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June 27, 2014

Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051  
Attn: Ms. Melanie Bachman, Executive Director

**Re: 164 County Road - Wolcott, CT**

Dear Ms. Bachman,

On behalf of Sprint Nextel Corporation ("Sprint"), enclosed for filing are an original and two (2) copies of Sprint's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By:                         *P. F. Sagristano*                        

Name: Paul F. Sagristano  
Vertical Development LLC, an authorized representative of Sprint Nextel  
Vertical Development LLC  
20 Commercial Street  
Branford, CT 06405  
Phone – 917-841-0247  
Fax – 401-633-6202  
[psagristano@verticaldevelopmentllc.com](mailto:psagristano@verticaldevelopmentllc.com)

CC: Mr. Thomas G. Dunn, Mayor  
Wolcott Town Hall  
10 Kenea Ave.  
Wolcott, CT 06716

Mr. Mark A. Proul, Property Owner  
164 County Road  
Wolcott, CT 06716

## **Notice of Exempt Modification**

### **164 County Road, Wolcott CT**

Sprint Nextel Corporation ("Sprint") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with Sprint's planned modification of antennas and associated equipment on an existing 347' guyed tower located off 164 Country Road, Wolcott, CT. More particularly, Sprint plans to upgrade this site by adding 4G LTE technology to its facilities. The proposed modifications will not increase the tower height, extend the boundaries of the tower site, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, Sprint is upgrading their network nationwide to include 4G technology, which will provide faster service and better overall performance. Pursuant to the 4G upgrade at this site, Sprint will add antennas, install RRHs and install related equipment to its equipment area within the fenced tower compound.

The 347' guyed tower located off 164 County Road, Wolcott CT (lat. 41°.5762N, long. 72°.9561 W, is owned by Mark A Proul. It is located on a .51 acre parcel. Sprint currently has three (3) antennas, one (1) antenna on each on three (3) sectors) with a centerline of 207' 9" installed on the tower. Sprint's base station equipment is located within a fenced compound close to the base of the tower. A site plan depicting this is attached.

Sprint plans to add three (3) RFS APXVTM-14-C-I20 panel antennas, one (1) per sector, all with a centerline of 210'. Connected to each new RFS antenna will be one (1) ALU TD RRH 8x20 RRH which will be located behind the antenna. The height of the tower will not need to be increased. Sprint also plans to install a new 2500 MHz 9929 Growth Cabinet which is to be installed within the existing fenced equipment space. The compound's boundaries will not be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting indicates that the proposed final configuration (including other carriers on the tower) will emit 3.08% of the allowable FCC established general public limit sampled at the ground level (see the 3rd page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, May 30, 2014). Emission values for the Sprint antennas have been calculated from the sample point, which is the top of a six foot person standing at the base of the tower. Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 3rd and 4th page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, May 30, 2014). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the second page of Radio Frequency Emissions Analysis

Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, May 30, 2014).

The proposed modifications will not impair the structural integrity of the facility. Sprint commissioned Infinigy Engineering to perform a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to be of "Sufficient Capacity" with the proposed modifications (see the first page of Post-Mod Tower Analysis Report, May 6, 2014). The tower is rated at 75% of its capacity with the proposed modifications (see the first page of Post-Mod Tower Analysis Report, May 6, 2014).

In conclusion, Sprint's proposed modifications do not constitute a modification subject to the Council's review because Sprint will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, Sprint respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.

# Sprint



**PROJECT:** 2.5 EQUIPMENT DEPLOYMENT  
**SITE NAME:** COX COMMUNICATIONS TOWER  
**SITE CASCADE:** CT60XC956  
**SITE ADDRESS:** 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716  
**SITE TYPE:** GUYED TOWER  
**MARKET:** SOUTHERN CONNECTICUT

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000

ENGINEERING LICENSE:

DRAWING NOTICE:

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REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION		5/26/14	AHS	0

SITE NAME:  
**COX COMMUNICATIONS TOWER**

SITE CASCADE:  
**CT60XC956**

SITE ADDRESS:  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:  
**TITLE SHEET & PROJECT DATA**

SHEET NUMBER:  
**T-1**

**SITE INFORMATION**

**TOWER OWNER:**  
COXCOM, INC. COX ENTERPRISES  
1400 LAKE HEARN DR, NE  
ATLANTA, GA 30319

**LATITUDE (NAD83):**  
41° 34' 34.3992" N  
41.576222°

**LONGITUDE (NAD83):**  
72° 57' 24.1092" W  
-72.956697°

**COUNTY:**  
NEW HAVEN

**ZONING JURISDICTION:**  
TOWN OF WOLCOTT

**ZONING DISTRICT:**  
TBD

**POWER COMPANY:**  
CL&P  
(203) 597-4246

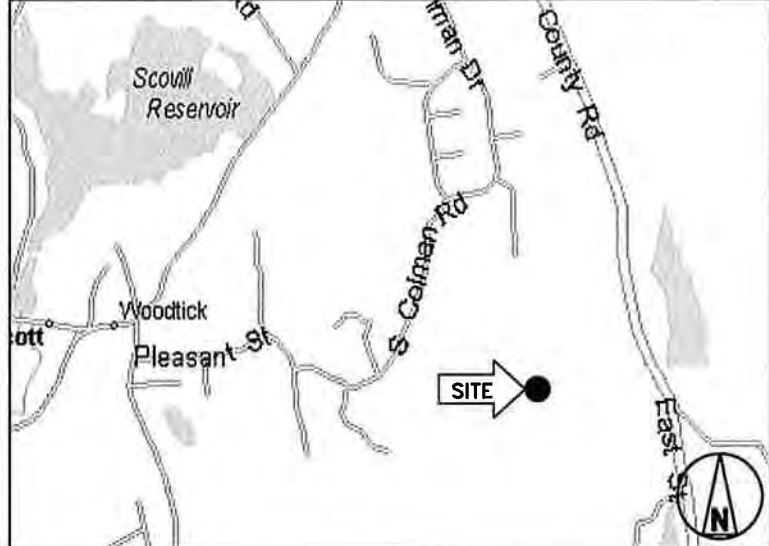
**AAV PROVIDER:**  
AT&T  
(800) 246-2020

**SPRINT CM:**  
GARY WOOD  
(860) 940-9168  
GARY.WOOD@SPRINT.COM

**AREA MAP**



**LOCATION MAP**



**PROJECT DESCRIPTION**

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (1) 9929 EQUIPMENT CABINET IN EXISTING LEASE SPACE
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL (8) BATTERIES IN EXISTING BBU CABINET

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

**APPLICABLE CODES**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- INTERNATIONAL BUILDING CODE (2012 IBC)
- TIA-EIA-222-F OR LATEST EDITION
- NFPA 780 - LIGHTNING PROTECTION CODE
- 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
- ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
- CT BUILDING CODE
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

**DRAWING INDEX**

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING AND NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0



THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

**SECTION 01 100 – SCOPE OF WORK**

**PART 1 – GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.
- 1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:
  - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
    - 1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
    - 5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
    - 3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
    - 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
    - 5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
    - 6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
    - 7. AMERICAN CONCRETE INSTITUTE (ACI)
    - 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
    - 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
    - 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
    - 11. PORTLAND CEMENT ASSOCIATION (PCA)
    - 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
    - 13. BRICK INDUSTRY ASSOCIATION (BIA)
    - 14. AMERICAN WELDING SOCIETY (AWS)
    - 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
    - 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
    - 17. DOOR AND HARDWARE INSTITUTE (DHI)
    - 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
    - 19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.
- 1.5 DEFINITIONS:
  - A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
  - B. COMPANY: SPRINT CORPORATION
  - C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
  - D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
  - E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
  - F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
  - G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

- 1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.
  - 1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.
  - 1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.
  - 1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
    - A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
    - B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
    - C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.
  - 1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.
  - 1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED.
  - 1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - 1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.
  - 1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.
 

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193
  - 1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:
- PART 2 – PRODUCTS (NOT USED)**
- PART 3 – EXECUTION**
- 3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.
  - 3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.
  - 3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HERewith, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.
  - 3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

**SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT**

**PART 1 – GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION**

- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
  - A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.
  - B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
    - 1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
    - 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
    - 3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
    - 4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
    - 5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
    - 6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.
- 3.2 DELIVERABLES:
  - A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
  - B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.
  - C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

**SECTION 01 300 – CELL SITE CONSTRUCTION CO.**

**PART 1 – GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 NOTICE TO PROCEED
  - A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.
  - B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION**

- 3.1 FUNCTIONAL REQUIREMENTS:
  - A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.
  - B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.
  - C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES
  - D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

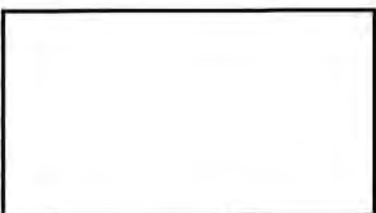


6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:



1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000



ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:

**SPRINT SPECIFICATIONS**

SHEET NUMBER:

**SP-1**

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
  2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
  3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
  4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
  5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
  6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
  7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
  8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
  9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
  10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
  11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
  12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
  13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
  14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
  15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
  16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
  17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
  18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
  19. PERFORM ANTENNA AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
  20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."
- 3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:
- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
  - B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
  - C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
    1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
    2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
  - D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION
  - E. CONDUCT TESTING AS REQUIRED HEREIN.
- 3.3 DELIVERABLES:
- A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER
  - B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
    1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
    2. PROJECT PROGRESS REPORTS.
    3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
    4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

**SECTION 01 400 - SUBMITTALS & TESTS**

**PART 1 - GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- 1.3 SUBMITTALS:
  - A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
  - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL
    1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
    2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
    3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
    4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
    5. CHEMICAL GROUNDING DESIGN
  - D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.
- 1.4 TESTS AND INSPECTIONS:
  - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
  - B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
    1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
    2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
    3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
  - C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
    1. AZIMUTH, DOWNTILT, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
    2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
    3. ALL AVAILABLE JURISDICTIONAL INFORMATION
    4. PDF SCAN OF REDLINES PRODUCED IN FIELD

5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

- 1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs
- 1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

- 3.1 REQUIREMENTS FOR TESTING:
  - A. THIRD PARTY TESTING AGENCY:
    1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
    2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
    3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
    4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
- 3.2 REQUIRED TESTS:
  - A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
    1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
    2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
    3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
    4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
    5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
    6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
    7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
    8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
    9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

**3.3 REQUIRED INSPECTIONS**

- A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.
- B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
  2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
  3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
  4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
  5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
  6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)

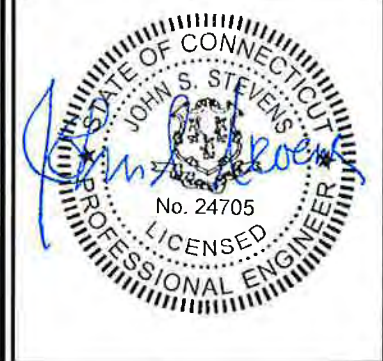
PLANS PREPARED FOR:



PLANS PREPARED BY:



ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:

**SPRINT SPECIFICATIONS**

SHEET NUMBER:

**SP-2**

**CONTINUE FROM SP-2**

- 7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
  - 8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
  - 9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
  - 10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
  - 11. ALL AVAILABLE JURISDICTIONAL INFORMATION
  - 12. PDF SCAN OF REDLINES PRODUCED IN FIELD
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.
- 3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.
- A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
- 1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
  - 2. STRUCTURAL BACKFILL COMPACTION REPORTS.
  - 3. SITE RESISTANCE TO EARTH TEST.
  - 4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
  - 5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
  - 6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".
- B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;
- 1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
  - 2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
  - 3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS - PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
  - 4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
  - 5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
  - 6. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
  - 7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
  - 8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
  - 9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

**SECTION 01 400 - SUBMITTALS & TESTS**

**PART 1 - GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

- 3.1 WEEKLY REPORTS:
  - A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.
  - B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.
- 3.2 PROJECT CONFERENCE CALLS:
  - A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
- 3.3 PROJECT TRACKING IN SMS:
  - A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.
- 3.4 ADDITIONAL REPORTING:
  - A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.
- 3.5 PROJECT PHOTOGRAPHS:
  - A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:
    - 1. SHELTER AND TOWER OVERVIEW.
    - 2. TOWER FOUNDATION(S) - FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
    - 3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
    - 4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
    - 5. PHOTOS OF TOWER SECTION STACKING.
    - 6. CONCRETE TESTING / SAMPLES.
    - 7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
    - 8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
    - 9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
    - 10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
    - 11. COAX CABLE ENTRY INTO SHELTER.
    - 12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
    - 13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
    - 14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
    - 15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
    - 16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
    - 17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
    - 18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
    - 19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
    - 20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
    - 21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
    - 22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
    - 23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

- 24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
  - 25. ALL BTS GROUND CONNECTIONS.
  - 26. ALL GROUND TEST WELLS.
  - 27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
  - 28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
  - 29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
  - 30. GPS ANTENNAS.
  - 31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
  - 32. DOGHOUSE/CABLE EXIT FROM ROOF.
  - 33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
  - 34. MASTER BUS BAR.
  - 35. TELCO BOARD AND NIU.
  - 36. ELECTRICAL DISTRIBUTION WALL.
  - 37. CABLE ENTRY WITH SURGE SUPPRESSION.
  - 38. ENTRANCE TO EQUIPMENT ROOM.
  - 39. COAX WEATHERPROOFING--TOP AND BOTTOM OF TOWER.
  - 40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.
  - 41. ANTENNA AND MAST GROUNDING.
  - 42. LANDSCAPING - WHERE APPLICABLE.
- 3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:



1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000



ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:

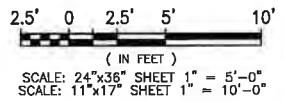
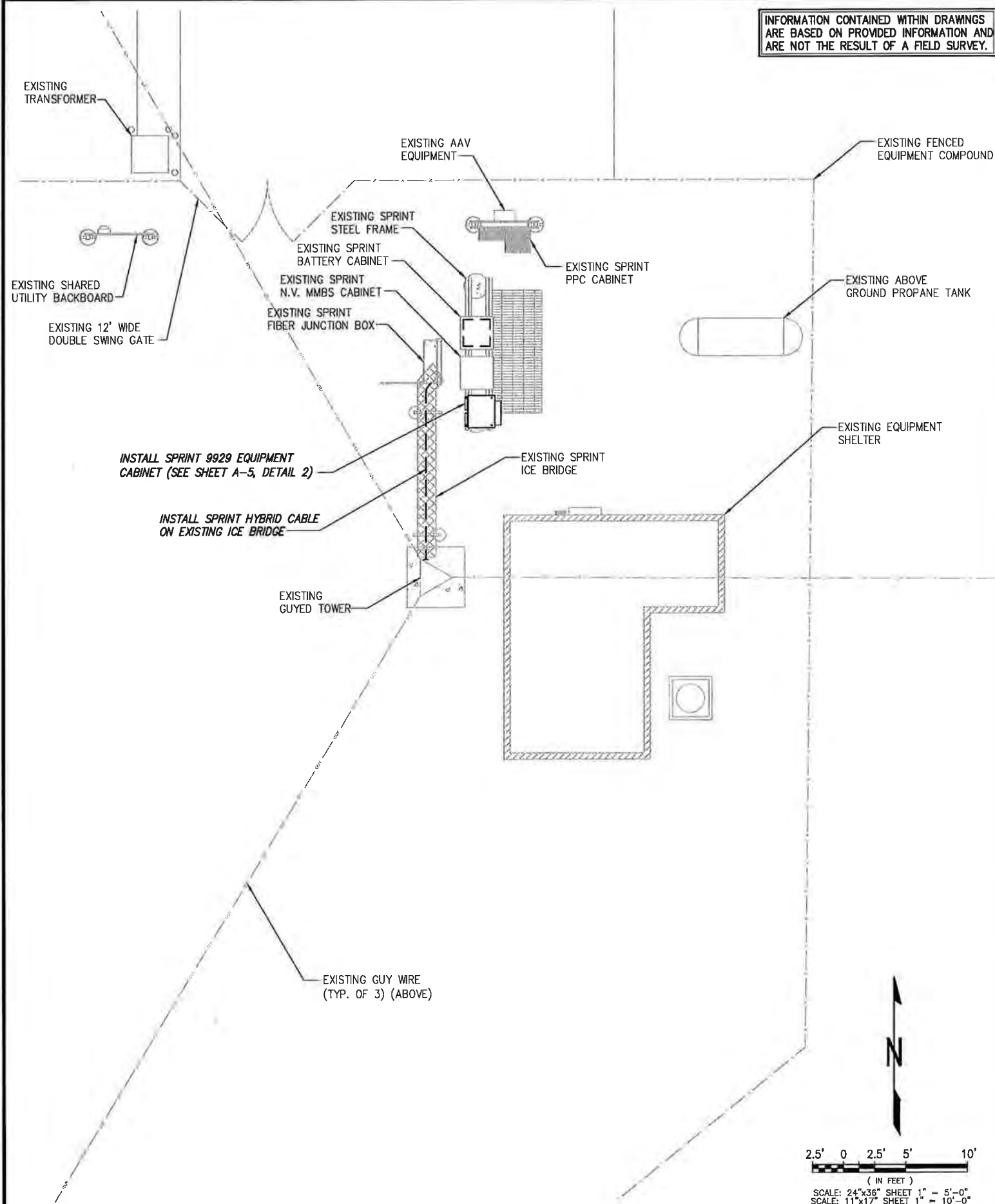
**SPRINT SPECIFICATIONS**

SHEET NUMBER:

**SP-3**

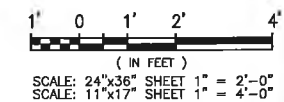
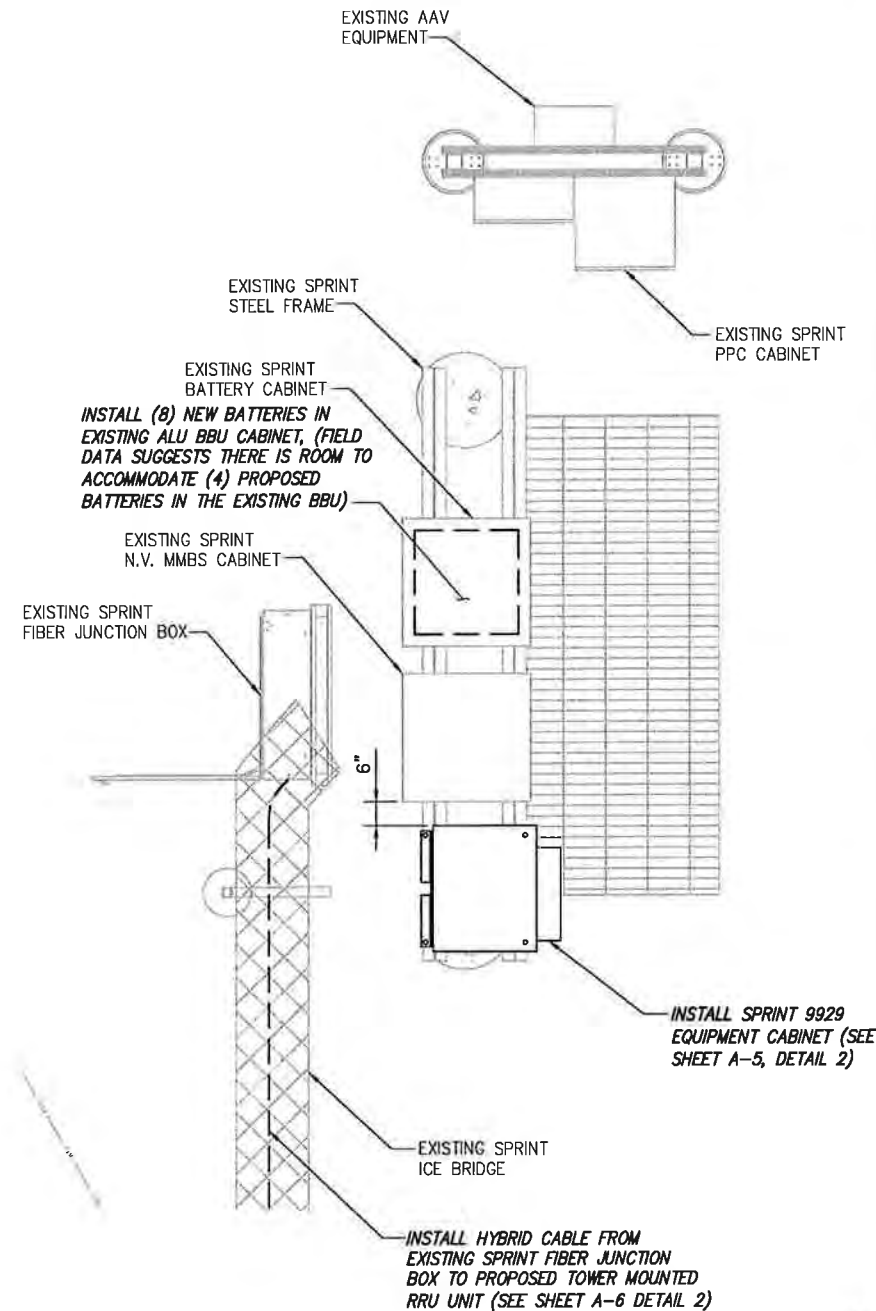


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.



OVERALL SITE PLAN

SCALE: AS NOTED 1



SPRINT EQUIPMENT PLAN

SCALE: AS NOTED 2

PLANS PREPARED FOR:  
**Sprint**  
6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:  
**INFINIGY** Design. Build. Deliver.  
1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000

ENGINEERING LICENSE:  
  
STATE OF CONNECTICUT  
JOHN S. STEVENS  
No. 24705  
LICENSED PROFESSIONAL ENGINEER

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DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:  
**COX COMMUNICATIONS TOWER**

SITE CASCADE:  
**CT60XC956**

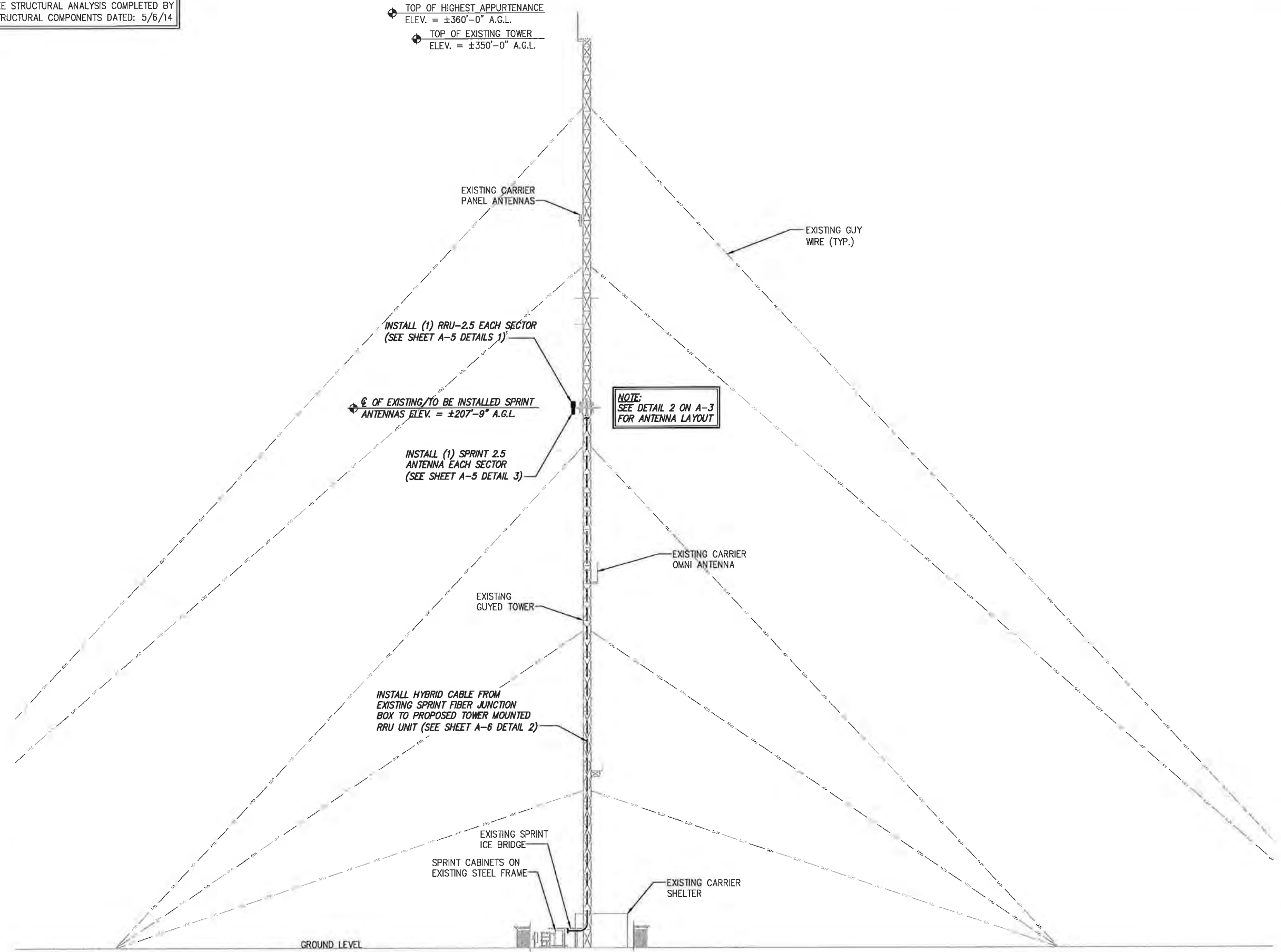
SITE ADDRESS:  
**164 COUNTY ROAD REAR  
WOLCOTT, CT 06716**

SHEET DESCRIPTION:  
**SITE PLAN**

SHEET NUMBER:  
**A-1**

FOR ADDITIONAL STRUCTURAL INFORMATION  
SEE STRUCTURAL ANALYSIS COMPLETED BY  
STRUCTURAL COMPONENTS DATED: 5/6/14

TOP OF HIGHEST APPURTENANCE  
ELEV. = ±360'-0" A.G.L.  
TOP OF EXISTING TOWER  
ELEV. = ±350'-0" A.G.L.



PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000

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REVISIONS:

DESCRIPTION	DATE	BY	REV
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SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

**164 COUNTY ROAD REAR  
WOLCOTT, CT 06716**

SHEET DESCRIPTION:

**TOWER ELEVATION**

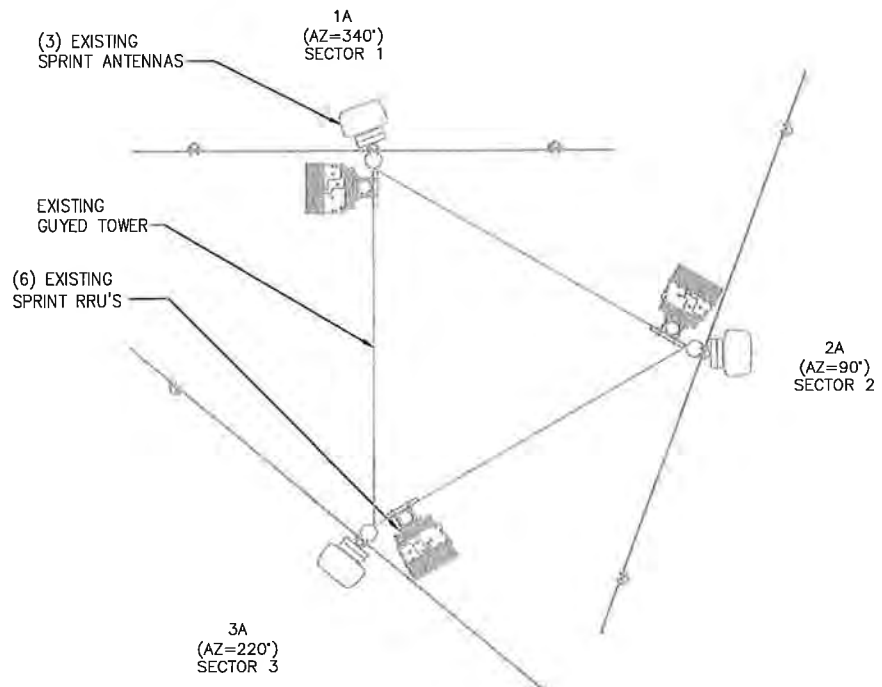
SHEET NUMBER:

**A-2**

**TOWER ELEVATION**

NO SCALE

1

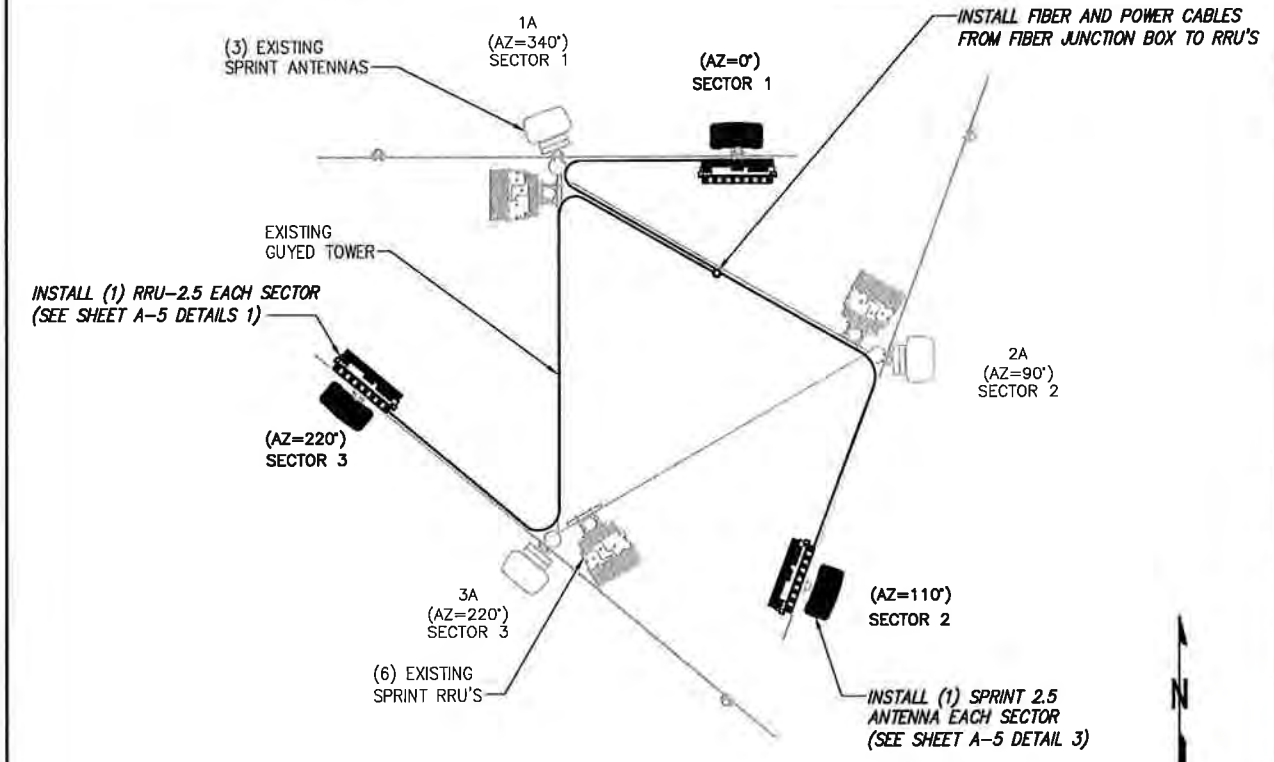


**EXISTING ANTENNA & RRU LAYOUT**

NO SCALE

1

**NOTE:**  
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

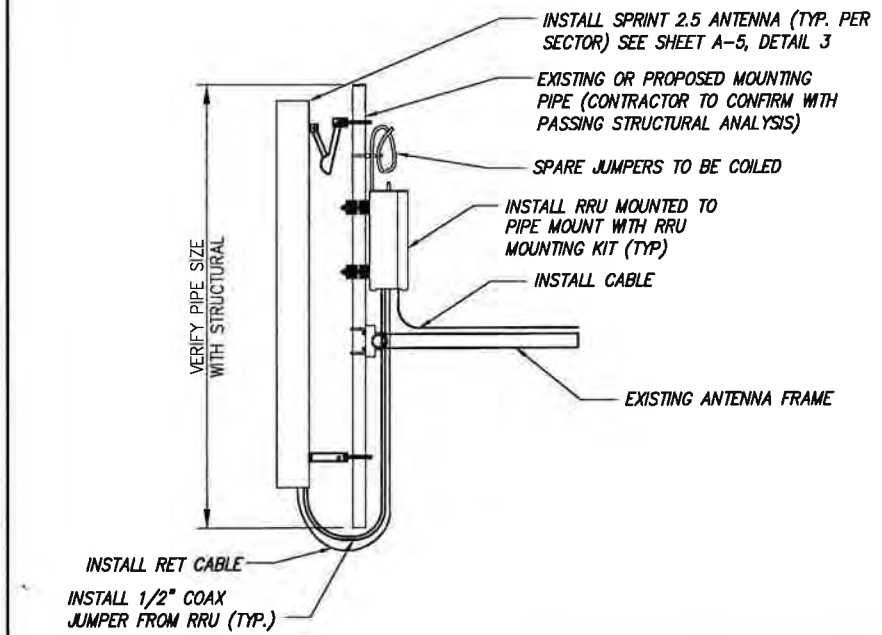


**FINAL ANTENNA LAYOUT**

NO SCALE

2

THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



- NOTES:**
1. CUT DC CONDUCTORS TO LENGTH.
  2. COIL FIBER CABLE AND SECURE AT SIDE OF RRU.
  3. DO NOT EXCEED BEND RADIUS.

**NOTE:**  
CONTRACTOR TO POSITION RRU ON MOUNT BEHIND ANTENNA SUCH THAT THE RRU DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

**NOTE:**  
SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

**NOTE:**  
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRU MOUNTING DETAILS

**DETAIL NOT USED**

NO SCALE

3

**TYPICAL ANTENNA & RRU MOUNTING DETAILS**

NO SCALE

4

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

Design. Build. Deliver.

1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793

JOB NUMBER 333-000

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SITE NAME:  
**COX COMMUNICATIONS TOWER**

SITE CASCADE:  
**CT60XC956**

SITE ADDRESS:  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:  
**ANTENNA LAYOUT & MOUNTING DETAILS**

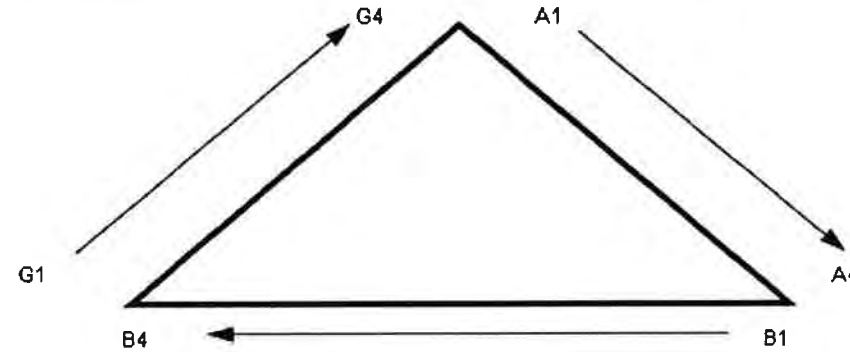
SHEET NUMBER:  
**A-3**

NV CABLES				
BAND	INDICATOR	PORT	COLOR	
800-1	YEL GRN	NV-1	GRN	
1900-1	YEL RED	NV-2	BLU	
1900-2	YEL BRN	NV-3	BRN	
1900-3	YEL BLU	NV-4	WHT	
1900-4	YEL SLT	NV-5	RED	
800-2	YEL ORG	NV-6	SLT	
SPARE	YEL WHT	NV-7	PPL	
2500	YEL PPL	NV-8	ORG	

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1	COLOR	
YEL WHT	GRN	
YEL WHT	BLU	
YEL WHT	BRN	
YEL WHT	WHT	
YEL WHT	RED	
YEL WHT	SLT	
YEL WHT	PPL	
YEL WHT	ORG	

Figure 1: Antenna Orientation



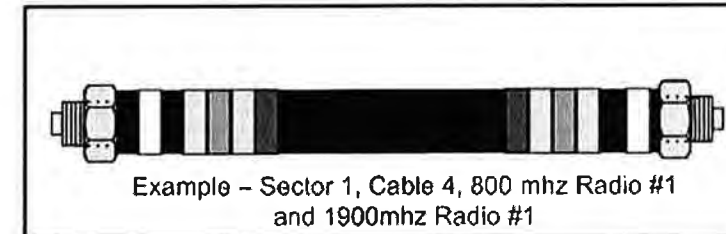
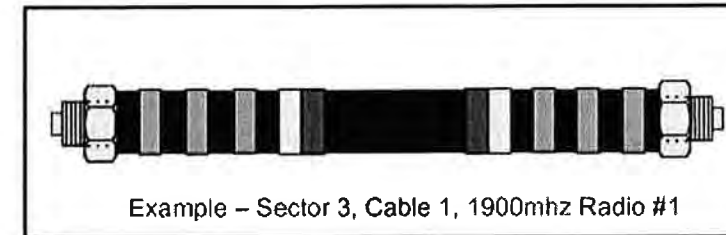
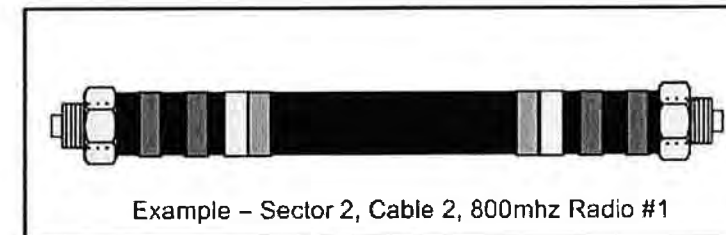
NOTES:

- ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
- THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.
- A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
- THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
- SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.
- HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
- HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
- INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
	2	Blue	No Tape	No Tape
	3	White	No Tape	No Tape
	4	White	No Tape	No Tape
	5	Red	No Tape	No Tape
	6	Grey	No Tape	No Tape
	7	Purple	No Tape	No Tape
	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
	2	Blue	Blue	No Tape
	3	White	White	No Tape
	4	White	White	No Tape
	5	Red	Red	No Tape
	6	Grey	Grey	No Tape
	7	Purple	Purple	No Tape
	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
	2	Blue	Blue	Blue
	3	White	White	White
	4	White	White	White
	5	Red	Red	Red
	6	Grey	Grey	Grey
	7	Purple	Purple	Purple
	8	Orange	Orange	Orange

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR	ID
2500 -1	YEL	WHT
2500 -2	YEL	WHT
2500 -3	YEL	WHT
2500 -4	YEL	WHT
2500 -5	YEL	WHT
2500 -6	YEL	WHT
2500 -7	YEL	WHT
2500 -8	YEL	WHT

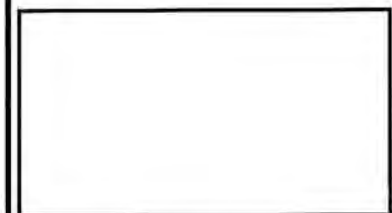


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REVISIONS:

DESCRIPTION	DATE	BY	REV
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SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

164 COUNTY ROAD REAR  
WOLCOTT, CT 06716

SHEET DESCRIPTION:

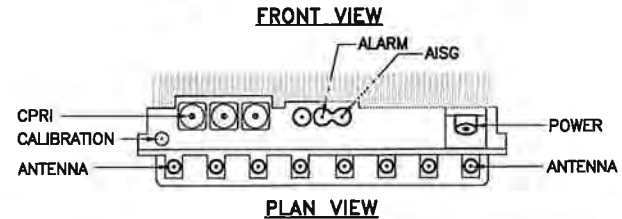
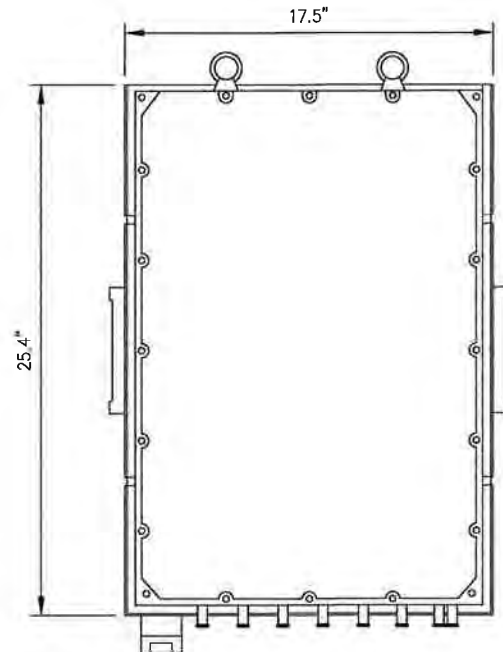
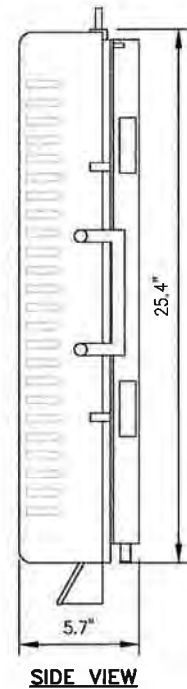
**COLOR CODING AND NOTES**

SHEET NUMBER:

**A-4**

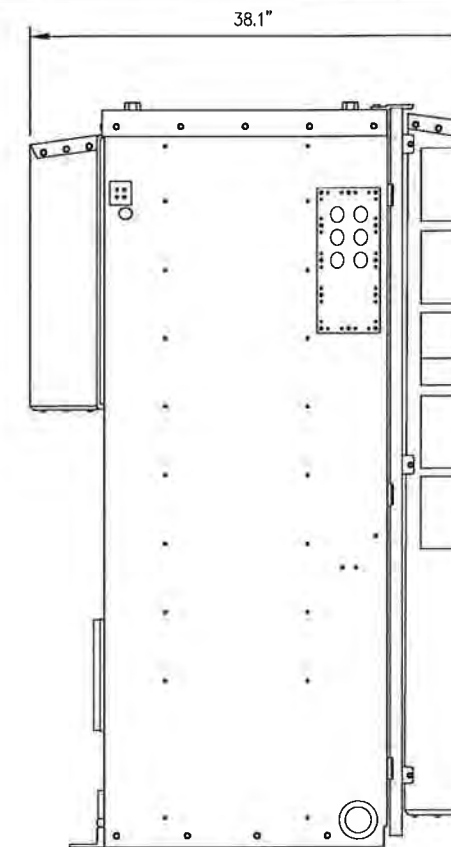
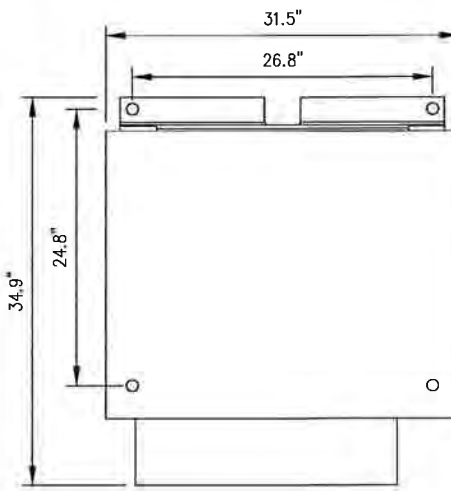
RRU: ALCATEL LUCENT TD-RRH8X20

COLOR: LIGHT GREY  
WEIGHT: 70 LBS.



**NOTES**

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.



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Overland Park, Kansas 66251

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Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000

ENGINEERING LICENSE:

2.5 RRU'S

NO SCALE

1

2.5 9929 GROWTH CABINET

NO SCALE

2

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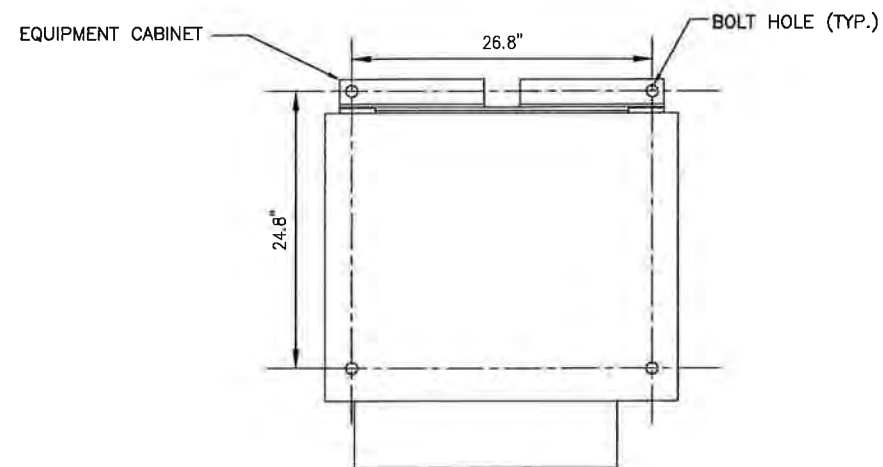
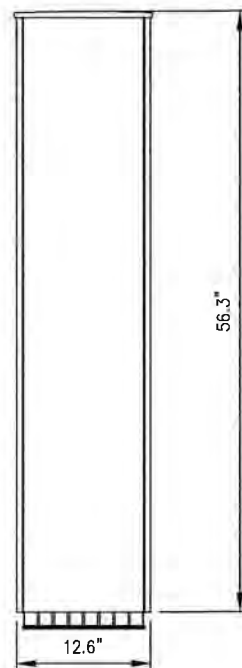
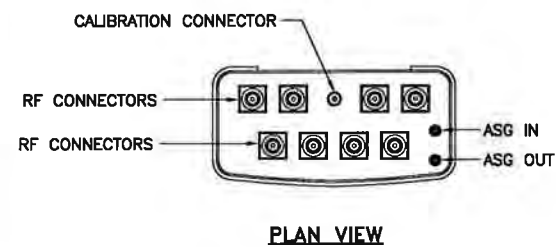
SITE ADDRESS:  
**164 COUNTY ROAD REAR  
WOLCOTT, CT 06716**

SHEET DESCRIPTION:  
**EQUIPMENT & MOUNTING DETAILS**

SHEET NUMBER:  
**A-5**

**ANTENNA RFS APXVTM14-C-120**

RADOME MATERIAL: ASA  
RADOME COLOR: LIGHT GREY  
DIMENSIONS, HxWxD.in(mim): 56.3"x12.6"x6.3" (1430x320x160mm)  
WEIGHT: 52.9 lbs  
CONNECTORS: (8) 4.1/9.5 DIN FEMALE  
(1) NF - CALIBRATION CONNECTOR



**NOTES:**

1. VERIFY BOLT HOLE SPACING WITH EQUIPMENT CUT SHEETS.
2. NEW EQUIPMENT CABINET TO BE MOUNTED TO EXISTING CONCRETE PAD WITH BOLT-DOWN SYSTEM PER MANUFACTURER'S SPECIFICATION. FIELD DRILL HOLES IN EXISTING CONCRETE AS REQUIRED.

2.5 ANTENNA

NO SCALE

3

BOLT HOLE DETAIL

NO SCALE

4

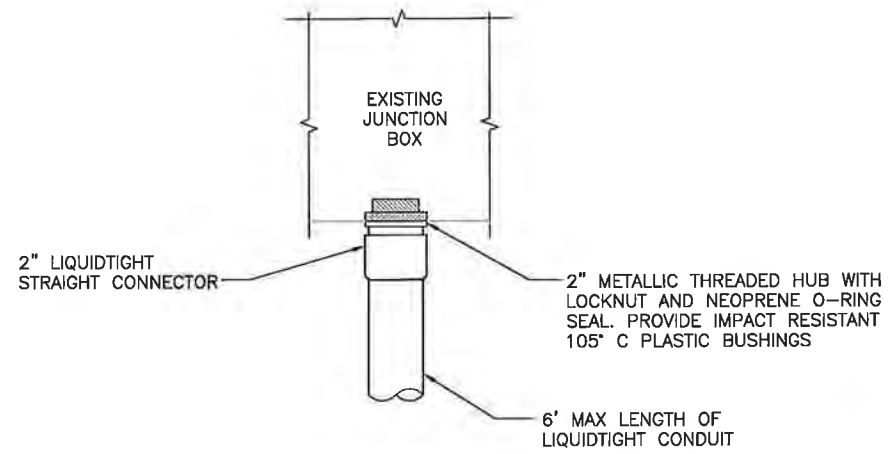
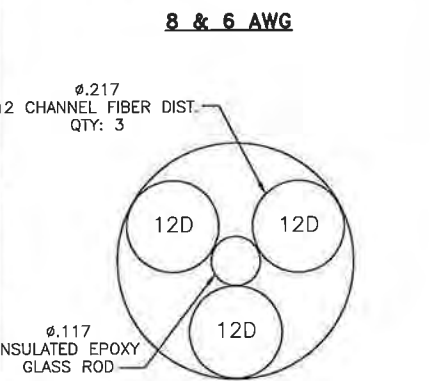
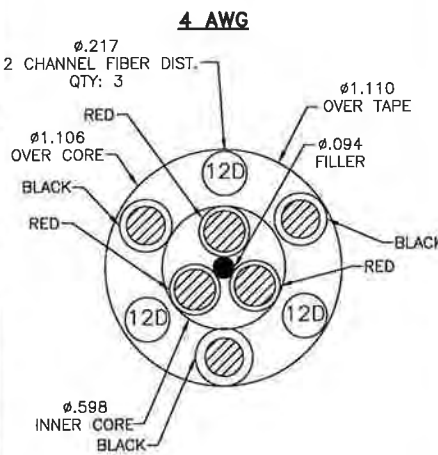
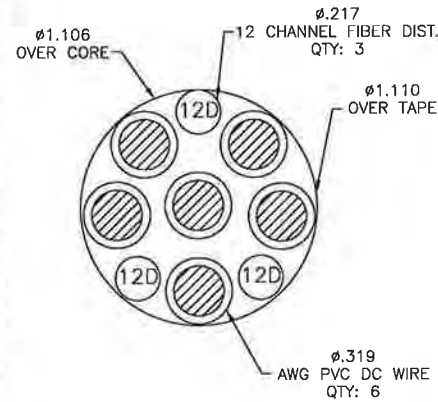
**RFS HYBRIFLEX RISER CABLE SCHEDULE**

Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

**RFS HYBRIFLEX JUMPER CABLE SCHEDULE**

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

NOTE:  
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE  
AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF  
HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



**FIBER JUNCTION BOX PENETRATION**

NO SCALE

2

**2.5 CABLE CROSS SECTION DATA**

NO SCALE

1

**DETAIL NOT USED**

NO SCALE

3

PLANS PREPARED FOR:



PLANS PREPARED BY:



ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:

**COX COMMUNICATIONS TOWER**

SITE CASCADE:

**CT60XC956**

SITE ADDRESS:

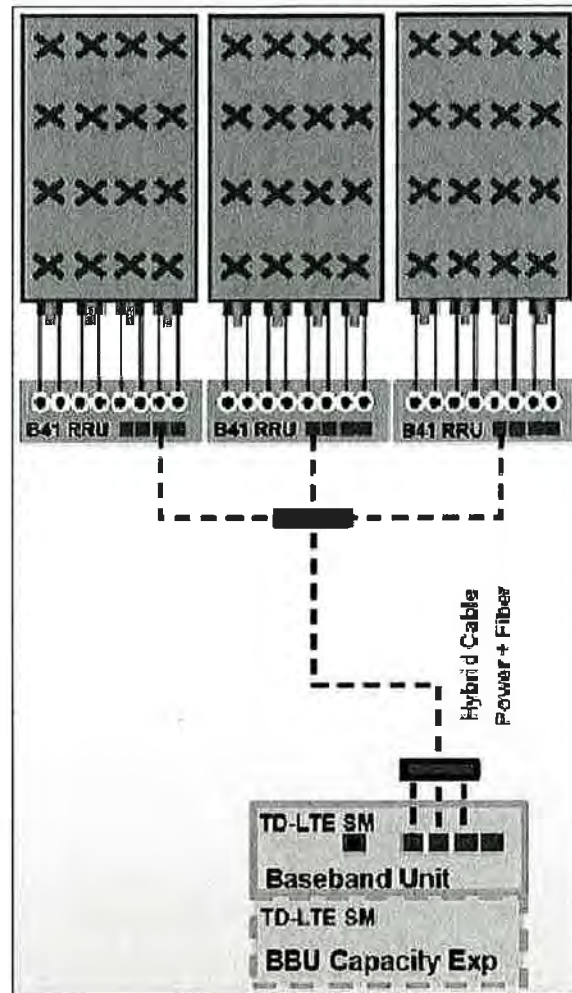
**164 COUNTY ROAD REAR  
WOLCOTT, CT 06716**

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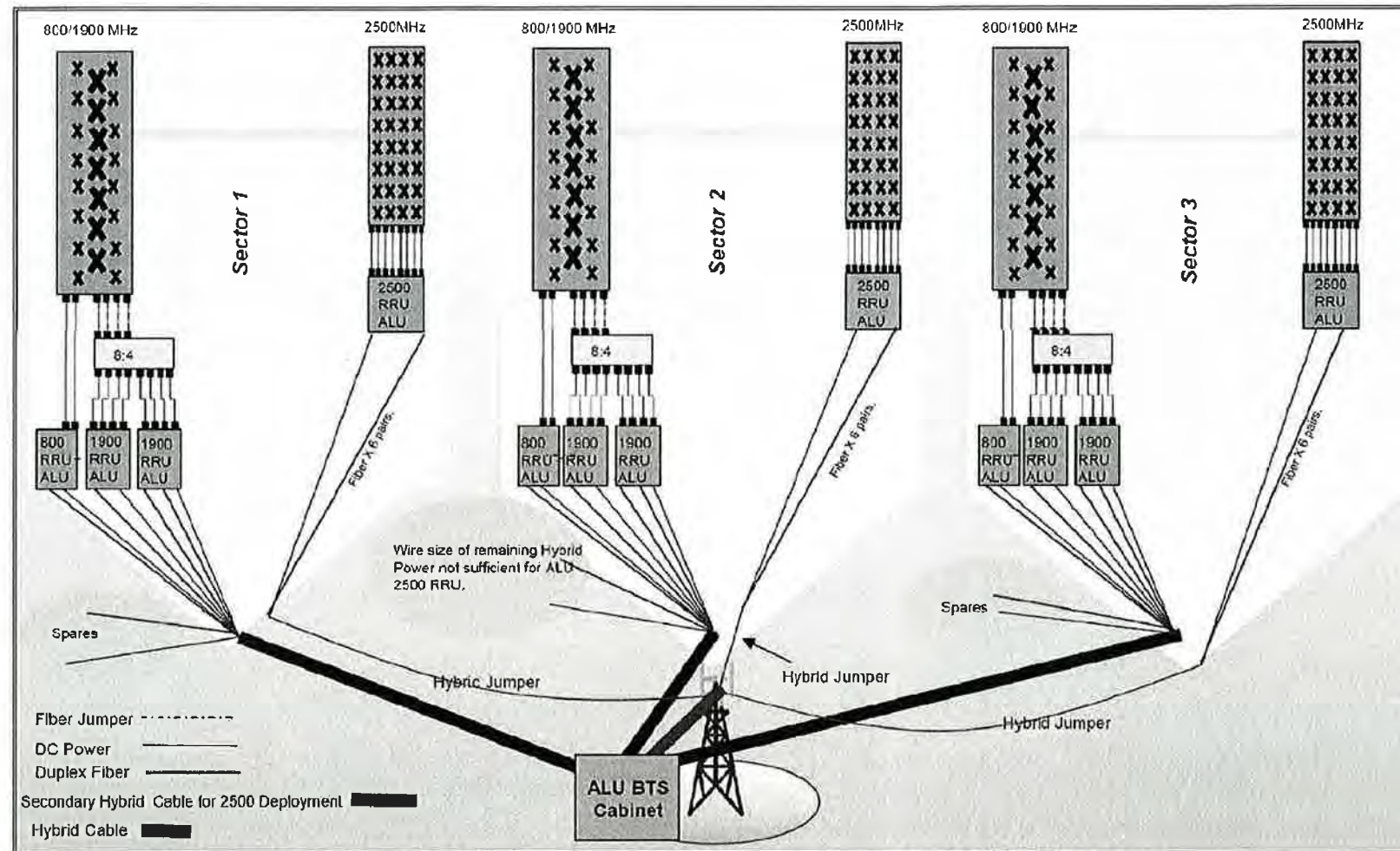
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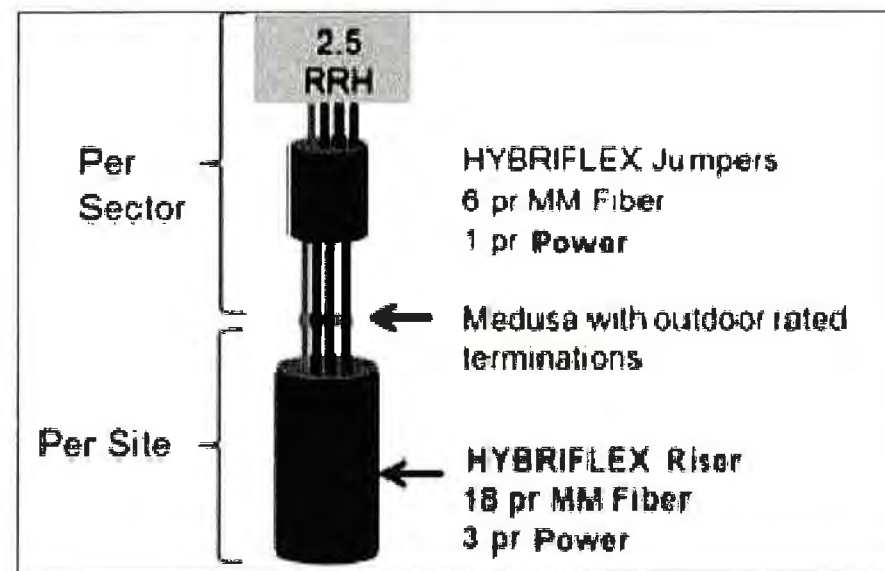
**A-6**



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1



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 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716

SHEET DESCRIPTION:  
**PLUMBING DIAGRAM**

SHEET NUMBER:  
**A-7**

INSTALL HYBRID CABLE FROM EXISTING SPRINT FIBER JUNCTION BOX TO PROPOSED TOWER MOUNTED RRH UNIT (SEE SHEET A-6 DETAIL 2)

EXISTING SPRINT FIBER JUNCTION BOX

(1) 2" FLEXIBLE METALLIC LIQUIDTIGHT CONDUITS FOR DC POWER FLOW

INSTALL A/C POWER TO 100A BREAKER FOR POWER CABINET IN 2" FLEXIBLE METALLIC LIQUID TIGHT CONDUIT (6" MAX.), TRANSITION TO SCH 40 PVC CONDUIT UNDERGROUND

BONDED TO EXISTING GROUND RING

INSTALL SPRINT 9929 EQUIPMENT CABINET (SEE SHEET A-5, DETAIL 2)

EXISTING SPRINT PPC CABINET

INSTALL (8) NEW BATTERIES IN EXISTING ALU BBU CABINET, (FIELD DATA SUGGESTS THERE IS ROOM TO ACCOMMODATE (4) PROPOSED BATTERIES IN THE EXISTING BBU)

EXISTING SPRINT N.V. MMBS CABINET

EXISTING SPRINT BATTERY CABINET

**NOTE:**  
CONTRACTOR IS TO ENSURE THE INSTALLATION INSTRUCTIONS FOR EACH CABINET ARE FOLLOWED AND THAT THE MANUFACTURER'S REQUIREMENTS ARE MET.

