NEW PAR
D/B/A

verizon

SITE NAME:

MASSILLON DOWNTOWN X I SC

VERIZON WIRELESS SITE NUMBER: OHPA-P-039239

PROPOSED SMALL CELL CONSTRUCTION DOCUMENTS

PROJECT INFORMATION

APPLICANT:	NEW PAR d/b/a VERIZON WIRELESS 7575 COMMERCE COURT LEWIS CENTER, OH 43035
PROJECT DESCRIPTION:	PROPOSED NEW WOOD UTILITY POLE WITHIN THE EXISTING RIGHT OF WAY WITH SMALL CELL ANTENNA & CABINET ENCLOSURE MOUNTED TO POLE. NEW ELECTRICAL SERVICE AND FIBER SERVICE TO POLE.
VERIZON WIRELESS SITE NAME:	MASSILLON DOWNTOWN X I SC
VERIZON WIRELESS SITE NUMBER:	OHPA-P-039239
FUZE PROJECT ID NUMBER:	2542603
SITE ADDRESS:	1928 TREMONT AVE SE MASSILLON, OH 44646
COUNTY:	STARK
ZONING CLASSIFICATION:	N/A
TYPE OF SITE:	SMALL CELL INSTALLATION
CONSTRUCTION TYPE:	II-B
POLE COORDINATES: (NAD 1983)	LAT: N. 40° 47' 57.2244" (40.7990229300°) LONG: W. 81° 29' 50.9640" (-81.4974895450°)
ELEVATION:	1098.3' AMSL BASE OF POLE APPROX.
UTILITY POLE HEIGHT:	35' AGL
PRIVATE PROPERTY OR R.O.W.	RIGHT-OF-WAY

VICINITY MAP

SHEET INDEX

SPECIAL NOTES

HANDICAPPED REQUIREMENTS:
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
- HANDICAPPED ACCESS REQUIREMENTS NOT REQUIRED.

PLUMBING REQUIREMENTS:
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.

FAA AND FCC REQUIREMENTS:
- THIS FACILITY SHALL MEET ALL FAA AND FCC REQUIREMENTS.

CONSTRUCTION REQUIREMENTS:
- ALL WORK MUST CONFORM TO VERIZON WIRELESS CONSTRUCTION INSTALLATION STANDARDS & ALL APPLICABLE CODES AND ORDINANCES.

BUILDING CODES AND STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR THE LOCATION.

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

- AMERICAN CONCRETE INSTITUTE 318
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S MANUAL OF STEEL CONSTRUCTION
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA-222
- STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND SUPPORTING STRUCTURES TIA-601
- COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
- INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS IEEE-81, IEEE 1100, IEEE C62.41
- ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION
- 2017 OHIO BUILDING CODE AND AMENDMENTS
- 2017 NATIONAL ELECTRICAL CODE

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.

OHIO Utilities Protection SERVICE
Call Before You Dig
1-800-362-2764
AT LEAST 48 HOURS PRIOR TO EXCAVATING

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
Cleveland, OH. 44114
Phone: (216)344-3855
Fax: (216)344-3856

NEW PAR
D/B/A
verizon

STATE OF OHIO
DAVID W. HARPER
E-53819
REGISTERED PROFESSIONAL ENGINEER
03/06/19

REV	DATE	DESCRIPTION
A	03/27/19	For Approval
0	03/06/19	For Construction

SITE INFORMATION:
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MASSILLON
DOWNTOWN X I SC

VERIZON SITE NUMBER:
OHPA-P-039239
1928 TREMONT AVE SE
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:
TITLE SHEET
& PROJECT
INFORMATION

SHEET NUMBER:
T-1

A - GENERAL REQUIREMENTS:

1. ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH VERIZON WIRELESS STANDARD CONSTRUCTION SPECIFICATIONS, ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.
2. THE OWNER OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR HIS ARCHITECT/ENGINEER.
3. THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURES AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS WHICH AFFECT THE NEW CONSTRUCTION.
4. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.
5. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES.
6. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE PROJECT MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL O.U.P.S. AT (800) 362-2764 48 HRS PRIOR TO START OF CONSTRUCTION TO HAVE UNDERGROUND UTILITIES LOCATED AND MARKED.
7. CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.
8. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.
9. DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE UTILITIES OF THE BUILDING/SITE WITHOUT INTERRUPTION. SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.
10. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE OHIO STANDARDS FOR EROSION AND SEDIMENT CONTROL.
11. CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS - BUILT DRAWINGS TO THE OWNER AND/ OR PROJECT MANAGER.

B - GENERAL NOTES:

1. THESE NOTES SHALL BE CONSIDERED PART OF THE WRITTEN SPECIFICATIONS.
2. THE WORK SHALL INCLUDE FURNISHING EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE THE INSTALLATIONS AS INDICATED IN THE CONTRACT DOCUMENTS.
3. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE(S) AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED PER THE CONTRACT DOCUMENTS, AND DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER/ CONSTRUCTION MANAGER (VERIZON) AND THE ENGINEER OF RECORD (HARPER ENGINEERING) PRIOR TO PROCEEDING.
4. THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.
5. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES, INCLUDE APPLICABLE MUNICIPAL AND UITLITY COMPANY SPECIFICATIONS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. IF THE RECOMMENDATIONS ARE IN CONFLICT WITH THE CONTRACT DOCUMENTS AND/ OR APPLICABLE CODES OR REGULATIONS, REVIEW THE CONFLICT FOR DIRECTIONS WITH THE OWNER/ CONSTRUCTION MANAGER AND THE ENGINEER OF RECORD PRIOR TO PROCEEDING.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT, INCLUDING CONTACT AND COORDINATION WITH THE CONSTRUCTION MANAGER AND/ OR THE AUTHORIZED REPRESENTATIVE OF ANY OUTSIDE POLE OR PROPERTY OWNER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY PLANS FOR ANY WORK IN THE RIGHT OF WAY. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED TO THE PROPER JURISDICTION FOR APPROVAL PRIOR TO IMPLEMENTATION.
9. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROCTECT EXISTING IMPROVEMENTS, PAVINGS, CURBS, VEGETATION, GALVANIZED SURFACES OR OTHER EXISTING ELEMENTS AND UPON COMPLETION OF THE WORK. CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY DAMAGED THAT OCCURED DURING CONSTRUCTION TO THE SATISFACTION OF THE CLIENT AND AT NO ADDITIONAL COST TO THE CLIENT.
10. KEEP THE GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, AND REMOVED EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN A CLEAN CONDITION DAILY.
11. PLANS ARE INTENDED TO BE DIAGRAMMATIC ONLY AND SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. RELY ONLY ON ANNOTATED DIMENSIONS AND REQUEST INFORMATION IF ADDITIONAL DIMENSIONS ARE REQUIRED.
12. THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES ARE OBTAINED BY A VISUAL SITE VISIT ONLY. OTHER FACILITIES MAY EXIST BEYOND WHAT IS NOTED, CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO START OF CONSTRUCTION AND USE EXTREME CARE AND PROTECTION OF UTILITIES AND OTHER AGENCY'S FACILITIES WITHIN LIMITS OF THE WORK, WHETHER THEY ARE INDICATED IN THE CONTRACT DOCUMENTS OR NOT.

C - RIGHT OF WAY CONSTRUCTION NOTES:

1. GENERAL CONTRACTOR TO REMOVE/ CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, G095 AND G0128 STANDARDS AND REGULATIONS.
3. CALL APPROPIATE STATE UTILITIES PROTECTION SERVICE PRIOR TO ANY UNDERGROUND WORK. OHIO (800-362-2764)
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.

D - SITE WORK:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES (WHERE ENCOUNTERED IN THE WORK) SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE PROJECT MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:
   A. FALL PROTECTION
   B. CONFINED SPACE
   C. ELECTRICAL SAFETY
   D. TRENCHING AND EXCAVATION
2. REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A LEGAL MANNER.
3. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING AND DOCUMENTED ON THE AS-BUILT DRAWINGS.
4. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH AS SPECIFIED IN THE SPECIFICATION LANDSCAPE WORK.
5. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL AND OBC 2017/ IBC 2015 STANDARD GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

E - WIRELESS CONSTRUCTION NOTES:

1. CONTRACTOR IS TO FOLLOW MOST CURRENT VERIZON NADV/ STANDARDS DOCUMENTS PROVIDED TO COMPLETE THIS INSTALLATION.
2. CONTRACTOR TO REFER TO THE MOST CURRENT VERIZON NADV FOR APPROVED COAXIAL PROVIDERS AND LINE SWEEP TESTING PROCEDURES.
3. CONTRACTOR SHALL INCLUDE AT LEAST ONE "ANRITSU" CERTIFIED LINE SWEEP TECHNICIAN ON SITE DURING ANY VERIZON JOB RELATED INSTALLATION OR MAINTENACNCE OF COAXIAL CABLE, ANTENNAS, TT-LNA, RF CONNECTORS, JUMPERS OR DIPLEX FILTERS.
4. CONTRACTOR SHALL COMPLETE VERIZON PROVIDED "SMALL CELL SWEEP REPORT" WITH ALL INFORMATION FILLED IN ACCURATELY AND COMPLETELY.
5. CONTRACTOR TO REFER TO THE MOST CURRENT VERIZON NADV FOR APPROVED "PIM" TEST EQUIPMENT AND GUIDELINES.
6. CONTRACTOR IS TO USE BATTERY POWERED "PIM" EQUIPMENT TO VALIDATE THE FINAL LOCATION OF THE COAXIAL JUMPER AND ANTENNA ARE FREE OF INTERNAL AND EXTERNAL "PIM" SOURCES.
7. CONTRACTOR SHALL PROVIDE AT LEAST ONE TECHNICAL LEAD THAT IS CERTIFIED AND PROFICIENT IN EXECUTING, INTERPRETING, AND RECORDING "PIM" MEASUREMENTS.

F - RF COMPLIANCE & SIGNAGE REQUIREMENTS:

1. SIGNAGE PLACEMENT AT POLE FOR TOP MOUNT ANTENNA CONFIGURATION (4 TOTAL):

1.1 TWO (2) 5"X7" YELLOW "CAUTION" SIGNS WITH VZW NOC PHONE NUMBER AND SITE ID PLACED AT 9'-0" BELOW THE ANTENNA MIDPOINT (ANTENNA RAD CENTERLINE). PLACE ONE SIGN ON THE STREET SIDE OF THE POLE AND ONE SIGN ON THE FIELD SIDE OF THE POLE.

1.2 ONE (1) 5"X7" YELLOW "CAUTION" SIGN PLACED ON THE ANTENNA. PLACE VINYL DECAL ON THE STREET SIDE OF THE ANTENNA FOR VISIBILITY TO MECHANICAL LIFTS.

1.3 ONE (1) 5"X7" YELLOW "RF SAFETY GUIDELINES" SIGN PLACED AT 6'-0" ABOVE GRADE (A.G.L.) OR ON/NEAR THE POLE EQUIPMENT CABINET.

2. SIGNAGE PLACEMENT AT POLE FOR SIDE MOUNT ANTENNA CONFIGURATION (6 TOTAL):

2.1 TWO (2) 5"X7" YELLOW "CAUTION" SIGNS WITH VZW NOC PHONE NUMBER AND SITE ID PLACED AT 9'-0" BELOW THE ANTENNA MIDPOINT (ANTENNA RAD CENTERLINE). PLACE ONE SIGN ON THE STREET SIDE OF THE POLE AND ONE SIGN ON THE FIELD SIDE OF THE POLE.

