

January 28, 2016

VIA EMAIL & OVERNIGHT DELIVERY

Melanie Bachman, Esq.
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Connecticut Siting Council Docket No. 436
Certificate Holder Message Center Management, Inc. (MCM)
Telecommunications Facility in East Hartford, Connecticut

Dear Executive Director Bachman:

This letter and its enclosures are respectfully submitted on behalf of Message Center Management (MCM) the Certificate holder for the facility approved in Docket 436 (Facility) and lead carrier New Cingular Wireless PCS, LLC (AT&T).

By letter dated November 11, 2015 the Siting Council (Council) approved a request for a minor modification to the approved Development and Management Plan (D&M Plan) for the Facility. This modification allowed for the rearrangement of AT&T's generator and equipment shelter to a location in the northeast corner of the compound. It is now apparent, however, that AT&T is unable to install its facility in this arrangement and we must therefore request a modification to return to the compound arrangement in the original D&M Plan approved by the Council by letter dated October 21, 2013.

In accordance with R.C.S.A. Sec. 16-50j-77(2) please find enclosed for review an original and fifteen copies of this letter with a revised D&M Plan reflecting essentially a return to the originally approved compound configuration prepared by Pro Terra Design Group (last revised January 27, 2016). Two full sized sets for the Council's files will follow separately. Please note that this revised D&M Plan also provides details of a proposed connection between the currently operational East Hartford Fire Department facility on site and AT&T's generator. No other changes or modifications to the approved tower location, equipment, compound, fencing, access drive or other features of the approved Facility are proposed.

Should the Council or staff have any questions regarding the revisions to the D&M plan please do not hesitate to contact me.

Thank you for your time and attention to this matter.

Very truly yours,



Daniel M. Laub

cc: Hon. Marcia Leclerc, Mayor, East Hartford
Maria Scotti, MCM
Virginia King, MCM
Christopher Gelinis, MCM
Tom Flynn, MCM
Michele Briggs, AT&T
John Lawrence, Centerline
Christopher B. Fisher, Esq.



SITE NAME: EAST HARTFORD
SITE NUMBER: SR2022
ADDRESS: 465 HILLS STREET
EAST HARTFORD, CT 06118

CONSTRUCTION

ProTerra
DESIGN GROUP, LLC

4 Bay Road
Building A, Suite 200
Hadley, MA 01035
(413)320-4918

CLIENT:



27 Northwestern Drive
Salem, NH 03079

NO.	DATE	REVISIONS
1	9/6/13	ISSUED FOR REVIEW
2	9/26/13	ISSUED FOR CONSTRUCTION
3	12/23/13	CONSTRUCTION REVISED
4	11/25/14	CONSTRUCTION REVISED
5	1/8/15	CONSTRUCTION REVISED
6	3/9/15	CONSTRUCTION REVISED
7	4/10/15	CONSTRUCTION REVISED
8	7/9/15	CONSTRUCTION REVISED
9	1/20/16	CONSTRUCTION REVISED
10	1/27/16	CONSTRUCTION REVISED

SITE NAME: EAST HARTFORD
SITE NUMBER: SR2022
ADDRESS: 465 HILLS STREET
EAST HARTFORD, CT 06118

NEW CIRCULAR
WIRELESS PCS, LLC
"at&t"
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067



TITLE:

STAMP:



DATE: 9/6/13
 DRAWN: MJV
 CHECK: JMM/TEJ
 SCALE: SEE PLAN
 JOB NO.: 13-037

SHEET TITLE:

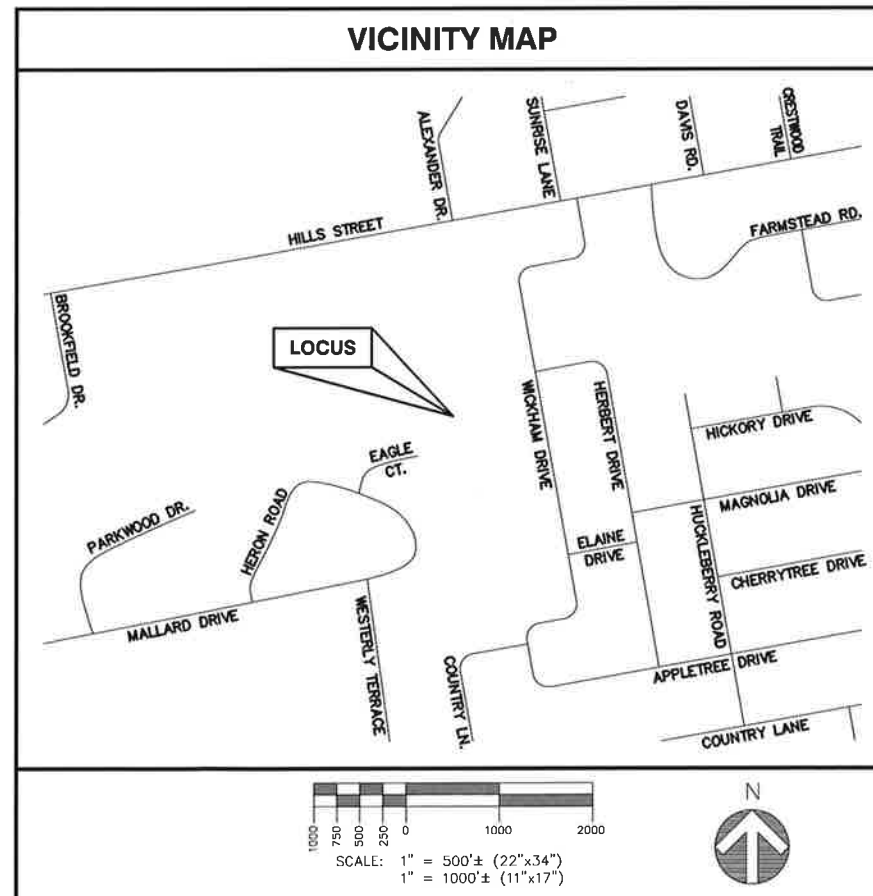
TITLE SHEET

T-1

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GENERAL NOTES

- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER & AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE LATEST AT&T CONSTRUCTION GUIDELINES.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL DIG-SAFE (888) 344-7233 72-HOURS PRIOR TO ANY EXCAVATION.
- THIS SHEET SET WAS ORIGINALLY PRINTED TO ANSI D (22"x34") WITH 1" MARGINS. PRINTING TO ANSI B (11"x17") WILL RESULT IN A HALF-SCALE (1:2) SHEET SET WITH 1/2" MARGINS. CONFIRM ALL SCALED DISTANCES WITH GRAPHICAL SCALES SHOWN HEREIN.



PROJECT INFORMATION	
SITE TYPE:	CO-LOCATION
SCOPE OF WORK:	PROPOSED RF EQUIPMENT ON FUTURE MONOPINE. SHELTER AND GENERATOR AT GROUND LEVEL.
SITE NAME:	EAST HARTFORD
SITE NUMBER:	SR2022
SITE ADDRESS:	465 HILLS STREET EAST HARTFORD, CT 06118
ASSESSOR'S TAX ID#:	MAP 63 LOT 348
ZONING DISTRICT:	(R-2) - RESIDENCE 2
LATITUDE:	41° 44' 26.56" N (RECORD 2C)
LONGITUDE:	72° 35' 02.78" W (RECORD 2C)
DATUM:	NAD83
PROPERTY OWNER:	N/F HENRY J. KRAUSE REV. TRUST 32 JAKOBS LANDING WESTBROOK, CT 06498
TOWER OWNER:	MESSAGE CENTER MANAGEMENT 40 WOODLAND STREET HARTFORD, CT 06105 (888) 973-7483
ENGINEER:	PRO TERRA DESIGN GROUP, LLC 4 BAY ROAD BUILDING A; SUITE 200 HADLEY, MA 01035

WMPing 1-28-16

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR - SAI
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - AT&T
OEM - ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS, ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. SUBCONTRACTOR SHALL NOTIFY PROTERRA DESIGN GROUP, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
15. CONSTRUCTION SHALL COMPLY WITH ALL SBA STANDARDS AND SPECIFICATIONS.
16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

- 1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. 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 ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND, FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
8. 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, OWNER AND/OR LOCAL UTILITIES.
9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE SBA SPECIFICATION FOR SITE SIGNAGE.