- LEGEND:**
- G — EXISTING GROUND RING
  - CADWELD CONNECTION (EXOTHERMIC WELD)
  - ▲ MECHANICAL CONNECTION
  - ⊗ GROUND ROD
  - CABLE GROUND KIT

**ELECTRICAL AND GROUNDING PLAN**

NO SCALE 1

PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:



1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
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SHEET DESCRIPTION:  
**ELECTRICAL & GROUNDING PLAN**

SHEET NUMBER:  
**E-1**

BOND INSTALL ANTENNA TO SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS

BOND RRU TO SECTOR BAR PER MANUFACTURER'S SPECIFICATIONS

NEW CABLE GROUNDED TO UPPER GROUND BAR (TYP.)

EXISTING SPRINT SECTOR GROUND BAR (CONTRACTOR TO VERIFY)

EXISTING SPRINT TOWER GROUND BAR (CONTRACTOR TO VERIFY)

NEW CABLE TO BE BONDED TO LOWER MAIN TOWER GROUND BAR

EXISTING LOWER TOWER GROUND MAIN BAR

BONDED TO EXISTING GROUND RING

EXISTING FIBER JUNCTION BOX

USE CONDUIT SEAL PRODUCT BY ETCO OR ROXTEC

2" LIQUIDTIGHT FLEXIBLE METAL CONDUIT IF REQUIRED (6" MAX) CONTRACTOR TO VERIFY

**NOTE:**  
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

**TYPICAL ANTENNA GROUNDING PLAN**

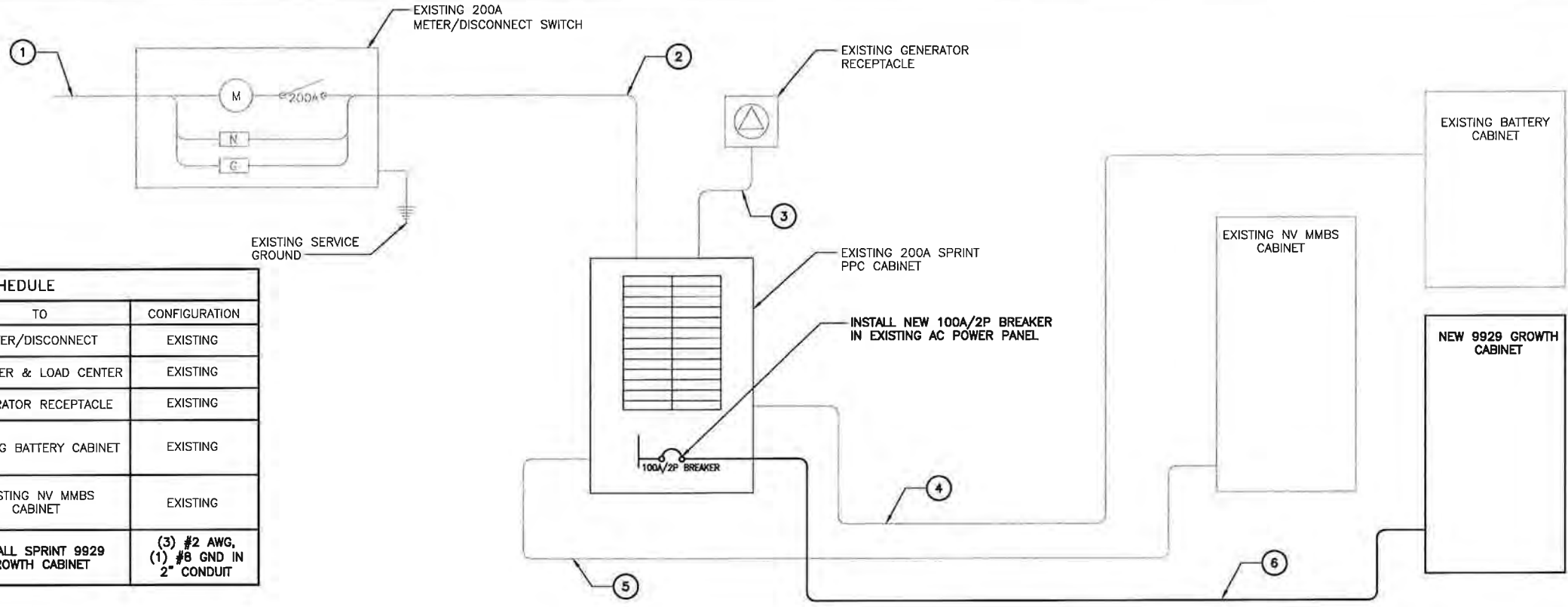
NO SCALE 2

**TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)**

NO SCALE 3



**NOTES**  
GC SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
①	UTILITY SOURCE	METER/DISCONNECT	EXISTING
②	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
③	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
④	TRANSFER & LOAD CENTER	EXISTING BATTERY CABINET	EXISTING
⑤	TRANSFER & LOAD CENTER	EXISTING NV MMBS CABINET	EXISTING
⑥	TRANSFER & LOAD CENTER	INSTALL SPRINT 9929 GROWTH CABINET	(3) #2 AWG, (1) #8 GND IN 2" CONDUIT

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

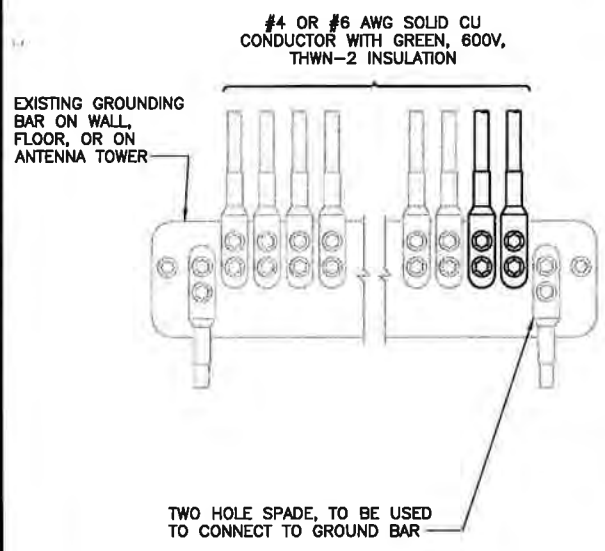
PLANS PREPARED BY:

1033 Watervliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793  
JOB NUMBER 333-000

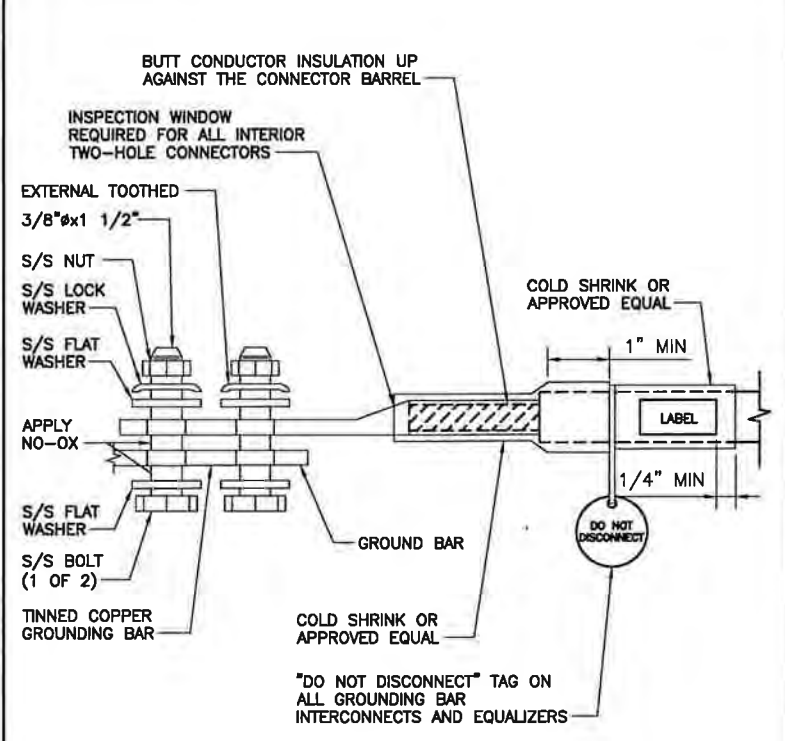
ENGINEERING LICENSE:

ELECTRICAL ONE-LINE DIAGRAM

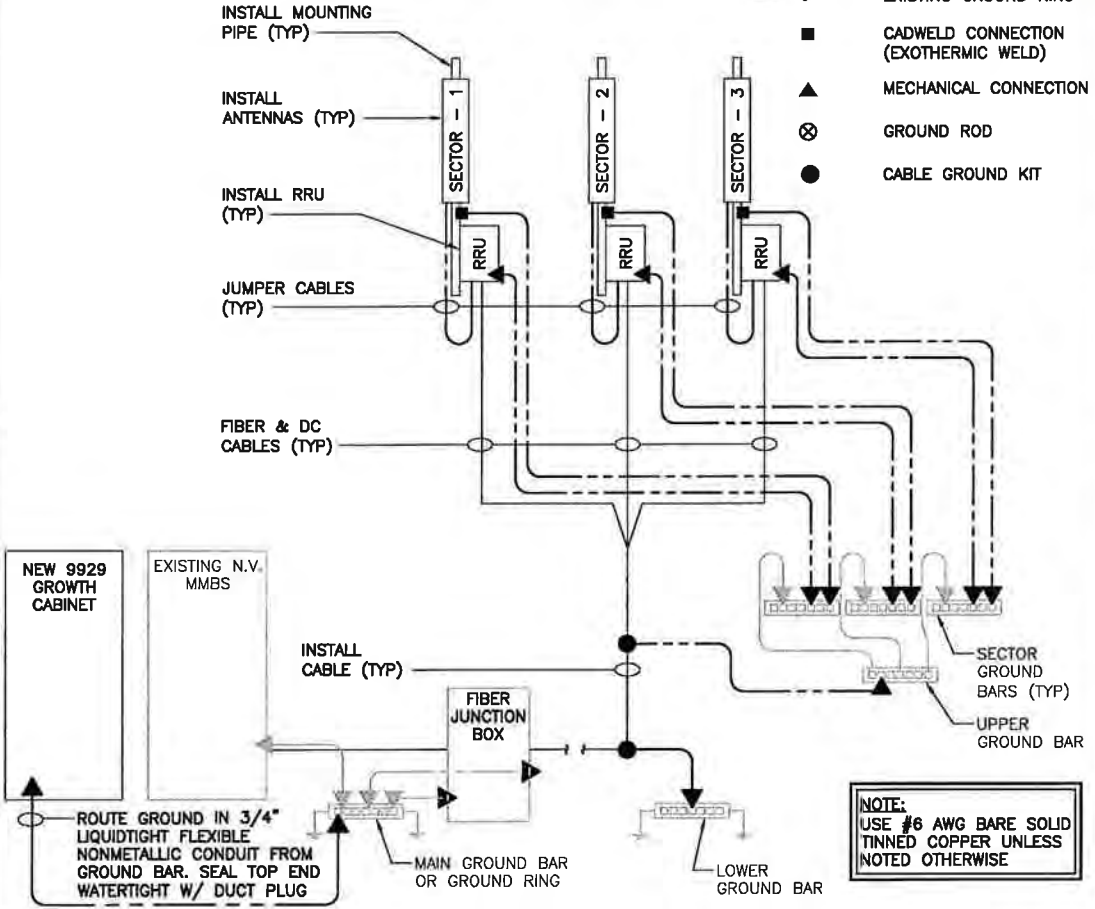
NO SCALE 1



**NOTES**  
1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.  
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.



"DO NOT DISCONNECT" TAG ON ALL GROUNDING BAR INTERCONNECTS AND EQUALIZERS



NOTE:  
USE #6 AWG BARE SOLID TINNED COPPER UNLESS NOTED OTHERWISE

- LEGEND:**
- G — EXISTING GROUND RING
  - CADWELD CONNECTION (EXOTHERMIC WELD)
  - ▲ MECHANICAL CONNECTION
  - ⊗ GROUND ROD
  - CABLE GROUND KIT

DRAWING NOTICE:  
THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

REVISIONS:			
DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	5/28/14	AHS	0

SITE NAME:  
**COX COMMUNICATIONS TOWER**

SITE CASCADE:  
**CT60XC956**

SITE ADDRESS:  
**164 COUNTY ROAD REAR WOLCOTT, CT 06716**

SHEET DESCRIPTION:  
**ELECTRICAL & GROUNDING DETAILS**

SHEET NUMBER:  
**E-2**

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE 2

TWO HOLE LUG

NO SCALE 3

NO SCALE 4



Structural Components, LLC  
11611 E 51<sup>st</sup> Ave.  
Denver, CO 80239

Voice: 866-386-7622  
Fax: 303-962-3577

May 6, 2014

Tracy Lee  
InSite Towers, LLC  
1199 N Fairfax St.  
Suite 700  
Alexandria, VA 22314

Re: Structural Analysis Report  
Structure: 347ft Guyed Tower  
Site Address: 164 County Road Rear, Wolcott, CT 06716 (New Haven County)  
Latitude: 41.5762°N, Longitude: 72.9561°W  
Site Name: InSite – Wolcott  
Site Number: InSite – CT900  
SC Number: 140257  
**Status: Tower Passes (75% Capacity)  
Foundations Assumed to Pass**

Dear Ms. Lee:

Per your request, Structural Components, LLC has completed a structural analysis for the above referenced project to verify the tower's compliance to the following design criteria:

Standard:	TIA/EIA-222-F <i>Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</i>
Building Code:	2003 International Building Code 2005 Connecticut Building Code
Design Basic Wind Speed without Ice:	85 mph fastest mile (equivalent to 100 mph 3-second gust)
Design Basic Wind Speed with Ice:	38 mph fastest mile (equivalent to 50 mph 3-second gust)
Ice Thickness:	3/4" radial
Serviceability Basic Wind Speed:	50 mph fastest mile (equivalent to 63 mph 3-second gust)

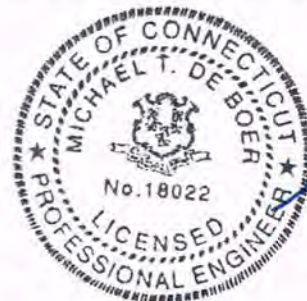
Please refer to the following structural analysis report, which gives complete details of the tower loading, results, information provided, and necessary assumptions.

We trust you find this report satisfactory. Please do not hesitate to contact us if you should have any questions or concerns.

Best Regards,  
Structural Components LLC

Stephen W. Dorau  
Structural Engineering Dept.

/JG/JH



Michael DeBoer, P.E.  
Connecticut P.E. # 0018022

5/9/14

## 1 LOADING CONFIGURATION

The following antennas, mounts, transmission lines, and other appurtenances were considered for the structural analysis.

Elev. (ft) (1)	Appurtenance	Line	FACE <sup>(2)</sup>	Notes
347.0	(1) Flash Beacon (1) 5' x 5/8" Lightning Rod	(1) 7/8" Conduit	AB	Existing
345.0	(1) 10' Dipole (1) Standoff Mount	(1) 7/8"	CA	TELCO Existing
287.0	(1) 16' Dipole (1) Standoff Mount	(1) 7/8"	CA	Existing
225.0	(2) Obstruction Lights	(1) 7/8" Conduit	AB	Existing
<b>210.0</b>	<b>(3) RFS APXVTM-14-C-I20 Panels</b> <b>(3) ALU TD RRH 8x20 RRH's</b>	---	---	<b>Sprint Proposed</b>
210.0	(3) RFS APXVSP18-C-A20 Panels (3) ALU 800 MHz RRH's (3) ALU 1900 4x45 65Mhz RRH's (3) Notch Filter 800 MHz Filters (3) 12' Sector Frames	(3) 1 1/4" Hybrid	AB	Sprint Existing
170.0	(1) 20' Omni (1) Standoff Mount	(1) 7/8"	CA	Existing
117.0	(2) Obstruction Lights	(1) 7/8" Conduit	AB	Existing
<b>70.0</b>	<b>(1) PCTEL GPS-TMG-HR-26CM GPS Unit</b> <b>(1) Standoff Mount</b>	<b>(1) 1/2"</b>	<b>AB</b>	<b>Sprint Proposed</b>
20.0	(1) Weather Station (1) Standoff Mount	(1) 1/4"	CA	Existing
15.0	(1) Floodlight (1) 4' x 2" Pipe Mount	(1) 7/8" Conduit	CA	Existing

- 1) Elevations reference centerline of panel, yagi, and dish antennas, and base of whip antennas, in relation to the base of the tower.
- 2) "FACE" designates which face of the tower (AB, BC, CA) the coax is assumed to be placed. See coax layout in Appendix A for assumed placement. If coax placement differs from what is noted in this report, contact Structural Components for further analysis.

## 2 RESULTS

The analysis was performed using tnxTower v6.1.3.1, a structural analysis program developed by Tower Numerics Inc. specifically for the communication tower industry.

### 2.1 TOWER MEMBER STRESS LEVELS

The tower has the following stress ratios in its structural members.

Elev. (ft)	Member	Stress Ratio
0 - 347	Legs	0.74
0 - 347	Bracing	0.75
0 - 347	Guy Wires	0.73

Stress ratio (SR) criteria:

SR ≤ 1.00 is completely within code limits.

SR ≤ 1.05 is considered within acceptable tolerance of code limits.

SR > 1.05 is outside acceptable tolerance of code limits and requires structural modifications.

## 2.2 FOUNDATION REACTIONS

The reactions listed below are for the design wind speed listed. Reactions are factored loads.

Reaction Type	No Ice Reactions	Iced Reactions	Foundation Status
Moment (ft-kips)	68.4	28.4	*Assumed to Pass
Shear (kips)	1.8	0.8	
Axial (kips)	80.3	98.8	
Inner Anchor Uplift (kips)	7.1	---	
Inner Anchor Shear (kips)	9.8	---	
Middle Anchor Uplift (kips)	21.3	---	
Middle Anchor Shear (kips)	19.7	---	
Outer Anchor Uplift (kips)	9.8	---	
Outer Anchor Shear (kips)	8.6	---	

\* The foundation is structurally adequate based on presumptive soil parameters per TIA-222-G Annex F. Inner and outer anchors are assumed to pass based on guy wire load reduction completed in previous modifications. A geotechnical investigation and details on inner and outer anchors should be provided for a rigorous analysis of the foundation system. See Appendix A for foundation calculations.

## 2.3 TOWER DEFLECTION

The deflections are listed below for critical tower elevations using the serviceability wind speed listed.

Elev. (ft)	Displacement (in)	Sway (deg)	Twist (deg)
210.0	3.436	0.0974	0.0214
70.0	0.785	0.0894	0.0135

## 3 PROVIDED INFORMATION AND ASSUMPTIONS

Information about the tower was provided by InSite Towers, LLC. Structural Components, LLC visited the site on 10/15/2012 for a tower mapping and TIA inspection.

Data	Document	Author	Date	File
Tower	Structural Analysis Report	Structural Components, LLC	01/03/2013	121103
	Tower Mapping Report	Structural Components, LLC	10/16/2012	120900
	Modification Drawings	Structural Components, LLC	01/04/2013	121103
	Modification Drawings	Tectonic	07/27/2006	2850.CT956
Existing and Proposed Loads	Client Email	Insite Towers, LLC	04/28/2014	CT900 Wolcott
	Exhibit A	Sprint LP	03/18/2014	CT900 Wolcott
	Structural Analysis Report	Structural Components, LLC	01/03/2013	121103
Foundation	Modification Drawings	Tectonic	07/27/2006	2850.CT956
Soils	---	---	---	---

The following assumptions were made in order to complete the analysis. These assumptions must be checked. If they do not accurately represent the existing or proposed tower, foundation, soil, and loading conditions, we must be notified so that we can make the appropriate changes to our analysis, conclusions, and recommendations.

1. The tower and foundation are constructed as shown in the provided drawings, previous structural analysis reports, mapping reports, photos, and/or other documents.
2. The tower and foundation are in good condition with no corrosion, damage or fatiguing issues which could reduce the carrying capacity of the tower.
3. The tower has been properly maintained in accordance with industry standards.
4. The tower and foundation have not been modified except as indicated in the provided information or in this report.

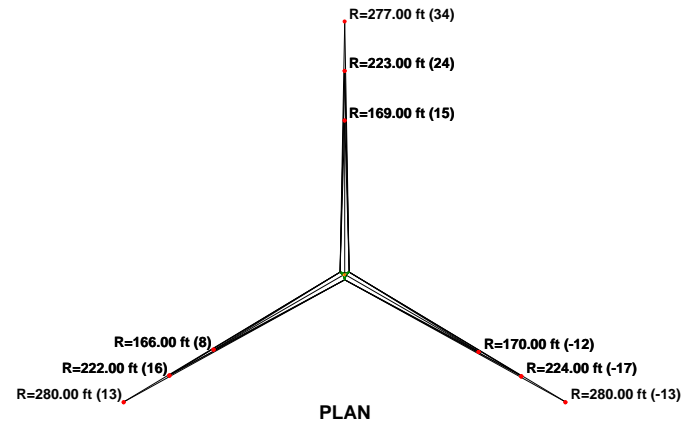
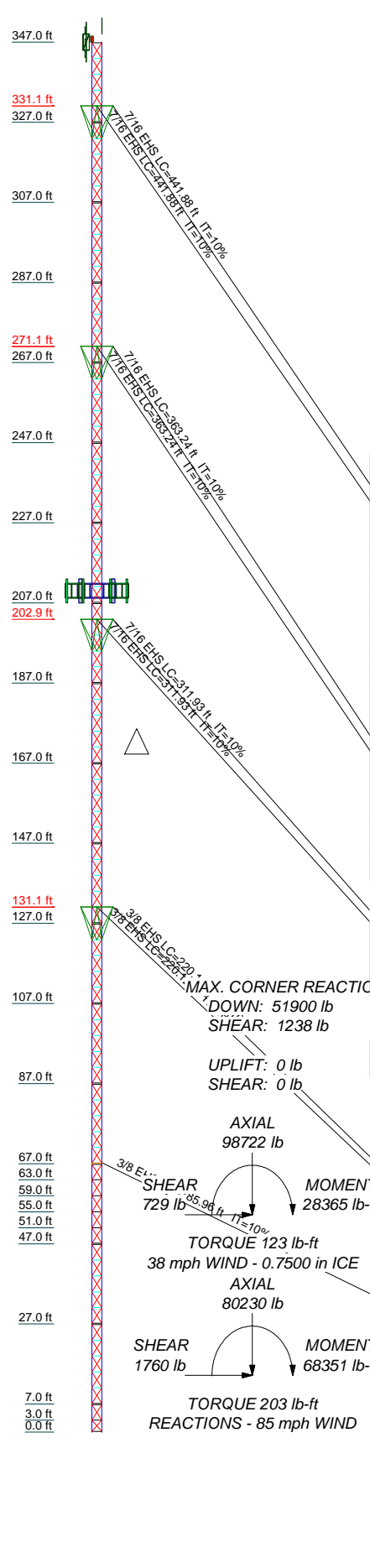
#### 4 CONCLUSIONS

To the best of our knowledge and belief the tower and foundations satisfy the requirements of the applicable codes and standards having jurisdiction over the work for the loadings and conditions as outlined in this report. **Structural modifications are not required at this time.**

## APPENDIX A

### Tower Profile and Calculations

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	
Legs																								
Leg Grade	A572-50																							
Diagonals	SR 3/4																							
Diagonal Grade	A36																							
Top Girts	L2x1 1/2x3/16																							
Bottom Girts	L2x1 1/2x3/16																							
Horizontal	L2x1 1/2x3/16																							
Top Guy Pull-Offs	N.A.																							
Face Width (ft)	70 @ 3.98333																							
# Panels @ (ft)	10 @ 3.98333																							
Weight (lb)	13997.964																							



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting (InSite)	347	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	210
5' x 5/8" Rod (InSite)	347	ALU TD RRR 8x20 (Sprint)	210
10' 8 Bay Dipole (TELCO)	345	ALU TD RRR 8x20 (Sprint)	210
2' Standoff Mount (TELCO)	345	ALU TD RRR 8x20 (Sprint)	210
16' Dipole	287	ALU TD RRR 8x20 (Sprint)	210
2' Side Arm Mount	287	Notch Filter 8.9x10x4.3 (9.45lbs) (Sprint)	210
Small Light (InSite)	225	Notch Filter 8.9x10x4.3 (9.45lbs) (Sprint)	210
Small Light (InSite)	225	Notch Filter 8.9x10x4.3 (9.45lbs) (Sprint)	210
APXVSP18-C-A20 (Sprint)	210	(3) 12' Sector Frames (Sprint)	210
APXVSP18-C-A20 (Sprint)	210	2.5" x 20' Omni	170
APXVSP18-C-A20 (Sprint)	210	1' Sidearm Mount	170
APXVTM-14-C-I20 (Sprint)	210	Small Light (InSite)	117
APXVTM-14-C-I20 (Sprint)	210	Small Light (InSite)	117
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	210	Small GPS Antenna w/ 1' Standoff (Sprint)	70
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	210	1' Sidearm Mount	20
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	210	Small Weather Station	20
ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	210	2-3/8" x 4' Pipe Mount	15
ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	210	Flash Beacon Lighting	15

**SYMBOL LIST**

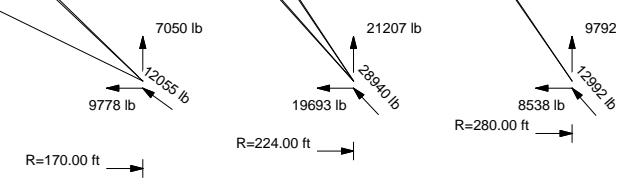
MARK	SIZE	MARK	SIZE
A	N.A.	D	3 @ 3.98333
B	L2x1 1/2x3/16	E	1 @ 3.83333
C	1 @ 3.85833	F	1 @ 2.83333

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

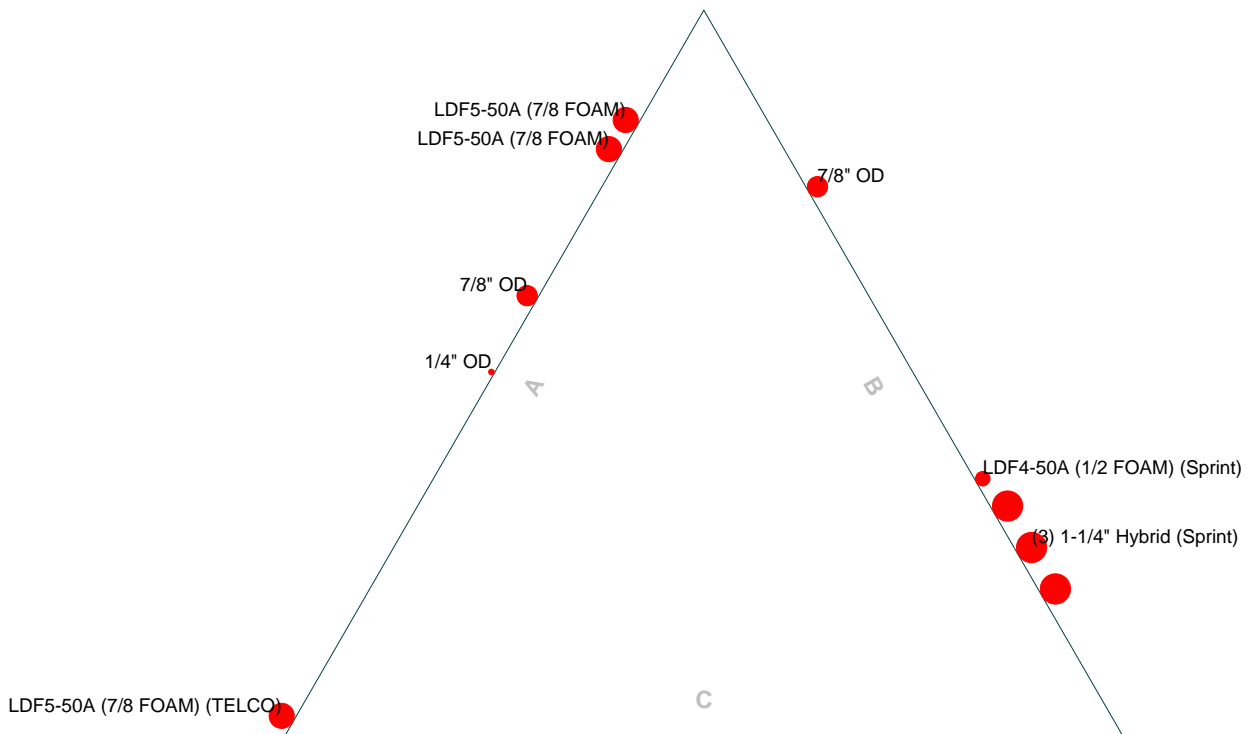
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Deflections are based upon a 50 mph wind.
4. TOWER RATING: 74.1%



<b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	Job: <b>140257</b>
	Project: <b>Wolcott (CT900)</b>
	Client: <b>InSite Towers</b> Drawn by: <b>JGildert</b> App'd:
	Code: <b>TIA/EIA-222-F</b> Date: <b>05/05/14</b> Scale: <b>NTS</b>
	Path:      Dwg No. <b>E-1</b>

# Feed Line Plan

— Round   
 — Flat   
 — App In Face   
 — App Out Face



<b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	Job: <b>140257</b>
	Project: <b>Wolcott (CT900)</b>
	Client: InSite Towers
	Code: TIA/EIA-222-F
	Path:
Drawn by: JGildert	App'd:
Date: 05/05/14	Scale: NTS
	Dwg No. E-7



<b><i>tnxTower</i></b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	1 of 45
	<b>Project</b>	Wolcott (CT900)	<b>Date</b>	10:45:31 05/05/14
	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

## Tower Input Data

The main tower is a 3x guyed tower with an overall height of 347.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 3.00 ft at the top and 3.00 ft at the base.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 85 mph.