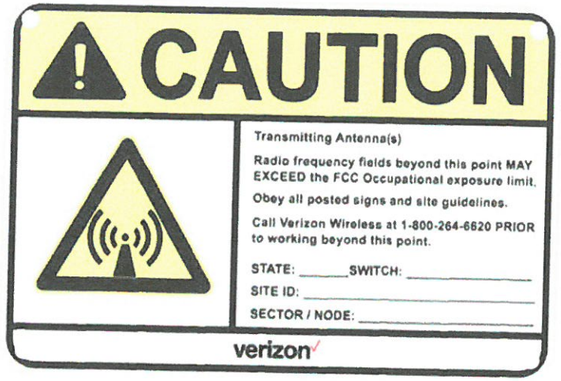
2.2 ONE (1) 5"X7" YELLOW "CAUTION" SIGN PLACED ON THE ANTENNA. PLACE VINYL DECAL ON THE STREET SIDE OF THE ANTENNA FOR VISIBILITY TO MECHANICAL LIFTS.

2.3 TWO (2) 5"X7" YELLOW "CAUTION" SIGNS WITH VZW NOC PHONE NUMBER AND SITE ID PLACED AT 9'-0" ABOVE THE ANTENNA MIDPOINT (ANTENNA RAD CENTERLINE) OR AT THE TOP OF THE POLE IF 9'-0" CLEARANCE CANNOT BE MET. PLACE ONE SIGN ON THE STREET SIDE OF THE POLE AND ONE SIGN ON THE FIELD SIDE OF THE POLE. IF NESC CLEARANCES TO POWER CANNOT BE MAINTAINED, AFFIX VINYL ADHESIVE DECALS DIRECTLY TO THE POLE.

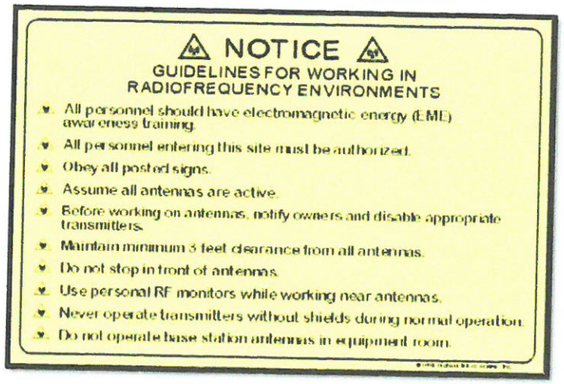
2.4 ONE (1) 5"X7" YELLOW "RF SAFETY GUIDELINES" SIGN PLACED AT 6'-0" ABOVE GRADE (A.G.L.) OR ON/NEAR THE POLE EQUIPMENT CABINET.

3. CONTRACTOR SHALL PROVIDE PHOTOS SUPPORTING RF COMPLIANCE SIGNAGE VERIFICATION CHECKLIST ON VZW STANDARD FORM AND TO BE SUBMITTED FOR VZW REVIEW PRIOR TO SITE TURN-UP.
4. CONTRACTOR SHALL PROVIDE PHOTOS SUPPORTING RF COMPLIANCE SIGNAGE VERIFICATION CHECKLIST FOR ALL POLE SIGNS PLACED, INCLUDING A DATE AND GPS COORDINATES STAMP ON EACH PHOTO TO BE SUBMITTED WITH SWEEPS AND PIM TEST DATA FOR REVIEW TO SITE TURN-UP.

EXAMPLE YELLOW "CAUTION" SIGN



EXAMPLE YELLOW "RF SAFETY GUIDELINES" SIGN



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A - QUALITY ASSURANCE:

1. ALL CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT SPECIFIED ON THE DRAWINGS SHALL BE NEW AND UNUSED, OF CURRENT MANUFACTURE AND OF THE HIGHEST GRADE.
2. ALL EQUIPMENT, MATERIALS AND INSTALLATION METHODS SPECIFIED ON THE PROJECT DRAWINGS SHALL BE DESIGNED AND FABRICATED IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS, AND APPROPRIATE INDUSTRIAL CONSENSUS STANDARDS AND CODES INCLUDING ANSI, IEEE, NEMA, NFPA AND UL, ALL AS REVISED AS OF THE DATE OF THIS WORK PACKAGE.
3. ALL ELECTRICAL ITEMS BOTH CONTRACTOR AND OWNER FURNISHED SHALL BE CHECKED FOR AGREEMENT WITH THE PROJECT DRAWINGS AND SPECIFICATIONS AND SHALL BE VISUALLY INSPECTED TO ENSURE THAT EQUIPMENT IS UNDAMAGED AND IS IN PROPER ALIGNMENT, INSTALLED PER MANUFACTURER'S INSTRUCTIONS, ELECTRICAL CONNECTIONS ARE TIGHT AND PROPERLY INSULATED WHERE REQUIRED, FUSES ARE OF THE PROPER TYPE AND SIZE, AND ELECTRICAL ENCLOSURES ARE OF THE PROPER NEMA TYPE.
4. NOTIFY OWNER IN WRITING OF ALL DISCREPANCIES BETWEEN DRAWINGS/SPECIFICATIONS AND FIELD INSTALLATIONS, OR IF THE VISUAL INSPECTIONS SHOW DAMAGE OR IMPROPER INSTALLATION.

B - GENERAL ELECTRICAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL WIRING AND EQUIPMENT UNLESS OTHERWISE INDICATED. MAIN COMPONENTS ARE AS FOLLOWS:
2. ONE SET OF COMPLETED ELECTRICAL "AS INSTALLED" OR "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE JOB SHOWING ACTUAL DIMENSIONS, ROUTING AND CIRCUITS SHALL BE PROVIDED TO THE PROJECT COORDINATOR. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE PROJECT COORDINATOR AT JOB COMPLETETION.
3. PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
4. UPON COMPLETION OF WORK, CONDUIT CONTINUITY, SHORT CIRCUIT, AND GROUNDING FALL POTENTIAL TEST WILL BE MADE FOR APPROVAL AND SUBMIT TEST REPORTS TO THE PROJECT COORDINATOR.
5. CONTRACTOR SHALL CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE IN A COMPLETE AND UNDAMAGED CONDITIONS.
6. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF TEMPORARY, IF REQUIRED, AND PERMANENT POWER WITH THE LOCAL UTILITY COMPANY. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
7. CONTRACTOR SHALL OBTAIN ALL NECESSARY RIGHT OF WAY, BUILDING AND/ OR ELECTRIC PERMITS INSPECTIONS AND APPROVALS, AND PAY ALL REQUIRED FEES PURSUANT TO THE WORK.
8. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRIC CODE (N.E.C.) AND ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES. ALL COMPONENTS SHALL BE "UL" APPROVED.
9. CONTRACTOR SHALL BEOFRE SUBMITTING THEIR BID, VISIT THE PROJECT SITE AND BECOME FAMILIAR WITH THE CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
10. THE EQUIPMENT AND MATERIAL SHALL BE FURNISHED AND INSTALLED TO OPERATE SAFELY AND CONTINUOUSLY OUTDOORS WITH NO PROTECTION FROM THE WEATHER.
11. ELECTRICAL WORK REPRESENTED ON THE PROJECT DRAWINGS IS SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS AND ELEVATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD AND VERIFIED WITH THE OWNER'S REPRESENTATIVE.
12. CONTRACTOR SHALL PROVIDE ALL VERIFICATION OBSERVATION TESTS AND EXAMINE ALL WORK PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT COORDINATOR LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
13. THE EQUIPMENT AND MATERIAL SHALL BE FURNISHED AND INSTALLED TO OPERATE SAFELY AND CONTINUOUSLY OUTDOORS WITH NO PROTECTION FROM THE WEATHER.
14. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE CIRCUIT BREAKERS. MULTIPLE POLE CIRCUIT BREAKERS SHALL BE SINGLE HANDLE COMMON TRIP. SHORT CIRCUIT INTERRUPTING RATING SHALL BE AS REQUIRED FOR AVAILABLE FAULT CURRENTS. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE A SHORT CIRCUIT INTERRUPTING RATING EQUAL TO OR GREATER THAN THAT SHOWN ON PROJECT DRAWINGS.
15. CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING, BACKFILLING, AND REMOVAL OF DEBRIS IN CONNECTION WITH THE ELECTRICAL WORK IN ACCORDANCE WITH THE PROJECT DRAWINGS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF UNDERGROUND UTILITIES AND GROUNDING WITH THE FOUNDATION INSTALLATION.
16. CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS FOR EQUIPMENT INSTALLED AS PART OF THIS PROJECT. SUPPORTS SHALL CONSIST OF GALVANIZED STEEL FRAMES, PLATES, BRACKETS, RACKS AND OTHER SHAPES OF ADEQUATE SIZE AND FASTENED WITH BOLTS, SCREWS OR BY WELDING TO PROVIDE RIGID SUPPORT.
17. CONTRACTOR SHALL CALL THE APPROPRIATE UTILITIES PROTECTION SERVICE BEFORE ANY UNDERGROUND WORK IS PERFORMED, SUCH AS TRENCHING, EXCAVATING, AND DRIVING GROUND RODS.
18. ALL ELECTRICAL EQUIPMENT SHALL BE LABLED WITH PERMANENTLY ENGRAVED LAMINATED PHENOLIC NAMEPLATES WITH WHITE ON BLUE BACKGROUND (MINIMUM LETTER HEIGHT SHALL BE 1/2 - INCH). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS.

C - RACEWAYS:

1. CONDUIT AND CONDUIT FITTINGS SHALL MEET ANSI AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP AND SHALL BE UL LISTED.
   A. RIGID STEEL CONDUIT (FOR ALL ABOVE GRADE WORK) SHALL CONFORM TO ANSI C80.1 & THE REQUIREMENTS OF NEC, PARAGRAPH 344 & BE STANDARD WEIGHT, MILD RIGID STEEL. HOT DIP GALVANIZED WITH INSIDE & OUTSIDE FINISHED WITH A PROTECTIVE ZINC COATING. COUPLING, ELBOWS & BENDS SHALL MEET THESE SAME REQUIREMENTS. FITTINGS SHALL BE OF THE GALVANIZED IRON OR STEEL THREADED TYPE.
   B. PVC CONDUIT (FOR ABOVE GROUND OR UNDERGROUND WORK) SHALL CONFORM TO UL STANDARD 651 AND THE REQUIREMENTS OF NEC, PARAGRAPH 352. CONDUIT SHALL BE HEAVY WALL TYPE, SCHEDULE 40 OR 80, AND SUNLIGHT RESISTANT. FITTINGS SHALL BE OF THE UNTHREADED SOLVENT CEMENT TYPE.
   C. EMT CONDUIT (FOR EXPOSED AND CONCEALED WORK): ELECTRIC METALLIC TUBING SHALL CONFORM TO ANSI C80.3 AND THE REQUIREMENTS OF NEC, PARAGRAPH 358 AND BE PROTECTED FROM CORROSION SUITABLE FOR THE ENVIORMENT IN WHICH THEY ARE TO BE INSTALLED. COUPLINGS AND CONNECTORS SHALL BE MADE UP TIGHT AND WHERE INSTALLED IN WET LOCATIONS SHALL COMPLY WITH NEC PARAGRAPH 314.15.
2. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH, SIZES NOT SHOWN ON DRAWINGS SHALL BE PER THE LATEST EDITION OF THE NEC.
3. ALL SPARE CONDUITS SHALL HAVE A METALLIC PULL WIRE.
4. CONDUIT SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC.
5. UNDERGROUND CONDUITS:
   A. INSTALL WARNING TAPE TWELVE INCHES ABOVE EACH CONDUIT OR SET OF CONDUITS.
   B. IDENTIFY EACH CONDUIT AT BOTH ENDS.
   C. INSTALL A MINIMUM OF 36 INCHES BELOW THE FINISHED GRADE, OR DEEPER IF NOTED ON DRAWINGS.
   D. SLOPE A MINIMUM OF 4 INCHES PER 100 FEET TO DRAIN AWAY FROM BUILDINGS AND EQUIPMENT.
   E. USE MANUFACTURED ELECTRICAL PVC ELBOWS AND FITTINGS FOR BELOW GRADE BENDS.
   F. MAKE JOINTS AND FITTINGS WATERTIGHT ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
   G. RESTORE SURFACE FEATURES DISTURBED BY EXCAVATION (AND TRENCHING) IN ALL AREAS.

