EMPIRE telecom

September 21, 2016

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Street
New Britain, CT 06051

Regarding:	Notice of Exempt Modification – Swap of 3 Antennas and addition of 3 RRUS
Property Address:	38 Spring Hill Lane, Bethel, CT (the "Property")
Applicant:	AT&T Mobility ("AT&T") AT&T Site: CT2268

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 124 foot monopole tower ("tower") at the above-referenced address, latitude 41.3622, longitude -73.3966. AT&T's facility consists of nine (9) wireless telecommunications antennas at 122 feet. The tower is controlled and owned by Blue Sky Towers, LLC. Assessor's information is attached hereto.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas, and adding (3) RRUS. The centerline height of said antennas is and will remain at 122 feet.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72 (b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman of the Town of Bethel, the Building Official of the Town of Bethel, and the Town Planner of the Town of Bethel. A copy of this letter is also being sent to Blue Sky Towers, LLC, the owner of the structure that AT&T is located.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's antennas and associated lines will be installed at 122 foot level of the 124 foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis and modification drawings completed by Blue Sky Tower dated August 12, 2016).

For the foregoing reasons AT&T respectfully requests that the proposed swap of 3 antennas, and addition of (3) RRUS be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Nicole Caplan
Site Acquisition Specialist
Empire Telecom

CC: The Honorable Matt Knickerbocker, First Selectman, Town of Bethel
Steven Palmer, Director/Town Planner, Town of Bethel
Gary Boughton, Building Official, Town of Bethel
Blue Sky Tower, LLC, c/o Sean Gormley

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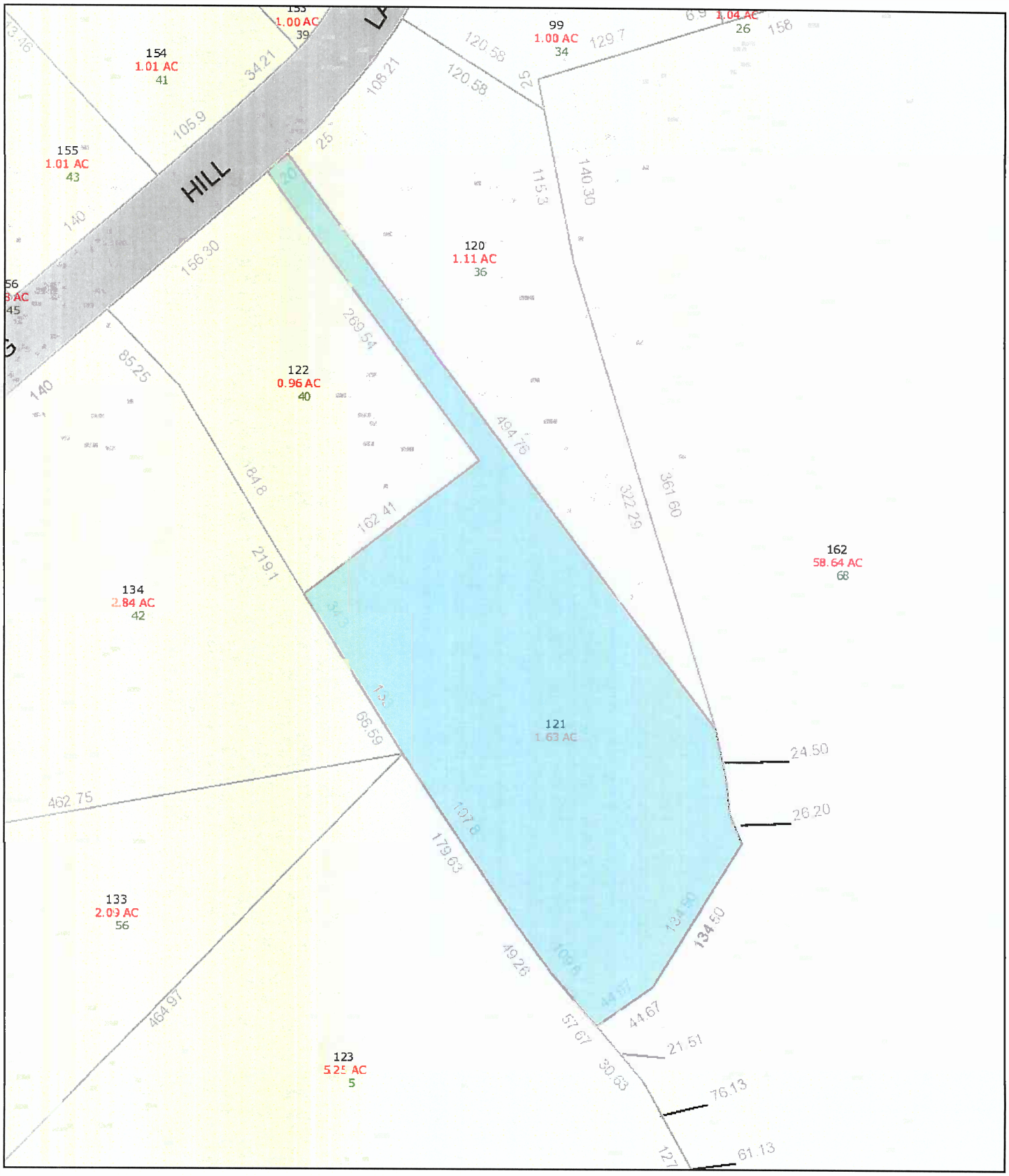


The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

9/14/2016 9:08:00 AM

1:1152
1"=96'

Bethel, CT : Commercial Property Record Card

[Back to Search Results]

[Start a New Search][Help with Printing]

Search For Properties

Account | Map Block Lot | Street # | Street Name | Search | Reset Search

Account	Card	Map-Block-Lot	Location	Zoning	State Class	Acres
R06064	1	32 47A 121	SPRING HILL LANE	R-40	504 - n/a	1.625

Living Units
0

Owner Information

Blue Sky Towers Llc
Po Box 191
Franklin MA 02038

Property Picture

Deed Information

Book/Page: 1051/496
Deed Date: 2014/10/03

Building Information

Building No: 0
Year Built: 0
No of Units: 0
Structure Type:
Grade:
Identical Units: 0
Net Leasable Area: 0

Valuation

Land: $151,380
Building: $113,930
Total: $265,310
Net Assessment: $185,720

Sales History

Book/Page	Date	Price	Type	Validity
1051/496	2014/10/03	$220,720	Land + Bldg	23
979/229	2009/10/02	$240,000	Land Only	03

Permit History

Date	Purpose	Price
2015/03/31	3 ANT TMOBILE	$0
2013/08/02	6 ANT HPCWIRELE	$0

Out Building Information

Structure Code	Width	Lgth/SqFt	Year	RCNLD
Utility Frame	9	23	2006	$3,130
Utility Frame	8	15	2006	$1,810
Utility Frame	9	12	2006	$1,630
Utility Frame	10	12	2006	$1,810
Cell Tower 120'	0	120	2011	$105,550

Exterior/Interior Information

Levels Size Use Type Ext. Walls Const. Type Partitions Heating A/C Plumbing Condition Func. Utility Unadj. RCNLD

Building Sketch

Notice

The information delivered through this on-line database is provided in the spirit of open access to government information and is intended as an enhanced service and convenience for citizens of Bethel, CT.

The providers of this database: CLT, Big Room Studios, and Bethel, CT assume no liability for any error or omission in the information provided here.

Currently All Values Have Not Been Finalized and Are Subject To Change.

Comments regarding this service should be directed to: Assessor@betheltownhall.org

BUILT BY
BIG ROOM
STUDIOS

WIRELESS COMMUNICATIONS FACILITY
CT2268 - LTE 1900 PCS RETROFIT
BETHEL SPRING STREET
BST SITE: CT-5003 SPRING HILL LANE
23 SPRING HILL LANE
BETHEL, CT 06801

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

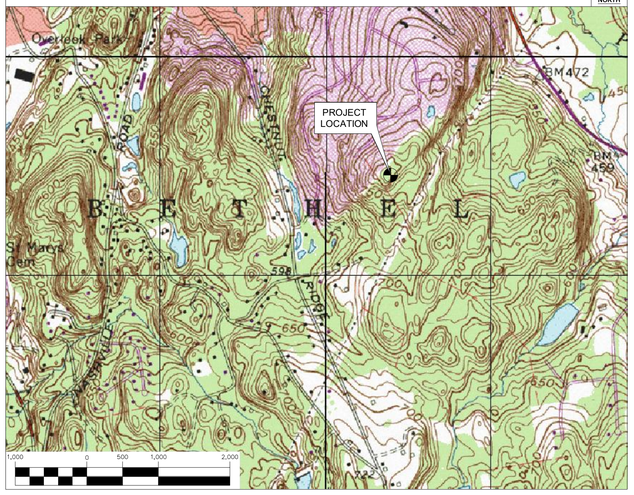
TO: 23 SPRING HILL LANE, BETHEL, CT 06801

1.	TURN LEFT ONTO CAPITOL BLVD	0.2 mi
2.	TURN LEFT ONTO STATE HWY 411	0.3 mi
3.	TAKE LEFT TO MERGE ONTO I-91 SOUTH	0.3 mi
4.	MERGE ONTO I-91 SOUTH	8.8 mi
5.	TAKE EXIT 18 FOR I-691 WEST	0.2 mi
6.	CONTINUE ON I-691 WEST	7.7 mi
7.	TAKE EXIT 1 FOR I-84 WEST	1.0 mi
8.	MERGE ONTO I-84 WEST	23.3 mi
9.	TAKE EXIT 11 TOWARD CT-34	0.9 mi
10.	TURN LEFT ONTO WASSERMAN WAY	1.0 mi
11.	CONTINUE ONTO MILE HILL RD.	0.5 mi
12.	TURN RIGHT ONTO S MAIN ST.	0.7 mi
13.	TURN LEFT ONTO SUGAR ST.	6.4 mi
14.	TURN LEFT ONTO HIGHLAND AVE.	0.3 mi
15.	CONTINUE ONTO GOVERNORS LN.	479 ft
16.	TURN RIGHT ONTO SPRING HILL LN.	0.3 mi

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE AND REPLACE EXISTING POSITION 4 ANTENNA FOR PROPOSED (12) PORT ANTENNA, (1) PER SECTOR.
   B. REMOVE AND REPLACE (3) EXISTING RRUS-11(1900 MHz) WITH (3) NEW RRUS-32 B2s MOUNTED BY ANTENNA ON EXISTING MONOPOLE.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT2268
AT&T SITE NAME:	BETHEL SPRING STREET
SITE ADDRESS:	BST SITE: CT-5003 SPRING HILL LN 23 SPRING HILL LANE BETHEL, CT 06801
PROPERTY OWNER:	BLUE SKY TOWER PARTNERS, LLC 158 MAIN STREET #2 NORFOLK, MA 02056
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	LAUREN GROPPI EMPIRE TELECOM, LLC (978)430-2534
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-21'-43.941" N LONGITUDE: 73°-23'-47.688" W GROUND ELEVATION: ±810' AMSL (GROUND ELEVATION REFERENCED FROM GOOGLE EARTH. COORDINATES REFERENCED FROM RFDS DOCUMENTS PROVIDED BY AT&T)

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES AND SPECIFICATIONS	0
C-1	PLANS, ELEVATION AND DETAILS	0
C-2	LTE BWE EQUIPMENT DETAILS AND ELEVATIONS	0
E-1	TYPICAL ELECTRICAL DETAILS AND NOTES	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/03/16	AWC	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY

BETHEL SPRING STREET
CT2268- LTE 1900 PCS RETROFIT
23 SPRING HILL LANE
BETHEL, CT 06801

DATE: 05/19/16
SCALE: AS NOTED
JOB NO. 16002.13

TITLE SHEET

T-1

NOTES AND SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:

   - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST).
   - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
   - BASIC WIND SPEED (OTHER STRUCTURE): 95 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:

   A. SHERWIN WILLIAMS POLANE-B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.

2. COAXIAL CABLES:

   A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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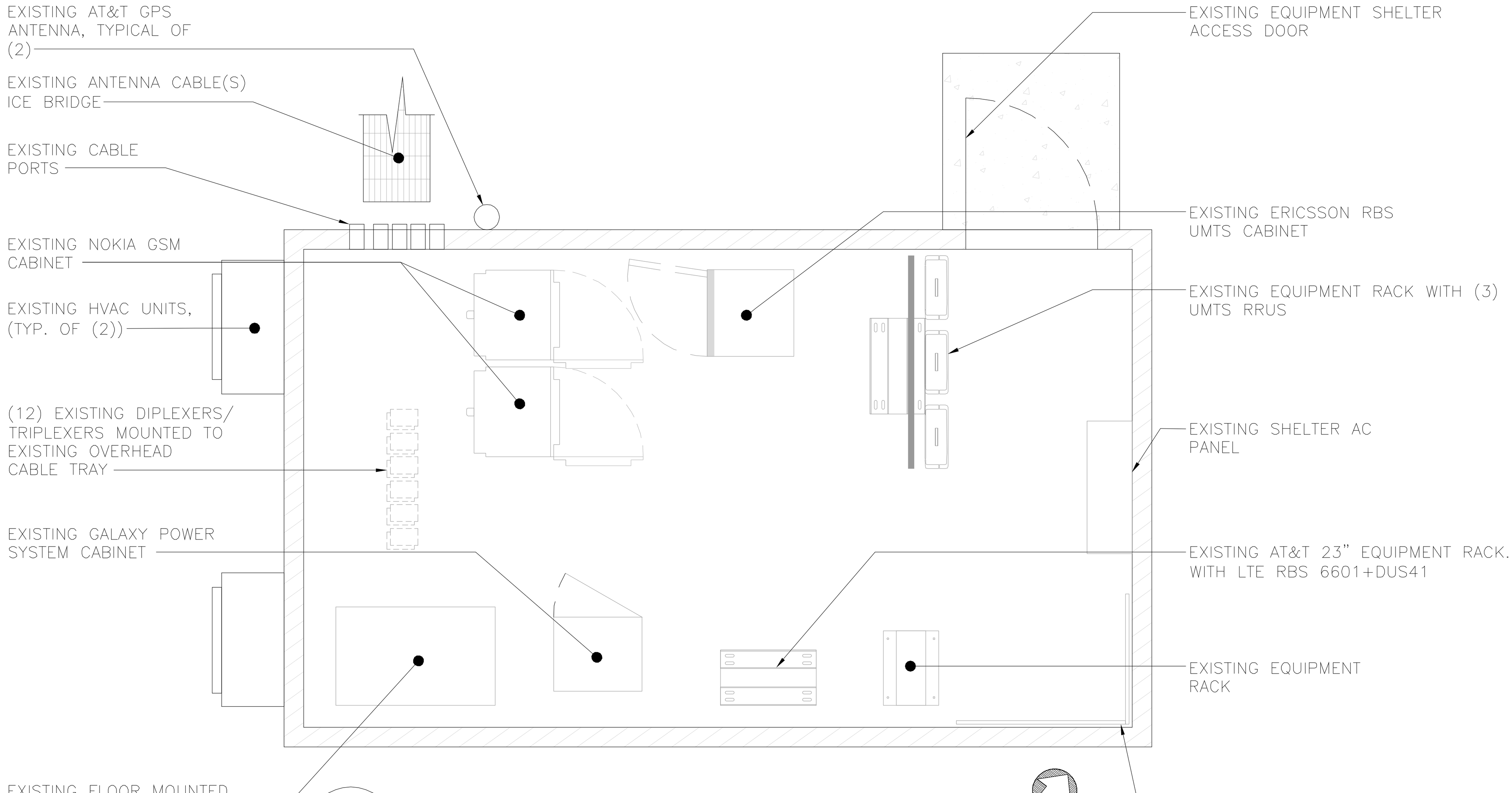
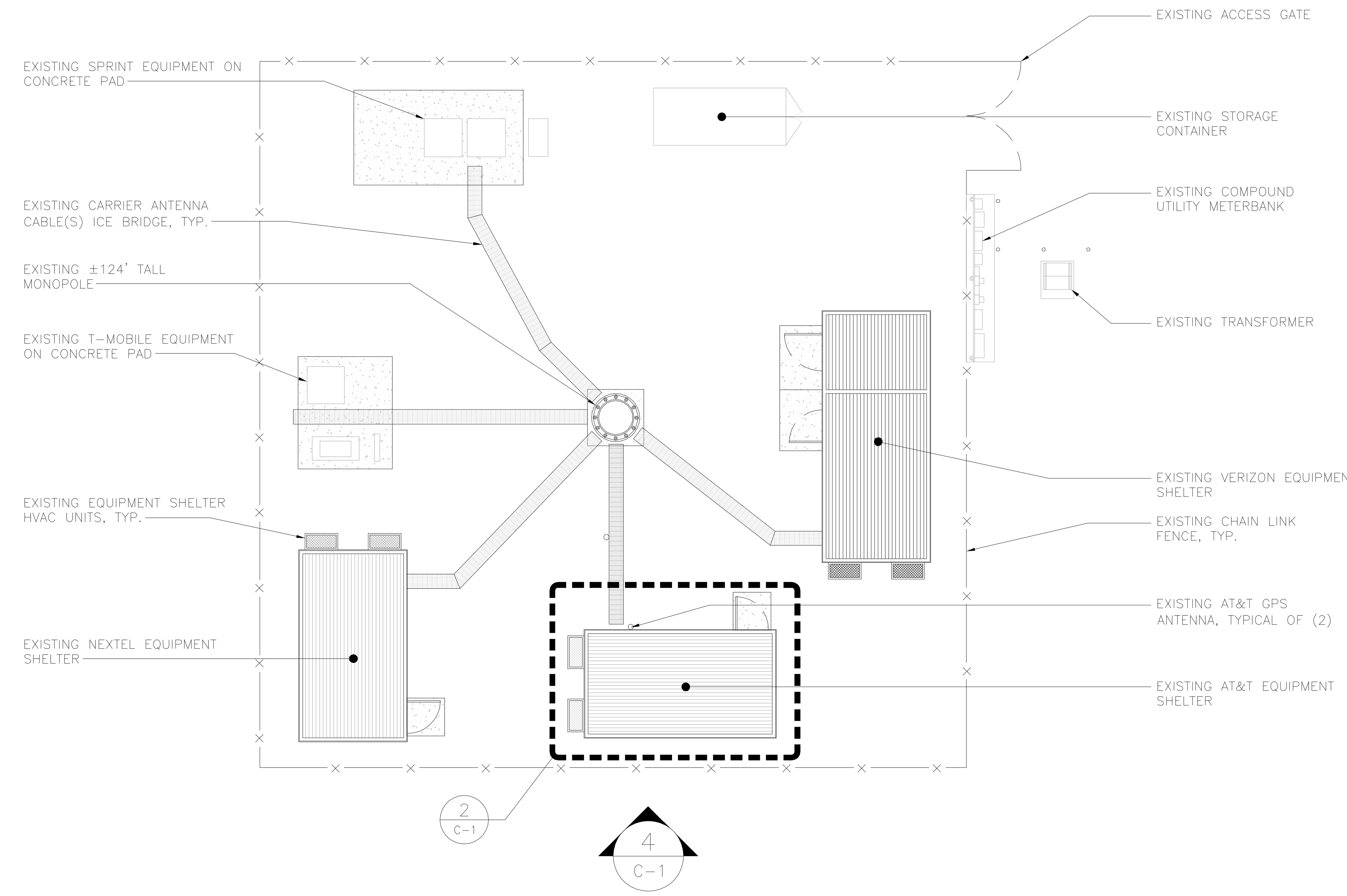
NOTES AND SPECIFICATIONS

