



Crown Castle
3530 Torington Way, Suite 300
Charlotte, NC 28277

November 4, 2014

Melanie A. Bachman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Sprint PCS-Exempt Modification - Crown Site BU: 806354
Sprint PCS Site ID: CT03XC368
Located at: 21 Berkshire Rd, Newtown, CT 06482

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of Sprint PCS (Sprint). Sprint is making modifications to certain existing sites in its Connecticut system in order to implement their 2.5GHz LTE technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mrs. E. Patricia Llodra, First Selectman for the Town of Newtown, and Carmine V. Renzulli, Property Owner.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **21 Berkshire Rd, Newtown, CT 06482**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to Sprint’s operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes (“C.G.S.”) § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Sprint’s additional antennas will be located at the same elevation on the existing tower.
2. There will be no proposed modifications to the ground and no extension of boundaries.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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November 4, 2014

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4. A Structural Modification Report confirming that the tower and foundation can support Sprint's proposed modifications is included as Exhibit-2.
5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for Sprint's modified facility is included as Exhibit-3.

For the foregoing reasons, Sprint respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Donna Neal.

Sincerely,



Susan Vale
Real Estate Specialist

Enclosures

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: Mrs. E. Patricia Llodra, First Selectman
Newtown Municipal Center
3 Primrose Street
Newtown, CT 06470

Carmine V. Renzulli
505 Westport Ave, Lot 31
Norwalk, CT 06851

Sprint

2.5 EQUIPMENT DEPLOYMENT

SITE NUMBER:
CT03XC368

SITE NAME:
NEWTOWN

SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

CROWN ID#: 806354

CROWN SITE NAME: BRG 123 943089

Sprint
2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

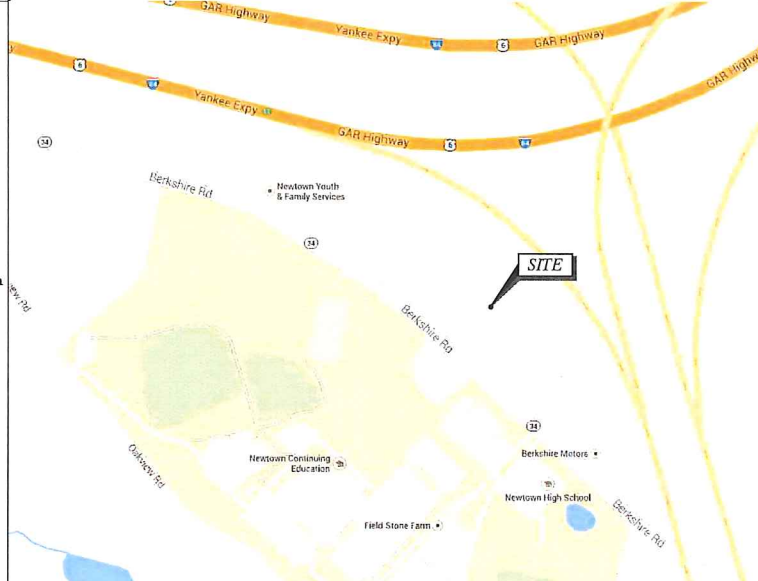
CROWN CASTLE

TECTONIC • PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION
MANAGEMENT
TECTONIC Engineering & Surveying
Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

SHEET INFORMATION

SITE NUMBER:	CT03XC368	LANDLORD:	CROWN CASTLE USA 2000 CORPORATE DRIVE CANONSBURG, PA
SITE NAME:	NEWTOWN	LOCAL POWER COMPANY:	CONNECTICUT LIGHT AND POWER CONTACT CUSTOMER SERVICE (800) 286-2000
SITE ADDRESS:	21 BERKSHIRE RD NEWTOWN, CT 06482	APPLICANT:	SPRINT 6580 SPRINT PARKWAY OVERLAND PARK, KANSAS 66251
COUNTY:	FAIRFIELD	ENGINEER:	JAMES QUICKSELL (845) 567-6656 EXT. 2835 Jquicksell@tectonicengineering.com
COORDINATES: (NAD 83)	41° 24' 45.53" N 73° 16' 12.34" W	SPRINT CM:	GARY WOOD (860) 940-9168 gary.wood@sprint.com
GROUND ELEV:	415'± AMSL	CROWN CM:	JASON D'AMICO (860) 209-0104 jason.d'amico@crowncastle.com
STRUCTURE TYPE:	MONOPOLE	AAV:	AT&T
STRUCTURE HEIGHT:	185'-0"± AGL		
STRUCTURE RAD CENTER:	165'-0"± AGL		
ZONING CLASSIFICATION:	B-3		
MAP-BLOCK-LOT:	38-10-3		

VICINITY MAP (NOT TO SCALE)



SHEET INDEX

SHT. NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
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A-3	ENLARGED EQUIPMENT LAYOUT PLANS
A-4	ANTENNA LAYOUT PLANS
A-5	RAN WIRING DIAGRAM
A-6	CABLE DETAILS
S-1	EQUIPMENT DETAILS
S-2	EQUIPMENT SCHEMATIC DETAILS
E-1	ELECTRICAL & GROUNDING PLANS
E-2	GROUNDING DETAILS & NOTES

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SUBMITTALS

PROJECT NO: 7225.CT03XC368

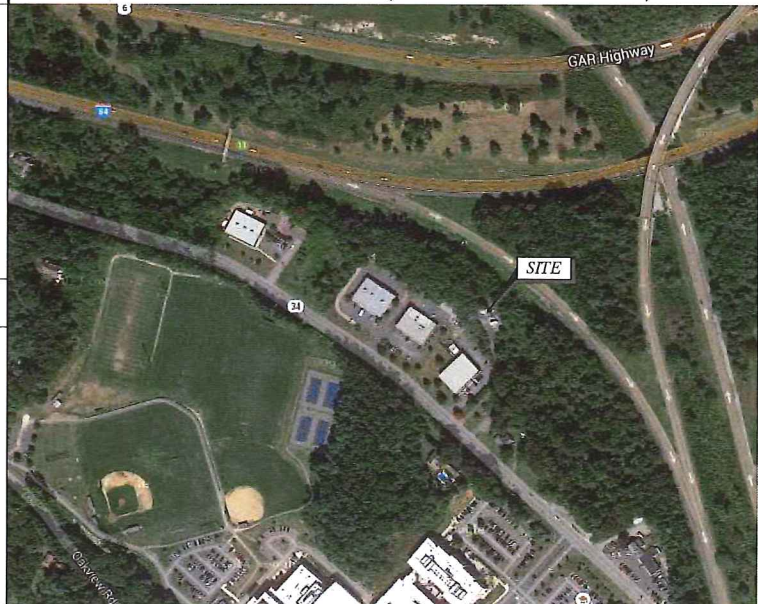
NO	DATE	DESCRIPTION	BY
0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
10/31/14	JMG

GENERAL NOTES

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED. FACILITY HAS NO PLUMBING OR REFRIGERANTS. THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATOR REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- DEVELOPMENT AND USE OF THIS SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
 - 2005 STATE OF CONNECTICUT BUILDING CODE.
 - ANSI/TIA/EIA-222-F-1996.
 - NATIONAL ELECTRICAL CODE, LATEST EDITION.

AERIAL VIEW (NOT TO SCALE)



APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CONSTRUCTION: _____ DATE: _____

LEASING/
SITE ACQUISITION: _____ DATE: _____

LANDLORD/
PROPERTY OWNER: _____ DATE: _____

R.F. ENGINEER: _____ DATE: _____



PROJECT DESCRIPTION

- (1) NEW 2.5 EQUIPMENT RACK INSIDE EXIST MMBTS CABINET.
- (3) NEW RFS APXVTM14-C-120 ANTENNAS.
- (3) NEW TD-RRH6x20-25 RRH.
- (1) NEW 5/8" FIBER CABLE.
- (3) NEW HANDRAIL KIT SITE PRO P/N HRK12.



SITE NUMBER:
CT03XC368

SITE NAME:
NEWTOWN

SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
TITLE SHEET

SHEET NO:
T-1

DIVISION 01000--GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. 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 ARCHITECT/ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE 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 OF 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 THE POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
14. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
16. THE CONTRACTOR SHALL NOTIFY THE THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SWEEP TESTS.
17. THE CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS-BUILT DRAWINGS TO THE CLIENT REPRESENTATIVE.

18. REFER TO: CONSTRUCTION STANDARDS--SPRINT DOCUMENT EXHIBIT A--STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES REV. 4.0-- 02.15.2011.DOCM.
19. REFER TO: WEATHER PROOFING SPECS: EXCERPT EXH A--WHRPRF--STD CONSTR SPECS...157201110421855492.DOCM.
20. REFER TO: COLOR CODING--SPRINT NEXTEL ANT AND LINE COLOR CODING (DRAFT) V3 09-08-11.PDF
21. REFER TO LATEST DOCUMENTATION REVISION.

DIVISION 03000--CONCRETE

- 1.03 APPLICABLE STANDARDS (USE LATEST EDITIONS)
- A. ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
 - B. ACI-347 GUIDE TO FORM WORK FOR CONCRETE.
 - C. ASTM C33-- CONCRETE AGGREGATE
 - D. ASTM C94 - READY MIXED CONCRETE e. ASTM C150 - PORTLAND CEMENT.
 - E. ASTM C260 - AIR-ENTRAINING ADMIXTURES FOR CONCRETE
 - F. ASTM C309-- LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.
 - H. ASTM C494 - CHEMICAL ADMIXTURES FOR CONCRETE
 - I. ASTM A615-- DEFORMED AND PLAIN BILLET--STEEL BARS FOR CONCRETE REINFORCEMENT
 - J. ASTM A185-- STEEL WELDED WIRE FABRIC (PLAIN) FOR CONCRETE REINFORCEMENT

1.04 QUALITY ASSURANCE
CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ARCHITECT/ENGINEER AS DIRECTED BY THE CLIENT'S REPRESENTATIVE.

- 3.04 SURFACE FINISHES
- A. SURFACES AGAINST WHICH BACKFILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.
 - B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINIS AND THE FILLING HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.
 - C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OR SURFACES SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 1/4" PER FOOT.
 - D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREENED.
 - E. EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREENED, FLOATED, AND STEEL TROWELED. HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATING. FLOATING SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER.

- 1.04 QUALITY ASSURANCE CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER.
- 3.05 PATCHING
THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.
- 3.06 DEFECTIVE CONCRETE
THE CONTRACTOR SHALL NOTIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.
- 3.07 PROTECTION
A. IMMEDIATELY AFTER PLACEMENT. THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
C. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRACTICES SPECIFIED BY ACI CODE (LATEST EDITION)

DIVISION 05000 -- METALS

- PART 1 -- GENERAL
- 1.01 WORK INCLUDED
- A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED. AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDING ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK AND ALL ITEMS INCIDENTAL AS SPECIFIED AND AS SHOWN ON THE DRAWINGS:
1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES. WELDING AND BOLTING OF ATTACHMENTS.
- 1.02 REFERENCE STANDARDS
- A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:
 1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES" OR LATEST EDITION.
 2. AWS: AMERICAN WELDING SOCIETY CODE OR LATEST EDITION.
 3. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).
- PART 2 -- PRODUCTS
- 2.01 MATERIALS
- A. STRUCTURAL STEEL: SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A36 AND A992 FOR STRUCTURAL STEEL.
- ALL PROPOSED STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC CODE AND ASTM SPECIFICATIONS (LATEST EDITION) ALL NEW STEEL SHALL CONFORM TO THE FOLLOWING.
1. STRUCTURAL WIDE FLANGE: ASTM A992 Fy=50KSI.
 2. MISCELLANEOUS STEEL (PLATES), CHANNELS, ANGLES, ETC): ASTM A36 (Fy=36KSI).
 3. STRUCTURAL TUBING: ASTM A500 Gr. B (Fy=46KSI).
 4. STEEL PIPE: ASTM A53 Gr B (Fy=35KSI).
- 2.02 WELDING
- A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
 - B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM 1-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
 - C. FIELD WELDING SHALL BE DONE AS PER AWS D1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.
 - D. STUD WELDING SHALL BE ACCOMPLISHED BY CAPACITOR DISCHARGE (CD) WELDING TECHNIQUE USING CAPACITOR DISCHARGE STUD WELDER.
 - E. PROVIDE STUD FASTENERS OF MATERIALS AND SIZES SHOWN ON DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER FOR STRUCTURAL LOADINGS REQUIRED.
 - F. FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TO PROPERLY SELECT AND INSTALL STUD WELDS.
- 2.03 BOLTING
- A. BOLTS SHALL BE CONFORMING TO ASTM A35 HIGH STRENGTH HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.
 - B. BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325, HOT DIP GALVANIZED, ASTM A153 NUTS SHALL BE HEAVY HEX TYPE.
 - C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.
 - D. EXCEPT WHERE SHOWN, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS TO BE DOUBLE ANGLED CONNECTIONS WITH HIGH STRENGTH BOLTS (THREADS EXCLUDED FROM SHEAR PLANE) AND HARDENED WASHERS.
 - E. STANDARD, OVERSIZED OR HORIZONTAL SHORT SLOTTED HOLES.
 - F. SNUG--TIGHT STRENGTH BEARING BOLTS MAY BE USED IN STANDARD HOLES CONFORMING TO ACIS, USING THE TURN OF THE NUT METHOD.
 - H. FULLY--TENSIONED HIGH STRENGTH (SLIP CRITICAL) SHALL BE USED IN OVERSIZED SLOT HOLES (RESPECTIVE OF SLOT ORIENTATION).
 - I. ALL BRACED CONNECTION, MOMENT CONNECTION AND CONNECTIONS NOTED AS "SLIP CRITICAL" SHALL BE BE SLIP CRITICAL JOINTS WITH CLASS A SURFACE CONDITIONS, UNLESS OTHERWISE NOTED.
 - J. EPOXY ANCHOR ASSEMBLIES SHALL BE AS MANUFACTURED BY HILTI OR ENGINEER APPROVED EQUAL, AS FOLLOWS:
- | | |
|-------------------------------|----------------------|
| <u>BASE MATERIAL</u> | <u>ANCHOR SYSTEM</u> |
| CONCRETE | HILTI HIT--HY 200 |
| HOLLOW & GROUTED CMU OR BRICK | HILTI HIT--HY 70 |
- 2.04 FABRICATION
- A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS

- 2.05 FINISH
- A. STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT--DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. (LATEST EDITION) UNLESS OTHERWISE NOTED.
- 2.06 PROTECTION
- A. UPON COMPLETION OF ERECTION, INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS OR GALVANIZED BREAKS WITH (2) COATS OF ZINC--RICH COLD GALVANIZING PAINT.
- PART 3 -- ERECTION
- A. PROVIDE ALL ERECTION, EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION, BUT ARE NECESSARY FOR ITS PROPER ERECTION.
 - B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING
 - C. TEMPORARY BRACING, GUYING, AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SET AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.



TECTONIC • PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

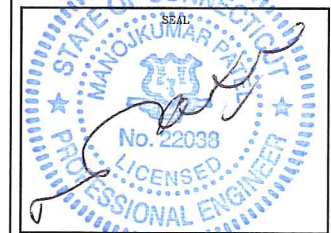
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SUBMITTALS			
PROJECT NO: 7225.CT03XC368			
NO	DATE	DESCRIPTION	BY
0	06/16/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE: 10/31/14 REVIEWED BY: JMC



SITE NUMBER:
CT03XC368

SITE NAME:
NEWTOWN

SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
GENERAL NOTES

SHEET NO:
SP-1

DIVISION 13000—SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 — GENERAL

1.01 WORK INCLUDED

A. ANTENNAS AND HYBRIFLEX CABLES ARE FURNISHED BY CLIENT'S REPRESENTATIVE UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPERTY.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT RESULT

F. INSTALL HYBRIFLEX CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

G. ANTENNA AND HYBRIFLEX CABLE GROUNDING:

1. ALL EXTERIOR #6 GREEN GROUND WIRE DAISY CHAIN CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE 3221213 OR EQUIVALENT.

2. ALL HYBRIFLEX CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF HYBRIFLEX CABLE (NOT WITHIN BENDS). 1.02 RELATED WORK FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

1. FLASHING OF OPENING INTO OUTSIDE WALLS.
2. SEALING AND CAULKING ALL OPENINGS.
3. PAINTING.
4. CUTTING AND PATCHING.

1.03 REQUIREMENTS OF REGULATOR AGENCIES

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. EIA — ELECTRONIC INDUSTRIES ASSOCIATION RS-22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

2. FAA — FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7480-1H, CONSTRUCTION MARKING AND LIGHTING.

3. FCC — FEDERAL COMMUNICATION COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES

4. AISC — AMERICAN INSTITUTE OF STEEL CONSTRUCTION FOR STRUCTURAL JOINTS USING ASTM 1325 OR A490 BOLTS.

5. NEC — NATIONAL ELECTRIC CODE — ON TOWER LIGHTING KITS.

6. UL — UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

7. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

B. LIFE SAFETY CODE NFPA, LATEST EDITION.

DIVISION 13000—EARTHWORK

PART 1 GENERAL

1.01 WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02 RELATED WORK

A. CONSTRUCTION OF EQUIPMENT FOUNDATIONS
B. INSTALLATION OF ANTENNA SYSTEM

PART 2 PRODUCTS

2.01 MATERIALS

A. ROAD AND SITE MATERIALS; FILL MATERIAL SHALL BE ACCEPTABLE. SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B. SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PRE-EMERGENCE DESIGN.

C. SOIL STABILIZER FABRIC SHALL BE MIRAFI OR EQUAL — 600X AT ACCESS ROAD AND COMPOUND.

D. GRAVEL FILL; WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER.

MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS.

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND 90 % DENSITY. COMPACTED TO 95

E. NO FILL OR EMBANKMENT MATERIALS SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OF EMBANKMENT

2.02 EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEP'S FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST FIVE TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVER, HAND HELD TAMPERS.

B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C. UNLESS OTHERWISE INSTRUCTED BY CLIENT'S REPRESENTATIVE, REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.

E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3.03 INSTALLATION

A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE, ELEVATIONS ARE TO BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.

B. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

C. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.

D. THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATED.

E. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.

F. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.

G. THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.

H. RIPRAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.

I. RIPRAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.

J. RIPRAP ENTIRE DITCH FOR 6'-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.

K. SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE, SWALES, NOT OTHERWISE RIP-RAPPED.

L. UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE ADVISE THE OWNER IMMEDIATELY.

M. IF A DITCH LIES WITH SLOPE GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALL IN THE DITCH AT CULVERT ENTRANCES. RIP-RAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR 6'-0" ABOVE THE CULVERT.