Nominal ice thickness of 0.7500 in.

Ice density of 56 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Tension only take-up is 0.0313 in.

Pressures are calculated at each section.

Safety factor used in guy design is 2.

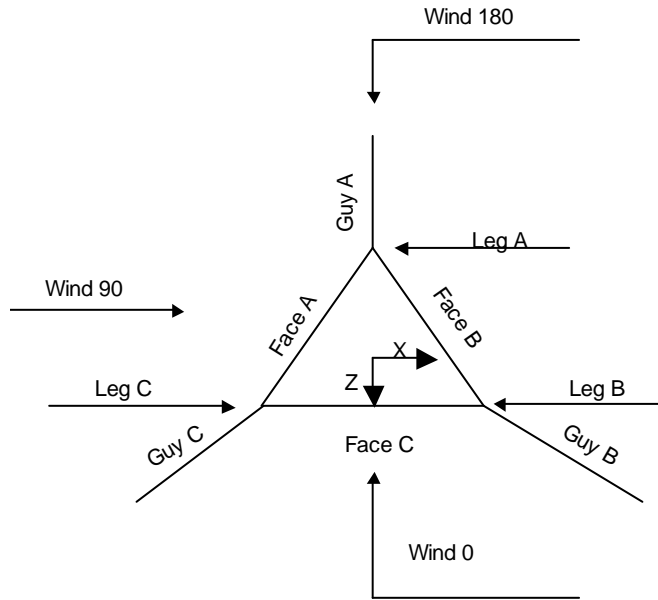
Stress ratio used in tower member design is 1.333.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

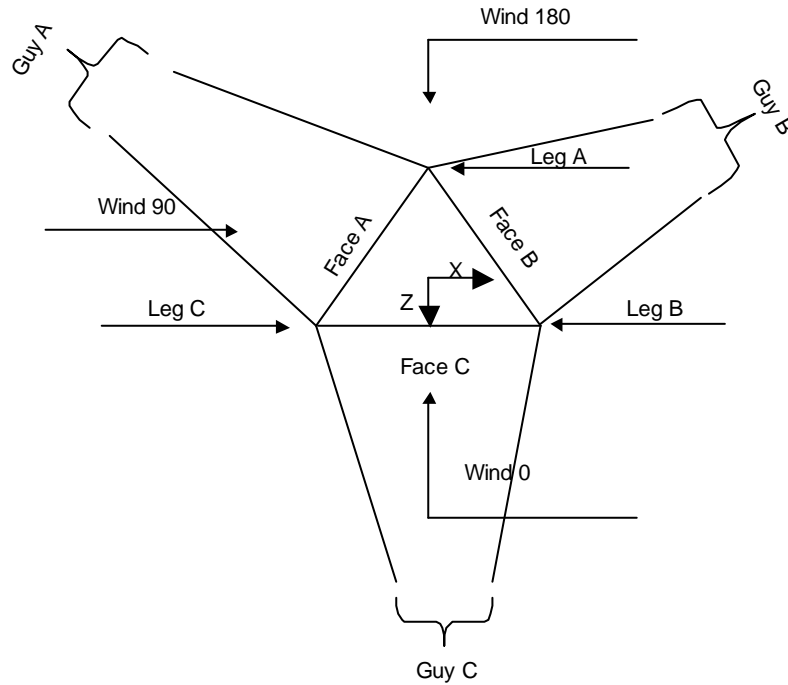
<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>Include Bolts In Member Capacity</li> <li>√ Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>Add IBC .6D+W Combination</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>SR Members Have Cut Ends</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Use TIA-222-G Tension Splice Capacity</li> <li>Exemption</li> </ul>	<ul style="list-style-type: none"> <li>Treat Feedline Bundles As Cylinder</li> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feedline Torque</li> <li>Include Angle Block Shear Check</li> <li style="text-align: center;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul>
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<b>Job</b>	140257	<b>Page</b>	2 of 45
<b>Project</b>	Wolcott (CT900)	<b>Date</b>	10:45:31 05/05/14
<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert



**Corner & Starmount Guyed Tower**

<b>Job</b>	140257	<b>Page</b>	3 of 45
<b>Project</b>	Wolcott (CT900)	<b>Date</b>	10:45:31 05/05/14
<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert



**Face Guyed**

**Tower Section Geometry**

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	347.00-327.00			3.00	1	20.00
T2	327.00-307.00			3.00	1	20.00
T3	307.00-287.00			3.00	1	20.00
T4	287.00-267.00			3.00	1	20.00
T5	267.00-247.00			3.00	1	20.00
T6	247.00-227.00			3.00	1	20.00
T7	227.00-207.00			3.00	1	20.00
T8	207.00-187.00			3.00	1	20.00
T9	187.00-167.00			3.00	1	20.00
T10	167.00-147.00			3.00	1	20.00
T11	147.00-127.00			3.00	1	20.00
T12	127.00-107.00			3.00	1	20.00
T13	107.00-87.00			3.00	1	20.00
T14	87.00-67.00			3.00	1	20.00
T15	67.00-62.98			3.00	1	4.03
T16	62.98-58.99			3.00	1	3.98

<b>tnxTower</b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	4 of 45
	<b>Project</b>	Wolcott (CT900)	<b>Date</b>	10:45:31 05/05/14
	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T17	58.99-55.01			3.00	1	3.98
T18	55.01-51.03			3.00	1	3.98
T19	51.03-47.00			3.00	1	4.03
T20	47.00-27.00			3.00	1	20.00
T21	27.00-7.00			3.00	1	20.00
T22	7.00-3.00			3.00	1	4.00
T23	3.00-0.00			3.00	1	3.00

### Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	347.00-327.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T2	327.00-307.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T3	307.00-287.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T4	287.00-267.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T5	267.00-247.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T6	247.00-227.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T7	227.00-207.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T8	207.00-187.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T9	187.00-167.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T10	167.00-147.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T11	147.00-127.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T12	127.00-107.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T13	107.00-87.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T14	87.00-67.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T15	67.00-62.98	3.86	TX Brace	No	Yes	2.0000	0.0000
T16	62.98-58.99	3.98	TX Brace	No	Yes	0.0000	0.0000
T17	58.99-55.01	3.98	TX Brace	No	Yes	0.0000	0.0000
T18	55.01-51.03	3.98	TX Brace	No	Yes	0.0000	0.0000
T19	51.03-47.00	3.86	TX Brace	No	Yes	0.0000	2.0000
T20	47.00-27.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T21	27.00-7.00	3.93	TX Brace	No	Yes	2.0000	2.0000
T22	7.00-3.00	3.83	TX Brace	No	Yes	2.0000	0.0000
T23	3.00-0.00	2.83	TX Brace	No	Yes	0.0000	2.0000

### Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 347.00-327.00	Pipe	PIPE 2.5" STD	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 327.00-307.00	Pipe	PIPE 2.5" STD	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 307.00-287.00	Pipe	PIPE 2.5" STD	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 287.00-267.00	Pipe	PIPE 2.5" STD	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T5 267.00-247.00	Pipe	PIPE 2.5" STD	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)

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Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T6 247.00-227.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T7 227.00-207.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T8 207.00-187.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T9 187.00-167.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	3/4	(36 ksi) A36
T10 167.00-147.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T11 147.00-127.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T12 127.00-107.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T13 107.00-87.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T14 87.00-67.00	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T15 67.00-62.98	Pipe	PIPE 2.5" STD	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T16 62.98-58.99	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T17 58.99-55.01	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T18 55.01-51.03	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T19 51.03-47.00	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T20 47.00-27.00	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T21 27.00-7.00	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T22 7.00-3.00	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36
T23 3.00-0.00	Arbitrary Shape	P2.5x0.203 + Split P3.5x0.300	(50 ksi) A572-50	Solid Round	5/8	(36 ksi) A36

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 347.00-327.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T2 327.00-307.00	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T3 307.00-287.00	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T4 287.00-267.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 267.00-247.00	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T6 247.00-227.00	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T7 227.00-207.00	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36

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Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T8 207.00-187.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T9 187.00-167.00	Single Angle	L2x1 1/2x1/4	(36 ksi) A36	Single Angle	L2x1 1/2x1/4	(36 ksi) A36
T10 167.00-147.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T11 147.00-127.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T12 127.00-107.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T13 107.00-87.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T14 87.00-67.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T15 67.00-62.98	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T16 62.98-58.99	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T17 58.99-55.01	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T18 55.01-51.03	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T19 51.03-47.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T20 47.00-27.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T21 27.00-7.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T22 7.00-3.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T23 3.00-0.00	Single Angle	L2x1 1/2x3/16	(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 347.00-327.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x2x1/4	(36 ksi) A36
T2 327.00-307.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T3 307.00-287.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T4 287.00-267.00	None	Flat Bar		(36 ksi) A36	Equal Angle	L2x2x1/4	(36 ksi) A36
T5 267.00-247.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T6 247.00-227.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T7 227.00-207.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36
T8 207.00-187.00	None	Flat Bar		(36 ksi) A36	Single Angle	L2x1 1/2x3/16	(36 ksi) A36

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Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T9 187.00-167.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x1/4	A36 (36 ksi)
T10 167.00-147.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T11 147.00-127.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T12 127.00-107.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T13 107.00-87.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T14 87.00-67.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T15 67.00-62.98	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T16 62.98-58.99	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T17 58.99-55.01	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T18 55.01-51.03	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T19 51.03-47.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T20 47.00-27.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T21 27.00-7.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T22 7.00-3.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T23 3.00-0.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 347.00-327.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 327.00-307.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 307.00-287.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 287.00-267.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 267.00-247.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 247.00-227.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 227.00-207.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 207.00-187.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9	0.00	0.0000	A36	1	1	1	36.0000	36.0000







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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T7 227.00-207.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 207.00-187.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 187.00-167.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 167.00-147.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 147.00-127.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 127.00-107.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 107.00-87.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 87.00-67.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 67.00-62.98	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 62.98-58.99	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 58.99-55.01	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 55.01-51.03	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 51.03-47.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 47.00-27.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 27.00-7.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 7.00-3.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 3.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

### Tower Section Geometry (cont'd)

Tower Elevation ft	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
in	in	in	in	in	in	in	in	
T1 347.00-327.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 327.00-307.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 307.00-287.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 287.00-267.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T5 267.00-247.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000



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Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T6	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
247.00-227.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T7	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
227.00-207.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T8	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
207.00-187.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T9	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
187.00-167.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T10	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
167.00-147.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T11	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
147.00-127.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T12	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
127.00-107.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T13	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
107.00-87.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T14	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
87.00-67.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T15	Flange	0.6250	3	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
67.00-62.98		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T16	Flange	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
62.98-58.99		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T17	Flange	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
58.99-55.01		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T18	Flange	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
55.01-51.03		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T19	Flange	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
51.03-47.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T20	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
47.00-27.00		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T21 27.00-7.00	Flange	0.6250	3	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T22 7.00-3.00	Flange	0.6250	3	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T23 3.00-0.00	Flange	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	

### Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L <sub>u</sub> ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
331.1	EHS	A 7/16	2080.00	10%	21000	0.399	404.00	277.00	0.0000	34.00	100%
		B 7/16	2080.00	10%	21000	0.399	441.54	280.00	0.0000	-13.00	100%
		C 7/16	2080.00	10%	21000	0.399	421.62	280.00	0.0000	13.00	100%
271.1	EHS	A 7/16	2080.00	10%	21000	0.399	330.74	223.00	0.0000	24.00	100%
		B 7/16	2080.00	10%	21000	0.399	362.95	224.00	0.0000	-17.00	100%
		C 7/16	2080.00	10%	21000	0.399	336.09	222.00	0.0000	16.00	100%
202.9	EHS	A 7/16	2080.00	10%	21000	0.399	283.51	223.00	0.0000	24.00	100%
		B 7/16	2080.00	10%	21000	0.399	311.68	224.00	0.0000	-17.00	100%
		C 7/16	2080.00	10%	21000	0.399	287.86	222.00	0.0000	16.00	100%

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131.1	EHS	A	3/8	1540.00	10%	21000	0.273	202.60	169.00	0.0000	15.00	100%
		B	3/8	1540.00	10%	21000	0.273	219.92	170.00	0.0000	-12.00	100%
		C	3/8	1540.00	10%	21000	0.273	204.28	166.00	0.0000	8.00	100%
67.1667	EHS	A	3/8	1540.00	10%	21000	0.273	175.06	169.00	0.0000	15.00	100%
		B	3/8	1540.00	10%	21000	0.273	185.79	170.00	0.0000	-12.00	100%
		C	3/8	1540.00	10%	21000	0.273	174.44	166.00	0.0000	8.00	100%

### Guy Data (cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
331.1	Torque Arm	9.76	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
271.1	Torque Arm	9.76	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
202.9	Torque Arm	9.76	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
131.1	Torque Arm	9.76	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
67.1667	Corner						

### Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
331.10	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
271.10	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
202.90	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
131.10	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
67.17	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8

### Guy Data (cont'd)

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
331.1	161.20	176.17	168.23		15.24	18.12	16.56	
					6.7 sec/pulse	7.4 sec/pulse	7.0 sec/pulse	
271.1	131.96	144.82	134.10		10.26	12.31	10.59	
					5.5 sec/pulse	6.1 sec/pulse	5.6 sec/pulse	
202.9	113.12	124.36	114.86		7.59	9.13	7.82	

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Guy Elevation	Cable Weight A	Cable Weight B	Cable Weight C	Cable Weight D	Tower Intercept A	Tower Intercept B	Tower Intercept C	Tower Intercept D
ft	lb	lb	lb	lb	ft	ft	ft	ft
131.1	55.31	60.04	55.77		4.8 sec/pulse 3.60	5.2 sec/pulse 4.24	4.8 sec/pulse 3.66	
67.1667	47.79	50.72	47.62		3.3 sec/pulse 2.71	3.6 sec/pulse 3.04	3.3 sec/pulse 2.69	
					2.8 sec/pulse	3.0 sec/pulse	2.8 sec/pulse	

### Guy Data (cont'd)

Guy Elevation	Calc K	Calc K	Torque Arm		Pull Off		Diagonal	
			K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>
331.1	No	No	1	0.33	1	1	1	1
271.1	No	No	1	0.33	1	1	1	1
202.9	No	No	1	0.33	1	1	1	1
131.1	No	No	1	0.33	1	1	1	1
67.1667	No	No			1	1	1	1

### Guy Data (cont'd)

Guy Elevation	Torque-Arm				Pull Off				Diagonal			
	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U
ft	in		Deduct	in	in		Deduct	in	in		Deduct	in
331.1	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325X				A325X				A325X			
271.1	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325X				A325X				A325X			
202.9	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325X				A325X				A325X			
131.1	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325X				A325X				A325X			
67.1667	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325X				A325X				A325X			

### Guy Pressures

Guy Elevation	Guy Location	z	q <sub>z</sub>	q <sub>z</sub>	Ice Ice	Ice Thickness
ft		ft	psf	psf	in	in
331.1	A	182.55	30	6	0.7500	
	B	159.05	29	6	0.7500	
	C	172.05	30	6	0.7500	
271.1	A	147.55	28	6	0.7500	
	B	127.05	27	5	0.7500	
	C	143.55	28	6	0.7500	
202.9	A	113.45	26	5	0.7500	
	B	92.95	25	5	0.7500	

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Guy Elevation ft	Guy Location	z ft	q <sub>z</sub> psf	q <sub>z</sub> Ice psf	Ice Thickness in
131.1	C	109.45	26	5	0.7500
	A	73.05	23	5	0.7500
	B	59.55	22	4	0.7500
67.1667	C	69.55	23	5	0.7500
	A	41.08	20	4	0.7500
	B	27.58	18	4	0.7500
	C	37.58	19	4	0.7500

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8" OD ***	B	Yes	Ar (CfAe)	347.00 - 6.00	0.0000	-0.25	1	1	0.8750	0.8750		0.10
1-1/4" Hybrid (Sprint)	B	Yes	Ar (CfAe)	210.00 - 6.00	0.0000	0.25	3	3	0.7500	1.3000		0.82
7/8" OD	A	Yes	Ar (CfAe)	15.00 - 6.00	0.0000	0.1	1	1	0.8750	0.8750		0.10
1/4" OD	A	Yes	Ar (CfAe)	20.00 - 6.00	0.0000	0	1	1	0.2500	0.2500		0.10
LDF5-50A (7/8 FOAM)	A	Yes	Ar (CfAe)	170.00 - 6.00	0.0000	0.3	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8 FOAM)	A	Yes	Ar (CfAe)	287.00 - 6.00	0.0000	0.34	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8 FOAM) (TELCO) ***	A	Yes	Ar (CfAe)	345.00 - 6.00	0.0000	-0.48	1	1	1.0900	1.0900		0.33
LDF4-50A (1/2 FOAM) (Sprint)	B	Yes	Ar (CfAe)	70.00 - 6.00	0.0000	0.15	1	1	0.6300	0.6300		0.15

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight lb
T1	347.00-327.00	A	1.635	0.000	0.000	0.000	5.94
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00
T2	327.00-307.00	A	1.817	0.000	0.000	0.000	6.60
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00
T3	307.00-287.00	A	1.817	0.000	0.000	0.000	6.60
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00
T4	287.00-267.00	A	3.633	0.000	0.000	0.000	13.20
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00
T5	267.00-247.00	A	3.633	0.000	0.000	0.000	13.20
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00
T6	247.00-227.00	A	3.633	0.000	0.000	0.000	13.20
		B	1.458	0.000	0.000	0.000	2.00
		C	0.000	0.000	0.000	0.000	0.00

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Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight lb
T7	227.00-207.00	A	3.633	0.000	0.000	0.000	13.20
		B	2.433	0.000	0.000	0.000	9.38
		C	0.000	0.000	0.000	0.000	0.00
T8	207.00-187.00	A	3.633	0.000	0.000	0.000	13.20
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T9	187.00-167.00	A	3.906	0.000	0.000	0.000	14.19
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T10	167.00-147.00	A	5.450	0.000	0.000	0.000	19.80
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T11	147.00-127.00	A	5.450	0.000	0.000	0.000	19.80
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T12	127.00-107.00	A	5.450	0.000	0.000	0.000	19.80
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T13	107.00-87.00	A	5.450	0.000	0.000	0.000	19.80
		B	7.958	0.000	0.000	0.000	51.20
		C	0.000	0.000	0.000	0.000	0.00
T14	87.00-67.00	A	5.450	0.000	0.000	0.000	19.80
		B	8.116	0.000	0.000	0.000	51.65
		C	0.000	0.000	0.000	0.000	0.00
T15	67.00-62.98	A	1.097	0.000	0.000	0.000	3.98
		B	1.813	0.000	0.000	0.000	10.91
		C	0.000	0.000	0.000	0.000	0.00
T16	62.98-58.99	A	1.085	0.000	0.000	0.000	3.94
		B	1.794	0.000	0.000	0.000	10.79
		C	0.000	0.000	0.000	0.000	0.00
T17	58.99-55.01	A	1.085	0.000	0.000	0.000	3.94
		B	1.794	0.000	0.000	0.000	10.79
		C	0.000	0.000	0.000	0.000	0.00
T18	55.01-51.03	A	1.085	0.000	0.000	0.000	3.94
		B	1.794	0.000	0.000	0.000	10.79
		C	0.000	0.000	0.000	0.000	0.00
T19	51.03-47.00	A	1.097	0.000	0.000	0.000	3.98
		B	1.813	0.000	0.000	0.000	10.91
		C	0.000	0.000	0.000	0.000	0.00
T20	47.00-27.00	A	5.450	0.000	0.000	0.000	19.80
		B	9.008	0.000	0.000	0.000	54.20
		C	0.000	0.000	0.000	0.000	0.00
T21	27.00-7.00	A	6.304	0.000	0.000	0.000	21.90
		B	9.008	0.000	0.000	0.000	54.20
		C	0.000	0.000	0.000	0.000	0.00
T22	7.00-3.00	A	0.366	0.000	0.000	0.000	1.19
		B	0.450	0.000	0.000	0.000	2.71
		C	0.000	0.000	0.000	0.000	0.00
T23	3.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

**Feed Line/Linear Appurtenances Section Areas - With Ice**

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight lb
T1	347.00-327.00	A	0.750	3.885	0.000	0.000	0.000	36.29



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<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face or Leg</i>	<i>Ice Thickness in</i>	<i>A<sub>R</sub> ft<sup>2</sup></i>	<i>A<sub>F</sub> ft<sup>2</sup></i>	<i>C<sub>AA</sub> In Face ft<sup>2</sup></i>	<i>C<sub>AA</sub> Out Face ft<sup>2</sup></i>	<i>Weight lb</i>
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T2	327.00-307.00	A	0.750	4.317	0.000	0.000	0.000	40.32
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T3	307.00-287.00	A	0.750	4.317	0.000	0.000	0.000	40.32
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T4	287.00-267.00	A	0.750	8.633	0.000	0.000	0.000	80.64
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T5	267.00-247.00	A	0.750	8.633	0.000	0.000	0.000	80.64
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T6	247.00-227.00	A	0.750	8.633	0.000	0.000	0.000	80.64
		B		3.958	0.000	0.000	0.000	31.78
		C		0.000	0.000	0.000	0.000	0.00
T7	227.00-207.00	A	0.750	8.633	0.000	0.000	0.000	80.64
		B		4.658	1.025	0.000	0.000	55.09
		C		0.000	0.000	0.000	0.000	0.00
T8	207.00-187.00	A	0.750	8.633	0.000	0.000	0.000	80.64
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T9	187.00-167.00	A	0.750	9.281	0.000	0.000	0.000	86.69
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T10	167.00-147.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T11	147.00-127.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T12	127.00-107.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T13	107.00-87.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		8.625	6.833	0.000	0.000	187.19
		C		0.000	0.000	0.000	0.000	0.00
T14	87.00-67.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		9.158	6.833	0.000	0.000	191.43
		C		0.000	0.000	0.000	0.000	0.00
T15	67.00-62.98	A	0.750	2.606	0.000	0.000	0.000	24.34
		B		2.450	1.375	0.000	0.000	43.37
		C		0.000	0.000	0.000	0.000	0.00
T16	62.98-58.99	A	0.750	2.579	0.000	0.000	0.000	24.09
		B		2.425	1.361	0.000	0.000	42.92
		C		0.000	0.000	0.000	0.000	0.00
T17	58.99-55.01	A	0.750	2.579	0.000	0.000	0.000	24.09
		B		2.425	1.361	0.000	0.000	42.92
		C		0.000	0.000	0.000	0.000	0.00
T18	55.01-51.03	A	0.750	2.579	0.000	0.000	0.000	24.09
		B		2.425	1.361	0.000	0.000	42.92
		C		0.000	0.000	0.000	0.000	0.00
T19	51.03-47.00	A	0.750	2.606	0.000	0.000	0.000	24.34
		B		2.450	1.375	0.000	0.000	43.37
		C		0.000	0.000	0.000	0.000	0.00
T20	47.00-27.00	A	0.750	12.950	0.000	0.000	0.000	120.96
		B		12.175	6.833	0.000	0.000	215.48
		C		0.000	0.000	0.000	0.000	0.00
T21	27.00-7.00	A	0.750	16.429	0.000	0.000	0.000	146.88
		B		12.175	6.833	0.000	0.000	215.48

<b>tnxTower</b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	18 of 45
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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight lb
T22	7.00-3.00	C	0.750	0.000	0.000	0.000	0.000	0.00
		A		0.991	0.000	0.000	0.000	8.65
		B		0.609	0.342	0.000	0.000	10.77
T23	3.00-0.00	C	0.750	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

### Feed Line Shielding

Section	Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>R</sub> Ice ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	A <sub>F</sub> Ice ft <sup>2</sup>
T1	347.00-327.00	A	0.098	0.780	0.082	0.194
		B	0.088	0.794	0.073	0.198
		C	0.000	0.000	0.000	0.000
T2	327.00-307.00	A	0.078	0.792	0.091	0.216
		B	0.063	0.726	0.073	0.198
		C	0.000	0.000	0.000	0.000
T3	307.00-287.00	A	0.078	0.792	0.091	0.216
		B	0.063	0.726	0.073	0.198
		C	0.000	0.000	0.000	0.000
T4	287.00-267.00	A	0.218	1.733	0.182	0.432
		B	0.088	0.794	0.073	0.198
		C	0.000	0.000	0.000	0.000
T5	267.00-247.00	A	0.156	1.584	0.182	0.432
		B	0.063	0.726	0.073	0.198
		C	0.000	0.000	0.000	0.000
T6	247.00-227.00	A	0.156	1.584	0.182	0.432
		B	0.063	0.726	0.073	0.198
		C	0.000	0.000	0.000	0.000
T7	227.00-207.00	A	0.156	1.584	0.182	0.432
		B	0.104	1.043	0.122	0.284
		C	0.000	0.000	0.000	0.000
T8	207.00-187.00	A	0.156	1.584	0.182	0.432
		B	0.342	2.837	0.398	0.773
		C	0.000	0.000	0.000	0.000
T9	187.00-167.00	A	0.201	1.783	0.195	0.464
		B	0.410	2.969	0.398	0.773
		C	0.000	0.000	0.000	0.000
T10	167.00-147.00	A	0.234	2.376	0.273	0.647
		B	0.342	2.837	0.398	0.773
		C	0.000	0.000	0.000	0.000
T11	147.00-127.00	A	0.234	2.376	0.273	0.647
		B	0.342	2.837	0.398	0.773
		C	0.000	0.000	0.000	0.000
T12	127.00-107.00	A	0.234	2.376	0.273	0.647
		B	0.342	2.837	0.398	0.773
		C	0.000	0.000	0.000	0.000
T13	107.00-87.00	A	0.234	2.376	0.273	0.647
		B	0.342	2.837	0.398	0.773
		C	0.000	0.000	0.000	0.000
T14	87.00-67.00	A	0.234	2.457	0.341	0.809
		B	0.349	3.034	0.507	0.999
		C	0.000	0.000	0.000	0.000
T15	67.00-62.98	A	0.046	0.455	0.045	0.108
		B	0.076	0.667	0.075	0.158