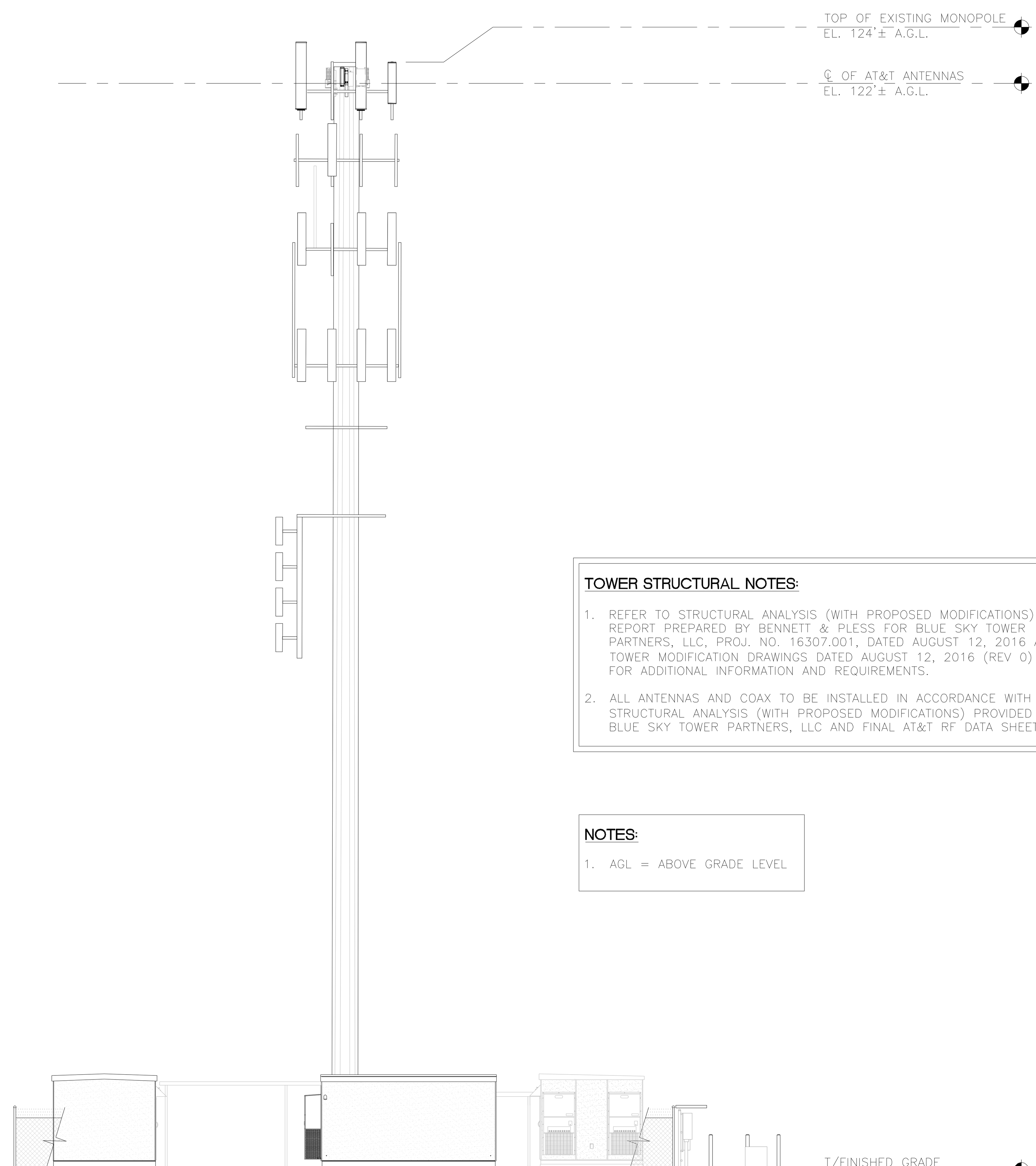
N-1



2
C-1
EQUIPMENT BUILDING FLOOR PLAN
SCALE: 3/8" = 1'-0"



1
C-1
EXISTING COMPOUND PLAN
SCALE: 1" = 10'
APPROXIMATE NORTH



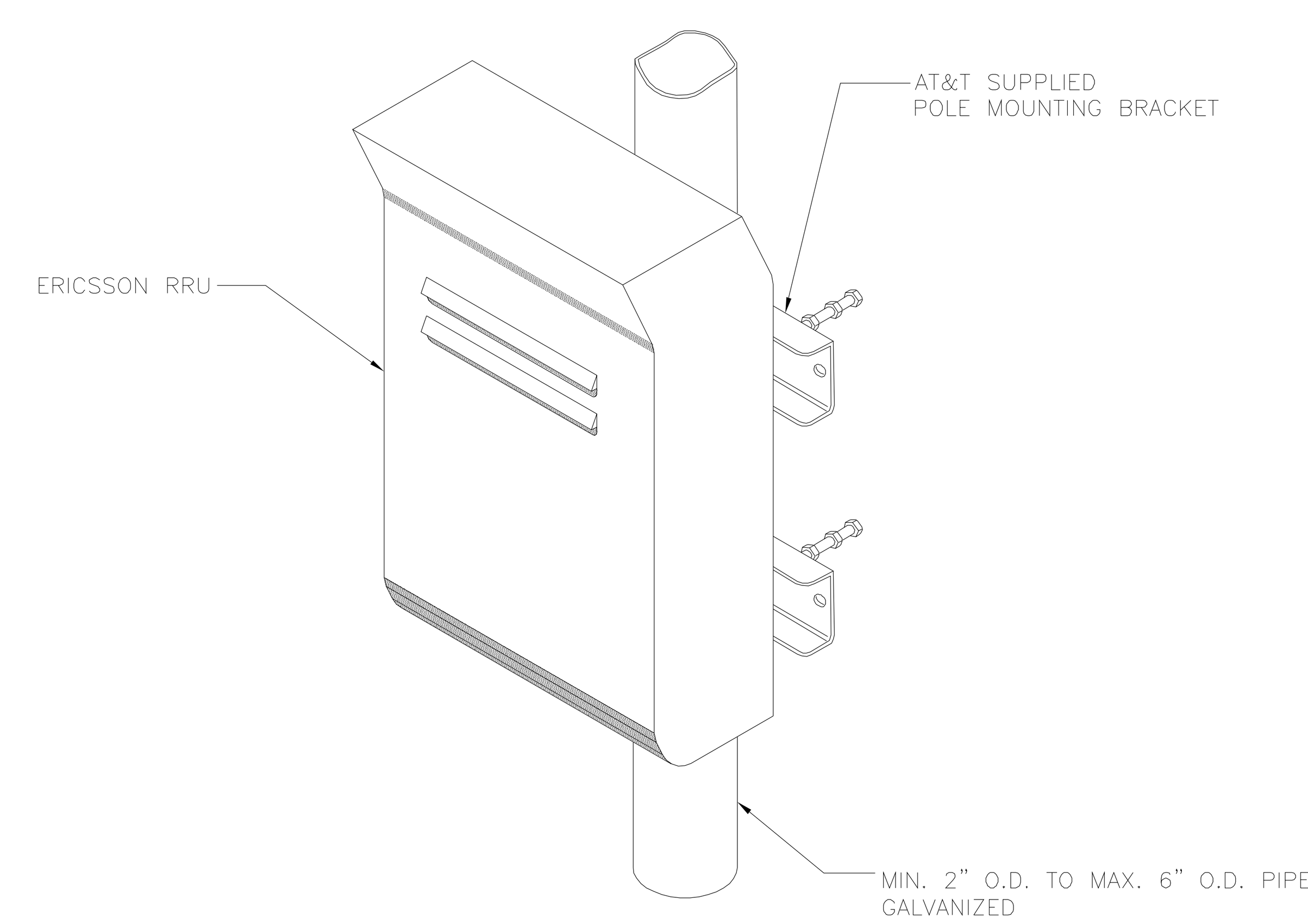
TOWER STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS (WITH PROPOSED MODIFICATIONS) REPORT PREPARED BY BENNETT & PLESS FOR BLUE SKY TOWER PARTNERS, LLC, PROJ. NO. 16307.001, DATED AUGUST 12, 2016 AND TOWER MODIFICATION DRAWINGS DATED AUGUST 12, 2016 (REV 0) FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS (WITH PROPOSED MODIFICATIONS) PROVIDED BY BLUE SKY TOWER PARTNERS, LLC AND FINAL AT&T RF DATA SHEET.

NOTES:

1. AGL = ABOVE GRADE LEVEL

4
C-1
EAST ELEVATION
SCALE: 1" = 10'



ISOMETRIC VIEW

NOTES:

1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

3
C-1
TYPICAL RRU MOUNTING DETAILS
SCALE: NTS

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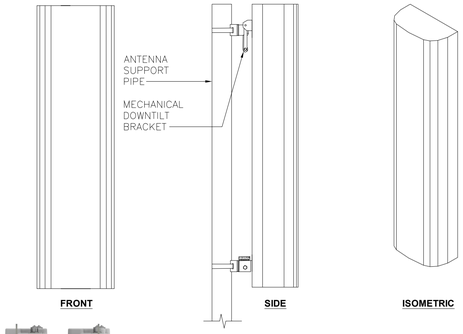
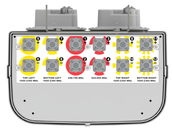
PLANS, ELEVATION AND DETAILS

C-1

Sheet No. 3 of 5



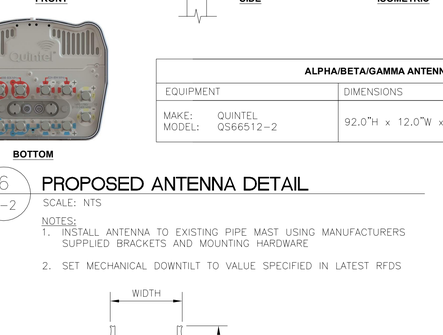

BOTTOM

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPA-65R-LCUUUU-H8	96.0"H x 14.4"W x 8.6"D	75-LBS

5 C-2 PROPOSED ANTENNA DETAIL

SCALE: NTS

NOTES:
1. INSTALL ANTENNA TO EXISTING PIPE MAST USING MANUFACTURERS SUPPLIED BRACKETS AND MOUNTING HARDWARE
2. SET MECHANICAL DOWNTILT TO VALUE SPECIFIED IN LATEST RFDS



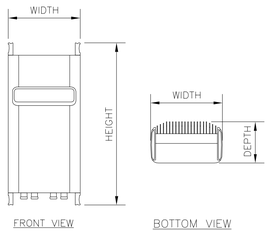
BOTTOM

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: QUINTEL MODEL: QS66512-2	92.0"H x 12.0"W x 9.6"D	111-LBS

6 C-2 PROPOSED ANTENNA DETAIL

SCALE: NTS

NOTES:
1. INSTALL ANTENNA TO EXISTING PIPE MAST USING MANUFACTURERS SUPPLIED BRACKETS AND MOUNTING HARDWARE
2. SET MECHANICAL DOWNTILT TO VALUE SPECIFIED IN LATEST RFDS

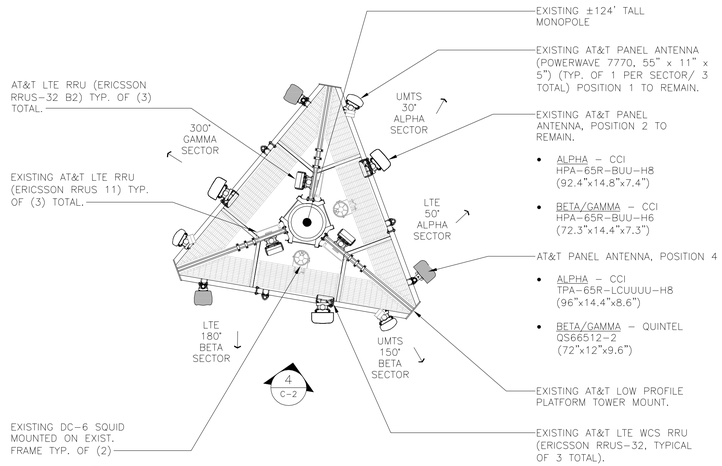


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 32	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 C-2 ERICSSON RRUS 32 B2 DETAIL

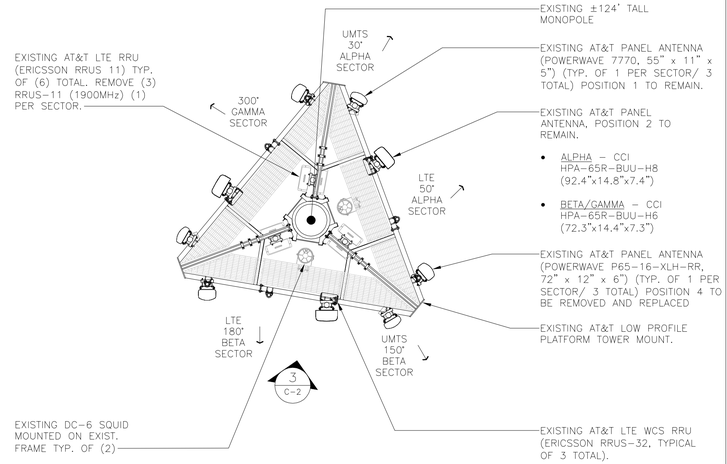
SCALE: 1" = 1'-0"



2 C-2 PROPOSED ANTENNA PLAN

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

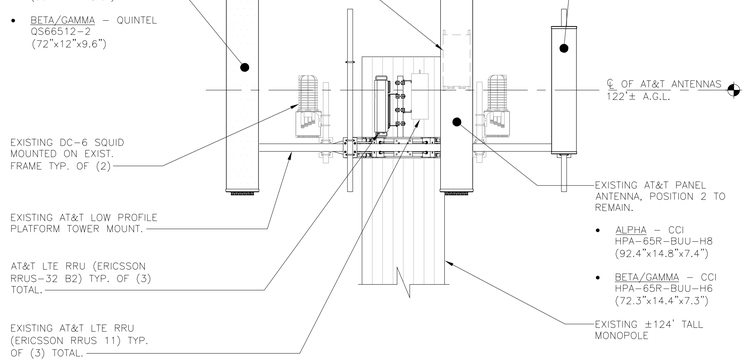
NORTH



1 C-2 EXISTING ANTENNA PLAN

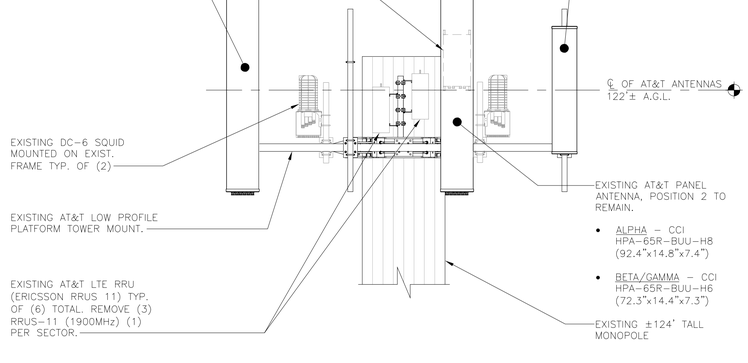
SCALE: 1/4" = 1'-0"

NORTH



4 C-2 PROPOSED ANTENNA PLAN

SCALE: 3/8" = 1'-0"



3 C-2 EXISTING ANTENNA PLAN

SCALE: 3/8" = 1'-0"

NOTES:
1. PROVIDE MOUNTING PIPES, CROSSOVERS & ASSOCIATED HARDWARE TO COMPLETE THE PROPOSED UPGRADE.
2. REFER TO BLUE SKY TOWER PARTNERS, LLC STRUCTURAL REPORT AND FINAL AT&T RF DATA SHEET PRIOR TO INSTALLATION OF TOWER MOUNTED LTE RELATED ANTENNAS, CABLES AND RELATED EQUIPMENT
3. COORDINATE ANTENNA CENTERLINE ELEVATION, RRU/SURGE ARRESTOR MOUNTING ELEVATION, ATTACHMENT HARDWARE WITH BLUE SKY TOWER PARTNERS, LLC.

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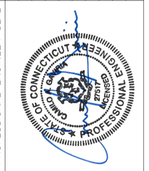

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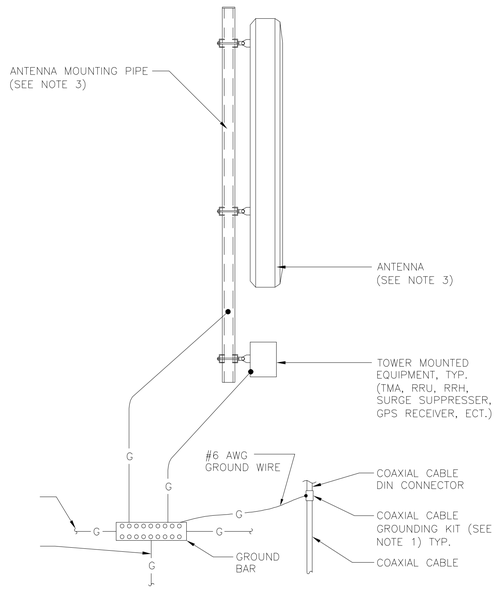
LTE BWE EQUIPMENT DETAILS AND ELEVATIONS

C-2



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

2 / E-1 TYPICAL ANTENNA GROUNDING DETAIL

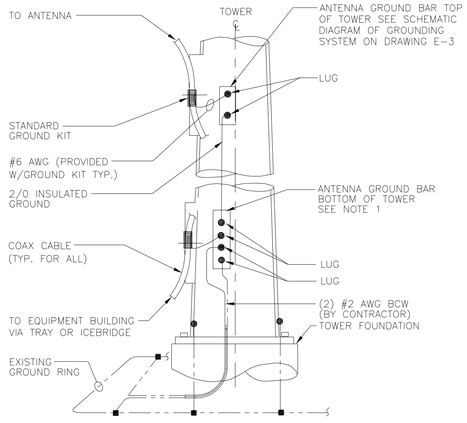
NOT TO SCALE

NOTE:

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

5 / E-1 CONNECTION OF GROUND WIRES TO GROUND BAR

NOT TO SCALE

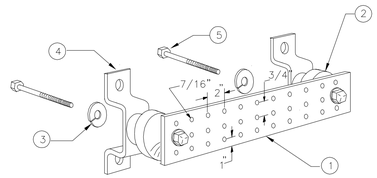


NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

1 / E-1 ANTENNA CABLE GROUNDING - MONOPOLE

NOT TO SCALE

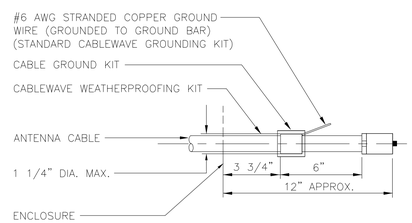


LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3, 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

3 / E-1 GROUND BAR DETAIL

NOT TO SCALE



NOTE:

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

4 / E-1 ANTENNA CABLE GROUNDING DETAIL

NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

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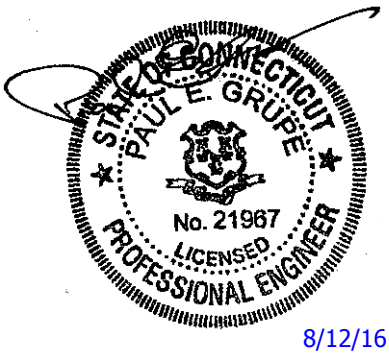
DATE: 05/19/16
SCALE: AS NOTED
JOB NO. 16002.13

TYPICAL ELECTRICAL DETAILS & NOTES

E-1

Structural Analysis Report

Structure	**:** 125 foot Monopole
BST Site Name	**:** Spring Hill
BST Site Number	**:** CT-5003
Proposed Carrier	**:** AT&T
Site Location	**:** 38 Spring Hill Road Bethel, Connecticut 06801 41.3622, -73.3967
Date	**:** August 12, 2016
Max Member Stress Level	**: 100%**
Result	**: PASS (With Proposed Modifications)**



8/12/16

Prepared by:
Bennett & Pless, Inc.
B&P Job No.
16307.001

bennett&pless
Experience Structural Expertise

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Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by T-Mobile with the proposed structural modifications. The objective of the analysis is to display that after the proposed structural modifications are performed the tower will be in conformance with the current codes and standards for the proposed equipment installation.

Supporting Documents

The following documents were made available for our structural analysis.

Tower Information	Ramaker & Associates SA dated July 15, 2014 Structural Analysis by Bennett & Pless, April 10, 2015
Foundation Information	Structural Analysis by CHA date June 10, 2011
Geotechnical Information	Structural Analysis by CHA date June 10, 2011
Equipment Information	Engineered Tower Solutions Mapping dated November 21, 2014 Structural Analysis by Bennett & Pless, April 10, 2015 Collocation Application from BlueSky Tower, December 28, 2015
Tower Reinforcement Information	**Proposed Modifications – Bennett & Pless Mod Dwgs dated 8/12/2016**

Design Criteria

The tower was analyzed using tnxTower (Version 7.0.7.0) tower analysis software using the following design criteria.