CONCRETE & REINFORCING STEEL NOTES:

- 1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4500PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH 3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER 2 IN.
#5 AND SMALLER & WWF 1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL 3/4 IN.
BEAMS AND COLUMNS 1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
7. CONCRETE CYLINDER TESTS ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER:
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

- 1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND SBA SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STIFF DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (3/4"Ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES:

- 1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.
5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E), AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT NOTES:

- 1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

- 1. FIELD VERIFICATION: SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, SBA ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
2. COORDINATION OF WORK: SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
3. CABLE LADDER RACK: SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

- 1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC).
2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (EMT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

ProTerra DESIGN GROUP, LLC

4 Bay Road Building A, Suite 200 Hadley, MA 01035 (413)320-4918

CLIENT:



27 Northwestern Drive Salem, NH 03079

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7	1/20/16	CONSTRUCTION REVISED
8	1/27/16	CONSTRUCTION REVISED

SITE NAME: EAST HARTFORD SITE NUMBER: SR2022 ADDRESS: 465 HILLS STREET EAST HARTFORD, CT 06118

NEW CIRCULAR WIRELESS PCS, LLC "AT&T" 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067



STAMP:



DATE: 9/6/13

DRAWN: MJV

CHECK: JMM/TEJ

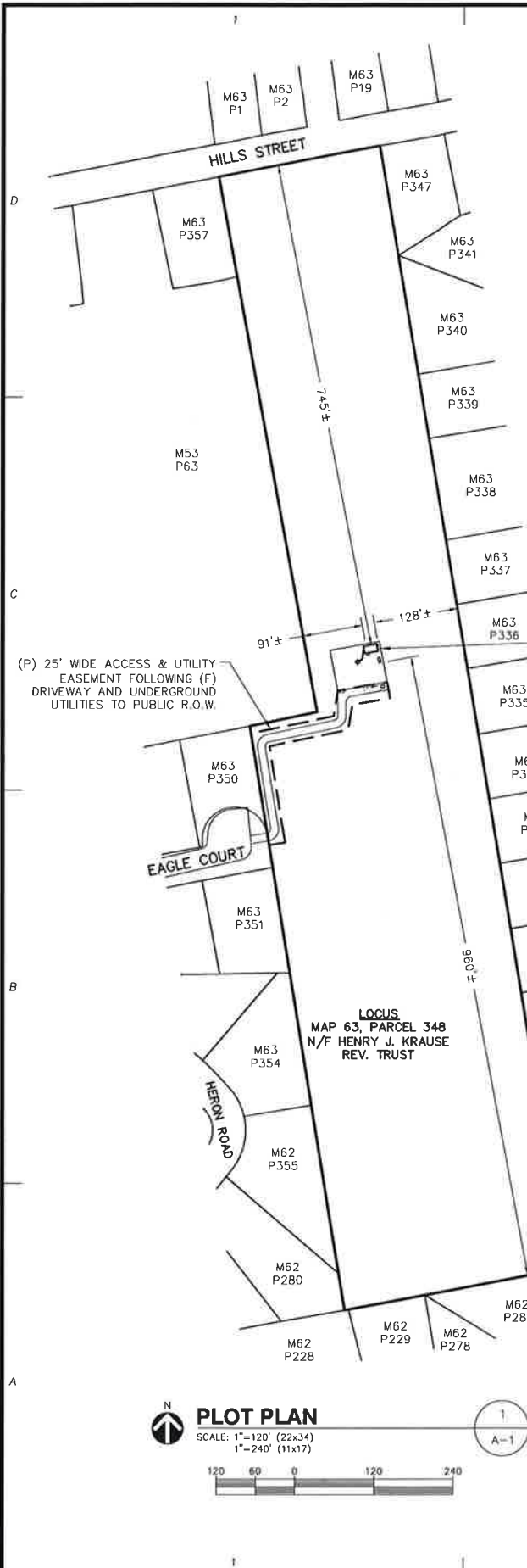
SCALE: SEE PLAN

JOB NO.: 13-037

SHEET TITLE:

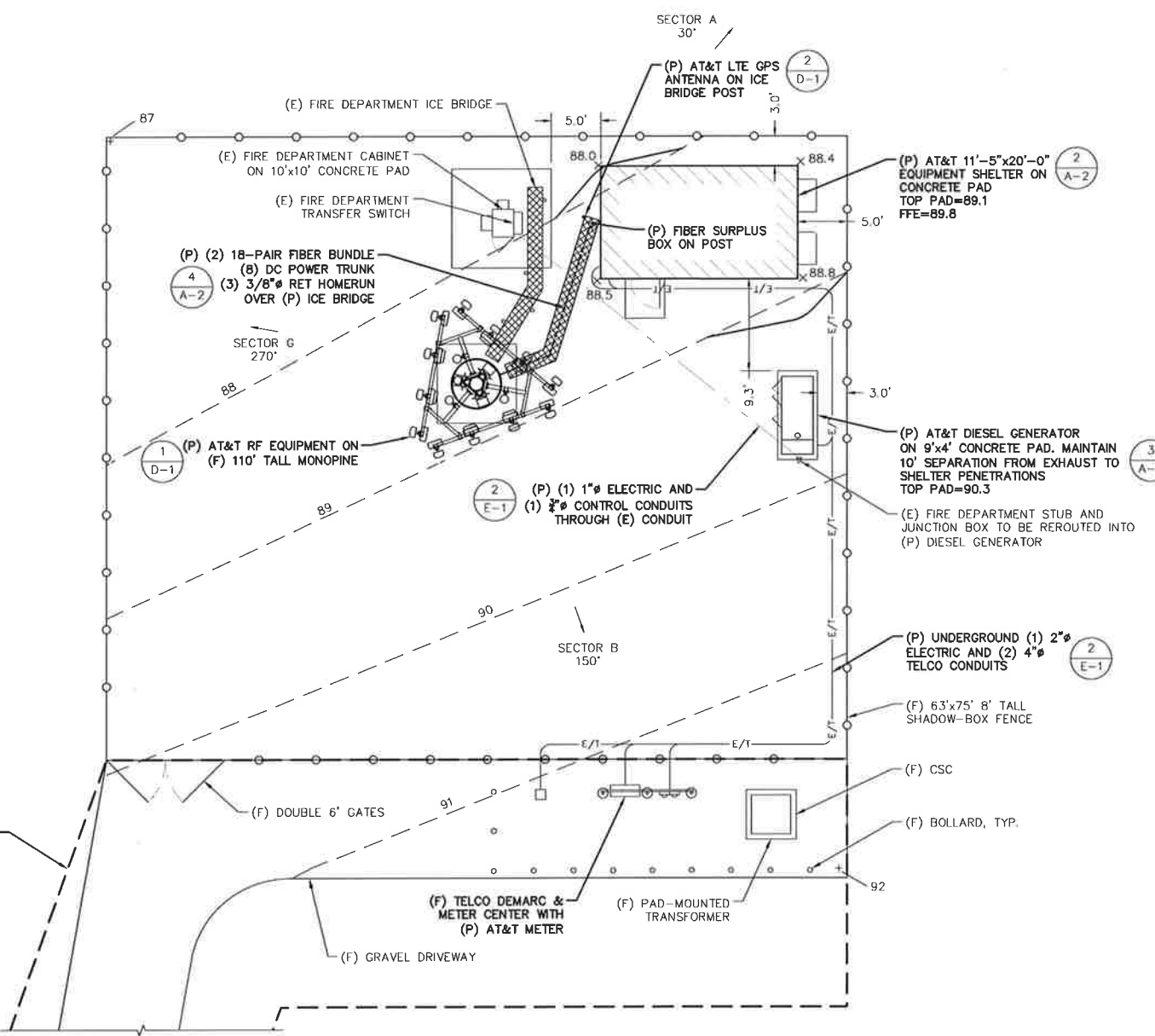
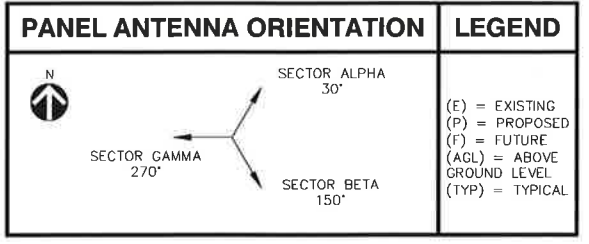
GENERAL NOTES

GN-1



ZONING SUMMARY TABLE		
ZONING DISTRICT: (R-2) - RESIDENCE 2		
ASSESSORS ID: MAP 63M PARCEL 34B		
(P) USE: WIRELESS COMMUNICATION FACILITY		
DIMENSION	PROVIDED	CONSTRAINT
(P) SHELTER/GENERATOR - SETBACK TO FRONT \bar{L}	960'±	40.0' MIN.
(P) SHELTER/GENERATOR - SETBACK TO SIDE \bar{L}	91'±	25.0' MIN.
(P) SHELTER/GENERATOR - SETBACK TO REAR \bar{L}	745'±	40.0' MIN.
(P) SHELTER/GENERATOR - HEIGHT	12'±	35.0' MAX.