N. IF A DITCH LIES WITH SLOPES GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.

O. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.

P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.

Q. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

3.04 FIELD QUALITY CONTROL

A. COMPACTION SHALL BE D-1557 FOR SITE WORK AND 95 % MAXIMUM DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. THE COMPACTION TEST RESULTS SHALL BE AVAILABLE PRIOR TO THE CONCRETE POUR.

3.05 PROTECTION

A. PROTECT SEEDED AREAS FORM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1"-2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON FOUR SIDES OF THE TREE.

C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. REFER TO DETAILS ON DRAWINGS

SYMBOLS	ABBREVIATIONS
— — — — G — — — — G —	GROUND WIRE
— — — — E — — — — E —	ELECTRIC
— — — — T — — — — T —	TELEPHONE
— — — — O — — — — O —	OVERHEAD WIRE
— — — — — — — — — —	PROPERTY LINE
— X — — — X — — — X —	CHAIN LINK FENCE
A-1	ANTENNA MARK
(E)	EXISTING
(P)	PROPOSED DETAIL
	REFERENCE
	SURFACE ELEVATION

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
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1279 Route 300
Newburgh, NY 12550
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SUBMITTALS			
PROJECT NO: 7225.CT03XC368			
NO	DATE	DESCRIPTION	BY
0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE: 10/31/14
REVIEWED BY: JMC

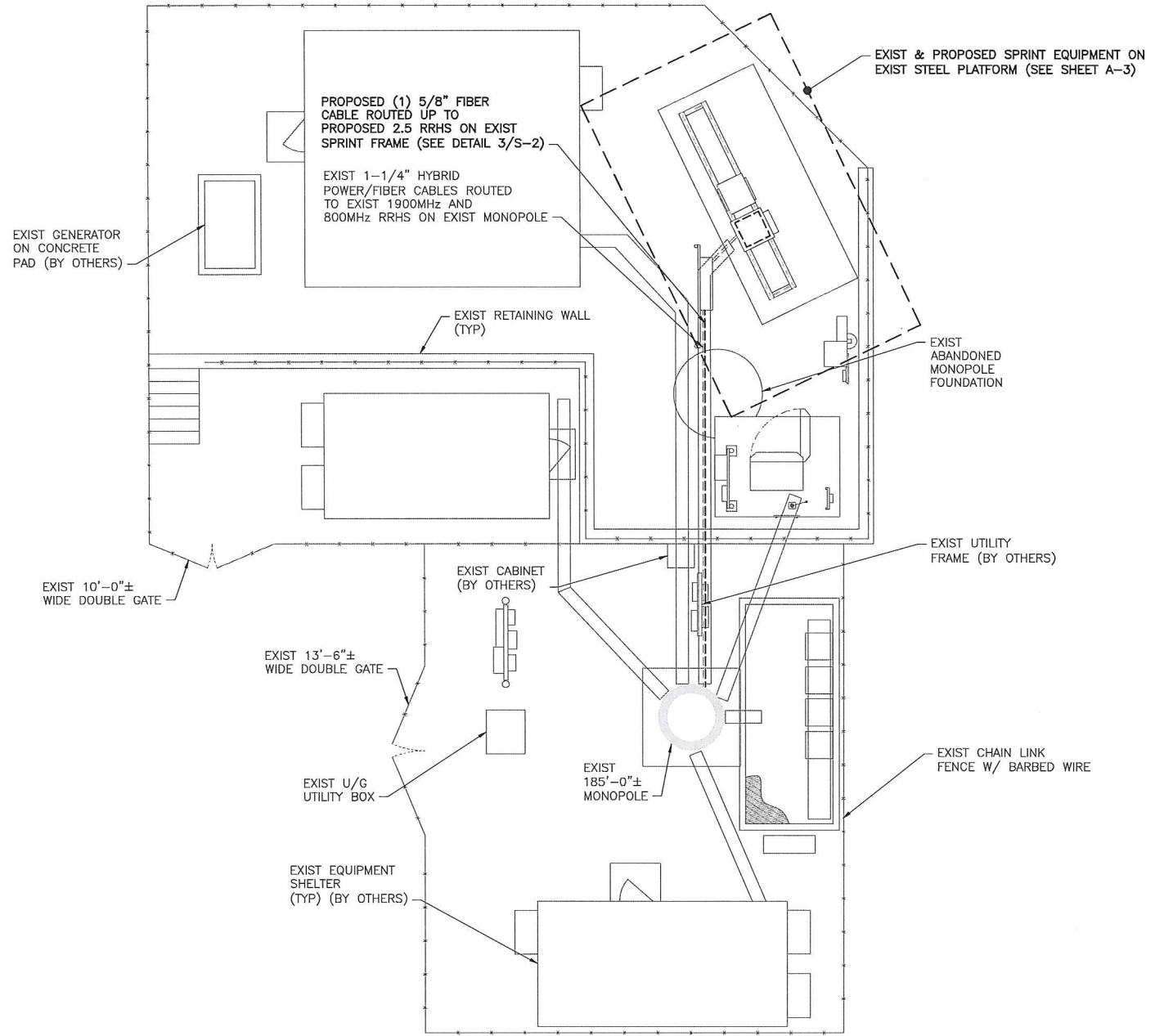
SITE NUMBER:
CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
GENERAL NOTES

SHEET NO:
SP-2

NORTH NOTE:

NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.



1
A-1
SITE PLAN
SCALE: 1/4" = 1'-0"

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2.5 EQUIPMENT DEPLOYMENT
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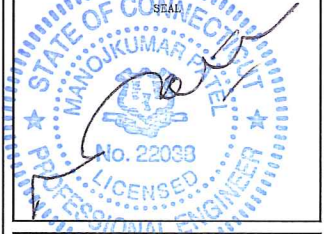
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SUBMITTALS

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1	10/31/14	FOR CONSTRUCTION	DC

DATE: 10/31/14
REVIEWED BY: Jma



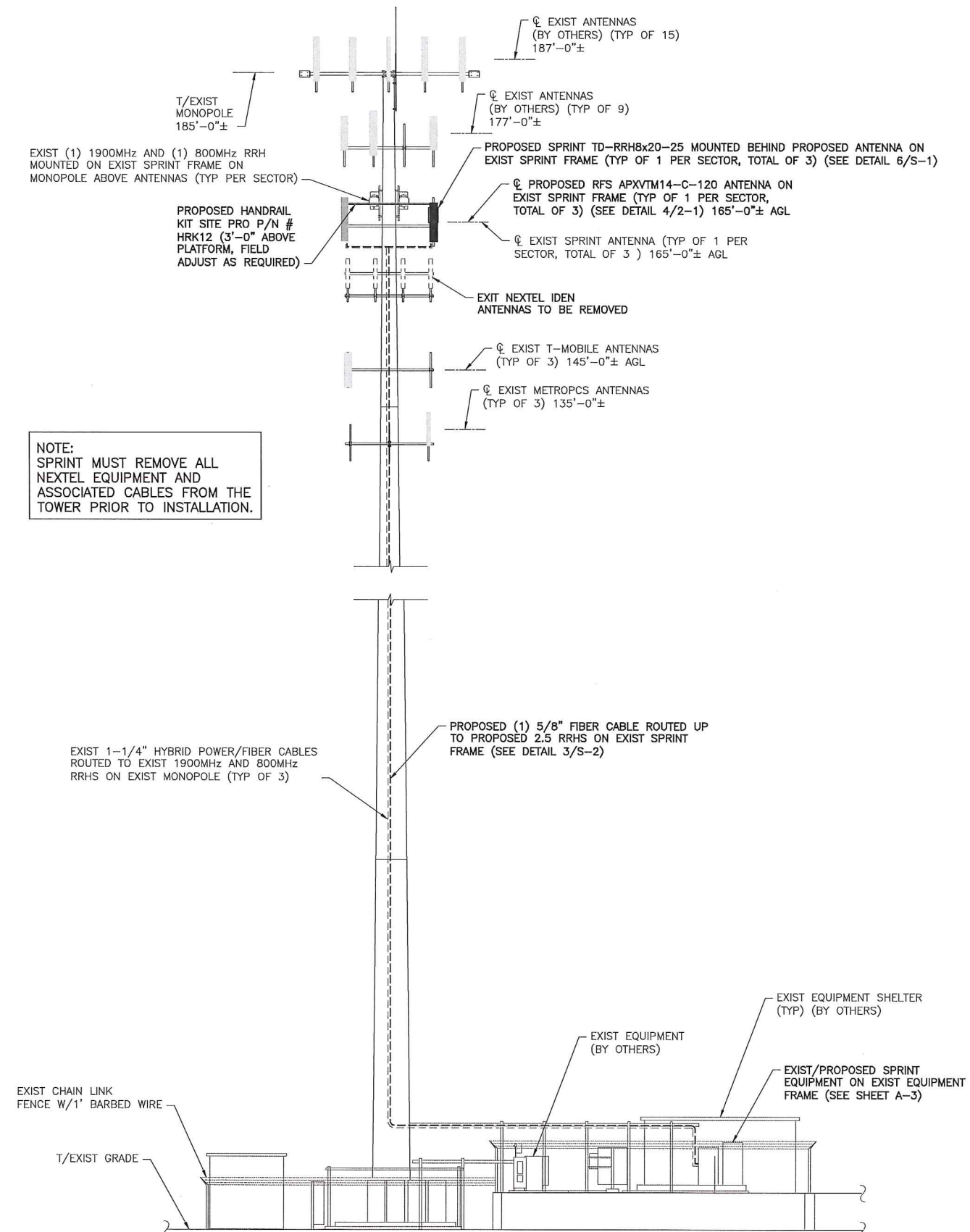
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CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
SITE PLAN

SHEET NO:
A-1

THE EXISTING MONOPOLE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

THE EXISTING MOUNT HAS BEEN ANALYZED BY TECTONIC ENGINEERING AND FOUND TO BE ADEQUATE TO SUPPORT THE PROPOSED SPRINT UPGRADE ONCE THE PROPOSED MODIFICATIONS HAVE BEEN COMPLETED AS DETAILED IN THE STRUCTURAL ANALYSIS EVALUATION LETTER DATED 10/31/14.



NOTE:
SPRINT MUST REMOVE ALL NEXTEL EQUIPMENT AND ASSOCIATED CABLES FROM THE TOWER PRIOR TO INSTALLATION.

1 ELEVATION
A-2 SCALE: 3/16" = 1'-0"

Sprint
2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

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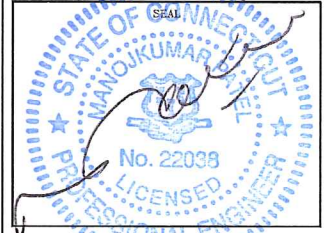
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DATE: 10/31/14
REVIEWED BY: J.M.G.



SITE NUMBER: CT03XC368
SITE NAME: NEWTOWN
SITE ADDRESS: 21 BERKSHIRE RD, NEWTOWN, CT 06482

SHEET TITLE: ELEVATION

SHEET NO: A-2

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10/31/14	JMG

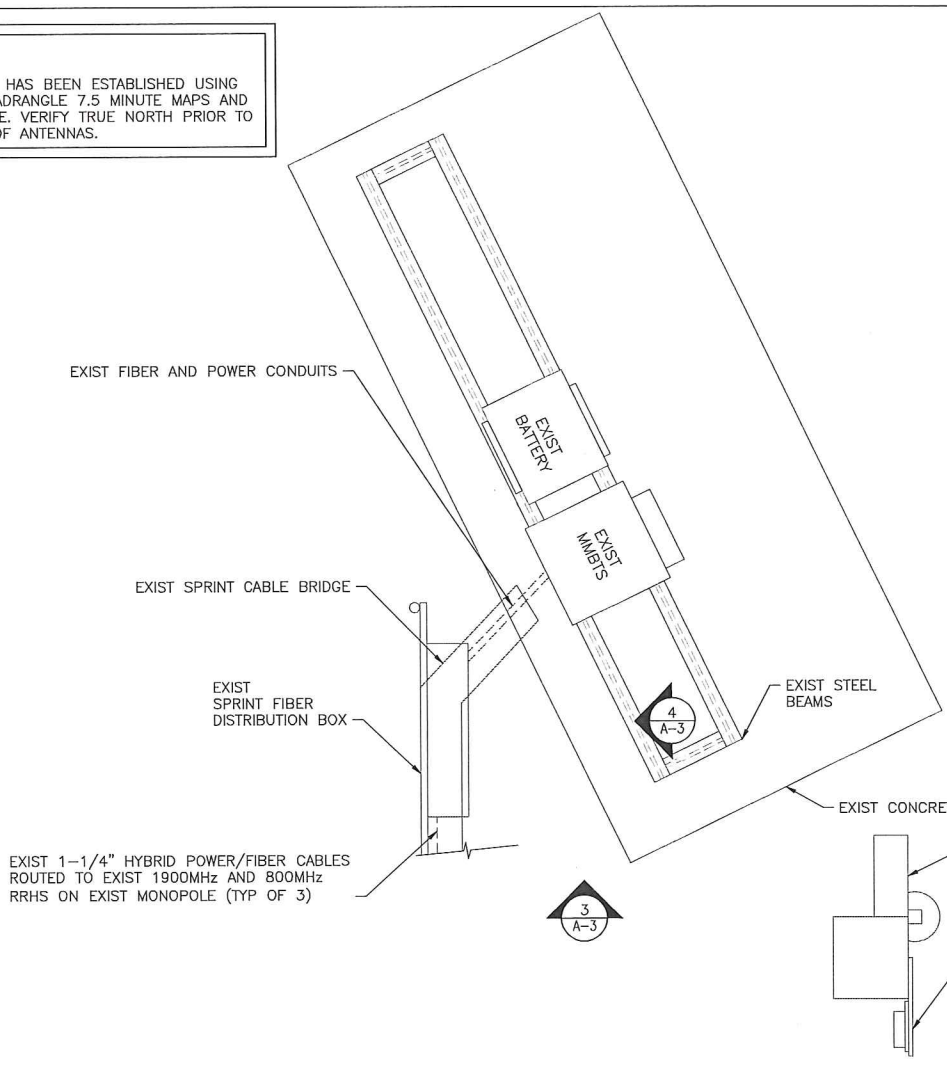


SITE NUMBER:
 CT03XC368
 SITE NAME:
 NEWTOWN
 SITE ADDRESS:
 21 BERKSHIRE RD
 NEWTOWN, CT 06482

SHEET TITLE:
 ENLARGED EQUIPMENT
 LAYOUT PLANS

SHEET NO:
 A-3

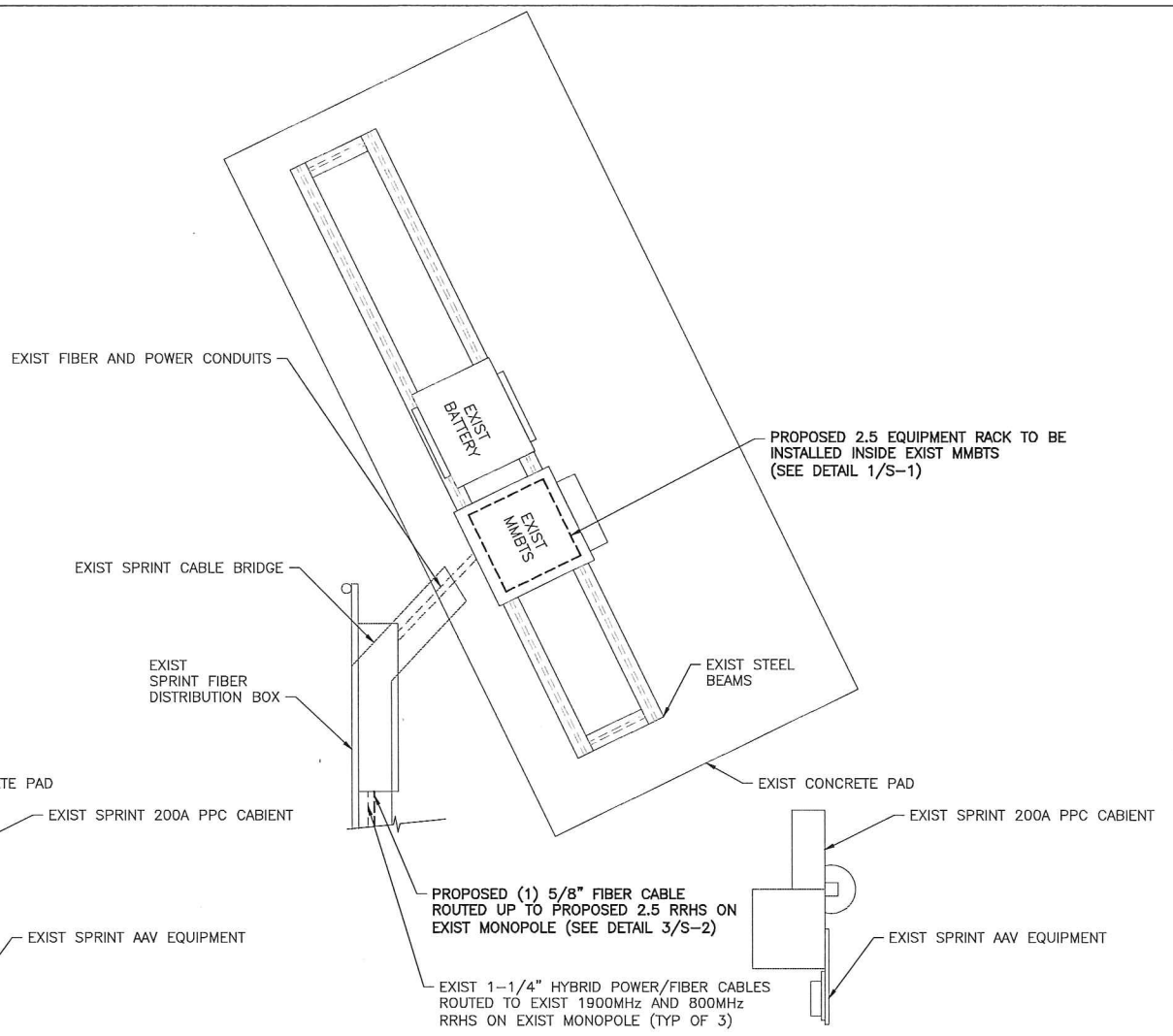
NORTH NOTE:
 NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.