State Building Code	Connecticut (CBC 2005)
TIA/EIA Standard Code	Rev F
Basic Wind Speed	85 MPH
Basic Wind Speed w/ Ice	74 MPH w/ 0.75" Ice
Steel Grade	65 ksi Pole, 50 ksi Base Plate, Anchor Bolts A615 Grade 75

Final Proposed Equipment Loading for AT&T

The following proposed loading was obtained from the collocation application provided by Blue Sky Tower. (December 28, 2015):

Antenna/Equipment					Coax	
Mount	RAD	Qty.	Antenna	Type	Qty.	Size/Type
122	-	1	Low Platform	Mount	12 1 **1** 2 **2**	1 5/8" Coax Fiber Cable **Fiber Cable** DC Cable **DC Cable**
	122	3	Powerwave 7770 w/ Mount Pipe	Panel		
		1	**CCI HPA-65R-BUU-H8***	Panel		
		2	**CCI HPA-65R-BUU-H6***	Panel		
		3	Powerwave P65-16-XLH-RR	Panel		
		6	Powerwave LGP21401	TMA		
		3	Ericsson RRUS-11	RRU		
		3	**Ericsson RRUS-11**	RRU		
		3	**Ericsson RRUS-32**	RRU		
		1	Raycap DC6-48-60-18-8F	Squid		
		1	**Raycap DC6-48-60-18-8F**	Squid		

Note: Proposed equipment is shown in bold.
***Note: The existing (3) Powerwave 7770 will be replaced by the proposed panels shown above.**
Note: All additional equipment considered in the analysis is listed on the tower profile.

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is with the proposed structural modifications as shown in the Bennett and Pless Modification Drawings dated August 12, 2016 is structurally capable of supporting the proposed equipment loads.**

The existing foundations have also been evaluated and are capable of supporting the proposed loads. Therefore the tower foundation does not require any additional modifications.

Assumptions

The following assumptions were used in this structural analysis:

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. All member connections are assumed to have been designed to meet the load carrying capacity of the connected member.
3. Antenna mount loads have been estimated based on general information obtained in the field.
4. The new feed lines for the proposed antennas are assumed to be installed inside the pole.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.

Conclusions

The existing self-support tower and foundation described above **does have sufficient capacity to support the proposed loading after the proposed modifications are installed** based on the TIA/EIA-222-F Standard referenced by the State Building Code.

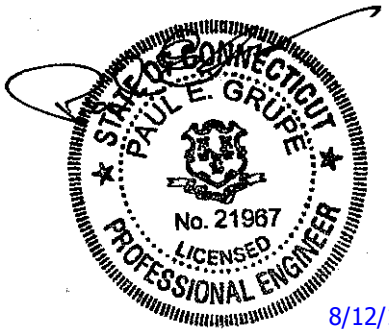
We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance please call us anytime at 605-540-4620.

Sincerely,

Analysis by:

Cory Blake, PE
Project Engineer

Reviewed by:



Paul E. Grupe, PE
Vice President

8/12/16

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Bennett & Pless, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bennett & Pless and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

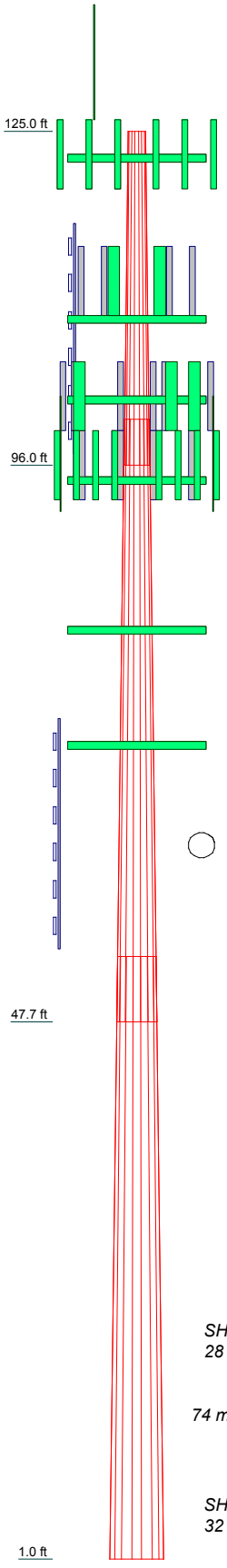
All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Bennett & Pless is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

Bennett & Pless. makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Bennett & Pless. will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Bennett & Pless pursuant to this report will be limited to the total fee received for preparation of this report.

Appendix A
Calculations

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	28.96	18	0.1875	3.92	18.0000	26.9000		1.3
2	52.29	18	0.2500	5.67	25.3203	41.2800	A572-65	4.7
3	52.34	18	0.3125		39.0494	55.0000		8.3
								14.2



AXIAL
46 K
SHEAR
28 K
MC
272
TORQUE 5 kip-ft
74 mph WIND - 0.7500 in I
AXIAL
34 K
SHEAR
32 K
MC
3047 kip-ft
TORQUE 5 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
15' Omni (tower)	123	800MHz 2X50W RRH W/FILTER (Sprint)	105.5
LP 303-1 (ATT)	123	IBC1900HB-2 (Sprint)	105.5
8'x2.4" Pipe Mounts (ATT)	123	IBC1900HB-2 (Sprint)	105.5
8'x2.4" Pipe Mounts (ATT)	123	IBC1900HB-2 (Sprint)	105.5
8'x2.4" Pipe Mounts (ATT)	123	LP 303-1 (T-Mobile)	102
7770 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
7770 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
7770 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
HPA-65R-BUU-H8 w/ Mount Pipe (ATT)	123	(2) Kathrein 81010020R4B (T-Mobile)	102
CCI HPA-65R-BUU-H6 w/ Pipe Mount (ATT)	123	(2) Kathrein 81010020R4B (T-Mobile)	102
CCI HPA-65R-BUU-H6 w/ Pipe Mount (ATT)	123	(2) Kathrein 81010020R4B (T-Mobile)	102
CCI TPA-65R-LCUUUU-H8-K (ATT)	123	14' 16 element dipole (T-Mobile)	102
Quintel QS66512-2 (ATT)	123	LNX6515DS-VTM w/Pipe (T-Mobile)	102
Quintel QS66512-2 (ATT)	123	LNX6515DS-VTM w/Pipe (T-Mobile)	102
(2) LGP21401 (ATT)	123	LNX6515DS-VTM w/Pipe (T-Mobile)	102
(2) LGP21401 (ATT)	123	RRUS 11 (T-Mobile)	102
(2) LGP21401 (ATT)	123	RRUS 11 (T-Mobile)	102
RRUS-11 (ATT)	123	RRUS 11 (T-Mobile)	102
RRUS-11 (ATT)	123	X7C-FRO-660-VR0 w/ pipe mount (Verizon)	96
RRUS-11 (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123	BXA-80063-6CF w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123	800 10736V01 w/ Mount Pipe (Verizon)	96
RRUS 32 B30 (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123	BXA-80080-6CF w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123	800 10736V01 w/ Mount Pipe (Verizon)	96
DC6-48-60-18-8F (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
DC6-48-60-18-8F (ATT)	123	BXA-80080-6CF w/ pipe mount (Verizon)	96
LP 303-1 (Sprint)	112	RRH2x60 - AWS (Verizon)	96
(4) 8'x2.4" Pipe Mounts (Sprint)	112	RRH2x60 - AWS (Verizon)	96
(4) 8'x2.4" Pipe Mounts (Sprint)	112	RRH2x60 - AWS (Verizon)	96
(4) 8'x2.4" Pipe Mounts (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXVSPP18-C (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXVSPP18-C (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXVSPP18-C (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	Raycap DB-T1-6Z-8AB-0Z (Verizon)	96
TD-RRH 8x20 (Sprint)	112	Raycap DB-T1-6Z-8AB-0Z (Verizon)	96
TD-RRH 8x20 (Sprint)	112	LP 303-1	95
TD-RRH 8x20 (Sprint)	112	10' Omni (Verizon)	92
Tri-Antenna Mount (Sprint)	105.5	10' Omni (Verizon)	92
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	82
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	72
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	72
1900MHz 4x40W RRH (Sprint)	105.5	15' Dipole	72
1900MHz 4x40W RRH (Sprint)	105.5		
800MHz 2X50W RRH W/FILTER (Sprint)	105.5		
800MHz 2X50W RRH W/FILTER (Sprint)	105.5		

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 74 mph basic wind with 0.75 in ice.
4. Deflections are based upon a 50 mph wind.
5. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
6. Welds are fabricated with ER-70S-6 electrodes.

Bennett and Pless	Job: ***CT-5003 125' Tapered Monopole***		
	Project: ***Spring Hill, CT (Verizon)***		
	Client: Blue Sky Towers	Drawn by: Cory Blake	App'd:
Phone:	Code: TIA/EIA-222-F	Date: 08/04/16	Scale: NTS
FAX:	Path:		Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
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		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks		Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

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	125.00-96.04	28.96	3.92	18	18.0000	26.9000	0.1875	0.7500	A572-65 (65 ksi)
L2	96.04-47.67	52.29	5.67	18	25.3203	41.2800	0.2500	1.0000	A572-65 (65 ksi)
L3	47.67-1.00	52.34		18	39.0494	55.0000	0.3125	1.2500	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	18.2777	10.6007	424.9328	6.3234	9.1440	46.4712	850.4248	5.3013	2.8380	15.136
	27.3150	15.8973	1433.1421	9.4829	13.6652	104.8753	2868.1699	7.9501	4.4044	23.49
L2	26.9258	19.8933	1579.6584	8.9000	12.8627	122.8091	3161.3954	9.9485	4.0164	16.065
	41.9168	32.5573	6924.5082	14.5657	20.9702	330.2064	13858.1278	16.2817	6.8253	27.301
L3	41.4064	38.4222	7284.0015	13.7516	19.8371	367.1906	14577.5874	19.2147	6.3227	20.233
	55.8485	54.2432	20495.5041	19.4141	27.9400	733.5542	41017.9768	27.1267	9.1300	29.216

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L1 125.00-96.04				1	1	1			
L2 96.04-47.67				1	1	1			
L3 47.67-1.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
				ft			ft^2/ft	plf
1 5/8" coax (ATT)	A	No	Inside Pole	123.00 - 2.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
Fiber Cable (ATT)	A	No	Inside Pole	123.00 - 2.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
Fiber Cable (ATT)	A	No	Inside Pole	123.00 - 2.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
DC Cable (0.8" Dia) (ATT)	A	No	Inside Pole	123.00 - 2.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
DC Cable (0.8" Dia) (ATT)	A	No	Inside Pole	123.00 - 2.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
1 5/8" coax (Sprint)	B	No	Inside Pole	117.00 - 2.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
HB058-M12-XXXF(5/8") (Sprint)	B	No	Inside Pole	117.00 - 2.00	1	No Ice	0.00	0.24
						1/2" Ice	0.00	0.24
						1" Ice	0.00	0.24
1 5/8" coax (T-Mobile)	C	No	Inside Pole	102.00 - 2.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 7/16" Coax (T-Mobile)	C	No	Inside Pole	102.00 - 2.00	1	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
1 5/8" (1.63", 41.3 mm) Fiber (T-Mobile)	C	No	Inside Pole	102.00 - 2.00	2	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8" coax (Verizon)	C	No	Inside Pole	92.00 - 2.00	14	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8" coax (dipole)	A	No	Inside Pole	72.00 - 2.00	1	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04

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	125.00-96.04	A	0.000	0.000	0.000	0.000	0.34
		B	0.000	0.000	0.000	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.09
L2	96.04-47.67	A	0.000	0.000	0.000	0.000	0.64
		B	0.000	0.000	0.000	0.000	0.31
		C	0.000	0.000	0.000	0.000	1.37
L3	47.67-1.00	A	0.000	0.000	0.000	0.000	0.62
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	0.000	0.000	1.35

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	125.00-96.04	A	0.750	0.000	0.000	0.000	0.000	0.34
		B		0.000	0.000	0.000	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.09
L2	96.04-47.67	A	0.750	0.000	0.000	0.000	0.000	0.64
		B		0.000	0.000	0.000	0.000	0.31
		C		0.000	0.000	0.000	0.000	1.37
L3	47.67-1.00	A	0.750	0.000	0.000	0.000	0.000	0.62
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	0.000	0.000	1.35

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
15' Omni (tower)	C	From Leg	3.50 / 0.00 / 8.00	0.0000	123.00	No Ice	3.75	3.75	0.10
						1/2" Ice	5.28	5.28	0.13
						1" Ice	6.83	6.83	0.17
LP 303-1 (ATT)	C	None		0.0000	123.00	No Ice	17.46	17.46	1.35
						1/2" Ice	22.44	22.44	1.62

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	27.42	27.42	1.90
8'x2.4" Pipe Mounts	A	From Leg	4.00	0.0000	123.00	No Ice	1.92	1.92	0.02
(ATT)			0.00			1/2" Ice	2.75	2.75	0.03
			0.00			1" Ice	3.41	3.41	0.05
8'x2.4" Pipe Mounts	B	From Leg	4.00	0.0000	123.00	No Ice	1.92	1.92	0.02
(ATT)			0.00			1/2" Ice	2.75	2.75	0.03
			0.00			1" Ice	3.41	3.41	0.05
8'x2.4" Pipe Mounts	C	From Leg	4.00	0.0000	123.00	No Ice	1.92	1.92	0.02
(ATT)			0.00			1/2" Ice	2.75	2.75	0.03
			0.00			1" Ice	3.41	3.41	0.05
7770 w/ Mount Pipe	B	From Leg	4.00	0.0000	123.00	No Ice	6.86	5.23	0.08
(ATT)			0.00			1/2" Ice	7.65	6.41	0.14
			0.00			1" Ice	8.44	7.59	0.20
7770 w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00	No Ice	6.86	5.23	0.08
(ATT)			0.00			1/2" Ice	7.65	6.41	0.14
			0.00			1" Ice	8.44	7.59	0.20
7770 w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00	No Ice	6.86	5.23	0.08
(ATT)			0.00			1/2" Ice	7.65	6.41	0.14
			0.00			1" Ice	8.44	7.59	0.20
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00	0.0000	123.00	No Ice	13.21	9.58	0.10
			0.00			1/2" Ice	13.90	11.05	0.20
(ATT)			0.00			1" Ice	14.59	12.50	0.30
CCI HPA-65R-BUU-H6 w/ Pipe Mount	B	From Leg	4.00	0.0000	123.00	No Ice	9.49	6.67	0.06
			0.00			1/2" Ice	9.96	7.44	0.13
(ATT)			0.00			1" Ice	10.43	8.21	0.21
CCI HPA-65R-BUU-H6 w/ Pipe Mount	C	From Leg	4.00	0.0000	123.00	No Ice	9.49	6.67	0.06
			0.00			1/2" Ice	9.96	7.44	0.13
(ATT)			0.00			1" Ice	10.43	8.21	0.21
CCI	A	From Leg	4.00	0.0000	123.00	No Ice	13.30	8.82	0.08
TPA-65R-LCUUUU-H8-K			0.00			1/2" Ice	13.90	9.42	0.15
(ATT)			0.00			1" Ice	14.50	10.03	0.24
Quintel QS66512-2	B	From Leg	4.00	0.0000	123.00	No Ice	8.13	6.80	0.11
(ATT)			0.00			1/2" Ice	8.59	7.27	0.17
			0.00			1" Ice	9.05	7.72	0.23
Quintel QS66512-2	C	From Leg	4.00	0.0000	123.00	No Ice	8.13	6.80	0.11
(ATT)			0.00			1/2" Ice	8.59	7.27	0.17
			0.00			1" Ice	9.05	7.72	0.23
(2) LGP21401	A	From Leg	3.00	0.0000	123.00	No Ice	1.10	0.35	0.01
(ATT)			0.00			1/2" Ice	1.24	0.44	0.02
			0.00			1" Ice	1.38	0.54	0.03
(2) LGP21401	B	From Leg	3.00	0.0000	123.00	No Ice	1.10	0.35	0.01
(ATT)			0.00			1/2" Ice	1.24	0.44	0.02
			0.00			1" Ice	1.38	0.54	0.03
(2) LGP21401	C	From Leg	3.00	0.0000	123.00	No Ice	1.10	0.35	0.01
(ATT)			0.00			1/2" Ice	1.24	0.44	0.02
			0.00			1" Ice	1.38	0.54	0.03
RRUS-11	A	From Leg	3.00	0.0000	123.00	No Ice	2.94	1.25	0.06
(ATT)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.40	1.57	0.09
RRUS-11	B	From Leg	3.00	0.0000	123.00	No Ice	2.94	1.25	0.06
(ATT)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.40	1.57	0.09
RRUS-11	C	From Leg	3.00	0.0000	123.00	No Ice	2.94	1.25	0.06
(ATT)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.40	1.57	0.09
RRUS 32 B30	A	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			3.00			1/2" Ice	2.91	1.76	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	3.14	1.95	0.10
RRUS 32 B30	B	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			3.00			1/2" Ice	2.91	1.76	0.08
			0.00			1" Ice	3.14	1.95	0.10
RRUS 32 B30	C	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			3.00			1/2" Ice	2.91	1.76	0.08
			0.00			1" Ice	3.14	1.95	0.10
RRUS 32 B30	A	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			-3.00			1/2" Ice	2.91	1.76	0.08
			0.00			1" Ice	3.14	1.95	0.10
RRUS 32 B30	B	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			-3.00			1/2" Ice	2.91	1.76	0.08
			0.00			1" Ice	3.14	1.95	0.10
RRUS 32 B30	C	From Leg	3.00	0.0000	123.00	No Ice	2.69	1.57	0.06
(ATT)			-3.00			1/2" Ice	2.91	1.76	0.08
			0.00			1" Ice	3.14	1.95	0.10
DC6-48-60-18-8F	A	From Leg	2.00	0.0000	123.00	No Ice	2.20	2.20	0.02
(ATT)			0.00			1/2" Ice	2.40	2.40	0.04
			0.00			1" Ice	2.60	2.60	0.07
DC6-48-60-18-8F	B	From Leg	2.00	0.0000	123.00	No Ice	2.20	2.20	0.02
(ATT)			0.00			1/2" Ice	2.40	2.40	0.04
			0.00			1" Ice	2.60	2.60	0.07
********									
LP 303-1	C	From Leg	0.00	0.0000	112.00	No Ice	17.46	17.46	1.35
(Sprint)			0.00			1/2" Ice	22.44	22.44	1.62
			-3.00			1" Ice	27.42	27.42	1.90
(4) 8'x2.4" Pipe Mounts	A	From Face	3.50	0.0000	112.00	No Ice	1.92	1.92	0.02
(Sprint)			0.00			1/2" Ice	2.75	2.75	0.03
			-3.00			1" Ice	3.41	3.41	0.05
(4) 8'x2.4" Pipe Mounts	B	From Face	3.50	0.0000	112.00	No Ice	1.92	1.92	0.02
(Sprint)			0.00			1/2" Ice	2.75	2.75	0.03
			-3.00			1" Ice	3.41	3.41	0.05
(4) 8'x2.4" Pipe Mounts	C	From Face	3.50	0.0000	112.00	No Ice	1.92	1.92	0.02
(Sprint)			0.00			1/2" Ice	2.75	2.75	0.03
			-3.00			1" Ice	3.41	3.41	0.05
APXVSPP18-C	A	From Face	3.50	0.0000	112.00	No Ice	8.02	5.28	0.06
(Sprint)			2.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVSPP18-C	B	From Face	3.50	0.0000	112.00	No Ice	8.02	5.28	0.06
(Sprint)			2.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVSPP18-C	C	From Face	3.50	0.0000	112.00	No Ice	8.02	5.28	0.06
(Sprint)			2.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXV9TM14-ALU-120	A	From Face	3.50	0.0000	112.00	No Ice	6.90	3.61	0.06
(Sprint)			-2.00			1/2" Ice	7.35	3.97	0.09
			0.00			1" Ice	7.80	4.33	0.13
APXV9TM14-ALU-120	B	From Face	3.50	0.0000	112.00	No Ice	6.90	3.61	0.06
(Sprint)			-2.00			1/2" Ice	7.35	3.97	0.09
			0.00			1" Ice	7.80	4.33	0.13
APXV9TM14-ALU-120	C	From Face	3.50	0.0000	112.00	No Ice	6.90	3.61	0.06
(Sprint)			-2.00			1/2" Ice	7.35	3.97	0.09
			0.00			1" Ice	7.80	4.33	0.13
TD-RRH 8x20	A	From Face	3.50	0.0000	112.00	No Ice	4.32	1.41	0.07
(Sprint)			-2.00			1/2" Ice	4.60	1.61	0.09
			0.00			1" Ice	4.88	1.81	0.12
TD-RRH 8x20	B	From Face	3.50	0.0000	112.00	No Ice	4.32	1.41	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Sprint)			-2.00				1/2" Ice	4.60	1.61	0.09
			0.00				1" Ice	4.88	1.81	0.12
TD-RRH 8x20	C	From Face	3.50	0.0000	112.00		No Ice	4.32	1.41	0.07
(Sprint)			-2.00				1/2" Ice	4.60	1.61	0.09
			0.00				1" Ice	4.88	1.81	0.12
Tri-Antenna Mount	A	From Face	0.50	0.0000	105.50		No Ice	5.00	5.00	0.27
(Sprint)			0.00				1/2" Ice	6.00	6.00	0.29
			-1.00				1" Ice	7.00	7.00	0.31
1900MHz 4x40W RRH	A	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			-1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
1900MHz 4x40W RRH	A	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
1900MHz 4x40W RRH	B	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			-1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
1900MHz 4x40W RRH	B	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
1900MHz 4x40W RRH	C	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			-1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
1900MHz 4x40W RRH	C	From Face	1.00	0.0000	105.50		No Ice	2.71	2.61	0.06
(Sprint)			1.00				1/2" Ice	2.95	2.84	0.08
			-1.00				1" Ice	3.19	3.07	0.11
800MHz 2X50W RRH	A	From Face	1.00	0.0000	105.50		No Ice	2.06	1.93	0.06
W/FILTER			1.00				1/2" Ice	2.24	2.11	0.09
(Sprint)			2.00				1" Ice	2.43	2.29	0.11
800MHz 2X50W RRH	B	From Face	1.00	0.0000	105.50		No Ice	2.06	1.93	0.06
W/FILTER			1.00				1/2" Ice	2.24	2.11	0.09
(Sprint)			2.00				1" Ice	2.43	2.29	0.11
800MHz 2X50W RRH	C	From Face	1.00	0.0000	105.50		No Ice	2.06	1.93	0.06
W/FILTER			1.00				1/2" Ice	2.24	2.11	0.09
(Sprint)			2.00				1" Ice	2.43	2.29	0.11
IBC1900HB-2	A	None			0.0000	105.50	No Ice	1.13	0.71	0.04
(Sprint)							1/2" Ice	1.27	0.84	0.05
							1" Ice	1.42	0.97	0.06
IBC1900HB-2	B	None			0.0000	105.50	No Ice	1.13	0.71	0.04
(Sprint)							1/2" Ice	1.27	0.84	0.05
							1" Ice	1.42	0.97	0.06
IBC1900HB-2	C	None			0.0000	105.50	No Ice	1.13	0.71	0.04
(Sprint)							1/2" Ice	1.27	0.84	0.05
							1" Ice	1.42	0.97	0.06
******										
LP 303-1	C	None			0.0000	102.00	No Ice	17.46	17.46	1.35
(T-Mobile)							1/2" Ice	22.44	22.44	1.62
							1" Ice	27.42	27.42	1.90
(3) 8'x2.4" Pipe Mounts	A	From Face	3.50		0.0000	102.00	No Ice	1.92	1.92	0.02
(T-Mobile)			0.00				1/2" Ice	2.75	2.75	0.03
			0.00				1" Ice	3.41	3.41	0.05
(3) 8'x2.4" Pipe Mounts	B	From Face	3.50		0.0000	102.00	No Ice	1.92	1.92	0.02
(T-Mobile)			0.00				1/2" Ice	2.75	2.75	0.03
			0.00				1" Ice	3.41	3.41	0.05
(3) 8'x2.4" Pipe Mounts	C	From Face	3.50		0.0000	102.00	No Ice	1.92	1.92	0.02
(T-Mobile)			0.00				1/2" Ice	2.75	2.75	0.03
			0.00				1" Ice	3.41	3.41	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Kathrein 81010020R4B	A	From Face	3.50	0.0000	102.00	No Ice	6.00	4.00	0.06
(T-Mobile)			0.00			1/2" Ice	7.50	5.50	0.11
			0.00			1" Ice	9.00	7.00	0.16
(2) Kathrein 81010020R4B	B	From Face	3.50	0.0000	102.00	No Ice	6.00	4.00	0.06
(T-Mobile)			0.00			1/2" Ice	7.50	5.50	0.11
			0.00			1" Ice	9.00	7.00	0.16
(2) Kathrein 81010020R4B	C	From Face	3.50	0.0000	102.00	No Ice	6.00	4.00	0.06
(T-Mobile)			0.00			1/2" Ice	7.50	5.50	0.11
			0.00			1" Ice	9.00	7.00	0.16
14' 16 element dipole	A	From Face	3.50	0.0000	102.00	No Ice	5.25	5.25	0.08
(T-Mobile)			-3.00			1/2" Ice	6.50	6.50	0.10
			5.00			1" Ice	7.75	7.75	0.13
LNX6515DS-VTM w/Pipe	A	From Face	3.50	0.0000	102.00	No Ice	11.80	11.30	0.13
(T-Mobile)			-3.00			1/2" Ice	0.00	0.00	0.17
			0.00			1" Ice	0.00	0.00	0.21
LNX6515DS-VTM w/Pipe	B	From Face	3.50	0.0000	102.00	No Ice	11.80	11.30	0.13
(T-Mobile)			-3.00			1/2" Ice	0.00	0.00	0.17
			0.00			1" Ice	0.00	0.00	0.21
LNX6515DS-VTM w/Pipe	C	From Face	3.50	0.0000	102.00	No Ice	11.80	11.30	0.13
(T-Mobile)			-3.00			1/2" Ice	0.00	0.00	0.17
			0.00			1" Ice	0.00	0.00	0.21
RRUS 11	A	From Face	2.50	0.0000	102.00	No Ice	2.78	1.19	0.05
(T-Mobile)			-3.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 11	B	From Face	2.50	0.0000	102.00	No Ice	2.78	1.19	0.05
(T-Mobile)			-3.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 11	C	From Face	2.50	0.0000	102.00	No Ice	2.78	1.19	0.05
(T-Mobile)			-3.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
********									
LP 303-1	C	None		0.0000	95.00	No Ice	17.46	17.46	1.35
						1/2" Ice	22.44	22.44	1.62
						1" Ice	27.42	27.42	1.90
******Antennas*****									
X7C-FRO-660-VR0 w/ pipe	A	From Leg	4.00	0.0000	96.00	No Ice	9.84	7.88	0.09
mount			0.00			1/2" Ice	10.39	8.91	0.17
(Verizon)			0.00			1" Ice	10.93	9.81	0.26
(2) WWX063X19G00 w/	A	From Leg	4.00	0.0000	96.00	No Ice	8.81	7.57	0.07
pipe mount			0.00			1/2" Ice	9.35	8.61	0.15
(Verizon)			0.00			1" Ice	9.88	9.52	0.23
BXA-80063-6CF w/ pipe	A	From Leg	4.00	0.0000	96.00	No Ice	7.88	6.17	0.06
mount			0.00			1/2" Ice	8.42	7.18	0.12
(Verizon)			0.00			1" Ice	8.94	8.06	0.19
800 10736V01 w/ Mount	B	From Leg	4.00	0.0000	96.00	No Ice	11.63	7.30	0.07
Pipe			0.00			1/2" Ice	12.35	8.81	0.15
(Verizon)			0.00			1" Ice	13.07	10.33	0.24
(2) WWX063X19G00 w/	B	From Leg	4.00	0.0000	96.00	No Ice	8.81	7.57	0.07
pipe mount			0.00			1/2" Ice	9.35	8.61	0.15
(Verizon)			0.00			1" Ice	9.88	9.52	0.23
BXA-80080-6CF w/ pipe	B	From Leg	4.00	0.0000	96.00	No Ice	6.08	6.57	0.06
mount			0.00			1/2" Ice	6.62	7.59	0.12
(Verizon)			0.00			1" Ice	7.15	8.47	0.18
800 10736V01 w/ Mount	C	From Leg	4.00	0.0000	96.00	No Ice	11.63	7.30	0.07
Pipe			0.00			1/2" Ice	12.35	8.81	0.15
(Verizon)			0.00			1" Ice	13.07	10.33	0.24
(2) WWX063X19G00 w/	C	From Leg	4.00	0.0000	96.00	No Ice	8.81	7.57	0.07

