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

November 24, 2014

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

RE: **Sprint PCS-Exempt Modification – Crown Site BU: 826222**
Sprint PCS Site ID: CT54XC716
Located at: 201 South Main Street, Newtown, CT 06470

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 City of Newtown, and Bluelinx Corp., Property Owner.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **201 South Main Street, Newtown, CT 06470.** 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.

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 for the Town of Newtown
Newtown Municipal Center
3 Primrose Street
Newtown CT 06470

cc: Bluelinx Corp
4300 Wildwood Pkwy
Atlanta, GA 30339

Sprint

2.5 EQUIPMENT DEPLOYMENT

SITE NUMBER:

CT54XC716

SITE NAME:

NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:

201 SOUTH MAIN STREET
NEWTOWN, CT 06470

CROWN ID#: 826222

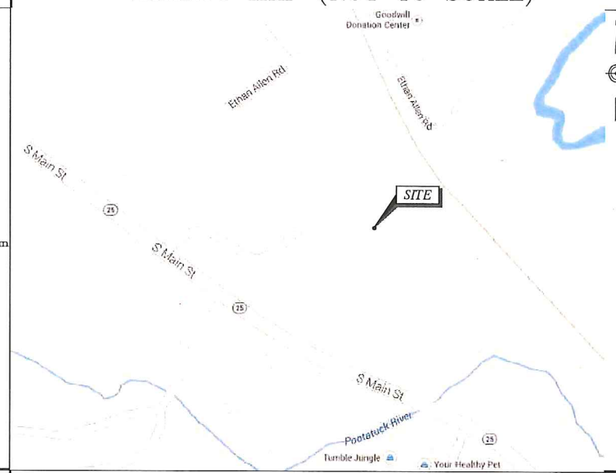
CROWN SITE NAME: NEWTOWN/RT-25

SHEET INFORMATION

SITE NUMBER:	CT54XC716
SITE ADDRESS:	201 SOUTH MAIN STREET NEWTOWN, CT 06470
SITE NAME:	NEWTOWN GEORGIA PACIFIC/VS
COUNTY:	FAIRFIELD
COORDINATES: (NAD 83)	41° 22' 41.32" N 73° 16' 26.94" W
GROUND ELEV:	377'± AMSL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	150'-0"± AGL
STRUCTURE RAD CENTER:	140'-0"± AGL
ZONING CLASSIFICATION:	M-1
MAP-BLOCK-LOT:	36/12/10/C/

LANDLORD:	CROWN CASTLE USA 2000 CORPORATE DRIVE CANONSBURG, PA
LOCAL POWER COMPANY:	CONNECTICUT LIGHT AND POWER CONTACT CUSTOMER SERVICE (800) 286-2000
APPLICANT:	SPRINT 6580 SPRINT PARKWAY OVERLAND PARK, KANSAS 66251
ENGINEER:	JAMES QUICKSELL (845) 567-6656 EXT. 2835 JQuicksell@tectonicengineering.com
SPRINT CM:	PETER CULBERT Peter.Culbert@sprint.com
CROWN CM:	JASON D'AMICO (860) 209-0104 jason.d'amico@crowncastle.com

VICINITY MAP (NOT TO SCALE)



SHEET INDEX

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GENERAL NOTES

1. 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.
2. 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.
3. 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.

PROJECT DESCRIPTION

1. (1) NEW 2.5 EQUIPMENT RACK INSIDE EXIST MMBTS CABINET.
2. (3) NEW RFS APXVTM14-C-120 ANTENNAS.
3. (3) NEW TD-RRH8x20-25 RRH.
4. (1) NEW 1-1/4" HYBRID CABLE.
5. (3) NEW RFS APXVSPP18C-A20 ANTENNAS.

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: _____

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

SUBMITTALS

PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
0	07/14/14	FOR COMMENT	MP
1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

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–WIHRPRF–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. AC1–301 – 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 FINS 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.
2. 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:

BASE MATERIAL	ANCHOR SYSTEM
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.

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

SUBMITTALS

PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
0	07/14/14	FOR COMMENT	MP
1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
NAVANEETHAKUMAR KATHIRVEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA
PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

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 QOTHER 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–IH, 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.

8. 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 SHEEPS 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 FORM 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 THOROUGHFARE 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
OHW OHW OHW OHW OHW	OVERHEAD WIRE
——— — — ———	PROPERTY LINE
—X———X———X———	CHAIN LINK FENCE
A–1	ANTENNA MARK
(E)	EXISTING
(P)	PROPOSED DETAIL
DET # / SHT #	REFERENCE
	SURFACE ELEVATION

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CROWN CASTLE

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SUBMITTALS

PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
0	07/14/14	FOR COMMENT	MP
1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
MAHOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
GENERAL NOTES

SHEET NO:
SP–2

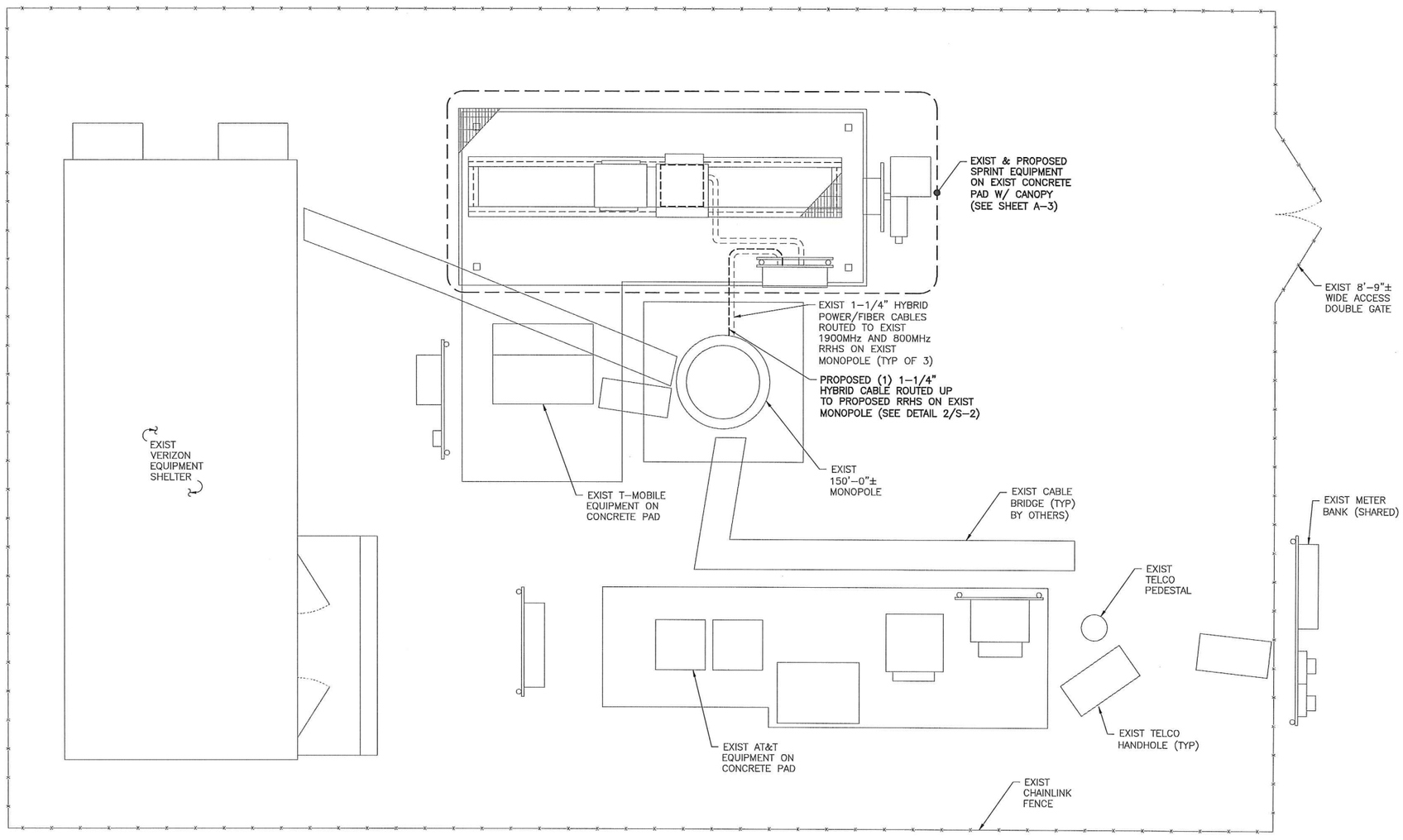
N

APPROX.

NORTH NOTE:

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

1
A-2



1
A-1
SITE PLAN
SCALE: 3/8" = 1'-0"

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PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
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1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
MANOJKUMAR R. PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

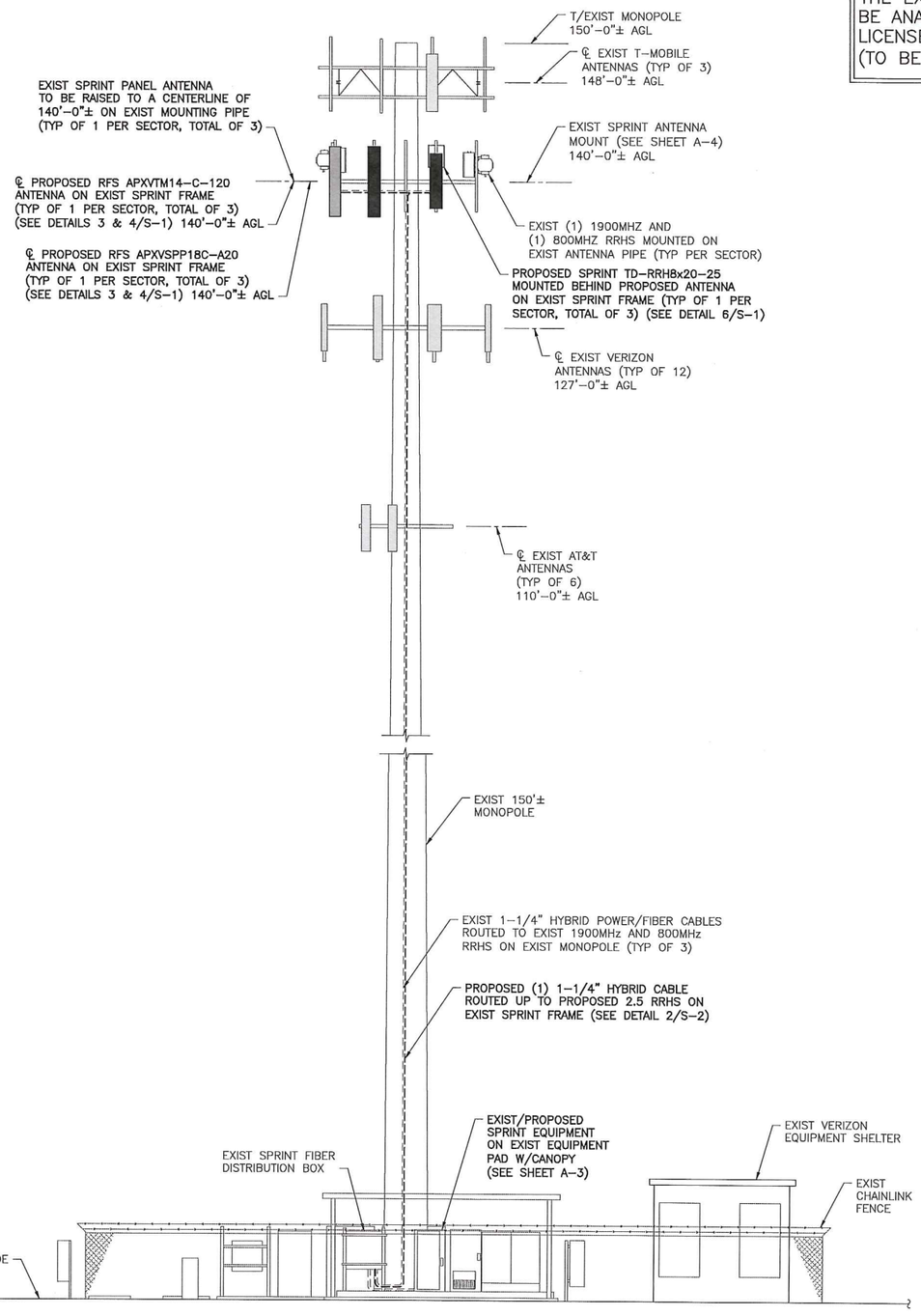
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
SITE PLAN

SHEET NO:
A-1



1 / A-2 ELEVATION

SCALE: 3/16" = 1'-0"

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 AS DETAILED IN THE STRUCTURAL ANALYSIS EVALUATION LETTER DATED 11/21/14.

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1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
NIRAV KUMAR PATEL
No. 22039
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA
PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
ELEVATION

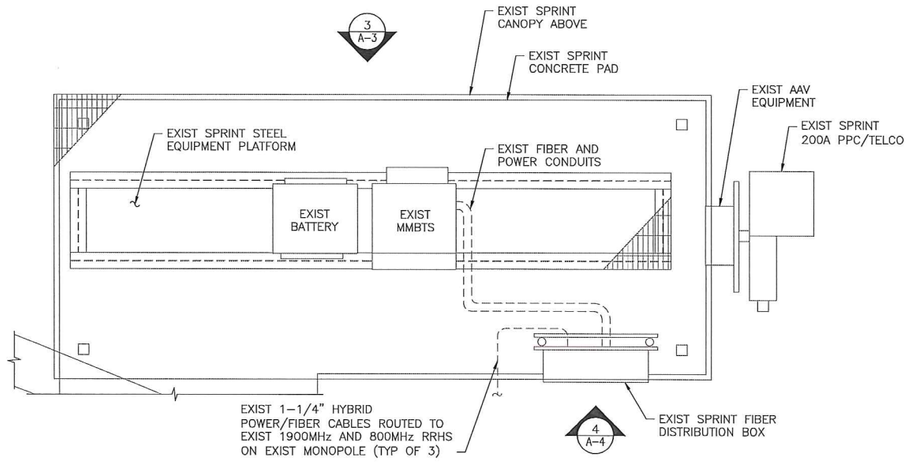
SHEET NO:
A-2

N

APPROX.