D - CONDUCTORS:

1. ALL POWER, CONTROL AND COMMUNICATION WIRING SHALL MEET NEMA WC, ASTM, UL, AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP UNLESS OTHERWISE SPECIFIED.
   A. SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER, 600 VOLT, SUNLIGHT RESISTANT, SUITABLE FOR WET LOCATIONS, TYPE USE-2. THE GROUNDED NEUTRAL CONDUCTOR SHALL BE IDENTIFIED WITH A WHITE MARKING AT EACH TERMINATION.
   B. CONDUCTORS FOR FEEDER AND BRANCH CIRCUITS SHALL BE COPPER, 600VOLT, TYPE THHN/THWN WITH A MINIMUM SIZE OF #12 AWG.
2. ALL CONDUCTOR ACCESSORIES INCLUDING CONNECTORS, TERMINATIONS, INSULATING MATERIALS, SUPPORT GRIPS, MARKER AND CABLE TIES SHALL BE FURNISHED AND INSTALLED. SUPPLIER'S INSTALLATION INSTRUCTIONS SHALL BE OBTAINED FOR CABLE ACCESSORIES. THESE INSTRUCTIONS SHALL BE IN THE POSSESSION OF THE CRAFTSMAN WHILE INSTALLING THE ACCESSORIES AND SHALL BE AVAILABLE TO THE COMPANY FOR REFERENCE.
3. WHERE POSSIBLE, #6 AWG AND SMALLER WIRE SHALL BE COLOR CODED BY THE COLOR OF THE INSULATION COVERING. COLOR CODING OF WIRE LARGER THAN #6 AWG MAY BE BY MEANS OF SELF-ADHESIVE WRAP-AROUND TYPE MARKERS, PER NEC.
4. TERMINAL CONNECTORS FOR CONDUCTORS SMALLER THAN #8 AWG SHALL BE COMPRESSION TYPE CONNECTORS SIZED FOR THE CONDUCTOR AND THE TERMINAL. THE CONNECTORS SHALL BE CONSTRUCTED OF FINE GRADE HIGH CONDUCTIVITY COPPER IN ACCORDANCE WITH FEDERAL SPECIFICATION QQ-C-576 AND SHALL BE TIN-PLATED IN ACCORDANCE WITH MILITARY PLATING SPECIFICATION MIL-T-10727. THE INTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE SERRATED AND THE EXTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE PROVIDED WITH CRIMP GUIDES.
5. TERMINAL CONNECTORS FOR CONDUCTORS #8 AWG AND LARGER SHALL BE PRESSURE OR BOLTED CLAMP, TYPE BURNDY, QUICKLUG, VARILUG OR ACCEPTABLE EQUAL, OR COMPRESSION, TYPE BURNDY TYPE YAV OR YA (LONG BARREL), PANDUIT TYPE LCA OR LCC, OR ACCEPTABLE EQUAL. ACCEPTABLE CONNECTORS INCLUDED WITH COMPANY FURNISHED EQUIPMENT MAY BE USED.
6. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED 100 AMPERES OR LESS, OR MARKED FOR NOS. 14 THROUGH 1 CONDUCTORS, SHALL BE USED ONLY FOR CONDUCTORS RATED 60°C (140°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 60°C (140°F) AMPACITY OF THE CONDUCTOR SIZE USED.
7. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED OVER 100 AMPERES, OR MARKED FOR CONDUCTORS LARGER THAN NO. 1, SHALL BE USED ONLY FOR CONDUCTORS RATED 75°C (167°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 75°C (167°F) AMPACITY OF THE CONDUCTOR SIZE USED.
8. ALL 600 VOLT OR LESS WIRING, WHERE COMPRESSION TYPE CONNECTORS ARE USED, SHALL BE INSULATED WITH AT LEAST ONE TURN OF "SCOTCHFILL" ELECTRICAL INSULATING PUTTY AND THEN COVERED WITH TWO HALF TURNS OF TAPE SIMILAR TO 3M COMPANY'S "33 PLUS" (33+) PLASTIC TAPE OR 88 OUTDOOR.

E - GROUNDING:

1. ALL BASE TRANSCEIVER SITE EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), THE LATEST EDITION OF LIGHTNING PROTECTION CODE NFPA 780 AND MANUFACTURERS SPECIFICATIONS.
2. THE ELECTRICAL SERVICE TO THE SITE SHALL BE GROUNDED AT THE SERVICE DISCONNECTING MEANS REQUIRED IN ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, AND IN ACCORDANCE WITH ANY LOCAL CODE.
3. ALL UNDERGROUND (BELOW GRADE) GROUNDING CONNECTIONS SHALL BE MADE BY THE CADWELD PROCESS (MECHANICAL LUG ATTACHMENTS BELOW GRADE ARE NOT ACCEPTABLE). CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES (TEES, Xs, ETC.), ALL CABLE CONNECTIONS TO GROUND RODS, GROUND ROD SPLICES, AND LIGHTNING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY CADWELD AND INSTALLED PER MANUFACTURER'S RECOMMENDATION AND PROCEDURES.
4. ALL GROUNDING AND BONDING CONDUCTORS THAT ARE CONNECTED ABOVE GRADE OR INTERIOR TO A BUILDING SHALL BE CONNECTED USING TWO HOLED CRIMP TYPE (COMPRESSION) CONNECTIONS FOR #2 & #6 AWG INSULATED COPPER CONDUCTORS.
5. ALL GROUNDING CONNECTIONS, INTERIOR AND EXTERIOR, MADE THROUGHOUT THIS DOCUMENT SHALL BE MADE USING AN ANTI-OXIDATION COMPOUND. THE ANTI-OXIDATION COMPOUND SHALL BE THOMAS AND BETTS KOPR-SHIELD (TM OF JET LUBE INC.), OR BURNDY PENETROX -E. NO SUBSTITUTIONS. COAT ALL WIRES BEFORE LUGGING. COAT ALL SURFACES BEFORE CONNECTING.
6. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. PRIOR TO CADWELD, GALVANIZING SHALL BE REMOVED BY GRINDING SURFACE TO BARE METAL. "SLAG" FROM CADWELD MUST BE REMOVED AND WELD SHALL BE SPRAYED WITH COLD GALVANIZE AFTER COMPLETION.
7. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED. CLIPS OF THE FOLLOWING MATERIALS AND TYPES MAY BE USED TO SUPPORT GROUNDING CONDUCTORS.
   - PLASTIC CLIPS
   - STAINLESS STEEL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR
   - FERROUS METAL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR
8. ALL BELOW GRADE GROUNDING CONDUCTORS SHALL BE BARE TINNED SOLID COPPER WIRE. ABOVE-GRADE GROUNDING CONDUCTORS MAY BE EITHER:
   - BARE TINNED SOLID COPPER WIRE
   - THWN-INSULATED, CONTINUOUS GREEN COLOR, SOLID COPPER WIRE
   - THWN-INSULATED, CONTINUOUS GREEN COLOR, STRANDED COPPER WIRE AS SPECIFIED ON THE GROUNDING DRAWINGS
   A. UNDERGROUND GROUND RING SHALL BE A #2 AWG BARE TINNED SOLID COPPER WIRE
   B. #2 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET INSTALLATION (SOME ABOVE GROUND APPLICATIONS, I.E. INDOOR GROUND RING).
   C. #4/0 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET LOCATIONS (I.E., TO MAIN GROUND, BUILDING STEEL, BETWEEN GROUND BARS, LIGHTNING PROTECTION, MAIN WATER LINE OF THE BUILDING OR EXISTING GROUND ROD).
   D. #2 AWG WIRE SHALL BE BARE TINNED SOLID COPPER . ALL BURIED WIRE SHALL MEET THIS CRITERIA, INCLUDING CABLE TRAY GROUNDING WIRES AND OTHER WIRES AS INDICATED ON THE DRAWINGS.
   E. THE MINIMUM BEND RADIUS IS 8 INCHES FOR #6 AWG AND SMALLER; 12 INCHES FOR WIRE LARGER THAN #6 AWG.
9. ALL HARDWARE, BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL. EVERY CONNECTION SHALL BE BOLT-FLAT WASHER-BUSS-LUG-FLAT WASHER-LOCK WASHER-NUT IN THAT EXACT ORDER, WITH NUT FACING OUTWARD. BACK-TO-BACK LUGGING, BOLT-FLAT WASHER-LUG-FLAT WASHER-BUSS-LUG-LOCK WASHER-NUT, IN THAT EXACT ORDER IS ACCEPTED WHERE NECESSARY TO CONNECT MANY LUGS TO A BUSS BAR. STACKING OF LUGS, BUSS-LUG-LUG, IS NOT ACCEPTABLE.
10. COMPRESSION GROUND LUGS FOR GROUNDING CONDUCTORS SHALL BE BURNDY TYPE YAXX-2TC38 OR APPROVED EQUAL.
11. THE DEPTH OF THE GROUND RING, WHEN SPECIFIED, SHALL BE EITHER 3'-6" BELOW FINAL GRADE OR IT SHALL BE INSTALLED TO THE MINIMUM DEPTH REQUIRED BY LOCALLY ENFORCED CODES, REGULATIONS AND ORDINANCES, WHICHEVER IS DEEPER.
12. GROUND RODS, WHEN SPECIFIED, SHALL BE 5/8 INCH STEEL, CLAD WITH A PURE COPPER JACKET OF NOT LESS THAN 0.0012 INCHES THICK, 8 FEET LONG (MIN.). GROUND RODS SHALL BE DRIVEN TO THE FULL VERTICAL LENGTH IN UNDISTURBED EARTH.
13. SPACING BETWEEN GROUND RODS, WHEN SPECIFIED, SHALL BE A MINIMUM OF 6 FEET PER THE NATIONAL ELECTRICAL CODE.
14. XIT RODS, WHEN SPECIFIED, SHALL BE MIN. 2" ID TYPE "K" COPPER TUBE WITH A MINIMUM WALL THICKNESS OF 0.083" AND SHALL BE A MINIMUM OF 8 FEET IN LENGTH. THE XIT COPPER PIPE/ ROD SHALL BE FILLED WITH NON-HAZARDOUS METALLIC SALTS. THE BACKFILL MATERIAL SHALL BE NATURAL CLAY LYNCONITE II. THE COVER SHALL BE FIBERLYTE CAST IRON, LYNCOLE MODEL XB-12F. FOR LIGHT TRAFFIC AREAS, XB-12 FOR MEDIUM TRAFFIC AREAS AND XB-22. FOR HEAVY TRAFFIC OR PAVED AREAS.
15. PPC BONDING. PPC UNITS ARE SHIPPED WITH A NEUTRAL-GROUND BONDING JUMPER INSTALLED (SERVICE ENTRANCE RATED). AT SITES WHERE THE PPC IS NOT SERVICE ENTRANCE RATED EQUIPMENT (AS DEFINED BY THE NEC). THIS BONDING JUMPER SHALL BE REMOVED.
    NOTE: AT SITES WHERE THE PPC IS NOT SERVICE ENTRANCE RATED EQUIPMENT, THE CONTRACTOR SHALL VERIFY THAT THE SERVICE ENTRANCE NEUTRAL IS GROUNDED PRIOR TO REMOVAL OF THE BONDING JUMPER IN THE PPC.
16. THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWEST POINT OF VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE BTS CABINET. GROUNDING KITS ON COAX CABLE SHALL HAVE A MINIMUM BEND OF 6" AND SHALL BE KEPT AS CLOSE TO VERTICAL AS POSSIBLE. FLAT WASHER SENT WITH GROUND KITS MUST BE REPLACED WITH SMALLER STAINLESS FLAT WASHERS. WASHERS MUST REMAIN FLAT AGAINST GROUND BAR. ALL FASTENERS MUST BE STAINLESS STEEL AND KOPR-SHIELD MUST BE USED ON BOTH SIDES OF GROUND BAR.