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
pipe mount			0.00			1/2" Ice	9.35	8.61	0.15
(Verizon)			0.00			1" Ice	9.88	9.52	0.23
BXA-80080-6CF w/ pipe	C	From Leg	4.00	0.0000	96.00	No Ice	6.08	6.57	0.06
mount			0.00			1/2" Ice	6.62	7.59	0.12
(Verizon)			0.00			1" Ice	7.15	8.47	0.18
********									
RRH2x60 - AWS	C	From Leg	3.00	0.0000	96.00	No Ice	3.96	2.16	0.06
(Verizon)			0.00			1/2" Ice	4.27	2.44	0.08
			0.00			1" Ice	4.58	2.72	0.10
RRH2x60 - AWS	C	From Leg	3.00	0.0000	96.00	No Ice	3.96	2.16	0.06
(Verizon)			0.00			1/2" Ice	4.27	2.44	0.08
			0.00			1" Ice	4.58	2.72	0.10
RRH2x60 - AWS	C	From Leg	3.00	0.0000	96.00	No Ice	3.96	2.16	0.06
(Verizon)			0.00			1/2" Ice	4.27	2.44	0.08
			0.00			1" Ice	4.58	2.72	0.10
ALU RH 2x60 700	A	From Leg	3.00	0.0000	96.00	No Ice	2.29	1.21	0.05
(Verizon)			0.00			1/2" Ice	2.49	1.36	0.07
			0.00			1" Ice	2.70	1.53	0.09
ALU RH 2x60 700	A	From Leg	3.00	0.0000	96.00	No Ice	2.29	1.21	0.05
(Verizon)			0.00			1/2" Ice	2.49	1.36	0.07
			0.00			1" Ice	2.70	1.53	0.09
ALU RH 2x60 700	A	From Leg	3.00	0.0000	96.00	No Ice	2.29	1.21	0.05
(Verizon)			0.00			1/2" Ice	2.49	1.36	0.07
			0.00			1" Ice	2.70	1.53	0.09
ALU RH 2x60 - PCS	B	From Leg	3.00	0.0000	96.00	No Ice	2.94	1.25	0.06
(Verizon)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
ALU RH 2x60 - PCS	B	From Leg	3.00	0.0000	96.00	No Ice	2.94	1.25	0.06
(Verizon)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
ALU RH 2x60 - PCS	B	From Leg	3.00	0.0000	96.00	No Ice	2.94	1.25	0.06
(Verizon)			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
Raycap DB-T1-6Z-8AB-0Z	A	From Leg	2.00	0.0000	96.00	No Ice	5.60	5.60	0.04
(Verizon)			0.00			1/2" Ice	6.60	6.60	0.06
			0.00			1" Ice	7.60	7.60	0.08
Raycap DB-T1-6Z-8AB-0Z	A	From Leg	2.00	0.0000	96.00	No Ice	5.60	5.60	0.04
(Verizon)			0.00			1/2" Ice	6.60	6.60	0.06
			0.00			1" Ice	7.60	7.60	0.08
10' Omni	B	From Leg	6.50	0.0000	92.00	No Ice	2.50	2.50	0.08
(Verizon)			0.00			1/2" Ice	3.53	3.53	0.09
			5.00			1" Ice	4.58	4.58	0.12
10' Omni	C	From Leg	6.50	0.0000	92.00	No Ice	2.50	2.50	0.08
(Verizon)			0.00			1/2" Ice	3.53	3.53	0.09
			5.00			1" Ice	4.58	4.58	0.12
*****									
LP 303-1	C	None		0.0000	82.00	No Ice	17.46	17.46	1.35
						1/2" Ice	22.44	22.44	1.62
						1" Ice	27.42	27.42	1.90
******									
LP 303-1	C	None		0.0000	72.00	No Ice	17.46	17.46	1.35
						1/2" Ice	22.44	22.44	1.62
						1" Ice	27.42	27.42	1.90
15' Dipole	A	From Face	3.50	0.0000	72.00	No Ice	3.50	3.50	0.04
			-5.00			1/2" Ice	5.50	5.50	0.07
			-8.00			1" Ice	7.50	7.50	0.10
******									

Tower Pressures - No Ice

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 125.00-96.04	109.56	1.409	26	54.179	A	0.000	54.179	54.179	100.00	0.000	0.000
					B	0.000	54.179		100.00	0.000	0.000
					C	0.000	54.179		100.00	0.000	0.000
L2 96.04-47.67	70.68	1.243	23	136.639	A	0.000	136.639	136.639	100.00	0.000	0.000
					B	0.000	136.639		100.00	0.000	0.000
					C	0.000	136.639		100.00	0.000	0.000
L3 47.67-1.00	23.31	1	19	186.247	A	0.000	186.247	186.247	100.00	0.000	0.000
					B	0.000	186.247		100.00	0.000	0.000
					C	0.000	186.247		100.00	0.000	0.000

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 125.00-96.04	109.56	1.409	20	0.7500	57.799	A	0.000	57.799	57.799	100.00	0.000	0.000
						B	0.000	57.799		100.00	0.000	0.000
						C	0.000	57.799		100.00	0.000	0.000
L2 96.04-47.67	70.68	1.243	17	0.7500	142.685	A	0.000	142.685	142.685	100.00	0.000	0.000
						B	0.000	142.685		100.00	0.000	0.000
						C	0.000	142.685		100.00	0.000	0.000
L3 47.67-1.00	23.31	1	14	0.7500	192.081	A	0.000	192.081	192.081	100.00	0.000	0.000
						B	0.000	192.081		100.00	0.000	0.000
						C	0.000	192.081		100.00	0.000	0.000

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 125.00-96.04	109.56	1.409	9	54.179	A	0.000	54.179	54.179	100.00	0.000	0.000
					B	0.000	54.179		100.00	0.000	0.000
					C	0.000	54.179		100.00	0.000	0.000
L2 96.04-47.67	70.68	1.243	8	136.639	A	0.000	136.639	136.639	100.00	0.000	0.000
					B	0.000	136.639		100.00	0.000	0.000

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
					C	0.000	136.639		100.00	0.000	0.000
L3 47.67-1.00	23.31	1	6	186.247	A	0.000	186.247	186.247	100.00	0.000	0.000
					B	0.000	186.247		100.00	0.000	0.000
					C	0.000	186.247		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	1.55	53.56	C
125.00-96.04			B	1	0.65	1	1	1	54.179			
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	3.43	70.97	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	3.82	81.93	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	492.90 kip-ft	8.81		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	1.55	53.56	C
125.00-96.04			B	1	0.65	1	1	1	54.179			
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	3.43	70.97	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	3.82	81.93	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	492.90 kip-ft	8.81		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	1.55	53.56	C
125.00-96.04			B	1	0.65	1	1	1	54.179			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	3.43	70.97	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	3.82	81.93	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	492.90 kip-ft	8.81		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.93	A	1	0.65	1	1	1	57.799	1.24	42.85	C
125.00-96.04			B	1	0.65	1	1	1	57.799			
			C	1	0.65	1	1	1	57.799			
L2	2.32	6.22	A	1	0.65	1	1	1	142.685	2.69	55.58	C
96.04-47.67			B	1	0.65	1	1	1	142.685			
			C	1	0.65	1	1	1	142.685			
L3 47.67-1.00	2.27	10.35	A	1	0.65	1	1	1	192.081	2.96	63.37	C
			B	1	0.65	1	1	1	192.081			
			C	1	0.65	1	1	1	192.081			
Sum Weight:	5.15	18.50						OTM	388.05 kip-ft	6.89		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.93	A	1	0.65	1	1	1	57.799	1.24	42.85	C
125.00-96.04			B	1	0.65	1	1	1	57.799			
			C	1	0.65	1	1	1	57.799			
L2	2.32	6.22	A	1	0.65	1	1	1	142.685	2.69	55.58	C
96.04-47.67			B	1	0.65	1	1	1	142.685			
			C	1	0.65	1	1	1	142.685			
L3 47.67-1.00	2.27	10.35	A	1	0.65	1	1	1	192.081	2.96	63.37	C
			B	1	0.65	1	1	1	192.081			
			C	1	0.65	1	1	1	192.081			
Sum Weight:	5.15	18.50						OTM	388.05 kip-ft	6.89		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.93	A	1	0.65	1	1	1	57.799	1.24	42.85	C
125.00-96.04			B	1	0.65	1	1	1	57.799			
			C	1	0.65	1	1	1	57.799			
L2	2.32	6.22	A	1	0.65	1	1	1	142.685	2.69	55.58	C
96.04-47.67			B	1	0.65	1	1	1	142.685			
			C	1	0.65	1	1	1	142.685			
L3 47.67-1.00	2.27	10.35	A	1	0.65	1	1	1	192.081	2.96	63.37	C
			B	1	0.65	1	1	1	192.081			
			C	1	0.65	1	1	1	192.081			
Sum Weight:	5.15	18.50						OTM	388.05 kip-ft	6.89		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	0.54	18.53	C
125.00-96.04			B	1	0.65	1	1	1	54.179			
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	1.19	24.56	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	1.32	28.35	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	170.55 kip-ft	3.05		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	0.54	18.53	C
125.00-96.04			B	1	0.65	1	1	1	54.179			
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	1.19	24.56	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	1.32	28.35	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	170.55 kip-ft	3.05		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.57	1.31	A	1	0.65	1	1	1	54.179	0.54	18.53	C
125.00-96.04			B	1	0.65	1	1	1	54.179			
			C	1	0.65	1	1	1	54.179			
L2	2.32	4.67	A	1	0.65	1	1	1	136.639	1.19	24.56	C
96.04-47.67			B	1	0.65	1	1	1	136.639			
			C	1	0.65	1	1	1	136.639			
L3 47.67-1.00	2.27	8.25	A	1	0.65	1	1	1	186.247	1.32	28.35	C
			B	1	0.65	1	1	1	186.247			
			C	1	0.65	1	1	1	186.247			
Sum Weight:	5.15	14.22						OTM	170.55 kip-ft	3.05		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	14.22					
Bracing Weight	0.00					
Total Member Self-Weight	14.22			1.60	2.78	
Total Weight	33.53			1.60	2.78	
Wind 0 deg - No Ice		0.04	-32.32	-2948.52	-1.68	-4.83
Wind 30 deg - No Ice		16.20	-28.01	-2555.51	-1476.27	-3.72
Wind 60 deg - No Ice		28.03	-16.19	-1477.33	-2554.55	-1.60
Wind 90 deg - No Ice		32.34	-0.04	-2.87	-2947.60	0.94
Wind 120 deg - No Ice		27.99	16.13	1472.79	-2550.09	3.23
Wind 150 deg - No Ice		16.14	27.97	2554.25	-1468.54	4.66
Wind 180 deg - No Ice		-0.04	32.32	2951.72	7.25	4.83
Wind 210 deg - No Ice		-16.20	28.01	2558.71	1481.84	3.72
Wind 240 deg - No Ice		-28.03	16.19	1480.52	2560.12	1.60
Wind 270 deg - No Ice		-32.34	0.04	6.06	2953.17	-0.94
Wind 300 deg - No Ice		-27.99	-16.13	-1469.60	2555.66	-3.23
Wind 330 deg - No Ice		-16.14	-27.97	-2551.05	1474.11	-4.66
Member Ice	4.27					
Total Weight Ice	45.60			2.22	4.15	
Wind 0 deg - Ice		0.02	-28.03	-2590.92	2.05	-5.37
Wind 30 deg - Ice		14.03	-24.29	-2244.55	-1293.22	-3.85
Wind 60 deg - Ice		24.28	-14.03	-1296.17	-2240.85	-1.30
Wind 90 deg - Ice		28.03	-0.02	0.12	-2586.95	1.60
Wind 120 deg - Ice		24.26	14.00	1296.97	-2238.76	4.07
Wind 150 deg - Ice		14.00	24.27	2246.89	-1289.58	5.45
Wind 180 deg - Ice		-0.02	28.03	2595.36	6.24	5.37
Wind 210 deg - Ice		-14.03	24.29	2248.99	1301.51	3.85
Wind 240 deg - Ice		-24.28	14.03	1300.60	2249.14	1.30
Wind 270 deg - Ice		-28.03	0.02	4.31	2595.24	-1.60
Wind 300 deg - Ice		-24.26	-14.00	-1292.54	2247.05	-4.07
Wind 330 deg - Ice		-14.00	-24.27	-2242.46	1297.88	-5.45
Total Weight	33.53			1.60	2.78	
Wind 0 deg - Service		0.01	-11.18	-1019.21	1.24	-1.67
Wind 30 deg - Service		5.61	-9.69	-883.22	-509.00	-1.29
Wind 60 deg - Service		9.70	-5.60	-510.14	-882.11	-0.55
Wind 90 deg - Service		11.19	-0.01	0.05	-1018.11	0.32

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 120 deg - Service		9.69	5.58	510.66	-880.56	1.12
Wind 150 deg - Service		5.58	9.68	884.87	-506.32	1.61
Wind 180 deg - Service		-0.01	11.18	1022.40	4.33	1.67
Wind 210 deg - Service		-5.61	9.69	886.41	514.57	1.29
Wind 240 deg - Service		-9.70	5.60	513.34	887.68	0.55
Wind 270 deg - Service		-11.19	0.01	3.14	1023.68	-0.32
Wind 300 deg - Service		-9.69	-5.58	-507.47	886.13	-1.12
Wind 330 deg - Service		-5.58	-9.68	-881.67	511.89	-1.61