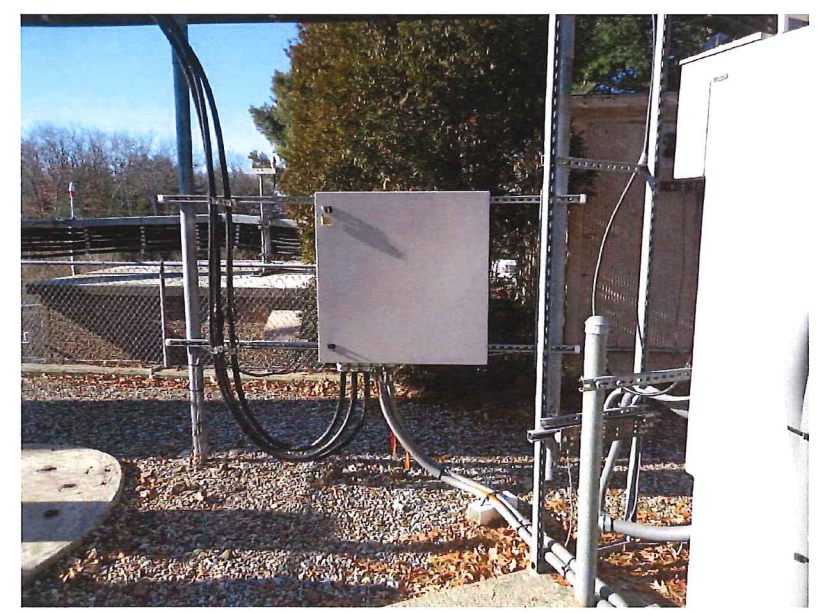
1 ENLARGED EQUIP. LAYOUT PLAN (EXIST)
 A-3 SCALE: 3/4" = 1'-0"



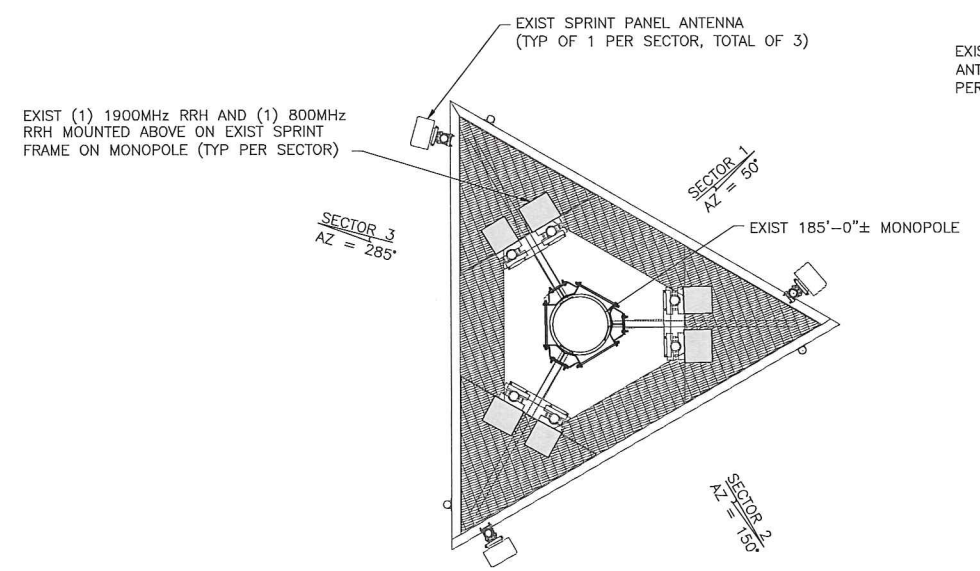
3 EXIST EQUIPMENT PAD
 A-3 SCALE: NTS



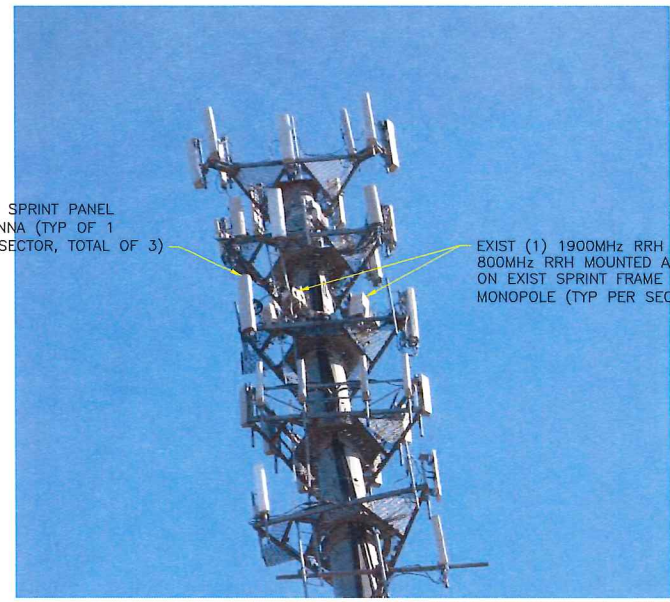
2 ENLARGED EQUIP. LAYOUT PLAN (FINAL)
 A-3 SCALE: 3/4" = 1'-0"



4 EXIST FIBER DISTRIBUTION BOX
 A-3 SCALE: NTS



1 ANTENNA LAYOUT PLAN (EXIST)
A-4 SCALE: 3/8" = 1'-0"



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2.5 EQUIPMENT DEPLOYMENT
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OVERLAND PARK, KANSAS 66251

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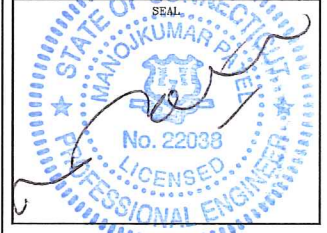
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NO	DATE	DESCRIPTION	BY
0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
10/31/14	JMG



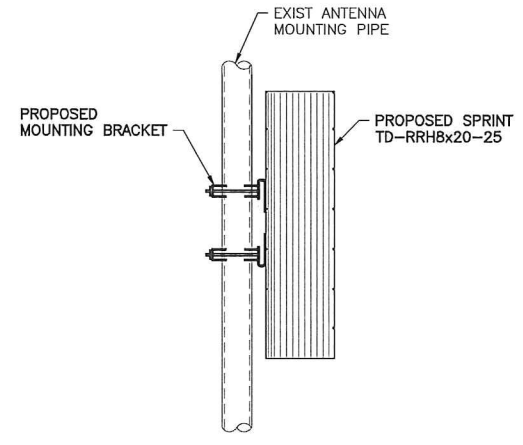
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CT03XC368

SITE NAME:
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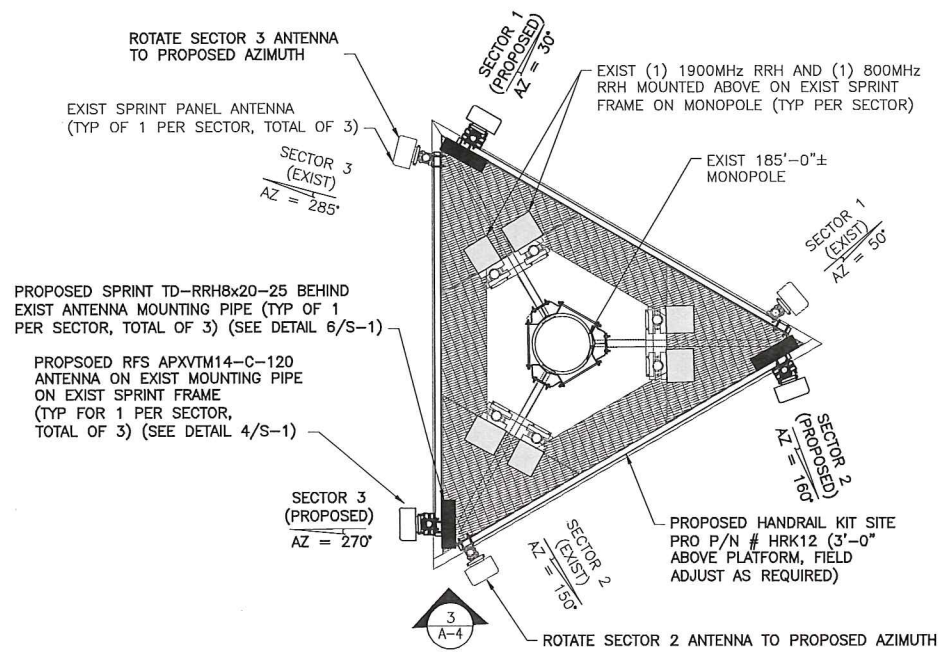
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21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
ANTENNA LAYOUT PLANS

SHEET NO:
A-4



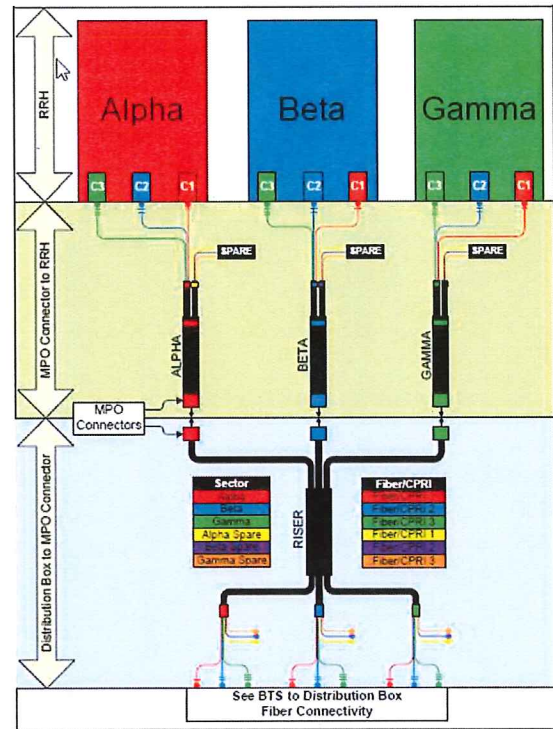
3 RRH MOUNTING DETAIL
A-4 SCALE: 1 1/2" = 1'-0"



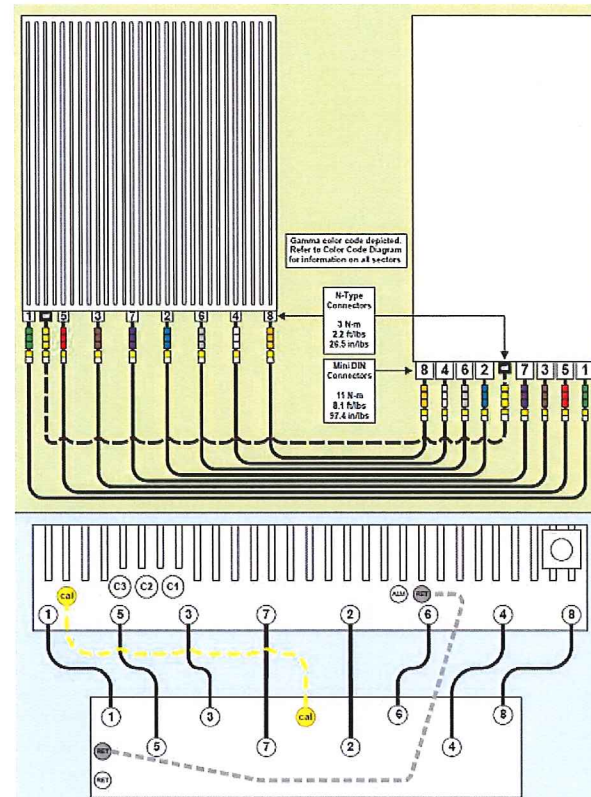
2 ANTENNA LAYOUT PLAN (FINAL)
A-4 SCALE: 3/8" = 1'-0"

ANTENNA DATA

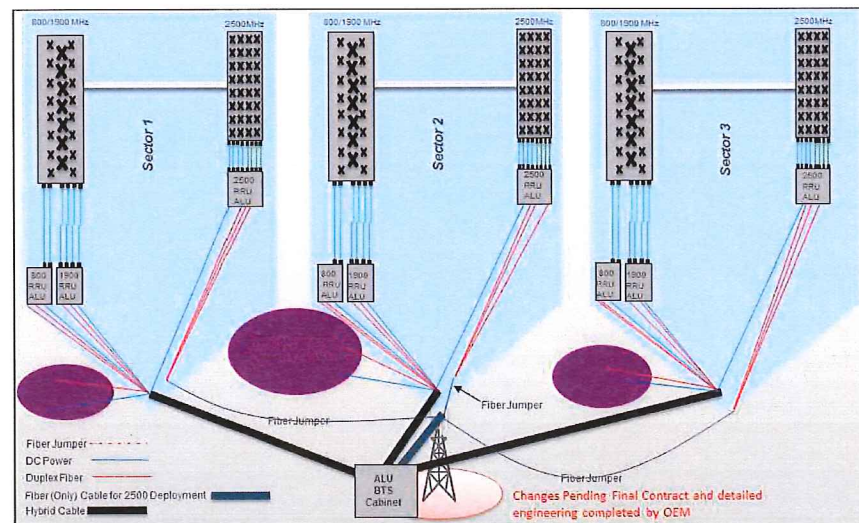
Status	Exist	Proposed
Antenna Manufacturer	RFS-CEL WAVE	RFS-CEL WAVE
Antenna Model Number	APXVSP18C-A20	APXVTM14-C-120
Number of Antennas	3	3
Antenna RAD Center	165'	165'
Antenna Azimuth	50/150/285	30/160/270
Antenna RRH Model Number	1900MHz/800MHz RRHS	TD-RRHx20-25
Number of RRH	3	3



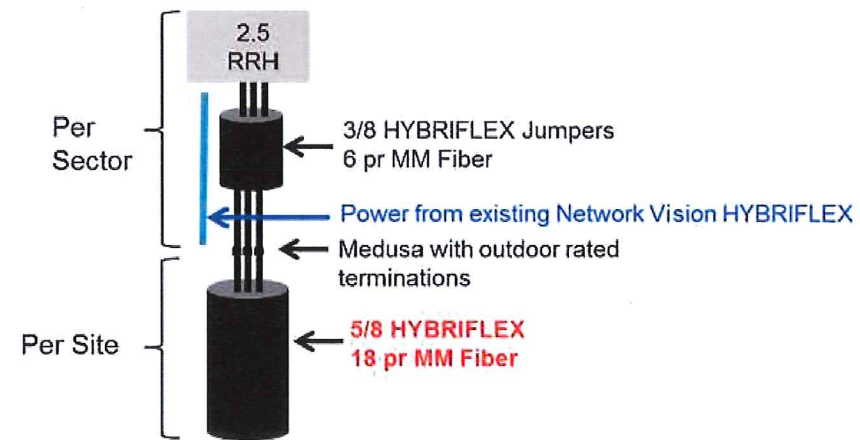
1 2.5 CABLE COLOR CODING
A-5 SCALE: N.T.S.



2 RRH CONNECTIVITY
A-5 SCALE: N.T.S.



3 RAN WIRING
A-5 SCALE: N.T.S.



4 CABLE SCENARIO
A-5 SCALE: N.T.S.

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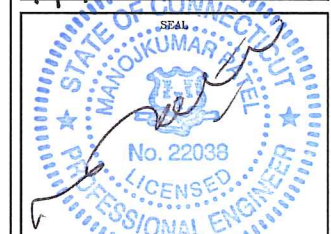
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SUBMITTALS

PROJECT NO: 7225.CT03XC368

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0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
10/31/14	JMA



SITE NUMBER:
CT03XC368

SITE NAME:
NEWTOWN

SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

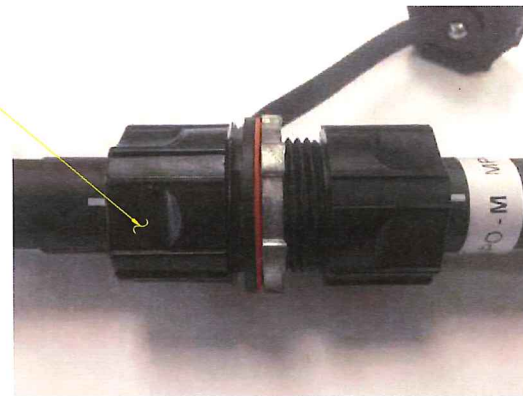
SHEET TITLE:
RAN WIRING DIAGRAM

SHEET NO:
A-5

IMPORTANT!! LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAINST THE RED SEAL ON THE RISER CONNECTION

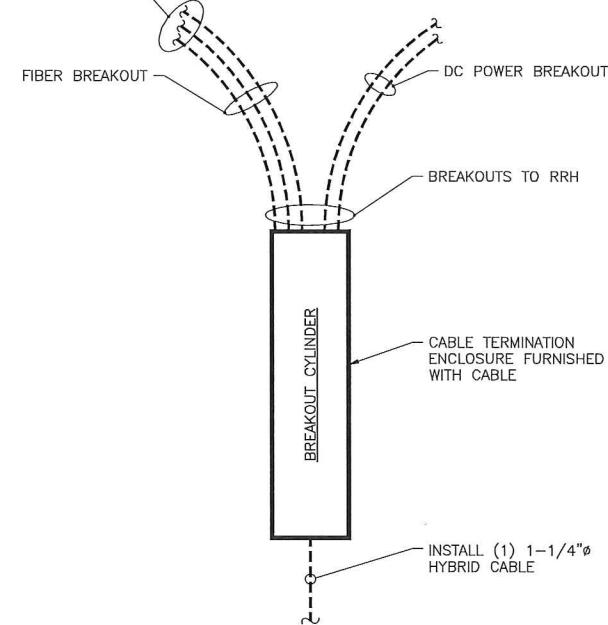


IMPORTANT!! ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL A CLICK SOUND IS HEARD TO EXSURE A GOOD CONNECTION

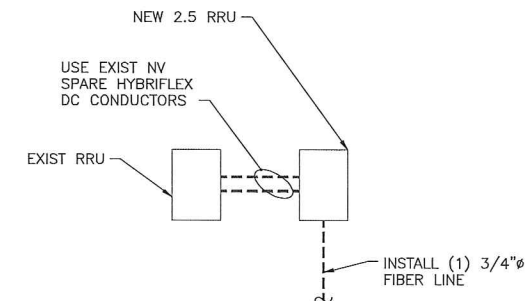


1 HYBRIFLEX RISER/JUMPER CONNECTION DETAILS
A-6 SCALE: N.T.S.

TRUNK-LINE TO JUMPER CONNECTION (MPO) TO BE INSTALLED PER MANUFACTURER REQUIREMENTS. SEE DETAIL.