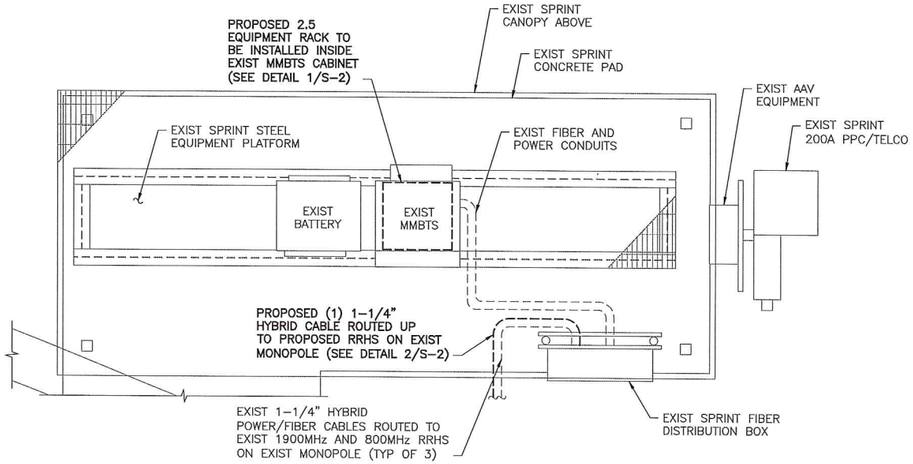
NORTH NOTE:

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



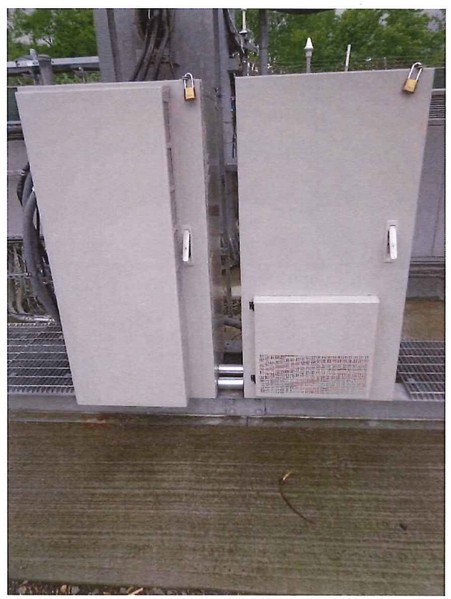
1 A-3 ENLARGED EQUIPMENT LAYOUT PLAN (EXIST)

SCALE: 1/2" = 1'-0"



2 A-3 ENLARGED EQUIPMENT LAYOUT PLAN (FINAL)

SCALE: 1/2" = 1'-0"



3 A-3 EXIST EQUIPMENT PAD

SCALE: NTS

4 A-3 EXIST FIBER DISTRIBUTION BOX

SCALE: NTS

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1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT MANOJKUMAR PATEL No. 22038 LICENSED PROFESSIONAL ENGINEER

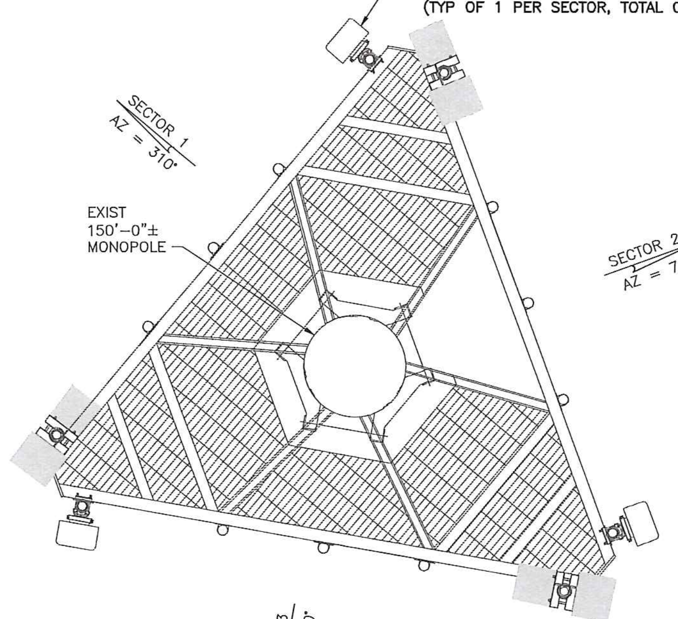
SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
ENLARGED EQUIPMENT LAYOUT PLANS

SHEET NO:
A-3



1 / A-4 ANTENNA LAYOUT PLAN (EXIST)

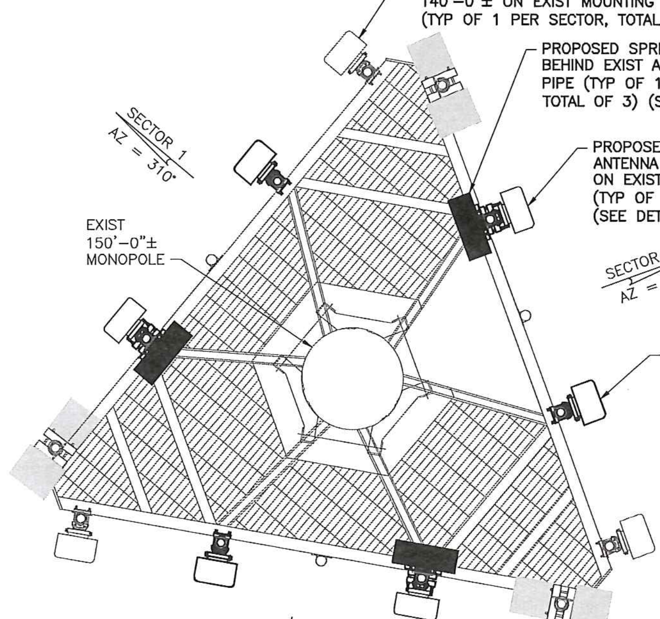
SCALE: 1/2" = 1'-0"

EXIST SPRINT PANEL ANTENNA TO BE RAISED TO A CENTERLINE OF 140'-0"± ON EXIST MOUNTING PIPE (TYP OF 1 PER SECTOR, TOTAL OF 3)

EXIST (1) 1900MHz AND (1) 800MHz RRH MOUNTED ON EXIST ANTENNA MOUNTING PIPE (TYP PER SECTOR)

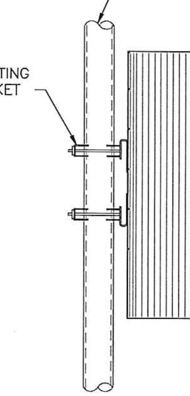
THE EXISTING MONOPOLE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

THE EXISTING MOUNT HAS BEEN ANALYZED BY TECTONIC ENGINEERING AND FOUND TO BE ADEQUATE TO SUPPORT THE PROPOSED SPRINT UPGRADE AS DETAILED IN THE STRUCTURAL ANALYSIS EVALUATION LETTER DATED 11/21/14.



2 / A-4 ANTENNA LAYOUT PLAN (FINAL)

SCALE: 1/2" = 1'-0"



3 / A-4 RRH MOUNTING DETAIL

SCALE: 1 1/2" = 1'-0"

ANTENNA DATA

Status	Exist (Proposed)	Proposed
Antenna Manufacturer	RFS-CEL WAVE	RFS-CEL WAVE
Antenna Model Number	APXVSPP18C-A20	APXVTM14-C-120
Number of Antennas	3 (3)	3
Antenna RAD Center	140'	140'
Antenna Azimuth	310/70/190	310/70/190
Antenna RRH Model Number	1900MHz/800MHz RRHS	2.5GHz RRH-V3
Number of RRH	6	3

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STATE OF CONNECTICUT · No. 22030 · LICENSED PROFESSIONAL ENGINEER

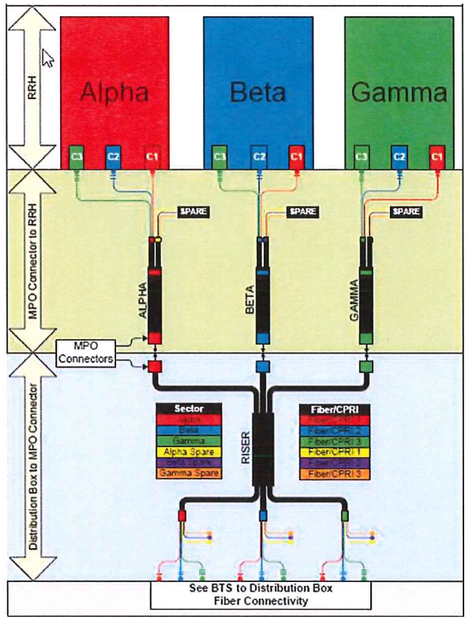
SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

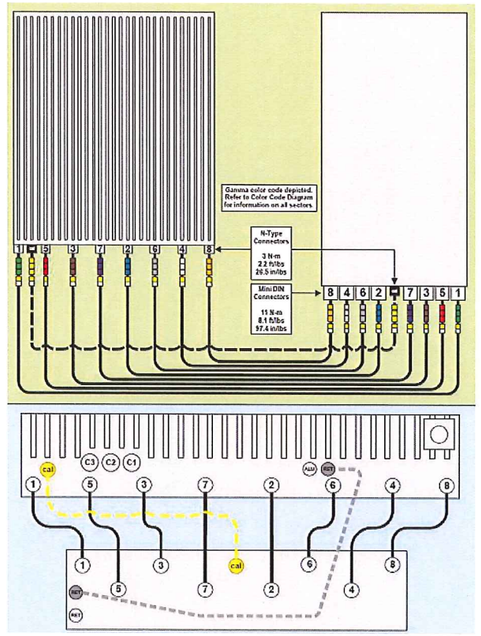
SHEET TITLE:
ANTENNA LAYOUT PLANS

SHEET NO:
A-4



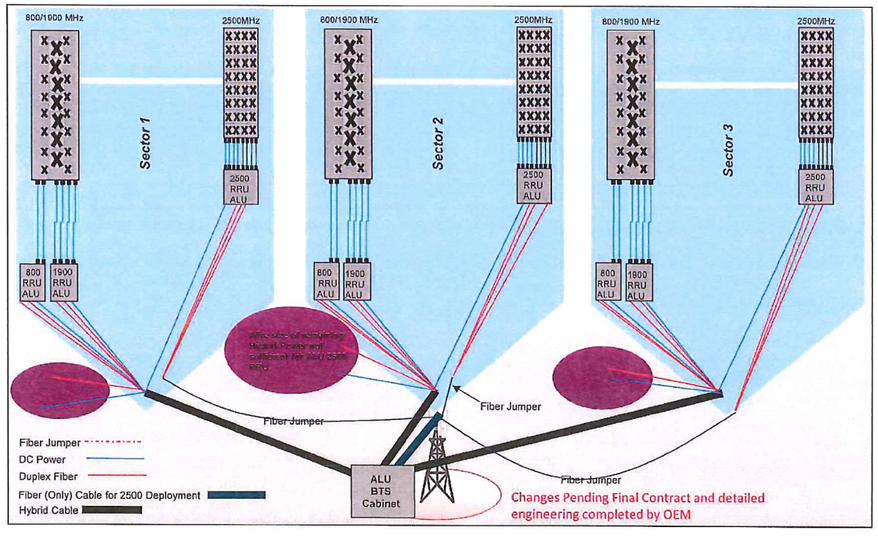
1 A–5 2.5 CABLE COLOR CODING

SCALE: N.T.S.



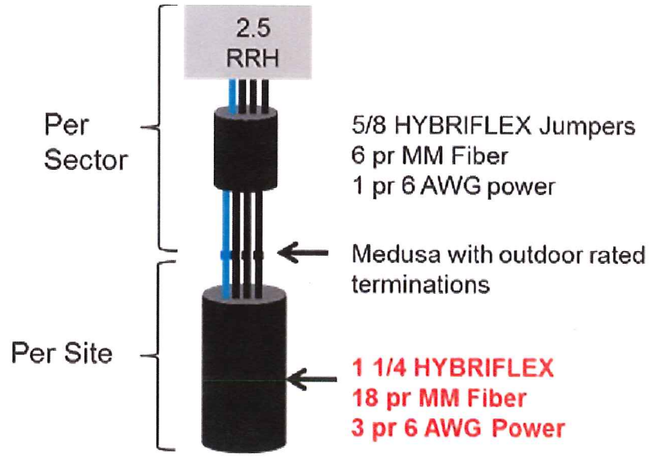
2 A–5 RRH CONNECTIVITY

SCALE: N.T.S.



3 A–5 RAN WIRING

SCALE: N.T.S.



4 A–5 CABLE SCENARIO

SCALE: N.T.S.