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+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 96.04	28.679	35	2.0703	0.0165
L2	99.96 - 47.67	18.233	35	1.8405	0.0098
L3	53.34 - 1	4.664	35	0.8499	0.0025

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
123.00	15' Omni	35	27.815	2.0570	0.0160	16912
112.00	LP 303-1	35	23.115	1.9748	0.0128	6504
105.50	Tri-Antenna Mount	35	20.430	1.9106	0.0112	4336
102.00	LP 303-1	35	19.031	1.8682	0.0103	3696
96.00	X7C-FRO-660-VR0 w/ pipe mount	35	16.727	1.7798	0.0090	3243
95.00	LP 303-1	35	16.356	1.7631	0.0088	3210
92.00	10' Omni	35	15.265	1.7101	0.0081	3117
82.00	LP 303-1	35	11.885	1.5072	0.0063	2844
72.00	LP 303-1	35	8.927	1.2787	0.0047	2614

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 96.04	82.122	9	5.9143	0.0532
L2	99.96 - 47.67	52.317	10	5.2753	0.0303
L3	53.34 - 1	13.417	10	2.4445	0.0079

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
123.00	15' Omni	9	79.659	5.8777	0.0518	6127
112.00	LP 303-1	9	66.253	5.6517	0.0410	2355
105.50	Tri-Antenna Mount	9	58.592	5.4726	0.0350	1568
102.00	LP 303-1	9	54.595	5.3535	0.0320	1336
96.00	X7C-FRO-660-VR0 w/ pipe mount	10	48.013	5.1034	0.0277	1167
95.00	LP 303-1	10	46.951	5.0561	0.0270	1154
92.00	10' Omni	10	43.830	4.9055	0.0251	1118
82.00	LP 303-1	10	34.149	4.3271	0.0193	1011
72.00	LP 303-1	10	25.664	3.6737	0.0145	923

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	125 - 123.682	TP26.9x18x0.1875	28.96	0.00	0.0	39.000	10.8417	-0.09	422.83	0.000
	123.682 - 122.364					39.000	11.0827	-4.45	432.23	0.010
	122.364 - 121.046					39.000	11.3238	-4.55	441.63	0.010
	121.046 - 119.728					39.000	11.5648	-4.65	451.03	0.010
	119.728 - 118.411					39.000	11.8058	-2.63	460.43	0.006
	118.411 - 117.093					39.000	12.0469	-2.71	469.83	0.006
	117.093 - 115.775					39.000	12.2879	-2.79	479.23	0.006
	115.775 - 114.457					39.000	12.5289	-2.86	488.63	0.006
	114.457 - 113.139					39.000	12.7700	-2.94	498.03	0.006
	113.139 - 111.821					39.000	12.9783	-3.86	506.15	0.008
	111.821 - 110.503					39.000	13.2521	-4.85	516.83	0.009
	110.503 - 109.185					39.000	13.4931	-4.94	526.23	0.009
	109.185 - 107.867					39.000	13.7341	-5.03	535.63	0.009
	107.867 - 106.549					39.000	13.9752	-5.11	545.03	0.009
	106.549 - 105.232					39.000	14.2162	-6.00	554.43	0.011
	105.232 - 103.914					39.000	14.4572	-6.10	563.83	0.011
	103.914 - 102.596					39.000	14.6983	-6.19	573.23	0.011
	102.596 - 101.278					39.000	14.9393	-8.35	582.63	0.014
	101.278 - 99.96					39.000	15.1803	-8.45	592.03	0.014
	99.96 - 96.04					39.000	15.8973	-3.91	619.99	0.006
L2	99.96 - 96.04	TP41.28x25.3203x0.25 H1-3 (1.51 CR) - 2/19	52.29	0.00	0.0	39.000	20.8427	-5.09	812.86	0.006
	96.04 - 93.6678	H1-3 (1.51 CR) - 2/18				39.000	21.4172	-11.53	835.27	0.014
	93.6678 - 91.2956	H1-3 (1.51 CR) - 2/17				39.000	21.9917	-11.99	857.68	0.014
	91.2956 - 88.9233	H1-3 (1.51 CR) - 2/16				39.000	22.5662	-12.33	880.08	0.014
	88.9233 - 86.5511	H1-3 (1.51 CR) - 2/15				39.000	23.1408	-12.67	902.49	0.014
	86.5511 - 84.1789	H1-3 (1.51 CR) - 2/14				39.000	23.7153	-13.03	924.90	0.014

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 $\frac{P}{P_a}$
	84.1789 - 81.8067	H1-3 (1.51 CR) - 2/13				39.000	24.2898	-14.68	947.30	0.015
	81.8067 - 79.4344	H1-3 (1.51 CR) - 2/12				39.000	24.8643	-15.05	969.71	0.016
	79.4344 - 77.0622	H1-3 (1.51 CR) - 2/11				39.000	25.4389	-15.42	992.12	0.016
	77.0622 - 74.69	H1-3 (1.51 CR) - 2/10				39.000	26.0134	-15.80	1014.52	0.016
	74.69 - 72.3178	H1-3 (1.51 CR) - 2/9				39.000	26.5879	-16.19	1036.93	0.016
	72.3178 - 69.9456	H1-3 (1.51 CR) - 2/8				39.000	27.1624	-17.92	1059.33	0.017
	69.9456 - 67.5733	H1-3 (1.51 CR) - 2/7				39.000	27.7370	-18.33	1081.74	0.017
	67.5733 - 65.2011	H1-3 (1.51 CR) - 2/6				39.000	28.3115	-18.74	1104.15	0.017
	65.2011 - 62.8289	H1-3 (1.51 CR) - 2/5				39.000	28.8860	-19.15	1126.55	0.017
	62.8289 - 60.4567	H1-3 (1.51 CR) - 2/4				39.000	29.4605	-19.57	1148.96	0.017
	60.4567 - 58.0844	H1-3 (1.51 CR) - 2/3				38.851	30.0350	-20.00	1166.89	0.017
	58.0844 - 55.7122	H1-3 (1.51 CR) - 2/2				38.527	30.6096	-20.43	1179.28	0.017
	55.7122 - 53.34	H1-3 (1.51 CR) - 2				38.202	31.1841	-20.86	1191.31	0.018
	53.34 - 47.67	H1-3 (1.51 CR) - 2				37.427	32.5573	-10.18	1218.53	0.008
L3	53.34 - 47.67	TP55x39.0494x0.3125	52.34	0.00	0.0	39.000	40.1361	-12.39	1565.31	0.008
	47.67 - 45.2137	H1-3 (1.39 CR) - 3/19				39.000	40.8786	-23.10	1594.26	0.014
	45.2137 - 42.7574	H1-3 (1.39 CR) - 3/18				39.000	41.6210	-23.63	1623.22	0.015
	42.7574 - 40.3011	H1-3 (1.39 CR) - 3/17				39.000	42.3635	-24.16	1652.18	0.015
	40.3011 - 37.8447	H1-3 (1.39 CR) - 3/16				39.000	43.1060	-24.70	1681.13	0.015
	37.8447 - 35.3884	H1-3 (1.39 CR) - 3/15				39.000	43.8485	-25.24	1710.09	0.015
	35.3884 - 32.9321	H1-3 (1.39 CR) - 3/14				39.000	44.5910	-25.79	1739.05	0.015
	32.9321 - 30.4758	H1-3 (1.39 CR) - 3/13				39.000	45.3334	-26.35	1768.00	0.015
		H1-3 (1.39 CR) - 3/12								

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 $\frac{P}{P_a}$
	30.4758 - 28.0195	H1-3 (1.39 CR) - 3/11				39.000	46.0759	-26.91	1796.96	0.015
	28.0195 - 25.5632	H1-3 (1.39 CR) - 3/10				38.891	46.8184	-27.48	1820.82	0.015
	25.5632 - 23.1068	H1-3 (1.39 CR) - 3/9				38.623	47.5609	-28.06	1836.94	0.015
	23.1068 - 20.6505	H1-3 (1.39 CR) - 3/8				38.355	48.3033	-28.64	1852.66	0.015
	20.6505 - 18.1942	H1-3 (1.39 CR) - 3/7				38.087	49.0458	-29.22	1867.99	0.016
	18.1942 - 15.7379	H1-3 (1.39 CR) - 3/6				37.818	49.7883	-29.82	1882.91	0.016
	15.7379 - 13.2816	H1-3 (1.39 CR) - 3/5				37.550	50.5308	-30.41	1897.44	0.016
	13.2816 - 10.8253	H1-3 (1.39 CR) - 3/4				37.282	51.2733	-31.02	1911.57	0.016
	10.8253 - 8.36895	H1-3 (1.39 CR) - 3/3				37.014	52.0157	-31.63	1925.30	0.016
	8.36895 - 5.91263	H1-3 (1.39 CR) - 3/2				36.746	52.7582	-32.25	1938.63	0.017
	5.91263 - 3.45632	H1-3 (1.39 CR) - 3				36.477	53.5007	-32.87	1951.57	0.017
	3.45632 - 1	H1-3 (1.39 CR) - 3				36.209	54.2432	-33.50	1964.10	0.017

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	125 - 123.682	TP26.9x18x0.1875	0.04	-0.009	39.000	0.000	0.00	0.000	39.000	0.000
	123.682 - 122.364		6.94	-1.638	39.000	0.042	0.00	0.000	39.000	0.000
	122.364 - 121.046		14.66	-3.315	39.000	0.085	0.00	0.000	39.000	0.000
	121.046 - 119.728		22.46	-4.869	39.000	0.125	0.00	0.000	39.000	0.000
	119.728 - 118.411		31.29	-6.507	39.000	0.167	0.00	0.000	39.000	0.000
	118.411 - 117.093		39.78	-7.944	39.000	0.204	0.00	0.000	39.000	0.000
	117.093 - 115.775		48.37	-9.282	39.000	0.238	0.00	0.000	39.000	0.000
	115.775 - 114.457		57.05	-10.528	39.000	0.270	0.00	0.000	39.000	0.000

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 $\frac{f_{by}}{F_{by}}$
	114.457 - 113.139		65.82	-11.692	39.000	0.300	0.00	0.000	39.000	0.000
	113.139 - 111.821		73.49	-12.637	39.000	0.324	0.00	0.000	39.000	0.000
	111.821 - 110.503		85.31	-14.067	39.000	0.361	0.00	0.000	39.000	0.000
	110.503 - 109.185		99.58	-15.836	39.000	0.406	0.00	0.000	39.000	0.000
	109.185 - 107.867		113.94	-17.487	39.000	0.448	0.00	0.000	39.000	0.000
	107.867 - 106.549		128.41	-19.031	39.000	0.488	0.00	0.000	39.000	0.000
	106.549 - 105.232		142.98	-20.474	39.000	0.525	0.00	0.000	39.000	0.000
	105.232 - 103.914		159.50	-22.082	39.000	0.566	0.00	0.000	39.000	0.000
	103.914 - 102.596		176.13	-23.588	39.000	0.605	0.00	0.000	39.000	0.000
	102.596 - 101.278		197.84	-25.645	39.000	0.658	0.00	0.000	39.000	0.000
	101.278 - 99.96		221.26	-27.774	39.000	0.712	0.00	0.000	39.000	0.000
	99.96 - 96.04		128.68	-14.724	39.000	0.378	0.00	0.000	39.000	0.000
L2	99.96 - 96.04	TP41.28x25.3203x0.25	162.92	-14.496	39.000	0.372	0.00	0.000	39.000	0.000
	96.04 - 93.6678		348.53	-29.361	39.000	0.753	0.00	0.000	39.000	0.000
	93.6678 - 91.2956		408.88	-32.661	39.000	0.837	0.00	0.000	39.000	0.000
	91.2956 - 88.9233		468.36	-35.524	39.000	0.911	0.00	0.000	39.000	0.000
	88.9233 - 86.5511		528.19	-38.089	39.000	0.977	0.00	0.000	39.000	0.000
	86.5511 - 84.1789		588.37	-40.389	39.000	1.036	0.00	0.000	39.000	0.000
	84.1789 - 81.8067		649.05	-42.464	39.000	1.089	0.00	0.000	39.000	0.000
	81.8067 - 79.4344		711.83	-44.435	39.000	1.139	0.00	0.000	39.000	0.000
	79.4344 - 77.0622		774.95	-46.207	39.000	1.185	0.00	0.000	39.000	0.000
	77.0622 - 74.69		838.41	-47.799	39.000	1.226	0.00	0.000	39.000	0.000
	74.69 - 72.3178		902.21	-49.229	39.000	1.262	0.00	0.000	39.000	0.000
	72.3178 - 69.9456		967.34	-50.566	39.000	1.297	0.00	0.000	39.000	0.000
	69.9456 - 67.5733		1033.95	-51.824	39.000	1.329	0.00	0.000	39.000	0.000
	67.5733 - 65.2011		1100.88	-52.955	39.000	1.358	0.00	0.000	39.000	0.000
	65.2011 - 62.8289		1168.16	-53.970	39.000	1.384	0.00	0.000	39.000	0.000
	62.8289 - 60.4567		1235.77	-54.882	39.000	1.407	0.00	0.000	39.000	0.000
	60.4567 - 58.0844		1303.72	-55.698	38.851	1.434	0.00	0.000	38.851	0.000
	58.0844 - 55.7122		1372.00	-56.429	38.527	1.465	0.00	0.000	38.527	0.000
	55.7122 - 53.34		1440.63	-57.081	38.202	1.494	0.00	0.000	38.202	0.000

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 $\frac{f_{by}}{F_{by}}$
	53.34 - 47.67		730.91	-26.562	37.427	0.710	0.00	0.000	37.427	0.000
L3	53.34 - 47.67	TP55x39.0494x0.3125	875.48	-26.211	39.000	0.672	0.00	0.000	39.000	0.000
	47.67 - 45.2137		1678.95	-48.450	39.000	1.242	0.00	0.000	39.000	0.000
	45.2137 - 42.7574		1751.85	-48.759	39.000	1.250	0.00	0.000	39.000	0.000
	42.7574 - 40.3011		1825.09	-49.027	39.000	1.257	0.00	0.000	39.000	0.000
	40.3011 - 37.8447		1898.69	-49.256	39.000	1.263	0.00	0.000	39.000	0.000
	37.8447 - 35.3884		1972.65	-49.450	39.000	1.268	0.00	0.000	39.000	0.000
	35.3884 - 32.9321		2046.97	-49.612	39.000	1.272	0.00	0.000	39.000	0.000
	32.9321 - 30.4758		2121.64	-49.746	39.000	1.276	0.00	0.000	39.000	0.000
	30.4758 - 28.0195		2196.68	-49.854	39.000	1.278	0.00	0.000	39.000	0.000
	28.0195 - 25.5632		2272.10	-49.937	38.891	1.284	0.00	0.000	38.891	0.000
	25.5632 - 23.1068		2347.88	-49.999	38.623	1.295	0.00	0.000	38.623	0.000
	23.1068 - 20.6505		2424.05	-50.041	38.355	1.305	0.00	0.000	38.355	0.000
	20.6505 - 18.1942		2500.59	-50.066	38.087	1.315	0.00	0.000	38.087	0.000
	18.1942 - 15.7379		2577.53	-50.074	37.818	1.324	0.00	0.000	37.818	0.000
	15.7379 - 13.2816		2654.83	-50.066	37.550	1.333	0.00	0.000	37.550	0.000
	13.2816 - 10.8253		2732.54	-50.046	37.282	1.342	0.00	0.000	37.282	0.000
	10.8253 - 8.36895		2810.65	-50.013	37.014	1.351	0.00	0.000	37.014	0.000
	8.36895 - 5.91263		2889.15	-49.969	36.746	1.360	0.00	0.000	36.746	0.000
	5.91263 - 3.45632		2968.05	-49.914	36.477	1.368	0.00	0.000	36.477	0.000
	3.45632 - 1		3047.37	-49.851	36.209	1.377	0.00	0.000	36.209	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	125 - 123.682	TP26.9x18x0.1875	0.000	0.000	0.000	0.000 ✔	1.333	H1-3 ✔
	123.682 - 122.364		0.010	0.042	0.000	0.052 ✔	1.333	H1-3 ✔
	122.364 - 121.046		0.010	0.085	0.000	0.095 ✔	1.333	H1-3 ✔
	121.046 - 119.728		0.010	0.125	0.000	0.135 ✔	1.333	H1-3 ✔
	119.728 - 118.411		0.006	0.167	0.000	0.173 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	118.411 - 117.093		0.006	0.204	0.000	0.209 ✔	1.333	H1-3 ✔
	117.093 - 115.775		0.006	0.238	0.000	0.244 ✔	1.333	H1-3 ✔
	115.775 - 114.457		0.006	0.270	0.000	0.276 ✔	1.333	H1-3 ✔
	114.457 - 113.139		0.006	0.300	0.000	0.306 ✔	1.333	H1-3 ✔
	113.139 - 111.821		0.008	0.324	0.000	0.332 ✔	1.333	H1-3 ✔
	111.821 - 110.503		0.009	0.361	0.000	0.370 ✔	1.333	H1-3 ✔
	110.503 - 109.185		0.009	0.406	0.000	0.415 ✔	1.333	H1-3 ✔
	109.185 - 107.867		0.009	0.448	0.000	0.458 ✔	1.333	H1-3 ✔
	107.867 - 106.549		0.009	0.488	0.000	0.497 ✔	1.333	H1-3 ✔
	106.549 - 105.232		0.011	0.525	0.000	0.536 ✔	1.333	H1-3 ✔
	105.232 - 103.914		0.011	0.566	0.000	0.577 ✔	1.333	H1-3 ✔
	103.914 - 102.596		0.011	0.605	0.000	0.616 ✔	1.333	H1-3 ✔
	102.596 - 101.278		0.014	0.658	0.000	0.672 ✔	1.333	H1-3 ✔
	101.278 - 99.96		0.014	0.712	0.000	0.726 ✔	1.333	H1-3 ✔
	99.96 - 96.04		0.006	0.378	0.000	0.384 ✔	1.333	H1-3 ✔
L2	99.96 - 96.04	TP41.28x25.3203x0.25	0.006	0.372	0.000	0.378 ✔	1.333	H1-3 ✔
	96.04 - 93.6678		0.014	0.753	0.000	0.767 ✔	1.333	H1-3 ✔
	93.6678 - 91.2956		0.014	0.837	0.000	0.851 ✔	1.333	H1-3 ✔
	91.2956 - 88.9233		0.014	0.911	0.000	0.925 ✔	1.333	H1-3 ✔
	88.9233 - 86.5511		0.014	0.977	0.000	0.991 ✔	1.333	H1-3 ✔
	86.5511 - 84.1789		0.014	1.036	0.000	1.050 ✔	1.333	H1-3 ✔
	84.1789 - 81.8067		0.015	1.089	0.000	1.104 ✔	1.333	H1-3 ✔
	81.8067 - 79.4344		0.016	1.139	0.000	1.155 ✔	1.333	H1-3 ✔
	79.4344 - 77.0622		0.016	1.185	0.000	1.200 ✔	1.333	H1-3 ✔
	77.0622 - 74.69		0.016	1.226	0.000	1.241 ✔	1.333	H1-3 ✔
	74.69 - 72.3178		0.016	1.262	0.000	1.278 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria	
	72.3178 - 69.9456		0.017	1.297	0.000	1.313 ✓	1.333	H1-3 ✓	
	69.9456 - 67.5733		0.017	1.329	0.000	1.346 ✗	1.333	H1-3 ✗	Reinforced Section
	67.5733 - 65.2011		0.017	1.358	0.000	1.375 ✗	1.333	H1-3 ✗	
	65.2011 - 62.8289		0.017	1.384	0.000	1.401 ✗	1.333	H1-3 ✗	
	62.8289 - 60.4567		0.017	1.407	0.000	1.424 ✗	1.333	H1-3 ✗	
	60.4567 - 58.0844		0.017	1.434	0.000	1.451 ✗	1.333	H1-3 ✗	
	58.0844 - 55.7122		0.017	1.465	0.000	1.482 ✗	1.333	H1-3 ✗	
	55.7122 - 53.34		0.018	1.494	0.000	1.512 ✗	1.333	H1-3 ✗	
	53.34 - 47.67		0.008	0.710	0.000	0.718 ✓	1.333	H1-3 ✓	
L3	53.34 - 47.67	TP55x39.0494x0.3125	0.008	0.672	0.000	0.680 ✓	1.333	H1-3 ✓	
	47.67 - 45.2137		0.014	1.242	0.000	1.257 ✓	1.333	H1-3 ✓	
	45.2137 - 42.7574		0.015	1.250	0.000	1.265 ✓	1.333	H1-3 ✓	
	42.7574 - 40.3011		0.015	1.257	0.000	1.272 ✓	1.333	H1-3 ✓	
	40.3011 - 37.8447		0.015	1.263	0.000	1.278 ✓	1.333	H1-3 ✓	
	37.8447 - 35.3884		0.015	1.268	0.000	1.283 ✓	1.333	H1-3 ✓	
	35.3884 - 32.9321		0.015	1.272	0.000	1.287 ✓	1.333	H1-3 ✓	
	32.9321 - 30.4758		0.015	1.276	0.000	1.290 ✓	1.333	H1-3 ✓	
	30.4758 - 28.0195		0.015	1.278	0.000	1.293 ✓	1.333	H1-3 ✓	
	28.0195 - 25.5632		0.015	1.284	0.000	1.299 ✓	1.333	H1-3 ✓	
	25.5632 - 23.1068		0.015	1.295	0.000	1.310 ✓	1.333	H1-3 ✓	
	23.1068 - 20.6505		0.015	1.305	0.000	1.320 ✓	1.333	H1-3 ✓	
	20.6505 - 18.1942		0.016	1.315	0.000	1.330 ✓	1.333	H1-3 ✓	
	18.1942 - 15.7379		0.016	1.324	0.000	1.340 ✗	1.333	H1-3 ✗	Reinforced Section
	15.7379 - 13.2816		0.016	1.333	0.000	1.349 ✗	1.333	H1-3 ✗	
	13.2816 - 10.8253		0.016	1.342	0.000	1.359 ✗	1.333	H1-3 ✗	
	10.8253 - 8.36895		0.016	1.351	0.000	1.368 ✗	1.333	H1-3 ✗	
	8.36895 - 5.91263		0.017	1.360	0.000	1.376 ✗	1.333	H1-3 ✗	
	5.91263 - 3.45632		0.017	1.368	0.000	1.385 ✗	1.333	H1-3 ✗	

