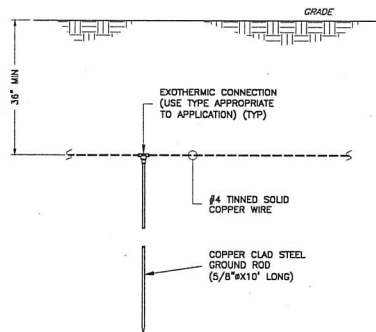


15' COMPLIANCE

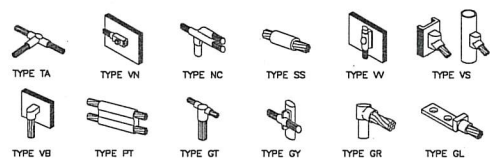
ENGINEERING FIRM	<div><div><div>NB+C</div><div>TOTALLY COMMITTED.</div></div><div><div>NB+C ENGINEERING SERVICES, LLC.</div><div>100 APRIL DRIVE, SUITE 303 SOMERVILLE, MA 01906 (877) 555-3800</div></div></div>																												
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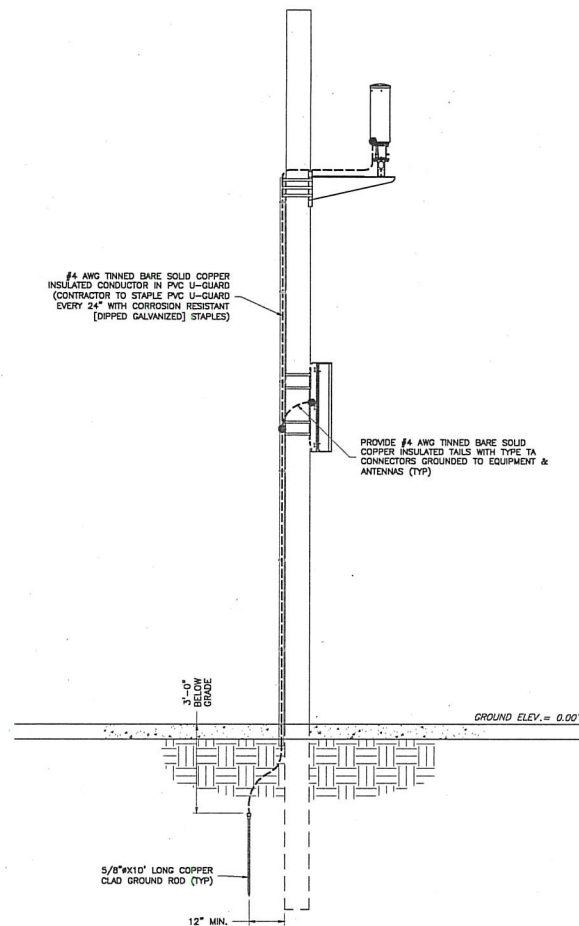
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SHEET NUMBER	<div>SHEET</div> <h1>04 OF 05</h1>																																



1 TYPICAL GROUND ROD DETAIL
05 NTS



2 GROUNDING CONNECTION DETAILS
05 NTS



3 ELECTRICAL & GROUNDING RISER DIAGRAM
05 NTS

NOTE:
EXISTING/PROPOSED UTILITY WIRES,
SIGNS, AND EXISTING EQUIPMENT
NOT SHOWN FOR CLARITY.

ENGINEERING FIRM

NB+C
TOTALLY COMMITTED

NB+C ENGINEERING SERVICES, L.L.C.
160 WASHINGTON DRIVE, SUITE 303
DARTMOUTH, MA 01928
(508) 554-1500

APPLICANT

exienet
YOUR NETWORK
SYSTEMS
3030 WARRENVILLE ROAD, SUITE 340
LITTLE, IL 60532
(630) 505-3800

SITE INFORMATION

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PROFESSIONAL STAMP



ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.
MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

**ELECTRICAL
& GROUNDING
DETAILS**

SHEET NUMBER

SHEET
05 OF 05

10 Radcliffe Road

List of Abutters for Grant of Location

Assessor Parcel	Property Address	Abutter Name	Abutter Mailing Address
61_C_1	10 RADCLIFFE RD SOMERVILLE, MA 02145	KISSAS ASPASIA FOR LIFE	10 RADCLIFFE RD SOMERVILLE, MA 02145
61_B_5	18 JAMES ST SOMERVILLE, MA 02145	NASCIMENTO ROBSON P & ELEANAIDE	18 JAMES ST SOMERVILLE, MA 02145
61_B_4	20 JAMES ST SOMERVILLE, MA 02145	SOARES PEDRO P & GILBERTA T FOR LIFE	20 JAMES ST SOMERVILLE, MA 02145
71-E-20-1	9 RADCLIFFE RD., #1 SOMERVILLE, MA 02145	LINDA & ALANA FOLSOM	9 RADCLIFFE RD., #1 SOMERVILLE, MA 02145
71-E-20-2	9 RADCLIFFE RD., #2 SOMERVILLE, MA 02145	JOVIE DAGULPO & KYLE CONROY	9 RADCLIFFE RD., #2 SOMERVILLE, MA 02145
71-E-20-3	9 RADCLIFFE RD., #3 SOMERVILLE, MA 02145	ANATOLIY Y. KATS	9 RADCLIFFE RD., #3 SOMERVILLE, MA 02145

Abutting Properties for
10 RADCLIFFE RD SOMERVILLE, MA
61/ C/ 1/ /
(50 Feet)

Location:
61/ C/ 2/ /
6 RADCLIFFE RD
Owner:
MAGIMBI CONSTANTINOS & HARRIET
6 RADCLIFFE RD
SOMERVILLE, MA 02145

Location:
61/ C/ 17/ /
15 JAMES ST
Owner:
MOURA LUCIA & JORGE TRUSTEES
MOURA FAMILY TRUST
15 JAMES ST
SOMERVILLE, MA 02145