2.5 HYBRID CABLE W/FIBER & DC FEEDERS



FIBER ONLY TRUNK LINES

2 TRUNK LINE DETAILS (TYPICAL)
A-6 SCALE: N.T.S.

SPECIAL NOTES: CABLE MARKINGS AT RAD CENTER AND ALL WALL/BLDG. PENETRATIONS

- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) WRAPS OF TAPE.
- ALL COLOR BANDS INSTALLED AT THE TOWER TOP SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACING BETWEEN EACH COLOR.
- ALL COLOR BANDS INSTALLED AT OR NEAR THE GROUND MAY BE ONLY 3/4" WIDE. EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
- EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH 3/4" COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
- ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" BANDS ON EACH END OF THE BOTTOM JUMPER.
- ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
- EACH COLOR BAND SHALL HAVE A MINIMUM OF (3) WRAPS AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT AS TO AVOID UNRAVELING.
- X-POLE ANTENNAS SHOULD USE "XX-1" FOR THE "+45" PORT, "XX-2" FOR THE "-45" PORT.
- COLOR BAND #4 REFERS TO THE FREQUENCY BAND: ORANGE=850, VIOLET=1900. USED ON JUMPERS ONLY.
- RF FEEDLINE SHALL BE IDENTIFIED WITH A METAL TAG (STAINLESS OR BRASS) AND STAMPED WITH THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER.
- ANTENNAS MUST BE IDENTIFIED, USING THE SECTOR LETTER AND ANTENNA NUMBER, WITH A BLACK MARKER PRIOR TO INSTALLATION.

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SUBMITTALS

PROJECT NO: 7225.CT03XC368

NO	DATE	DESCRIPTION	BY
0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

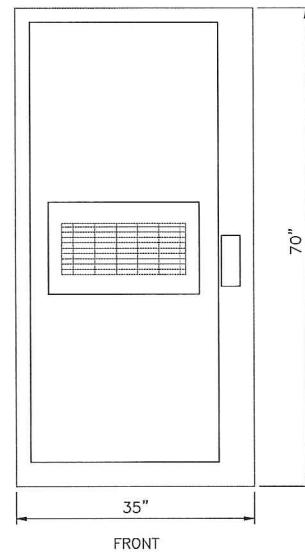
DATE	REVIEWED BY
10/31/14	JMG



SITE NUMBER:
CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

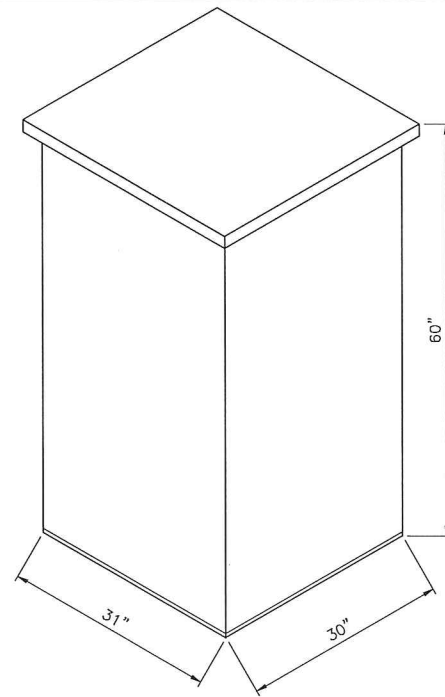
SHEET TITLE:
CABLE DETAILS

SHEET NO:
A-6



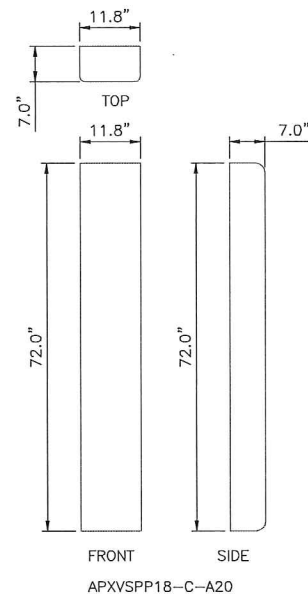
CABINET FRONT
9928 MMBTS MODULAR CELL
SPECIFICATIONS:
HEIGHT: 70"
WIDTH: 35"
DEPTH: 37.8"
WEIGHT: 1090 LBS.

1 (EXIST) MMBTS CABINET
S-1 SCALE: 1" = 1'-0"

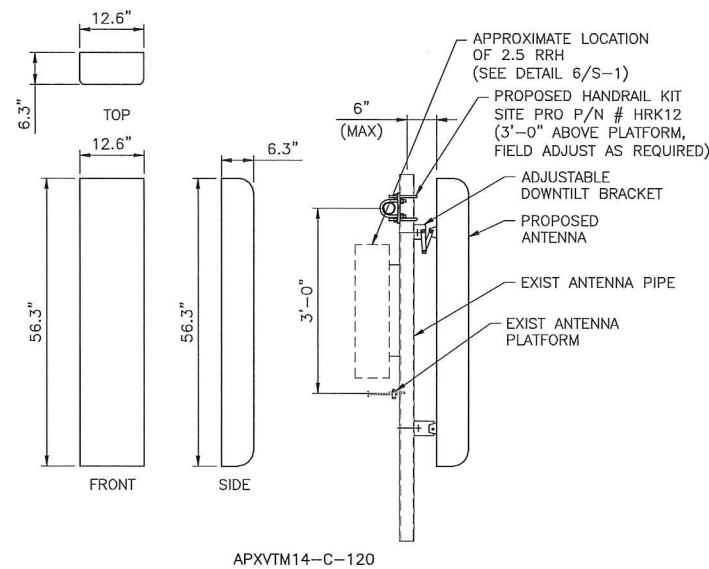


ANDREW 60ECv2
SPECIFICATIONS:
HEIGHT: 60"
WIDTH: 31"
DEPTH: 30"
WEIGHT: 2430 LBS.

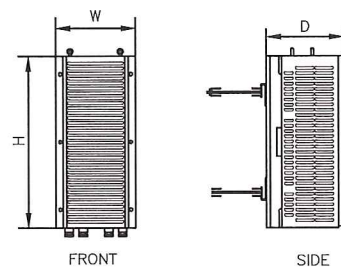
2 (EXIST) BATTERY CABINET
S-1 SCALE: 1" = 1'-0"



3 (EXIST) ANTENNA DETAILS
S-1 SCALE: 3/4" = 1'-0"

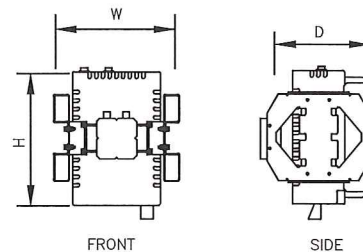


4 (PROPOSED) ANTENNA DETAIL
S-1 SCALE: 3/4" = 1'-0"

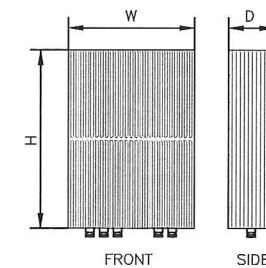


TYPE: 1900 MHz 4x45W
MODEL #: RRH 1900 4X45 65MHz
HEIGHT: 25.0"
WIDTH: 11.1"
DEPTH: 11.4"
WEIGHT: ±60 LBS.

5 (EXIST) RRH DETAILS
S-1 SCALE: 1 1/2" = 1'-0"



TYPE: 800 MHz 2x50W
MODEL #: FD-RRH-2x50-800
HEIGHT: 19.7"
WIDTH: 13"
DEPTH: 10.8"
WEIGHT: ±53 LBS



TYPE: 2.5 RRH
MODEL #: TD-RRH8x20-25
HEIGHT: 26.1"
WIDTH: 18.6"
DEPTH: 6.7"
WEIGHT: ±70 LBS

6 (PROPOSED) RRH DETAIL
S-1 SCALE: N.T.S.

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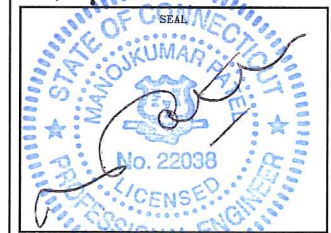
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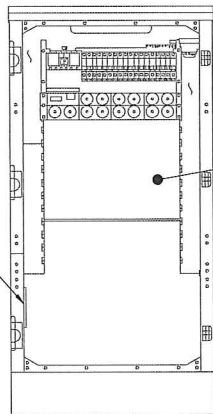


SITE NUMBER:
CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
EQUIPMENT DETAILS

SHEET NO:
S-1

NOTE:
LOCATIONS SHOWN FOR
INSTALLATION OF NEW
EQUIPMENT IN EXISTING
CABINET ARE APPROXIMATE.
ACTUAL SPACE AVAILABLE
TO BE VERIFIED IN FIELD
ON A SITE BY SITE BASIS.



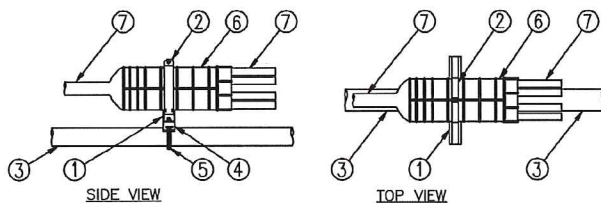
EXIST GROUND
BAR TO BE UTILIZED

INSTALL NEW 2.5
EQUIPMENT IN EXIST MMBTS
CABINET INCLUDING BUT
NOT LIMITED TO BASE BAND
UNIT, CELL SITE ROUTER
AND SURGE ARRESTORS.
GROUND EQUIPMENT TO
EXIST INTERIOR CABINET
GROUND BAR

FRONT ELEVATION
(CABINET INTERIOR)

1 MMBTS INTERIOR DETAIL
SCALE: N.T.S.

- LEGEND:
1. P1000T-HG UNISTRUT,
12" LONG.
2. 6" PIPE HANGER.
3. EXISTING SUPPORT PIPE.
4. NEW STANDOFF BRACKET,
ANDREW PART# 30848-4.
5. NEW ROUND MEMBER
ADAPTER SIZED FOR
EXISTING PIPE SUPPORT.
6. BREAKOUT UNIT.
7. CABLE.



2 MEDUSA HEAD DETAIL
SCALE: N.T.S.

RFS HYBRIFLEX RISER CABLES SCHEDULE

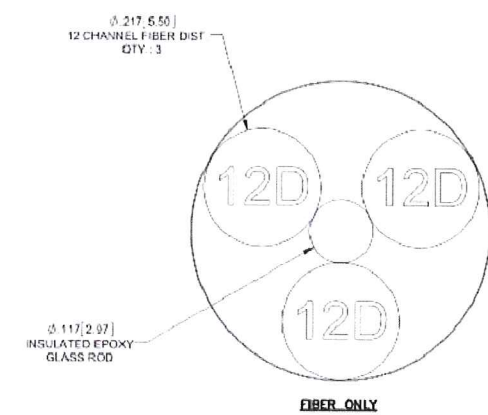
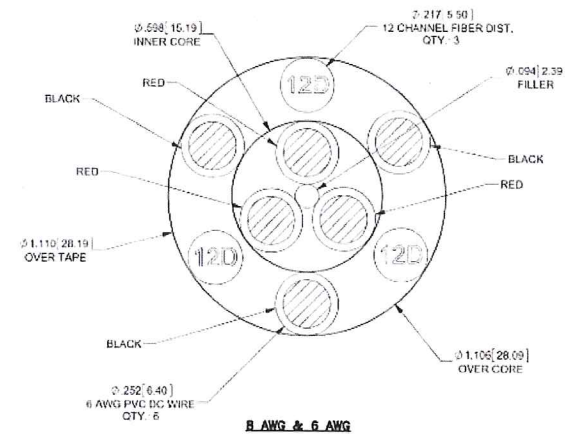
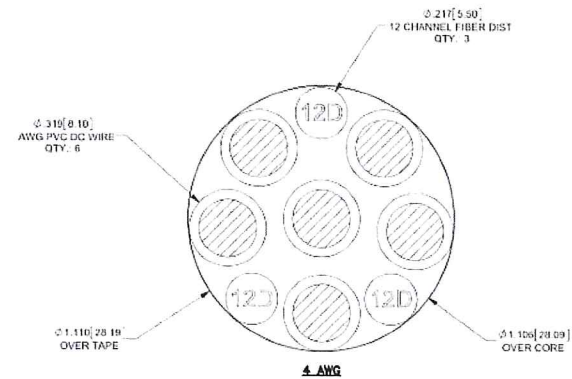
Power	Hybrid cable	Length	
Fiber Only (Existing DC Power)	MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50ft	50 ft	
	MN: HB058-M12-075F	75 ft	
	MN: HB058-M12-100F	100 ft	
	MN: HB058-M12-125F	125 ft	
	MN: HB058-M12-150F	150 ft	
	MN: HB058-M12-175F	175 ft	
8 AWG Power	MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50ft	50 ft	
	MN: HB114-08U3M12-075F	75 ft	
	MN: HB114-08U3M12-100F	100 ft	
	MN: HB114-08U3M12-125F	125 ft	
	MN: HB114-08U3M12-150F	150 ft	
	MN: HB114-08U3M12-175F	175 ft	
6 AWG Power	MN: HB114-13U3M12-225F 3x 6 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225ft	225 ft	
	MN: HB114-13U3M12-250F	250 ft	
	MN: HB114-13U3M12-275F	275 ft	
	MN: HB114-13U3M12-300F	300 ft	
	4 AWG Power	MN: HB114-21U3M12-225F 3x 4 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225ft	225 ft
		MN: HB114-21U3M12-250F	250 ft
MN: HB114-21U3M12-275F		275 ft	
MN: HB114-21U3M12-300F		300 ft	

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Power	Hybrid Jumper cable	Length
Fiber Only	MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE

MANUF:	RFS	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	7/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
HYBRIFLEX	225-300'	6 AWG	1-1/4"
HYBRIFLEX	325-375'	4 AWG	1-1/4"



3 2.5 HYBRID CABLE X-SECTION AND DATA
SCALE: N.T.S.

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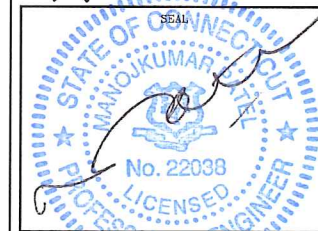
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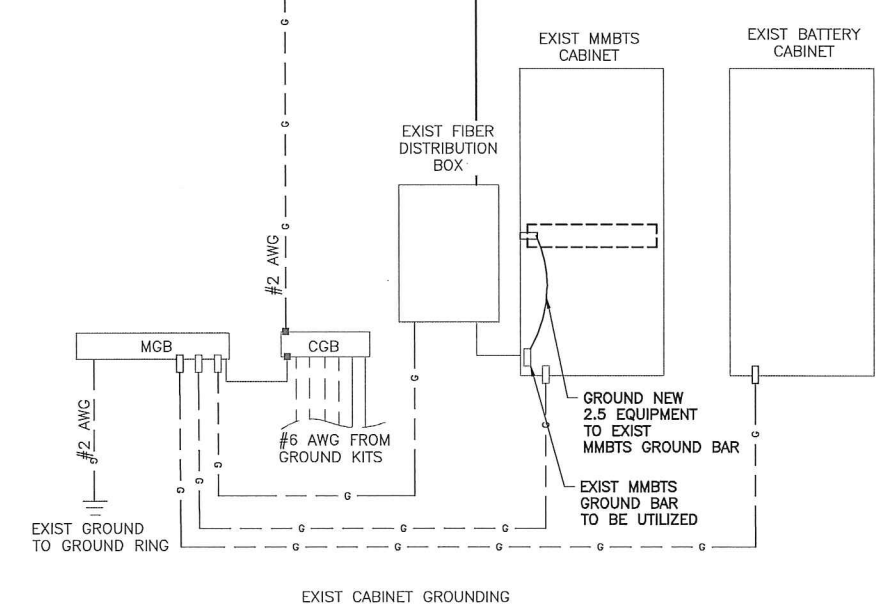
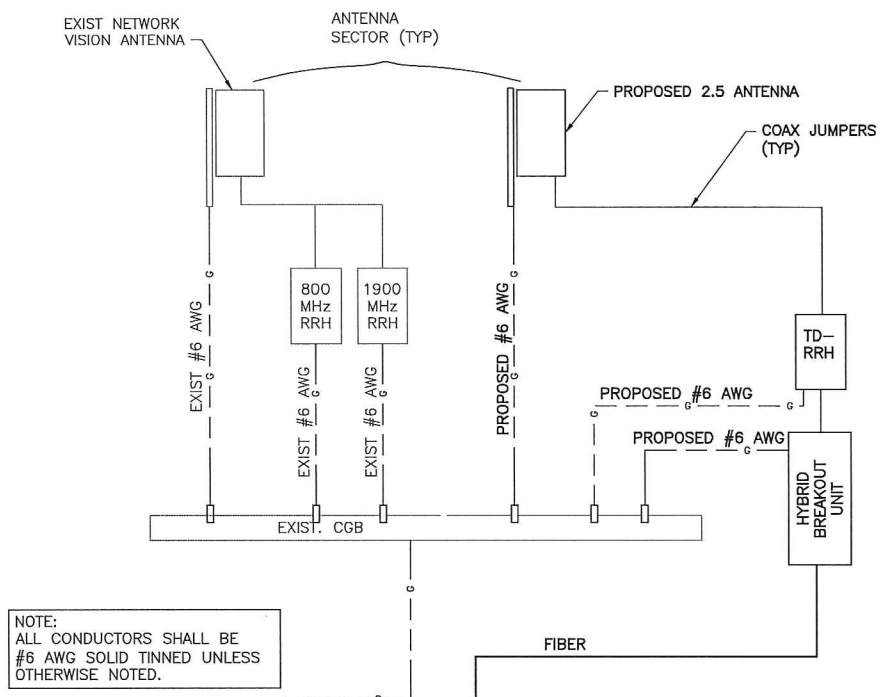
DATE: 10/31/14
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SITE NAME:
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SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
EQUIPMENT
SCHEMATIC DETAILS