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	3.45632 - 1		0.017	1.377	0.000	1.394 ✗	1.333	H1-3 ✗

See attached reinforcement calcs

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	125 - 96.04	Pole	TP26.9x18x0.1875	1	-8.45	789.18	54.5	Pass
L2	96.04 - 47.67	Pole	TP41.28x25.3203x0.25	2	-20.86	1588.02	99.5	Pass
L3	47.67 - 1	Pole	TP55x39.0494x0.3125	3	-33.50	2618.15	99.5	Pass
							Summary	
						Pole (L2)		Pass
						RATING =	**99.5**	Pass

See Calcs Below for Reinforced Section Calcs

Switchblade

Section	Pole #	Reinforcement1	Reinforcement2	Ma(k*ft)	Mn/Ω Pole capacity (k*ft)	Pole Diameter (in)	centroid from face Reinf1 (in)	centroid from face Reinf2 (in)	R1	FW Reinf2 (in)	Mom. arm Reinf2 (in)	ØMn for Reinf2 capacity (k*ft)	Total Mn/Ω (k*ft)	Capacity (%)	Pass/Fail
@Base	1	SCI Switchblade	SB	3047.4	2915.86	40.71	NA	1.3125	20.355	37.529211	32.50	352.30	3268.16	93.2%	PASS
18.2'	1	SCI Switchblade	SB	2577.53	2558.3	48.9			24.45	42.348642	36.68	397.54	2955.84	87.2%	PASS
53	1	SCI Switchblade	SB	1440.63	1268	40.71			20.355	35.255894	30.53	558.49	1826.49	78.9%	PASS
70	1	SCI Switchblade	SB	1033.95	1023.9	34.12	NA	1.3125	17.06	31.822103	27.56	504.10	1528.00	67.7%	PASS

* Total Mn/Ω is the minimum of the original monopole capacity + the switchblade capacity or the original splice capacity + Switchblade Capacity

PROJECT No:	CT-5003	**ENG:**	CB
PROJECT NAME:	Spring Hill	**CHK:**	PG
	Bennett & Pless		
DATE:	August 4, 2016	**PAGE:**	of

EIA-222-F

SINGLE GLOBAL FOUNDATION WITH PIER(s) CHECKS

Global Tower Reactions		*Allowable Loads*		*Calculated Reactions*		**Allowable Resistance**				
○TIA-G	Maximum Moment	3,047.00	k-ft	Disturbing Moment	3,223.0	4,408.7	k-ft	pass	73.1%	[GOVERNS]
◉EIA-F	Axial Load	34.00	kips	Maximum Bearing	2.20	20.00	kips	pass	11.0%	
	Shear Load	32.00	kips	Punching Shear	601.2	4,062.5	kips	pass	14.8%	
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)		(36) #8 @ 6.81 in **MINIMUM**						
	Rebar Required	(checked rebar for 6" min to 24" max spacing)		(61) #6 @ 4.90 in					SF=2.74	

Soil Parameters	**Soils Report**		**Pier Geometry**			**Pad Geometry**	
ϕ	0.0	°	Qty of Piers	1		Width (Bm)	25.00 ft
Water Level	13.00	ft (3.96 m)	Width (Bp)	7.00	ft	Width (Wm)	25.00 ft
Soil Dry Density (γ_{dry})	0.110	kcf (17.3 kN/m^3)	Width (Wp)	7.00	ft	Height (Hm)	4.50 ft
Soil Sub Density (γ_{sub})	0.050	kcf (7.85 kN/m^3)	Height (Hp)	1.00	ft	Depth (D)	5.50 ft
All. Bearing Pressure	20.000	ksf (957.6 kPa)	Pier Type	r	(Rnd or Sq)		
Bearing Safety Factor	2		Conc γ_{dry}	0.150	kcf (23.6)		

Volume of Concrete/Soil

	Concrete (106.3cuyd) 1 Pier	Mat	Soil	
Depth (above)	0.50	--	--	ft
Depth (dry)	1.00	4.50	1.00	ft
Depth (submerged)	0.00	0.00	0.00	ft
Volume (above)	19.21	--	--	ft^3
Volume (dry)	38.42	2,812.50	586.58	ft^3
Volume (submerged)	0.00	0	0.00	ft^3
Total	58	2813	587	ft^3

Concrete Reinforcing Design

f'c	4.000	ksi	(27.6 MPa)	
fy	60.00	ksi	(413.7 MPa)	
	MAT		**PIER**	
Steel (Metric/ASTM)	ASTM		ASTM	
Bar size	6	#	8	#
	0.440	in²	0.790	in²

Slab Reinforcing

½ Disturbing Moment	1611.50	kip-ft			
Ku	24.78		**Wgt of Rebar**		
ρ	0.00046		8,950	lbs	
4/3•ρ if ρ < ρ min	0.00061				
ρ min ≥ 0.0018	0.00180				
As	27.00	in²			
Number of bars	61	bars on	4.90	in c/c	

Note: The 1/2 moment is derived from a bending moment diagram that considered the uplift and download components at the exact face width of the tower.

Calculations

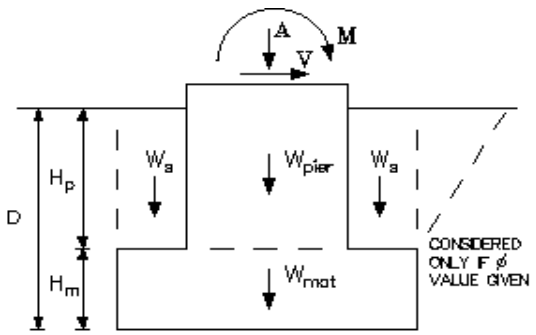
	Factored	*Allowable*	
Axial Download	--	34.0	kips
Weight of Concrete (not factored)	--	430.5	kips(106.3yds)
Weight of Soil (not factored)	--	64.5	kips
Total Download (P)	--	529.0	kips
Resisting Moment Arm	--	12.5	ft
Moment Resistance	--	4408.7	k-ft
		(divide by 1.5 - cl. 7.2.4.5)	

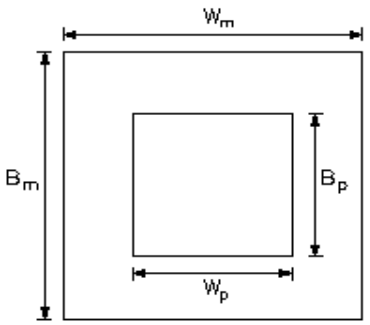
Bearing Capacity Check

Contact Area	--	625.00	ft²
Calculate eccentricity e	--	6.09	ft [>L/6]
Calculate (c = L/2 - e)	--	6.41	ft
1) q_{max} = P/A • (1+6e/L)	--	--	
2) q_{max} = 2P / b•3c	--	2.20	ksf [GOV]
$q_{allowable}$	--	20.00	ksf
		(not factored)	

Check for 2-Way Shear (Punching)

Shear Area (b_o x d)	--	148.69	ft²
Factored Bearing Stress	--	1.14	ksf
Factored Shear Force	--	601.25	kips
Factored Shear Resistance	--	4062.5	kips
Check for 2-way Shear	--	0.15	
		(ACI-318)	





M =	3047.0	k-ft
A =	34.0	kips
V =	32.0	kips
Bp =	7.00	ft
Wp =	7.00	ft
Hp =	1.00	ft
Bm =	25.00	ft
Wm =	25.00	ft
Hm =	4.50	ft
D =	5.50	ft
V_{mat} =	2870.1	cuft
Rebar =	(61) #6 @ 4.90 in	

Appendix B
Collocation Application

BlueSky Tower Partners LLC

Collocation Application

Installation Type: Anchor ☐ Collocation ☐ Add to Existing ☑

BlueSky Towers, LLC Info

Contact:	Sean Gormley	Site Number:	CT-5003
Email	collos@blueskytower.com	Site Name:	Spring Hill Lane
Office:	508-530-3580	Submittal Date	12/28/2015
Fax:	508-530-3564	Revision Date(s)	

PLEASE SUBMIT THIS APPLICATION VIA E-MAIL. Send only final LE's, CD's structurals, etc with Application

Applicant Information

Applicant Name:	New Cingular Wirless PCS, LLC	Primary Contact/Agent Name:	Tim Whalen
Applicant Site Name:	Bethel Spring Street	Contact/Agent Company Name:	Centerline Communications
Applicant Site Number:	CT2268	Contact/Agent Number:	781 375 8318
Proposed ON AIR Date:	ASAP	Contact/Agent Fax:	508 819 3017
Applicant Legal Entity:	New Cingular Wirless PCS, LLC	Contact Email:	twhalen@clinell.com
Notice Address for Site License:			

Applicant Contact Information

Leasing Contact Name:		Email:		Number:	
RF Contact Name:		Email:		Number:	
Construction Contact Name:		Email:		Number:	
Emergency Contact Name:		Email:		Number:	
Account Payable Contact Name:		Email:		Number:	

Tower Information

Latitude:	41d 21m 43.94196s N	Structure Type:	Monopole
Longitude:	73d -23m -47.688s W	Structure Height:	
AMSL:	FT		
Site Address:	23 Spring Hill Lane, Bethel CT		

EQUIPMENT SPECIFICATIONS

Summary of Work to be Completed:

Applicant Must fill in all bolded sections	SECTOR 1	SECTOR 2	SECTOR 3	SECTOR 4
Equipment Type	Panel	Panel	Panel	
Installation Status	Exisiting	Exisiting	Exisiting	
Desired RAD Center (Ft AGL)	122	122	122	
Tower Mount Mounting Height	122	122	122	
Mount Type(Attach Specs)	Secor Frame	Secor Frame	Secor Frame	
Antenna Manufacturer	Powerwave/ CCI/ Powerwave	Powerwave/ CCI/ Powerwave	Powerwave/ CCI/ Powerwave	
Antenna Model# (Attach Specs)	7770/ **HPA-65R-BUU-H8**/ P65-16-XLH-RR	7770/**HPA-65R-BUU-H6**/P65-16-XLH-RR	7770/HPA-65R-BUU-H6/P65-16-XLH-RR	
Antenna Dimensions (WxHxD)(Ft Or Inches)	55X11X5/92.4X14.8X7.4/ 72X12X6	55X11X5/72X14.8X9/72X12X6	55X11X5/72X14.8X9/72X12X6	
Antenna Weight (Per Item, In Lbs.)	35/ 68/ 64	35/ 50.7/ 64	35/ 50.7/ 64	
Antenna Quantity	1/1//1	1/1//1	1/1//1	
Dish Manufacturer				
Dish Model# (attach Specs)				
Dish Diam/Weight/Mount hgt or location				
Azimuths				
Total# Of Lines For Equipment In Column	4//1//2	4//1//2	4	
Line Type	Coax Fiber Hybrid Control C	Coax Hybri Cables	Coax	
Diameter Of Coax Cables (In)				
Transmitter/Receiver Type/RRU/Junction Boxes	TMA/ RRU/ RRU/ Squid	TMA/ RRU/ RRU/ Squid	TMA/ RRU/ RRU	
Qty Of Transmitters/Receivers/RRU's/Junction Boxes	2/2/1/1	2/2/1/1	2/2/2001	
Manufacturer	Pwave/ Ericsson/ Ericsson/ Raycap	Pwave/ Ericsson/ Ericsson/ Raycap	Pwave/ Ericsson/ Ericsson	
Type & Model	LGP21401/ RRUS 11/ RRUS 32/ DC 6	LGP21401/ RRUS 11/ RRUS 32/ DC 6	LGP21401/ RRUS 11/ RRUS 32/	
Removing Equipment (If Applicable)	Swapping(1)Powerwave 7770 for new CCI antenna	Swapping(1)Powerwave 7770 for new CCI antenna	Swapping(1)Powerwave 7770 for new CCI antenna	
Transmit Frequency (Mhz)	704-716, 1945-1950, 1965-1970, 880-890, 891-894	704-716, 1945-1950, 1965-1970, 880-890, 891-894	704-716, 1945-1950, 1965-1970, 880-890, 891-894	
Receive Frequency (Mhz)	734-746, 1865-1870, 11885-1890, 834-896, 847-849	734-746, 1865-1870, 11885-1890, 834-896, 847-849	734-746, 1865-1870, 11885-1890, 834-896, 847-849	
Antenna Gain (Db)				
Type of Technology				
TX Power Output				
ERP (Watts)				
Electric Service Required (Amps/Volts)				

Will RRUs be located behind antennas:

GROUND SPACE REQUIREMENTS - No Change

Exisiting Lease Area:	DIMS: L(ft)	7	W(ft)	16	OR	112	Square footage	
New/Add'l Lease Area being requested:	DIMS: L(ft)		W(ft)		OR	no change	Square footage	
New/Add'l Rooftop Lease Area being requested (if space is needed on both ground and rooftop:	DIMS: L(ft)		W(ft)		OR		Square footage	
Shelter:	DIMS: L(ft)		W(ft)		H(ft)			
Concrete Pad for Shelter:	DIMS: L(ft)		W(ft)					
Cabinets:	DIMS: L(ft)		W(ft)		H(ft)		Propane tank	
Concrete Pad for Cabinets:	DIMS: L(ft)		W(ft)					
Cabinet/Shelter Manufacturer/Model:								

POWER REQUIREMENTS

Power Provided by: Electrical Service Provider: Electrical Service Telephone Number:

Average Monthly Power Consumption: KWH units

How many, if any, empty meter banks are present:

Telco/Interconnect Requirements: POTS ☐ T1 ☐ MICROWAVE ☐ FIBER OPTICS ☑

Fiber Provider:

BACK-UP POWER INFORMATION

Generator Required: Generation Location:

Generator Ground Space Requirement: DIMS: L(ft) W(ft) H(ft) **Fuel Type:**

BST Generator: Generator Owner: Shared Generator Peak Usage: KW

Generator Capacity: KW Generator Make: Generator Model:

Fuel Tank Location: Fuel Tank Size: DIMS: L(ft) W(ft) Fuel Tank Size: Gallons

Pad for Fuel Tank (if required) DIMS: L(ft) W(ft)

Comments:

Before submitting application, this section MUST be addressed:

Attach manufacturer's equipment specifications for antennas, RRU's, mounts, and all struct loading info for analysis. Cabinets & shelters if available

Scope of Work Summary:

Swap Existing Powerwave 7770 in position 2 of each sector (3 total) with CCI HPA 65R-BUU

- Alpha will receive CCI HPA 65R-BUU H8
- Beta and Gamma will receive CCI HPA 65R-BUU H6

Adding (1) RRUS 11 per sector (3 total)

Adding (1) RRUS 32 per Sector (3 total)

Add (1) fiber trunk

Add (2) DC cables

Add 2nd Squid

Final Configuration after work is completed:

Final Configurations Include:

(9) Panel Antennas

- (3) Powerwave 770 (existing)
- (1) CCI 65R-BUU-H8 (new)
- (2) CCI 65R-BUU-H6 (new)
- (3) Powerwave P65-16-XLH-RR (existing)

(6) TMAs (existing)

(6) RRUS 11 (3 new, 3 existing)

(3) RRUS 32 (new)

(2) Squids (1 new , 1 existing)

(12) Coax (existing)

(4) DC lines (2 new, 2 existing)

(2) Fiber Cable (1 new, 1 existing)

Existing Equipment:

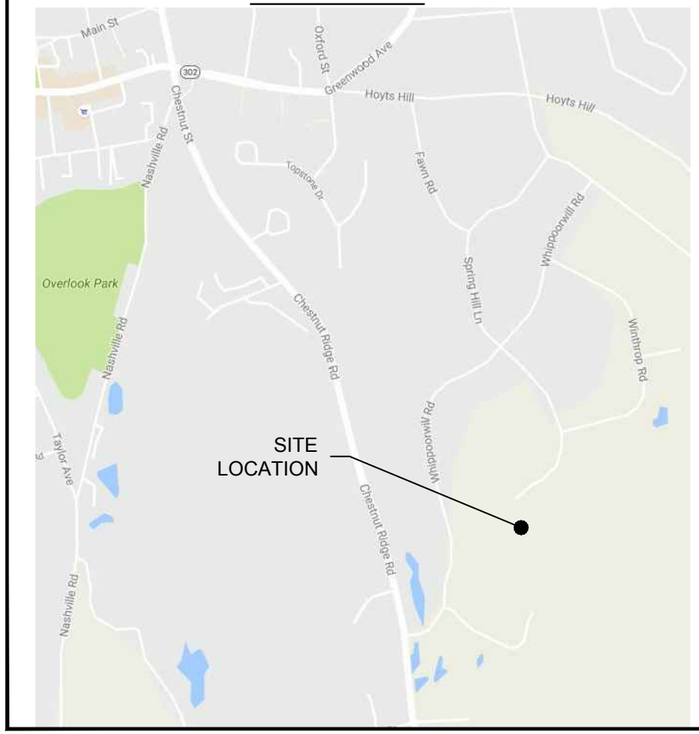
Comments: (SG) Will need SA, CDs.

TOWER MODIFICATION DRAWINGS

BlueSky Tower Partners LLC

BLUESKY SITE NUMBER: CT-5003
SITE NAME: Spring Hill Lane
ADDRESS: 23 Spring Hill Lane
Bethel, CT 06801

SITE MAP



CONTACTS

TOWER OWNER	Blue Sky Tower, LLC
Sean Gormley Operations Support Manager	collos@blueskytower.com
Blue Sky Site Number: Blue Sky Site Name:	CT-5003 Spring Hill Lane
PROPOSED CARRIER	AT&T
Carrier Site Number Carrier Site Name	CT2268 Bethel Spring Street
ENGINEER	Bennett & Pless
Paul Grupe, PE Vice President	pgrupe@bennett-pless.com
Cory Blake, PE Project Manager	cblake@bennett-pless.com
Bennett & Pless Project Number:	16707.001 CT-5003

DRAWING LIST

T-1	COVER SHEET
SK-1	GENERAL NOTES
SK-2	TOWER SITE PLAN
SK-3	TOWER ELEVATION AND MODIFICATION SCHEDULE
SK-4	SWITCHBLADE INSTALLATION DETAILS

BlueSky Tower Partners LLC

bennett&pless

Experience Structural Expertise
Atlanta, Georgia ● Chattanooga, Tennessee

3395 Northeast Expressway, Suite 110
Atlanta, Georgia 30341
Tel 678 990 8700 Fax 678 990 8701

STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21967
LICENSED
PROFESSIONAL ENGINEER
8/12/2016

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	8-12-16

DATE: 8/12/2016
SITE # (NAME): CT-5003 (Spring Hill Lane)
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Cover Sheet
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
T-1

DESIGN CRITERIA:

1. DESIGN CODE: = 2003 INTERNATIONAL BUILDING CODE

2. WIND DESIGN DATA:
   BASIC WIND SPEED = 85 MPH
   BASIC WIND SPEED W/ ICE = 74 MPH WITH 0.75" ICE

GENERAL NOTES:

1. ALL DIMENSIONS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER OF RECORD.
2. DO NOT MODIFY STRUCTURAL DETAILS WITHOUT APPROVAL OF THE ENGINEER OF RECORD.
3. CONTRACTOR RESPONSIBLE FOR ALL MEANS AND METHODS INCLUDING, BUT NOT LIMITED TO:
   A. PROVIDE ALL NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
   B. BRACE STRUCTURES UNTIL ALL STRUCTURAL ERECTION AND CONNECTIONS ARE COMPLETE.
   C. DETERMINE LOCATION OF UTILITIES AND APPURTENANCES BEFORE COMMENCING WORK.
   D. REPORT INCORRECTLY FABRICATED, DAMAGED, POORLY MAINTAINED, OR NONCONFORMING MATERIALS OR CONDITIONS TO THE ENGINEER OF RECORD PRIOR TO COMMENCING REMEDIAL OR CORRECTIVE ACTION. OBTAIN WRITTEN APPROVAL FOR REMEDIAL ACTIVITIES.
   E. COORDINATE CONSTRUCTION ACTIVITIES OF ALL PARTICIPANTS AND SUBCONTRACTORS.
   F. DO NOT INSTALL PROPOSED ANTENNAS UNTIL ALL REINFORCEMENT WORK IS COMPLETE.