- PLAN REFERENCES**
- TOWN OF EAST HARTFORD ASSESSOR'S MAPS #53, 62 AND 63.
 - TOWN OF EAST HARTFORD GIS WEBSITE.
 - RECORD PLAN ENTITLED "MESSAGE CENTER MANAGEMENT" BY ALL-POINTS TECHNOLOGY CORPORATION.



ProTerra
DESIGN GROUP, LLC

4 Bay Road
Building A, Suite 200
Hadley, MA 01035
(413)320-4918

CLIENT:

SAI

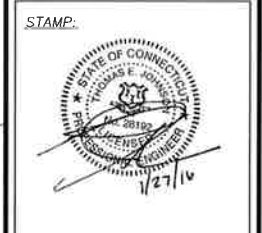
27 Northwestern Drive
Salem, NH 03079

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EAST HARTFORD, CT 06118

APPLICANT: **at&t**

NEW CIRCULAR WIRELESS PCS, LLC
"AT&T"
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067



DATE: 9/6/13
DRAWN: MJV
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-037

SHEET TITLE:
PLOT PLAN & COMPOUND PLAN
A-1

CLIENT:

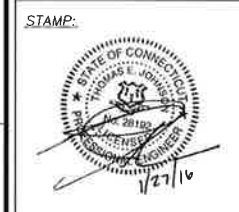


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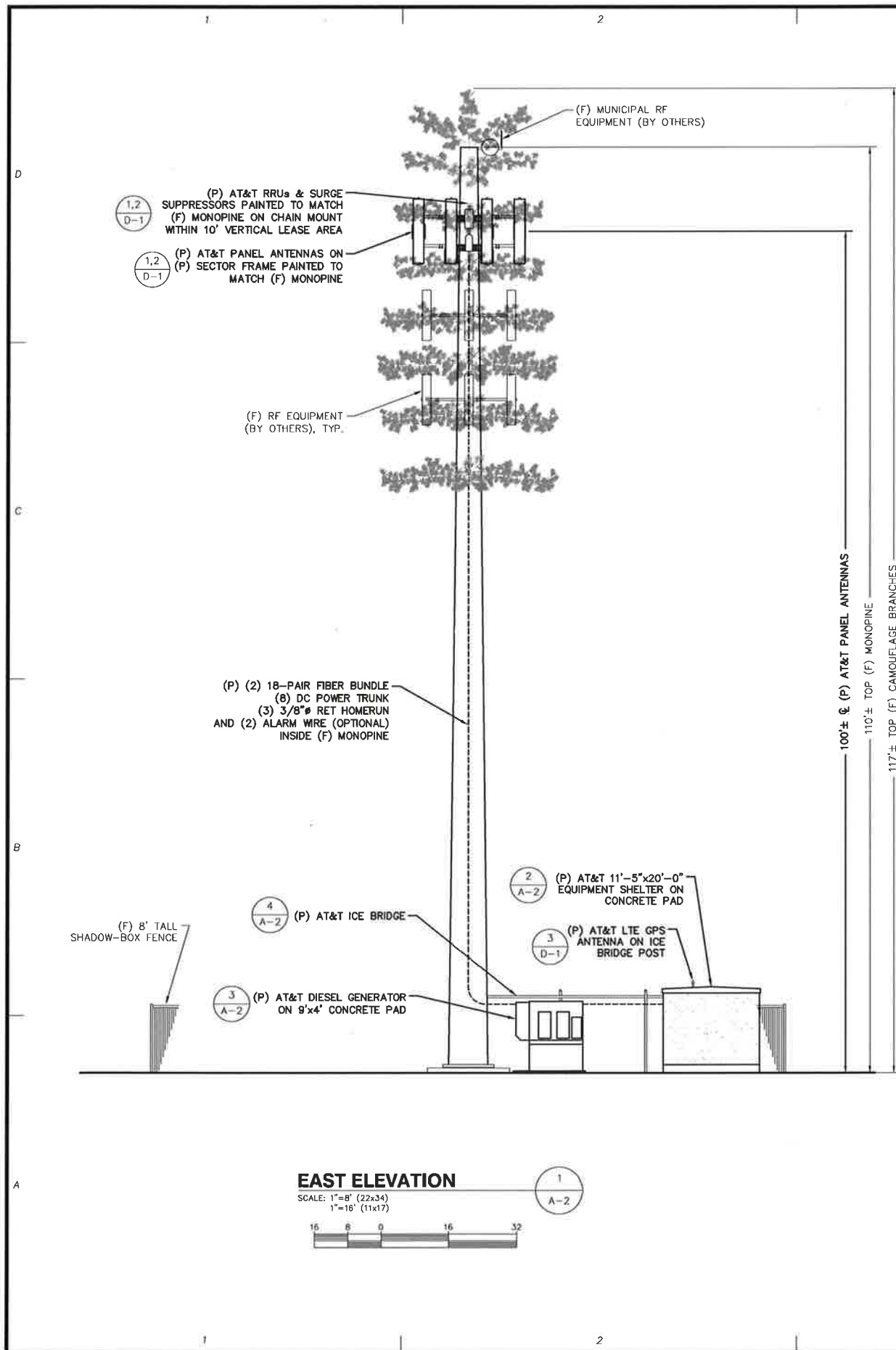


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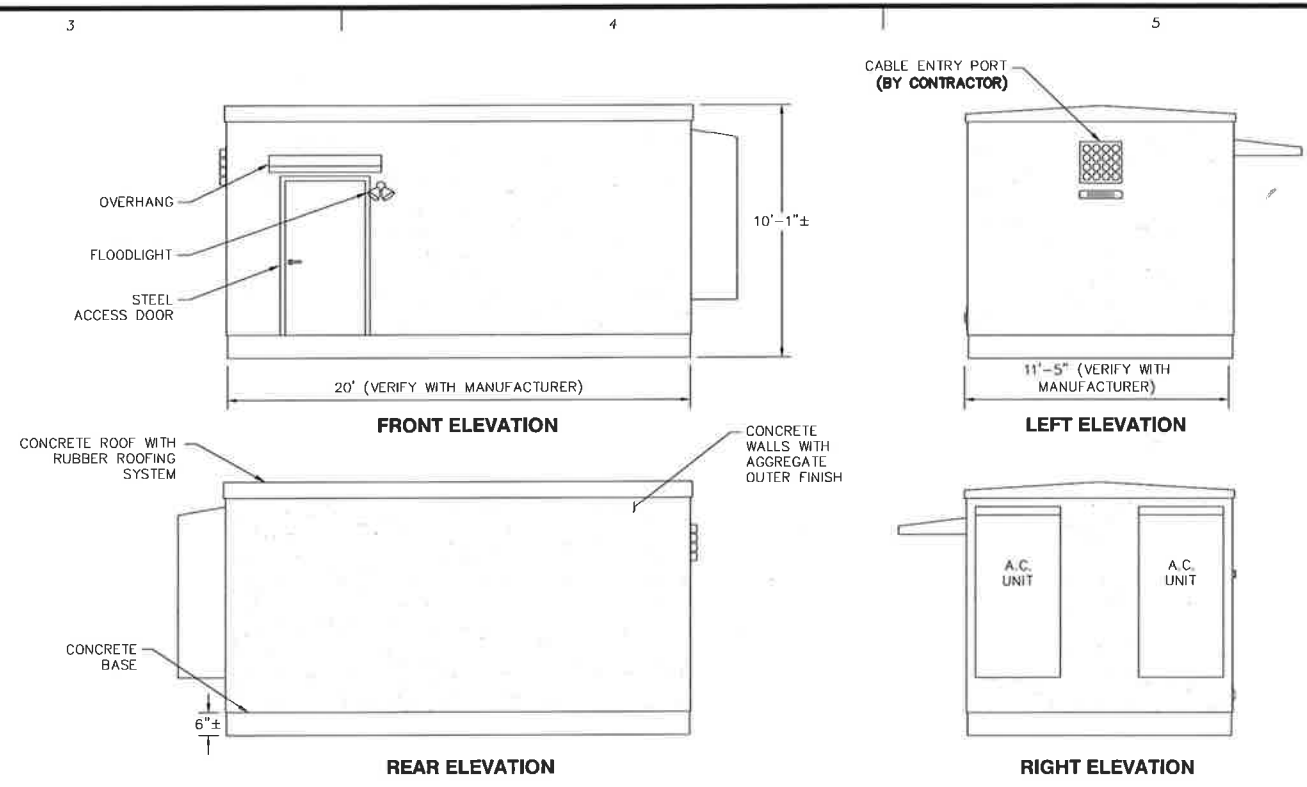
SHEET TITLE:

ELEVATION & DETAILS

A-2



EAST ELEVATION
SCALE: 1"=8' (22x34)
1"=16' (11x17)