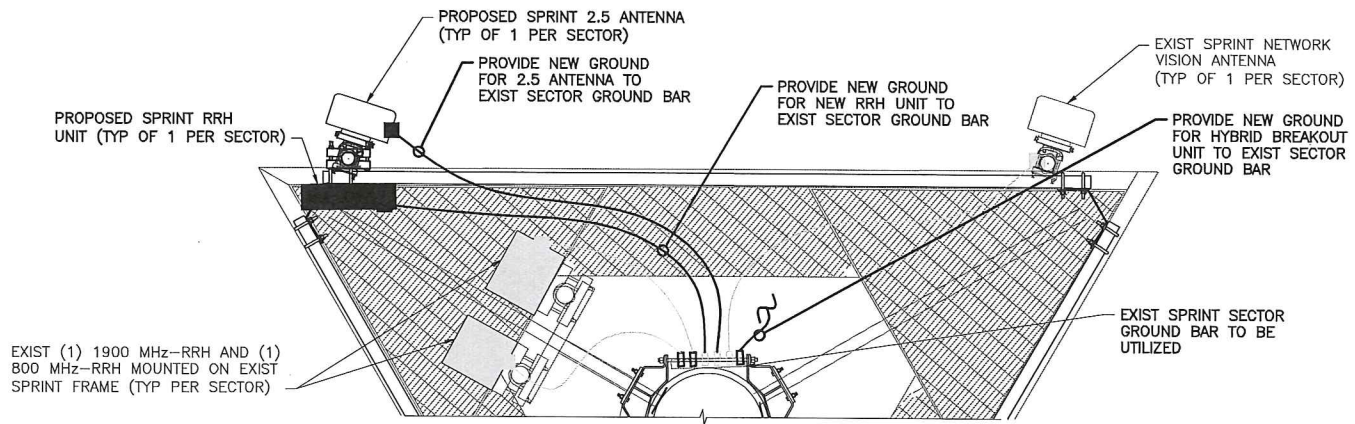
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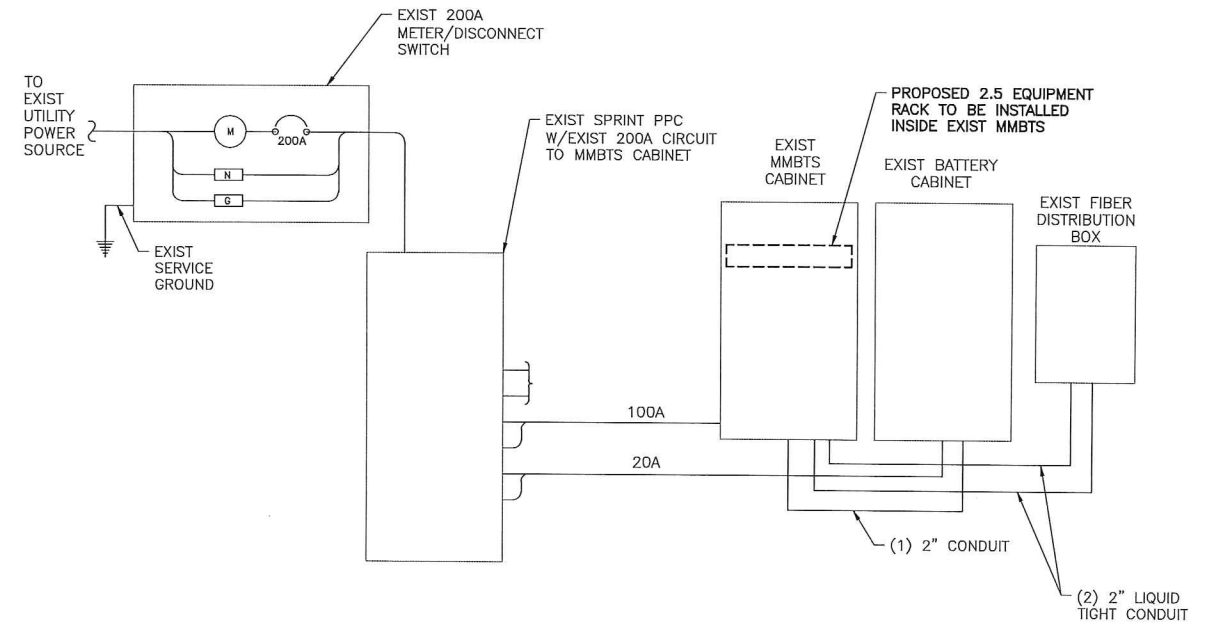
LEGEND

- CADWELD CONNECTION
- MECHANICAL CONNECTION
- COMPRESSION CONNECTION

1
E-1
SCALE: NTS
TYPICAL GROUNDING ONE LINE DIAGRAM



2
E-1
SCALE: NTS
TYPICAL ANTENNA GROUNDING PLAN



3
E-1
SCALE: NTS
TYPICAL ELECTRICAL & TELCO PLAN

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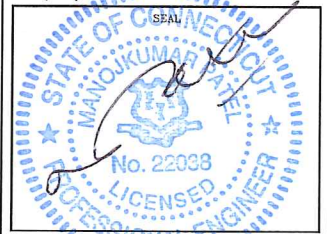
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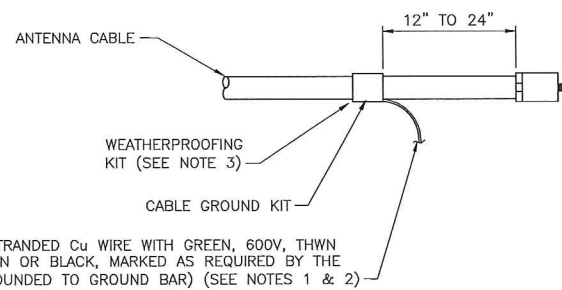
DATE: 10/31/14
REVIEWED BY: JMG



SITE NUMBER:
CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
ELECTRICAL & GROUNDING PLANS

SHEET NO:
E-1



6 AWG STRANDED Cu WIRE WITH GREEN, 600V, THWN INSULATION OR BLACK, MARKED AS REQUIRED BY THE NEC (GROUNDED TO GROUND BAR) (SEE NOTES 1 & 2)

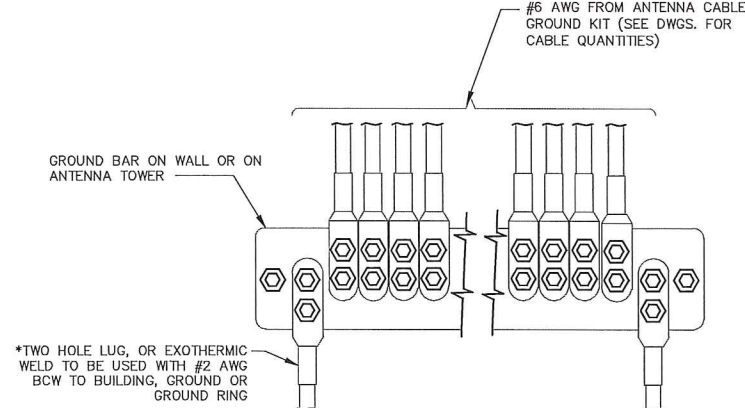
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

GROUNING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER AND APPROVED BY CONTRACTOR.



*TWO HOLE LUG, OR EXOTHERMIC WELD TO BE USED WITH #2 AWG BCW TO BUILDING, GROUND OR GROUND RING

* - GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

- ATTACH "DO NOT DISCONNECT" LABELS TO GROUND BARS. CAN USE BRASS TAG "DO NOT DISCONNECT" AT EACH HYBRID GROUND POINT OR BACK-A-LITE PLATE LABEL ON GROUND BAR.

- CONNECT SEQUENCE- BOLT/WASHER/NO-OX/GROUND BAR/NO-OX/WASHER/LOCK-WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

4 ANTENNA GROUND BAR DETAIL

SCALE: NTS

GROUNING NOTES:

1. GROUNING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNING AND BONDING.
2. ALL GROUND WIRES SHALL BE #2 AWG UNLESS NOTED OTHERWISE.
3. ALL GROUNING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
6. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
7. ALL CONDUITS SHALL BE RIGID GALVANIZED STEEL AND SHALL BE PROVIDED WITH GROUNING BUSHINGS.
8. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
9. WHEN CABLE LENGTH IS OVER 20' THE MANUFACTURERS GROUND KIT MUST BE INSTALLED PER THE MANUFACTURERS SPECIFICATIONS.
10. REFER TO "ANTI-THEFT UPDATE TO SPRINT GROUNING 082412.PDF" FOR GUIDELINE TO SUSPECTED OR ACTUAL THEFT OF GROUNING.
11. HOME RUN GROUNDS ARE NOT APPROVED BY CROWN CASTLE CONSTRUCTION STANDARDS AND THAT ANTENNA BUSS BARS SHOULD BE INSTALLED DIRECTLY TO TOWER STEEL WITHOUT INSULATORS OR DOWN CONDUCTORS.

PROTECTIVE GROUNING SYSTEM GENERAL NOTES:

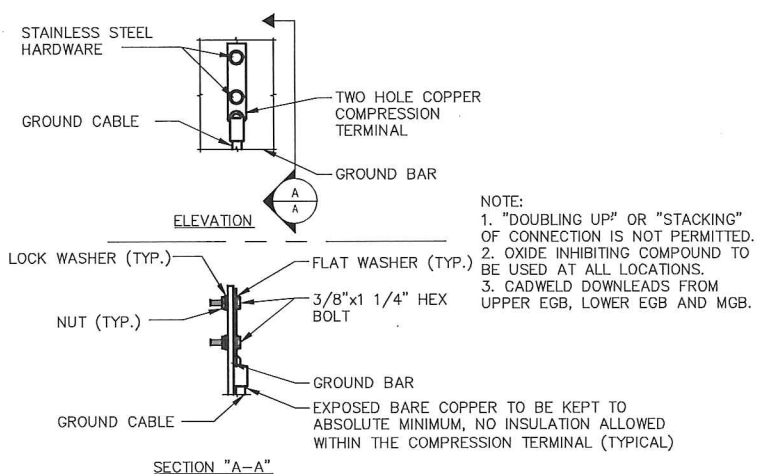
1. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
2. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNING CONDUCTOR.
3. ALL GROUNING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH PROJECT MANAGER.
4. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNING CONNECTIONS SHALL BE STAINLESS STEEL.
5. INSTALL GROUND BUSHING ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
6. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNING.
7. GROUND HYBRID CABLE SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

ELECTRICAL AND GROUNING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION.
6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
7. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
9. GROUNING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRID CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRID CABLE GROUNING KITS SUPPLIED BY PROJECT OWNER.
11. USE #2 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNING AS INDICATED ON THE DRAWING.
12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
13. ROUTE GROUNING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #2 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNING RING.
14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
16. BOND ANTENNA MOUNTING BRACKETS, HYBRID CABLE GROUND KITS, AND RRRs TO EGB PLACED NEAR THE ANTENNA LOCATION.
17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRID CABLES, GPS COAX AND RRR RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
20. CONTRACTOR SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.
21. LOCATION OF ALL OUTLET, BOXES, ETC, AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
22. ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNERS REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT.

1 CABLE GROUNING KIT DETAIL

SCALE: N.T.S.

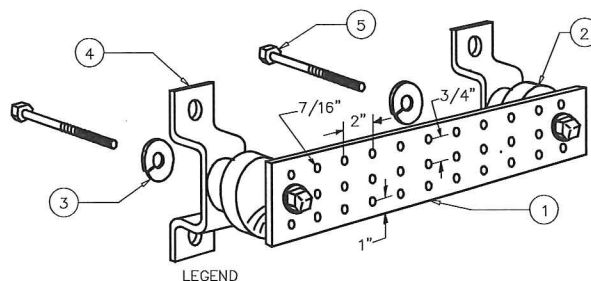


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

SECTION "A-A"

2 GROUNING BAR CONN. DETAIL

SCALE: NTS



LEGEND

- 1- COPPER TINNED GROUND BAR, 1/4"X 4"X 20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
- 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- 5/8-11 X 1" H.H.C.S.BOLTS

NOTE:
ALL BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.

3 GROUNING BAR DETAIL

SCALE: NTS

Sprint
2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C.
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SUBMITTALS

NO	DATE	DESCRIPTION	BY
0	06/14/14	FOR COMMENT	JT
1	10/31/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
10/31/14	S.M.O.

STATE OF CONNECTICUT
MANOJKUMAR SINGH
No. 22038
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC368
SITE NAME:
NEWTOWN
SITE ADDRESS:
21 BERKSHIRE RD
NEWTOWN, CT 06482

SHEET TITLE:
GROUNING DETAILS & NOTES

SHEET NO:
E-2



Date: **June 25, 2014**

Holly Haas
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Destek Engineering, LLC
5150 Stilesboro Road NW, Ste 510
Kennesaw, GA 30152
(770) 693-0835

Subject: Structural Analysis Report

Carrier Designation:	Sprint PCS Co-Locate	
	Carrier Site Number:	CT03XC368
Crown Castle Designation:	Crown Castle BU Number:	806354
	Crown Castle Site Name:	BRG 123 943084
	Crown Castle JDE Job Number:	288073
	Crown Castle Work Order Number:	773806
	Crown Castle Application Number:	245857 Rev. 0

Engineering Firm Designation: Destek Engineering, LLC Project Number: 1402191

Site Data: 21 BERKSHIRE ROAD NEWTOWN, NEWTOWN, Fairfield County, CT
Latitude 41° 24' 45.53", Longitude -73° 16' 12.34"
185 Foot - Monopole Tower

Dear Holly Haas,

Destek Engineering, LLC is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 658889, in accordance with application 245857, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC11: Existing + Reserved + Proposed Equipment with Conditions **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 State Building Code based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Destek Engineering, LLC appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Wade Baxter, EIT

Respectfully submitted by:

Ahmet Colakoglu, PE
President



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1) INTRODUCTION

This tower is a 185 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in August of 1999. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 38 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
165.0	165.0	3	alcatel lucent	TD-RRH8x20-25	1	1-1/4	-
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

Notes:

- 1) Proposed equipment

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
185.0	188.0	3	alcatel lucent	RRH2X40-AWS	1	1-5/8	2
	187.0	3	antel	BXA-171063-12BF w/ Mount Pipe	12	1-5/8	1
		3	antel	BXA-171063-12CF-EDIN-X w/ Mount Pipe	-	-	2
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe			1
		6	decibel	DB846F65ZAXY w/ Mount Pipe			2
		1	rfs celwave	DB-T1-6Z-8AB-0Z			1
		6	rfs celwave	FD9R6004/2C-3L			1
	1	tower mounts	Platform Mount [LP 601-1]	1			
	185.0	1	tower mounts	Side Arm Mount [SO 103-3]	1		
	182.0	188.0	1	decibel	ASP-601	1	1/2
182.0		1	tower mounts	Side Arm Mount [SO 102-3]			
175.0	177.0	6	ericsson	RRUS-11	2 1 12	5/8 3/8 1-5/8	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP2140X			
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	powerwave technologies	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
		175.0	tower mounts	Platform Mount [LP 601-1]			
167.0	167.0	3	alcatel lucent	1900MHz RRH (65MHz)	-	-	1
		3	alcatel lucent	800MHZ RRH			
		1	tower mounts	Side Arm Mount [SO 102-3]			
165.0	165.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	3	1-1/4	1
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 601-1]			
155.0	158.0	12	decibel	DB844H90 w/ Mount Pipe	12	1-1/4	3
	155.0	1	tower mounts	Platform Mount [LP 713-1]			
145.0	148.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	7	1-5/8	2
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	145.0	1	tower mounts	Platform Mount [LP 601-1]	6	1-5/8	1
135.0	137.0	3	kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1
		3	kathrein	860 10025			
	135.0	1	tower mounts	T-Arm Mount [TA 602-3]			
100.0	100.0				2	1/2	1
40.0	40.0				1	1/2	1

Notes:

- 1) Existing equipment
- 2) Reserved equipment
- 3) Equipment to be Removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
185	185	12	swedcom	ALP 9212	-	-
175	175	12	swedcom	ALP11011	-	-
165	165	9	decibel	DB980	-	-
155	155	12	swedcom	AKO9011	-	-
145	145	6	ems wireless	RR65-18	-	-
		1	scala	OGB9-900		
110	110	1	generic	GPS	-	-
50	50	1	generic	GPS	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti dated 02/14/1999	2297011	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEl, Proj. No. 4743 dated 7/22/1999	822037	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEl, Proj. No. GS51352 Dated 7/22/1999	822035	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	VSI, Proj. No 2009-004-030 Dated 6/12/2009	2381114	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) The analysis was performed for the main tower members and their connections. It does not include an evaluation of the antenna mounts and their connections.

This analysis may be affected if any assumptions are not valid or have been made in error. Destek Engineering, LLC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	185 - 149.622	Pole	TP36.0404x29x0.25	1	-7.9	1435.3	47.1	Pass
L2	149.622 - 114.221	Pole	TP42.4605x34.5443x0.3125	2	-16.8	2114.7	80.2	Pass
L3	114.221 - 76.8021	Pole	TP49.157x40.6978x0.375	3	-26.4	2938.0	92.0	Pass
L4	76.8021 - 38.3802	Pole	TP55.9285x47.1064x0.4375	4	-39.1	3900.1	93.3	Pass
L5	38.3802 - 0	Pole	TP62.5x53.5869x0.5	5	-58.5	5115.2	91.0	Pass
							Summary	
						Pole (L4)	93.3	Pass
						Rating =	93.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.1	Pass
1	Base Plate	0	84.3	Pass
1	Base Foundation	0	93.7	Pass
Structure Rating (max from all components) =				93.7%

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loading. In order for the results of this analysis to be considered valid, the loading modification listed below must be completed.

Loading Changes:

- 1.) All antennas and equipment, mounts, and feedlines associated with Sprint's installation at 155' AGL are to be removed from the tower prior to proceeding with the proposed changes.

No structural modifications are required at this time, provided that the above listed changes are implemented.