F - GROUND SYSTEM TESTING:

1. A RESISTANCE-TO-GROUND OF 5 OHMS OR LESS IS THE OBJECTIVE OF THE EXTERNAL GROUND SYSTEM. THE CONTRACTOR SHALL PERFORM TESTS AS SPECIFIED IN THE OWNERS STANDARDS - SITE RESISTANCE TO EARTH TESTING TO DETERMINE RESISTANCE-TO-GROUND OF THE COMPLETED EXTERNAL GROUND SYSTEM. TEST SHALL BE PERFORM PRIOR TO BACKFILLING TRENCHES. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF AN EXPERIENCED TESTING LABORATORY OR ENGINEERING FIRM FAMILIAR WITH THE SPECIFIEDTEST METHOD. IF RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 10 OHMS, NOTIFY THE OWNER'S REPRESENTATIVE FOR FURTHER DIRECTION.
2. GROUND RESISTANCE SHALL BE MEASURED FOR EACH PIECE OF EQUIPMENT TO THE GROUND ELECTRODE.
3. GROUNDING RESISTANCE TEST REPORT:
   A GROUNDING RESISTANCE TEST REPORT SHALL BE PREPARED UPON COMPLETION OF THE TESTING FOR EACH SITE. THE TEST REPORT SHALL CONTAIN THE COMPLETED OWNERS FORMS AND SHOW THE RESISTANCE IN OHMS AT 62% SPACING AND WITH AUXILIARY POTENTIAL ELECTRODES AND READINGS AT 10% INTERVALS WITH A TOTAL DISTANCE OF AT LEAST 500 FEET OR UNTIL THE AVERAGE RESISTANCE STARTS INCREASING. IT SHALL CONTAIN 10 TO 15 PHOTOGRAPHS TAKEN DURING CONSTRUCTION TO PROVIDE PROOF THAT THE ENTIRE EXTERNAL GROUND RING SYSTEM WAS COMPLETE BEFORE BACKFILLING. THE CONTRACTOR SHALL ALSO NOTIFY THE OWNER NO LESS THAN 48 HOURS IN ADVANCE OF BACKFILL. TESTING SHALL BE COMPLETED BY THE CONTRACTOR AND TWO (2) COPIES OF THE GROUNDING RESISTANCE TEST REPORT ARE TO BE BOUND AND SUBMITTED WITHIN 2 DAYS OF TEST COMPLETION FOR EACH SITE.

G - LIGHTNING PROTECTION:

1. LIGHTNING PROTECTION MATERIALS SHALL BE FURNISHED BY THE OWNER AND INSTALLED BY CONTRACTOR (AS REQUIRED).

H - ANTENNA COAXIAL CABLES (WAVEGUIDE):

1. ALL ANTENNA COAXIAL CABLES AND JUMPERS SHALL BE INSTALLED WITHOUT LOOPS AND/ OR PIGTAILS (UNO).
2. ANTENNA COAXIAL CABLE GROUND KITS SHALL BE INSTALLED PRIOR TO ENTERING THE CABLE CONCEALMENT SHROUD.
3. ANTENNA COAXIAL CABLE GROUND KITS SHALL BE INSTALLED AS CLOSE TO THE CONNECTOR AS POSSIBLE AT EACH ANTENNA. IF THIS IS NOT FEASIBLE THE GROUND KIT SHALL BE INSTALLED IMMEDIATELY AFTER THE BEND ON THE FIRST STRAIGHT RUN OF CABLE., THE GROUND KIT SHALL BE INSTALLED ON STRAIGHT SECTION OF CABLE ONLY AND NOT ON BENDS.
4. ANTENNA COAXIAL CABLE SHALL BE INSTALLED TO COMPLY WITH THE MANUFACTURER'S MINIMUM BEND RADIUS SPECIFIED IN THE FOLLOWING TABLE. THE CONTRACTOR SHALL INSTALL RACEWAY FOR COAXIAL CABLE USING THE PROPER FITTINGS NECESSARY TO ENSURE THAT THE MINIMUM BEND RADIUS REQUIREMENTS ARE MET.
5. ALL ANTENNA COAXIAL CABLES SHALL BE MARKED AND TAGGED IN ACCORDANCE WITH THE CARRIER'S COLOR CODING REQUIREMENTS.
6. ONLY COMMSCOPE GROUNDING KITS SHALL BE USED ON COMMSCOPE CABLES.
7. SNAP-IN HANGERS USED FOR 1/2" COMMSCOPE CABLE SHALL BE COMMSCOPE SNAP-IN HANGERS.

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STATE OF OHIO
DAVID W. HARPER
E-53819
REGISTERED PROFESSIONAL ENGINEER
03/06/19

REV	DATE	DESCRIPTION
A	03/27/19	For Approval
0	03/06/19	For Construction

SITE INFORMATION:

SITE NAME:
MASSILLON
DOWNTOWN X I SC

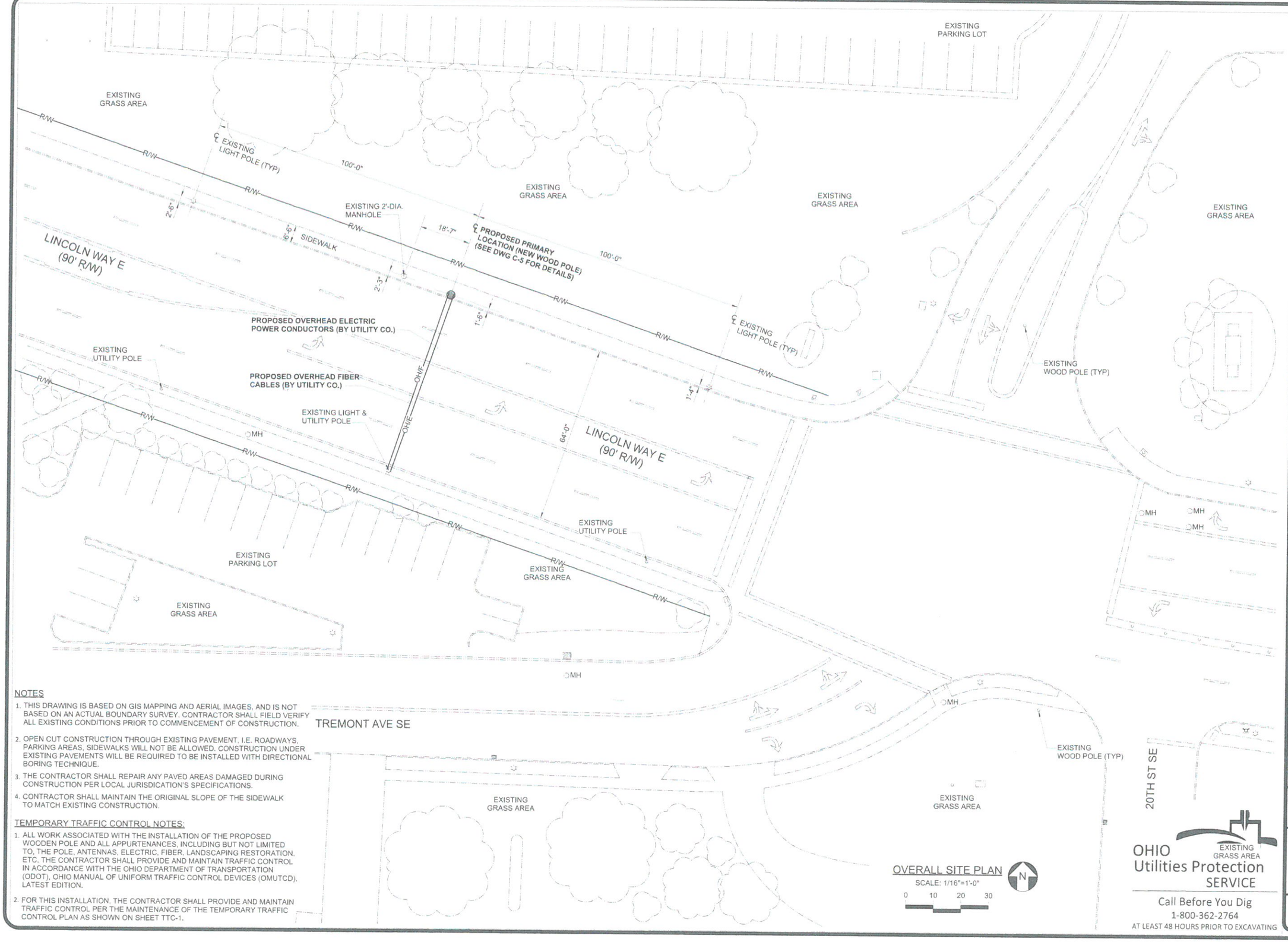
VERIZON SITE NUMBER:
OHPA-P-039239

1928 TREMONT AVE SE
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:
GROUNDING & ELECTRICAL NOTES

SHEET NUMBER:
C-2



NOTES

1. THIS DRAWING IS BASED ON GIS MAPPING AND AERIAL IMAGES, AND IS NOT BASED ON AN ACTUAL BOUNDARY SURVEY. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. OPEN CUT CONSTRUCTION THROUGH EXISTING PAVEMENT, I.E. ROADWAYS, PARKING AREAS, SIDEWALKS WILL NOT BE ALLOWED. CONSTRUCTION UNDER EXISTING PAVEMENTS WILL BE REQUIRED TO BE INSTALLED WITH DIRECTIONAL BORING TECHNIQUE.
3. THE CONTRACTOR SHALL REPAIR ANY PAVED AREAS DAMAGED DURING CONSTRUCTION PER LOCAL JURISDICATION'S SPECIFICATIONS.
4. CONTRACTOR SHALL MAINTAIN THE ORIGINAL SLOPE OF THE SIDEWALK TO MATCH EXISTING CONSTRUCTION.

TEMPORARY TRAFFIC CONTROL NOTES:

1. ALL WORK ASSOCIATED WITH THE INSTALLATION OF THE PROPOSED WOODEN POLE AND ALL APPURTENANCES, INCLUDING BUT NOT LIMITED TO, THE POLE, ANTENNAS, ELECTRIC, FIBER, LANDSCAPING RESTORATION, ETC. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT), OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), LATEST EDITION.
2. FOR THIS INSTALLATION, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL PER THE MAINTENANCE OF THE TEMPORARY TRAFFIC CONTROL PLAN AS SHOWN ON SHEET TTC-1.