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SUBMITTALS

PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
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1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
RAMOJU KUMAR REDDY
No. 22030
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

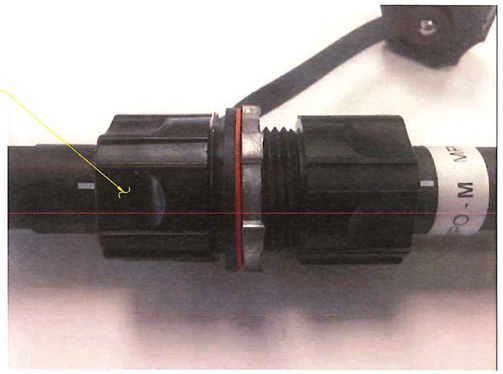
SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
RAN WIRING DIAGRAM

SHEET NO:
A–5

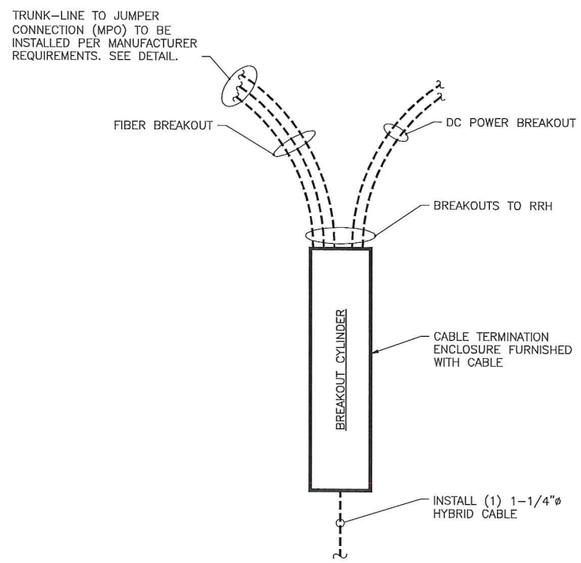
IMPORTANT!! LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAINST THE RED SEAL ON THE RISER CONNECTION



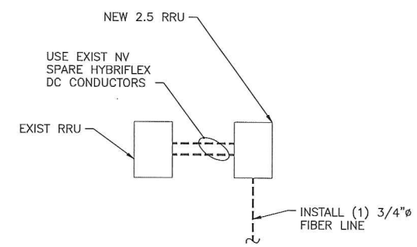
IMPORTANT!! ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL A CLICK SOUND IS HEARD TO ENSURE A GOOD CONNECTION

1 A-6 HYBRIFLEX RISER/JUMPER CONNECTION DETAILS

SCALE: N.T.S.



2.5 HYBRID CABLE W/FIBER & DC FEEDERS



FIBER ONLY TRUNK LINES

2 A-6 TRUNK LINE DETAILS (TYPICAL)

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 CORDED 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.CT54XC716

NO	DATE	DESCRIPTION	BY
0	07/14/14	FOR COMMENT	MP
1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

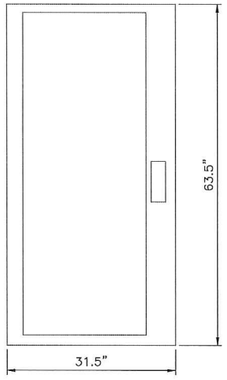
SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA
PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
CABLE DETAILS

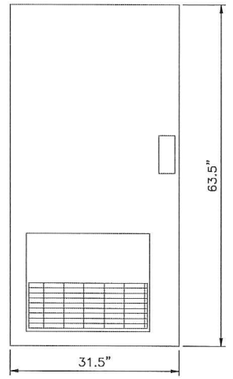
SHEET NO:
A-6



9927 MMBTS MODULAR CELL	
SPECIFICATIONS:	
HEIGHT:	63.5"
WIDTH:	31.5"
DEPTH:	38.0"

1 S-1 (EXIST) MMBTS CABINET

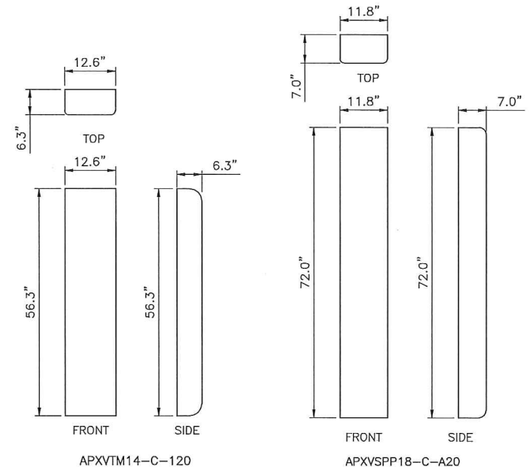
SCALE: 1" = 1'-0"



BATTERY	
SPECIFICATIONS:	
HEIGHT:	63.5"
WIDTH:	31.5"
DEPTH:	28.0"

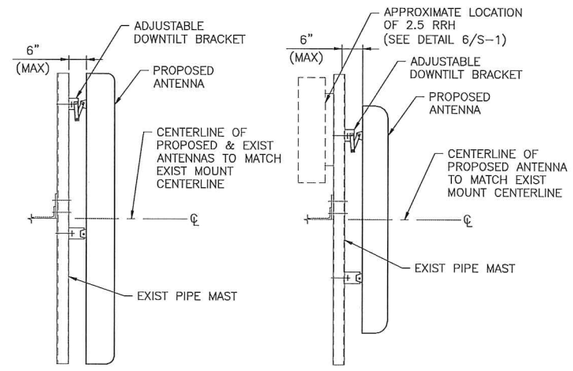
2 S-1 (EXIST) BATTERY CABINET

SCALE: 1" = 1'-0"



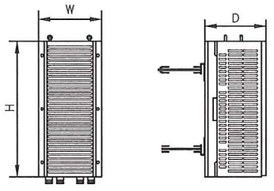
3 S-1 ANTENNA DETAILS

SCALE: 3/4" = 1'-0"

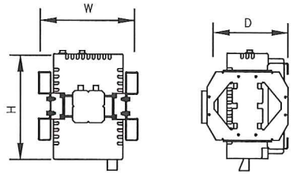


4 S-1 ANTENNA MOUNTING DETAILS

SCALE: 3/4" = 1'-0"



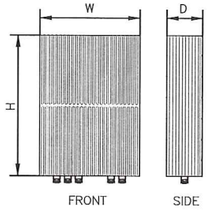
TYPE:	1900 MHz 4x45W
MODEL #:	RRH 1900 4X45 65MHz
HEIGHT:	25.0"
WIDTH:	11.1"
DEPTH:	11.4"
WEIGHT:	±60 LBS.



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

5 S-1 (EXIST) RRH DETAILS

SCALE: 1 1/2" = 1'-0"



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

6 S-1 (PROPOSED) RRH DETAIL

SCALE: 1" = 1'-0"

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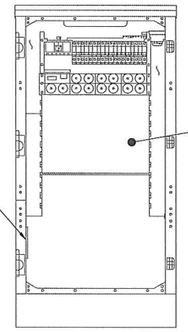
NEWTOWN, CT 06470

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.

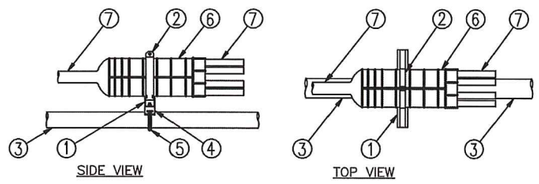


FRONT ELEVATION
(CABINET INTERIOR)

1 / S-2 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.



3 / S-2 MEDUSA HEAD DETAIL

SCALE: NTS

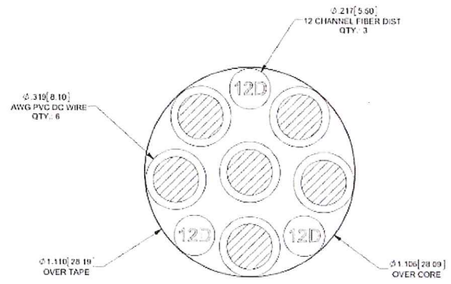
RFS HYBRIFLEX RISER CABLES SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable 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
	MN:HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable 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
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable 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	Hybrid cable MN: HB114-21U3M12-225F 3x 6 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable,225ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

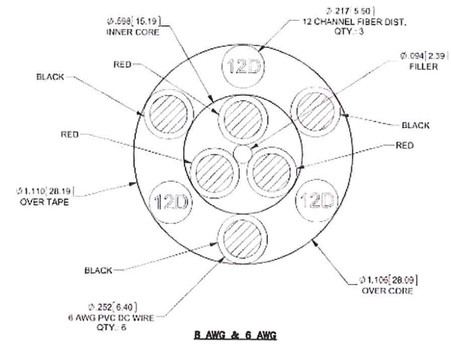
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	Hybrid Jumper cable 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	Hybrid Jumper cable 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	Hybrid Jumper cable 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	Hybrid Jumper cable 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

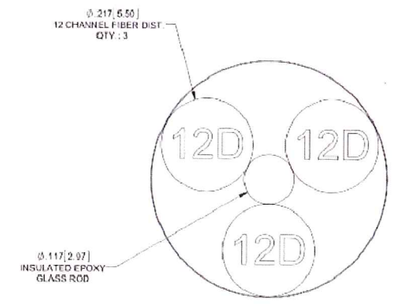
HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE			
MANUF:	RFS		
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	7/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
HYBRIFLEX	225-300'	6 AWG	1-1/4"
HYBRIFLEX	325-375'	4 AWG	1-1/4"



4 AWG



8 AWG & 6 AWG



FIBER ONLY

2 / S-2 2.5 HYBRID CABLE X-SECTION AND DATA

SCALE: NTS

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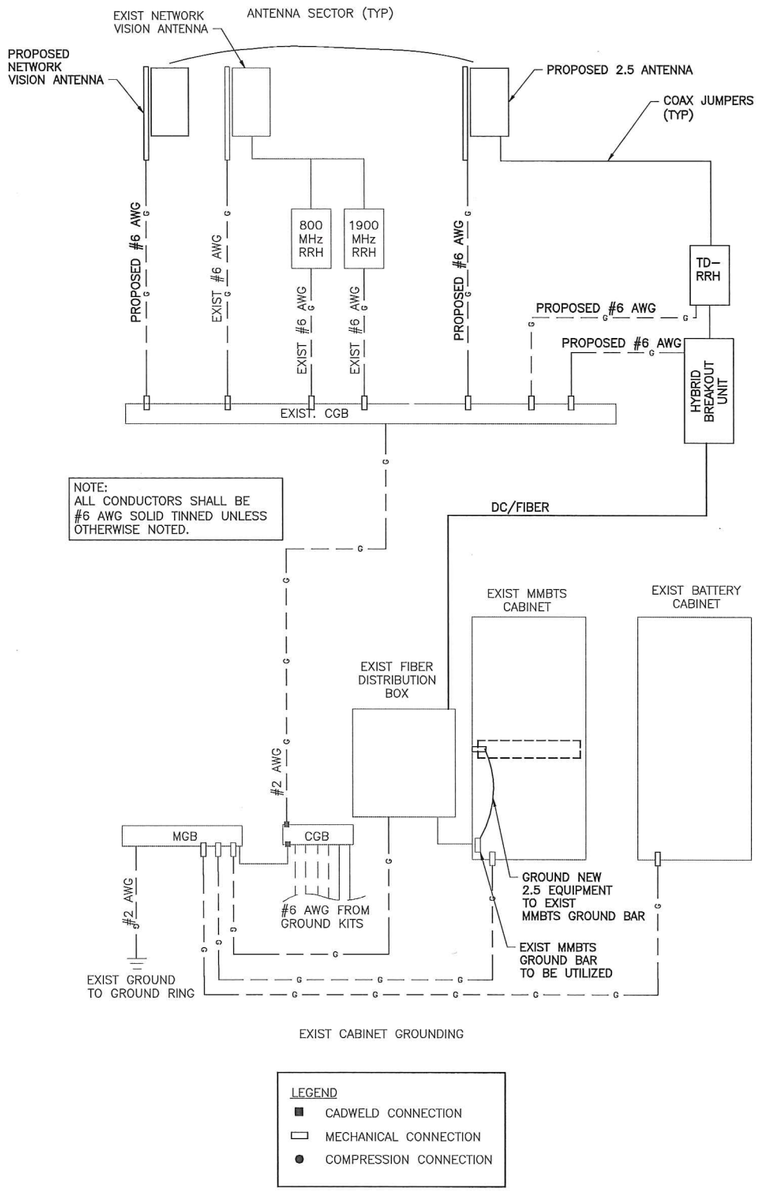
NEWTOWN, CT 06470

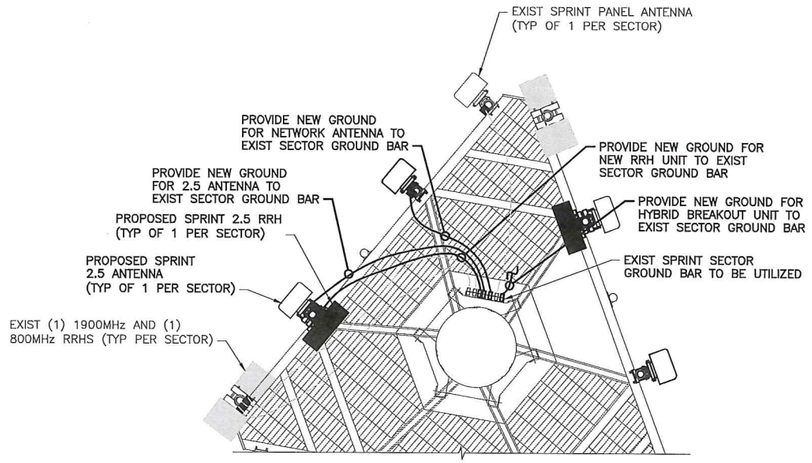
SHEET TITLE:
EQUIPMENT SCHEMATIC DETAILS

SHEET NO:
S-2



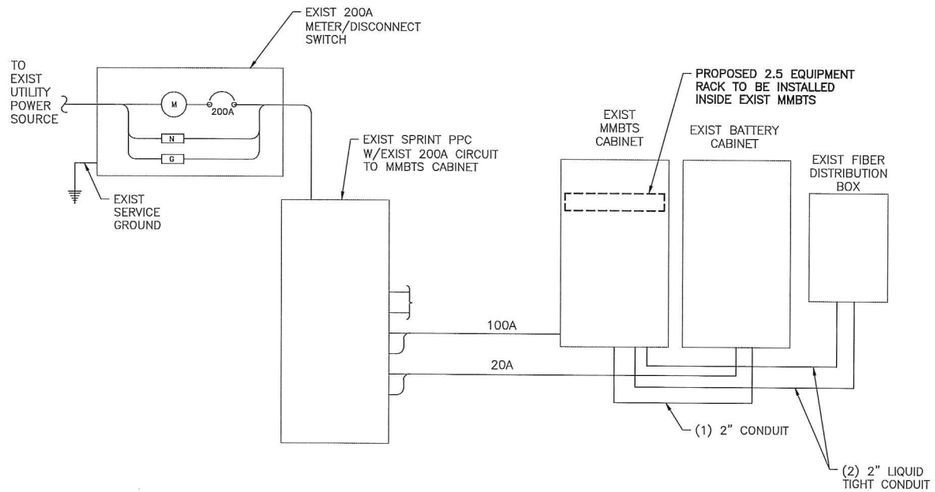
1 / E-1 TYPICAL GROUNDING ONE LINE DIAGRAM

SCALE: NTS



2 / E-1 TYPICAL ANTENNA GROUNDING PLAN

SCALE: NTS



3 / E-1 TYPICAL ELECTRICAL & TELCO PLAN

SCALE: NTS

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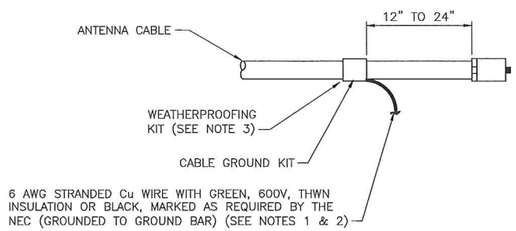
NEWTOWN, CT 06470

SHEET TITLE:
ELECTRICAL & GROUNDING PLANS

SHEET NO:
E-1



CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

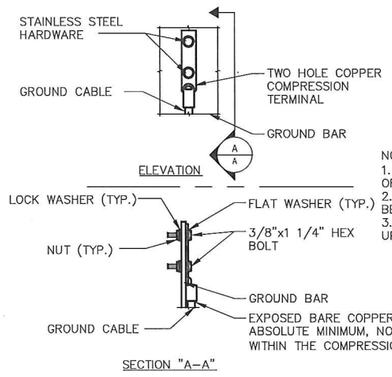
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

GROUNDING 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.