APPENDIX A
TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

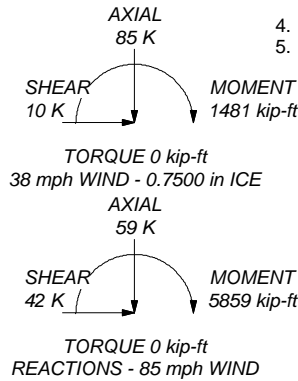
TYPE	ELEVATION	TYPE	ELEVATION
(2) DB846F65ZAXY w/ Mount Pipe	185	800MHZ RRH	167
(2) DB846F65ZAXY w/ Mount Pipe	185	800MHZ RRH	167
(2) DB846F65ZAXY w/ Mount Pipe	185	800MHZ RRH	167
BXA-171063-12BF w/ Mount Pipe	185	Side Arm Mount [SO 102-3]	167
BXA-171063-12BF w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
BXA-171063-12BF w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
BXA-70063-6CF-2 w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
BXA-70063-6CF-2 w/ Mount Pipe	185	APXVTM14-C-120 w/ Mount Pipe	165
BXA-70063-6CF-2 w/ Mount Pipe	185	APXVTM14-C-120 w/ Mount Pipe	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	APXVTM14-C-120 w/ Mount Pipe	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	TD-RRH8x20-25	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	TD-RRH8x20-25	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	TD-RRH8x20-25	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
(2) FD9R6004/2C-3L	185	800 EXTERNAL NOTCH FILTER	165
(2) FD9R6004/2C-3L	185	800 EXTERNAL NOTCH FILTER	165
(2) FD9R6004/2C-3L	185	Platform Mount [LP 601-1]	165
DB-T1-6Z-8AB-0Z	185	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
Platform Mount [LP 601-1]	185	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
Side Arm Mount [SO 103-3]	185	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
ASP-601	182	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
Side Arm Mount [SO 102-3]	182	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
P65-16-XLH-RR w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
P65-16-XLH-RR w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
P65-16-XLH-RR w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) LGP2140X	175	KRY 112 144/1	145
(2) LGP2140X	175	KRY 112 144/1	145
(2) LGP2140X	175	KRY 112 144/1	145
(2) RRUS-11	175	Platform Mount [LP 601-1]	145
(2) RRUS-11	175	800 10504 w/ Mount Pipe	135
(2) RRUS-11	175	800 10504 w/ Mount Pipe	135
(2) RRUS-11	175	800 10504 w/ Mount Pipe	135
TT19-08BP111-001	175	860 10025	135
TT19-08BP111-001	175	860 10025	135
TT19-08BP111-001	175	860 10025	135
DC6-48-60-18-8F	175	(2) 6' x 2" Mount Pipe	135
Platform Mount [LP 601-1]	175	(2) 6' x 2" Mount Pipe	135
1900MHz RRH (65MHz)	167	(2) 6' x 2" Mount Pipe	135
1900MHz RRH (65MHz)	167	T-Arm Mount [TA 602-3]	135
1900MHz RRH (65MHz)	167		

MATERIAL STRENGTH

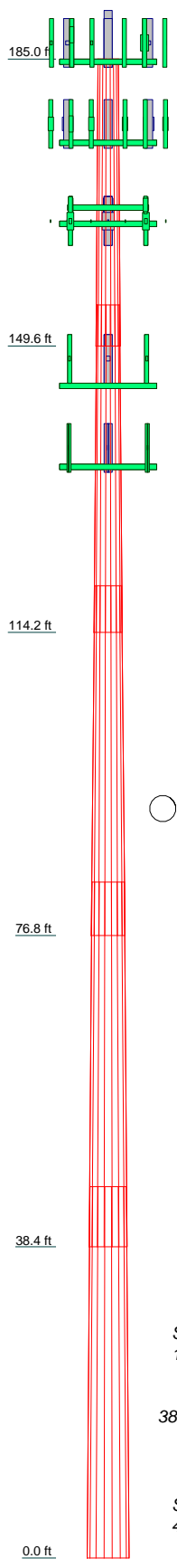
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 93.3%



Section	1	2	3	4	5
Length (ft)	35.38	40.41	43.23	45.07	45.87
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375	0.5000
Socket Length (ft)	5.01	5.81	6.65	7.49	8.33
Top Dia (in)	29.0000	34.5443	40.6978	47.1064	53.5869
Bot Dia (in)	36.0404	42.4605	49.1570	55.9285	62.5000
Grade			A572-65		
Weight (K)	3.1	5.2	7.8	10.9	14.3



<p>Destek Engineering, LLC 5150 Stilesboro Road NW, Ste 510 Kennesaw, GA 30152 Phone: (770) 693-0835 FAX:</p>	Job: 806354 - BRG 123 943084		
	Project: 140191		
	Client: CROWN CASTLE	Drawn by: Ahmet Colakoglu	App'd:
	Code: TIA/EIA-222-F	Date: 06/25/14	Scale: NTS
	Path:		Dwg No. E-1

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Basic wind speed of 85 mph.
- 3) Nominal ice thickness of 0.7500 in.
- 4) Ice thickness is considered to increase with height.
- 5) Ice density of 56 pcf.
- 6) A wind speed of 38 mph is used in combination with ice.
- 7) Temperature drop of 50 °F.
- 8) Deflections calculated using a wind speed of 50 mph.
- 9) A non-linear (P-delta) analysis was used.
- 10) Pressures are calculated at each section.
- 11) Stress ratio used in pole design is 1.333.
- 12) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys ✓ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Use TIA-222-G Tension Splice Capacity Exemption	Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feedline Torque Include Angle Block Shear Check <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	--	--

Tapered Pole Section Geometry

Section	Elevation <i>ft</i>	Section Length <i>ft</i>	Splice Length <i>ft</i>	Number of Sides	Top Diameter <i>in</i>	Bottom Diameter <i>in</i>	Wall Thickness <i>in</i>	Bend Radius <i>in</i>	Pole Grade
L1	185.00-149.62	35.38	5.01	18	29.0000	36.0404	0.2500	1.0000	A572-65 (65 ksi)
L2	149.62-114.22	40.41	5.81	18	34.5443	42.4605	0.3125	1.2500	A572-65 (65 ksi)
L3	114.22-76.80	43.23	6.65	18	40.6978	49.1570	0.3750	1.5000	A572-65 (65 ksi)
L4	76.80-38.38	45.07	7.49	18	47.1064	55.9285	0.4375	1.7500	A572-65 (65 ksi)
L5	38.38-0.00	45.87		18	53.5869	62.5000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	29.4474	22.8131	2382.3081	10.2063	14.7320	161.7098	4767.7509	11.4087	4.6640	18.656
	36.5964	28.3997	4596.0425	12.7056	18.3085	251.0329	9198.1326	14.2025	5.9031	23.612
L2	36.0729	33.9537	5026.7193	12.1523	17.5485	286.4469	10060.052	16.9801	5.5298	17.695
	43.1155	41.8055	9382.6455	14.9625	21.5699	434.9872	18777.637	20.9067	6.9230	22.154
L3	42.4796	47.9942	9858.8582	14.3146	20.6745	476.8616	19730.688	24.0016	6.5028	17.341
	49.9153	58.0628	17456.390	17.3176	24.9718	699.0454	34935.750	29.0369	7.9916	21.311
L4	49.1541	64.8057	17832.256	16.5675	23.9301	745.1819	35687.976	32.4090	7.5207	17.19
	56.7913	77.0562	29977.132	19.6993	28.4117	1055.0990	59993.709	38.5354	9.0734	20.739
L5	55.8918	84.2489	29996.898	18.8458	27.2221	1101.9301	60033.267	42.1325	8.5513	17.103
	63.4642	98.3940	47784.764	22.0100	31.7500	1505.0319	95632.404	49.2063	10.1200	20.24

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 185.00-149.62				1	1	1		
L2 149.62-114.22				1	1	1		
L3 114.22-76.80				1	1	1		
L4 76.80-38.38				1	1	1		
L5 38.38-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
A LDF4P-50A(1/2")	A	No	Inside Pole	182.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
HJ7-50A(1-5/8")	A	No	Inside Pole	185.00 - 0.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
						2" Ice	0.00	1.04
						4" Ice	0.00	1.04
HB158-1-08U8-S8J18(1-5/8)	A	No	CaAa (Out Of Face)	185.00 - 0.00	1	No Ice	0.00	1.30
						1/2" Ice	0.00	2.81
						1" Ice	0.00	4.94
						2" Ice	0.00	11.02
						4" Ice	0.00	30.52
CR 50 1873PE(1-5/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	1	No Ice	0.20	0.83
						1/2" Ice	0.30	2.34
						1" Ice	0.40	4.47
						2" Ice	0.60	10.55
						4" Ice	1.00	30.05
CR 50 1873PE(1-5/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	11	No Ice	0.00	0.83
						1/2" Ice	0.00	2.34
						1" Ice	0.00	4.47
						2" Ice	0.00	10.55
						4" Ice	0.00	30.05

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight
						ft ² /ft	plf	
FB-L98B-002-75000(3/8")	A	No	Inside Pole	175.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
						2" Ice	0.00	0.06
						4" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8")	A	No	Inside Pole	175.00 - 0.00	2	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31
						2" Ice	0.00	0.31
						4" Ice	0.00	0.31
2" Rigid Conduit	A	No	Inside Pole	175.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
B HB114-21U3M12-XXXF(1-1/4")	B	No	Inside Pole	165.00 - 0.00	1	No Ice	0.00	1.22
1/2" Ice						0.00	1.22	
1" Ice						0.00	1.22	
2" Ice						0.00	1.22	
4" Ice						0.00	1.22	
HB114-1-0813U4-M5J(1 1/4")	B	No	Inside Pole	165.00 - 0.00	3	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
						2" Ice	0.00	1.20
						4" Ice	0.00	1.20
LDF7-50A(1-5/8")	B	No	Inside Pole	145.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
AVA7-50(1-5/8)	B	No	Inside Pole	145.00 - 0.00	7	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
						2" Ice	0.00	0.70
						4" Ice	0.00	0.70
CR 50 1873(1-5/8")	B	No	Inside Pole	135.00 - 0.00	6	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
						1" Ice	0.00	0.83
						2" Ice	0.00	0.83
						4" Ice	0.00	0.83
C ***GPS*** LDF4P-50A(1/2")	B	No	Inside Pole	40.00 - 0.00	1	No Ice	0.00	0.15
1/2" Ice						0.00	0.15	
1" Ice						0.00	0.15	
2" Ice						0.00	0.15	
4" Ice						0.00	0.15	
LDF4P-50A(1/2")	C	No	Inside Pole	100.00 - 0.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	185.00-149.62	A	0.000	0.000	0.000	5.025	0.8
		B	0.000	0.000	0.000	0.000	0.1
		C	0.000	0.000	0.000	0.000	0.0
L2	149.62-114.22	A	0.000	0.000	0.000	7.009	1.0
		B	0.000	0.000	0.000	0.000	0.6
		C	0.000	0.000	0.000	0.000	0.0
L3	114.22-76.80	A	0.000	0.000	0.000	7.409	1.0

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L4	76.80-38.38	B	0.000	0.000	0.000	0.000	0.7
		C	0.000	0.000	0.000	0.000	0.0
		A	0.000	0.000	0.000	7.608	1.1
L5	38.38-0.00	B	0.000	0.000	0.000	0.000	0.8
		C	0.000	0.000	0.000	0.000	0.0
		A	0.000	0.000	0.000	7.599	1.1
		B	0.000	0.000	0.000	0.000	0.8
		C	0.000	0.000	0.000	0.000	0.0

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	185.00-149.62	A	0.911	0.000	0.000	0.000	9.648	1.9
		B		0.000	0.000	0.000	0.000	0.1
		C		0.000	0.000	0.000	0.000	0.0
L2	149.62-114.22	A	0.885	0.000	0.000	0.000	13.459	2.5
		B		0.000	0.000	0.000	0.000	0.6
		C		0.000	0.000	0.000	0.000	0.0
L3	114.22-76.80	A	0.852	0.000	0.000	0.000	14.035	2.6
		B		0.000	0.000	0.000	0.000	0.7
		C		0.000	0.000	0.000	0.000	0.0
L4	76.80-38.38	A	0.802	0.000	0.000	0.000	14.153	2.6
		B		0.000	0.000	0.000	0.000	0.8
		C		0.000	0.000	0.000	0.000	0.0
L5	38.38-0.00	A	0.750	0.000	0.000	0.000	13.754	2.4
		B		0.000	0.000	0.000	0.000	0.8
		C		0.000	0.000	0.000	0.000	0.0

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	185.00-149.62	0.0000	-0.2086	0.0000	-0.3645
L2	149.62-114.22	0.0000	-0.2799	0.0000	-0.4901
L3	114.22-76.80	0.0000	-0.2823	0.0000	-0.4945
L4	76.80-38.38	0.0000	-0.2841	0.0000	-0.4945
L5	38.38-0.00	0.0000	-0.2855	0.0000	-0.4885

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
185' Verizon Wireless (2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.27 7.88 8.48 9.72 12.33	7.82 9.01 9.91 11.81 15.98	0.0 0.1 0.2 0.4 0.9

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz	Vert			Front	Side	
			Lateral	ft	°	ft	ft ²	ft ²	K
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						Ice	8.48	9.91	0.2
						1" Ice	9.72	11.81	0.4
						2" Ice	12.33	15.98	0.9
						4" Ice			
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						Ice	8.48	9.91	0.2
						1" Ice	9.72	11.81	0.4
						2" Ice	12.33	15.98	0.9
						4" Ice			
BXA-171063-12BF w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						Ice	6.04	7.26	0.1
						1" Ice	7.09	9.05	0.3
						2" Ice	9.36	12.82	0.7
						4" Ice			
BXA-171063-12BF w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						Ice	6.04	7.26	0.1
						1" Ice	7.09	9.05	0.3
						2" Ice	9.36	12.82	0.7
						4" Ice			
BXA-171063-12BF w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						Ice	6.04	7.26	0.1
						1" Ice	7.09	9.05	0.3
						2" Ice	9.36	12.82	0.7
						4" Ice			
BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						Ice	9.22	7.82	0.2
						1" Ice	10.46	9.60	0.3
						2" Ice	13.07	13.37	0.8
						4" Ice			
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						Ice	9.22	7.82	0.2
						1" Ice	10.46	9.60	0.3
						2" Ice	13.07	13.37	0.8
						4" Ice			
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						Ice	9.22	7.82	0.2
						1" Ice	10.46	9.60	0.3
						2" Ice	13.07	13.37	0.8
						4" Ice			
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						Ice	6.10	7.35	0.1
						1" Ice	7.17	9.15	0.3
						2" Ice	9.44	12.95	0.7
						4" Ice			
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						Ice	6.10	7.35	0.1
						1" Ice	7.17	9.15	0.3
						2" Ice	9.44	12.95	0.7
						4" Ice			
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						Ice	6.10	7.35	0.1
						1" Ice	7.17	9.15	0.3
						2" Ice	9.44	12.95	0.7
						4" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
RRH2X40-AWS	A	From Leg	4.00 0.00 3.00	0.0000	185.00	4" Ice			
						No Ice	2.52	1.59	0.0
						1/2"	2.75	1.80	0.1
						Ice	2.99	2.01	0.1
						1" Ice	3.50	2.46	0.1
						2" Ice	4.61	3.48	0.3
RRH2X40-AWS	B	From Leg	4.00 0.00 3.00	0.0000	185.00	4" Ice			
						No Ice	2.52	1.59	0.0
						1/2"	2.75	1.80	0.1
						Ice	2.99	2.01	0.1
						1" Ice	3.50	2.46	0.1
						2" Ice	4.61	3.48	0.3
RRH2X40-AWS	C	From Leg	4.00 0.00 3.00	0.0000	185.00	4" Ice			
						No Ice	2.52	1.59	0.0
						1/2"	2.75	1.80	0.1
						Ice	2.99	2.01	0.1
						1" Ice	3.50	2.46	0.1
						2" Ice	4.61	3.48	0.3
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 2.00	0.0000	185.00	4" Ice			
						No Ice	0.37	0.08	0.0
						1/2"	0.45	0.14	0.0
						Ice	0.54	0.20	0.0
						1" Ice	0.75	0.34	0.0
						2" Ice	1.28	0.74	0.1
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 2.00	0.0000	185.00	4" Ice			
						No Ice	0.37	0.08	0.0
						1/2"	0.45	0.14	0.0
						Ice	0.54	0.20	0.0
						1" Ice	0.75	0.34	0.0
						2" Ice	1.28	0.74	0.1
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 2.00	0.0000	185.00	4" Ice			
						No Ice	0.37	0.08	0.0
						1/2"	0.45	0.14	0.0
						Ice	0.54	0.20	0.0
						1" Ice	0.75	0.34	0.0
						2" Ice	1.28	0.74	0.1
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 2.00	0.0000	185.00	4" Ice			
						No Ice	5.60	2.33	0.0
						1/2"	5.92	2.56	0.1
						Ice	6.24	2.79	0.1
						1" Ice	6.91	3.28	0.2
						2" Ice	8.37	4.37	0.5
Platform Mount [LP 601-1]	C	None		0.0000	185.00	4" Ice			
						No Ice	28.47	28.47	1.1
						1/2"	33.59	33.59	1.5
						Ice	38.71	38.71	1.9
						1" Ice	48.95	48.95	2.7
						2" Ice	69.43	69.43	4.3
Side Arm Mount [SO 103-3]	C	None		0.0000	185.00	4" Ice			
						No Ice	9.50	9.50	0.2
						1/2"	11.80	11.80	0.3
						Ice	14.10	14.10	0.4
						1" Ice	18.70	18.70	0.6
						2" Ice	27.90	27.90	1.0
182' NEWTOWN ASP-601	A	From Leg	1.00 0.00 6.00	0.0000	182.00	4" Ice			
						No Ice	2.34	2.34	0.0
						1/2"	4.21	4.21	0.0
						Ice	6.08	6.08	0.0
						1" Ice	9.83	9.83	0.1
						2" Ice	17.32	17.32	0.1
Side Arm Mount [SO 102-3]	A	None		0.0000	182.00	4" Ice			
						No Ice	3.00	3.00	0.1
						1/2"	3.48	3.48	0.1
						Ice	3.96	3.96	0.1