EXISTING CONDITIONS:

1. MODIFICATION OF EXISTING STRUCTURES REQUIRES THOROUGH COORDINATION OF THE CONTRACT DOCUMENTS WITH EXISTING CONDITIONS. THE CONTRACTOR MUST VERIFY ALL RELEVANT EXISTING CONDITIONS, DIMENSIONS, AND DETAILS PRIOR TO BEGINNING CONSTRUCTION. REPORT ANY DEVIATIONS FROM CONDITIONS OR DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW OF THE DESIGN AND POSSIBLE REVISION OF THE CONTRACT DOCUMENTS.
2. THE NATURE OF STRUCTURAL REINFORCEMENT IS INHERENTLY UNCERTAIN. THE EXACT CONDITION AND CAPACITY OF EACH STRUCTURAL ELEMENT CANNOT BE VERIFIED PRIOR TO THE COMMENCEMENT OF WORK. AS A RESULT, IT IS IMPERATIVE TO REPORT ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND ACTUAL FIELD CONDITIONS, AS WELL AS ANY ELEMENT OF QUESTIONABLE STRUCTURAL INTEGRITY IMMEDIATELY TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW.

STRUCTURAL STEEL NOTES:

1. FABRICATE AND ERECT STRUCTURAL STEEL IN CONFORMANCE WITH THE LATEST ISSUE OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION OF STRUCTURAL STEEL, (AISC 360)".
2. HOT DIP GALVANIZE STEEL IN ACCORDANCE WITH ASTM A123 AFTER SHOP FABRICATION.
3. REPAIR ALL DINGS, SCRAPES, AND MARS IN THE GALVANIZED AREAS BY FIELD TOUCH-UP PRIOR TO COMPLETION OF THE WORK.
4. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
5. WELDED CONNECTIONS:
   A. ALL WELDING TO BE DONE USING E70XX ELECTRODES.
6. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
7. USE ONLY CERTIFIED WELDERS.
   B. AT THE COMPLETION OF CONNECTION INSTALLATION, REPAIR ALL DAMAGE TO GALVANIZED SURFACES.
   C. SUBMIT ALL CONNECTIONS DESIGNED BY THE FABRICATOR TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
8. TOUCH-UP PAINTING
   A. IMMEDIATELY AFTER ERECTION CLEAN BOLTED CONNECTIONS AND ABRADED AREAS.
   B. COAT CUTS AND DRILLED HOLES WITH (2) COATS OF ZINC RICH PAINT.
9. ALL SUBSTITUTES TO BE APPROVED, IN WRITING, BY THE ENGINEER OF RECORD.
10. UNLESS NOTED OTHERWISE PROVIDE STRUCTURAL MATERIALS CONFORMING TO:
    A. SCI SWITCHBLADE CHANNEL STEEL: GRADE A572-65 (65 KSI)
    B. AJAX BOLT: GRADE A325M
    C. ALL OTHER STRUCTURAL BOLTS: GRADE A325M, UNLESS NOTED OTHERWISE

CONTRACTOR NOTES:

1. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE TOWER OWNER AND ENGINEER.
2. CONSTRUCTION WORK PRESENTS UNIQUE THREATS TO HEALTH AND SAFETY. THE CONTRACTOR IS RESPONSIBLE TO EDUCATE THEIR WORKFORCE OF THESE DANGERS AND LIMIT THEIR EXPOSURE TO HAZARDS. THIS EDUCATION SHALL INCLUDE BUT NOT BE LIMITED TO APPLICABLE TRAINING COURSES AND CERTIFICATIONS, PROPER PERSONAL PROTECTIVE EQUIPMENT USAGE, DAILY TAILGATE MEETINGS AND ANY OTHER PREVENTATIVE MEASURES WHICH MAY BE REASONABLY EXPECTED. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT WORK AREAS AND ANY PROPERTY OCCUPANTS WHO MAY BE AFFECTED BY THE WORK UNDER CONTRACT. THE CONTRACTOR SHALL REVIEW ALL LANDOWNER, PRIME CONTRACTOR, CARRIER, OSHA, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.
3. TOWER WORK PRESENTS ADDITIONAL THREATS TO HEALTH AND SAFETY. ALL TOWER WORKERS WORKING ON A TOWER MUST BE ADEQUATELY TRAINED AND MONITORED TO ENSURE THAT SAFE WORK PRACTICES ARE LEARNED AND FOLLOWED. AS REQUIRED BY OSHA, WHEN WORKING ON EXISTING COMMUNICATIONS TOWERS, EMPLOYEES MUST BE PROVIDED WITH APPROPRIATE FALL PROTECTION, TRAINED TO USE THIS FALL PROTECTION PROPERLY, AND THE USE OF FALL PROTECTION MUST BE CONSISTENTLY SUPERVISED AND ENFORCED BY THE CONTRACTOR.
4. ALL SAFETY EQUIPMENT SHALL BE INSPECTED ACCORDING TO ALL OSHA AND INDUSTRY SCHEDULED INTERVALS AND ALL INSPECTIONS SHALL BE DOCUMENTED PER APPLICABLE CODES AND STANDARDS.
5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING: ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION, THE CONTRACTOR MUST VISIT THE SITE PRIOR TO ORDERING ANY MATERIAL AND MUST RESOLVE ALL ISSUES WITH THE OWNER PREVENTING A CONTINUOUS INSTALLATION. CONTRACTOR SHALL NOTE ALL ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER TOWER APPURTENANCES IN THE REGION OF THE MODIFICATIONS.
6. CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER TOWER APPURTENANCES THAT MAY INTERFERE WITH THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACED AND / OR RESTORED TO ITS ORIGINAL LOCATION. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
7. SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
8. CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. WORK SHALL BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10 MPH). CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL TOWER SHORING, TEMPORARY GLOBAL TOWER SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING, TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL MODIFICATIONS PERFORMED ON THIS TOWER SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF TIA-1019-A CONSTRUCTION STANDARDS.
11. ALL MANUFACTURERS HARDWARE AND ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY. DEVIATION FROM THE INSTRUCTIONS IS UNACCEPTABLE AND REQUIRES WRITTEN APPROVAL FROM ENGINEER.

BlueSky Tower Partners LLC

bennett&pless

Experience Structural Expertise
Atlanta, Georgia ● Chattanooga, Tennessee

3395 Northeast Expressway, Suite 110
Atlanta, Georgia 30341
Tel 678 990 8700 Fax 678 990 8701

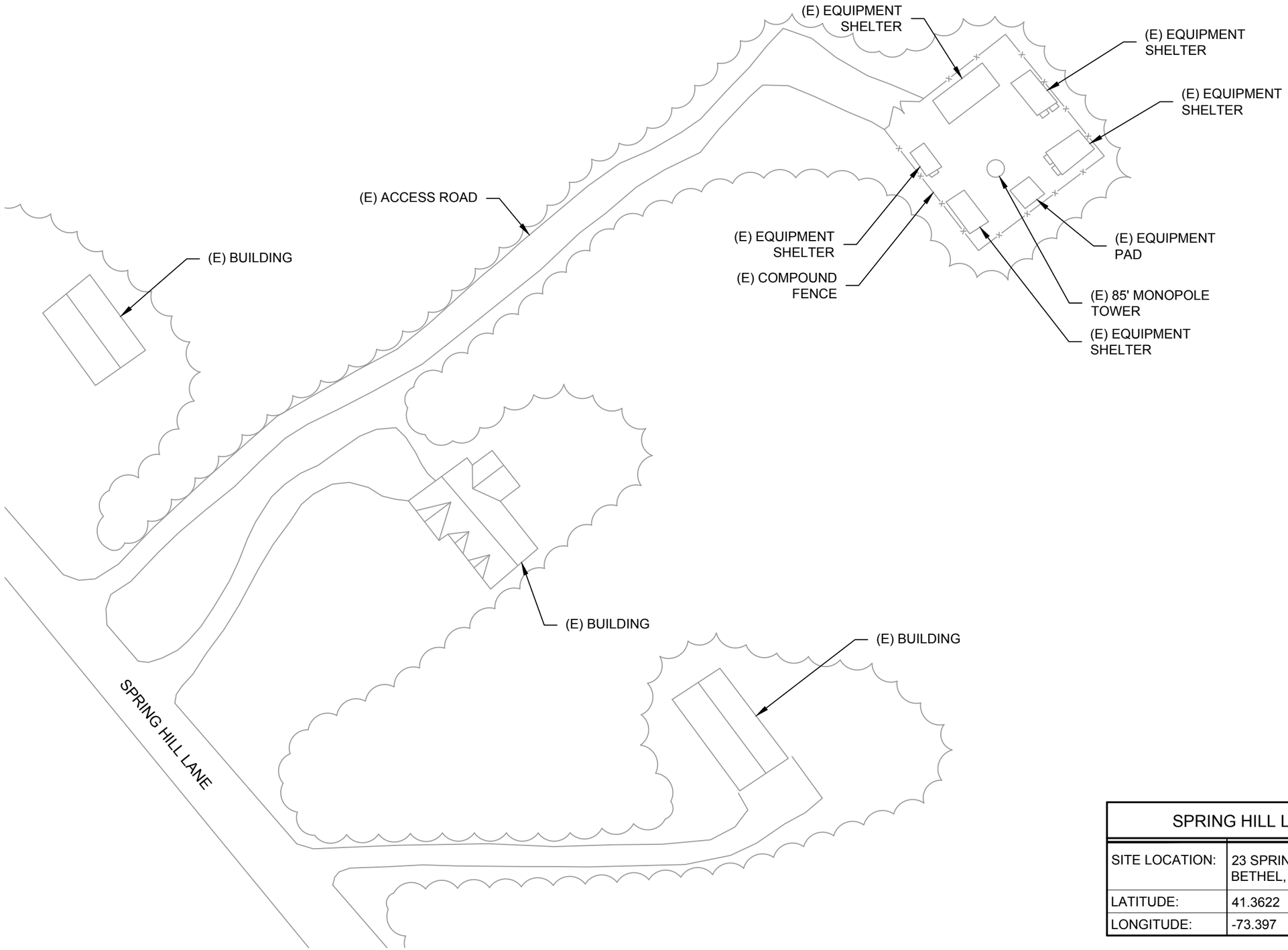
STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21967
LICENSED
PROFESSIONAL ENGINEER
8/12/2016

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	8-12-16

DATE: 8/12/2016
SITE # (NAME): CT-5003 (Spring Hill Lane)
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: General Notes
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
SK-1



TOWER SITE PLAN

NORTH

SPRING HILL LANE CT-5003	
SITE LOCATION:	23 SPRING HILL LANE BETHEL, CT 06801
LATITUDE:	41.3622
LONGITUDE:	-73.397

LEGEND:
(N) - NEW
(E) - EXISTING

BlueSky Tower Partners LLC

bennett&pless

Experience Structural Expertise
Atlanta, Georgia ● Chattanooga, Tennessee

3395 Northeast Expressway, Suite 110
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STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21967
LICENSED
PROFESSIONAL ENGINEER
8/12/2016

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	8-12-16

SITE # (NAME): CT-5003 (Spring Hill Lane)
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Tower Site Plan
DATE: 8/12/2016
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
SK-2

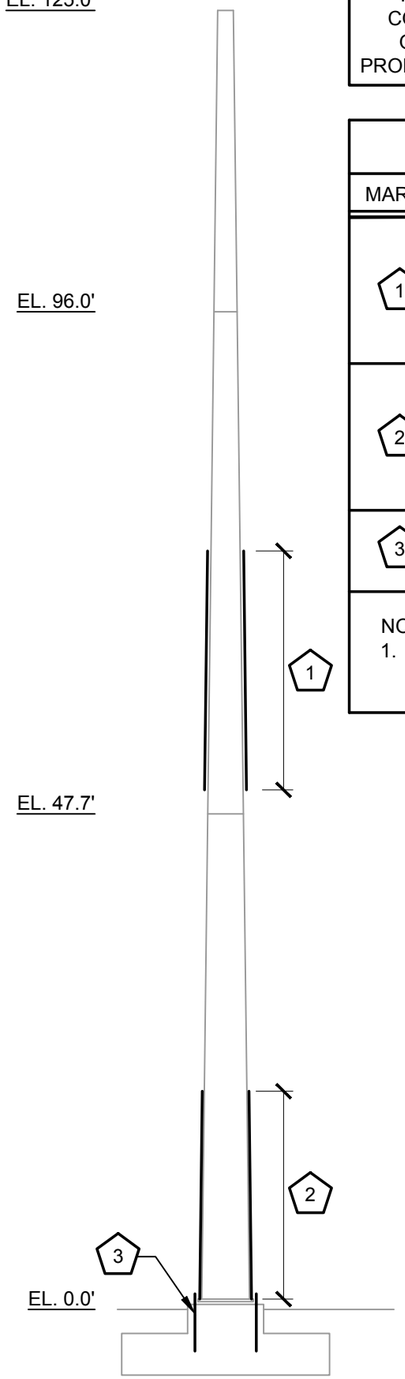
SEE DESIGNED APPURTENANCE LOADING TABLE THIS SHEET TO COORDINATE POSSIBLE OBSTRUCTIONS WITH PROPOSED REINFORCEMENT

MODIFICATION SCHEDULE

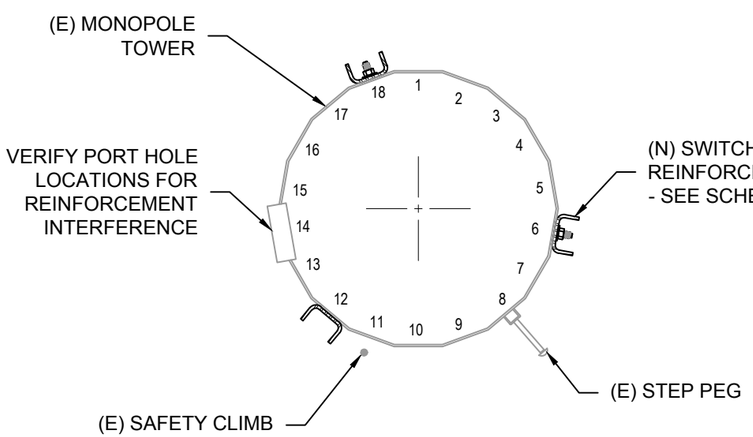
MARK	ELEVATION	MODIFICATION DESCRIPTION
1	± 50' - 73'	INSTALL NEW SCI SWITCHBLADE REINFORCEMENT #RSB-0112-XX (SPLICE/TERM) AT EACH END WITH FLYAROUND FOR EXISTING MOUNT. SEE DETAILS THIS SHEET FOR KNOWN OBSTRUCTIONS. ALL OBSTRUCTIONS TO BE VERIFIED DURING A PRECONSTRUCTION INSPECTION. FOR TYPICAL DETAILS, SEE SK-4.
2	BASE - 21'	INSTALL NEW SCI SWITCHBLADE REINFORCEMENT #RSB-0112-XX (SPLICE/TERM) AT TOP AND RSB-0131-XX AT THE MONOPOLE BASE. SEE DETAILS THIS SHEET FOR KNOWN OBSTRUCTIONS. ALL OBSTRUCTIONS TO BE VERIFIED DURING A PRECONSTRUCTION INSPECTION. FOR TYPICAL DETAILS, SEE SK-5.
3	BASE	INSTALL NEW 2 ¾" SCI ANCHOR ROD RSB-0700-XX EMBEDDED 48" INTO EXISTING FOUNDATION WITH HILTI RE 500 ADHESIVE. FOR TYPICAL DETAILS, SEE SK-5.

NOTES:
1. ALL SIZES AND LENGTHS OF REINFORCEMENT AS WELL AS REINFORCEMENT OBSTRUCTIONS SHALL BE VERIFIED DURING A PRE-CONSTRUCTION INSPECTION.

NOTE:
ALL EXISTING AND PROPOSED LINES ASSUMED TO BE LOCATED INSIDE MONOPOLE, UNLESS NOTED OTHERWISE



TOWER ELEVATION



MODIFICATION REINFORCEMENT AND OBSTRUCTION LAYOUT PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
15' Omni (tower)	123	800MHz 2X50W RRH W/FILTER (Sprint)	105.5
LP 303-1 (ATT)	123		
8'x2.4" Pipe Mounts (ATT)	123	IBC1900HB-2 (Sprint)	105.5
8'x2.4" Pipe Mounts (ATT)	123	IBC1900HB-2 (Sprint)	105.5
8'x2.4" Pipe Mounts (ATT)	123	IBC1900HB-2 (Sprint)	105.5
7770 w/ Mount Pipe (ATT)	123	LP 303-1 (T-Mobile)	102
7770 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
7770 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
HPA-65R-BUU-H8 w/ Mount Pipe (ATT)	123	(3) 8'x2.4" Pipe Mounts (T-Mobile)	102
		(2) Kathrein 81010020R4B (T-Mobile)	102
CCI HPA-65R-BUU-H6 w/ Pipe Mount (ATT)	123	(2) Kathrein 81010020R4B (T-Mobile)	102
		(2) Kathrein 81010020R4B (T-Mobile)	102
CCI HPA-65R-BUU-H6 w/ Pipe Mount (ATT)	123	14' 16 element dipole (T-Mobile)	102
		LNX6515DS-VTM w/Pipe (T-Mobile)	102
CCI TPA-65R-LCUUUU-H8-K (ATT)	123	LNX6515DS-VTM w/Pipe (T-Mobile)	102
Quintel QS66512-2 (ATT)	123	LNX6515DS-VTM w/Pipe (T-Mobile)	102
Quintel QS66512-2 (ATT)	123	RRUS 11 (T-Mobile)	102
(2) LGP21401 (ATT)	123	RRUS 11 (T-Mobile)	102
(2) LGP21401 (ATT)	123	RRUS 11 (T-Mobile)	102
(2) LGP21401 (ATT)	123		
RRUS-11 (ATT)	123	X7C-FRO-660-VR0 w/ pipe mount (Verizon)	96
RRUS-11 (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
RRUS-11 (ATT)	123		
RRUS 32 B30 (ATT)	123	BXA-80063-6CF w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123		
RRUS 32 B30 (ATT)	123	800 10736V01 w/ Mount Pipe (Verizon)	96
RRUS 32 B30 (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
RRUS 32 B30 (ATT)	123		
RRUS 32 B30 (ATT)	123	BXA-80080-6CF w/ pipe mount (Verizon)	96
DC6-48-60-18-8F (ATT)	123	800 10736V01 w/ Mount Pipe (Verizon)	96
DC6-48-60-18-8F (ATT)	123	(2) WWX063X19G00 w/ pipe mount (Verizon)	96
LP 303-1 (Sprint)	112		
(4) 8'x2.4" Pipe Mounts (Sprint)	112	BXA-80080-6CF w/ pipe mount (Verizon)	96
(4) 8'x2.4" Pipe Mounts (Sprint)	112		
(4) 8'x2.4" Pipe Mounts (Sprint)	112	RRH2x60 - AWS (Verizon)	96
APXVSPP18-C (Sprint)	112	RRH2x60 - AWS (Verizon)	96
APXVSPP18-C (Sprint)	112	RRH2x60 - AWS (Verizon)	96
APXVSPP18-C (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	ALU RH 2x60 700 (Verizon)	96
APXV9TM14-ALU-120 (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
TD-RRH 8x20 (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
TD-RRH 8x20 (Sprint)	112	ALU RH 2x60 - PCS (Verizon)	96
TD-RRH 8x20 (Sprint)	112	Raycap DB-T1-6Z-8AB-0Z (Verizon)	96
Tri-Antenna Mount (Sprint)	105.5	Raycap DB-T1-6Z-8AB-0Z (Verizon)	96
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	95
1900MHz 4x40W RRH (Sprint)	105.5	10' Omni (Verizon)	92
1900MHz 4x40W RRH (Sprint)	105.5	10' Omni (Verizon)	92
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	82
1900MHz 4x40W RRH (Sprint)	105.5	LP 303-1	72
1900MHz 4x40W RRH (Sprint)	105.5	15' Dipole	72
800MHz 2X50W RRH W/FILTER (Sprint)	105.5		
800MHz 2X50W RRH W/FILTER (Sprint)	105.5		