OVERALL SITE PLAN
SCALE: 1/16"=1'-0"
0 10 20 30

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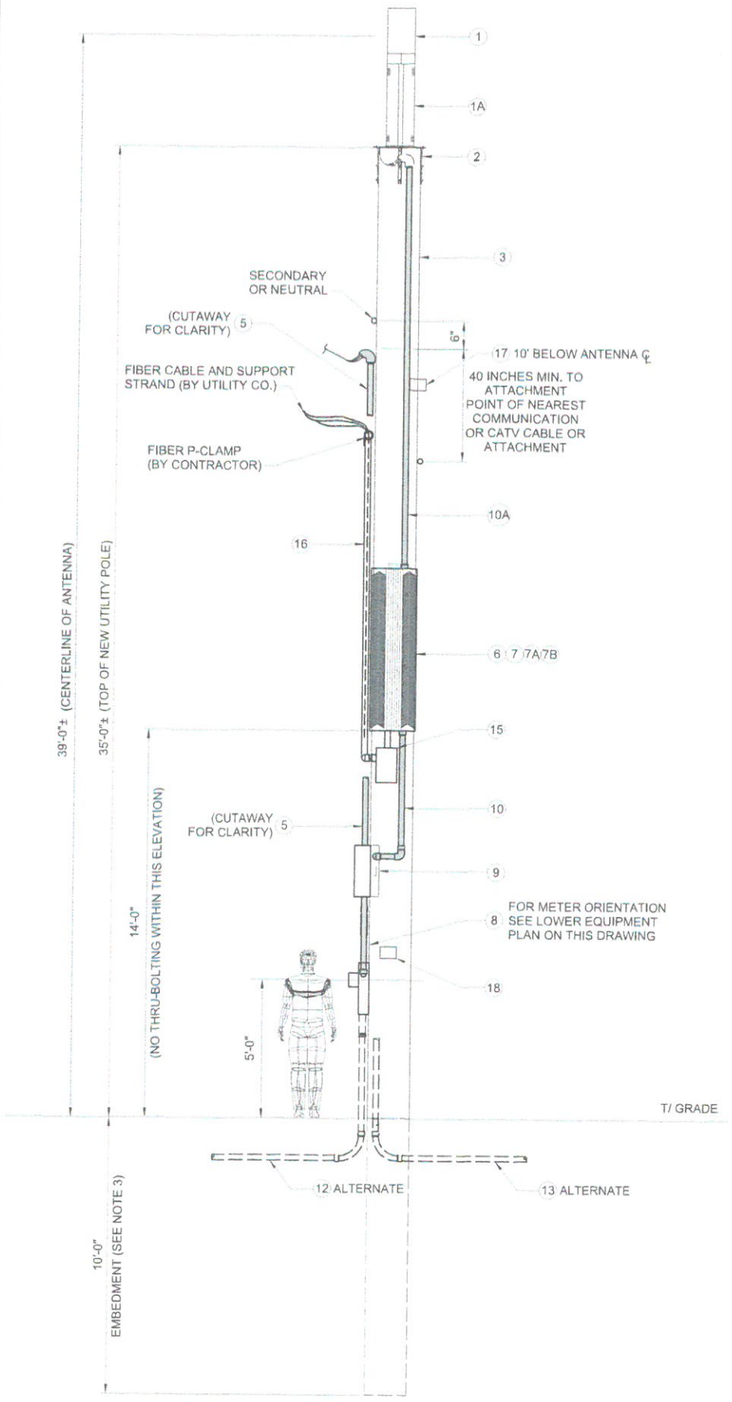
SHEET TITLE:
OVERALL SITE PLAN

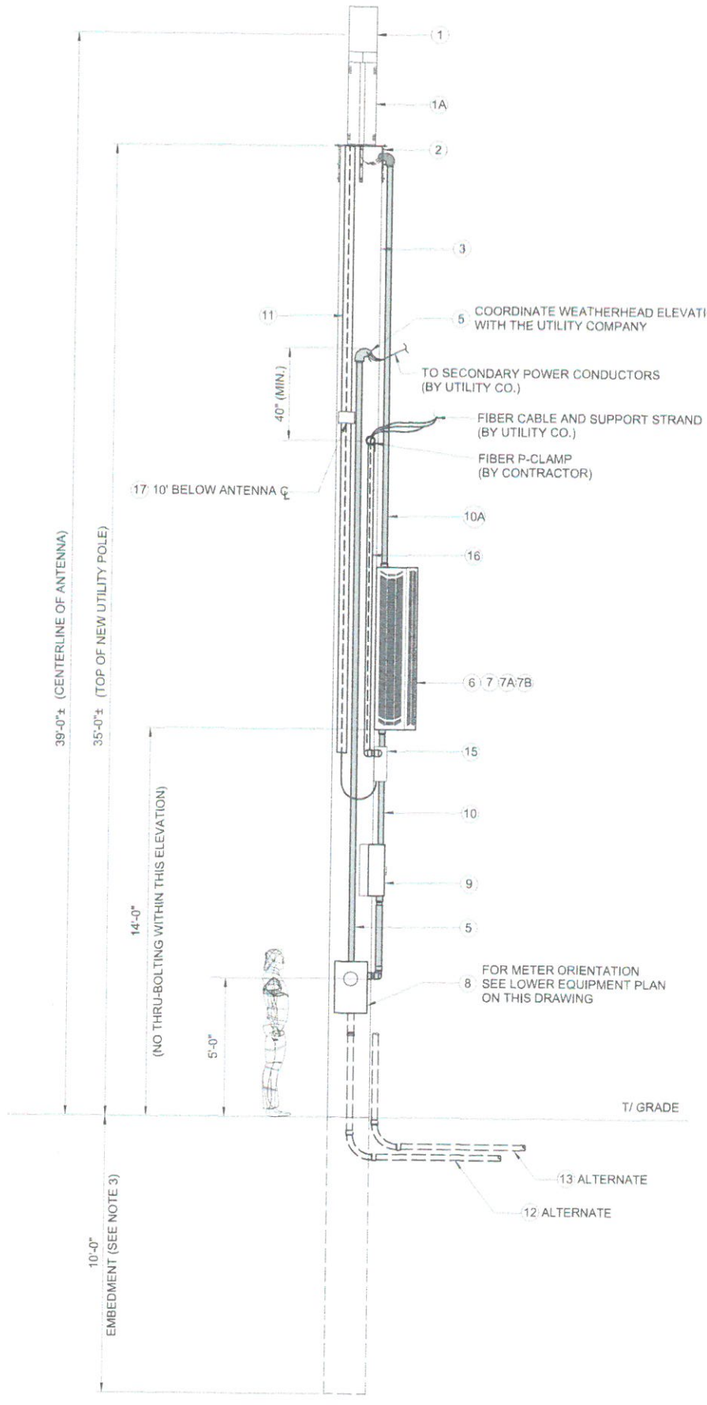
SHEET NUMBER:
C-3

NOTE:
U-GUARDS, CONDUITS, INCLUDING MOUNTING HARDWARE TO ALL APPURTENANCES TO COLOR BLEND WITH PROPOSED POLE

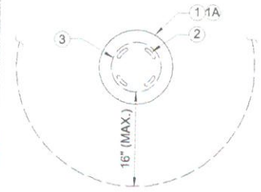


FRONT POLE ELEVATION | N.T.S. | A

NOTE:
U-GUARDS, CONDUITS, INCLUDING MOUNTING HARDWARE TO ALL APPURTENANCES TO COLOR BLEND WITH PROPOSED POLE

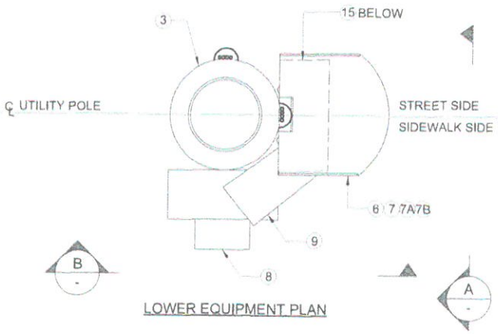


SIDE POLE ELEVATION | N.T.S. | B



ANTENNA LEVEL PLAN

NOTE:
★ASTERISK DENOTES CONTRACTOR SHALL VERIFY RF AZIMUTHS AND ANT. MODELS PRIOR TO CONSTRUCTION. ANTENNA MOUNT SUPPLIED BY COMMSCOPE.



LOWER EQUIPMENT PLAN

EQUIPMENT PLAN | N.T.S. | C

KEYED NOTES:

1. 5 GHz MULTIBAND SMALL CELL ANTENNA (SEE SHEET C-5 FOR DETAILS)
1A. NOKIA CBRS MOUNTED INSIDE CANISTER (SEE SHEET C-5 FOR DETAILS)
2. ANTENNA MOUNTING BRACKET W/ TOP MOUNT ATTACHMENT (FOR VARIABLE POLE DIAMETER. SEE SHEET C-5 FOR DETAILS)
3. 45' SOUTHERN YELLOW PINE (CLASS 3) WOOD POLE. CONTRACTOR TO BURY EXCESS POLE TO ACHIEVE DESIRED TOP OF POLE AGL ELEVATION
4. NOT USED
5. 2" POWER CONDUIT RISER AND WEATHER HEAD WITH 5' TAILS FOR CONNECTIONS BY UTILITY COMPANY (PROVIDED AND INSTALLED BY CONTRACTOR)
6. CHARLES UNIVERSAL BROADBAND ENCLOSURE (C.U.B.E.) (SEE SHEET C-6 FOR DETAILS)
7. DUAL BAND REMOTE RADIO UNITS AND DC POWER SUPPLY MOUNTED INSIDE C.U.B.E. (SEE SHEET C-6 FOR DETAILS)
   7A. DC POWER SUPPLY (SEE SHEET C-6 FOR DETAILS)
   7B. DUAL BAND RADIOS (SEE SHEET C-6 FOR DETAILS)
8. METER BASE (METER BY UTILITY COMPANY)
9. LOAD CENTER/ W. SURGE PROTECTIVE DEVICE & GFCI RECEPTACLE (SEE SHEET C-6)
10. 2" POWER CONDUIT FOR AC POWER FEED FROM LOAD CENTER TO CHARLES BROADBAND ENCLOSURE
10A. 2" POWER CONDUIT FOR DC POWER FEED FROM CHARLES BROADBAND ENCLOSURE TO CBRS RADIO
11. 2" RISER WITH U-GUARD WITH FIBER FEED FROM FIBER TERMINAL DEMARC TO REMOTE RADIO UNITS. U-GUARD SHALL BE SECURED TO POLE W/ 1/4" LAG BOLTS AT MANUFACTURER SUPPLIED INTERVALS
12. 2" POWER CONDUIT FOR UNDERGROUND FEED IF POLE IS FED FROM UNDERGROUND (ALTERNATE) (PROVIDED AND INSTALLED BY CONTRACTOR)
13. ALTERNATE FIBER IF FED FROM UNDERGROUND
14. NOT USED
15. FIBER TERMINAL DEMARC (SEE SHEET C-6 FOR DETAILS)
16. 1" RISER WITH U-GUARD WITH (1) FIBER CABLE FROM FIBER ATTACHMENT TO FIBER TERMINAL DEMARC. FIBER CABLE SHALL BE SECURED TO POLE WITH AERIAL DROP WIRE CLAMPS.
17. RF "CAUTION" SIGN PLACED AT NOTED ELEVATIONS
    TOP MOUNT ANTENNA CONFIGURATION:
    -(2) "CAUTION" SIGNS AT 9' BELOW ANTENNA ℄ (STREET SIDE AND FIELD SIDE)
    -(1) "CAUTION" SIGN ON ANTENNA ON STREET SIDE
    SIDE MOUNT ANTENNA CONFIGURATION:
    -(2) "CAUTION" SIGNS AT 9' BELOW ANTENNA ℄ (STREET SIDE AND FIELD SIDE)
    -(1) "CAUTION" SIGN ON ANTENNA ON STREET SIDE
18. RF "SAFETY GUIDELINES" SIGN PLACED AT 6'-0" AGL OR ON/ NEAR POLE/ EQUIPMENT CABINET

KEYED NOTES | N.T.S. | D

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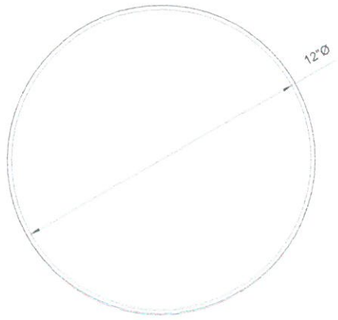
SHEET TITLE:
POLE ELEVATIONS & ANTENNA DETAILS

SHEET NUMBER:
C-4



TOP VIEW

BOTTOM VIEW
W/O BRACKET

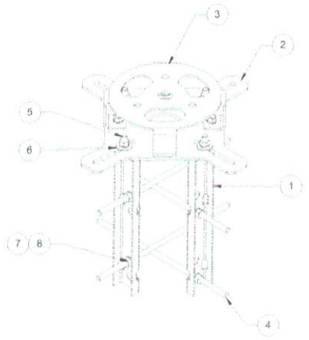
SIDE VIEW

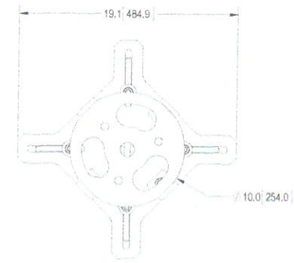
DIMENSIONS: (24.4"x12" DIA.)