FRONT ELEVATION

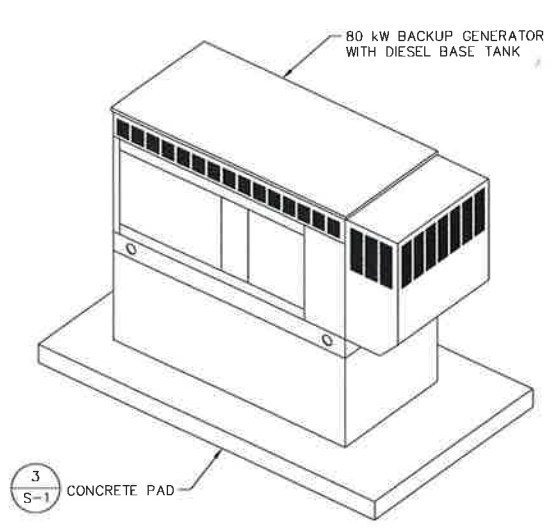
REAR ELEVATION

LEFT ELEVATION

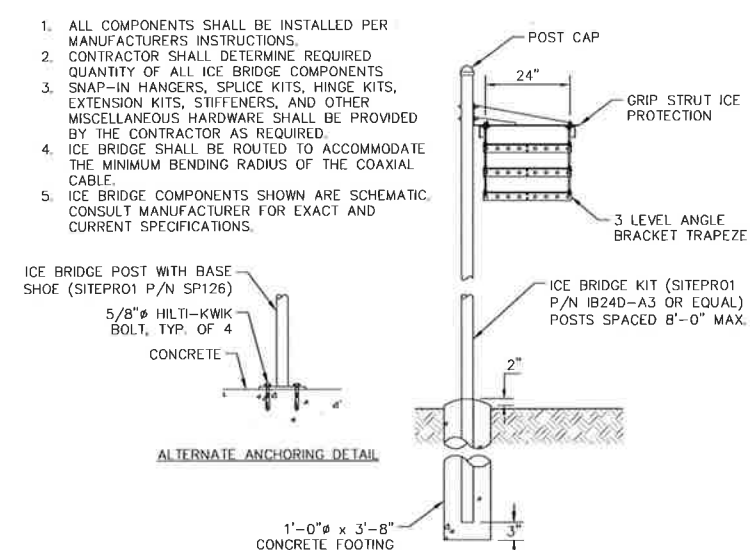
RIGHT ELEVATION

NOTE: CELLXION 11'-5"x20' SHOWN CONTRACTOR TO VERIFY AND PROVIDE CONNECTICUT-SPECIFIC SHELTER DRAWINGS AND APPROVALS TO BUILDING INSPECTOR AS REQUIRED. A MINIMUM OF 1 HR RATING WITH NON COMBUSTIBLE EXTERIOR WALLS REQUIRED.

PREFABRICATED SHELTER
SCALE: NONE

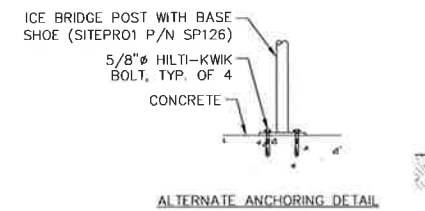


BACKUP GENERATOR
SCALE: NONE



ICE BRIDGE
SCALE: NONE

- ALL COMPONENTS SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
- CONTRACTOR SHALL DETERMINE REQUIRED QUANTITY OF ALL ICE BRIDGE COMPONENTS.
- SNAP-IN HANGERS, SPLICE KITS, HINGE KITS, EXTENSION KITS, STIFFENERS, AND OTHER MISCELLANEOUS HARDWARE SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
- ICE BRIDGE SHALL BE ROUTED TO ACCOMMODATE THE MINIMUM BENDING RADIUS OF THE COAXIAL CABLE.
- ICE BRIDGE COMPONENTS SHOWN ARE SCHEMATIC. CONSULT MANUFACTURER FOR EXACT AND CURRENT SPECIFICATIONS.



ALTERNATE ANCHORING DETAIL

CLIENT:



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NEW CIRCULAR
WIRELESS PCS, LLC
"at&t"
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ROCKY HILL, CT 06067



TITLE:

STAMP:

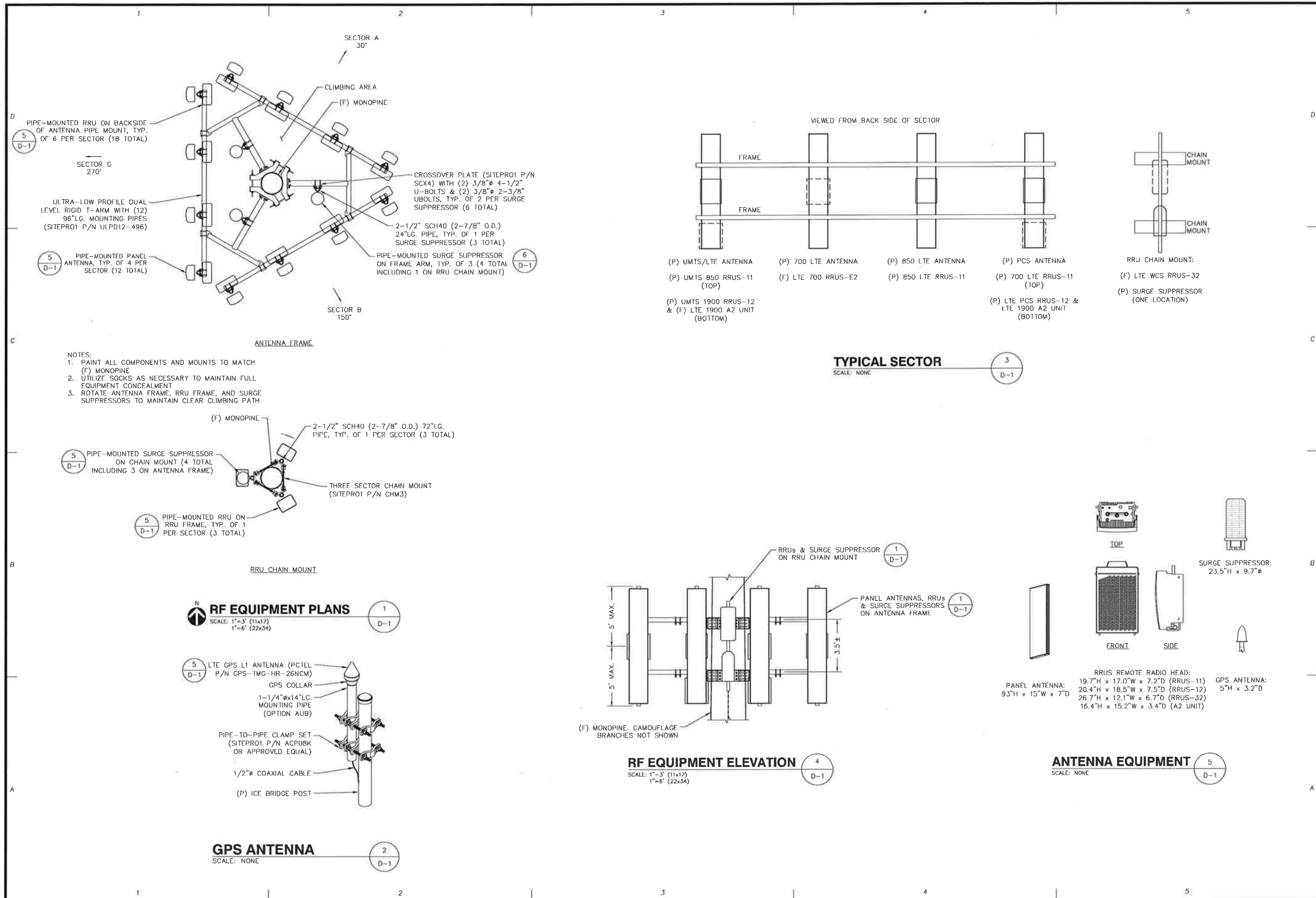


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SCALE: SEE PLAN
JOB NO.: 13-037

SHEET TITLE:

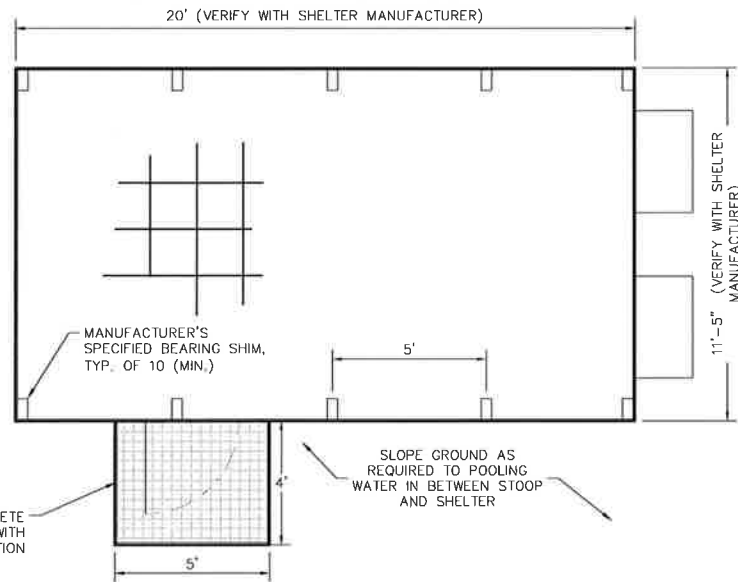
DETAILS

D-1

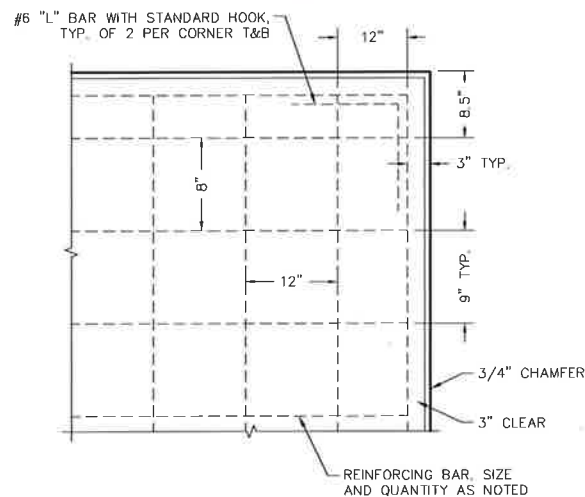


CONCRETE PAD NOTES

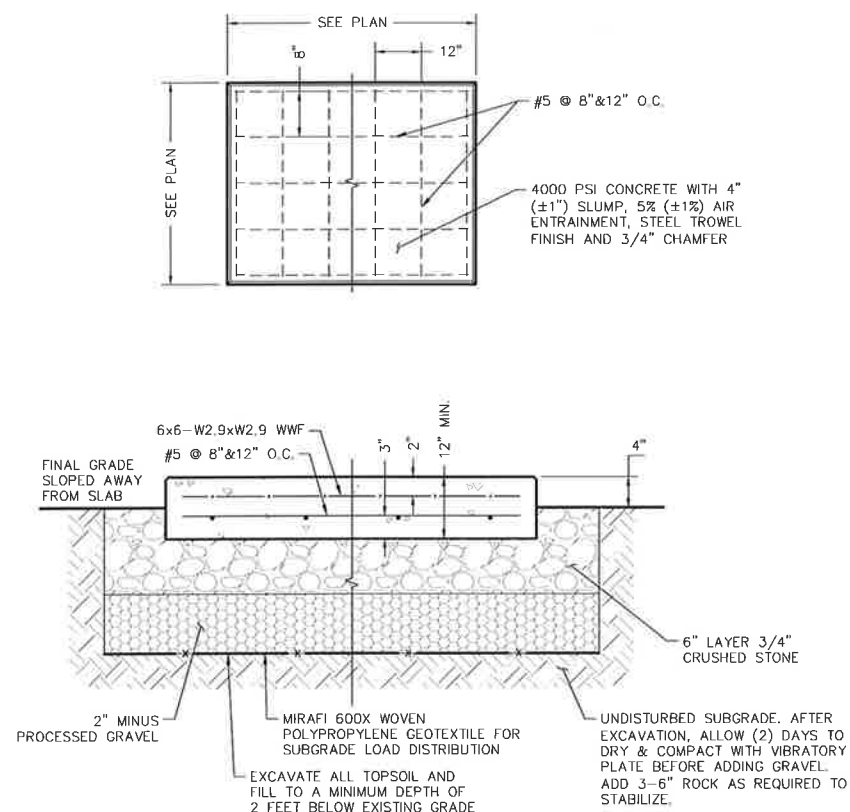
- FOUNDATIONS TO BE CONSTRUCTED ON UNDISTURBED SUBGRADE WITH MINIMUM BEARING CAPACITY OF 3000 PSF (1.5 TSF). ENGINEER IS TO BE NOTIFIED IMMEDIATELY IF UNSUITABLE MATERIALS ARE PRESENT.
- BEARING SHIMS, TIE-DOWN PLATES AND ASSOCIATED INSTALLATION ANCHORS PROVIDED BY SHELTER MANUFACTURER, CONTRACTOR SHALL VERIFY ALL SHIM & TIE-DOWN QUANTITIES AND LOCATIONS WITH SHELTER MANUFACTURER PRIOR TO PERFORMING WORK.
- SLAB/TOP OF WALL TOLERANCE IS 1/4"±
- TOP 8" OF FOUNDATION SIDES MUST BE FORMED FLAT TO ACCEPT TIE-DOWN PLATES
- PER NEC REQUIREMENTS, THE REBAR IN FOUNDATION AND FOOTING SHALL BE BONDED TO GROUND RING WITH A #2 AWG SOLID CONDUCTOR USING LISTED AND APPROVED METHODS.
- PROVIDE PVC SLEEVES FOR UTILITY CONDUIT PASSAGE THROUGH FOUNDATION OR CAST CONDUITS IN PLACE, REFER TO ELECTRICAL DRAWINGS FOR CONDUIT SIZES AND QUANTITIES AS REQUIRED.
- BEARING MEDIUM TO CONSIST OF DENSE GRANULAR MATERIAL OR COMPACTED STRUCTURAL FILL (95% COMPACTION) OR LEDGE.
- SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
- USE GALVANIZED ANCHORS AS SPECIFIED BY SHELTER MANUFACTURER FOR EQUIPMENT ANCHORAGE.
- FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.