LEGEND:
(N) - NEW
(E) - EXISTING

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STATE OF CONNECTICUT
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8/12/2016

Revisions:

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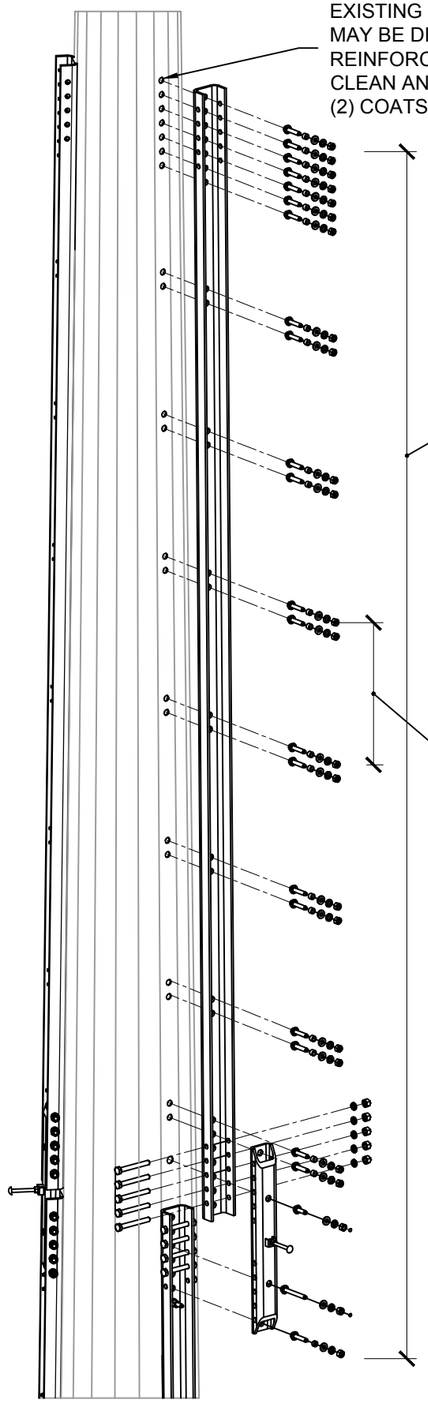
SITE # (NAME): CT-5003 (Spring Hill Lane)
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Tower Elevation and Modification Schedule
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
SK-3

AJAX BOLT INSTALLATION INSTRUCTIONS:
PLACE ASSEMBLED BOLT IN SHOWN ORDER ON AJAX TOOL WITH SPLIT WASHER FOLDED AROUND THE THIN NECK ON THE TOOL. GUIDE BOLT THROUGH THE HOLE AND TWIST TO ENGAGE THE SPLIT WASHER AGAINST THE BACK FACE OF THE POLE. SLIDE SLEEVE INTO HOLE AND THE REST OF THE HARDWARE ONTO THE BOLT. HAND TIGHTEN NUT WHILE HOLDING BOLT WITH AJAX TOOL.

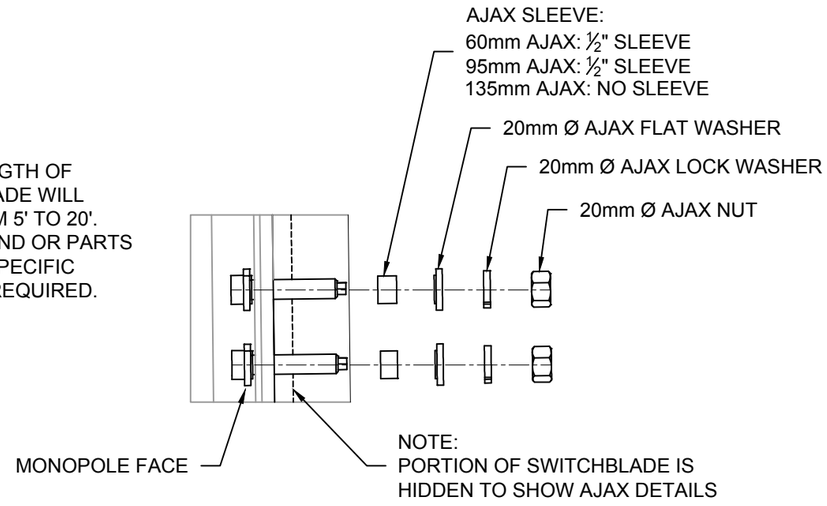


USE 1 3/16" ANNULAR CUTTER TO DRILL HOLES IN EXISTING MONOPOLE FOR AJAX BOLTS. HOLES MAY BE DRILLED THROUGH SWITCHBLADE USING REINFORCEMENTS AS A TEMPLATE. WIPE HOLES CLEAN AND COLD-GALVANIZE HOLES WITH MIN. (2) COATS OF 95% ZRC RICH PAINT.

TOTAL LENGTH OF SWITCHBLADE WILL VARY FROM 5' TO 20'. SEE SK-3 AND OR PARTS LIST FOR SPECIFIC LENGTHS REQUIRED.

TYPICAL SPACING BETWEEN AJAX PAIRS IS 30"

SWITCHBLADE (SPLICE TERMINATION) INSTALLATION DETAIL



AJAX SLEEVE:
60mm AJAX: ½" SLEEVE
95mm AJAX: ½" SLEEVE
135mm AJAX: NO SLEEVE

20mm Ø AJAX FLAT WASHER

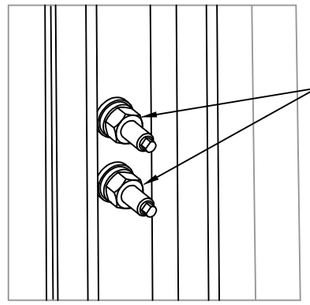
20mm Ø AJAX LOCK WASHER

20mm Ø AJAX NUT

MONOPOLE FACE

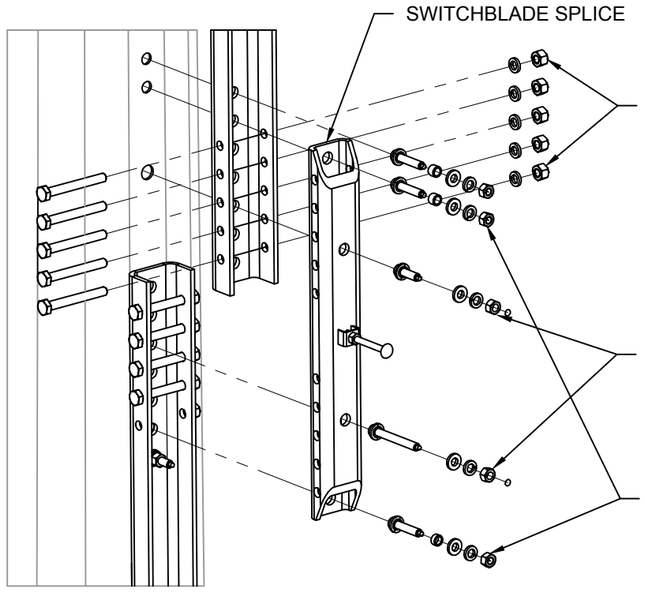
NOTE:
PORTION OF SWITCHBLADE IS HIDDEN TO SHOW AJAX DETAILS

AJAX CONNECTION DETAIL
EXPLODED VIEW



REMOVE AJAX TOOL AND PRE-TENSION INDIVIDUAL PARTS OF AJAX BOLTS. SEE SHEET GN-1 FOR TIGHTNING PROCEDURE OF AJAX BOLTS.

AJAX CONNECTION DETAIL



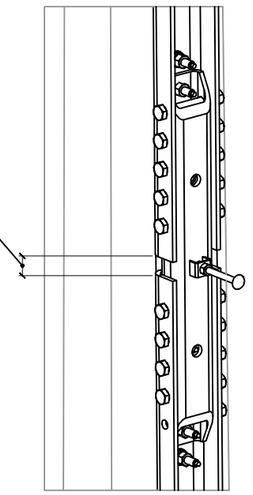
SWITCHBLADE SPLICE

SWITCHBLADE SPLICE HW:
(5) 7/8" x 7 ½" GALV. BOLTS
(5) 7/8" GALV. LOCK WASHERS
(5) 7/8" GALV. NUTS
PER LOCATION

(2) 135mm AJAX BOLTS WITH NO SLEEVE

NOTE:
THESE TWO AJAX BOLTS ENGAGE THE SWITCHBLADE AND SWITCHBLADE SPLICE. (LOCK THE SWITCHBLADE SPLICE TO THE SWITCHBLADE REINFORCEMENT AND TOWER.)

DETAIL A
SPLICE CONNECTION EXPLODED DETAIL



2" GAP BETWEEN SWITCHBLADE REINFORCEMENT

SPLICE CONNECTION ASSEMBLED DETAIL

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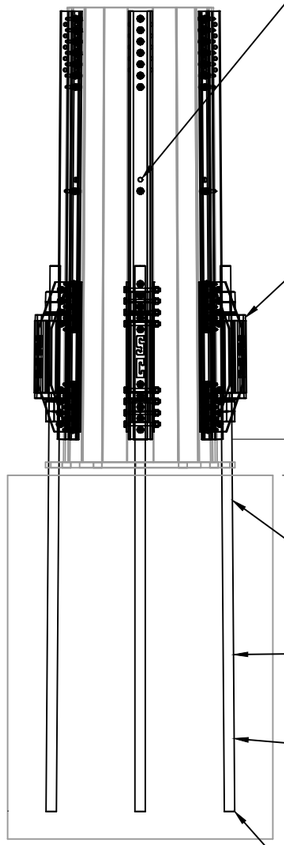
STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21967
LICENSED PROFESSIONAL ENGINEER
8/12/2016

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	8-12-16

DATE: 8/12/2016
SITE # (NAME): CT-5003 (Spring Hill Lane)
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Switchblade Installation Details
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
SK-4



USE $1\frac{3}{16}$" ANNUAL CUTTER TO DRILL HOLES IN EXISTING MONOPOLE FOR AJAX BOLTS. HOLES MAY BE DRILLED THROUGH SWITCHBLADE USING REINFORCEMENTS AS A TEMPLATE. WIPE HOLES CLEAN AND COLD-GALVANIZE HOLES WITH MIN. (2) COATS OF 95% ZRC PAINT.

BASE TERMINATION CONFIGURATIONS AND QUANTITIES MAY VARY: SEE SHEET S-1 FOR EXACT CONFIGURATIONS AND SHEET SK-3 FOR EXACT LOCATIONS.

TOP OF FOUNDATION TO BOTTOM EDGE OF SWITCHBLADE 8" - 12" (DEPENDING ON THICKNESS OF GROUT AND BASE PLATE)

CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING CAISSON REINFORCEMENT PRIOR TO DRILLING HILES FOR ANCHOR ROD. ANCHOR ROD SHALL NOT INTERFERE WITH EXISTING VERTICAL REINFORCEMENT AND SHALL BE LOCATED WITHIN THE HORIZONTAL TIES.

$2\frac{3}{4}$" ANCHOR ROD
F_u = 115 KSI

USE HILTI RE 500 TO BOND ANCHOR ROD TO FOUNDATION. FOLLOW ALL MANUFACTURER'S INSTALLATION INSTRUCTIONS.

NOTE: IF CORE DEPTH EXCEEDS 7'-0" HOLD TOP OF ANCHOR ROD AT 5' ABOVE FOUNDATION. ENSURE BOTTOM OF CORE IS FILLED WITH EPOXY BY INSTALLING EPOXY BEFORE SETTING ROD.

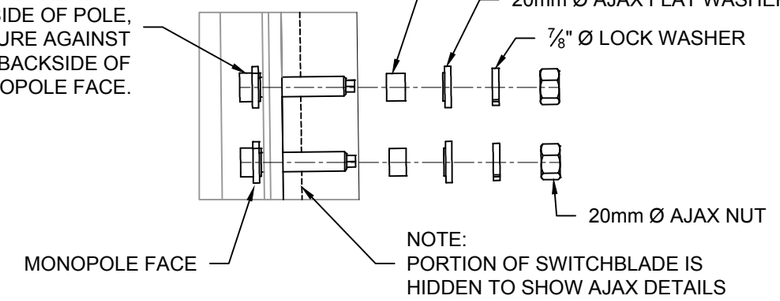
SWITCHBLADE FOUNDATION DETAIL

ANCHOR ROD INSTALLATION NOTES:

1. HOLES SHALL BE FREE OF DEBRIS AND MOISTURE; CLEAN WITH VACUUM WHEN NECESSARY.
2. REFER TO MANUFACTURER'S INSTRUCTIONS FOR ALLOWABLE INSTALLATION TEMPERATURE RANGE FOR HILTI RE 500.
3. AFTER CORING IS FINISHED, COMPLETE TAPE DROPS WITH PHOTOS FOR EACH HOLE. INSTALL ROD INTO HOLE TO ENSURE NO OBSTRUCTIONS, REMOVE, INSTALL EPOXY AND REINSTALL ROD.
4. APPROXIMATE EPOXY AMOUNTS BASED ON 3"Ø CORE AND $2\frac{3}{4}$" Ø ROD: 7' CORE = 0.85 GAL / AR.
5. REFER TO SK-1 FOR ADDITIONAL NOTES.

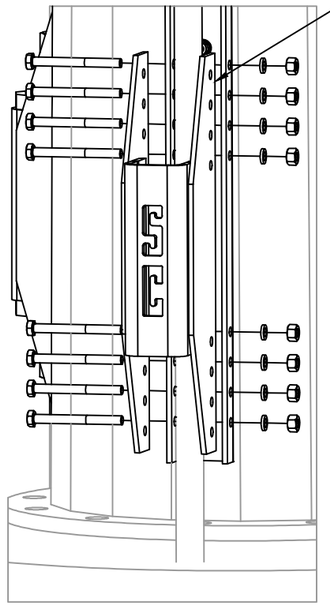
AJAX BOLT INSTALLATION INSTRUCTIONS:

AJAX BOLTS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. PLACE ASSEMBLED BOLT IN SHOWN ORDER ON AJAX TOOL WITH SPLIT WASHER FOLDED AROUND THE THIN NECK ON THE TOOL. GUIDE THE BOLT THROUGH THE HOLE AND TWIST TO ENGAGE THE SPLIT WASHER AGAINST THE BACK FACE OF THE POLE. SLIDE SLEEVE INTO HOLE AND THE REST OF THE HARDWARE ONTO THE BOLT. HAND TIGHTEN NUT WHILE HOLDING BOLT WITH AJAX TOOL. FOR FINAL TIGHTENING, APPLY 270 FT-LB OF TORQUE OR ROTATE NUT $\frac{1}{2}$ TURN PAST THE SNUG-TIGHT CONDITION.



AJAX CONNECTION DETAIL
EXPLODED VIEW

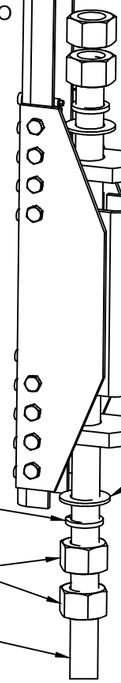
SLIDE SWITCHBLADE BASE WELDMENT AROUND ANCHOR ROD AND ATTACH TO THE BASE PLATE USING:
(8) ⅞" x 9" A325 BOLTS
(8) ⅞" LOCK WASHERS
(8) ⅞" NUTS
PER SWITCHBLADE.



NOTE:
ANCHOR RODS SHOULD BE INSTALLED AFTER ALL AJAX BOLTS TO ENSURE PROPER CLEARANCE FOR AJAX TOOL AND TIGHTENING.

SWITCHBLADE INSTALL DETAIL
EXPLODED VIEW

AFTER INSTALLATION REMOVE AJAX TOOL AND PRE-TENSION INDIVIDUAL PARTS OF AJAX BOLTS. SEE SHEET GN-1 FOR TIGHTENING PROCEDURE OF AJAX BOLTS.



HARDWARE INSTALL DETAIL
EXPLODED VIEW

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8/12/2016

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JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Switchblade Installation Details
DATE: 8/12/2016
SCALE: Not To Scale
REVIEWED BY: Paul Grupe
DRAWN BY: JC

SHEET NUMBER:
SK-5

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT2268

Bethel Spring Street
23 Spring Hill Lane
Bethel, CT 06801

September 9, 2016

EBI Project Number: 6216003965

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	18.74 %

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

EBI Consulting
environmental | engineering | due diligence

September 9, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2268 – Bethel Spring Street**

EBI Consulting was directed to analyze the proposed AT&T facility located at **23 Spring Hill Lane, Bethel, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located 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 $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) 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 AT&T Wireless antenna facility located at **23 Spring Hill Lane, Bethel, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, 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 equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (2300 MHz (WCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 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.

8) For the following calculations the sample point was the top of a 6-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.

9) The antennas used in this modeling are the **Powerwave 7770, CCI HPA-65R-BUU-H6, CCI HPA-65R-BUU-H8, CCI TPA-65R-LCUUUU-H8 and the Quintel QS66512-2** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. 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.

10) The antenna mounting height centerlines of the proposed antennas are **122 feet** above ground level (AGL) for **Sector A**, **122 feet** above ground level (AGL) for **Sector B** and **122 feet** above ground level (AGL) for Sector C.

11) 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 calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	**122 feet**	Height (AGL):	**122 feet**	Height (AGL):	**122 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**0.74 %**	Antenna B1 MPE%	**0.74 %**	Antenna C1 MPE%	**0.74 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI HPA-65R-BUU-H8	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	14.05 / 15.55 dBd	Gain:	12.65 / 15.25 dBd	Gain:	12.65 / 15.25 dBd
Height (AGL):	**122 feet**	Height (AGL):	**122 feet**	Height (AGL):	**122 feet**
Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	5,831.65	ERP (W):	5,124.05	ERP (W):	5,124.05
Antenna A2 MPE%	**1.87 %**	Antenna B2 MPE%	**1.59 %**	Antenna C2 MPE%	**1.59 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI TPA-65R-LCUUUU-H8	Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2
Gain:	12.95 / 13.75 dBd	Gain:	10.85 / 13.85 dBd	Gain:	10.85 / 13.85 dBd
Height (AGL):	**122 feet**	Height (AGL):	**122 feet**	Height (AGL):	**122 feet**
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	5,212.56	ERP (W):	4,371.36	ERP (W):	4,371.36
Antenna A3 MPE%	**2.11 %**	Antenna B3 MPE%	**1.61 %**	Antenna C3 MPE%	**1.61 %**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**4.72 %**
Bethel PD	0.00 %
Thomas Refuse	0.00 %
Utilty Cmcns	0.00 %
Valley Cmcns	0.00 %
Yankee Gas	0.00 %
T-Mobile	4.46 %
Sprint	1.38 %
Nextel	2.44 %
Verizon Wireless	5.74 %
Site Total MPE %:	**18.74 %**

AT&T Sector A Total:	4.72 %
AT&T Sector B Total:	3.95 %
AT&T Sector C Total:	3.95 %
Site Total:	18.74 %

AT&T Max Values Per Sector: Sector A

AT&T _ Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	122	2.21	850 MHz	567	0.39%
AT&T 1900 MHz (PCS) UMTS	2	656.33	122	3.51	1900 MHz (PCS)	1000	0.35%
AT&T 850 MHz GSM	2	762.29	122	4.07	850 MHz	567	0.72%
AT&T 2300 MHz (WCS) LTE	2	2,153.53	122	11.51	2300 MHz (WCS)	1000	1.15%
AT&T 700 MHz LTE	2	1,183.45	122	6.32	700 MHz	467	1.35%
AT&T 1900 MHz (PCS) LTE	2	1,422.82	122	7.60	1900 MHz (PCS)	1000	0.76%
						Total:	4.72%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	4.72 %
Sector B:	3.95 %
Sector C:	3.95 %
AT&T Maximum Total (per sector):	4.72 %
Site Total:	18.74 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.74 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon 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.