ANTENNA WEIGHT: 29.3 lbs

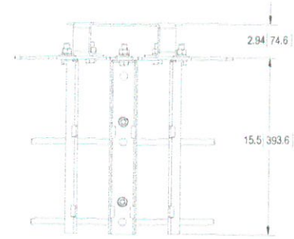
VOLUME: 1.57 CU.FT.

COMMSCOPE V4SSPP-360S-F | N.T.S. | A





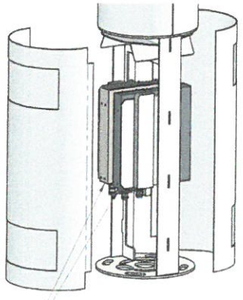
TOP VIEW



SIDE VIEW

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MTC398613	BRACKET, POLE MOUNT	4	1.93 LBS	
2	MTC398612	WOOD POLE TOP SLIDE PLATE	1	8.29 LBS	
3	MTC398611	ANTENNA MOUNT BRACKET	1	4.92 LBS	
4	M137916	1/2" X 16" GALV THREADED ROD	4	0.88 LBS	
5	GB-04145	1/2" X 1-1/2" GALV BOLT KIT	8	0.13 LBS	
6	GWF-04	1/2" GALV FLAT WASHER	4	0.03 LBS	
7	GWL-04	1/2" GALV LOCK WASHER	8	0.01 LBS	
8	GN-04	1/2" GALV HEX NUT	8	0.04 LBS	

ADJUSTABLE MOUNTING BRACKET | N.T.S. | B



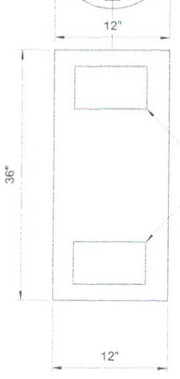
NOKIA CBRS RADIOS

ADDITIONAL
MOUNTING OPTIONS
(3) 5/8" MOUNTING BOLTS
EQ. SPACED ON 5.62"
BOLT CIRCLE

(4) 3/4" MOUNTING BOLTS
EQ. SPACED ON 9.5"
BOLT CIRCLE

ANTENNA MOUNTING
ADAPTER

RF CABLE
ROUTING OPENINGS

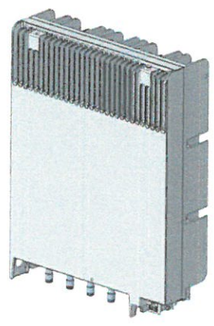


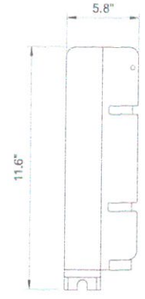
VENTILATED PEF.
AREA

DIMENSIONS: (36"x12" DIA.)

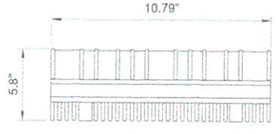
VOLUME: 2.78 CU.FT.

COMMSCOPE SSC-760241465N4 | N.T.S. | C

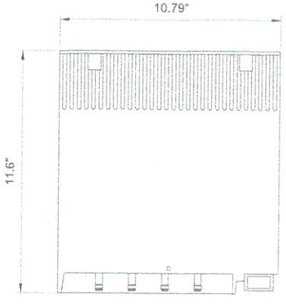




SIDE VIEW



TOP VIEW



FRONT VIEW

DIMENSIONS, HxWxD:
(11.6"x10.79"x5.8")

RRH WEIGHT: 18.73 LBS

VOLUME: 0.42 CU.FT.

(NOKIA-CBRS) AZQC AIRSCALE MICRO RRH-4T/4R | N.T.S. | D

NOT USED | N.T.S. | E

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
Cleveland, OH. 44114
Phone: (216)344-3855
Fax: (216)344-3856

NEW PAR
D/B/A
verizon

STATE OF OHIO
DAVID W. HARPER
E-53819
REGISTERED PROFESSIONAL ENGINEER

03/06/19

REV	DATE	DESCRIPTION
A	03/27/19	For Approval
0	03/06/19	For Construction

SITE INFORMATION:

SITE NAME:
MASSILLON
DOWNTOWN X I SC

VERIZON SITE NUMBER:
OHPA-P-039239

1928 TREMONT AVE SE
MASSILLON, OH 44646

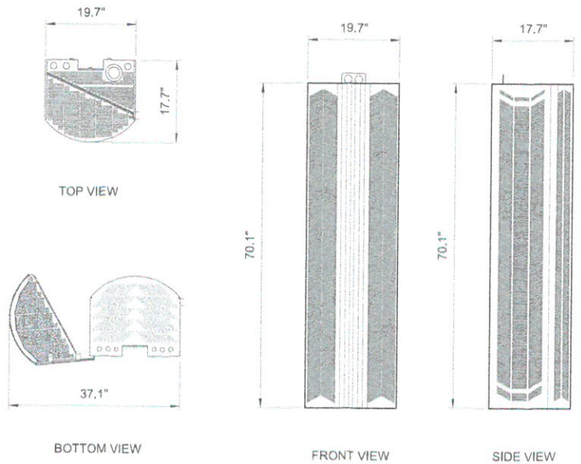
A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

C-5

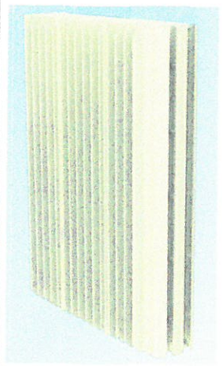


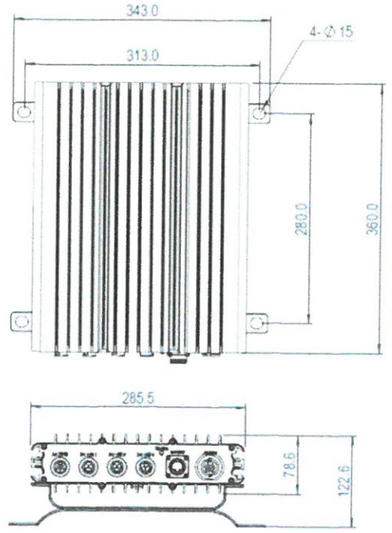
DIMENSIONS, HxWxD: (70.1"x19.7"x17.7")

CABINET WEIGHT: XX

VOLUME: 14.17CU.FT.

CHARLES BROADBAND ENCLOSURE | N.T.S. | A





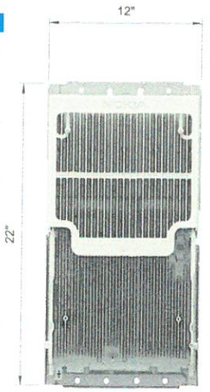
DIMENSIONS, HxWxD: (14.17"x11.24"x3.09")

CABINET WEIGHT: 18.3 LBS

VOLUME: 0.27 CU.FT.

DELTA DC RECTIFIER-DPR1800B-48 | N.T.S. | B

Product name	AirScale Dual RRH 4T4R B5/13 320W, AHBCC – 474341A
Supported Frequency bands	3GPP Bands 5 and 13
Frequencies	Band 5: RX 824 MHz – 849 MHz, TX 869 – 894 MHz Band 13: RX 777 MHz – 787 MHz, TX 746 MHz – 756 MHz
Number of TX/RX ports	4/4
Instantaneous Bandwidth IBW	Full Band
Occupied Bandwidth OBW	Full Band
Output Power	40W per band, 80W per TX
Supply Voltage / Voltage Range	DC-48 V / -36V to -60V
Typical Power Consumption	688W (ETSI 24h Avg – 4x20W per band, 40W per TX port)
Antenna Ports	4 ports, 4.3-10+
Optical Ports	2 x CPRI 9.8 Gbps
ALD Control Interfaces	AISG3.0 from Ant 1,2,3,4 and RET (Power supply ANT1 and ANT3)
Other Interfaces	External Alarm MDR-26 Serial connector (4 inputs, 1 Output) DC Circular Power Connector
Operational Temperature Range	-40°C to 55°C (with no solar load)
Dimensions (mm) Height x width x depth	560 x 308 x 189 (without mounting covers)
Volume (liters)	< 33
Weight (kg)	< 38
Ingress protection class	IP65
Installation options	Pole, Wall; Book mount: Vertical wall/pole, Horizontal wall
Surge protection	Class II 5kA

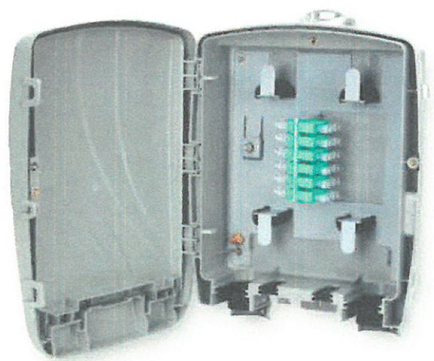


DIMENSIONS, HxWxD: (22"x12.12"x7.44")

CABINET WEIGHT: 15.75 LBS

VOLUME: 1.14 CU.FT.

AIRSCALE AHBCC DUAL RRH 4T4R B5/13 | N.T.S. | C

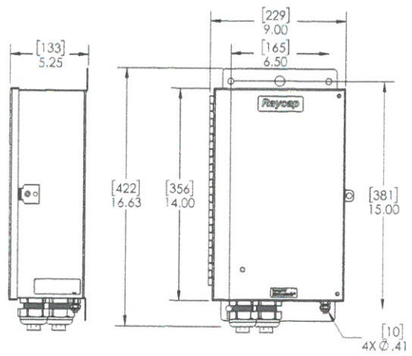


DIMENSIONS, HxWxD: (12"x8.4"x3.4")

BRACKET WEIGHT: 24.25 LBS

VOLUME: 0.20 CU.FT.

FIBER TRANSITION HOUSING, FTH-NG1
(OR EQUIVALENT FIBER PANEL) | N.T.S. | D



DIMENSIONS, HxWxD: (16.63"x9.00"x5.25")

BRACKET WEIGHT: 16.90 LBS

VOLUME: 0.45 CU.FT.