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Section	Elevation ft	Face	$A_R$	$A_{R\ Ice}$	$A_F$	$A_{F\ Ice}$
			$ft^2$	$ft^2$	$ft^2$	$ft^2$
T16	62.98-58.99	C	0.000	0.000	0.000	0.000
		A	0.047	0.462	0.045	0.108
		B	0.078	0.678	0.075	0.158
T17	58.99-55.01	C	0.000	0.000	0.000	0.000
		A	0.047	0.462	0.045	0.108
		B	0.078	0.678	0.075	0.158
T18	55.01-51.03	C	0.000	0.000	0.000	0.000
		A	0.047	0.462	0.045	0.108
		B	0.078	0.678	0.075	0.158
T19	51.03-47.00	C	0.000	0.000	0.000	0.000
		A	0.046	0.535	0.091	0.216
		B	0.076	0.786	0.150	0.317
T20	47.00-27.00	C	0.000	0.000	0.000	0.000
		A	0.234	2.376	0.273	0.647
		B	0.387	3.488	0.450	0.950
T21	27.00-7.00	C	0.000	0.000	0.000	0.000
		A	0.271	3.015	0.315	0.821
		B	0.387	3.488	0.450	0.950
T22	7.00-3.00	C	0.000	0.000	0.000	0.000
		A	0.015	0.173	0.015	0.041
		B	0.019	0.166	0.019	0.040
T23	3.00-0.00	C	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000

### Feed Line Center of Pressure

Section	Elevation ft	$CP_x$	$CP_z$	$CP_x\ Ice$	$CP_z\ Ice$
		in	in	in	in
T1	347.00-327.00	-0.4024	-0.0668	-0.4195	-0.1265
T2	327.00-307.00	-0.4964	-0.0387	-0.5081	-0.0975
T3	307.00-287.00	-0.4964	-0.0387	-0.5081	-0.0975
T4	287.00-267.00	-0.5504	-0.5388	-0.5800	-0.6379
T5	267.00-247.00	-0.5928	-0.5803	-0.6103	-0.6712
T6	247.00-227.00	-0.5928	-0.5803	-0.6103	-0.6712
T7	227.00-207.00	-0.3318	-0.5295	-0.5080	-0.6465
T8	207.00-187.00	0.9877	-0.2726	0.0210	-0.5191
T9	187.00-167.00	0.9333	-0.3270	-0.0062	-0.5768
T10	167.00-147.00	0.8397	-0.6983	-0.1089	-0.9731
T11	147.00-127.00	0.8397	-0.6983	-0.1089	-0.9731
T12	127.00-107.00	0.8397	-0.6983	-0.1089	-0.9731
T13	107.00-87.00	0.8397	-0.6983	-0.1089	-0.9731
T14	87.00-67.00	0.8280	-0.6662	-0.0738	-0.9279
T15	67.00-62.98	1.0617	-0.7231	0.2221	-1.0079
T16	62.98-58.99	0.9490	-0.6463	0.2030	-0.9394
T17	58.99-55.01	0.9510	-0.6476	0.2034	-0.9413
T18	55.01-51.03	0.9510	-0.6476	0.2034	-0.9413
T19	51.03-47.00	0.8314	-0.5662	0.1251	-0.8050
T20	47.00-27.00	0.9263	-0.6308	0.1879	-0.9145
T21	27.00-7.00	0.8177	-0.7137	-0.0105	-1.0491
T22	7.00-3.00	0.2174	-0.2560	-0.0567	-0.3854
T23	3.00-0.00	0.0000	0.0000	0.0000	0.0000

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## Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C<sub>A</sub>A<sub>A</sub> Front</i> <i>ft<sup>2</sup></i>	<i>C<sub>A</sub>A<sub>A</sub> Side</i> <i>ft<sup>2</sup></i>	<i>Weight</i> <i>lb</i>	
Flash Beacon Lighting (InSite)	C	From Leg	0.00	0.0000	347.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			0.00			1" Ice	3.50	3.50	90.00
5' x 5/8" Rod (InSite)	B	From Leg	0.00	0.0000	347.00	No Ice	0.31	0.31	10.00
			0.00			1/2" Ice	0.83	0.83	13.50
			4.00			1" Ice	1.32	1.32	20.28
Small Light (InSite)	A	From Leg	0.50	0.0000	225.00	No Ice	0.13	0.13	2.00
			0.00			1/2" Ice	0.19	0.19	4.01
			0.00			1" Ice	0.27	0.27	6.89
Small Light (InSite)	B	From Leg	0.50	0.0000	225.00	No Ice	0.13	0.13	2.00
			0.00			1/2" Ice	0.19	0.19	4.01
			0.00			1" Ice	0.27	0.27	6.89
Small Light (InSite)	A	From Leg	0.50	0.0000	117.00	No Ice	0.13	0.13	2.00
			0.00			1/2" Ice	0.19	0.19	4.01
			0.00			1" Ice	0.27	0.27	6.89
Small Light (InSite)	B	From Leg	0.50	0.0000	117.00	No Ice	0.13	0.13	2.00
			0.00			1/2" Ice	0.19	0.19	4.01
			0.00			1" Ice	0.27	0.27	6.89
***									
10' 8 Bay Dipole (TELCO)	C	From Leg	2.00	0.0000	345.00	No Ice	3.00	3.00	40.00
			0.00			1/2" Ice	4.03	4.03	61.79
			2.00			1" Ice	5.03	5.03	90.14
2' Standoff Mount (TELCO)	C	From Leg	2.00	0.0000	345.00	No Ice	2.00	2.00	20.00
			0.00			1/2" Ice	3.50	3.50	30.00
			2.00			1" Ice	5.00	5.00	55.00
***									
Small GPS Antenna w/ 1' Standoff (Sprint)	C	From Leg	1.00	0.0000	70.00	No Ice	0.33	0.33	12.00
			0.00			1/2" Ice	0.47	0.47	15.97
			0.00			1" Ice	0.61	0.61	21.42
***									
16' Dipole	B	From Leg	1.50	0.0000	287.00	No Ice	4.67	4.67	45.00
			0.00			1/2" Ice	6.37	6.37	79.12
			0.00			1" Ice	8.06	8.06	113.24
2' Side Arm Mount	B	None		0.0000	287.00	No Ice	1.50	1.50	50.00
						1/2" Ice	2.50	2.50	100.00
						1" Ice	4.00	4.00	150.00
***									
2.5" x 20' Omni	C	From Leg	1.00	0.0000	170.00	No Ice	5.00	5.00	60.00
			0.00			1/2" Ice	7.03	7.03	96.96
			0.00			1" Ice	9.07	9.07	146.55
1' Sidearm Mount	C	None		0.0000	170.00	No Ice	0.75	0.75	21.00
						1/2" Ice	0.89	0.89	35.00
						1" Ice	1.07	1.07	50.00
***									
Small Weather Station	B	From Face	1.00	0.0000	20.00	No Ice	0.05	0.05	2.00
			0.00			1/2" Ice	0.09	0.09	2.94
			0.00			1" Ice	0.14	0.14	4.49
1' Sidearm Mount	B	None		0.0000	20.00	No Ice	0.75	0.75	21.00
						1/2" Ice	0.89	0.89	35.00
						1" Ice	1.07	1.07	50.00
Flash Beacon Lighting	A	None		0.0000	15.00	No Ice	2.70	2.70	50.00
						1/2" Ice	3.10	3.10	70.00

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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz Lateral	Vert						°
2-3/8" x 4' Pipe Mount	A	None			0.0000	15.00	1" Ice	3.50	3.50	90.00
							No Ice	0.87	0.87	15.00
							1/2" Ice	1.11	1.11	22.33
							1" Ice	1.37	1.37	32.49
***										
APXVSP18-C-A20 (Sprint)	A	From Leg	4.00	0.00	0.0000	210.00	No Ice	8.96	8.08	117.64
							1/2" Ice	9.66	9.14	197.34
							1" Ice	10.34	10.09	287.17
APXVSP18-C-A20 (Sprint)	B	From Leg	4.00	0.00	0.0000	210.00	No Ice	8.96	8.08	117.64
							1/2" Ice	9.66	9.14	197.34
							1" Ice	10.34	10.09	287.17
APXVSP18-C-A20 (Sprint)	C	From Leg	4.00	0.00	0.0000	210.00	No Ice	8.96	8.08	117.64
							1/2" Ice	9.66	9.14	197.34
							1" Ice	10.34	10.09	287.17
APXVTM-14-C-I20 (Sprint)	A	From Leg	4.00	0.00	0.0000	210.00	No Ice	6.26	3.56	54.00
							1/2" Ice	6.84	4.09	91.06
							1" Ice	7.42	4.62	128.12
APXVTM-14-C-I20 (Sprint)	B	From Leg	4.00	0.00	0.0000	210.00	No Ice	6.26	3.56	54.00
							1/2" Ice	6.84	4.09	91.06
							1" Ice	7.42	4.62	128.12
APXVTM-14-C-I20 (Sprint)	C	From Leg	4.00	0.00	0.0000	210.00	No Ice	6.26	3.56	54.00
							1/2" Ice	6.84	4.09	91.06
							1" Ice	7.42	4.62	128.12
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	A	From Leg	3.00	0.00	0.0000	210.00	No Ice	1.32	1.71	50.60
							1/2" Ice	1.54	1.96	59.05
							1" Ice	1.76	2.21	67.50
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	B	From Leg	3.00	0.00	0.0000	210.00	No Ice	1.32	1.71	50.60
							1/2" Ice	1.54	1.96	59.05
							1" Ice	1.76	2.21	67.50
ALU 800 MHz 15.8x10x13 (50.6lb) (Sprint)	C	From Leg	3.00	0.00	0.0000	210.00	No Ice	1.32	1.71	50.60
							1/2" Ice	1.54	1.96	59.05
							1" Ice	1.76	2.21	67.50
ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	A	From Leg	3.00	0.00	0.0000	210.00	No Ice	2.33	2.25	60.00
							1/2" Ice	2.64	2.55	74.88
							1" Ice	2.95	2.85	89.76
ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	B	From Leg	3.00	0.00	0.0000	210.00	No Ice	2.33	2.25	60.00
							1/2" Ice	2.64	2.55	74.88
							1" Ice	2.95	2.85	89.76
ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (Sprint)	C	From Leg	3.00	0.00	0.0000	210.00	No Ice	2.33	2.25	60.00
							1/2" Ice	2.64	2.55	74.88
							1" Ice	2.95	2.85	89.76
ALU TD RRH 8x20 (Sprint)	A	From Leg	3.00	0.00	0.0000	210.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.43	1.81	95.38
							1" Ice	4.81	2.09	120.76
ALU TD RRH 8x20 (Sprint)	B	From Leg	3.00	0.00	0.0000	210.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.43	1.81	95.38
							1" Ice	4.81	2.09	120.76
ALU TD RRH 8x20 (Sprint)	C	From Leg	3.00	0.00	0.0000	210.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.43	1.81	95.38
							1" Ice	4.81	2.09	120.76
Notch Filter 8.9x10x4.3 (9.45lbs) (Sprint)	A	From Leg	3.00	0.00	0.0000	210.00	No Ice	0.74	0.32	9.45
							1/2" Ice	0.91	0.44	14.21
							1" Ice	1.08	0.56	18.97
Notch Filter 8.9x10x4.3 (9.45lbs) (Sprint)	B	From Leg	3.00	0.00	0.0000	210.00	No Ice	0.74	0.32	9.45
							1/2" Ice	0.91	0.44	14.21
							1" Ice	1.08	0.56	18.97
Notch Filter 8.9x10x4.3	C	From Leg	3.00	0.00	0.0000	210.00	No Ice	0.74	0.32	9.45

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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb
(9.45lbs) (Sprint)			0.00		1/2" Ice	0.91	0.44	14.21
			0.00		1" Ice	1.08	0.56	18.97
(3) 12' Sector Frames (Sprint)	C	None		0.0000	210.00	No Ice	25.00	800.00
					1/2" Ice	37.00	37.00	1100.00
					1" Ice	47.00	47.00	1500.00

### Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	6885.44			
Bracing Weight	7112.44			
Total Member Self-Weight	13997.88			
Guy Weight	3026.00			
Total Weight	20119.51			
Wind 0 deg - No Ice		0.00	-24802.36	-297.36
Wind 30 deg - No Ice		12171.76	-21082.10	-93.81
Wind 60 deg - No Ice		20949.64	-12095.28	144.43
Wind 90 deg - No Ice		24343.51	0.00	337.18
Wind 120 deg - No Ice		21479.48	12401.18	426.11
Wind 150 deg - No Ice		12171.76	21082.10	430.99
Wind 180 deg - No Ice		0.00	24190.56	304.87
Wind 210 deg - No Ice		-12171.76	21082.10	93.81
Wind 240 deg - No Ice		-21479.48	12401.18	-128.75
Wind 270 deg - No Ice		-24343.51	0.00	-337.18
Wind 300 deg - No Ice		-20949.64	-12095.28	-449.30
Wind 330 deg - No Ice		-12171.76	-21082.10	-430.99
Member Ice	10824.03			
Guy Ice	8764.38			
Total Weight Ice	44400.11			
Wind 0 deg - Ice		0.00	-7894.16	-326.94
Wind 30 deg - Ice		3863.54	-6691.84	-277.52
Wind 60 deg - Ice		6643.61	-3835.69	-152.24
Wind 90 deg - Ice		7727.07	0.00	8.05
Wind 120 deg - Ice		6836.54	3947.08	161.34
Wind 150 deg - Ice		3863.54	6691.84	285.57
Wind 180 deg - Ice		0.00	7671.38	324.49
Wind 210 deg - Ice		-3863.54	6691.84	277.52
Wind 240 deg - Ice		-6836.54	3947.08	165.60
Wind 270 deg - Ice		-7727.07	0.00	-8.05
Wind 300 deg - Ice		-6643.61	-3835.69	-172.25
Wind 330 deg - Ice		-3863.54	-6691.84	-285.57
Total Weight	20119.51			
Wind 0 deg - Service		0.00	-8582.13	-102.89
Wind 30 deg - Service		4211.68	-7294.84	-32.46
Wind 60 deg - Service		7249.01	-4185.22	49.98
Wind 90 deg - Service		8423.36	0.00	116.67
Wind 120 deg - Service		7432.35	4291.07	147.44
Wind 150 deg - Service		4211.68	7294.84	149.13

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Load Case	Vertical Forces <i>lb</i>	Sum of Forces X <i>lb</i>	Sum of Forces Z <i>lb</i>	Sum of Torques <i>lb-ft</i>
Wind 180 deg - Service		0.00	8370.44	105.49
Wind 210 deg - Service		-4211.68	7294.84	32.46
Wind 240 deg - Service		-7432.35	4291.07	-44.55
Wind 270 deg - Service		-8423.36	0.00	-116.67
Wind 300 deg - Service		-7249.01	-4185.22	-155.47
Wind 330 deg - Service		-4211.68	-7294.84	-149.13

## Load Combinations

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

## Maximum Reactions

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	10	51163.80	1062.64	-618.28
	Max. H <sub>x</sub>	10	51163.80	1062.64	-618.28
	Max. H <sub>z</sub>	16	24501.39	-4548.69	2703.80
	Min. Vert	4	1441.01	-288.41	164.52
	Min. H <sub>x</sub>	17	23181.78	-4608.83	2677.06
	Min. H <sub>z</sub>	9	46101.50	893.41	-690.63
Leg B	Max. Vert	6	49488.08	-1037.20	-641.67
	Max. H <sub>x</sub>	25	22002.34	4627.22	2683.88
	Max. H <sub>z</sub>	26	23234.49	4567.18	2710.45
	Min. Vert	12	87.48	276.05	196.76
	Min. H <sub>x</sub>	5	46161.58	-1038.59	-433.35
Leg A	Min. H <sub>z</sub>	8	37874.88	-609.92	-743.77
	Max. Vert	2	51899.70	33.03	1237.08
	Max. H <sub>x</sub>	11	28713.74	344.91	571.41
	Max. H <sub>z</sub>	2	51899.70	33.03	1237.08
	Min. Vert	8	1925.44	-32.71	-330.20
Guy C @ 280 ft Elev 13 ft Azimuth 240 deg	Min. H <sub>x</sub>	5	27721.08	-362.29	562.26
	Min. H <sub>z</sub>	21	23921.28	3.26	-5323.49
	Max. Vert	10	-1871.65	-1153.43	666.86
	Max. H <sub>x</sub>	10	-1871.65	-1153.43	666.86
	Max. H <sub>z</sub>	4	-9153.44	-7449.57	4299.69
	Min. Vert	4	-9153.44	-7449.57	4299.69
Guy B @ 280 ft Elev -13 ft Azimuth 120 deg	Min. H <sub>x</sub>	4	-9153.44	-7449.57	4299.69
	Min. H <sub>z</sub>	10	-1871.65	-1153.43	666.86
	Max. Vert	6	-2258.77	1290.22	745.42
	Max. H <sub>x</sub>	12	-9792.39	7395.32	4267.92
	Max. H <sub>z</sub>	12	-9792.39	7395.32	4267.92
	Min. Vert	12	-9792.39	7395.32	4267.92
Guy A @ 277 ft Elev 34 ft Azimuth 0 deg	Min. H <sub>x</sub>	6	-2258.77	1290.22	745.42
	Min. H <sub>z</sub>	6	-2258.77	1290.22	745.42
	Max. Vert	2	-1617.79	0.35	-1219.27
	Max. H <sub>x</sub>	11	-5341.42	596.04	-5077.90
	Max. H <sub>z</sub>	2	-1617.79	0.35	-1219.27
	Min. Vert	8	-8784.60	0.45	-8710.80
Guy C @ 222 ft Elev 16 ft Azimuth 240 deg	Min. H <sub>x</sub>	5	-5536.80	-594.57	-5259.61
	Min. H <sub>z</sub>	8	-8784.60	0.45	-8710.80
	Max. Vert	10	-1502.67	-932.53	539.45
	Max. H <sub>x</sub>	10	-1502.67	-932.53	539.45
	Max. H <sub>z</sub>	4	-19094.18	-17442.98	10068.35
	Min. Vert	4	-19094.18	-17442.98	10068.35
Guy B @ 224 ft Elev -17 ft Azimuth 120 deg	Min. H <sub>x</sub>	4	-19094.18	-17442.98	10068.35
	Min. H <sub>z</sub>	10	-1502.67	-932.53	539.45
	Max. Vert	6	-2243.66	1281.10	740.00
	Max. H <sub>x</sub>	12	-21206.68	17055.20	9845.48
	Max. H <sub>z</sub>	12	-21206.68	17055.20	9845.48
	Min. Vert	12	-21206.68	17055.20	9845.48
Guy A @ 223 ft Elev 24 ft Azimuth 0 deg	Min. H <sub>x</sub>	6	-2243.66	1281.10	740.00
	Min. H <sub>z</sub>	6	-2243.66	1281.10	740.00
	Max. Vert	2	-1325.71	0.60	-976.27
	Max. H <sub>x</sub>	2	-1325.71	0.60	-976.27



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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 166 ft Elev 8 ft Azimuth 240 deg	Max. H <sub>x</sub>	11	-9546.58	852.73	-10249.37
	Max. H <sub>z</sub>	2	-1325.71	0.60	-976.27
	Min. Vert	8	-18334.37	-1.03	-20161.90
	Min. H <sub>x</sub>	5	-10049.49	-846.81	-10779.19
	Min. H <sub>z</sub>	8	-18334.37	-1.03	-20161.90
	Max. Vert	10	-236.50	-386.56	223.29
	Max. H <sub>x</sub>	10	-236.50	-386.56	223.29
	Max. H <sub>z</sub>	4	-6128.72	-8572.18	4949.14
	Min. Vert	4	-6128.72	-8572.18	4949.14
	Min. H <sub>x</sub>	4	-6128.72	-8572.18	4949.14
Guy B @ 170 ft Elev -12 ft Azimuth 120 deg	Min. H <sub>z</sub>	10	-236.50	-386.56	223.29
	Max. Vert	6	-399.98	473.56	273.43
	Max. H <sub>x</sub>	12	-7050.22	8467.77	4889.76
	Max. H <sub>z</sub>	12	-7050.22	8467.77	4889.76
	Min. Vert	12	-7050.22	8467.77	4889.76
	Min. H <sub>x</sub>	6	-399.98	473.56	273.43
Guy A @ 169 ft Elev 15 ft Azimuth 0 deg	Min. H <sub>z</sub>	6	-399.98	473.56	273.43
	Max. Vert	2	-173.98	0.07	-418.64
	Max. H <sub>x</sub>	11	-3027.78	273.32	-5422.26
	Max. H <sub>z</sub>	2	-173.98	0.07	-418.64
	Min. Vert	8	-5641.30	-0.70	-9930.24
	Min. H <sub>x</sub>	5	-3129.63	-271.76	-5587.40
	Min. H <sub>z</sub>	8	-5641.30	-0.70	-9930.24

## Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear <sub>x</sub> lb	Shear <sub>z</sub> lb	Overturning Moment, M <sub>x</sub> lb-ft	Overturning Moment, M <sub>z</sub> lb-ft	Torque lb-ft
Dead Only	53824.42	-15.09	-13.67	-1033.99	948.46	0.83
Dead+Wind 0 deg - No Ice+Guy	80167.86	-1.81	-1590.14	-65411.98	2274.28	186.55
Dead+Wind 30 deg - No Ice+Guy	79108.89	926.68	-1339.91	-53114.63	-31917.70	174.83
Dead+Wind 60 deg - No Ice+Guy	78218.55	1511.48	-896.01	-32595.43	-55076.53	33.34
Dead+Wind 90 deg - No Ice+Guy	79011.20	1624.48	-144.47	-3595.78	-61549.57	-202.58
Dead+Wind 120 deg - No Ice+Guy	79163.96	1351.19	779.17	29205.28	-52438.60	-187.84
Dead+Wind 150 deg - No Ice+Guy	78559.65	696.52	1478.80	53314.30	-28400.25	-130.97
Dead+Wind 180 deg - No Ice+Guy	77661.11	-9.27	1759.66	62254.05	-21.13	-179.74
Dead+Wind 210 deg - No Ice+Guy	78545.76	-696.02	1474.33	52608.71	29385.08	-175.78
Dead+Wind 240 deg - No Ice+Guy	79880.91	-1365.88	785.53	29100.45	56809.34	1.63
Dead+Wind 270 deg - No Ice+Guy	80125.65	-1602.67	-164.09	-5209.64	65157.13	164.17
Dead+Wind 300 deg - No Ice+Guy	79182.41	-1512.66	-886.07	-34845.64	58801.82	154.15

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<i>Load Combination</i>	<i>Vertical</i> lb	<i>Shear<sub>x</sub></i> lb	<i>Shear<sub>z</sub></i> lb	<i>Overturning Moment, M<sub>x</sub></i> lb-ft	<i>Overturning Moment, M<sub>z</sub></i> lb-ft	<i>Torque</i> lb-ft
Ice+Guy						
Dead+Wind 330 deg - No	80230.05	-936.23	-1316.67	-55062.21	36131.76	158.58
Ice+Guy						
Dead+Ice+Temp+Guy	92679.11	-22.57	-20.14	-2362.08	1680.29	-1.03
Dead+Wind 0	98093.05	-20.49	-728.74	-27155.08	1984.49	-1.01
deg+Ice+Temp+Guy						
Dead+Wind 30	98134.41	317.77	-602.51	-22020.70	-11916.56	22.39
deg+Ice+Temp+Guy						
Dead+Wind 60	98205.86	551.13	-355.05	-14913.29	-20050.33	-51.72
deg+Ice+Temp+Guy						
Dead+Wind 90	97343.52	650.67	-26.52	-4525.70	-22285.21	-118.25
deg+Ice+Temp+Guy						
Dead+Wind 120	96627.75	593.29	336.57	9790.14	-19633.96	-59.51
deg+Ice+Temp+Guy						
Dead+Wind 150	97154.58	309.70	568.78	19279.99	-8612.56	19.10
deg+Ice+Temp+Guy						
Dead+Wind 180	97863.63	-23.53	647.51	22603.08	1523.11	-2.39
deg+Ice+Temp+Guy						
Dead+Wind 210	97663.77	-354.80	569.00	19138.52	11763.85	-21.03
deg+Ice+Temp+Guy						
Dead+Wind 240	97560.09	-634.18	336.63	9503.46	23103.10	61.84
deg+Ice+Temp+Guy						
Dead+Wind 270	98108.86	-692.40	-22.90	-4911.71	25964.47	122.96
deg+Ice+Temp+Guy						
Dead+Wind 300	98721.73	-591.85	-351.25	-15346.61	23854.33	53.90
deg+Ice+Temp+Guy						
Dead+Wind 330	98393.02	-357.88	-601.15	-22355.23	15782.74	-24.20
deg+Ice+Temp+Guy						
Dead+Wind 0 deg - Service+Guy	56140.84	-15.39	-663.92	-21678.14	1351.41	58.51
Dead+Wind 30 deg - Service+Guy	56765.55	306.14	-556.22	-18074.50	-9784.17	52.70
Dead+Wind 60 deg - Service+Guy	57337.28	530.29	-326.08	-11122.03	-17266.79	-2.96
Dead+Wind 90 deg - Service+Guy	56711.41	619.25	-17.86	-1501.10	-19893.70	-59.44
Dead+Wind 120 deg - Service+Guy	56024.58	552.58	314.36	9473.13	-17528.99	-63.33
Dead+Wind 150 deg - Service+Guy	56669.20	298.98	538.69	16989.35	-9143.64	-51.35
Dead+Wind 180 deg - Service+Guy	57244.52	-12.20	616.25	19558.56	612.82	-56.19
Dead+Wind 210 deg - Service+Guy	56648.18	-323.99	537.02	16647.52	10469.10	-51.86
Dead+Wind 240 deg - Service+Guy	55993.85	-578.43	311.35	8857.70	19168.64	6.03
Dead+Wind 270 deg - Service+Guy	56619.73	-646.15	-20.31	-2242.96	21892.72	61.91
Dead+Wind 300 deg - Service+Guy	57268.09	-557.72	-327.76	-11780.63	19616.42	60.61
Dead+Wind 330 deg - Service+Guy	56695.91	-335.44	-557.49	-18459.67	12376.12	48.60

## Solution Summary

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-20119.04	0.00	-2.40	20119.06	-1.94	0.015%
2	-48.19	-20564.25	-31414.83	47.34	20563.97	31404.16	0.029%
3	15465.02	-20151.57	-26759.96	-15467.18	20151.47	26761.41	0.007%
4	26748.65	-19733.00	-15358.89	-26750.83	19732.29	15362.72	0.012%
5	31075.83	-20049.50	26.35	-31077.23	20049.44	-26.75	0.004%
6	27325.54	-20379.45	15747.60	-27316.37	20379.17	-15742.67	0.028%
7	15543.46	-20016.96	26843.12	-15543.86	20016.83	-26843.99	0.003%
8	48.19	-19673.83	30803.03	-48.31	19672.53	-30808.14	0.014%
9	-15465.02	-20086.51	26759.96	15465.20	20086.37	-26761.19	0.003%
10	-27278.49	-20505.08	15664.79	27268.89	20504.79	-15660.55	0.028%
11	-31075.83	-20188.59	-26.35	31078.62	20188.61	28.68	0.010%
12	-26795.70	-19858.63	-15441.70	26795.96	19858.40	15443.72	0.006%
13	-15543.46	-20221.12	-26843.12	15546.42	20221.30	26843.57	0.008%
14	0.00	-44398.32	0.00	-4.21	44398.32	-3.95	0.013%
15	-43.51	-44803.92	-13845.82	38.56	44803.89	13839.22	0.018%
16	6827.58	-44427.94	-11801.71	-6821.73	44427.89	11798.40	0.014%
17	11864.03	-44046.66	-6772.93	-11859.75	44046.60	6764.54	0.020%
18	13787.32	-44334.61	23.50	-13786.84	44334.60	-25.59	0.005%
19	12098.93	-44634.88	6958.79	-12096.69	44634.79	-6960.28	0.006%
20	6898.06	-44304.99	11876.78	-6902.64	44304.94	-11872.36	0.014%
21	43.51	-43992.73	13623.04	-44.89	43992.72	-13621.15	0.005%
22	-6827.58	-44368.70	11801.71	6828.46	44368.64	-11794.19	0.016%
23	-12056.96	-44749.99	6884.32	12049.97	44749.96	-6887.24	0.016%
24	-13787.32	-44462.03	-23.50	13786.05	44462.02	21.43	0.005%
25	-11906.00	-44161.76	-6847.40	11903.51	44161.74	6845.70	0.007%
26	-6898.06	-44491.65	-11876.78	6894.90	44491.63	11876.42	0.007%
27	-16.68	-20273.09	-10870.18	15.61	20273.09	10866.73	0.016%
28	5351.22	-20130.30	-9259.50	-5351.60	20130.30	9256.62	0.013%
29	9255.59	-19985.47	-5314.49	-9254.87	19985.45	5311.91	0.012%
30	10752.88	-20094.98	9.12	-10750.36	20094.96	-9.50	0.011%
31	9455.20	-20209.15	5449.00	-9452.65	20209.14	-5447.90	0.012%
32	5378.36	-20083.72	9288.28	-5376.81	20083.71	-9286.50	0.010%
33	16.68	-19964.99	10658.49	-18.72	19964.97	-10656.26	0.013%
34	-5351.22	-20107.79	9259.50	5348.70	20107.78	-9258.71	0.012%
35	-9438.92	-20252.62	5420.34	9436.18	20252.62	-5420.03	0.012%
36	-10752.88	-20143.11	-9.12	10750.65	20143.10	8.47	0.010%
37	-9271.87	-20028.94	-5343.15	9269.04	20028.91	5341.15	0.015%
38	-5378.36	-20154.36	-9288.28	5376.87	20154.35	9286.39	0.011%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	14	0.00000001	0.00004533
2	Yes	37	0.00017857	0.00006951
3	No	500	0.00160050	0.00000000
4	No	500	0.00184335	0.00000000
5	No	500	0.00143083	0.00000000
6	Yes	32	0.00018501	0.00007194
7	No	500	0.00084319	0.00000000
8	No	500	0.00195683	0.00000000
9	No	500	0.00085764	0.00000000
10	Yes	36	0.00017393	0.00007046
11	No	500	0.00109334	0.00000000
12	No	500	0.00092631	0.00000000
13	No	500	0.00118670	0.00000000