1 E-2 CABLE GROUNDING KIT DETAIL

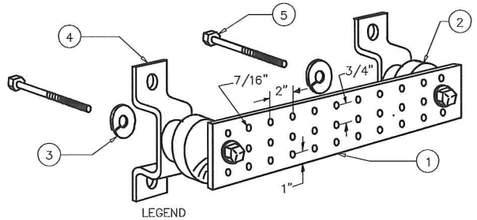
SCALE: N.T.S.



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.

2 E-2 GROUNDING BAR CONN. DETAIL

SCALE: NTS



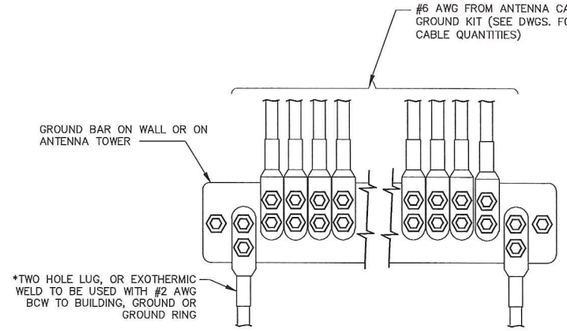
LEGEND

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 E-2 GROUNDING BAR DETAIL

SCALE: NTS



* – 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 E-2 ANTENNA GROUND BAR DETAIL

SCALE: NTS

GROUNDING NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250–GROUNDING AND BONDING.
2. ALL GROUND WIRES SHALL BE #2 AWG UNLESS NOTED OTHERWISE.
3. ALL GROUNDING 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 GROUNDING 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 GROUNDING 082412.PDF" FOR GUIDELINE TO SUSPECTED OR ACTUAL THEFT OF GROUNDING.
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 GROUNDING SYSTEM GENERAL NOTES:

1. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. 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 GROUNDING 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 GROUNDING CONDUCTOR.
3. ALL GROUNDING 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 GROUNDING 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 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
7. GROUND HYBRID CABLE SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

ELECTRICAL AND GROUNDING 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 THNN 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. GROUNDING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRID CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRID CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
11. USE #2 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING 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 GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING 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 GROUNDING 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 RRHs 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 RRH 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.

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

SUBMITTALS

PROJECT NO: 7225.CT54XC716

NO	DATE	DESCRIPTION	BY
0	07/14/14	FOR COMMENT	MP
1	11/21/14	FOR CONSTRUCTION	MP

DATE	REVIEWED BY

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CT54XC716

SITE NAME:
NEWTOWN GEORGIA PACIFIC/VS

SITE ADDRESS:
201 SOUTH MAIN STREET
NEWTOWN, CT 06470

SHEET TITLE:
GROUNDING DETAILS & NOTES

SHEET NO:
E–2

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **June 19, 2014**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
614.221.6679

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	2.5 SCENARIO B
	Carrier Site Number:	CT54XC716
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	826222
	Crown Castle Site Name:	Newtown/RT-25
	Crown Castle JDE Job Number:	290762
	Crown Castle Work Order Number:	781681
	Crown Castle Application Number:	246082 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37513-1642.002.7805
Site Data:	**201 Main Street, Newtown, Fairfield County, CT**	
	Latitude *41° 22' 41.32"*, Longitude *-73° 16' 26.94"*	
	150 Foot - Monopole Tower	

Dear Darcy Tarr,

Paul J Ford and Company 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 659210, in accordance with application 246082, revision 1.

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:

LC4.7: Existing + Reserved + Proposed Equipment & Modifications **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the 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, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

All modifications and equipment proposed in this report shall be installed in accordance with the proposed modifications drawings, referenced in Table 3 of this report, for the determined available structural capacity to be effective.

We at *Paul J Ford and Company* 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.

Respectfully submitted by:

Seth Tschanen

Seth Tschanen
Structural Designer

tnxTower Report - version 6.1.4.1

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED PROFESSIONAL ENGINEER

JUN 2 0 2014

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **June 19, 2014**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
614.221.6679

Subject: Structural Analysis Report

Carrier Designation:	***Sprint PCS* Co-Locate**	2.5 SCENARIO B
	Carrier Site Number:	CT54XC716
	Carrier Site Name:	N/A
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Respectfully submitted by:

Seth Tschanen
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by PIROD MANUFACTURES INC. in October of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the 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, 37.6 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
140.0	140.0	3	alcatel lucent	1900MHz RRH	4	1 1/4	--
		3	alcatel lucent	800MHZ RRH			
	137.0	3	alcatel lucent	TD-RRH8x20-25			
		6	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

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
148.0	150.0	1	andrew	HP4-102	--	--	3
	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			
		1	tower mounts	Sector Mount [SM 408-3]	18	1 5/8	1
140.0	140.0	6	decibel	DB980F90E-M w/ Mount Pipe	6	1 5/8	3
		3	decibel	DB980F90T2E-M w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 303-1]	--	--	1
127.0	127.0	3	alcatel lucent	RRH2x40-AWS	1	1 5/8	2
		1	antel	BXA-70063/4CF w/ Mount Pipe			
		3	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-8AB-0Z			
		1	antel	BXA-171063-12BF w/ Mount Pipe	12	1 5/8	1
		2	antel	BXA-171063/8CF 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
127.0	127.0	6	rfs celwave	APL866513-42T0 w/ Mount Pipe	--	--	1
		6	rfs celwave	FD9R6004/2C-3L			
		2	swedcom	SLCP 2x6014 w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 304-1]			
110.0	110.0	6	ericsson	RRUS-11	1	3/4	1
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401	2	7/8	
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F	6	1 1/4	
		1	tower mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed - Not Considered in this Analysis

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)
--	--	--	--	--	--	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti Geotechnica Engineering, 10/16/2000	3536527	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Pirod, A-117711-F-1001206, 10/17/2000	3536528	CCISITES
PROPOSED MODIFICATION DRAWINGS	PJF, 37513-1642 BP, 8/20/2013	3963744	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) Monopole will be reinforced in conformance with the reference modification drawings by PJF dated 8/20/2013.
5) Micropile will be relocated in conformance with Rich Hoffman's requested location in email to Rich Taschek on 4/16/2013.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company 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	150 - 133	Pole	TP26x21.83x0.25	1	-4.66	1032.38	10.5	Pass
L2	133 - 98.45	Pole	TP34.0625x24.7764x0.3125	2	-12.83	1691.15	49.8	Pass
L3	98.45 - 64.8	Pole	TP41.75x32.4841x0.375	3	-19.67	2488.32	63.2	Pass
L4	64.8 - 32	Pole	TP49.0625x39.8387x0.375	4	-27.80	2928.95	74.3	Pass
L5	32 - 0	Pole	TP56.125x46.9597x0.375	5	-38.78	3394.28	82.0	Pass
							Summary	
						Pole (L5)	82.0	Pass
						Rating =	82.0	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	77.2	Pass
1	Base Plate	0	82.0	Pass
1	Base Foundation Steel	0	99.6	Pass
1,2	Base Foundation Soil Interaction	0	19.0	Pass
1	Micropile	0	87.1	Pass

Structure Rating (max from all components) =	**99.6%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Foundation capacity determined by comparing analysis reactions to original design reactions.

4.1) Recommendations

- Reinforce the monopole in conformance with the referenced proposed modification drawings by PJF dated 8/20/2013.
- Relocate micropile in conformance with Rich Hoffman’s requested location in email to Rich Taschek on 4/16/2013.

APPENDIX A

TNXTOWER OUTPUT

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 56.00 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Pressures are calculated at each section.
10) Stress ratio used in pole design is 1.333.
11) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	150.0000-133.0000	17.0000	2.95	18	21.8300	26.0000	0.2500	1.0000	A572-65 (65 ksi)
L2	133.0000-98.4500	37.5000	3.85	18	24.7764	34.0625	0.3125	0.1250	A572-65 (65 ksi)
L3	98.4500-64.8000	37.5000	4.70	18	32.4841	41.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	64.8000-32.0000	37.5000	5.50	18	39.8387	49.0625	0.3750	0.1875	A572-65 (65 ksi)
L5	32.0000-0.0000	37.5000		18	46.9597	56.1250	0.3750	0.1875	A572-65 (65 ksi)

Tapered Pole Properties

Section	*Tip Dia.*	*Area*	*I*	*r*	*C*	*I/C*	*J*	*It/Q*	*w*	*w/t*
	in	in^2	in^4	*in*	*in*	in^3	in^4	in^2	*in*	
L1	22.1668	17.1237	1007.4853	7.6609	11.0896	90.8492	2016.2962	8.5635	3.4021	13.608
	26.4011	20.4326	1711.6544	9.1412	13.2080	129.5922	3425.5610	10.2183	4.1360	16.544
L2	25.9004	24.2651	1834.7230	8.6847	12.5864	145.7703	3671.8603	12.1349	4.2066	13.461
	34.5880	33.4758	4817.4335	11.9812	17.3038	278.4040	9641.2058	16.7411	5.8410	18.691
L3	33.9512	38.2179	4978.0706	11.3987	16.5019	301.6659	9962.6915	19.1126	5.0572	13.486
	42.3941	49.2466	10650.9822	14.6881	21.2090	502.1916	21315.9793	24.6280	6.6880	17.835
L4	41.6271	46.9716	9242.0494	14.0096	20.2380	456.6670	18496.2597	23.4903	6.8136	18.17

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
	49.8194	57.9503	17355.1378	17.2841	24.9238	696.3293	34733.1119	28.9807	8.4370	22.499
L5	49.0491	55.4474	15202.1423	16.5376	23.8555	637.2591	30424.2880	27.7290	8.0669	21.512
	56.9908	66.3564	26056.1506	19.7913	28.5115	913.8821	52146.5865	33.1845	9.6800	25.813

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 150.0000-133.0000				1	1	1		
L2 133.0000-98.4500				1	1	1		
L3 98.4500-64.8000				1	1	1		
L4 64.8000-32.0000				1	1	1		
L5 32.0000-0.0000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8")	C	No	Inside Pole	148.0000 - 0.0000	18	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
LDF7-50A(1-5/8")	C	No	Inside Pole	148.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	Inside Pole	148.0000 - 0.0000	1	No Ice	0.0000	1.07
						1/2" Ice	0.0000	1.07
						1" Ice	0.0000	1.07
						2" Ice	0.0000	1.07
						4" Ice	0.0000	1.07
***								
HB114-1-0813U4-M5J(1 1/4")	C	No	Inside Pole	140.0000 - 0.0000	4	No Ice	0.0000	1.20
						1/2" Ice	0.0000	1.20
						1" Ice	0.0000	1.20
						2" Ice	0.0000	1.20
						4" Ice	0.0000	1.20
***								
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	127.0000 - 0.0000	2	No Ice	0.1980	0.82
						1/2" Ice	0.2980	2.33
						1" Ice	0.3980	4.46
						2" Ice	0.5980	10.54
						4" Ice	0.9980	30.04
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	127.0000 - 0.0000	10	No Ice	0.0000	0.82
						1/2" Ice	0.0000	2.33
						1" Ice	0.0000	4.46
						2" Ice	0.0000	10.54
						4" Ice	0.0000	30.04
HB158-1-08U8-S8J18(1-5/8)	C	No	CaAa (Out Of Face)	127.0000 - 0.0000	1	No Ice	0.0000	1.30
						1/2" Ice	0.0000	2.81
						1" Ice	0.0000	4.94
						2" Ice	0.0000	11.02
						4" Ice	0.0000	30.52
***								
LDF5-50A(7/8")	C	No	Inside Pole	110.0000 - 0.0000	2	No Ice	0.0000	0.33
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
						4" Ice	0.0000	0.33

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF6-50A(1-1/4")	C	No	Inside Pole	110.0000 - 0.0000	6	No Ice	0.0000	0.66
						1/2" Ice	0.0000	0.66
						1" Ice	0.0000	0.66
						2" Ice	0.0000	0.66
						4" Ice	0.0000	0.66
9776(3/4")	C	No	Inside Pole	110.0000 - 0.0000	1	No Ice	0.0000	0.31
						1/2" Ice	0.0000	0.31
						1" Ice	0.0000	0.31
						2" Ice	0.0000	0.31
						4" Ice	0.0000	0.31

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.0000-	A	0.000	0.000	0.000	0.000	0.00
	133.0000	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.34
L2	133.0000-98.4500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.306	1.26
L3	98.4500-64.8000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	13.325	1.40
L4	64.8000-32.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	12.989	1.37
L5	32.0000-0.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	12.672	1.33