RAYCAP RSCAC-7239-P-240
(OR EQUIVALENT AC PANEL) | N.T.S. | E

NOT USED | N.T.S. | F

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
Cleveland, OH. 44114
Phone: (216)344-3855
Fax: (216)344-3856

NEW PAR
D/B/A
verizon

STATE OF OHIO
DAVID W. HARPER
E-53819
REGISTERED
PROFESSIONAL ENGINEER
03/06/19

REV	DATE	DESCRIPTION
A	03/27/19	For Approval
0	03/06/19	For Construction

SITE INFORMATION:

SITE NAME:
MASSILLON
DOWNTOWN X I SC

VERIZON SITE NUMBER:
OHPA-P-039239

1928 TREMONT AVE SE
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

C-6

BEFORE ELEVATION | N.T.S. | A

AFTER ELEVATION | N.T.S. | B

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D/B/A
verizon

PRELIMINARY
NOT FOR
CONSTRUCTION

REV	DATE	DESCRIPTION
A	01/15/19	For Approval

SITE INFORMATION:

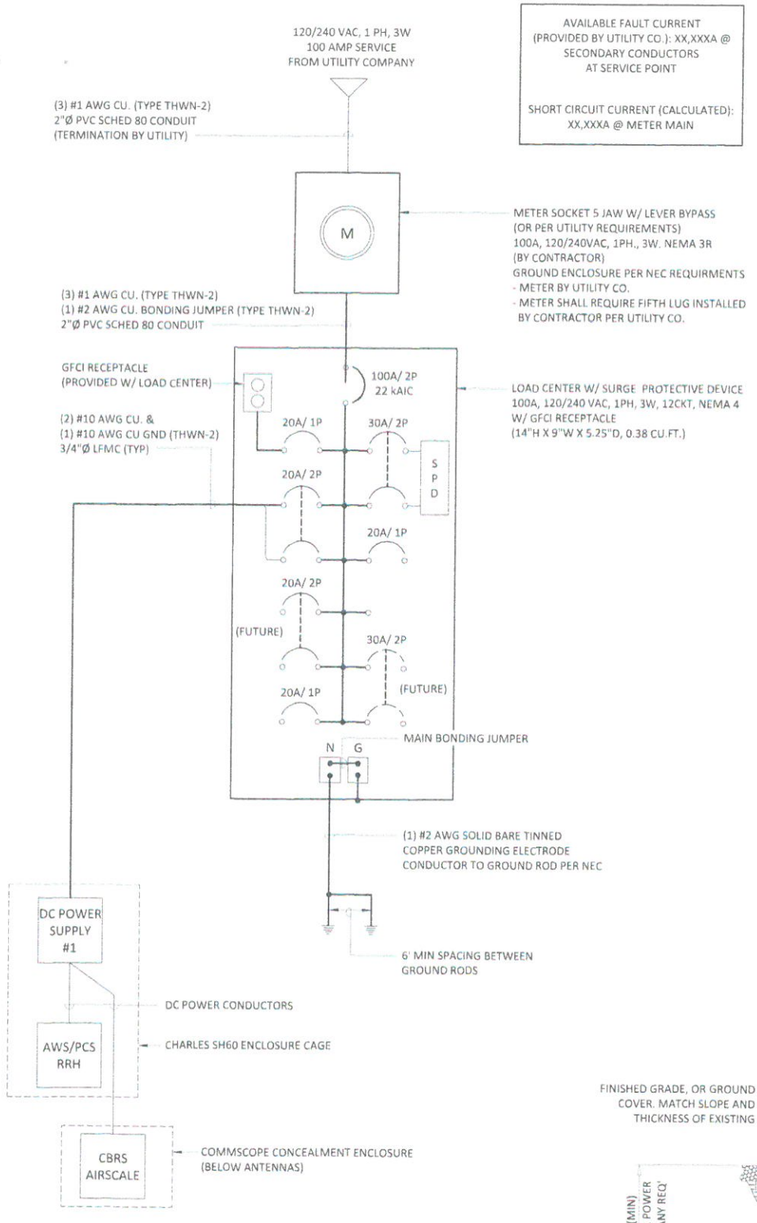
SITE NAME:
MASSILLON
DOWNTOWN X I SC

VERIZON SITE NUMBER:
OHPA-P-039239
LINCOLN WAY E AND TREMONT AVE SE,
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	DA
CHECKED BY:	DWH
DATE:	01/10/19

SHEET TITLE:
PRIMARY ELEVATIONS
(NEW ANTENNA ON A NEW
WOOD POLE)

SHEET NUMBER:
C-2



AVAILABLE FAULT CURRENT
(PROVIDED BY UTILITY CO.): XX,XXXA @
SECONDARY CONDUCTORS
AT SERVICE POINT

SHORT CIRCUIT CURRENT (CALCULATED):
XX,XXXA @ METER MAIN

ONE LINE DIAGRAM - PERMANENT POWER

NOT TO SCALE

LOAD CENTER W/ SURGE PROTECTIVE DEVICE

PANEL NO.: LC1
CIRCUITS: 12 POSITION
ENCLOSURE TYPE: NEMA 4
MOUNTING: SURFACE
MODEL: RAYCAP # RSCAC-7239-P-240
(14"H X 9"W X 5.25"D, 0.38CU.FT.)

VOLTAGE/ PHASE/ WIRE: 120/240 VAC, 1PH/3W
MAIN BUS: 100 AMP, 22,000A BRACING
MAIN BREAKER/ INTERRUPTING RATING: 100 AMP FRAME/ 100 AMP TRIP, 22,000 kAIC
(WITH NEUTRAL BAR, GROUND BAR, AND NEUTRAL-TO-GROUND MAIN BONDING JUMPER)
SPD RATING: 5kA DIRECT SURGE, 60kA INDUCED SURGE

NOTES | NOTES

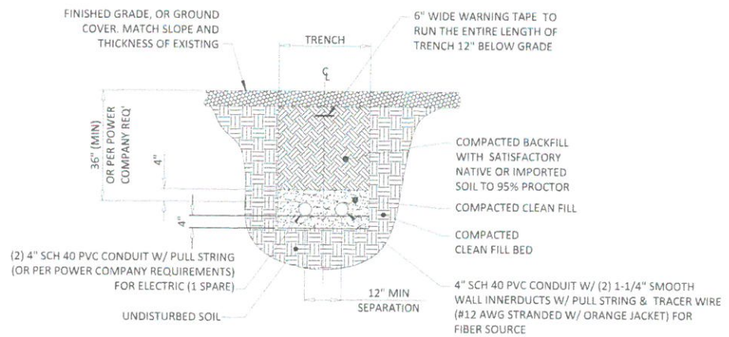
DESCRIPTION	DEVICE	A	B	CIRCUIT NO.	A	B	CIRCUIT NO.	A	B	DEVICE	DESCRIPTION
GFCI RECEPTACLE	20A/ 1P	180		1			2			30A/ 2P	SURGE PROTECTIVE DEVICE
DC POWER SUPPLY #1	20A/ 2P		900	3			4				
		900		5			6			20A/ 1P	SPARE
SPARE	20A/ 2P			7			8				BLANK
				9			10				
SPARE	20A/ 1P			11			12				BLANK (FUTURE 30A/2P)
SUBTOTAL		1080	900					0	0		SUBTOTAL
PHASE TOTAL		1080	900								

PANEL TOTAL 1980 VA

NOTES:

1.) LOAD CENTER IS SUPPLIED WITH MAIN BREAKER ONLY. CONTRACTOR SHALL PROVIDE ALL BRANCH BREAKERS AS INDICATED.

PANEL SCHEDULE



ELECTRIC TRENCH DETAIL

(SOURCE)
NOT TO SCALE

OHIO
Utilities Protection
SERVICE

Call Before You Dig
1-800-362-2764
AT LEAST 48 HOURS PRIOR TO EXCAVATING

ELECTRICAL - GENERAL NOTES:

THE GENERAL NOTES AND ACCOMPANYING DRAWINGS ARE TO INDICATE THE PROVISIONS AND REQUIREMENTS BY THE ELECTRICAL CONTRACTOR OF ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. THE INSTALLATION, PROVISIONS, AND CONNECTION OF A GROUND ROD (ELECTRODE) SYSTEM AS INDICATED IN THE DRAWINGS.
2. THE INSTALLATION AND PROVISION OF AN ELECTRICAL SERVICE (OVERHEAD OR UNDERGROUND) AND ALL CONDUIT AND WIRE ASSOCIATED WITH IT AS INDICATED AND/OR REQUIRED ON PLANS.
3. THE INSTALLATION, PROVISION OF CONDUIT AND CONNECTIONS FOR LOCAL FIBER SERVICE.
4. UNDERGROUND CONDUITS SHALL BE PVC SCH 40. ABOVE GROUND CONDUITS, ELBOWS, RISERS SHALL BE SCHEDULE 80 PVC UNLESS OTHERWISE NOTED.
5. ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE TRACER WIRE. TRACER WIRE NEEDS TO BE LAID NEXT TO BURIED CONDUIT. ALL PULL STRINGS SHALL BE LEFT IN CONDUITS (PVC) FOR FUTURE USE.
6. THE CONTRACTOR SHALL FURNISH AND INSTALL ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUIT AND METER SOCKET AND MAKE THE NECESSARY CONNECTION TO THE SERVICE EQUIPMENT WITHIN THE ENCLOSURES.
7. OPEN CUT CONSTRUCTION THROUGH EXISTING PAVEMENT, I.E. ROADWAYS, PARKING AREAS, SIDEWALKS WILL NOT BE ALLOWED. CONSTRUCTION UNDER EXISTING PAVEMENTS WILL BE REQUIRED TO BE INSTALLED WITH DIRECTIONAL BORING TECHNIQUE.
8. ALL POWER CONDUITS ABOVE GRADE, SWEEPS, & ELBOWS TO BE SCHD. 80 PVC CONDUIT TO 14' ABOVE GRADE / THEN SCHEDULE 40 PVC ABOVE 14' UNLESS OTHERWISE SPECIFIED.

CONTRACTOR RESPONSIBILITIES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND SECURING ALL REQUIRED PERMITS, LICENSES, INSPECTIONS, APPROVALS, AND PAYMENT OF ALL FEES.
2. THE INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE: STATE, LOCAL, AND NATIONAL CODES AS WELL AS THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING RECOGNIZED AUTHORITIES:

NEC	NATIONAL ELECTRIC CODE
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
UL	UNDERWRITERS LABORATORY, INC.

3. PRIOR TO COMMENCING WORK, THE ELECTRICAL CONTRACTOR SHALL CONFORM TO THE LOCAL UTILITY COMPANY'S REGULATIONS AND SHALL GET THE APPROVAL FROM SAME, BEFORE SUBMITTING HIS BID, TO DETERMINE FROM EACH UTILITY ADDITIONAL COSTS THEY MAY REQUIRE, AND SHALL BE INCLUDED IN HIS BID FOR CONTRACT.
4. CONTRACTOR TO USE RIGID METAL CONDUIT WHERE CONDUITS CROSS ACCESS ROADS. CONTRACTOR TO BOND RGS CONDUIT WITH GROUNDING CLAMP TO THE GROUND RADIAL IN TRENCH IF REQUIRED.