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577</p>	<b>Job</b>	140257	<b>Page</b>	28 of 45
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14	Yes	16	0.00020000	0.00005804
15	Yes	17	0.00020000	0.00008941
16	Yes	18	0.00020000	0.00007523
17	Yes	18	0.00020000	0.00006762
18	Yes	23	0.00000001	0.00001737
19	Yes	15	0.00020000	0.00012329
20	Yes	19	0.00020000	0.00005452
21	Yes	21	0.00000001	0.00001766
22	Yes	17	0.00020000	0.00009377
23	Yes	17	0.00020000	0.00007867
24	Yes	24	0.00000001	0.00001801
25	Yes	23	0.00014470	0.00002206
26	Yes	23	0.00019753	0.00002376
27	Yes	14	0.00000001	0.00007264
28	Yes	16	0.00000001	0.00004636
29	Yes	16	0.00000001	0.00003212
30	Yes	15	0.00000001	0.00004391
31	Yes	12	0.00000001	0.00008373
32	Yes	15	0.00000001	0.00004235
33	Yes	15	0.00000001	0.00003653
34	Yes	16	0.00000001	0.00003969
35	Yes	14	0.00000001	0.00005743
36	Yes	17	0.00000001	0.00003167
37	Yes	17	0.00019249	0.00004194
38	Yes	17	0.00000001	0.00003480

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	347 - 327	3.558	37	0.1147	0.0832
T2	327 - 307	3.735	37	0.1219	0.0734
T3	307 - 287	3.892	37	0.0908	0.0597
T4	287 - 267	3.917	37	0.0631	0.0418
T5	267 - 247	3.913	37	0.0728	0.0375
T6	247 - 227	3.913	37	0.0385	0.0330
T7	227 - 207	3.730	37	0.0738	0.0269
T8	207 - 187	3.384	37	0.0976	0.0207
T9	187 - 167	3.067	37	0.0889	0.0193
T10	167 - 147	2.680	37	0.1234	0.0189
T11	147 - 127	2.178	37	0.1376	0.0135
T12	127 - 107	1.720	37	0.0977	0.0124
T13	107 - 87	1.410	37	0.0855	0.0132
T14	87 - 67	1.083	37	0.0936	0.0134
T15	67 - 62.975	0.736	37	0.0868	0.0133
T16	62.975 - 58.9917	0.674	37	0.0832	0.0129
T17	58.9917 - 55.0083	0.615	37	0.0812	0.0124
T18	55.0083 - 51.025	0.556	37	0.0794	0.0119
T19	51.025 - 47	0.499	37	0.0775	0.0114
T20	47 - 27	0.442	37	0.0754	0.0108
T21	27 - 7	0.186	37	0.0583	0.0070
T22	7 - 3	0.020	37	0.0206	0.0020
T23	3 - 0	0.005	37	0.0095	0.0008

### Critical Deflections and Radius of Curvature - Service Wind

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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection in</i>	<i>Tilt °</i>	<i>Twist °</i>	<i>Radius of Curvature ft</i>
347.00	Flash Beacon Lighting	37	3.558	0.1147	0.0832	254900
345.00	10' 8 Bay Dipole	37	3.575	0.1164	0.0822	254900
331.10	Guy	37	3.698	0.1232	0.0755	80253
287.00	16' Dipole	37	3.917	0.0631	0.0418	143220
271.10	Guy	37	3.910	0.0726	0.0379	59654
225.00	Small Light	37	3.699	0.0783	0.0262	24951
210.00	APXVSP18-C-A20	37	3.436	0.0974	0.0214	63627
202.90	Guy	37	3.316	0.0959	0.0199	55453
170.00	2.5" x 20' Omni	37	2.746	0.1173	0.0195	29088
131.10	Guy	37	1.801	0.1060	0.0125	24802
117.00	Small Light	37	1.555	0.0866	0.0126	61712
70.00	Small GPS Antenna w/ 1' Standoff	37	0.785	0.0894	0.0135	55565
67.17	Guy	37	0.739	0.0870	0.0133	54478
20.00	Small Weather Station	37	0.114	0.0481	0.0055	41663
15.00	Flash Beacon Lighting	37	0.071	0.0389	0.0042	34897

### Maximum Tower Deflections - Design Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
T1	347 - 327	14.858	12	0.4078	0.2989
T2	327 - 307	15.088	12	0.4289	0.2708
T3	307 - 287	15.469	11	0.3211	0.2222
T4	287 - 267	15.828	11	0.1955	0.1677
T5	267 - 247	16.077	2	0.1854	0.1559
T6	247 - 227	16.435	2	0.1560	0.1337
T7	227 - 207	15.975	2	0.3072	0.1113
T8	207 - 187	14.732	2	0.3990	0.0938
T9	187 - 167	13.291	2	0.4236	0.0867
T10	167 - 147	11.474	2	0.5668	0.1028
T11	147 - 127	9.199	2	0.6308	0.0601
T12	127 - 107	7.011	2	0.5088	0.0520
T13	107 - 87	5.349	2	0.4360	0.0579
T14	87 - 67	3.794	2	0.4099	0.0502
T15	67 - 62.975	2.393	2	0.3274	0.0455
T16	62.975 - 58.9917	2.164	2	0.3027	0.0436
T17	58.9917 - 55.0083	1.950	2	0.2896	0.0417
T18	55.0083 - 51.025	1.744	2	0.2772	0.0403
T19	51.025 - 47	1.556	12	0.2650	0.0388
T20	47 - 27	1.372	12	0.2526	0.0368
T21	27 - 7	0.564	12	0.1814	0.0246
T22	7 - 3	0.058	12	0.0621	0.0070
T23	3 - 0	0.015	12	0.0283	0.0029

### Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation ft</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection in</i>	<i>Tilt °</i>	<i>Twist °</i>	<i>Radius of Curvature ft</i>
347.00	Flash Beacon Lighting	12	14.858	0.4078	0.2989	82629

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
345.00	10' 8 Bay Dipole	12	14.880	0.4130	0.2964	82629
331.10	Guy	12	15.038	0.4335	0.2776	26000
287.00	16' Dipole	11	15.828	0.1955	0.1677	8766
271.10	Guy	11	15.971	0.1866	0.1601	5222
225.00	Small Light	2	15.877	0.3202	0.1090	5748
210.00	APXVSP18-C-A20	2	14.939	0.3907	0.0950	25551
202.90	Guy	2	14.448	0.4039	0.0932	19010
170.00	2.5" x 20' Omni	2	11.780	0.5438	0.0987	8385
131.10	Guy	2	7.418	0.5367	0.0529	7510
117.00	Small Light	2	6.134	0.4607	0.0557	13206
70.00	Small GPS Antenna w/ 1' Standoff	2	2.577	0.3459	0.0467	9267
67.17	Guy	2	2.403	0.3285	0.0456	9305
20.00	Small Weather Station	12	0.341	0.1478	0.0192	12593
15.00	Flash Beacon Lighting	12	0.210	0.1187	0.0148	11029

### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load Allowable	Allowable Ratio	Criteria
T2	327	Leg	A325X	0.6250	3	685.72	13498.00	0.051	✓	1.333 Bolt Tension
T3	307	Leg	A325X	0.6250	3	1335.83	13498.80	0.099	✓	1.333 Bolt Tension
T4	287	Leg	A325X	0.6250	3	299.74	13486.00	0.022	✓	1.333 Bolt Tension
T5	267	Leg	A325X	0.6250	3	0.00	13477.90	0.000	✓	1.333 Bolt Tension
T6	247	Leg	A325X	0.6250	3	1292.36	13498.60	0.096	✓	1.333 Bolt Tension
T7	227	Leg	A325X	0.6250	3	865.59	13497.90	0.064	✓	1.333 Bolt Tension
T8	207	Leg	A325X	0.6250	3	0.00	13494.50	0.000	✓	1.333 Bolt Tension
T9	187	Leg	A325X	0.6250	3	0.00	13497.90	0.000	✓	1.333 Bolt Tension
T10	167	Leg	A325X	0.6250	3	0.00	13497.50	0.000	✓	1.333 Bolt Tension
T11	147	Leg	A325X	0.6250	3	0.00	13498.10	0.000	✓	1.333 Bolt Tension
T12	127	Leg	A325X	0.6250	3	0.00	13498.50	0.000	✓	1.333 Bolt Tension
T13	107	Leg	A325X	0.6250	3	0.00	13499.00	0.000	✓	1.333 Bolt Tension
T14	87	Leg	A325X	0.6250	3	0.00	13499.00	0.000	✓	1.333 Bolt Tension
T15	67	Leg	A325X	0.6250	3	0.00	13494.60	0.000	✓	1.333 Bolt Tension
T20	47	Leg	A325X	0.6250	3	0.00	13498.90	0.000	✓	1.333 Bolt Tension
T21	27	Leg	A325X	0.6250	3	0.00	13498.70	0.000	✓	1.333 Bolt Tension
T22	7	Leg	A325X	0.6250	3	0.00	13495.70	0.000	✓	1.333 Bolt Tension

### Guy Design Data

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Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable $T_a$ lb	Required S.F.	Actual S.F.	
T1	331.10 (A) (919)	7/16 EHS	2080.00	20800.02	6282.14	10400.00	2.000	3.311	✓
	331.10 (A) (920)	7/16 EHS	2080.00	20800.02	6325.07	10400.00	2.000	3.289	✓
	331.10 (B) (913)	7/16 EHS	2080.00	20800.02	6664.36	10400.00	2.000	3.121	✓
	331.10 (B) (914)	7/16 EHS	2080.00	20800.02	6600.58	10400.00	2.000	3.151	✓
	331.10 (C) (907)	7/16 EHS	2080.00	20800.02	6393.93	10400.00	2.000	3.253	✓
	331.10 (C) (908)	7/16 EHS	2080.00	20800.02	6419.13	10400.00	2.000	3.240	✓
T4	271.10 (A) (937)	7/16 EHS	2080.00	20800.02	6762.87	10400.00	2.000	3.076	✓
	271.10 (A) (938)	7/16 EHS	2080.00	20800.02	6761.26	10400.00	2.000	3.076	✓
	271.10 (B) (931)	7/16 EHS	2080.00	20800.02	7182.99	10400.00	2.000	2.896	✓
	271.10 (B) (932)	7/16 EHS	2080.00	20800.02	7149.30	10400.00	2.000	2.909	✓
	271.10 (C) (925)	7/16 EHS	2080.00	20800.02	6889.48	10400.00	2.000	3.019	✓
	271.10 (C) (926)	7/16 EHS	2080.00	20800.02	6923.44	10400.00	2.000	3.004	✓
T8	202.90 (A) (955)	7/16 EHS	2080.00	20800.02	7073.64	10400.00	2.000	2.940	✓
	202.90 (A) (956)	7/16 EHS	2080.00	20800.02	7072.59	10400.00	2.000	2.941	✓
	202.90 (B) (949)	7/16 EHS	2080.00	20800.02	7546.52	10400.00	2.000	2.756	✓
	202.90 (B) (950)	7/16 EHS	2080.00	20800.02	7521.78	10400.00	2.000	2.765	✓
	202.90 (C) (943)	7/16 EHS	2080.00	20800.02	7175.67	10400.00	2.000	2.899	✓
	202.90 (C) (944)	7/16 EHS	2080.00	20800.02	7191.10	10400.00	2.000	2.892	✓
T11	131.10 (A) (973)	3/8 EHS	1540.00	15399.96	4290.86	7700.00	2.000	3.589	✓
	131.10 (A) (974)	3/8 EHS	1540.00	15399.96	4274.25	7700.00	2.000	3.603	✓
	131.10 (B) (967)	3/8 EHS	1540.00	15399.96	4541.62	7700.00	2.000	3.391	✓
	131.10 (B) (968)	3/8 EHS	1540.00	15399.96	4564.85	7700.00	2.000	3.374	✓
	131.10 (C) (961)	3/8 EHS	1540.00	15399.96	4365.23	7700.00	2.000	3.528	✓
	131.10 (C) (962)	3/8 EHS	1540.00	15399.96	4362.21	7700.00	2.000	3.530	✓
T14	67.17 (A) (984)	3/8 EHS	1540.00	15399.96	3037.68	7700.00	2.000	5.070	✓
	67.17 (B) (983)	3/8 EHS	1540.00	15399.96	3130.27	7700.00	2.000	4.920	✓
	67.17 (C) (979)	3/8 EHS	1540.00	15399.96	3099.45	7700.00	2.000	4.969	✓

### Compression Checks

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### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r K=1.00	Mast Stability Index	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P/P <sub>a</sub>
T1	347 - 327	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	1.00	24.379	1.7040	-12881.40	41542.50	0.310
T2	327 - 307	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	1.00	24.353	1.7040	-19379.30	41499.40	0.467
T3	307 - 287	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	1.00	24.353	1.7040	-19199.40	41499.00	0.463
T4	287 - 267	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	1.00	24.326	1.7040	-15286.70	41452.60	0.369*
T5	267 - 247	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.98	23.832	1.7040	-28519.30	40611.50	0.702
T6	247 - 227	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.98	23.853	1.7040	-29115.80	40646.40	0.716
T7	227 - 207	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.98	23.807	1.7040	-27218.40	40568.30	0.671
T8	207 - 187	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.93	22.714	1.7040	-24591.20	38705.10	0.635*
T9	187 - 167	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.93	22.714	1.7040	-25537.20	38705.10	0.660*
T10	167 - 147	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.93	22.714	1.7040	-25073.40	38705.10	0.648*
T11	147 - 127	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.97	23.588	1.7040	-38126.60	40195.00	0.949
T12	127 - 107	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.99	24.106	1.7040	-37117.60	41078.30	0.904
T13	107 - 87	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.98	23.805	1.7040	-29265.40	40564.10	0.721*
T14	87 - 67	PIPE 2.5" STD	20.00	3.93	49.8 K=1.00	0.98	23.805	1.7040	-29870.60	40564.10	0.736*
T15	67 - 62.975	PIPE 2.5" STD	4.02	3.86	48.9 K=1.00	1.00	24.526	1.7040	-30699.80	41793.20	0.735*
T16	62.975 - 58.9917	P2.5x0.203 + Split P3.5x0.300	3.98	3.98	45.3 K=1.00	1.00	25.072	3.0250	-32461.20	75841.10	0.428*
T17	58.9917 - 55.0083	P2.5x0.203 + Split P3.5x0.300	3.98	3.98	45.3 K=1.00	1.00	25.072	3.0250	-32545.90	75841.10	0.429*
T18	55.0083 - 51.025	P2.5x0.203 + Split P3.5x0.300	3.98	3.98	45.3 K=1.00	1.00	25.072	3.0250	-32693.80	75841.10	0.431*
T19	51.025 - 47	P2.5x0.203 + Split P3.5x0.300	4.02	3.86	43.8 K=1.00	1.00	25.281	3.0250	-33166.50	76474.90	0.434*
T20	47 - 27	P2.5x0.203 + Split P3.5x0.300	20.00	3.93	44.7 K=1.00	1.00	25.156	3.0250	-33912.60	76095.80	0.446*
T21	27 - 7	P2.5x0.203 + Split P3.5x0.300	20.00	3.93	44.7 K=1.00	1.00	25.156	3.0250	-49860.30	76095.80	0.655
T22	7 - 3	P2.5x0.203 + Split P3.5x0.300	4.00	3.83	43.6 K=1.00	1.00	25.323	3.0250	-52063.20	76600.50	0.680
T23	3 - 0	P2.5x0.203 + Split P3.5x0.300	3.00	2.83	32.2 K=1.00	0.99	26.474	3.0250	-54955.70	80084.60	0.686



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\* DL controls

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T1	347 - 327	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-11752.20	11891.00	0.988
T2	327 - 307	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-4792.24	7128.19	0.672*
T3	307 - 287	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-4284.63	7128.19	0.601*
T4	287 - 267	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-9857.06	11891.00	0.829
T5	267 - 247	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-4310.94	7128.19	0.605*
T6	247 - 227	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3822.22	7128.19	0.536*
T7	227 - 207	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3789.62	7128.19	0.532*
T8	207 - 187	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-6886.57	7128.19	0.966
T9	187 - 167	L2x1 1/2x1/4	3.00	2.76	111.8 K=1.08	11.425	0.8125	-4493.88	9282.39	0.484*
T10	167 - 147	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3313.78	7128.19	0.465*
T11	147 - 127	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-5465.77	7128.19	0.767
T12	127 - 107	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-4471.09	7128.19	0.627
T13	107 - 87	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3002.56	7128.19	0.421*
T14	87 - 67	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3009.59	7128.19	0.422*
T20	47 - 27	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3878.27	7209.86	0.538*
T21	27 - 7	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3862.06	7209.86	0.536*

\* DL controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T1	347 - 327	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-3737.49	11891.00	0.314*
T2	327 - 307	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1729.74	7128.19	0.243*

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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T3	307 - 287	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-2181.28	7128.19	0.306*
T4	287 - 267	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-4253.64	11891.00	0.358*
T5	267 - 247	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1565.34	7128.19	0.220*
T6	247 - 227	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1948.79	7128.19	0.273*
T7	227 - 207	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1931.71	7128.19	0.271*
T8	207 - 187	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-2560.91	7128.19	0.359
T9	187 - 167	L2x1 1/2x1/4	3.00	2.76	111.8 K=1.08	11.425	0.8125	-2539.53	9282.39	0.274*
T10	167 - 147	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1439.27	7128.19	0.202*
T11	147 - 127	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1669.02	7128.19	0.234*
T12	127 - 107	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1679.35	7128.19	0.236*
T13	107 - 87	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1527.93	7128.19	0.214*
T14	87 - 67	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1513.33	7128.19	0.212*
T15	67 - 62.975	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1176.73	7128.19	0.165*
T16	62.975 - 58.9917	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-3434.80	7128.19	0.482*
T17	58.9917 - 55.0083	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3742.36	7209.86	0.519*
T18	55.0083 - 51.025	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3681.13	7209.86	0.511*
T19	51.025 - 47	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3913.92	7209.86	0.543*
T20	47 - 27	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-1973.11	7209.86	0.274*
T21	27 - 7	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-1974.21	7209.86	0.274*
T22	7 - 3	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-1735.64	7209.86	0.241*
T23	3 - 0	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-5313.81	7209.86	0.737*

\* DL controls

### Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
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<b>tnxTower</b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	35 of 45
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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	347 - 327	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-4712.45	11891.00	0.396*
T2	327 - 307	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-2181.21	7128.19	0.306*
T3	307 - 287	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1550.75	7128.19	0.218*
T4	287 - 267	L2x2x1/4	3.00	2.76	102.4 K=1.21	12.677	0.9380	-4240.19	11891.00	0.357*
T5	267 - 247	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1945.16	7128.19	0.273*
T6	247 - 227	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1932.18	7128.19	0.271*
T7	227 - 207	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1894.77	7128.19	0.266*
T8	207 - 187	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1464.68	7128.19	0.205*
T9	187 - 167	L2x1 1/2x1/4	3.00	2.76	111.8 K=1.08	11.425	0.8125	-2511.97	9282.39	0.271*
T10	167 - 147	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1674.99	7128.19	0.235*
T11	147 - 127	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1660.78	7128.19	0.233*
T12	127 - 107	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1530.49	7128.19	0.215*
T13	107 - 87	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-1518.73	7128.19	0.213*
T14	87 - 67	L2x1 1/2x3/16	3.00	2.76	111.4 K=1.08	11.477	0.6211	-385.08	7128.19	0.054*
T19	51.025 - 47	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-2063.82	7209.86	0.286*
T20	47 - 27	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-1978.80	7209.86	0.274*
T21	27 - 7	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-2097.45	7209.86	0.291*
T23	3 - 0	L2x1 1/2x3/16	3.00	2.71	110.5 K=1.09	11.608	0.6211	-3021.39	7209.86	0.419*

\* DL controls

### Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T14	87 - 67	3x3/8	3.00	2.76	306.0 K=1.00	1.595	1.1250	-697.50	1794.21	0.389*

KL/R > 200 (C) - 980

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\* DL controls

### Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T1	347 - 327 (909)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-1073.00	30414.20	0.035
T1	347 - 327 (910)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-905.74	30414.20	0.030
T1	347 - 327 (915)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-752.38	30414.20	0.025
T1	347 - 327 (916)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-478.37	30414.20	0.016
T1	347 - 327 (921)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-944.45	30414.20	0.031
T1	347 - 327 (922)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-509.23	30414.20	0.017
T4	287 - 267 (927)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-492.21	30414.20	0.016
T4	287 - 267 (928)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-458.54	30414.20	0.015
T4	287 - 267 (933)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-161.74	30414.20	0.005
T4	287 - 267 (934)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-143.36	30414.20	0.005
T4	287 - 267 (939)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-230.60	30414.20	0.008
T4	287 - 267 (940)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-177.55	30414.20	0.006
T8	207 - 187 (945)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-428.27	30414.20	0.014
T8	207 - 187 (946)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-547.52	30414.20	0.018
T8	207 - 187 (952)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-303.76	30414.20	0.010
T8	207 - 187 (958)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-442.11	30414.20	0.015
T11	147 - 127 (963)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-398.95	30414.20	0.013
T11	147 - 127 (964)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-540.36	30414.20	0.018
T11	147 - 127 (969)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-59.17	30414.20	0.002
T11	147 - 127 (970)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-346.01	30414.20	0.011
T11	147 - 127 (975)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-72.82	30414.20	0.002
T11	147 - 127 (976)	L3x3x5/16	5.00	4.88	63.5 K=1.00	17.087	1.7800	-470.80	30414.20	0.015

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### Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T1	347 - 327 (911)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6051.21	17787.30	0.340
T1	347 - 327 (912)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5669.11	17787.30	0.319
T1	347 - 327 (917)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5887.65	17787.30	0.331
T1	347 - 327 (918)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6241.02	17787.30	0.351
T1	347 - 327 (923)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5945.48	17787.30	0.334
T1	347 - 327 (924)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5922.02	17787.30	0.333
T4	287 - 267 (929)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6807.45	17787.30	0.383
T4	287 - 267 (930)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6549.73	17787.30	0.368
T4	287 - 267 (935)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-7302.08	17787.30	0.411
T4	287 - 267 (936)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6887.58	17787.30	0.387
T4	287 - 267 (941)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-7292.88	17787.30	0.410
T4	287 - 267 (942)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6621.30	17787.30	0.372
T8	207 - 187 (947)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-8791.21	18705.60	0.470
T8	207 - 187 (948)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-8533.88	18705.60	0.456
T8	207 - 187 (953)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-10048.60	18705.60	0.537
T8	207 - 187 (954)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-8895.68	18705.60	0.476
T8	207 - 187 (959)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-9985.67	18705.60	0.534
T8	207 - 187 (960)	L3x3x5/16	9.32	9.10	118.4 K=1.00	10.509	1.7800	-8643.63	18705.60	0.462
T11	147 - 127 (965)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5578.78	17787.30	0.314
T11	147 - 127 (966)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5304.37	17787.30	0.298
T11	147 - 127 (971)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6329.38	17787.30	0.356
T11	147 - 127 (972)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5593.25	17787.30	0.314
T11	147 - 127 (977)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-6398.43	17787.30	0.360
T11	147 - 127 (978)	L3x3x5/16	9.60	9.37	122.0 K=1.00	9.993	1.7800	-5391.99	17787.30	0.303

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**Tension Checks**

**Leg Design Data (Tension)**

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	347 - 327	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	2057.98	51121.50	0.040
T2	327 - 307	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	4008.47	51121.50	0.078
T3	307 - 287	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	4007.48	51121.50	0.078
T4	287 - 267	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	899.22	51121.50	0.018
T5	267 - 247	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	3878.12	51121.50	0.076
T6	247 - 227	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	3877.07	51121.50	0.076
T7	227 - 207	PIPE 2.5" STD	20.00	3.93	49.8	30.000	1.7040	2596.78	51121.50	0.051



**Diagonal Design Data (Tension)**

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	347 - 327	7/8	4.56	4.56	250.1	21.600	0.6013	8567.79	12988.50	0.660
T2	327 - 307	5/8	4.56	4.56	350.2	21.600	0.3068	5455.08	6626.80	0.823
T3	307 - 287	5/8	4.56	4.56	350.2	21.600	0.3068	3380.49	6626.80	0.510*
T4	287 - 267	7/8	4.56	4.56	250.1	21.600	0.6013	7414.31	12988.50	0.571
T5	267 - 247	5/8	4.56	4.56	350.2	21.600	0.3068	4605.66	6626.80	0.695
T6	247 - 227	5/8	4.56	4.56	350.2	21.600	0.3068	2978.60	6626.80	0.449*
T7	227 - 207	5/8	4.56	4.56	350.2	21.600	0.3068	4961.23	6626.80	0.749
T8	207 - 187	5/8	4.56	4.56	350.2	21.600	0.3068	5516.96	6626.80	0.833
T9	187 - 167	3/4	4.56	4.56	291.8	21.600	0.4418	8081.93	9542.59	0.847
T10	167 - 147	5/8	4.56	4.56	350.2	21.600	0.3068	2606.83	6626.80	0.393*
T11	147 - 127	5/8	4.56	4.56	350.2	21.600	0.3068	2586.57	6626.80	0.390*



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	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T12	127 - 107	5/8	4.56	4.56	350.2	21.600	0.3068	2554.48	6626.80	0.385*
T13	107 - 87	5/8	4.56	4.56	350.2	21.600	0.3068	4296.77	6626.80	0.648
T14	87 - 67	5/8	4.56	4.56	350.2	21.600	0.3068	2406.84	6626.80	0.363*
T15	67 - 62.975	5/8	4.50	4.50	345.8	21.600	0.3068	2317.97	6626.80	0.350*
T16	62.975 - 58.9917	5/8	4.60	4.60	353.1	21.600	0.3068	2884.68	6626.80	0.435*
T17	58.9917 - 55.0083	5/8	4.60	4.60	353.1	21.600	0.3068	2857.71	6626.80	0.431*
T18	55.0083 - 51.025	5/8	4.60	4.60	353.1	21.600	0.3068	2835.88	6626.80	0.428*
T19	51.025 - 47	5/8	4.50	4.50	345.8	21.600	0.3068	3098.64	6626.80	0.468*
T20	47 - 27	5/8	4.56	4.56	350.2	21.600	0.3068	3040.06	6626.80	0.459*
T21	27 - 7	5/8	4.56	4.56	350.2	21.600	0.3068	3023.78	6626.80	0.456*
T22	7 - 3	5/8	4.48	4.48	344.4	21.600	0.3068	2975.00	6626.80	0.449*
T23	3 - 0	5/8	3.80	3.80	291.9	21.600	0.3068	3786.16	6626.80	0.571*

\* DL controls

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio $\frac{P}{P_a}$
T1	347 - 327	L2x2x1/4	3.00	2.76	54.4	21.600	0.9380	223.11	20260.80	0.011
T2	327 - 307	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	335.66	13415.60	0.025
T3	307 - 287	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	332.54	13415.60	0.025
T4	287 - 267	L2x2x1/4	3.00	2.76	54.4	21.600	0.9380	264.77	20260.80	0.013*
T5	267 - 247	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	493.97	13415.60	0.037
T6	247 - 227	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	504.30	13415.60	0.038
T7	227 - 207	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	471.44	13415.60	0.035
T8	207 - 187	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	2859.77	13415.60	0.213
T9	187 - 167	L2x1 1/2x1/4	3.00	2.76	76.7	21.600	0.8125	442.32	17550.00	0.025*

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Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T10	167 - 147	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	434.29	13415.60	0.032*
T11	147 - 127	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	1493.00	13415.60	0.111
T12	127 - 107	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	500.20	13415.60	0.037*
T13	107 - 87	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	506.89	13415.60	0.038*
T14	87 - 67	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	517.37	13415.60	0.039*
T20	47 - 27	L2x1 1/2x3/16	3.00	2.71	73.9	21.600	0.6211	587.38	13415.60	0.044*
T21	27 - 7	L2x1 1/2x3/16	3.00	2.71	73.9	21.600	0.6211	863.60	13415.60	0.064