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.0000-	A	0.893	0.000	0.000	0.000	0.000	0.00
	133.0000	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.34
L2	133.0000-98.4500	A	0.871	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	21.504	2.44
L3	98.4500-64.8000	A	0.836	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.053	2.75
L4	64.8000-32.0000	A	0.785	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	23.953	2.62
L5	32.0000-0.0000	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	22.721	2.47

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.0000-133.0000	0.0000	0.0000	0.0000	0.0000
L2	133.0000-98.4500	-0.3849	0.2222	-0.6322	0.3650
L3	98.4500-64.8000	-0.4567	0.2637	-0.7532	0.4349
L4	64.8000-32.0000	-0.4653	0.2686	-0.7702	0.4447
L5	32.0000-0.0000	-0.4715	0.2722	-0.7730	0.4463

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8155	5.6334	0.11
						1/2" Ice	7.3373	6.4717	0.17
						1" Ice	7.8532	7.2478	0.23
						2" Ice	8.9160	8.8537	0.38
						4" Ice	11.1650	12.2804	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8155	5.6334	0.11
						1/2" Ice	7.3373	6.4717	0.17
						1" Ice	7.8532	7.2478	0.23
						2" Ice	8.9160	8.8537	0.38
						4" Ice	11.1650	12.2804	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	6.8155	5.6334	0.11
						1/2" Ice	7.3373	6.4717	0.17
						1" Ice	7.8532	7.2478	0.23
						2" Ice	8.9160	8.8537	0.38
						4" Ice	11.1650	12.2804	0.81
KRY 112 144/1	A	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
KRY 112 144/1	B	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
KRY 112 144/1	C	From Leg	4.0000 0.00 0.00	0.00	148.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
Sector Mount [SM 408-3]	C	None		0.00	148.0000	No Ice	22.4500	22.4500	1.02
						1/2" Ice	33.5000	33.5000	1.47
						1" Ice	44.5500	44.5500	1.93
						2" Ice	66.6500	66.6500	2.84
						4" Ice	110.8500	110.8500	4.66
***									
(2) APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 -3.00	0.00	140.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
(2) APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 -3.00	0.00	140.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
(2) APXVSPP18-C-A20 w/	C	From Leg	4.0000	0.00	140.0000	No Ice	8.4975	6.9458	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	9.1490	8.1266	0.15
			-3.00			1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.00	140.0000	No Ice	7.1342	4.9591	0.08
			0.00			1/2" Ice	7.6618	5.7544	0.13
			-3.00			1" Ice	8.1830	6.4723	0.19
						2" Ice	9.2563	8.0099	0.34
						4" Ice	11.5262	11.4120	0.75
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.00	140.0000	No Ice	7.1342	4.9591	0.08
			0.00			1/2" Ice	7.6618	5.7544	0.13
			-3.00			1" Ice	8.1830	6.4723	0.19
						2" Ice	9.2563	8.0099	0.34
						4" Ice	11.5262	11.4120	0.75
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.00	140.0000	No Ice	7.1342	4.9591	0.08
			0.00			1/2" Ice	7.6618	5.7544	0.13
			-3.00			1" Ice	8.1830	6.4723	0.19
						2" Ice	9.2563	8.0099	0.34
						4" Ice	11.5262	11.4120	0.75
1900MHz RRH	A	From Leg	4.0000	0.00	140.0000	No Ice	2.9069	3.8014	0.04
			0.00			1/2" Ice	3.1446	4.0650	0.08
			0.00			1" Ice	3.3909	4.3372	0.11
						2" Ice	3.9094	4.9076	0.19
						4" Ice	5.0502	6.1520	0.41
1900MHz RRH	B	From Leg	4.0000	0.00	140.0000	No Ice	2.9069	3.8014	0.04
			0.00			1/2" Ice	3.1446	4.0650	0.08
			0.00			1" Ice	3.3909	4.3372	0.11
						2" Ice	3.9094	4.9076	0.19
						4" Ice	5.0502	6.1520	0.41
1900MHz RRH	C	From Leg	4.0000	0.00	140.0000	No Ice	2.9069	3.8014	0.04
			0.00			1/2" Ice	3.1446	4.0650	0.08
			0.00			1" Ice	3.3909	4.3372	0.11
						2" Ice	3.9094	4.9076	0.19
						4" Ice	5.0502	6.1520	0.41
800MHZ RRH	A	From Leg	4.0000	0.00	140.0000	No Ice	2.4899	2.0685	0.05
			0.00			1/2" Ice	2.7061	2.2705	0.07
			0.00			1" Ice	2.9310	2.4812	0.10
						2" Ice	3.4068	2.9284	0.16
						4" Ice	4.4620	3.9265	0.32
800MHZ RRH	B	From Leg	4.0000	0.00	140.0000	No Ice	2.4899	2.0685	0.05
			0.00			1/2" Ice	2.7061	2.2705	0.07
			0.00			1" Ice	2.9310	2.4812	0.10
						2" Ice	3.4068	2.9284	0.16
						4" Ice	4.4620	3.9265	0.32
800MHZ RRH	C	From Leg	4.0000	0.00	140.0000	No Ice	2.4899	2.0685	0.05
			0.00			1/2" Ice	2.7061	2.2705	0.07
			0.00			1" Ice	2.9310	2.4812	0.10
						2" Ice	3.4068	2.9284	0.16
						4" Ice	4.4620	3.9265	0.32
TD-RRH8x20-25	A	From Leg	4.0000	0.00	140.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			-3.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
TD-RRH8x20-25	B	From Leg	4.0000	0.00	140.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			-3.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
TD-RRH8x20-25	C	From Leg	4.0000	0.00	140.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			-3.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
Platform Mount [LP 303-1]	C	None		0.00	140.0000	No Ice	14.6600	14.6600	1.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1/2" Ice	18.8700	18.8700	1.48
						1" Ice	23.0800	23.0800	1.71
						2" Ice	31.5000	31.5000	2.18
						4" Ice	48.3400	48.3400	3.10
***									
(2) APL866513-42T0 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	4.5308	4.9208	0.03
						1/2" Ice	4.9675	5.5962	0.08
						1" Ice	5.4135	6.2837	0.13
						2" Ice	6.3370	7.7123	0.25
						4" Ice	8.3197	10.8330	0.60
(2) APL866513-42T0 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	4.5308	4.9208	0.03
						1/2" Ice	4.9675	5.5962	0.08
						1" Ice	5.4135	6.2837	0.13
						2" Ice	6.3370	7.7123	0.25
						4" Ice	8.3197	10.8330	0.60
(2) APL866513-42T0 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	4.5308	4.9208	0.03
						1/2" Ice	4.9675	5.5962	0.08
						1" Ice	5.4135	6.2837	0.13
						2" Ice	6.3370	7.7123	0.25
						4" Ice	8.3197	10.8330	0.60
(2) BXA-171063/8CF w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	3.1574	3.3303	0.03
						1/2" Ice	3.5312	3.9423	0.06
						1" Ice	3.9415	4.5633	0.10
						2" Ice	4.8273	5.8553	0.19
						4" Ice	6.7342	8.8407	0.48
(2) SLCP 2x6014 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	7.4514	6.9545	0.04
						1/2" Ice	7.9606	7.7563	0.10
						1" Ice	8.4698	8.5195	0.18
						2" Ice	9.5191	10.0997	0.34
						4" Ice	11.7421	13.4750	0.80
BXA-171063-12BF w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	4.9710	5.2283	0.04
						1/2" Ice	5.5211	6.3892	0.09
						1" Ice	6.0361	7.2610	0.14
						2" Ice	7.0911	9.0462	0.27
						4" Ice	9.3593	12.8165	0.67
(2) FD9R6004/2C-3L	A	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	0.3665	0.0846	0.00
						1/2" Ice	0.4506	0.1362	0.01
						1" Ice	0.5433	0.1965	0.01
						2" Ice	0.7546	0.3430	0.02
						4" Ice	1.2808	0.7396	0.06
(2) FD9R6004/2C-3L	B	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	0.3665	0.0846	0.00
						1/2" Ice	0.4506	0.1362	0.01
						1" Ice	0.5433	0.1965	0.01
						2" Ice	0.7546	0.3430	0.02
						4" Ice	1.2808	0.7396	0.06
(2) FD9R6004/2C-3L	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	0.3665	0.0846	0.00
						1/2" Ice	0.4506	0.1362	0.01
						1" Ice	0.5433	0.1965	0.01
						2" Ice	0.7546	0.3430	0.02
						4" Ice	1.2808	0.7396	0.06
742 213 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	5.3729	4.6203	0.05
						1/2" Ice	5.9502	6.0004	0.09
						1" Ice	6.5014	6.9816	0.15
						2" Ice	7.6106	8.8524	0.28
						4" Ice	9.9329	12.7940	0.68
742 213 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	5.3729	4.6203	0.05
						1/2" Ice	5.9502	6.0004	0.09
						1" Ice	6.5014	6.9816	0.15
						2" Ice	7.6106	8.8524	0.28
						4" Ice	9.9329	12.7940	0.68
742 213 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice	5.3729	4.6203	0.05
						1/2" Ice	5.9502	6.0004	0.09
						1" Ice	6.5014	6.9816	0.15
						2" Ice	7.6106	8.8524	0.28
						4" Ice	9.9329	12.7940	0.68

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-70063/4CF w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.3988 5.8435 6.2986 7.2405 9.2612	3.6158 4.2169 4.8343 6.1609 9.1826	0.03 0.07 0.12 0.23 0.57
RRH2x40-AWS	A	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5217 2.7530 2.9930 3.4990 4.6146	1.5894 1.7953 2.0098 2.4648 3.4785	0.04 0.06 0.08 0.13 0.28
RRH2x40-AWS	B	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5217 2.7530 2.9930 3.4990 4.6146	1.5894 1.7953 2.0098 2.4648 3.4785	0.04 0.06 0.08 0.13 0.28
RRH2x40-AWS	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5217 2.7530 2.9930 3.4990 4.6146	1.5894 1.7953 2.0098 2.4648 3.4785	0.04 0.06 0.08 0.13 0.28
DB-B1-6C-8AB-0Z	C	From Leg	4.0000 0.00 0.00	0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.6000 5.9154 6.2395 6.9136 8.3654	2.3333 2.5580 2.7914 3.2840 4.3728	0.04 0.08 0.12 0.21 0.45
Platform Mount [LP 304-1]	C	None		0.00	127.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	17.4600 22.4400 27.4200 37.3800 57.3000	17.4600 22.4400 27.4200 37.3800 57.3000	1.35 1.62 1.90 2.45 3.55
***									
7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6375 9.2903 9.9098 11.1763 13.8289	6.3625 7.5378 8.4270 10.2390 14.0988	0.08 0.14 0.22 0.39 0.89
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6375 9.2903 9.9098 11.1763 13.8289	6.3625 7.5378 8.4270 10.2390 14.0988	0.08 0.14 0.22 0.39 0.89
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6375 9.2903 9.9098 11.1763 13.8289	6.3625 7.5378 8.4270 10.2390 14.0988	0.08 0.14 0.22 0.39 0.89
(2) LGP21401	A	From Leg	4.0000 0.00 0.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2880 1.4453 1.6112 1.9690	0.2326 0.3134 0.4028 0.6076	0.01 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	2.7882	1.1210	0.14
(2) LGP21401	B	From Leg	4.0000	0.00	110.0000	No Ice	1.2880	0.2326	0.01
			0.00			1/2" Ice	1.4453	0.3134	0.02
			0.00			1" Ice	1.6112	0.4028	0.03
						2" Ice	1.9690	0.6076	0.05
						4" Ice	2.7882	1.1210	0.14
(2) LGP21401	C	From Leg	4.0000	0.00	110.0000	No Ice	1.2880	0.2326	0.01
			0.00			1/2" Ice	1.4453	0.3134	0.02
			0.00			1" Ice	1.6112	0.4028	0.03
						2" Ice	1.9690	0.6076	0.05
						4" Ice	2.7882	1.1210	0.14
(2) RRUS-11	A	From Leg	4.0000	0.00	110.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			0.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
(2) RRUS-11	B	From Leg	4.0000	0.00	110.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			0.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
(2) RRUS-11	C	From Leg	4.0000	0.00	110.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			0.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
DC6-48-60-18-8F	A	From Leg	4.0000	0.00	110.0000	No Ice	2.5667	2.5667	0.02
			0.00			1/2" Ice	2.7978	2.7978	0.04
			0.00			1" Ice	3.0377	3.0377	0.07
						2" Ice	3.5432	3.5432	0.13
						4" Ice	4.6580	4.6580	0.30
Platform Mount [LP 303-1]	C	None		0.00	110.0000	No Ice	14.6600	14.6600	1.25
						1/2" Ice	18.8700	18.8700	1.48
						1" Ice	23.0800	23.0800	1.71
						2" Ice	31.5000	31.5000	2.18
						4" Ice	48.3400	48.3400	3.10

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 150.0000-133.0000	141.2530	1.515	28.022	33.880	A	0.000	33.880	33.880	100.00	0.000	0.000
					B	0.000	33.880		100.00	0.000	0.000
					C	0.000	33.880		100.00	0.000	0.000
L2 133.0000-98.4500	115.0815	1.429	26.402	85.755	A	0.000	85.755	85.755	100.00	0.000	0.000
					B	0.000	85.755		100.00	0.000	0.000
					C	0.000	85.755		100.00	0.000	11.306
L3 98.4500-64.8000	81.2529	1.294	23.880	105.416	A	0.000	105.416	105.416	100.00	0.000	0.000
					B	0.000	105.416		100.00	0.000	0.000
					C	0.000	105.416		100.00	0.000	13.325
L4 64.8000-32.0000	48.3113	1.115	20.514	123.078	A	0.000	123.078	123.078	100.00	0.000	0.000
					B	0.000	123.078		100.00	0.000	0.000
					C	0.000	123.078		100.00	0.000	12.989
L5 32.0000-0.0000	15.6006	1	18.496	139.239	A	0.000	139.239	139.239	100.00	0.000	0.000
					B	0.000	139.239		100.00	0.000	0.000
					C	0.000	139.239		100.00	0.000	12.672