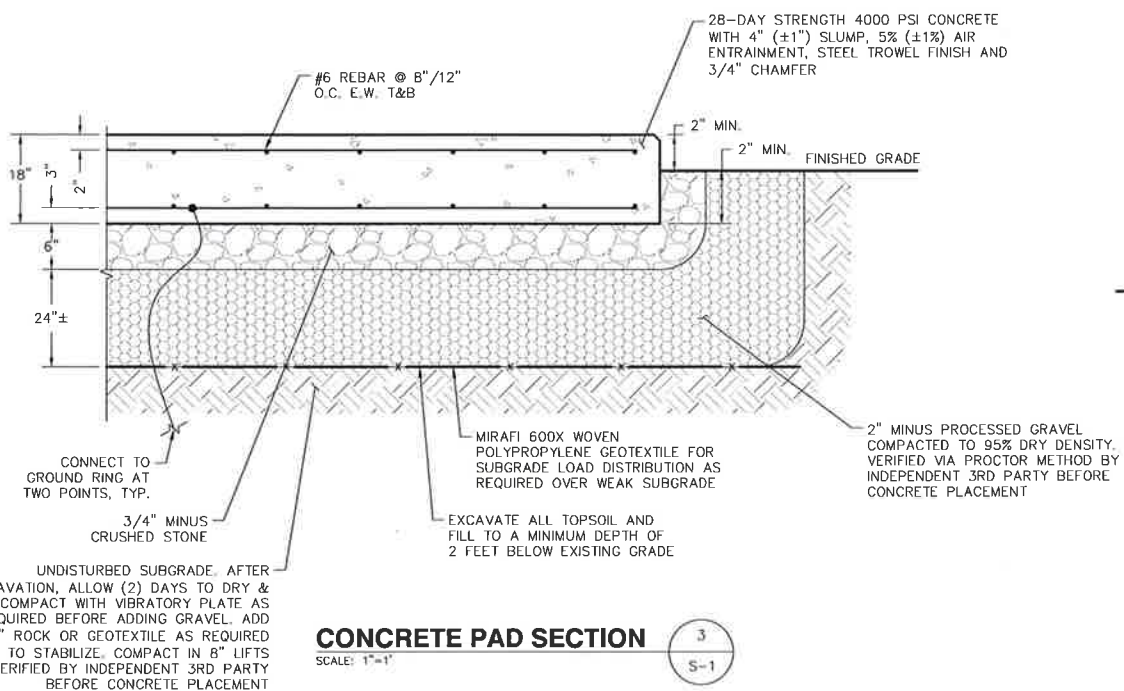
CONCRETE PAD PLAN
SCALE: NONE



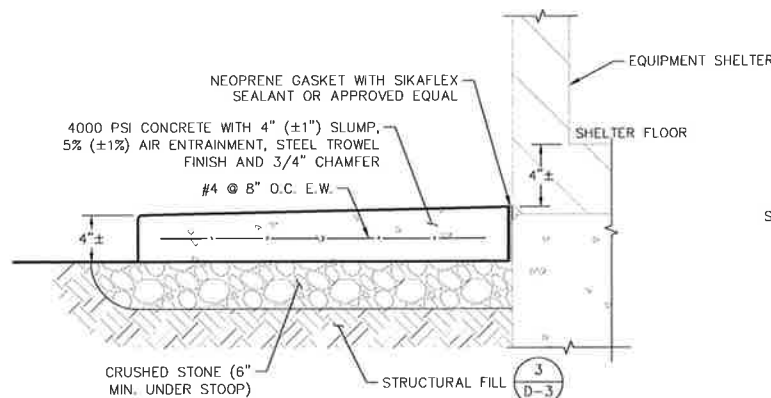
REINFORCEMENT CORNER DETAIL
SCALE: NONE



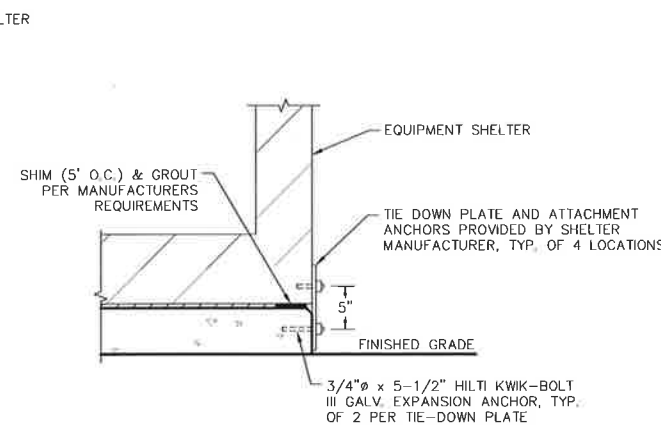
GENERATOR PAD
SCALE: NONE



CONCRETE PAD SECTION
SCALE: 1"=1'



CONCRETE STOOP
SCALE: NONE



TIE-DOWN DETAIL
SCALE: NONE

CLIENT:



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EAST HARTFORD, CT 06118

NEW CIRCULAR
WIRELESS PCS, LLC
"AT&T"
500 ENTERPRISE DRIVE
ROCKET HILL, CT 06067



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SCALE: SEE PLAN
JOB NO.: 13-037

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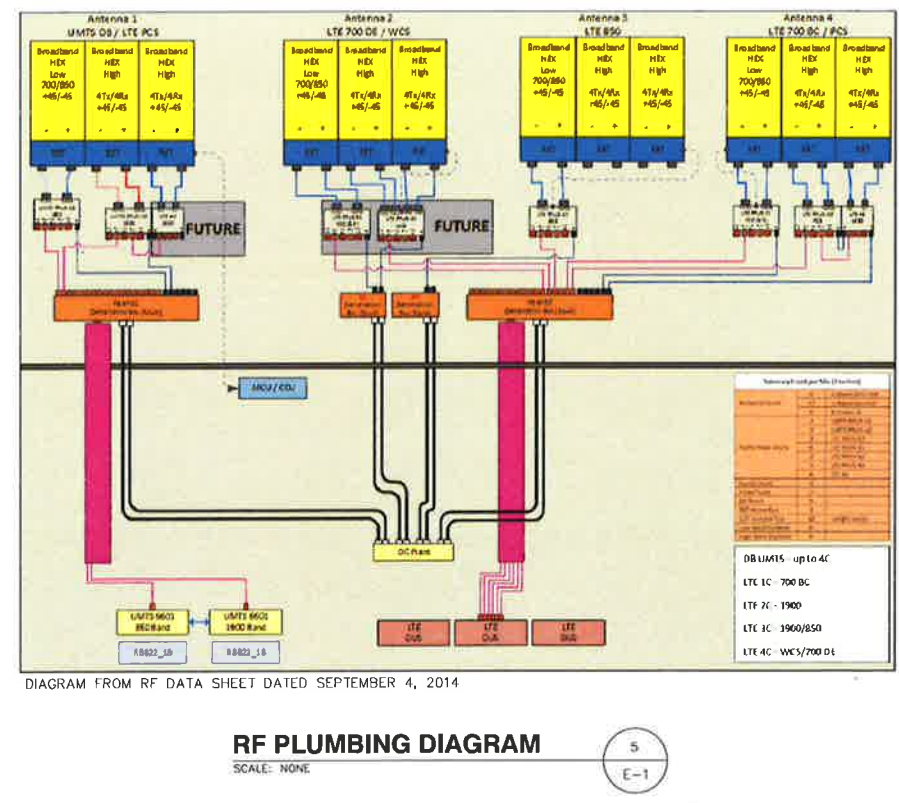
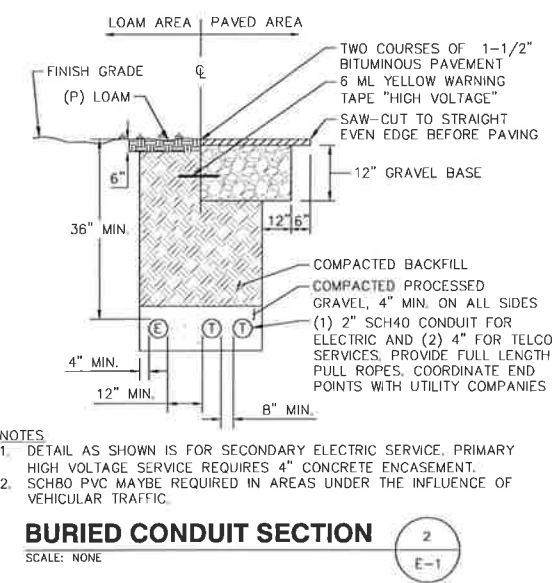
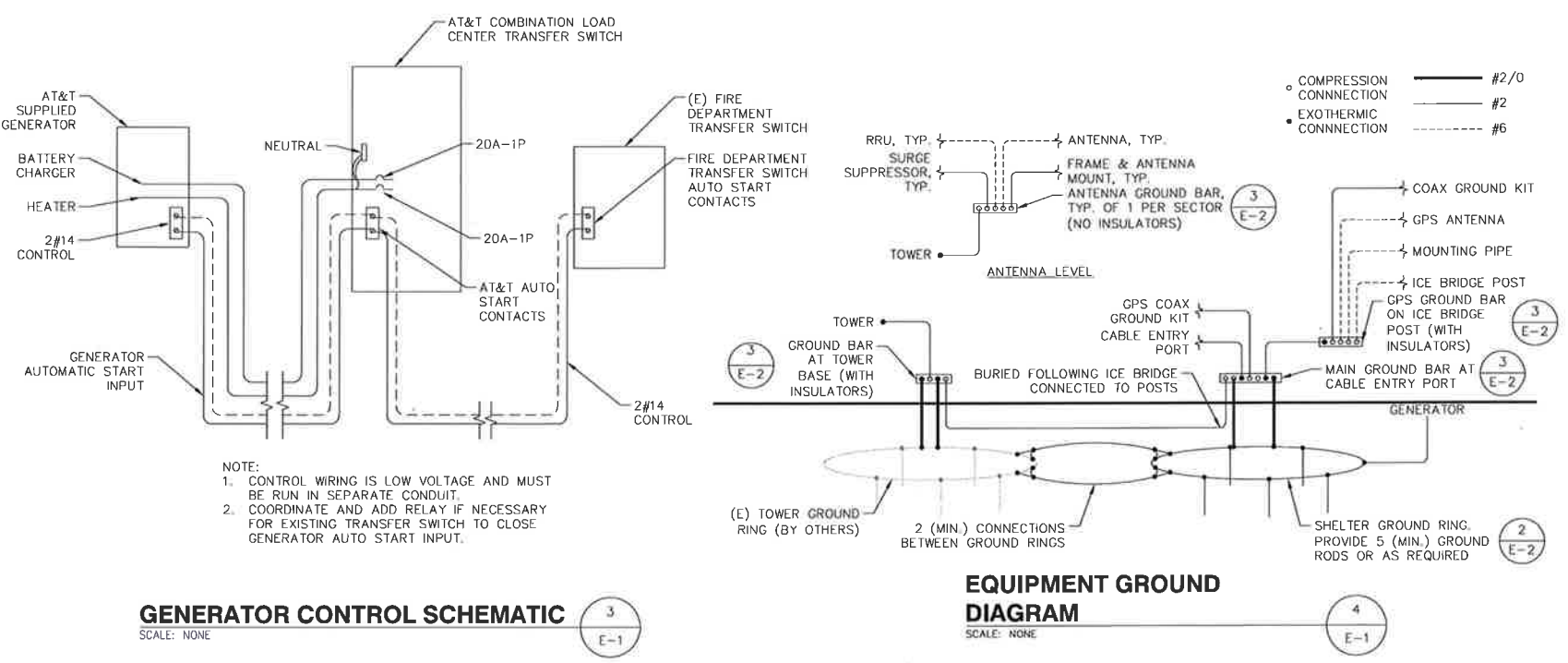
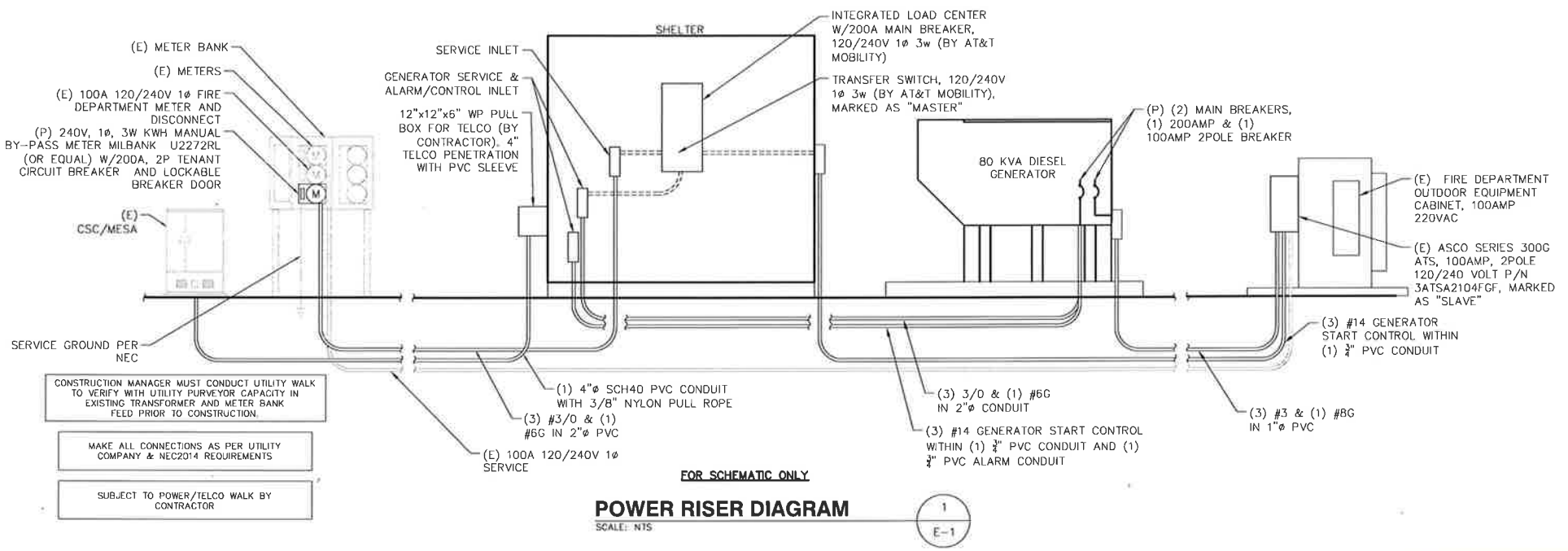
STRUCTURAL
DETAILS