\* DL controls

### Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T9	187 - 167	L2x1 1/2x1/4	3.00	2.76	76.7	21.600	0.8125	209.79	17550.00	0.012
T14	87 - 67	L2x1 1/2x3/16	3.00	2.76	75.4	21.600	0.6211	189.63	13415.60	0.014
T23	3 - 0	L2x1 1/2x3/16	3.00	2.71	73.9	21.600	0.6211	717.22	13415.60	0.053

### Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T14	87 - 67	3x3/8	3.00	2.76	306.0	21.600	1.1250	343.49	24300.00	0.014

### Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	347 - 327 (909)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6400.11	38448.00	0.166



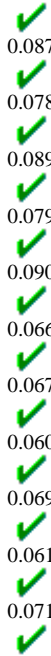
<b>tnxTower</b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	41 of 45
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Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T1	347 - 327 (910)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6315.28	38448.00	0.164
T1	347 - 327 (915)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6327.69	38448.00	0.165
T1	347 - 327 (916)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6610.53	38448.00	0.172
T1	347 - 327 (921)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6315.77	38448.00	0.164
T1	347 - 327 (922)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6516.86	38448.00	0.169
T4	287 - 267 (927)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6351.60	38448.00	0.165
T4	287 - 267 (928)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6349.87	38448.00	0.165
T4	287 - 267 (933)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6491.20	38448.00	0.169
T4	287 - 267 (934)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6357.23	38448.00	0.165
T4	287 - 267 (939)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6424.84	38448.00	0.167
T4	287 - 267 (940)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6288.89	38448.00	0.164
T8	207 - 187 (945)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6971.51	38448.00	0.181
T8	207 - 187 (946)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6914.59	38448.00	0.180
T8	207 - 187 (951)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6994.12	38448.00	0.182
T8	207 - 187 (952)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6586.00	38448.00	0.171
T8	207 - 187 (957)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	7025.03	38448.00	0.183
T8	207 - 187 (958)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	6547.37	38448.00	0.170
T11	147 - 127 (963)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4291.84	38448.00	0.112
T11	147 - 127 (964)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4200.93	38448.00	0.109
T11	147 - 127 (969)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4243.57	38448.00	0.110
T11	147 - 127 (970)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4086.16	38448.00	0.106
T11	147 - 127 (975)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4304.79	38448.00	0.112
T11	147 - 127 (976)	L3x3x5/16	5.00	4.88	63.5	21.600	1.7800	4065.11	38448.00	0.106

**Torque-Arm Bottom Design Data**

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Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	F <sub>a</sub> ksi	A in <sup>2</sup>	Actual P lb	Allow. P <sub>a</sub> lb	Ratio P P <sub>a</sub>
T8	207 - 187 (947)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3313.34	38448.00	0.086
T8	207 - 187 (948)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3348.93	38448.00	0.087
T8	207 - 187 (953)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3014.85	38448.00	0.078
T8	207 - 187 (954)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3409.62	38448.00	0.089
T8	207 - 187 (959)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3028.10	38448.00	0.079
T8	207 - 187 (960)	L3x3x5/16	9.32	9.10	118.4	21.600	1.7800	3460.56	38448.00	0.090
T11	147 - 127 (965)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2524.86	38448.00	0.066
T11	147 - 127 (966)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2560.59	38448.00	0.067
T11	147 - 127 (971)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2290.92	38448.00	0.060
T11	147 - 127 (972)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2645.90	38448.00	0.069
T11	147 - 127 (977)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2342.96	38448.00	0.061
T11	147 - 127 (978)	L3x3x5/16	9.60	9.37	122.0	21.600	1.7800	2732.67	38448.00	0.071



### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail
T1	347 - 327	Leg	PIPE 2.5" STD	1	-12881.40	55376.15	23.3	Pass
T2	327 - 307	Leg	PIPE 2.5" STD	53	-19379.30	55318.70	35.0	Pass
T3	307 - 287	Leg	PIPE 2.5" STD	104	-19199.40	55318.16	34.7	Pass
T4	287 - 267	Leg	PIPE 2.5" STD	155	-15286.70	41452.60	36.9	Pass
T5	267 - 247	Leg	PIPE 2.5" STD	206	-28519.30	54135.13	52.7	Pass
T6	247 - 227	Leg	PIPE 2.5" STD	257	-29115.80	54181.65	53.7	Pass
T7	227 - 207	Leg	PIPE 2.5" STD	308	-27218.40	54077.54	50.3	Pass
T8	207 - 187	Leg	PIPE 2.5" STD	359	-24591.20	38705.10	63.5	Pass
T9	187 - 167	Leg	PIPE 2.5" STD	410	-25537.20	38705.10	66.0	Pass
T10	167 - 147	Leg	PIPE 2.5" STD	460	-25073.40	38705.10	64.8	Pass
T11	147 - 127	Leg	PIPE 2.5" STD	513	-38126.60	53579.93	71.2	Pass
T12	127 - 107	Leg	PIPE 2.5" STD	564	-37117.60	54757.37	67.8	Pass
T13	107 - 87	Leg	PIPE 2.5" STD	613	-29265.40	40564.10	72.1	Pass
T14	87 - 67	Leg	PIPE 2.5" STD	666	-29870.60	40564.10	73.6	Pass
T15	67 - 62.975	Leg	PIPE 2.5" STD	717	-30699.80	41793.20	73.5	Pass
T16	62.975 - 58.9917	Leg	P2.5x0.203 + Split P3.5x0.300	729	-32461.20	75841.10	42.8	Pass
T17	58.9917 - 55.0083	Leg	P2.5x0.203 + Split P3.5x0.300	741	-32545.90	75841.10	42.9	Pass
T18	55.0083 - 51.025	Leg	P2.5x0.203 + Split P3.5x0.300	753	-32693.80	75841.10	43.1	Pass
T19	51.025 - 47	Leg	P2.5x0.203 + Split P3.5x0.300	765	-33166.50	76474.90	43.4	Pass
T20	47 - 27	Leg	P2.5x0.203 + Split P3.5x0.300	780	-33912.60	76095.80	44.6	Pass
T21	27 - 7	Leg	P2.5x0.203 + Split P3.5x0.300	831	-49860.30	101435.69	49.2	Pass
T22	7 - 3	Leg	P2.5x0.203 + Split P3.5x0.300	882	-52063.20	102108.46	51.0	Pass
T23	3 - 0	Leg	P2.5x0.203 + Split P3.5x0.300	894	-54955.70	106752.77	51.5	Pass

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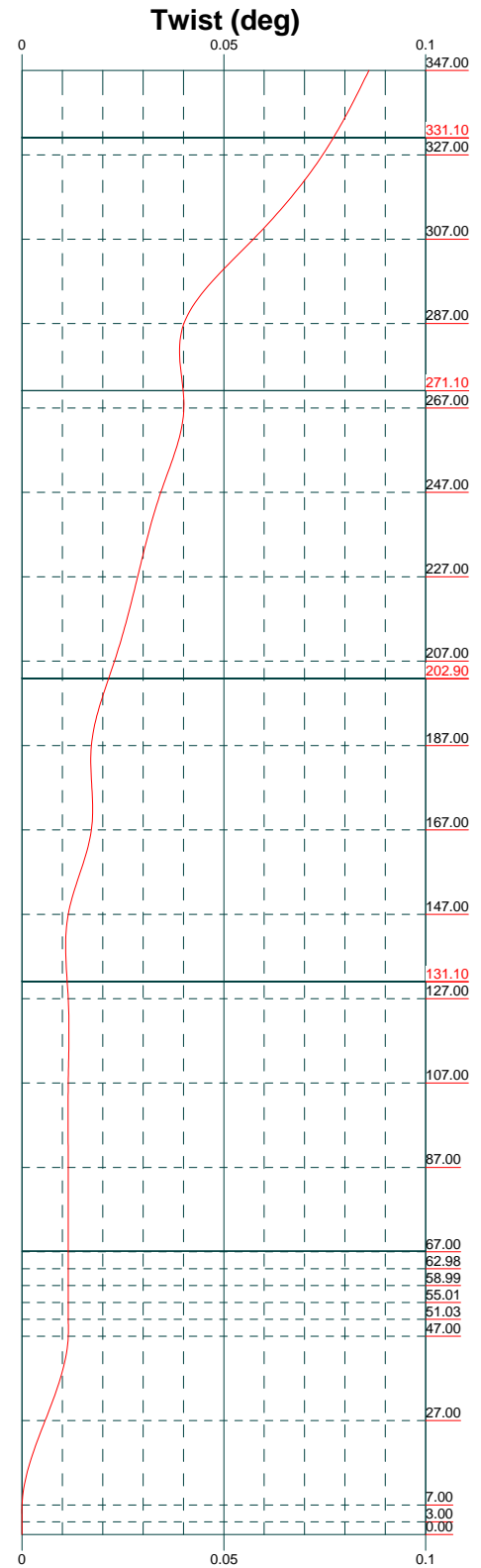
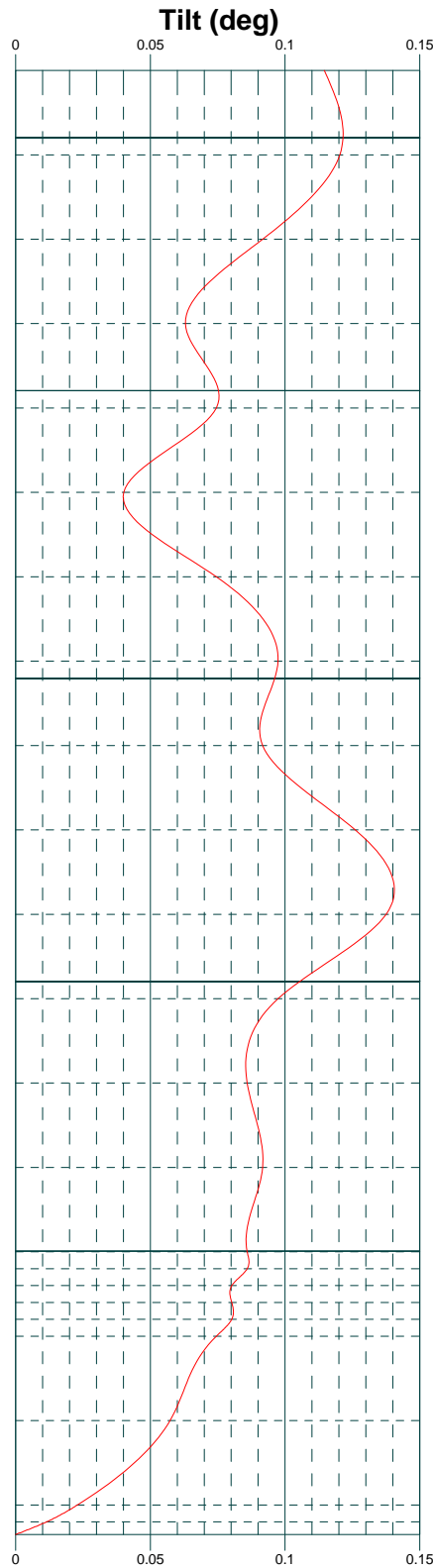
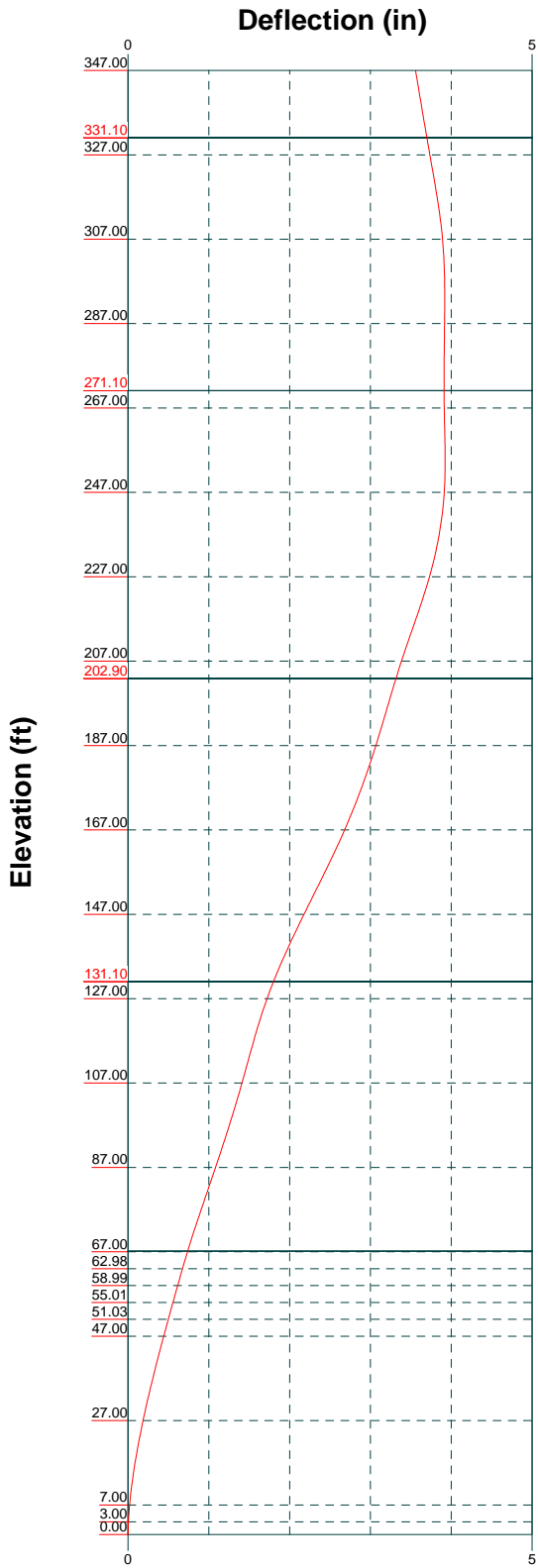
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail
T1	347 - 327	Diagonal	7/8	13	8567.79	17313.67	49.5	Pass
T2	327 - 307	Diagonal	5/8	100	5455.08	8833.52	61.8	Pass
T3	307 - 287	Diagonal	5/8	117	3380.49	6626.80	51.0	Pass
T4	287 - 267	Diagonal	7/8	166	7414.31	17313.67	42.8	Pass
T5	267 - 247	Diagonal	5/8	253	4605.66	8833.52	52.1	Pass
T6	247 - 227	Diagonal	5/8	306	2978.60	6626.80	44.9	Pass
T7	227 - 207	Diagonal	5/8	317	4961.23	8833.52	56.2	Pass
T8	207 - 187	Diagonal	5/8	404	5516.96	8833.52	62.5	Pass
T9	187 - 167	Diagonal	3/4	432	8081.93	12720.27	63.5	Pass
T10	167 - 147	Diagonal	5/8	507	2606.83	6626.80	39.3	Pass
T11	147 - 127	Diagonal	5/8	523	2586.57	6626.80	39.0	Pass
T12	127 - 107	Diagonal	5/8	610	2554.48	6626.80	38.5	Pass
T13	107 - 87	Diagonal	5/8	641	4296.77	8833.52	48.6	Pass
T14	87 - 67	Diagonal	5/8	675	2406.84	6626.80	36.3	Pass
T15	67 - 62.975	Diagonal	5/8	723	2317.97	6626.80	35.0	Pass
T16	62.975 - 58.9917	Diagonal	5/8	735	2884.68	6626.80	43.5	Pass
T17	58.9917 - 55.0083	Diagonal	5/8	747	2857.71	6626.80	43.1	Pass
T18	55.0083 - 51.025	Diagonal	5/8	759	2835.88	6626.80	42.8	Pass
T19	51.025 - 47	Diagonal	5/8	774	3098.64	6626.80	46.8	Pass
T20	47 - 27	Diagonal	5/8	824	3040.06	6626.80	45.9	Pass
T21	27 - 7	Diagonal	5/8	875	3023.78	6626.80	45.6	Pass
T22	7 - 3	Diagonal	5/8	887	2975.00	6626.80	44.9	Pass
T23	3 - 0	Diagonal	5/8	902	3786.16	6626.80	57.1	Pass
T1	347 - 327	Horizontal	L2x2x1/4	16	-11752.20	15850.70	74.1	Pass
T2	327 - 307	Horizontal	L2x1 1/2x3/16	96	-4792.24	7128.19	67.2	Pass
T3	307 - 287	Horizontal	L2x1 1/2x3/16	147	-4284.63	7128.19	60.1	Pass
T4	287 - 267	Horizontal	L2x2x1/4	170	-9857.06	15850.70	62.2	Pass
T5	267 - 247	Horizontal	L2x1 1/2x3/16	249	-4310.94	7128.19	60.5	Pass
T6	247 - 227	Horizontal	L2x1 1/2x3/16	300	-3822.22	7128.19	53.6	Pass
T7	227 - 207	Horizontal	L2x1 1/2x3/16	349	-3789.62	7128.19	53.2	Pass
T8	207 - 187	Horizontal	L2x1 1/2x3/16	402	-6886.57	9501.88	72.5	Pass
T9	187 - 167	Horizontal	L2x1 1/2x1/4	453	-4493.88	9282.39	48.4	Pass
T10	167 - 147	Horizontal	L2x1 1/2x3/16	504	-3313.78	7128.19	46.5	Pass
T11	147 - 127	Horizontal	L2x1 1/2x3/16	528	-5465.77	9501.88	57.5	Pass
T12	127 - 107	Horizontal	L2x1 1/2x3/16	604	-4471.09	9501.88	47.1	Pass
T13	107 - 87	Horizontal	L2x1 1/2x3/16	656	-3002.56	7128.19	42.1	Pass
T14	87 - 67	Horizontal	L2x1 1/2x3/16	679	-3009.59	7128.19	42.2	Pass
T20	47 - 27	Horizontal	L2x1 1/2x3/16	820	-3878.27	7209.86	53.8	Pass
T21	27 - 7	Horizontal	L2x1 1/2x3/16	871	-3862.06	7209.86	53.6	Pass
T1	347 - 327	Top Girt	L2x2x1/4	5	-3737.49	11891.00	31.4	Pass
T2	327 - 307	Top Girt	L2x1 1/2x3/16	56	-1729.74	7128.19	24.3	Pass
T3	307 - 287	Top Girt	L2x1 1/2x3/16	108	-2181.28	7128.19	30.6	Pass
T4	287 - 267	Top Girt	L2x2x1/4	159	-4253.64	11891.00	35.8	Pass
T5	267 - 247	Top Girt	L2x1 1/2x3/16	208	-1565.34	7128.19	22.0	Pass
T6	247 - 227	Top Girt	L2x1 1/2x3/16	261	-1948.79	7128.19	27.3	Pass
T7	227 - 207	Top Girt	L2x1 1/2x3/16	312	-1931.71	7128.19	27.1	Pass
T8	207 - 187	Top Girt	L2x1 1/2x3/16	363	-2560.91	9501.88	27.0	Pass
T9	187 - 167	Top Girt	L2x1 1/2x1/4	414	-2539.53	9282.39	27.4	Pass
T10	167 - 147	Top Girt	L2x1 1/2x3/16	465	-1439.27	7128.19	20.2	Pass
T11	147 - 127	Top Girt	L2x1 1/2x3/16	516	-1669.02	7128.19	23.4	Pass
T12	127 - 107	Top Girt	L2x1 1/2x3/16	565	-1679.35	7128.19	23.6	Pass
T13	107 - 87	Top Girt	L2x1 1/2x3/16	618	-1527.93	7128.19	21.4	Pass
T14	87 - 67	Top Girt	L2x1 1/2x3/16	669	-1513.33	7128.19	21.2	Pass
T15	67 - 62.975	Top Girt	L2x1 1/2x3/16	720	-1176.73	7128.19	16.5	Pass
T16	62.975 - 58.9917	Top Girt	L2x1 1/2x3/16	730	-3434.80	7128.19	48.2	Pass
T17	58.9917 - 55.0083	Top Girt	L2x1 1/2x3/16	742	-3742.36	7209.86	51.9	Pass
T18	55.0083 - 51.025	Top Girt	L2x1 1/2x3/16	754	-3681.13	7209.86	51.1	Pass
T19	51.025 - 47	Top Girt	L2x1 1/2x3/16	766	-3913.92	7209.86	54.3	Pass
T20	47 - 27	Top Girt	L2x1 1/2x3/16	781	-1973.11	7209.86	27.4	Pass

<b>tnxTower</b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b> 140257	<b>Page</b> 44 of 45
	<b>Project</b> Wolcott (CT900)	<b>Date</b> 10:45:31 05/05/14
	<b>Client</b> InSite Towers	<b>Designed by</b> JGildert

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail
T21	27 - 7	Top Girt	L2x1 1/2x3/16	832	-1974.21	7209.86	27.4	Pass
T22	7 - 3	Top Girt	L2x1 1/2x3/16	883	-1735.64	7209.86	24.1	Pass
T23	3 - 0	Top Girt	L2x1 1/2x3/16	895	-5313.81	7209.86	73.7	Pass
T1	347 - 327	Bottom Girt	L2x2x1/4	9	-4712.45	11891.00	39.6	Pass
T2	327 - 307	Bottom Girt	L2x1 1/2x3/16	60	-2181.21	7128.19	30.6	Pass
T3	307 - 287	Bottom Girt	L2x1 1/2x3/16	109	-1550.75	7128.19	21.8	Pass
T4	287 - 267	Bottom Girt	L2x2x1/4	162	-4240.19	11891.00	35.7	Pass
T5	267 - 247	Bottom Girt	L2x1 1/2x3/16	213	-1945.16	7128.19	27.3	Pass
T6	247 - 227	Bottom Girt	L2x1 1/2x3/16	262	-1932.18	7128.19	27.1	Pass
T7	227 - 207	Bottom Girt	L2x1 1/2x3/16	313	-1894.77	7128.19	26.6	Pass
T8	207 - 187	Bottom Girt	L2x1 1/2x3/16	366	-1464.68	7128.19	20.5	Pass
T9	187 - 167	Bottom Girt	L2x1 1/2x1/4	416	-2511.97	9282.39	27.1	Pass
T10	167 - 147	Bottom Girt	L2x1 1/2x3/16	467	-1674.99	7128.19	23.5	Pass
T11	147 - 127	Bottom Girt	L2x1 1/2x3/16	519	-1660.78	7128.19	23.3	Pass
T12	127 - 107	Bottom Girt	L2x1 1/2x3/16	569	-1530.49	7128.19	21.5	Pass
T13	107 - 87	Bottom Girt	L2x1 1/2x3/16	619	-1518.73	7128.19	21.3	Pass
T14	87 - 67	Bottom Girt	L2x1 1/2x3/16	670	-385.08	7128.19	5.4	Pass
T19	51.025 - 47	Bottom Girt	L2x1 1/2x3/16	769	-2063.82	7209.86	28.6	Pass
T20	47 - 27	Bottom Girt	L2x1 1/2x3/16	784	-1978.80	7209.86	27.4	Pass
T21	27 - 7	Bottom Girt	L2x1 1/2x3/16	835	-2097.45	7209.86	29.1	Pass
T23	3 - 0	Bottom Girt	L2x1 1/2x3/16	898	-3021.39	7209.86	41.9	Pass
T1	347 - 327	Guy A@331.1	7/16	920	6325.07	10400.00	60.8	Pass
T4	287 - 267	Guy A@271.1	7/16	937	6762.87	10400.00	65.0	Pass
T8	207 - 187	Guy A@202.9	7/16	955	7073.64	10400.00	68.0	Pass
T11	147 - 127	Guy A@131.1	3/8	973	4290.86	7700.00	55.7	Pass
T14	87 - 67	Guy A@67.1667	3/8	984	3037.68	7700.00	39.5	Pass
T1	347 - 327	Guy B@331.1	7/16	913	6664.36	10400.00	64.1	Pass
T4	287 - 267	Guy B@271.1	7/16	931	7182.99	10400.00	69.1	Pass
T8	207 - 187	Guy B@202.9	7/16	949	7546.52	10400.00	72.6	Pass
T11	147 - 127	Guy B@131.1	3/8	968	4564.85	7700.00	59.3	Pass
T14	87 - 67	Guy B@67.1667	3/8	983	3130.27	7700.00	40.7	Pass
T1	347 - 327	Guy C@331.1	7/16	908	6419.13	10400.00	61.7	Pass
T4	287 - 267	Guy C@271.1	7/16	926	6923.44	10400.00	66.6	Pass
T8	207 - 187	Guy C@202.9	7/16	944	7191.10	10400.00	69.1	Pass
T11	147 - 127	Guy C@131.1	3/8	961	4365.23	7700.00	56.7	Pass
T14	87 - 67	Guy C@67.1667	3/8	979	3099.45	7700.00	40.3	Pass
T14	87 - 67	Top Guy	3x3/8	980	-697.50	1794.21	38.9	Pass
		Pull-Off@67.1667						
T1	347 - 327	Torque Arm Top@331.1	L3x3x5/16	916	6610.53	51251.18	12.9	Pass
T4	287 - 267	Torque Arm Top@271.1	L3x3x5/16	933	6491.20	51251.18	12.7	Pass
T8	207 - 187	Torque Arm Top@202.9	L3x3x5/16	957	7025.03	51251.18	13.7	Pass
T11	147 - 127	Torque Arm Top@131.1	L3x3x5/16	975	4304.79	51251.18	8.4	Pass
T1	347 - 327	Torque Arm Bottom@331.1	L3x3x5/16	918	-6241.02	23710.47	26.3	Pass
T4	287 - 267	Torque Arm Bottom@271.1	L3x3x5/16	935	-7302.08	23710.47	30.8	Pass
T8	207 - 187	Torque Arm Bottom@202.9	L3x3x5/16	953	-10048.60	24934.56	40.3	Pass
T11	147 - 127	Torque Arm Bottom@131.1	L3x3x5/16	977	-6398.43	23710.47	27.0	Pass
							Summary	
						Leg (T14)	73.6	Pass
						Diagonal (T9)	63.5	Pass
						Horizontal (T1)	74.1	Pass
						Top Girt	73.7	Pass

<b><i>tnxTower</i></b>  <b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	<b>Job</b>	140257	<b>Page</b>	45 of 45
	<b>Project</b>	Wolcott (CT900)	<b>Date</b>	10:45:31 05/05/14
	<b>Client</b>	InSite Towers	<b>Designed by</b>	JGildert

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P lb</i>	<i>SF*P<sub>allow</sub> lb</i>	<i>% Capacity</i>	<i>Pass Fail</i>
						(T23)		
						Bottom Girt	41.9	Pass
						(T23)		
						Guy A (T8)	68.0	Pass
						Guy B (T8)	72.6	Pass
						Guy C (T8)	69.1	Pass
						Top Guy	38.9	Pass
						Pull-Off		
						(T14)		
						Torque Arm	13.7	Pass
						Top (T8)		
						Torque Arm	40.3	Pass
						Bottom (T8)		
						Bolt Checks	7.4	Pass
						<b>RATING =</b>	<b>74.1</b>	<b>Pass</b>



<b>Structural Components</b> 11611 E 51st Ave. Denver, CO 80239 Phone: (866) 386-7622 FAX: (303) 926-3577	Job: <b>140257</b>		
	Project: <b>Wolcott (CT900)</b>		
	Client: InSite Towers	Drawn by: JGildert	App'd:
	Code: TIA/EIA-222-F	Date: 05/05/14	Scale: NTS
	Path:		Dwg No. E-5

# GUY MAST INDIVIDUAL PIER/PAD & MAT FOUNDATION

Template = "GuyMastPierPadMat-F.xmcd"  
Version = 1.06



2400 Central Ave., Suite A-1 South  
Boulder, CO 80301  
866-386-7622

## PROJECT DATA

Job = "140257"  
Client = "Insite Towers"  
Site = "Wolcott (CT900)"  
Model = "347ft Guyed Tower"

## DESIGN CODES AND STANDARDS

- TIA-222-F, "Structural Standard for Steel Antenna Towers and Antenna Supporting Structures 1996.
- ACI 318-05, "Building Code Requirements for Structural Concrete and Commentary," 2005.

## UNFACTORED FOUNDATION DESIGN LOADS

Overdesign Factor:  $\alpha = 1.00$

Allow for reduction in required development length due to excess reinforcement per ACI 12.2.5?