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.0000-133.0000	141.2530	1.515	5.483	0.8930	36.410	A	0.000	36.410	36.410	100.00	0.000	0.000
						B	0.000	36.410		100.00	0.000	0.000
						C	0.000	36.410		100.00	0.000	0.000
L2 133.0000-98.4500	115.0815	1.429	5.166	0.8713	90.897	A	0.000	90.897	90.897	100.00	0.000	0.000
						B	0.000	90.897		100.00	0.000	0.000
						C	0.000	90.897		100.00	0.000	21.504
L3 98.4500-64.8000	81.2529	1.294	4.673	0.8356	110.303	A	0.000	110.303	110.303	100.00	0.000	0.000
						B	0.000	110.303		100.00	0.000	0.000
						C	0.000	110.303		100.00	0.000	25.053
L4 64.8000-32.0000	48.3113	1.115	4.014	0.7851	127.646	A	0.000	127.646	127.646	100.00	0.000	0.000
						B	0.000	127.646		100.00	0.000	0.000
						C	0.000	127.646		100.00	0.000	23.953
L5 32.0000-0.0000	15.6006	1	3.619	0.7500	143.426	A	0.000	143.426	143.426	100.00	0.000	0.000
						B	0.000	143.426		100.00	0.000	0.000
						C	0.000	143.426		100.00	0.000	22.721

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.0000-133.0000	141.2530	1.515	9.696	33.880	A	0.000	33.880	33.880	100.00	0.000	0.000
					B	0.000	33.880		100.00	0.000	0.000
					C	0.000	33.880		100.00	0.000	0.000
L2 133.0000-98.4500	115.0815	1.429	9.135	85.755	A	0.000	85.755	85.755	100.00	0.000	0.000
					B	0.000	85.755		100.00	0.000	0.000
					C	0.000	85.755		100.00	0.000	11.306
L3 98.4500-64.8000	81.2529	1.294	8.263	105.416	A	0.000	105.416	105.416	100.00	0.000	0.000
					B	0.000	105.416		100.00	0.000	0.000
					C	0.000	105.416		100.00	0.000	13.325
L4 64.8000-32.0000	48.3113	1.115	7.098	123.078	A	0.000	123.078	123.078	100.00	0.000	0.000
					B	0.000	123.078		100.00	0.000	0.000
					C	0.000	123.078		100.00	0.000	12.989
L5 32.0000-0.0000	15.6006	1	6.400	139.239	A	0.000	139.239	139.239	100.00	0.000	0.000
					B	0.000	139.239		100.00	0.000	0.000
					C	0.000	139.239		100.00	0.000	12.672

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
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice

Comb. No.	Description
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
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	150 - 133	Pole	Max Tension	5	0.00	0.00	0.00
			Max. Compression	14	-9.17	0.02	-0.01
			Max. Mx	11	-4.66	53.38	-0.02
			Max. My	8	-4.66	0.01	-53.36
			Max. Vy	11	-9.11	53.38	-0.02
			Max. Vx	8	9.11	0.01	-53.36
			Max. Torque	12			0.00
L2	133 - 98.45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23.52	1.71	-1.41
			Max. Mx	11	-12.84	557.44	-2.18
			Max. My	8	-12.86	2.43	-553.39
			Max. Vy	11	-20.43	557.44	-2.18
			Max. Vx	8	20.28	2.43	-553.39
			Max. Torque	4			-1.47
L3	98.45 - 64.8	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.82	4.06	-2.78
			Max. Mx	11	-19.67	1280.74	-5.06
			Max. My	8	-19.68	5.49	-1271.38
			Max. Vy	11	-23.64	1280.74	-5.06
			Max. Vx	8	23.48	5.49	-1271.38
			Max. Torque	4			-0.95
L4	64.8 - 32	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-43.39	6.67	-4.29
			Max. Mx	11	-27.80	2086.17	-7.91
			Max. My	8	-27.81	8.57	-2071.60
			Max. Vy	11	-26.58	2086.17	-7.91
			Max. Vx	8	26.43	8.57	-2071.60
			Max. Torque	11			0.97
L5	32 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-57.22	9.91	-6.16
			Max. Mx	11	-38.78	3143.18	-11.24
			Max. My	8	-38.78	12.23	-3122.56
			Max. Vy	11	-29.74	3143.18	-11.24
			Max. Vx	8	29.59	12.23	-3122.56
			Max. Torque	11			1.05

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	57.22	-0.00	0.00
	Max. H_x	11	38.79	29.72	-0.08
	Max. H_z	2	38.79	-0.08	29.57
	Max. M_x	2	3119.89	-0.08	29.57
	Max. M_z	5	3138.36	-29.72	0.08
	Max. Torsion	11	1.05	29.72	-0.08
	Min. Vert	5	38.79	-29.72	0.08
	Min. H_x	5	38.79	-29.72	0.08
	Min. H_z	8	38.79	0.08	-29.57
	Min. M_x	8	-3122.56	0.08	-29.57
	Min. M_z	11	-3143.18	29.72	-0.08
	Min. Torsion	5	-1.05	-29.72	0.08

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	38.79	-0.00	0.00	1.30	2.26	0.00
Dead+Wind 0 deg - No Ice	38.79	0.08	-29.57	-3119.89	-7.57	0.09
Dead+Wind 30 deg - No Ice	38.79	14.92	-25.65	-2706.90	-1576.73	0.60
Dead+Wind 60 deg - No Ice	38.79	25.77	-14.85	-1567.97	-2722.77	0.95
Dead+Wind 90 deg - No Ice	38.79	29.72	-0.08	-8.57	-3138.36	1.05
Dead+Wind 120 deg - No Ice	38.79	25.70	14.72	1553.51	-2712.90	0.86
Dead+Wind 150 deg - No Ice	38.79	14.79	25.57	2699.70	-1559.60	0.45
Dead+Wind 180 deg - No Ice	38.79	-0.08	29.57	3122.56	12.23	-0.08
Dead+Wind 210 deg - No Ice	38.79	-14.92	25.65	2709.56	1581.39	-0.60
Dead+Wind 240 deg - No Ice	38.79	-25.77	14.85	1570.64	2727.42	-0.95
Dead+Wind 270 deg - No Ice	38.79	-29.72	0.08	11.24	3143.18	-1.05
Dead+Wind 300 deg - No Ice	38.79	-25.70	-14.72	-1550.83	2717.55	-0.87
Dead+Wind 330 deg - No Ice	38.79	-14.79	-25.57	-2697.02	1564.25	-0.45
Dead+Ice	57.22	0.00	-0.00	6.16	9.91	0.00
Dead+Wind 0 deg+Ice	57.22	0.01	-7.10	-774.68	8.07	-0.09
Dead+Wind 30 deg+Ice	57.22	3.58	-6.16	-671.04	-383.96	0.06
Dead+Wind 60 deg+Ice	57.22	6.18	-3.56	-385.92	-670.42	0.19
Dead+Wind 90 deg+Ice	57.22	7.13	-0.01	4.28	-774.55	0.27
Dead+Wind 120 deg+Ice	57.22	6.17	3.54	395.00	-668.46	0.28
Dead+Wind 150 deg+Ice	57.22	3.55	6.14	681.55	-380.56	0.21
Dead+Wind 180 deg+Ice	57.22	-0.01	7.10	787.15	12.00	0.09
Dead+Wind 210 deg+Ice	57.22	-3.58	6.16	683.51	404.02	-0.06
Dead+Wind 240 deg+Ice	57.22	-6.18	3.56	398.40	690.48	-0.19
Dead+Wind 270 deg+Ice	57.22	-7.13	0.01	8.20	794.61	-0.27
Dead+Wind 300 deg+Ice	57.22	-6.17	-3.54	-382.52	688.52	-0.28
Dead+Wind 330 deg+Ice	57.22	-3.55	-6.14	-669.07	400.62	-0.21
Dead+Wind 0 deg - Service	38.79	0.03	-10.23	-1079.54	-1.10	0.03
Dead+Wind 30 deg - Service	38.79	5.16	-8.87	-936.50	-544.49	0.21
Dead+Wind 60 deg - Service	38.79	8.92	-5.14	-542.10	-941.36	0.33
Dead+Wind 90 deg - Service	38.79	10.28	-0.03	-2.09	-1085.31	0.36
Dead+Wind 120 deg - Service	38.79	8.89	5.09	538.85	-937.94	0.30
Dead+Wind 150 deg - Service	38.79	5.12	8.85	935.76	-538.55	0.16
Dead+Wind 180 deg - Service	38.79	-0.03	10.23	1082.23	5.76	-0.03
Dead+Wind 210 deg - Service	38.79	-5.16	8.87	939.18	549.15	-0.21
Dead+Wind 240 deg - Service	38.79	-8.92	5.14	544.78	946.02	-0.33
Dead+Wind 270 deg - Service	38.79	-10.28	0.03	4.77	1089.96	-0.37
Dead+Wind 300 deg - Service	38.79	-8.89	-5.09	-536.16	942.59	-0.30
Dead+Wind 330 deg - Service	38.79	-5.12	-8.85	-933.07	543.21	-0.16

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-38.79	0.00	0.00	38.79	0.00	0.000%
2	0.08	-38.79	-29.57	-0.08	38.79	29.57	0.005%
3	14.92	-38.79	-25.65	-14.92	38.79	25.65	0.000%
4	25.77	-38.79	-14.85	-25.77	38.79	14.85	0.000%
5	29.72	-38.79	-0.08	-29.72	38.79	0.08	0.005%
6	25.70	-38.79	14.72	-25.70	38.79	-14.72	0.000%
7	14.79	-38.79	25.57	-14.79	38.79	-25.57	0.000%
8	-0.08	-38.79	29.57	0.08	38.79	-29.57	0.005%
9	-14.92	-38.79	25.65	14.92	38.79	-25.65	0.000%
10	-25.77	-38.79	14.85	25.77	38.79	-14.85	0.000%
11	-29.72	-38.79	0.08	29.72	38.79	-0.08	0.002%
12	-25.70	-38.79	-14.72	25.70	38.79	14.72	0.000%
13	-14.79	-38.79	-25.57	14.79	38.79	25.57	0.000%
14	0.00	-57.22	0.00	-0.00	57.22	0.00	0.000%
15	0.01	-57.22	-7.10	-0.01	57.22	7.10	0.002%
16	3.58	-57.22	-6.16	-3.58	57.22	6.16	0.002%
17	6.18	-57.22	-3.56	-6.18	57.22	3.56	0.002%
18	7.13	-57.22	-0.01	-7.13	57.22	0.01	0.002%
19	6.17	-57.22	3.54	-6.17	57.22	-3.54	0.002%
20	3.55	-57.22	6.15	-3.55	57.22	-6.14	0.002%
21	-0.01	-57.22	7.10	0.01	57.22	-7.10	0.002%
22	-3.58	-57.22	6.16	3.58	57.22	-6.16	0.002%
23	-6.18	-57.22	3.56	6.18	57.22	-3.56	0.002%
24	-7.13	-57.22	0.01	7.13	57.22	-0.01	0.002%
25	-6.17	-57.22	-3.54	6.17	57.22	3.54	0.002%
26	-3.55	-57.22	-6.15	3.55	57.22	6.14	0.002%
27	0.03	-38.79	-10.23	-0.03	38.79	10.23	0.002%
28	5.16	-38.79	-8.87	-5.16	38.79	8.87	0.001%
29	8.92	-38.79	-5.14	-8.92	38.79	5.14	0.001%
30	10.28	-38.79	-0.03	-10.28	38.79	0.03	0.002%
31	8.89	-38.79	5.09	-8.89	38.79	-5.09	0.001%
32	5.12	-38.79	8.85	-5.12	38.79	-8.85	0.001%
33	-0.03	-38.79	10.23	0.03	38.79	-10.23	0.002%
34	-5.16	-38.79	8.87	5.16	38.79	-8.87	0.001%
35	-8.92	-38.79	5.14	8.92	38.79	-5.14	0.001%
36	-10.28	-38.79	0.03	10.28	38.79	-0.03	0.002%
37	-8.89	-38.79	-5.09	8.89	38.79	5.09	0.001%
38	-5.12	-38.79	-8.85	5.12	38.79	8.85	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	7	0.00006031	0.00009986
3	Yes	11	0.00000001	0.00005832
4	Yes	11	0.00000001	0.00005619
5	Yes	7	0.00006027	0.00012972
6	Yes	11	0.00000001	0.00005739
7	Yes	11	0.00000001	0.00005620
8	Yes	7	0.00006030	0.00007767
9	Yes	11	0.00000001	0.00005669
10	Yes	11	0.00000001	0.00005903
11	Yes	8	0.00000001	0.00006373
12	Yes	11	0.00000001	0.00005576
13	Yes	11	0.00000001	0.00005675
14	Yes	4	0.00000001	0.00000644
15	Yes	7	0.00012992	0.00002633
16	Yes	7	0.00012980	0.00008092
17	Yes	7	0.00012981	0.00007134
18	Yes	7	0.00012993	0.00002979
19	Yes	7	0.00012981	0.00008530
20	Yes	7	0.00012981	0.00007530

21	Yes	7	0.00012993	0.00002683
22	Yes	7	0.00012979	0.00008116
23	Yes	7	0.00012978	0.00009197
24	Yes	7	0.00012991	0.00003109
25	Yes	7	0.00012979	0.00007426
26	Yes	7	0.00012979	0.00008335
27	Yes	7	0.00000001	0.00003565
28	Yes	8	0.00000001	0.00006401
29	Yes	8	0.00000001	0.00005674
30	Yes	7	0.00000001	0.00004012
31	Yes	8	0.00000001	0.00006281
32	Yes	8	0.00000001	0.00005877
33	Yes	7	0.00000001	0.00003521
34	Yes	8	0.00000001	0.00005840
35	Yes	8	0.00000001	0.00006641
36	Yes	7	0.00000001	0.00004173
37	Yes	8	0.00000001	0.00005726
38	Yes	8	0.00000001	0.00006060