HARPER ENGINEERING, INC.
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STATE OF OHIO
DAVID W. HARPER
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REGISTERED PROFESSIONAL ENGINEER
03/06/19

REV	DATE	DESCRIPTION
A	03/27/19	For Approval
0	03/06/19	For Construction

SITE INFORMATION:

SITE NAME:
MASSILLON
DOWNTOWN X I SC

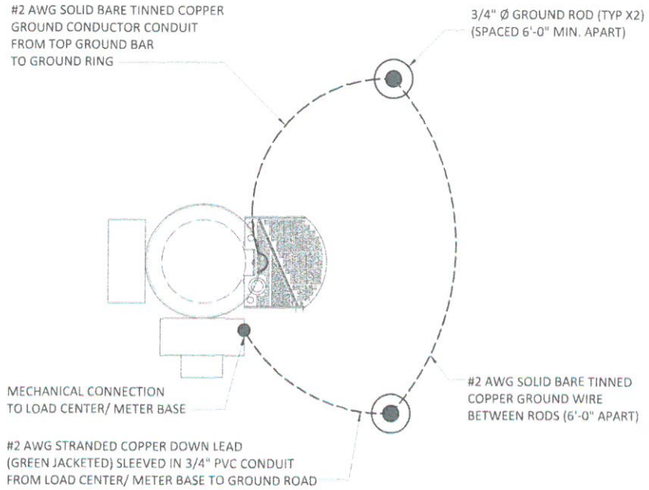
VERIZON SITE NUMBER:
OHPA-P-039239
1928 TREMONT AVE SE
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:

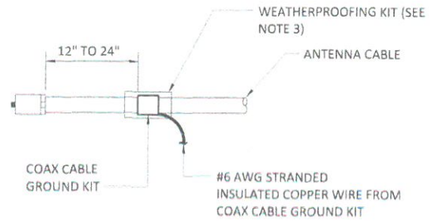
POWER DETAILS &
PANEL SCHEDULE

SHEET NUMBER:
E-1



THIS DETAIL IS DIAGRAMMATICAL ONLY. CONTRACTOR SHALL LOCATE GROUND RODS BASED ON SITE CONDITIONS MAINTAINING 6'-0" MIN SPACING.

GROUNDING PLAN DETAIL N.T.S. A

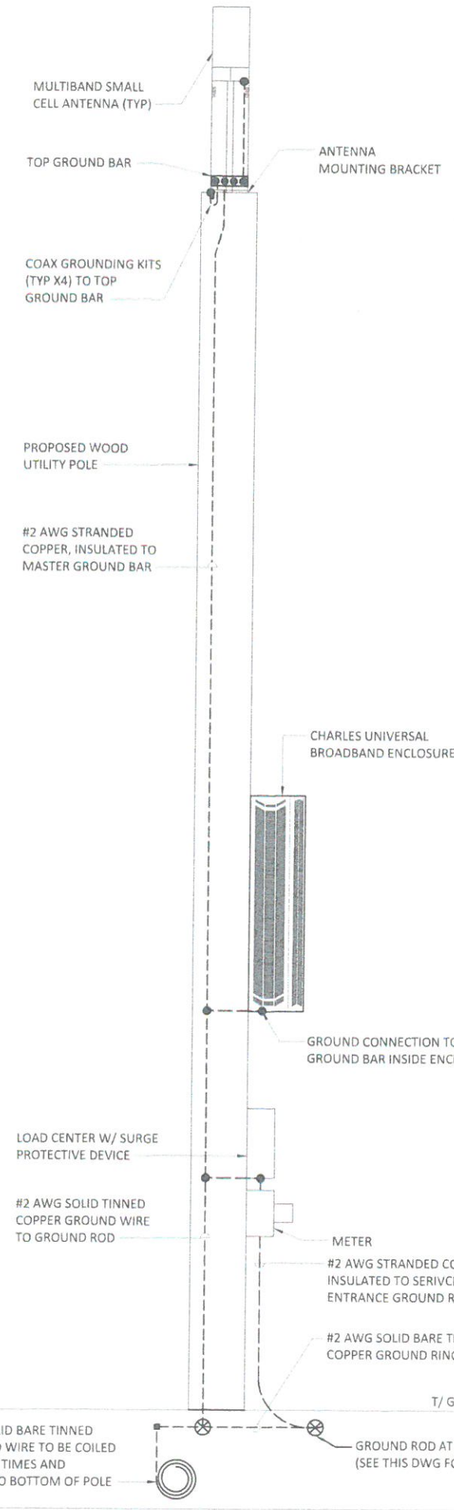


NOTES:

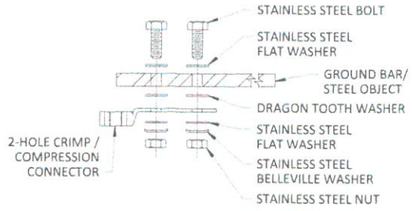
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

COAX GROUNDING DETAIL N.T.S. B



GROUNDING RISER DETAIL N.T.S. E



SINGLE CONNECTOR AT GALVANIZED STEEL GROUND BARS AND STEEL OBJECTS

INSTALLATION NOTES:

1. ALL OUTDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE 18-8 GRADE STAINLESS STEEL.
2. ALL INDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE GRADE 5 STEEL HARDWARE.
3. BOLT LENGTH SHOULD ALLOW THE EXPOSURE OF AT TWO THREADS.
4. BACK TO BACK LUG CONNECTIONS ARE AN ACCEPTABLE PRACTICE WHEN BONDING TO A GROUND BAR OR STEEL OBJECTS.
5. ANY CONNECTIONS MADE BETWEEN STEEL OR OTHER DISSIMILAR METALS REQUIRE THE USE OF A DRAGON TOOTH WASHER.
6. 'SINGLE CONNECTOR AT GROUND BARS' PERTAINS TO COPPER GROUND BARS ONLY!
7. GALVANIZED GROUND BARS AND OTHER STEEL OBJECTS (I.E. CABINETS, GENERATOR TANKS, ICE BRIDGE POSTS, ETC.) SHOULD FOLLOW THE 'SINGLE CONNECTOR AT STEEL OBJECTS' DETAIL.

GROUND CONNECTION DETAILS N.T.S. C

Type GR

CABLE TAP TO TOP OF GROUND ROD

Type GT

THROUGH CABLE TO TOP OF GROUND ROD

Type VV

THROUGH VERTICAL CABLE TO VERTICAL STEEL SURFACE OR TO THE SIDE OF EITHER HORIZONTAL OR VERTICAL PIPE.

Type VS

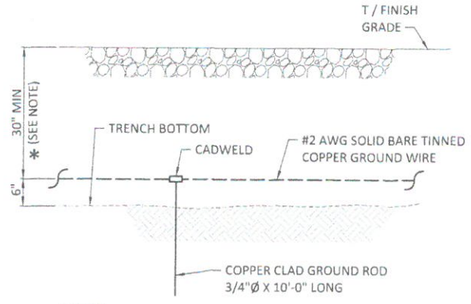
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE OR SIDE OF HORIZONTAL OR VERTICAL PIPE.

Type HS

HORIZONTAL CABLE TAP TO HORIZONTAL STEEL SURFACE OR PIPE, CABLE OFF SURFACE.

CADWELD DETAILS

BURNDY TYPE YGHC-C (HYTAP™) C-TAP COMPRESSION CONNECTOR



* NOTE:
GROUND ROD SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICHEVER IS GREATER) AS PER N.E.C. ARTICLE 250-53(A), (B), & (G)

GROUND ROD DETAIL N.T.S. D

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
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Phone: (216)344-3855
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DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:

GROUNDING PLAN & DETAILS

SHEET NUMBER:
G-1

TEMPORARY TRAFFIC CONTROL NOTES:

1. ALL WORK ASSOCIATED WITH THE INSTALLATION OF THE PROPOSED WOODEN POLE AND ALL APPURTENANCES, INCLUDING BUT NOT LIMITED TO, THE POLE, ANTENNAS, ELECTRIC, FIBER, LANDSCAPING RESTORATION, ETC, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT), OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), LATEST EDITION.
2. FOR THIS INSTALLATION, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL PER DRAWING TA-6 **(SEE DRAWING TTC-1 IN THIS PACKAGE)**. USE THE FOLLOWING DIMENSIONS FOR THIS TRAFFIC CONTROL INSTALLATIONS:

A= 100'
1/3 L= 30'

Notes for Figure 6H-6—Typical Application 6
Shoulder Work with Minor Encroachment

Guidance:

1. All lanes should be a minimum of 3 m (10 ft) in width as measured to the near face of the channelizing devices.
2. The treatment shown should be used on a minor road having low speeds. For higher-speed traffic conditions, a lane closure should be used.

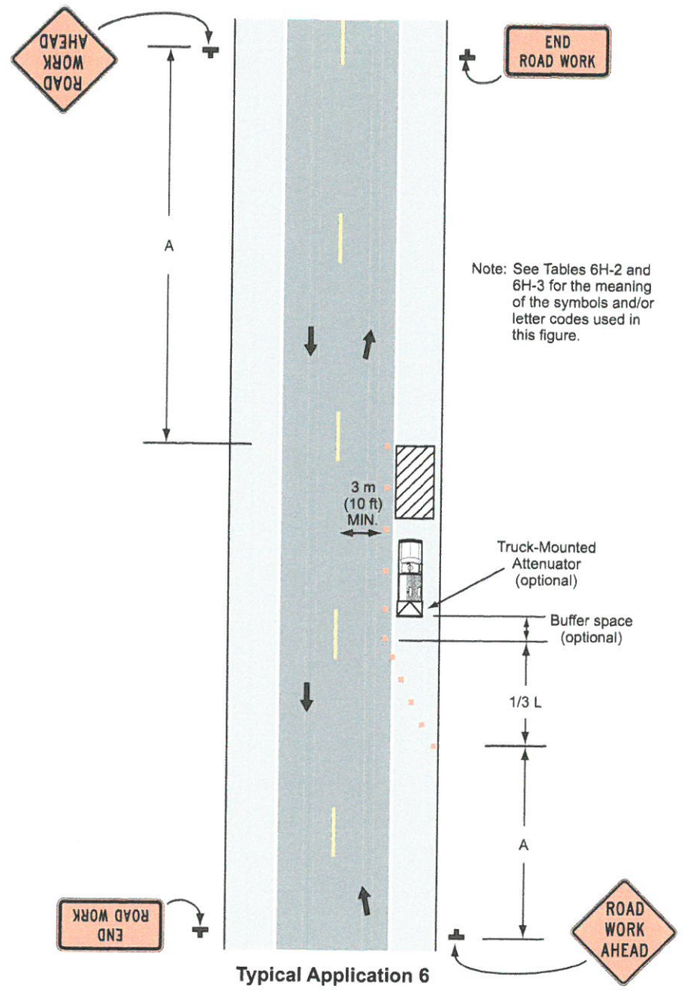
Option:

3. For short-term use on low-volume, low-speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 2.7 m (9 ft) may be used.
4. Where the opposite shoulder is suitable for carrying vehicular traffic and of adequate width, lanes may be shifted by use of closely spaced channelizing devices, provided that the minimum lane width of 3 m (10 ft) is maintained.
5. Additional advance warning may be appropriate, such as a ROAD NARROWS sign.
6. Temporary traffic barriers may be used along the work space.
7. The shadow vehicle may be omitted if a taper and channelizing devices are used.
8. A truck-mounted attenuator may be used on the shadow vehicle.
9. For short-duration work, the taper and channelizing devices may be omitted if a shadow vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
10. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

11. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



Typical Application 6

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NEW PAR
D/B/A
verizon

REV	DATE	DESCRIPTION

SITE INFORMATION:

SITE NAME:
MASSILLON
DOWNTOWN X I SC

VERIZON SITE NUMBER:
OHPA-P-039239
1928 TREMONT AVE SE
MASSILLON, OH 44646

A&E NUMBER:	18-209-267
DRAWN BY:	RK
CHECKED BY:	CMK
DATE:	03/20/19

SHEET TITLE:
TEMPORARY TRAFFIC CONTROL PLAN

SHEET NUMBER:
TTC-1