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
							1" Ice	4.92	4.92	0.2
							2" Ice	6.84	6.84	0.3
							4" Ice			
175' AT&T Mobility										
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	175.00		No Ice	6.12	4.25	0.1
			0.00				1/2"	6.63	5.01	0.1
			2.00				Ice	7.13	5.71	0.2
							1" Ice	8.16	7.16	0.3
							2" Ice	10.36	10.41	0.7
							4" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	175.00		No Ice	6.12	4.25	0.1
			0.00				1/2"	6.63	5.01	0.1
			2.00				Ice	7.13	5.71	0.2
							1" Ice	8.16	7.16	0.3
							2" Ice	10.36	10.41	0.7
							4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	175.00		No Ice	6.12	4.25	0.1
			0.00				1/2"	6.63	5.01	0.1
			2.00				Ice	7.13	5.71	0.2
							1" Ice	8.16	7.16	0.3
							2" Ice	10.36	10.41	0.7
							4" Ice			
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	175.00		No Ice	8.64	6.36	0.1
			0.00				1/2"	9.29	7.54	0.1
			2.00				Ice	9.91	8.43	0.2
							1" Ice	11.18	10.24	0.4
							2" Ice	13.83	14.10	0.9
							4" Ice			
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00	0.0000	175.00		No Ice	8.64	6.36	0.1
			0.00				1/2"	9.29	7.54	0.1
			2.00				Ice	9.91	8.43	0.2
							1" Ice	11.18	10.24	0.4
							2" Ice	13.83	14.10	0.9
							4" Ice			
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.0000	175.00		No Ice	8.64	6.36	0.1
			0.00				1/2"	9.29	7.54	0.1
			2.00				Ice	9.91	8.43	0.2
							1" Ice	11.18	10.24	0.4
							2" Ice	13.83	14.10	0.9
							4" Ice			
(2) LGP2140X	A	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
(2) LGP2140X	B	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
(2) LGP2140X	C	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
(2) RRUS-11	A	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0
			0.00				1/2"	3.49	1.55	0.1
			2.00				Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
(2) RRUS-11	B	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz Lateral	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
				0.00			1/2"	3.49	1.55	0.1
				2.00			Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
(2) RRUS-11	C	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0
			0.00				1/2"	3.49	1.55	0.1
			2.00				Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
TT19-08BP111-001	A	From Leg	4.00	0.0000	175.00		No Ice	0.64	0.52	0.0
			0.00				1/2"	0.76	0.62	0.0
			2.00				Ice	0.88	0.74	0.0
							1" Ice	1.14	0.99	0.0
							2" Ice	1.78	1.59	0.1
							4" Ice			
TT19-08BP111-001	B	From Leg	4.00	0.0000	175.00		No Ice	0.64	0.52	0.0
			0.00				1/2"	0.76	0.62	0.0
			2.00				Ice	0.88	0.74	0.0
							1" Ice	1.14	0.99	0.0
							2" Ice	1.78	1.59	0.1
							4" Ice			
TT19-08BP111-001	C	From Leg	4.00	0.0000	175.00		No Ice	0.64	0.52	0.0
			0.00				1/2"	0.76	0.62	0.0
			2.00				Ice	0.88	0.74	0.0
							1" Ice	1.14	0.99	0.0
							2" Ice	1.78	1.59	0.1
							4" Ice			
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	175.00		No Ice	2.57	2.57	0.0
			0.00				1/2"	2.80	2.80	0.0
			2.00				Ice	3.04	3.04	0.1
							1" Ice	3.54	3.54	0.1
							2" Ice	4.66	4.66	0.3
							4" Ice			
Platform Mount [LP 601-1]	C	None		0.0000	175.00		No Ice	28.47	28.47	1.1
							1/2"	33.59	33.59	1.5
							Ice	38.71	38.71	1.9
							1" Ice	48.95	48.95	2.7
							2" Ice	69.43	69.43	4.3
							4" Ice			
167' SPRINT PCS										
1900MHz RRH (65MHz)	A	From Leg	4.00	0.0000	167.00		No Ice	2.71	2.61	0.1
			0.00				1/2"	2.95	2.84	0.1
			0.00				Ice	3.20	3.09	0.1
							1" Ice	3.72	3.61	0.2
							2" Ice	4.86	4.74	0.3
							4" Ice			
1900MHz RRH (65MHz)	B	From Leg	4.00	0.0000	167.00		No Ice	2.71	2.61	0.1
			0.00				1/2"	2.95	2.84	0.1
			0.00				Ice	3.20	3.09	0.1
							1" Ice	3.72	3.61	0.2
							2" Ice	4.86	4.74	0.3
							4" Ice			
1900MHz RRH (65MHz)	C	From Leg	4.00	0.0000	167.00		No Ice	2.71	2.61	0.1
			0.00				1/2"	2.95	2.84	0.1
			0.00				Ice	3.20	3.09	0.1
							1" Ice	3.72	3.61	0.2
							2" Ice	4.86	4.74	0.3
							4" Ice			
800MHZ RRH	A	From Leg	4.00	0.0000	167.00		No Ice	2.49	2.07	0.1
			0.00				1/2"	2.71	2.27	0.1
			0.00				Ice	2.93	2.48	0.1
							1" Ice	3.41	2.93	0.2
							2" Ice	4.46	3.93	0.3

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz Lateral	Vert						ft
800MHZ RRH	B	From Leg	4.00	0.00	0.0000	167.00	4" Ice			
							No Ice	2.49	2.07	0.1
							1/2"	2.71	2.27	0.1
							Ice	2.93	2.48	0.1
							1" Ice	3.41	2.93	0.2
800MHZ RRH	C	From Leg	4.00	0.00	0.0000	167.00	4" Ice			
							No Ice	2.49	2.07	0.1
							1/2"	2.71	2.27	0.1
							Ice	2.93	2.48	0.1
							1" Ice	3.41	2.93	0.2
Side Arm Mount [SO 102-3]	C	None	0.0000	167.00	4" Ice					
					No Ice	3.00	3.00	0.1		
					1/2"	3.48	3.48	0.1		
					Ice	3.96	3.96	0.1		
					1" Ice	4.92	4.92	0.2		
165' Sprint PCS APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	8.50	6.95	0.1
							1/2"	9.15	8.13	0.2
							Ice	9.77	9.02	0.2
							1" Ice	11.03	10.84	0.4
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	8.50	6.95	0.1
							1/2"	9.15	8.13	0.2
							Ice	9.77	9.02	0.2
							1" Ice	11.03	10.84	0.4
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	8.50	6.95	0.1
							1/2"	9.15	8.13	0.2
							Ice	9.77	9.02	0.2
							1" Ice	11.03	10.84	0.4
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	7.13	4.96	0.1
							1/2"	7.66	5.75	0.1
							Ice	8.18	6.47	0.2
							1" Ice	9.26	8.01	0.3
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	7.13	4.96	0.1
							1/2"	7.66	5.75	0.1
							Ice	8.18	6.47	0.2
							1" Ice	9.26	8.01	0.3
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	7.13	4.96	0.1
							1/2"	7.66	5.75	0.1
							Ice	8.18	6.47	0.2
							1" Ice	9.26	8.01	0.3
TD-RRH8x20-25	A	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	4.72	1.70	0.1
							1/2"	5.01	1.92	0.1
							Ice	5.32	2.15	0.1
							1" Ice	5.95	2.62	0.2
TD-RRH8x20-25	B	From Leg	4.00	0.00	0.0000	165.00	4" Ice			
							No Ice	4.72	1.70	0.1
							1/2"	5.01	1.92	0.1
							Ice	5.32	2.15	0.1
							1" Ice	5.95	2.62	0.2

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
TD-RRH8x20-25	C	From Leg	4.00	0.00	0.00	0.0000	165.00	1" Ice	5.95	2.62	0.2
								2" Ice	7.31	3.68	0.4
								4" Ice			
								No Ice	4.72	1.70	0.1
								1/2" Ice	5.01	1.92	0.1
								1" Ice	5.32	2.15	0.1
								2" Ice	5.95	2.62	0.2
(3) ACU-A20-N	A	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.08	0.14	0.0
								1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
								2" Ice	0.30	0.40	0.0
								4" Ice	0.67	0.80	0.0
								No Ice	0.08	0.14	0.0
(3) ACU-A20-N	B	From Leg	4.00	0.00	0.00	0.0000	165.00	1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
								2" Ice	0.30	0.40	0.0
								4" Ice	0.67	0.80	0.0
								No Ice	0.08	0.14	0.0
								1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
(3) ACU-A20-N	C	From Leg	4.00	0.00	0.00	0.0000	165.00	1" Ice	0.30	0.40	0.0
								2" Ice	0.67	0.80	0.0
								4" Ice			
								No Ice	0.08	0.14	0.0
								1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
								2" Ice	0.30	0.40	0.0
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
								4" Ice	1.97	1.34	0.1
								No Ice	0.77	0.37	0.0
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.00	0.00	0.0000	165.00	1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
								4" Ice	1.97	1.34	0.1
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.00	0.00	0.0000	165.00	1" Ice	1.30	0.79	0.0
								2" Ice	1.97	1.34	0.1
								4" Ice			
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
Platform Mount [LP 601-1]	C	None			0.0000	165.00	4" Ice				
							No Ice	28.47	28.47	1.1	
							1/2" Ice	33.59	33.59	1.5	
							1" Ice	38.71	38.71	1.9	
							2" Ice	48.95	48.95	2.7	
							4" Ice	69.43	69.43	4.3	
							No Ice	28.47	28.47	1.1	
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.00	3.00	0.0000	145.00	1/2" Ice	6.83	5.64	0.1
								1" Ice	7.35	6.48	0.2
								2" Ice	7.86	7.26	0.2
								4" Ice	8.93	8.86	0.4
								No Ice	11.18	12.29	0.8
								1" Ice	8.93	8.86	0.4
								2" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.00	3.00	0.0000	145.00	1/2" Ice	6.83	5.64	0.1
								1" Ice	7.35	6.48	0.2
								2" Ice	7.86	7.26	0.2
								4" Ice	8.93	8.86	0.4
								No Ice	11.18	12.29	0.8
								1" Ice	8.93	8.86	0.4
								2" Ice	11.18	12.29	0.8

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	6.83	5.64	0.1
						1/2" Ice	7.35	6.48	0.2
						Ice	7.86	7.26	0.2
						1" Ice	8.93	8.86	0.4
						2" Ice	11.18	12.29	0.8
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	6.81	5.63	0.1
						1/2" Ice	7.33	6.47	0.2
						Ice	7.85	7.24	0.2
						1" Ice	8.91	8.85	0.4
						2" Ice	11.16	12.27	0.8
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	6.81	5.63	0.1
						1/2" Ice	7.33	6.47	0.2
						Ice	7.85	7.24	0.2
						1" Ice	8.91	8.85	0.4
						2" Ice	11.16	12.27	0.8
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	6.81	5.63	0.1
						1/2" Ice	7.33	6.47	0.2
						Ice	7.85	7.24	0.2
						1" Ice	8.91	8.85	0.4
						2" Ice	11.16	12.27	0.8
KRY 112 144/1	A	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	0.41	0.20	0.0
						1/2" Ice	0.50	0.27	0.0
						Ice	0.59	0.35	0.0
						1" Ice	0.81	0.53	0.0
						2" Ice	1.36	1.00	0.1
KRY 112 144/1	B	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	0.41	0.20	0.0
						1/2" Ice	0.50	0.27	0.0
						Ice	0.59	0.35	0.0
						1" Ice	0.81	0.53	0.0
						2" Ice	1.36	1.00	0.1
KRY 112 144/1	C	From Leg	4.00 0.00 3.00	0.0000	145.00	No Ice	0.41	0.20	0.0
						1/2" Ice	0.50	0.27	0.0
						Ice	0.59	0.35	0.0
						1" Ice	0.81	0.53	0.0
						2" Ice	1.36	1.00	0.1
Platform Mount [LP 601-1]	C	None		0.0000	145.00	No Ice	28.47	28.47	1.1
						1/2" Ice	33.59	33.59	1.5
						Ice	38.71	38.71	1.9
						1" Ice	48.95	48.95	2.7
						2" Ice	69.43	69.43	4.3
135' METRO PCS 800 10504 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	135.00	No Ice	3.59	3.18	0.0
						1/2" Ice	4.01	3.91	0.1
						Ice	4.42	4.58	0.1
						1" Ice	5.34	5.98	0.2
						2" Ice	7.38	8.98	0.5
800 10504 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	135.00	No Ice	3.59	3.18	0.0
						1/2" Ice	4.01	3.91	0.1
						Ice	4.42	4.58	0.1
						1" Ice	5.34	5.98	0.2
						2" Ice	7.38	8.98	0.5
800 10504 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	135.00	No Ice	3.59	3.18	0.0
						1/2" Ice	4.01	3.91	0.1
						Ice	4.42	4.58	0.1
						1" Ice	5.34	5.98	0.2

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral					
						2" Ice	7.38	8.98	0.5
						4" Ice			
860 10025	A	From Leg	4.00	0.0000	135.00	No Ice	0.16	0.13	0.0
			0.00			1/2"	0.22	0.19	0.0
			2.00			Ice	0.29	0.26	0.0
						1" Ice	0.47	0.43	0.0
						2" Ice	0.92	0.87	0.0
						4" Ice			
860 10025	B	From Leg	4.00	0.0000	135.00	No Ice	0.16	0.13	0.0
			0.00			1/2"	0.22	0.19	0.0
			2.00			Ice	0.29	0.26	0.0
						1" Ice	0.47	0.43	0.0
						2" Ice	0.92	0.87	0.0
						4" Ice			
860 10025	C	From Leg	4.00	0.0000	135.00	No Ice	0.16	0.13	0.0
			0.00			1/2"	0.22	0.19	0.0
			2.00			Ice	0.29	0.26	0.0
						1" Ice	0.47	0.43	0.0
						2" Ice	0.92	0.87	0.0
						4" Ice			
(2) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	135.00	No Ice	1.43	1.43	0.0
			0.00			1/2"	1.92	1.92	0.0
			2.00			Ice	2.29	2.29	0.0
						1" Ice	3.06	3.06	0.1
						2" Ice	4.70	4.70	0.2
						4" Ice			
(2) 6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	135.00	No Ice	1.43	1.43	0.0
			0.00			1/2"	1.92	1.92	0.0
			2.00			Ice	2.29	2.29	0.0
						1" Ice	3.06	3.06	0.1
						2" Ice	4.70	4.70	0.2
						4" Ice			
(2) 6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	135.00	No Ice	1.43	1.43	0.0
			0.00			1/2"	1.92	1.92	0.0
			2.00			Ice	2.29	2.29	0.0
						1" Ice	3.06	3.06	0.1
						2" Ice	4.70	4.70	0.2
						4" Ice			
T-Arm Mount [TA 602-3]	C	None		0.0000	135.00	No Ice	11.59	11.59	0.8
						1/2"	15.44	15.44	1.0
						Ice	19.29	19.29	1.2
						1" Ice	26.99	26.99	1.6
						2" Ice	42.39	42.39	2.5
						4" Ice			

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice

Comb. No.	Description
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	185 - 149.622	Pole	Max Tension	14	0.0	0.0	-0.0
			Max. Compression	14	-19.0	-0.2	1.4
			Max. Mx	5	-7.9	-476.7	-2.1
			Max. My	2	-8.0	2.3	474.1
			Max. Vy	5	21.8	-476.7	-2.1
			Max. Vx	2	-21.7	2.3	474.1
			Max. Torque	3			-0.6
L2	149.622 - 114.221	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-33.4	-0.2	4.5
			Max. Mx	5	-16.8	-1413.1	-4.1
			Max. My	2	-16.8	4.9	1408.1
			Max. Vy	5	30.6	-1413.1	-4.1
			Max. Vx	2	-30.5	4.9	1408.1
			Max. Torque	5			-0.3
L3	114.221 - 76.8021	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-45.9	-0.2	8.3
			Max. Mx	5	-26.4	-2609.2	-6.1
			Max. My	2	-26.4	7.7	2601.8
			Max. Vy	5	34.7	-2609.2	-6.1
			Max. Vx	2	-34.6	7.7	2601.8
			Max. Torque	5			-0.3
L4	76.8021 - 38.3802	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-61.7	-0.2	12.5
			Max. Mx	5	-39.1	-3988.7	-8.1
			Max. My	2	-39.1	10.6	3978.9
			Max. Vy	5	38.5	-3988.7	-8.1
			Max. Vx	2	-38.5	10.6	3978.9
			Max. Torque	5			-0.2
L5	38.3802 - 0	Pole	Max Tension	1	0.0	0.0	0.0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-84.7	-0.2	17.8
			Max. M _x	5	-58.5	-5848.1	-10.2
			Max. M _y	2	-58.5	14.0	5835.6
			Max. V _y	5	42.4	-5848.1	-10.2
			Max. V _x	2	-42.3	14.0	5835.6
			Max. Torque	24			-0.1

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	84.7	0.0	-0.0
	Max. H _x	11	58.6	42.3	0.1
	Max. H _z	2	58.6	0.1	42.2
	Max. M _x	2	5835.6	0.1	42.2
	Max. M _z	5	5848.1	-42.3	-0.1
	Max. Torsion	18	0.1	-10.1	-0.0
	Min. Vert	5	58.6	-42.3	-0.1
	Min. H _x	5	58.6	-42.3	-0.1
	Min. H _z	8	58.6	-0.1	-42.2
	Min. M _x	8	-5827.8	-0.1	-42.2
	Min. M _z	11	-5847.8	42.3	0.1
	Min. Torsion	24	-0.1	10.1	0.0

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	58.6	0.0	-0.0	-3.8	-0.1	0.0
Dead+Wind 0 deg - No Ice	58.6	-0.1	-42.2	-5835.6	14.0	-0.0
Dead+Wind 30 deg - No Ice	58.6	21.1	-36.6	-5047.9	-2912.3	-0.1
Dead+Wind 60 deg - No Ice	58.6	36.6	-21.1	-2907.9	-5058.2	-0.0
Dead+Wind 90 deg - No Ice	58.6	42.3	0.1	10.2	-5848.1	-0.0
Dead+Wind 120 deg - No Ice	58.6	36.7	21.2	2924.5	-5072.2	-0.0
Dead+Wind 150 deg - No Ice	58.6	21.2	36.6	5054.2	-2936.7	-0.0
Dead+Wind 180 deg - No Ice	58.6	0.1	42.2	5827.8	-14.2	0.0
Dead+Wind 210 deg - No Ice	58.6	-21.1	36.6	5040.1	2912.1	0.1
Dead+Wind 240 deg - No Ice	58.6	-36.6	21.1	2900.1	5058.0	0.1
Dead+Wind 270 deg - No Ice	58.6	-42.3	-0.1	-18.0	5847.8	0.1
Dead+Wind 300 deg - No Ice	58.6	-36.7	-21.2	-2932.3	5072.0	0.0
Dead+Wind 330 deg - No Ice	58.6	-21.2	-36.6	-5061.9	2936.4	-0.0
Dead+Ice+Temp	84.7	-0.0	0.0	-17.8	-0.2	0.0
Dead+Wind 0 deg+Ice+Temp	84.7	-0.0	-10.1	-1480.3	2.8	0.0
Dead+Wind 30 deg+Ice+Temp	84.7	5.0	-8.7	-1282.9	-730.4	-0.1
Dead+Wind 60 deg+Ice+Temp	84.7	8.7	-5.0	-746.6	-1268.0	-0.1
Dead+Wind 90 deg+Ice+Temp	84.7	10.1	0.0	-15.1	-1465.9	-0.1
Dead+Wind 120 deg+Ice+Temp	84.7	8.7	5.0	715.5	-1271.1	-0.1
Dead+Wind 150 deg+Ice+Temp	84.7	5.1	8.7	1249.6	-735.7	-0.1
Dead+Wind 180 deg+Ice+Temp	84.7	0.0	10.1	1444.0	-3.3	-0.0
Dead+Wind 210 deg+Ice+Temp	84.7	-5.0	8.7	1246.5	729.9	0.1

Load Combination	Vertical	Shear _x	Shear _z	Overturing Moment, M _x	Overturing Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 240 deg+Ice+Temp	84.7	-8.7	5.0	710.2	1267.5	0.1
Dead+Wind 270 deg+Ice+Temp	84.7	-10.1	-0.0	-21.2	1465.4	0.1
Dead+Wind 300 deg+Ice+Temp	84.7	-8.7	-5.0	-751.9	1270.6	0.1
Dead+Wind 330 deg+Ice+Temp	84.7	-5.1	-8.7	-1285.9	735.2	0.1
Dead+Wind 0 deg - Service	58.6	-0.0	-14.6	-2025.0	4.8	-0.0
Dead+Wind 30 deg - Service	58.6	7.3	-12.6	-1751.9	-1009.3	-0.0
Dead+Wind 60 deg - Service	58.6	12.7	-7.3	-1010.3	-1753.0	-0.0
Dead+Wind 90 deg - Service	58.6	14.6	0.0	1.0	-2026.8	-0.0
Dead+Wind 120 deg - Service	58.6	12.7	7.3	1011.0	-1757.9	-0.0
Dead+Wind 150 deg - Service	58.6	7.3	12.7	1749.0	-1017.8	-0.0
Dead+Wind 180 deg - Service	58.6	0.0	14.6	2017.2	-5.0	0.0
Dead+Wind 210 deg - Service	58.6	-7.3	12.6	1744.1	1009.1	0.0
Dead+Wind 240 deg - Service	58.6	-12.7	7.3	1002.5	1752.8	0.0
Dead+Wind 270 deg - Service	58.6	-14.6	-0.0	-8.8	2026.6	0.0
Dead+Wind 300 deg - Service	58.6	-12.7	-7.3	-1018.7	1757.7	0.0
Dead+Wind 330 deg - Service	58.6	-7.3	-12.7	-1756.8	1017.6	-0.0