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	150 - 133	27.56	35	1.51	0.00
L2	135.95 - 98.45	23.13	35	1.50	0.00
L3	102.3 - 64.8	13.34	35	1.22	0.00
L4	69.5 - 32	6.17	35	0.84	0.00
L5	37.5 - 0	1.82	35	0.44	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
148.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	35	26.93	1.51	0.00	48963
140.0000	(2) APXVSPP18-C-A20 w/ Mount Pipe	35	24.40	1.51	0.00	24480
127.0000	(2) APL866513-42T0 w/ Mount Pipe	35	20.36	1.45	0.00	10264
110.0000	7770.00 w/ Mount Pipe	35	15.41	1.31	0.00	5757

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	150 - 133	79.34	10	4.36	0.01
L2	135.95 - 98.45	66.58	10	4.31	0.01
L3	102.3 - 64.8	38.43	10	3.52	0.00
L4	69.5 - 32	17.79	10	2.41	0.00
L5	37.5 - 0	5.23	10	1.27	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	10	77.52	4.36	0.01	17195
140.0000	(2) APXVSPP18-C-A20 w/ Mount Pipe	10	70.24	4.34	0.01	8596
127.0000	(2) APL866513-42T0 w/ Mount Pipe	10	58.64	4.18	0.01	3603
110.0000	7770.00 w/ Mount Pipe	10	44.37	3.76	0.00	2018

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 $\frac{P}{P_a}$
L1	150 - 133 (1)	TP26x21.83x0.25	17.0000	0.0000	0.0	39.00	19.8584	-4.66	774.48	0.006
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	37.5000	0.0000	0.0	39.00	32.5302	-12.83	1268.68	0.010
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	37.5000	0.0000	0.0	39.00	47.8643	-19.67	1866.71	0.011
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	37.5000	0.0000	0.0	39.00	56.3401	-27.80	2197.26	0.013
L5	32 - 0 (5)	TP56.125x46.9597x0.375	37.5000	0.0000	0.0	38.37	66.3564	-38.78	2546.35	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 $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	150 - 133 (1)	TP26x21.83x0.25	53.39	5.23	39.00	0.134	0.00	0.00	39.00	0.000
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	558.26	25.49	39.00	0.654	0.00	0.00	39.00	0.000
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	1282.62	32.45	39.00	0.832	0.00	0.00	39.00	0.000
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	2089.09	38.10	39.00	0.977	0.00	0.00	39.00	0.000
L5	32 - 0 (5)	TP56.125x46.9597x0.375	3147.33	41.33	38.37	1.077	0.00	0.00	38.37	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 133 (1)	TP26x21.83x0.25	9.11	0.46	26.00	0.035	0.00	0.00	26.00	0.000
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	20.46	0.63	26.00	0.048	0.95	0.02	26.00	0.001
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	23.67	0.49	26.00	0.038	0.95	0.01	26.00	0.000
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	26.61	0.47	26.00	0.036	0.95	0.01	26.00	0.000
L5	32 - 0 (5)	TP56.125x46.9597x0.375	29.77	0.45	26.00	0.034	0.95	0.01	26.00	0.000

Pole Interaction Design Data

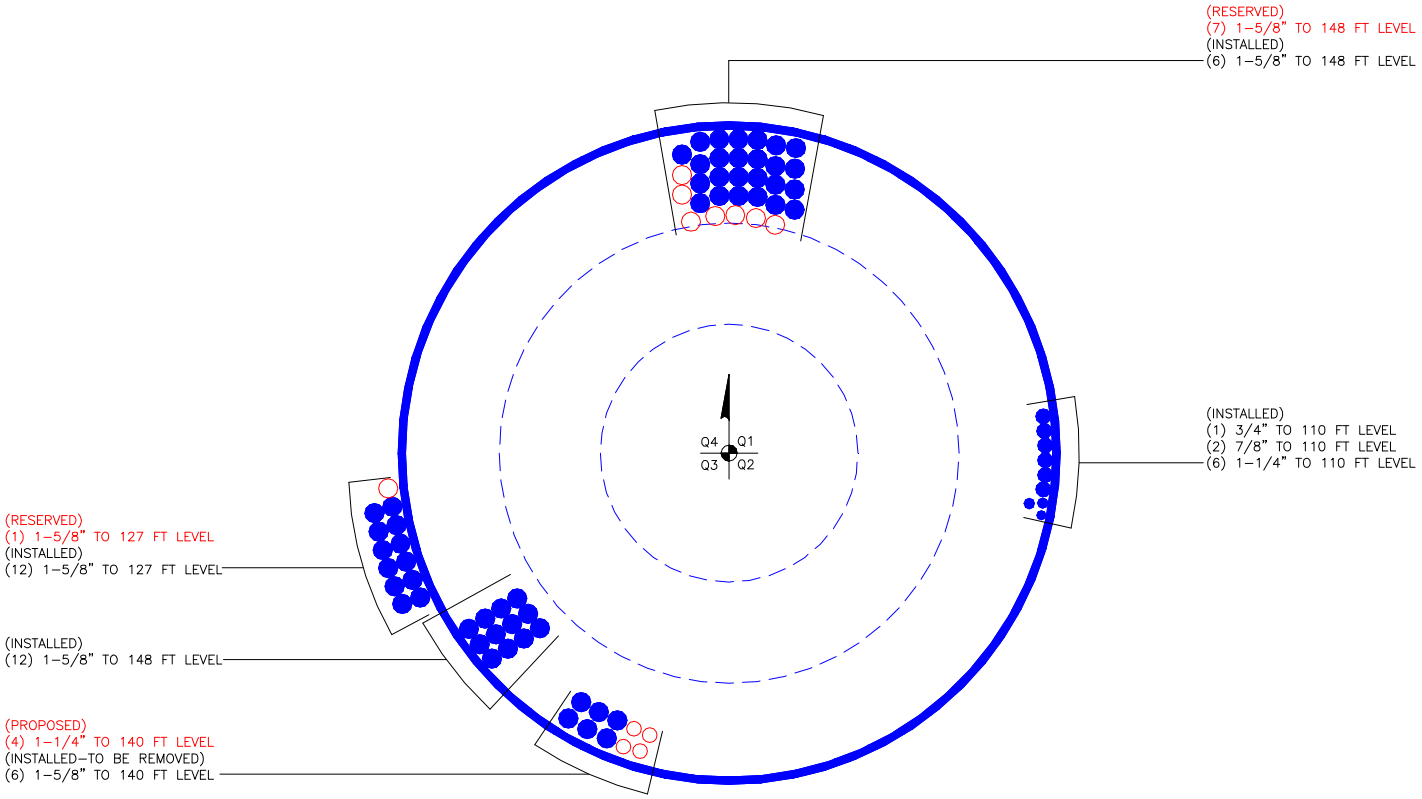
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 133 (1)	0.006	0.134	0.000	0.035	0.000	0.141 ✔	1.333	H1-3+VT ✔
L2	133 - 98.45 (2)	0.010	0.654	0.000	0.048	0.001	0.664 ✔	1.333	H1-3+VT ✔
L3	98.45 - 64.8 (3)	0.011	0.832	0.000	0.038	0.000	0.843 ✔	1.333	H1-3+VT ✔
L4	64.8 - 32 (4)	0.013	0.977	0.000	0.036	0.000	0.990 ✔	1.333	H1-3+VT ✔
L5	32 - 0 (5)	0.015	1.077	0.000	0.034	0.000	1.092 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 133	Pole	TP26x21.83x0.25	1	-4.66	1032.38	10.5	Pass
L2	133 - 98.45	Pole	TP34.0625x24.7764x0.3125	2	-12.83	1691.15	49.8	Pass
L3	98.45 - 64.8	Pole	TP41.75x32.4841x0.375	3	-19.67	2488.32	63.2	Pass
L4	64.8 - 32	Pole	TP49.0625x39.8387x0.375	4	-27.80	2928.95	74.3	Pass
L5	32 - 0	Pole	TP56.125x46.9597x0.375	5	-38.78	3394.28	82.0	Pass
							Summary	
						Pole (L5)	82.0	Pass
						RATING =	**82.0**	**Pass**

APPENDIX B

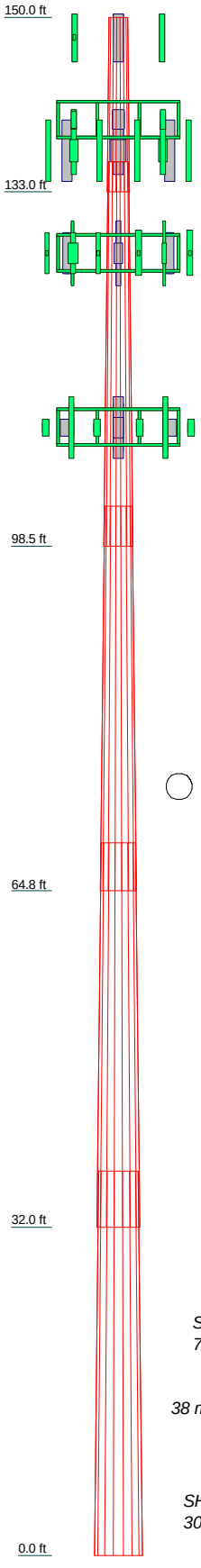
BASE LEVEL DRAWING

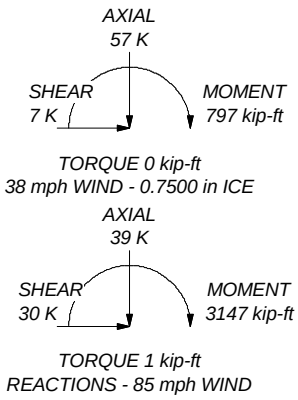


APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	17.0000	18	0.2500	2.9500	21.8300	26.0000		1.1
2	37.5000	18	0.3125	3.8500	24.7764	34.0625		3.7
3	37.5000	18	0.3750	4.7000	32.4841	41.7500	A572-65	5.6
4	37.5000	18	0.3750	5.5000	39.8387	49.0625		6.7
5	37.5000	18	0.3750		46.9597	56.1250		7.8
								24.8





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	148	(2) APL866513-42T0 w/ Mount Pipe	127
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	148	(2) APL866513-42T0 w/ Mount Pipe	127
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	148	(2) APL866513-42T0 w/ Mount Pipe	127
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	148	(2) BXA-171063/8CF w/ Mount Pipe	127
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	148	(2) SLCP 2x6014 w/ Mount Pipe	127
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	148	BXA-171063-12BF w/ Mount Pipe	127
KRY 112 144/1	148	(2) FD9R6004/2C-3L	127
KRY 112 144/1	148	(2) FD9R6004/2C-3L	127
KRY 112 144/1	148	(2) FD9R6004/2C-3L	127
Sector Mount [SM 408-3]	148	742 213 w/ Mount Pipe	127
(2) APXVSPP18-C-A20 w/ Mount Pipe	140	742 213 w/ Mount Pipe	127
(2) APXVSPP18-C-A20 w/ Mount Pipe	140	742 213 w/ Mount Pipe	127
(2) APXVSPP18-C-A20 w/ Mount Pipe	140	BXA-70063/4CF w/ Mount Pipe	127
APXVTM14-C-120 w/ Mount Pipe	140	RRH2x40-AWS	127
APXVTM14-C-120 w/ Mount Pipe	140	RRH2x40-AWS	127
APXVTM14-C-120 w/ Mount Pipe	140	RRH2x40-AWS	127
1900MHz RRH	140	DB-B1-6C-8AB-0Z	127
1900MHz RRH	140	Platform Mount [LP 304-1]	127
1900MHz RRH	140	7770.00 w/ Mount Pipe	110
800MHZ RRH	140	7770.00 w/ Mount Pipe	110
800MHZ RRH	140	7770.00 w/ Mount Pipe	110
800MHZ RRH	140	P65-16-XLH-RR w/ Mount Pipe	110
TD-RRH8x20-25	140	P65-16-XLH-RR w/ Mount Pipe	110
TD-RRH8x20-25	140	P65-16-XLH-RR w/ Mount Pipe	110
TD-RRH8x20-25	140	(2) LGP21401	110
Platform Mount [LP 303-1]	140	(2) LGP21401	110
		(2) LGP21401	110
		(2) RRUS-11	110
		(2) RRUS-11	110
		(2) RRUS-11	110
		DC6-48-60-18-8F	110
		Platform Mount [LP 303-1]	110

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: 82%

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job:	***150' Monopole / Newtown***		
Project:	***37513-1642.002 / BU 8256222***		
Client: Crown Castle	Drawn by: Seth Tschanen	App'd:	
Code: TIA/EIA-222-F	Date: 06/20/14	Scale: NTS	
Path: G:\TOWER\375_Crown_Castle\2013\37513-1642 BU 826222\WO 781681 BU 826222 - 002 SA\37513-1642-002.7805.eri		Dwg No. E-1	

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

TIA Rev F

Site Data

BU#:	*826222*
Site Name:	*Newtown/RT-25*
App #:	
Pole Manufacturer:	*Pirod*

Reactions		
Moment:	3147	ft-kips
Axial:	39	kips
Shear:	30	kips

Anchor Rod Data		
Qty:	39	
Diam:	1.25	in
Rod Material:	Other	
Strength (Fu):	150	ksi
Yield (Fy):	105	ksi
Bolt Circle:	61	in

Plate Data		
Diam:	65	in
Thick:	1.5	in
Grade:	50	ksi
Single-Rod B-eff:	4.57	in

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:	0.5	in
Width:	4.5	in
Height:	8	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	56.125	in
Thick:	0.375	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	

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

Anchor Rod Results

		Stiffened
Maximum Rod Tension:	62.5 Kips	Service, ASD
Allowable Tension:	81.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	77.2% **Pass**	

Base Plate Results Shear Check Only

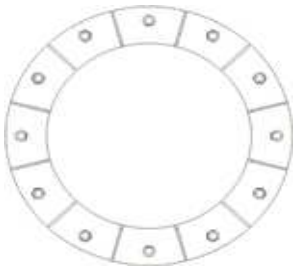
		Stiffened
Base Plate Stress:	Rohn/Pirod, OK	Service, ASD
Allowable Plate Stress:	26.7 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	Rohn/Pirod, OK	Y.L. Length: N/A, Roark