S-1

BASED UPON RFDS DATED 9/4/2014

SECTOR	PANEL ANTENNAS					FROM REMOTE RADIO UNIT				REMOTE RADIO UNIT				FROM SURGE SUPPRESSOR				SURGE SUPPRESSOR		FROM SHELTER		
	AZIMUTH	QTY.	MAKE & MODEL	RAD. CENTER (AGL)	DOWNTILT	COAX QTY.	COAX SIZE	COAX LENGTH	RET QTY.	QTY.	MAKE & MODEL	A2 QTY.	DC QTY.	DC SIZE	FIBER QTY.	DC & FIBER LENGTH	QUANTITY	DC BUNDLE QTY.	FIBER TRUNK QTY.	FIBER & DC LENGTH		
ALPHA	30°	4	CO HPA-6SR-BUU-HB	100'	0'M 2' 2"E	12(B)	1/2" Ø	15'±	2(1)	5(2)	SEE DIAGRAM	1(1)	5(2)	6mm² PAIR	5(2)	15'±	4	8	2	150'±		
BETA	150°	4	CO HPA-6SR-BUU-HB	100'	0'M 2' 2"E	12(B)	1/2" Ø	15'±	2(1)	5(2)	SEE DIAGRAM	1(1)	5(2)	6mm² PAIR	5(2)	15'±				150'±		
GAMMA	270°	4	CO HPA-6SR-BUU-HB	100'	0'M 2' 2"E	12(B)	1/2" Ø	15'±	2(1)	5(2)	SEE DIAGRAM	1(1)	5(2)	6mm² PAIR	5(2)	15'±				150'±		

FUTURE COMPONENTS IN PARENTHESIS



ProTerra
DESIGN GROUP, LLC

4 Bay Road
Building A, Suite 200
Hadley, MA 01035
(413)320-4918



27 Northwestern Drive
Salem, NH 03079

CLIENT:

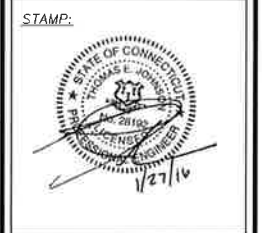
REVISIONS

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APPLICANT:
at&t

NEW CIRCULAR WIRELESS PCS, LLC
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ROCKY HILL, CT 06067



DATE: 9/6/13
DRAWN: MUV
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-037

SHEET TITLE:
ELECTRICAL & GROUNDING DETAILS
E-1

CLIENT:

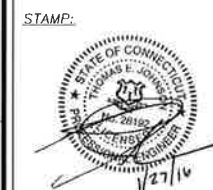


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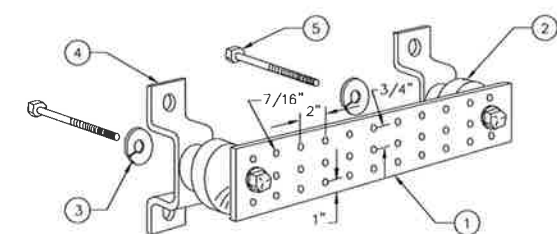
SCALE: SEE PLAN

JOB NO.: 13-037

SHEET TITLE:

**GROUNDING
DETAILS & NOTES**

E-2

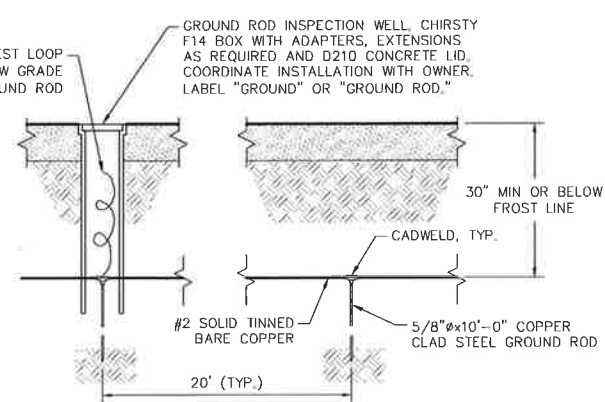


1. COPPER GROUND BAR, 1/4"x4"x24", BY NEWTON INSTRUMENT CO. OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
3. 5/8" LOCKWASHERS OR EQUAL
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR EQUAL
5. 5/8-11x1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR EQUAL
6. INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO TOWER/MONOPINE STRUCTURE. CONNECTION TO TOWER/MONOPINE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