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.0	-58.6	0.0	-0.0	58.6	0.0	0.000%
2	-0.1	-58.6	-42.3	0.1	58.6	42.2	0.007%
3	21.1	-58.6	-36.6	-21.1	58.6	36.6	0.000%
4	36.6	-58.6	-21.1	-36.6	58.6	21.1	0.000%
5	42.3	-58.6	0.1	-42.3	58.6	-0.1	0.007%
6	36.7	-58.6	21.2	-36.7	58.6	-21.2	0.000%
7	21.2	-58.6	36.6	-21.2	58.6	-36.6	0.000%
8	0.1	-58.6	42.3	-0.1	58.6	-42.2	0.007%
9	-21.1	-58.6	36.6	21.1	58.6	-36.6	0.000%
10	-36.6	-58.6	21.1	36.6	58.6	-21.1	0.000%
11	-42.3	-58.6	-0.1	42.3	58.6	0.1	0.007%
12	-36.7	-58.6	-21.2	36.7	58.6	21.2	0.000%
13	-21.2	-58.6	-36.6	21.2	58.6	36.6	0.000%
14	0.0	-84.7	0.0	0.0	84.7	-0.0	0.001%
15	-0.0	-84.7	-10.1	0.0	84.7	10.1	0.000%
16	5.0	-84.7	-8.7	-5.0	84.7	8.7	0.000%
17	8.7	-84.7	-5.0	-8.7	84.7	5.0	0.000%
18	10.1	-84.7	0.0	-10.1	84.7	-0.0	0.000%
19	8.7	-84.7	5.0	-8.7	84.7	-5.0	0.000%
20	5.1	-84.7	8.7	-5.1	84.7	-8.7	0.000%
21	0.0	-84.7	10.1	-0.0	84.7	-10.1	0.000%
22	-5.0	-84.7	8.7	5.0	84.7	-8.7	0.000%
23	-8.7	-84.7	5.0	8.7	84.7	-5.0	0.000%
24	-10.1	-84.7	-0.0	10.1	84.7	0.0	0.000%
25	-8.7	-84.7	-5.0	8.7	84.7	5.0	0.000%
26	-5.1	-84.7	-8.7	5.1	84.7	8.7	0.000%
27	-0.0	-58.6	-14.6	0.0	58.6	14.6	0.003%
28	7.3	-58.6	-12.6	-7.3	58.6	12.6	0.001%
29	12.7	-58.6	-7.3	-12.7	58.6	7.3	0.001%
30	14.6	-58.6	0.0	-14.6	58.6	-0.0	0.003%
31	12.7	-58.6	7.3	-12.7	58.6	-7.3	0.001%
32	7.3	-58.6	12.7	-7.3	58.6	-12.7	0.001%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
33	0.0	-58.6	14.6	-0.0	58.6	-14.6	0.003%
34	-7.3	-58.6	12.6	7.3	58.6	-12.6	0.001%
35	-12.7	-58.6	7.3	12.7	58.6	-7.3	0.001%
36	-14.6	-58.6	-0.0	14.6	58.6	0.0	0.003%
37	-12.7	-58.6	-7.3	12.7	58.6	7.3	0.001%
38	-7.3	-58.6	-12.7	7.3	58.6	12.7	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00007142	0.00009831
3	Yes	19	0.00000001	0.00007904
4	Yes	19	0.00000001	0.00007900
5	Yes	14	0.00007138	0.00010107
6	Yes	19	0.00000001	0.00008016
7	Yes	19	0.00000001	0.00007991
8	Yes	14	0.00007143	0.00009705
9	Yes	19	0.00000001	0.00007874
10	Yes	19	0.00000001	0.00007895
11	Yes	14	0.00007138	0.00009565
12	Yes	19	0.00000001	0.00008015
13	Yes	19	0.00000001	0.00008024
14	Yes	9	0.00000001	0.00002446
15	Yes	16	0.00000001	0.00008084
16	Yes	16	0.00000001	0.00011109
17	Yes	16	0.00000001	0.00011152
18	Yes	16	0.00000001	0.00008013
19	Yes	16	0.00000001	0.00010880
20	Yes	16	0.00000001	0.00010904
21	Yes	16	0.00000001	0.00007886
22	Yes	16	0.00000001	0.00010804
23	Yes	16	0.00000001	0.00010783
24	Yes	16	0.00000001	0.00008010
25	Yes	16	0.00000001	0.00011233
26	Yes	16	0.00000001	0.00011187
27	Yes	14	0.00007640	0.00004368
28	Yes	15	0.00000001	0.00013812
29	Yes	15	0.00000001	0.00013773
30	Yes	14	0.00007641	0.00004383
31	Yes	15	0.00000001	0.00014014
32	Yes	15	0.00000001	0.00013896
33	Yes	14	0.00007641	0.00004349
34	Yes	15	0.00000001	0.00013644
35	Yes	15	0.00000001	0.00013738
36	Yes	14	0.00007641	0.00004367
37	Yes	15	0.00000001	0.00014015
38	Yes	15	0.00000001	0.00014077

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L1	185 - 149.622 (1)	TP36.0404x29x0.25	35.38	0.00	0.0	39.00	27.6093	-7.9	1076.8	0.007
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.312 5	40.41	0.00	0.0	39.00	40.6771	-16.8	1586.4	0.011
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	43.23	0.00	0.0	39.00	56.5148	-26.4	2204.1	0.012
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.437 5	45.07	0.00	0.0	39.00	75.0196	-39.1	2925.8	0.013
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	45.87	0.00	0.0	39.00	98.3940	-58.5	3837.4	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L1	185 - 149.622 (1)	TP36.0404x29x0.25	478.0	-24.18	39.00	0.620	0.0	0.00	39.00	0.000
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.31 25	1416.3	-41.28	39.00	1.058	0.0	0.00	39.00	0.000
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	2614.7	-47.39	39.00	1.215	0.0	0.00	39.00	0.000
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.43 75	3996.4	-47.96	39.00	1.230	0.0	0.00	39.00	0.000
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	5858.6	-46.71	39.00	1.198	0.0	0.00	39.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio P P _a	Ratio f _{bx} F _{bx}	Ratio f _{by} F _{by}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	185 - 149.622 (1)	TP36.0404x29x0.25	0.007	0.620	0.000	0.627	1.333	H1-3 ✓
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.31 25	0.011	1.058	0.000	1.069	1.333	H1-3 ✓
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	0.012	1.215	0.000	1.227	1.333	H1-3 ✓
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.43 75	0.013	1.230	0.000	1.243	1.333	H1-3 ✓
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	0.015	1.198	0.000	1.213	1.333	H1-3 ✓

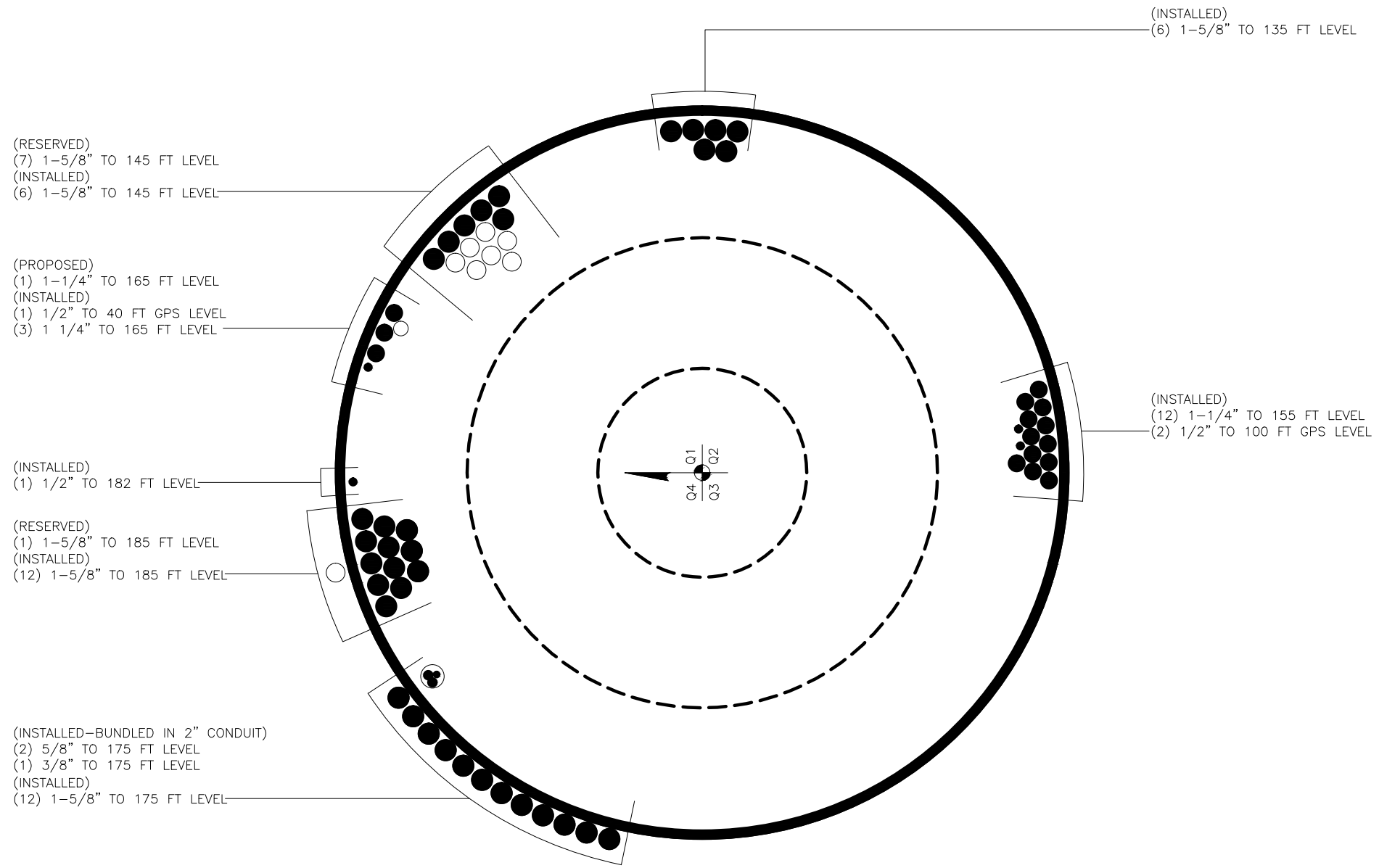
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	185 - 149.622	Pole	TP36.0404x29x0.25	1	-7.9	1435.3	47.1	Pass
L2	149.622 - 114.221	Pole	TP42.4605x34.5443x0.3125	2	-16.8	2114.7	80.2	Pass
L3	114.221 - 76.8021	Pole	TP49.157x40.6978x0.375	3	-26.4	2938.0	92.0	Pass
L4	76.8021 - 38.3802	Pole	TP55.9285x47.1064x0.4375	4	-39.1	3900.1	93.3	Pass
L5	38.3802 - 0	Pole	TP62.5x53.5869x0.5	5	-58.5	5115.2	91.0	Pass

Summary

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
						Pole (L4)	93.3	Pass
						RATING =	93.3	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:	806354
Site Name:	BRG123 943084
App #:	245857R.0
Pole Manufacturer:	Other

Reactions		
Moment:	5859	ft-kips
Axial:	59	kips
Shear:	42	kips

Anchor Rod Data

Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	73	in

If No stiffeners, Criteria: **AISC ASD** <-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension: 158.1 Kips
 Allowable Tension: 195.0 Kips
 Anchor Rod Stress Ratio: 81.1% **Pass**

Stiffened
Service, ASD
F _y *ASIF

Plate Data

Diam:	79	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	8.27	in

Base Plate Results

Base Plate Stress: 29.5 ksi
 Allowable Plate Stress: 60.0 ksi
 Base Plate Stress Ratio: 49.1% **Pass**

Flexural Check

Stiffened
Service, ASD
0.75*F _y *ASIF
Y.L. Length:
N/A, Roark

Stiffener Data (Welding at both sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	7	in
Height:	15	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Stiffener Results

Horizontal Weld : 84.3% **Pass**
 Vertical Weld: 58.3% **Pass**
 Plate Flex+Shear, fb/Fb+(fv/Fv)^2: 29.2% **Pass**
 Plate Tension+Shear, ft/Ft+(fv/Fv)^2: 60.7% **Pass**
 Plate Comp. (AISC Bracket): 78.8% **Pass**

Pole Results

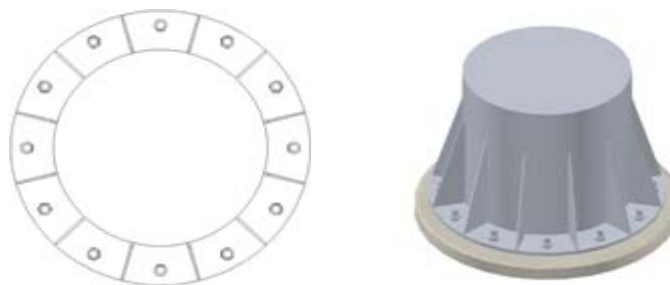
Pole Punching Shear Check: 14.7% **Pass**

Pole Data

Diam:	62.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF:	1.333
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* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

BU: 806354
 Site Name: BRG 123 943084
 App Number: 245857 Rev #0
 Work Order: 773806



Monopole Drilled Pier

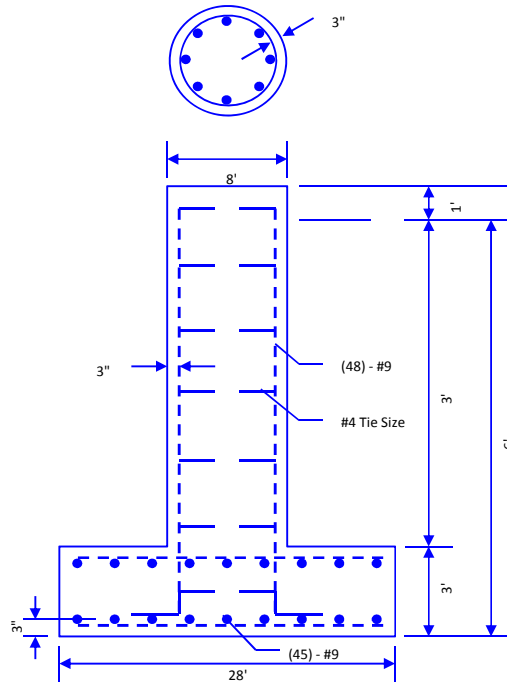
Input

Criteria
 TIA Revision: F
 ACI 318 Revision: 2002
 Seismic Category: B

Reactions
 Compression: 59 kips
 Shear: 42 kips
 Moment: 5859 k-ft

Foundation Dimensions
 Pier Diameter: 8 ft
 Ext. above grade: 1 ft
 Depth below grade: 6 ft
 Pad Width: 28 ft
 Pad Thickness: 3 ft

Foundation Details
 Concrete Strength: 4000 psi
 Rebar Strength: 60 ksi
Pier
 Rebar Quantity: 48
 Rebar Size: #9
 Tie Size: #4
 Clear Cover to Ties: 3 in
Pad
 Rebar Quantity: 45
 Rebar Size: #9
 Clear Cover: 3 in



Soil Profile: 806359

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	7			128	0	34	0	0	12	

Analysis Results

Soil Checks

Bearing: 4.09 ksf
 Bearing Capacity: 9.00 ksf
 Overturning: 5859.00 k-ft
 Overturning Resistance: 6256.25 k-ft
 Soil Shear: 42.00 kips
 Soil Shear Capacity: 115.40 kips
RATING: 93.65%

Structural Checks

Pier
 Moment: -1079.00 k-ft
 Moment Capacity: 8984.15 k-ft
Pad
 Moment: 2877.13 k-ft
 Moment Capacity: 6328.99 k-ft
 1-way Shear: 646.35 kips
 1-way Shear Strength: 1033.92 kips
 2-way Shear: 145.31 kips
 2-way Shear Strength: 2483.22 kips
RATING: 62.51%

Overall Foundation Rating: 93.65%

RADIO FREQUENCY FCC REGULATORY COMPLIANCE
MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT

Sprint Existing Facility

Site ID: CT03XC368

Newtown

21 Berkshire Road
Newtown, CT 06482

September 16, 2014

EBI Project Number: 62144685

September 16, 2014

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT03XC368 - Newtown

Site Total: 31.98% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at **21 Berkshire Road, Newtown, CT**, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band (850 MHz Band) is approximately $567 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the 1900 MHz and 2500 MHz bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at **21 Berkshire Road, Newtown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

- 1) 3 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
- 2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation.
- 3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-I20. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS APXVTM14-C-I20 has a 15.9 dBd gain value at its main lobe at 2500 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline for the proposed antennas is **165 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT03XC368 - Newtown
Site Address	21 Berkshire Road, Newtown, CT, 06482
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	5.9	165	159	1/2 "	0.5	0	208.04	0.30%
1a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	165	159	1/2 "	0.5	0	39.00	0.10%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	165	159	1/2 "	0.5	0	138.69	0.35%
Sector total Power Density Value:																0.74%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	5.9	165	159	1/2 "	0.5	0	208.04	0.30%
2a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	165	159	1/2 "	0.5	0	39.00	0.10%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	165	159	1/2 "	0.5	0	138.69	0.35%
Sector total Power Density Value:																0.74%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	5.9	165	159	1/2 "	0.5	0	208.04	0.30%
3a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	165	159	1/2 "	0.5	0	39.00	0.10%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	165	159	1/2 "	0.5	0	138.69	0.35%
Sector total Power Density Value:																0.74%

Site Composite MPE %	
Carrier	MPE %
Sprint	2.22%
AT&T	9.13%
MetroPCS	2.63%
Verizon Wireless	15.47%
Nextel	2.37%
T-Mobile	0.16%
Total Site MPE %	31.98%

Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public Maximum Permissible Exposure (MPE) to radio frequency energy.

The anticipated Maximum Composite contributions from the Sprint facility are **2.22% (0.74% from sector 1, 0.74% from sector 2 and 0.74% from sector 3)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **31.98%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



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