Stiffener Results N/A for Rohn / Pirod

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



* 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

Foundation Loads:

Pole weight or tower leg compression =	**39**	(kips)
Horizontal load at top of pier =	**30**	(kips)
Overturning moment at top of pier=	**2570**	(ft-kips)

Design criteria:

Safety factor against overturning =	**1.5**	

Soil Properties:

Soil density =	**125**	(pcf)
Allowable soil bearing =	**15**	(ksf)
Depth to water table =	**99**	(ft)

Dimensions:

Pier shape (round or square)	**R**	("R" or "S")
Pier width =	**7**	(ft)
Pier height above grade =	**0.5**	(ft)
depth to bottom of footing =	**6**	(ft)
Footing thickness =	**2**	(ft)
Footing width =	**21**	(ft)
Footing length =	**21**	(ft)

Concrete:

Concrete strength =	**4**	(ksi)
Rebar strength =	**60**	(ksi)
ultimate load factor =	**1.3**	

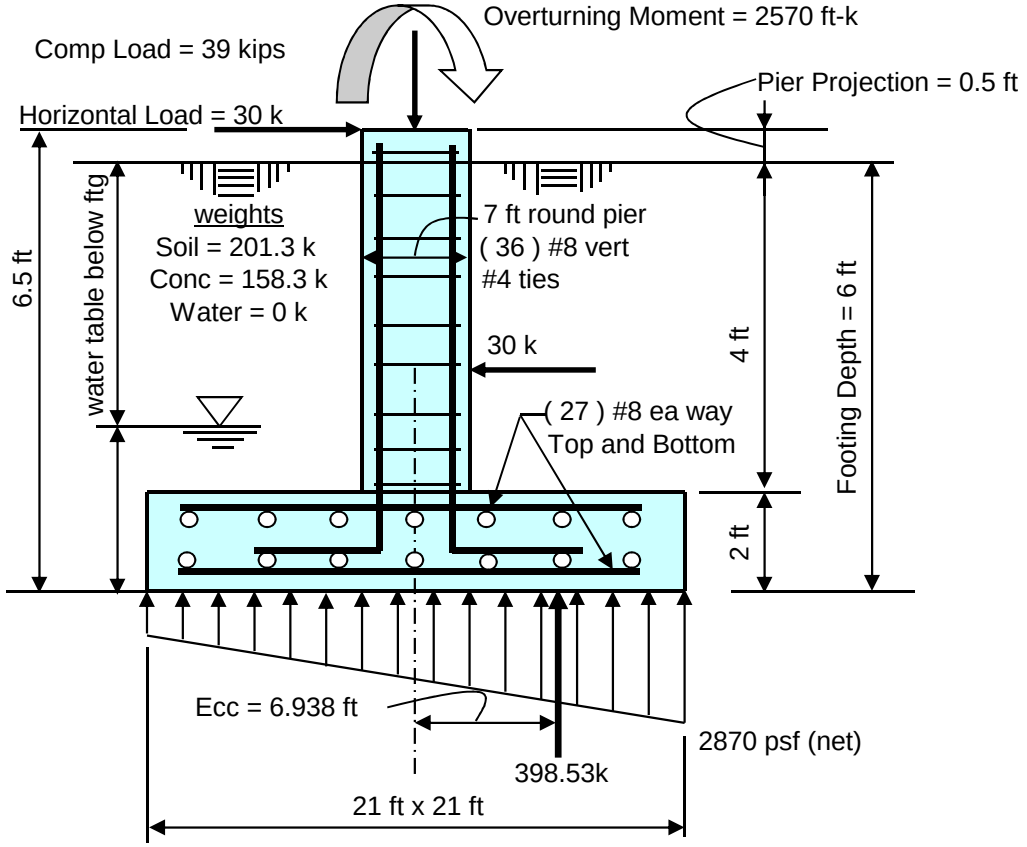
Reinforcing Steel:

	Pad	
minimum cover over rebar =	**3**	inches
size of pad rebar =	**#8**	bar
quantity of pad rebar =	**27**	(ea direction)

Reinforcing Steel:

	Pier	
size of vert rebar in pier=	**#8**	bar
vertical rebar quantity =	**36**	
size of pier ties =	**#4**	bar
minimum cover over rebar =	**3**	inches

Total volume of concrete = 39.1 cu yd



Summary of analysis results	
Maximum Net Soil Bearing = 2.87 ksf Allowable Net Soil Bearing = 15 ksf **Soil Bearing Stress Ratio = 0.19 Okay**	Ult Bending Shear Capacity = 126 psi Ult Bending Shear Stress = 70 psi **Bending Shear Stress Ratio = 0.55 Okay**
SEE "CHECK OF OVERTURNING CAPACITY" PAGE FOR OVERTURNING CALCUALATIONS & CAPACITY	Pad Bending Moment Capacity= 1800 ft-k Pad Bending Moment = 1322 ft-k **Bending Moment Stress Ratio = 0** **SEE "MICROPILE/ROCK ANCHOR DESIGNFOR MAT OR PAD PIER" PAGE**

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708

By: SJT Date: 6/20/2014
Project: 826222
Client: Crown
PROJ#: 37513-1642.002

Revision Date: 6/17/2013

Micropile/Rock Anchor Design for Mat or Pad Pier

TNX Reactions

M =	577	k-ft
A =	0	kips
S =	0	kips

Foundation Parameters

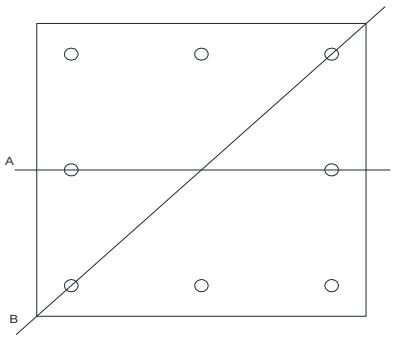
Pier Shape =	R	
Pier Width =	7	ft
Height Above Grade =	0.5	ft
Depth to Bottom =	6	ft
Pad Thickness =	2	ft
Pad Width =	21	ft
Pad Length =	21	ft

Soil Parameters

Unit Weight = 120 pcf

Micropile/Rock Anchor Parameters

Rock Anchor Lockoff =	0	kips
Steel Yield Cap. =	218.1	kips
Steel Ultimate Cap =	260.9	ksi
Total # =	4	



Wind Side (About A)

Bolt #	#	Area, in^2	Ybar, in
1	3	3.07	62.2254
2	1	3.07	39

$I_{boltsA} = \Sigma NA\bar{y}^2 =$ 40331 in^4

M = 6924 k-in

Soil and Foundation Compression = 87.87 kips

				Capacity,k
$f_{1A} = M*y_{bar1}/I_{boltsA}$ =	10.7 ksi	C_{1A} = 120.7 kips	T_{1A} = 0.0 kips	156.54
$f_{2A} = M*y_{bar2}/I_{boltsA}$ =	6.7 ksi	C_{2A} = 108.4 kips	T_{2A} = 0.0 kips	156.54

Wind Into Corner (About B)

Bolt #	#	Area, in^2	Ybar, in
1	1	3.07	88.0625
2	1	3.07	72.125
3	0		
4	0		

$I_{boltsB} = \Sigma NA\bar{y}^2 =$ 39778 in^4

M = 6924 k-in

Soil and Foundation Compression = 87.87 kips

				Capacity,k
$f_{1B} = M*y_{bar1}/I_{boltsB}$ =	15.3 ksi	C_{1B} = 134.9 kips	T_{1B} = 0.0 kips	156.54
$f_{2B} = M*y_{bar2}/I_{boltsB}$ =	12.6 ksi	C_{2B} = 126.4 kips	T_{2B} = 0.0 kips	156.54
$f_{3B} = M*y_{bar3}/I_{boltsB}$ =	0.0 ksi	C_{3B} = 0.0 kips	T_{3B} = 0.0 kips	156.54
$f_{4B} = M*y_{bar4}/I_{boltsB}$ =	0.0 ksi	C_{3B} = 0.0 kips	T_{3B} = 0.0 kips	156.54

Steel Check

Revision = F

Actual Load

Max Tension/Compression Load = 134.9 kips

Capacity

Capacity = 0.6*Steel Ultimate Capacity = 156.5 kips

Stress Ratio = 86.2%

Bending Check (Wind into side)

Distance from center to end of pier = 42.0 in.

Bending Moment = ∑[# of Bolts * (ybar- 42.0 in.)*Tension] = 291.5 k-ft

Additional Pad Bending Moment from Pad & Pier Spreadsheet = 1336.0 k-ft

Use 1715.0 k-ft to analyze bending in pad

Bottom Clear Dist. = 4 in. b = 84.0 in.

f_c' = 4 ksi As = 21.33 in^2

fy = 60 ksi a = 4.48 in.

Number of Bars = 27 d = 19.5 in.

Bar # = 8

Bar Area = 0.790 in.^{2}

Bar Diameter = 1.000 in.

$$a = \frac{A_s * f_y}{0.85 * f'_c * b}$$

$$\phi M_n = 0.9 * A_s * f_y * \left(d - \frac{a}{2}\right)$$

øMn = 1969.7 k-ft (Overrided from SPColumn)

Capacity = 87.1%

Micropile Embedment Check

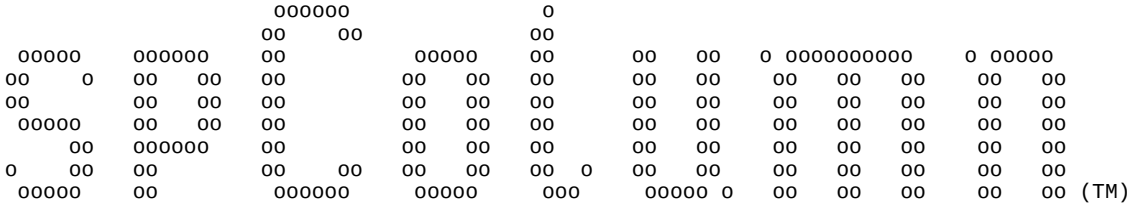
Hole Diameter = 10.5 in

Skin Friction = 30 psi

Actual Embed = 27 ft

Required Embedment = 22.7 ft

Ratio = 84.2%



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spColumn v4.80 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections

==========

General Information:
==========
File Name: g:\tower\375_crown_castle\2013\37513-1642 bu 826...\37513-1642.002 - pier steel check.col
Project:
Column: Engineer:
Code: ACI 318-05 Units: English

Run Option: Investigation Slenderness: Not considered
Run Axis: X-axis Column Type: Architectural

Material Properties:
==========
f'c = 4 ksi fy = 60 ksi
Ec = 3605 ksi Es = 29000 ksi
Ultimate strain = 0.003 in/in
Beta1 = 0.85

Section:
==========
Circular: Diameter = 84 in

Gross section area, Ag = 5541.77 in^2
Ix = 2.44392e+006 in^4 Iy = 2.44392e+006 in^4
rx = 21 in ry = 21 in
Xo = 0 in Yo = 0 in

Reinforcement:
==========
Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #4 ties with #10 bars, #4 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Circular
Pattern: All Sides Equal (Cover to transverse reinforcement)
Total steel area: As = 28.44 in^2 at rho = 0.51% (Note: rho < 1.0%)
Minimum clear spacing = 5.62 in

36 #8 Cover = 3 in

Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	0.00	4344.60	4360.09	1.004	14.82	80.00	0.01320	0.900

*** End of output ***

Check Overturning Capacity of Foundation System

PJF job no. **37513-1642.002**

Assumptions: 1) Micropile reinforcing has been installed
2) Wind into side of foundation is worst case scenario

Pole base moment =	**3147**	ft-k	
Pole base shear =	**30**	kips	
Pole axial load =	**39**	kips	
Total foundation thickness / height =	**6.5**	feet	
Distance from center of pole to edge of fdn =	**10.5**	feet	
Foundation weight =	**158.3**	kips	
Soil weight (abv fdn) =	**201.3**	kips	
Quantity of piles =	**2**		
Pile yield strength =	**218.1**	kips	
Pile distance to edge of fdn =	**14.75**	feet	(Average of two worst case pile locations)
Overturning resistance (pole/fdn/soil) =	**4185.3**	ft-k	
Overturning resistance (piles) =	**6434.0**	ft-k	
Total overturning resistance =	**10619.3**	ft-k	
Overturning moment at base of foundation =	**3342.0**	ft-k	
Required safety factor against overturning =	**1.5**		
% Capacity =	**47.2%**	**OK**	

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

Sprint Existing Facility

Site ID: CT54XC716

Newtown Georgia Pacific VS

201 South Main Street
Newtown, CT 06470

September 7, 2014

EBI Project Number: 62144516

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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September 7, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT54XC716 - Newtown Georgia Pacific VS

Site Total: 45.36% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at **201 South Main Street, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm2 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 ($\mu W/cm^2$). The general population exposure limit for the cellular band (850 MHz Band) is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz and 2500 MHz bands is 1000 $\mu W/cm^2$. 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 **201 South Main Street, 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) 2 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 **137 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	CT54XC716 - Newtown Georgia Pacific VS
Site Addresss	201 South Main Street, Newtown, CT, 06470
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	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.29%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	137	131	1/2 "	0.5	0	39.00	0.14%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.51%
														Sector total Power Density Value:		0.95%

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	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.29%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	137	131	1/2 "	0.5	0	39.00	0.14%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.51%
														Sector total Power Density Value:		0.95%

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	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.29%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	137	131	1/2 "	0.5	0	39.00	0.14%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	137	131	1/2 "	0.5	0	138.69	0.51%
														Sector total Power Density Value:		0.95%

Site Composite MPE %	
Carrier	MPE %
Sprint	2.84%
AT&T	14.64%
T-Mobile	0.16%
Verizon Wireless	27.72%
Total Site MPE %	**45.36%**

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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 **2.84% (0.95% from sector 1, 0.95% from sector 2 and 0.95% 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 **45.36%** 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.

Scott Heffernan
RF Engineering Director

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