GROUND BAR DETAIL

SCALE: NONE

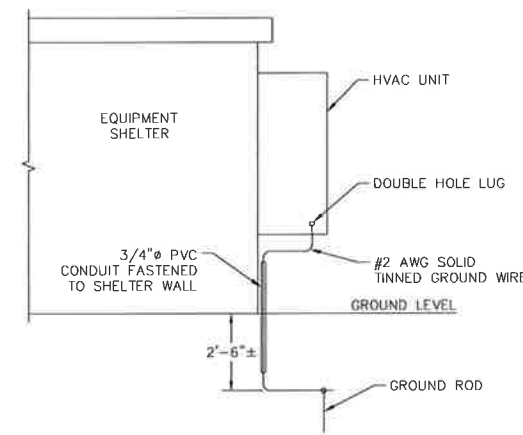
3
E-2



GROUND ROD

SCALE: NONE

2
E-2



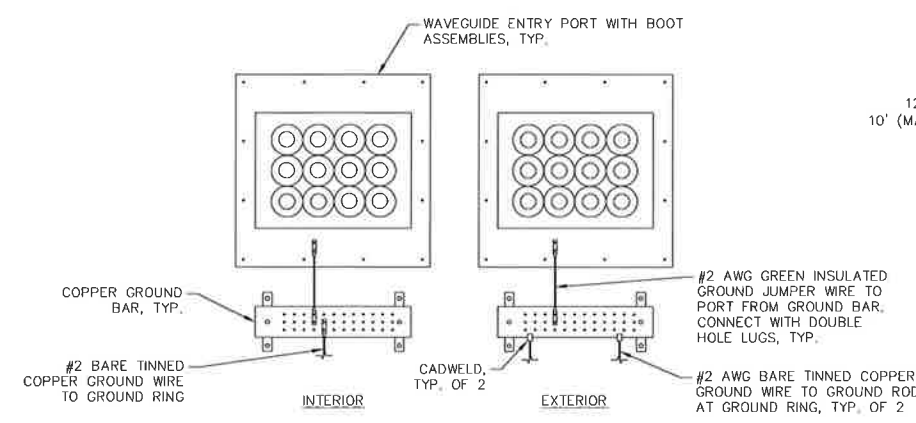
HVAC UNIT GROUNDING

SCALE: NONE

5
E-2

GROUNDING NOTES

- GENERAL**
1. GROUNDING SHALL COMPLY WITH ARTICLE (250) OF THE NATIONAL ELECTRIC CODE, EIA/TIA-222 REV F & MOTOROLA R-56 AS REQUIRED.
 2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
 3. THE CONTRACTOR SHALL SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SITE RESISTANCE TO EARTH TESTING PREVIOUSLY PERFORMED. IF NO RECORDS EXIST THAN A FOUR-POINT SOIL RESISTIVITY TEST SHALL BE PERFORMED TO ASSURE 10 OHMS OR LESS WITH SOIL RESISTIVITY UP TO 50,000 OHMS-CM.
- GROUND RODS**
1. RODS SHALL BE 5/8" DIAMETER, 10' LONG COPPER CLAD STEEL
 2. SHALL BE BURIED 30" (MIN.) OR BELOW PERMANENT MOISTURE LEVEL PENETRATING BELOW FROST LINE
 3. RODS SEPARATED 20' (MIN.) TO OTHER GROUND RODS OR ELECTRODES
 4. SEPARATION BETWEEN GROUND RODS IN SAME GROUNDING SYSTEM SHALL BE GREATER THAN SUM OF RESPECTIVE LENGTHS
 5. GROUND RODS SHALL NOT BE SHORTENED BY CUTTING OR DEFORMED BY DRIVING MACHINERY
 6. WHERE CONDITIONS REQUIRE, RODS MAY BE DRIVEN AT ANGLES UP TO 45 DEGREES OR HORIZONTAL ORIENTED PERPENDICULAR TO GROUND RING
- ELECTROLYTIC GROUND RODS**
1. WHERE CONDITIONS REQUIRE, ELECTROLYTIC GROUND RODS MAY BE USED. INSTALL PER MANUFACTURER'S SPECIFICATIONS
 2. L-SHAPED ELECTROLYTIC RODS SHALL BE INSTALLED PERPENDICULAR TO GROUND RING
 3. BACKFILL WITH GROUNDING ENCASEMENT MATERIALS
- GROUND PLATES**
1. ONLY TO BE USED WHERE CONDITIONS PROHIBIT USE OF GROUND RODS
 2. 1/16" (MIN.) THICKNESS WITH 2 SQUARE FEET (MIN.) AREA UNPAINTED COPPER CLAD STEEL OR SOLID COPPER
 3. TOP EDGE BURIED 30" (MIN.) OR BELOW PERMANENT MOISTURE LEVEL
 4. PLATES SHALL BE INSTALLED VERTICALLY
 5. BACKFILL WITH GROUNDING ENCASEMENT MATERIALS 6" MINIMUM ON ALL SIDES
- RADIAL GROUNDING CONDUCTORS**
1. #2 AWG OR LARGER TINNED SOLID COPPER
 2. CONDUCTORS SHALL RADIATE FROM TOWER CENTER
 3. SHALL BE BONDED TO GROUND RING AND DIRECTLY TO TOWER
 4. WHERE NOT POSSIBLE TO BOND DIRECTLY TO TOWER, ADDITIONAL #2/0 CONDUCTORS SHALL BE BONDED TO RING
 5. BURIED 30" WHERE POSSIBLE, 18" (MIN.)
 6. EACH RADIAL CONDUCTOR SHALL BE 25' (MIN.), 80' (MAX.) IN LENGTH
 7. WHERE MULTIPLE RADIALS ARE USED, VARY CONDUCTOR LENGTHS
- GROUNDING ENCASEMENT MATERIALS**
1. PRE-PACKAGED MATERIALS SHALL BE USED
 2. ACCEPTABLE MATERIALS: BENTONITE, BENTONITE CONTAINING MATERIALS, CONCRETE, CONDUCTIVE CONCRETE, CEMENT WITH GRADED GRANULAR CARBONACEOUS AGGREGATE IN PLACE OF SAND OR GRAVEL
- CONDUCTORS**
1. #2 AWG OR LARGER TINNED SOLID COPPER WHERE BELOW GROUND OR PARTIALLY BELOW GROUND
 2. #2 OR #6 AWG TINNED SOLID COPPER WHERE ABOVE GROUND AS NOTED
 3. SPLICES SHALL BE EXOTHERMICALLY WELDED
 4. 8" (MIN.) BENDING RADIUS FOR #2 OR SMALLER. 90 DEGREES (MIN.) BEND. ALL BENDS TOWARDS GROUND LOCATION.
- CONNECTORS**
1. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC UNLESS OTHERWISE NOTED.
 2. EXOTHERMIC WELDS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 3. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD OR EQUAL
 4. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL
 5. FOLLOWING CONNECTION, APPLY APPROPRIATE CONDUCTIVE ANTI-OXIDIZING PAINT.
 6. MECHANICAL CONNECTIONS SHALL BE 3 CRIMP STYLE COMPRESSION FIT CRIMPED WITH HYDRAULIC CRIMPING TOOLS OR EQUAL. NO SLIP BOLTS ARE ACCEPTABLE.

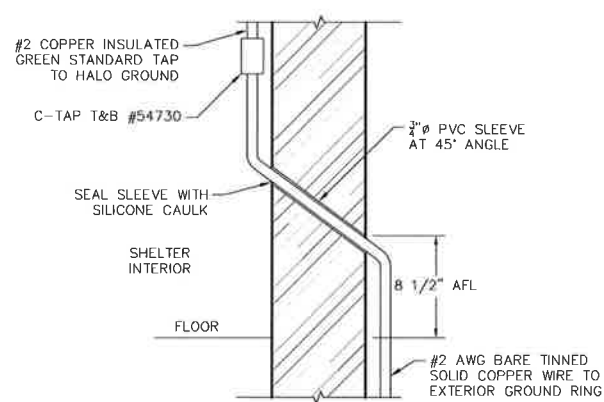


CABLE PORT GROUNDING

SCALE: NONE

1
E-2

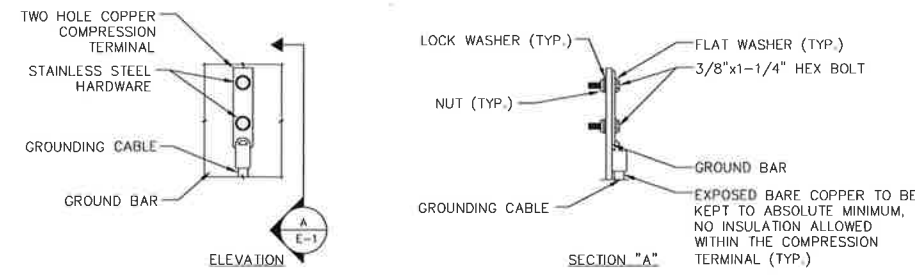
CONTRACTOR SHALL INSTALL AS SHOWN UNLESS GROUND BAR IS PREINSTALLED BY SHELTER MANUFACTURER



WALL GROUND PENETRATION

SCALE: NONE

4
E-2

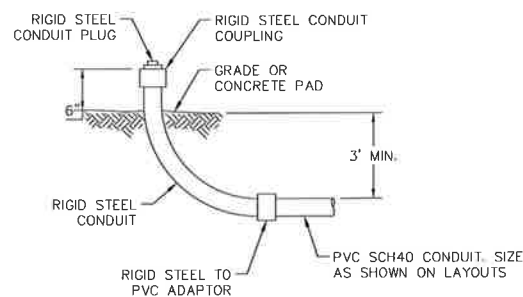


1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

GROUND BAR CONNECTION

SCALE: NONE

6
E-2



STUB-UP CONDUIT DETAIL

SCALE: NONE

7
E-2