Calculation Mode: calc = "Analysis (no seismic provision check)"

Percentage for Passing: PP = 105.-%

red = "Allow Reduction (Analysis Mode)"

reinf = "Reinforcing Details Not Available"

	<u>Load Comb. #1</u>	<u>Load Comb. #2</u>
Load Combination:	Comb <sub>1</sub> = "D+I+Guy"	Comb <sub>2</sub> = "D+I+W+Guy"
Moment Load:	M <sub>1</sub> = 66·kip·ft	M <sub>2</sub> = 29·kip·ft
Axial Load:	P <sub>1</sub> = 81·kip	P <sub>2</sub> = 99·kip
Shear Load:	V <sub>1</sub> = 2·kip	V <sub>2</sub> = 1·kip

## SITE & GEOTECHNICAL DATA

Soil Parameters: sp<sub>1</sub> = "Presumptive Soil Parameters per TIA-222-G Annex F"  
sp<sub>2</sub> = "N/A"  
SType = "Sand"

Soil Unit Weight:  $\gamma_{\text{soil}} = 110 \cdot \text{pcf}$

Angle of Internal Friction:  $\phi = 30 \cdot \text{deg}$

Allowable Bearing Pressure: B<sub>c</sub> = 3.3·ksf      Bearing = "Capacity at Depth"

Cohesion: c = 0·psf

Adhesion: c<sub>A</sub> = 0·psf

Passive Pressure Coefficient (Rankine): K<sub>p</sub> = 3.00

Active Pressure Coefficient: K<sub>a</sub> = 0.33

Ultimate Friction Coefficient:  $\mu = 0.35$

Allowable Sliding Friction: f<sub>s</sub> = 0·psf

Depth Neglected: D<sub>n</sub> = 0.0

Depth of Water Table: D<sub>w</sub> = "Below Footing"

Seismic Design Category: SDCT = "Seismic Design Category D"      Note<sub>SDC</sub> = "N/A"

## MATERIAL SPECIFICATIONS

Concrete:

Compressive Strength:	$f_c = 3000 \cdot \text{psi}$	
Clear Cover:	$cc = 3 \cdot \text{in}$	
Lightweight Aggregate Factor:	$\lambda = 1.00$	[ACI 12.2.4]
Unit Weight:	$\gamma_{\text{conc}} = 150 \cdot \text{pcf}$	

Rebar:

Yield Strength:	$F_y = 60 \cdot \text{ksi}$
-----------------	-----------------------------

## DIMENSIONS

Pier (or mat) Extension:	$E = 1.0 \cdot \text{ft}$	(above-grade portion)
Depth:	$D = 3.0 \cdot \text{ft}$	(from grade to bottom of pad)
Pad Width:	$W = 8.0 \cdot \text{ft}$	(each way)
Pad Thickness:	$T = 4.0 \cdot \text{ft}$	
Pier: Pier = "None"	$D_p = 0.0 \cdot \text{ft}$	
Base Plate Geometry:	BPG = "None"	BP = 0.0-in
Offset Distance of Mast:	$\text{ecc1} = 0.0 \cdot \text{ft}$	(center of mast to center of pier, enter as positive number)
Offset Distance of Pier:	$\text{ecc2} = 0.0 \cdot \text{ft}$	(center of pier to center of pad, enter as a positive number if it adds to ecc1 or negative if it subtracts from ecc1)
Concrete Pad Volume:	$V_{\text{pad}} = 9.5 \cdot \text{yd}^3$	
Concrete Pier Volume:	$V_{\text{pier}} = 0.0 \cdot \text{yd}^3$	
Total Concrete Volume:	$V_{\text{conc}} = 9.5 \cdot \text{yd}^3$	

## LATERAL CAPACITY

<u>Design Resist.</u>	<u>Lat. Load</u>	<u>Check</u>	<u>Factor of Safety</u>
$\min(S) = 28 \cdot \text{kip}$	$\max(V) = 2 \cdot \text{kip}$	$\text{Check}'_{\text{lateral}} = \text{"OK"}$	$\text{FS}'_{\text{lateral}} = 14.67$

## OVERTURNING

<u>Design Resist.</u>	<u>O.T. Moment</u>	<u>Check</u>	<u>Factor of Safety</u>
$\min(\text{MR1}, \text{MR2}) = 488 \cdot \text{ft} \cdot \text{kips}$	$\max(\text{M1}, \text{M2}) = 74 \cdot \text{ft} \cdot \text{kips}$	$\text{Check}'_{\text{over}} = \text{"OK"}$	$\text{FS}'_{\text{over}} = 6.93$

## SOIL BEARING

<u>Allow. Bearing</u>	<u>Max. Bearing</u>	<u>Check</u>	<u>Ratio</u>
$B_c = 3330 \cdot \text{psf}$	$P_{\text{pos}} = 2733 \cdot \text{psf}$	$\text{Check}'_{\text{comp}} = \text{"OK"}$	$\text{Ratio}'_{\text{comp}} = 0.82$



# DEADMAN ANCHOR

Template = "DeadmanAnchor-F.xmcd"

Version = 1.05



2400 Central Ave., Suite A-1 South  
Boulder, CO 80301  
866-386-7622

## PROJECT DATA

Job = "140257"

Client = "InSite Towers"

Site = "Wolcott (CT900)"

Model = "347ft Guyed Tower"

## UNFACTORED FOUNDATION DESIGN LOADS

Overdesign Factor:  $\alpha = 1.00$

Allow for reduction in required development length due to excess reinforcement per ACI 12.2.5?

Calculation Mode: calc = "Analysis (no seismic provision check)"    reinf = "Reinforcing Details Not Available"

## DESIGN CODES AND STANDARDS

- TIA-222-F, "Structural Standard for Steel Antenna Towers and Antenna Supporting Structures 1996.
- ACI 318-05, "Building Code Requirements for Structural Concrete and Commentary," 2005.

Percentage for Passing: PP = 105.-%

red = "Allow Reduction (Analysis Mode)"

	<u>Load Comb. #1</u>	<u>Load Comb. #2</u>
Load Combination:	Comb <sub>1</sub> = "1.2D+1.6W+1.0G"	Comb <sub>2</sub> = "1.2D+01.6W+1.0G"
Uplift Load:	U <sub>1</sub> = 22.0·kip	U <sub>2</sub> = 22.0·kip
Lateral Load:	S <sub>1</sub> = 20.0·kip	S <sub>2</sub> = 20.0·kip
Axial Resultant:	A <sub>1</sub> = 29.7·kip	A <sub>2</sub> = 29.7·kip
Load Angle: (from horz.)	$\theta_1 = 48\text{-deg}$	$\theta_2 = 48\text{-deg}$

## SITE & GEOTECHNICAL DATA

Soil Parameters:	sp <sub>1</sub> = "Presumptive Soil Parameters per TIA-222-G Annex F"
	sp <sub>2</sub> = "N/A"
	SType = "Sand"
Soil Unit Weight:	$\gamma_{\text{soil}} = 110.0\text{-pcf}$
Angle of Internal Friction:	$\phi = 30.0\text{-deg}$
Cohesion:	c = 0.0·psf
Adhesion:	c <sub>A</sub> = 0.0·psf
Passive Pressure Coefficient (Rankine):	K <sub>p</sub> = 3.00
Active Pressure Coefficient:	K <sub>a</sub> = 0.33
Ultimate Friction Coefficient:	$\mu = 0.35$
Ultimate Sliding Friction:	f <sub>s</sub> = 0.0·psf
Depth Neglected:	D <sub>n</sub> = 0.0
Depth of Water Table:	D <sub>w</sub> = "Below Footing"
Seismic Design Category:	SDCT = "Seismic Design Category D"    Note <sub>SDC</sub> = "N/A"

## MATERIAL SPECIFICATIONS

Concrete:

Compressive Strength:	$f_c = 3000.0 \cdot \text{psi}$
Clear Cover:	$cc = 3.0 \cdot \text{in}$
Lightweight Aggregate Factor:	$\lambda = 1.00$ [ACI 12.2.4(d), 8.6.1]
Unit Weight:	$\gamma_{\text{conc}} = 150.0 \cdot \text{pcf}$

Rebar:

Yield Strength:	$F_y = 60.0 \cdot \text{ksi}$
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## DIMENSIONS

Depth:	$D = 10.0 \cdot \text{ft}$ (from grade to bottom of anchor)
Anchor Width:	$W = 3.0 \cdot \text{ft}$
Anchor Thickness:	$T = 2.0 \cdot \text{ft}$
Anchor Length:	$L = 6.0 \cdot \text{ft}$
Concrete Volume:	$V_{\text{anch}} = 1.3 \cdot \text{yd}^3$ (each anchor)

## LATERAL CAPACITY

<u>Design Resist.</u>	<u>Lat. Load (unfactored)</u>	<u>Check</u>	<u>Factor of Safety</u>
$\min(V) = 21.8 \cdot \text{kip}$	$\max(S) = 20.0 \cdot \text{kip}$	$\text{Check}'_{\text{lateral}} = \text{"OK"}$	$\text{FS}'_{\text{lateral}} = 1.15$

## UPLIFT

<u>Design Resist.</u>	<u>Uplift Load (unfactored)</u>	<u>Check</u>	<u>Factor of Safety</u>
$\min(UR) = 41 \cdot \text{kip}$	$\max(U) = 22 \cdot \text{kip}$	$\text{Check}'_{\text{up}} = \text{"OK"}$	$\text{FS}'_{\text{up}} = 1.94$

## APPENDIX B

### Data Provided for Analysis

----- Original Message -----

**Subject:**Request for Structural Analysis: CT900 Wolcott / Sprint

**Date:**Mon, 28 Apr 2014 18:51:10 +0000

**From:**Tracy Lee <[TLee@insitewireless.com](mailto:TLee@insitewireless.com)>

**To:**Steve Dorau ([sdorau@structuralcomponents.net](mailto:sdorau@structuralcomponents.net)) <[sdorau@structuralcomponents.net](mailto:sdorau@structuralcomponents.net)>

Hi Steve,

Please accept the following documents and comments below in order to complete a Structural Re-Analysis at CT900 Wolcott:

- "CT900... Sprint\_EXHIBIT A\_03.18.14" . This document shows the final proposed loading for Sprint and is the subject of this Structural Analysis.
- Most recent Passes With Mods SA is dated 1/3/13 and was completed by Structural Components. All required mods have been completed.
- Sprint has removed the temporary loading (6 antennas and 6 lines at 210') noted as "Sprint Existing" on the 1/3/13 SA. Please remove the loading from the new SA.
- Please add the following loading at "Existing". We thought it was abandoned and was removed, but it is still active equipment. Pages from the PWM SA 1/3/13 attached so the specs for this equipment can be included.

Equipment:	Owner:	Reference on attached SA:
10' dipole at 345'	("TELCO")	(Antenna #3)
16' dipole at 287'	(unknown)	(Antenna #7)
20' omni at 170'	(unknown)	(Antenna #19)
Weather station at 20'	(unknown)	(Antenna #23)
Floodlight at 15'	(unknown)	(Antenna #24)

Let me know if you have any questions.

Thanks,

Tracy

*Tracy Lee*  
InSite Towers, LLC  
Collocation Coordinator  
[\(208\) 309-1120](tel:(208)309-1120) mobile  
[\(208\) 578-3636](tel:(208)578-3636) office

**Please make note of our new mailing address as of 11/1/13:**

**InSite Towers, LLC  
1199 N. Fairfax St., Ste. 700  
Alexandria, VA 22314**

Take a look at our website for news about InSite Wireless Group : <http://www.insitewireless.com>

**EXHIBIT A**

**Equipment**  
**Site Name and Number: CT900 Wolcott**

**LICENSEE: Sprint Spectrum Realty Company, L.P.**

1. **FREQUENCIES OF OPERATION:** TRANSMIT: 851- 869; 1950- 1965; 2600- 2690 MHz  
RECEIVE: 806- 824; 1870- 1885; 2490- 2600 MHz
2. **POWER:** Power Provided By: Utility Company Direct  
Power Requirements: 200 Amps 120/240 Volts  
Batteries: Commscope 60EC  
Generator: N/A  
Telco: T1
3. **FCC CALL LETTERS:** Copy of FCC license to be provided to Licensor prior to installation of Licensee’s equipment.

4. **TRANSMITTER(S):** **RECEIVER(S):**
- |               |                |         |                |
|---------------|----------------|---------|----------------|
| Make:         | <u>Modcell</u> | Make:   | <u>Modcell</u> |
| Model:        | <u>4.0</u>     | Model:  | <u>4.0</u>     |
| Power Output: | <u></u>        | Number: | <u>One (1)</u> |
| ERP:          | <u>300</u>     |         |                |
| Number:       | <u>One (1)</u> |         |                |

5. **ANTENNA(S):**
- |             |                                  |             |                                     |
|-------------|----------------------------------|-------------|-------------------------------------|
| Make:       | <u>RFS</u>                       | Make:       | <u>RFS</u>                          |
| Model:      | <u>APXVSP18-C-A20</u>            | Model:      | <u>APXVTM-14-C-120</u>              |
| Dimensions: | <u>72" x 11.8" x 7" (57 lbs)</u> | Dimensions: | <u>56" x 12.5" x 6.25" (54 lbs)</u> |
| Number:     | <u>Three (3)</u>                 | Number:     | <u>Three (3)</u>                    |

- RRH(S):**
- |             |                                     |             |                                       |
|-------------|-------------------------------------|-------------|---------------------------------------|
| Make:       | <u>ALU</u>                          | Make:       | <u>ALU</u>                            |
| Model:      | <u>800 MHz</u>                      | Model:      | <u>1900 4X45 65MHz (1900 MHz)</u>     |
| Dimensions: | <u>15.8" x 10" x 13" (50.6 lbs)</u> | Dimensions: | <u>25.1" x 11.1" x 10.7" (60 lbs)</u> |
| Number:     | <u>Three (3)</u>                    | Number:     | <u>Three (3)</u>                      |

- Make:
- Model:
- Dimensions:
- Number:
- |                                      |
|--------------------------------------|
| <u>ALU</u>                           |
| <u>TD RRH 8x20</u>                   |
| <u>26.1" x 18.6" x 6.7" (70 lbs)</u> |
| <u>Three (3)</u>                     |

- FILTER(S):**
- Make:
- Model:
- Dimensions:
- Number:
- |                                     |
|-------------------------------------|
| <u>TBD</u>                          |
| <u>Notch Filter (800 MHz)</u>       |
| <u>8.9" x 10" x 4.3" (9.45 lbs)</u> |
| <u>Three (3)</u>                    |

- GPS:**
- Make:
- Model:
- Dimensions:
- Number:
- |                             |
|-----------------------------|
| <u>PCTEL</u>                |
| <u>GPS-TMG-HR-26NCM</u>     |
| <u>5" x 3.2" ( 0.6 lbs)</u> |
| <u>One (1)</u>              |

6. **TRANSMISSION LINE(S):**
- |         |                          |         |                       |
|---------|--------------------------|---------|-----------------------|
| Make:   | <u>RFS</u>               | Make:   | <u>unknown</u>        |
| Size:   | <u>1-1/4" Hybridflex</u> | Size:   | <u>1/2" (for GPS)</u> |
| Number: | <u>Three (3)</u>         | Number: | <u>One (1)</u>        |

**7. ANTENNA MOUNTING HEIGHT, MOUNTING ORIENTATION, AND FLOOR SPACE USAGE (attach orientation and sketch, as required):**

- (a) Space for **Six (6) Antennas, Nine (9) RRH's and Three (3) Filters** mounted at the **210'** level of the tower and space for **One (1) GPS Unit** mounted at the **70'** level of the tower (mounting method and exact location of antenna(s) and related transmission line(s) subject to Licensor's approval).
- (b) Ground space near the base of the tower measuring **15' x 25'** for Licensee's equipment shelter/ radio cabinet(s) (exact location of ground space subject to Licensor's approval).

**NOTE: ANY (i) CHANGE IN THE NUMBER, SIZE, PLACEMENT, ARRAY, OR LOCATION OF THE EQUIPMENT LISTED ABOVE IN THIS EXHIBIT A, (ii) CHANGE IN FREQUENCY FROM THAT LISTED ABOVE IN THIS EXHIBIT A, OR (iii) INCREASE IN THE SIZE OR FOOTPRINT OF THE LICENSED PREMISES SHALL REQUIRE THE WRITTEN CONSENT OF THE LICENSOR AND A WRITTEN AMENDMENT TO THIS AGREEMENT.**

January 3, 2013

Tracy Lee  
InSite Towers, LLC  
301 N Fairfax St.  
Suite 101  
Alexandria, VA 22314

Re: Structural Analysis Report  
Structure: 347 FT, Guyed Tower  
Site Address: 164 County Road Rear, Wolcott, CT 06716-2504  
Latitude: 41.5762°N, Longitude: 72.9561°W  
Site Name: InSite – Wolcott  
Site Number: InSite – CT900  
SC Number: 121103  
Status: **Passes with completed modifications (99% Capacity)**

Dear Ms. Lee:

Per your request, Structural Components, LLC has completed a structural analysis for the above referenced project to verify the tower's compliance to the following design criteria:

Standard:	EIA/TIA-222-F <i>Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</i>
Building Code:	2003 International Building Code 2005 Connecticut Building Code
Design Basic Wind Speed without Ice:	85 mph fastest-mile
Design Basic Wind Speed with Ice:	74 mph fastest-mile
Ice Thickness:	1/2" radial
Serviceability Basic Wind Speed:	60 mph fastest-mile

Please refer to the following structural analysis report, which gives complete details of the tower loading, results, information provided, and necessary assumptions.

We trust you find this report satisfactory. Please do not hesitate to contact us if you should have any questions or concerns.

Best Regards,  
Structural Components LLC



2002 Production Drive  
Apex, NC 27539

Roger Beckner, E.I.T.  
Structural Engineering Dept.



01/04/2013

Michael Lassiter, P.E.  
Connecticut P.E. # 25064  
Expires 01/31/2013



## 1 LOADING CONFIGURATION

The following antennas, mounts, transmission lines, and other appurtenances were considered for the structural analysis.

Elev. (ft) <sup>(1)</sup>	Appurtenance	Line	FACE <sup>(2)</sup>	Notes
347.0	(1) Beacon (1) 5' x 5/8" Lightning Rod	(1) 7/8"	BC	Existing
225.0	(3) Obstruction Lights	Shared	BC	Existing
210.0	(2) Andrew DB950F85T6E-M (2) Andrew DB950F85E-M (2) Andrew DB950F85T2E-M	(6) 1-5/8"	BC	Sprint Existing
210.0	(3) RFS APXVSP18-C-A20 (3) ALU 800 MHz RRH's (3) ALU 1900 4x45 65MHz RRH's (3) Notch Filter 800 MHz	(3) 1-1/4"	BC	Sprint Proposed
117.0	(3) Obstruction Lights	Shared	BC	Existing

- 1) Elevations reference centerline of panel, yagi, and dish antennas, and base of whip antennas, in relation to the base of the tower.
- 2) "FACE" designates which face of the tower (AB, BC, CA) the coax is assumed to be placed. See coax layout in Appendix A for assumed placement. If coax placement differs from what is noted in this report, contact Structural Components for further analysis.
- 3) All appurtenances and feed lines not listed on this loading configuration were not considered in analysis, and should subsequently be removed.
- 4) Sprint existing loading at 210ft is to be removed after a 6 month proving period.

## 2 RESULTS

The analysis was performed using tnxTower v6.0.0.8, a structural analysis program developed by Tower Numerics Inc. specifically for the communication tower industry.

### 2.1 TOWER MEMBER STRESS LEVELS

The tower has the following stress ratios in its structural members.

Elev. (ft)	Member	Stress Ratio
0 - 347	Legs	0.90
0 - 347	Bracing	0.99
0 - 347	Guys	0.99

Stress ratio (SR) criteria:

SR ≤ 1.00 is completely within code limits.

SR ≤ 1.05 is considered within acceptable tolerance of code limits.

SR > 1.05 is outside acceptable tolerance of code limits and requires structural modifications.

## 2.2 FOUNDATION REACTIONS

The reactions listed below are for the design wind speed listed. Reactions are factored loads.

Reaction Type	Design Reactions	Maximum Analysis Reactions	Foundation Status
Moment (ft-kips)		98.8	*Passes
Shear (kips)	41.7	2.1	
Axial (kips)	214.1	126.1	
Leg Compression (kips)		74.5	
Leg Uplift (kips)		3.4	
Leg Shear (kips)		4.6	
Inner Anchor Uplift (kips)		10.0	
Inner Anchor Shear (kips)		14.4	
Middle Anchor Uplift (kips)	22.4	28.5	
Middle Anchor Shear (kips)	21.8	27.5	
Outer Anchor Uplift (kips)		14.3	
Outer Anchor Shear (kips)		13.1	

\* See Appendix A for foundation calculations. Full foundation and soils details should be provided so a rigorous analysis of the foundation system can be performed.

## 2.3 TOWER DEFLECTION

The deflections are listed below for critical tower elevations using the serviceability wind speed listed.

Elev. (ft)	Displacement (in)	Sway (deg)	Twist (deg)
210.0	2.819	0.0432	0.213

### 3 PROVIDED INFORMATION AND ASSUMPTIONS

Information about the tower was provided by InSite Towers, LLC. Structural Components, LLC visited the site on 10/15/2012.

Data	Document	Author	Date	File
Tower	Tower Mapping Report	Structural Components, LLC	10/16/2012	120900
	Structural Analysis Report	Tectonic	06/16/2006	---
	Reinforcement Drawings	Tectonic	07/25/2006	CT60XC9568
Existing and Proposed Loads	Tower Mapping Report	Structural Components, LLC	10/16/2012	120900
	Exhibit A Loading Sheet	Sprint LP	09/13/2012	CT900 Wolcott
	Exhibit A Loading Sheet	Sprint LP	09/19/2012	CT900 Wolcott
Foundation	Reinforcement Drawings	Tectonic	08/25/2006	CT60XC9568
	Reinforcement Drawings	Tectonic	07/25/2006	CT60XC9568
Soils	---	---	---	---

The following assumptions were made in order to complete the analysis. These assumptions must be checked. If they do not accurately represent the existing or proposed tower, foundation, soil, and loading conditions, we must be notified so that we can make the appropriate changes to our analysis, conclusions, and recommendations.

1. The tower and foundation are constructed as shown in the provided drawings, previous structural analysis reports, mapping reports, photos, and/or other documents.
2. The tower and foundation are in good condition with no corrosion, damage or fatiguing issues which could reduce the carrying capacity of the tower.
3. The tower has been properly maintained in accordance with industry standards.
4. The tower and foundation have not been modified except as indicated in the provided information or in this report.
5. The tower legs are a minimum of 50 ksi yield steel with 36 ksi yield steel for all other structural members.
6. The foundations were properly designed and constructed for the original design reactions.
7. Inner and outer anchors were assumed to be adequate based on the base and middle anchor passing.

### 4 Required structural Modifications

Provided the assumptions outlined are accurate, we recommend the following modifications:

1. Replace existing 3/8" x 7 EHS guy to 203' with 7/16" x 7 EHS.

**Once the above upgrades are completed, the tower will be in structural compliance with the proposed antenna installation.**

**See Appendix C for Modification Drawings.**

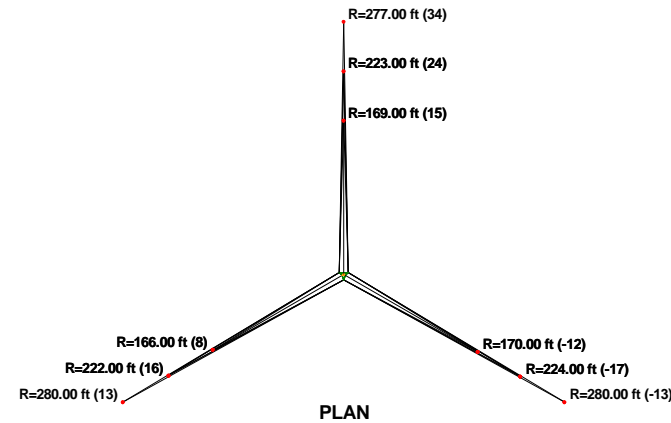
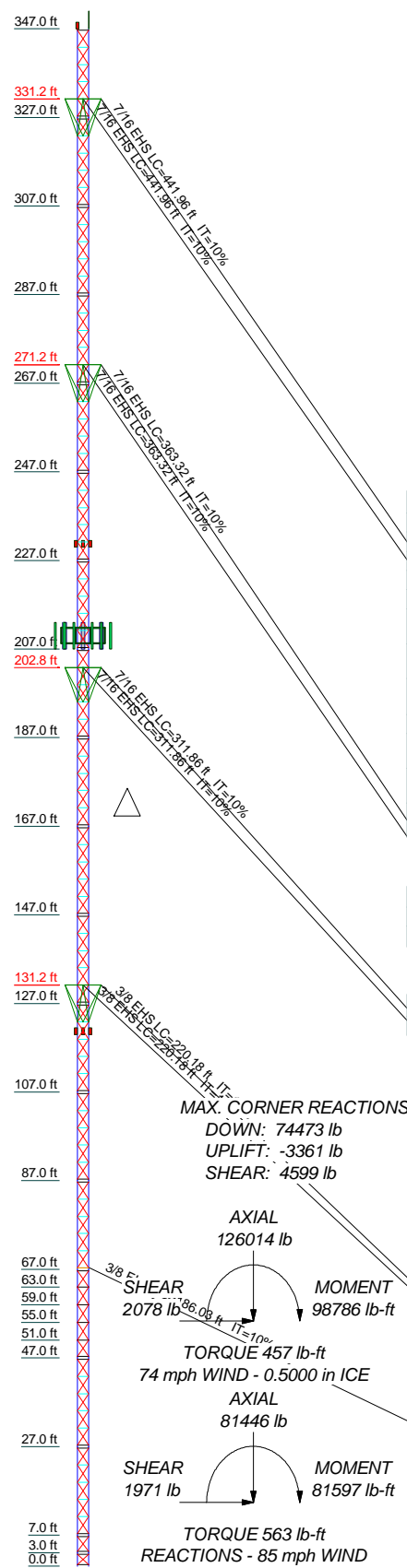
### 5 CONCLUSIONS

With the proposed loadings listed and the installed required structural modifications as outlined the tower and foundations satisfy the structural strength requirements of the standards and codes listed.

**A passing letter of structural compliance with the standards and codes will be provided upon Structural Components review and approval of the completed structure.**

**APPENDIX A**  
**Tower Profile and Calculations**

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
Legs	PIPE 2.5" STD																						
Leg Grade	A572-50																						
Diagonals	SR 3/4																						
Diagonal Grade	A36																						
Top Girts	L2x1 1/2x1/4																						
Bottom Girts	N.A.																						
Horizontal	L2x1 1/2x1/4																						
Top Guy Pull-Offs	N.A.																						
Face Width (ft)	3																						
# Panels @ (ft)	70 @ 3.86667																						
Weight (lb)	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3	14850.3



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting (InSite)	347	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (SPRINT)	210
3' x 5/8" Rod (InSite)	347	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (SPRINT)	210
Small Light (InSite)	230	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (SPRINT)	210
Small Light (InSite)	230	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (SPRINT)	210
Small Light (InSite)	230	ALU 1900 4x45 25.2x11.1x10.7 (60lbs) (SPRINT)	210
(2) DB950F85E-M w/ Mount Pipe (SPRINT)	210	Notch Filter 15.x10x13 (9.45lbs) (SPRINT)	210
(2) DB950F85T6E-M w/ Mount Pipe (SPRINT)	210	Notch Filter 15.x10x13 (9.45lbs) (SPRINT)	210
(2) DB950F85T2E-M w/ Mount Pipe (SPRINT)	210	Notch Filter 15.x10x13 (9.45lbs) (SPRINT)	210
(3) 12' Sector Frames (SPRINT)	210	APXVSP18-C-A20 (SPRINT)	210
ALU 800 MHz 15.8x10x13 (50.6lb) (SPRINT)	210	APXVSP18-C-A20 (SPRINT)	210
ALU 800 MHz 15.8x10x13 (50.6lb) (SPRINT)	210	APXVSP18-C-A20 (SPRINT)	210
ALU 800 MHz 15.8x10x13 (50.6lb) (SPRINT)	210	Small Light (InSite)	120
ALU 800 MHz 15.8x10x13 (50.6lb) (SPRINT)	210	Small Light (InSite)	120
ALU 800 MHz 15.8x10x13 (50.6lb) (SPRINT)	210	Small Light (InSite)	120

**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	L2x1 1/2x3/16	C	1 @ 3.33333
B	1 @ 3.66667	D	1 @ 2.33333

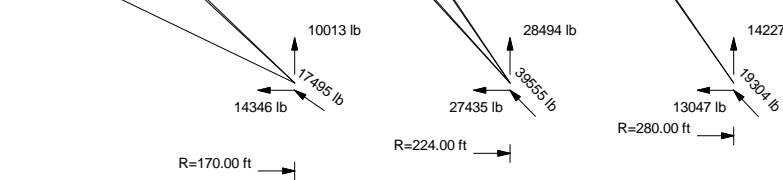
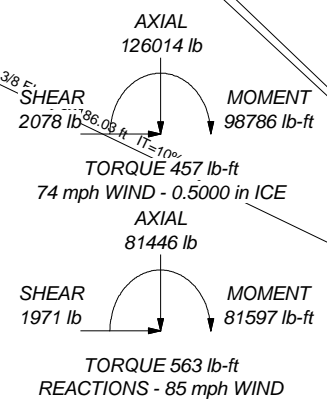
**MATERIAL STRENGTH**


GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

1. Tower is located in New Haven 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 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 98.6%

MAX. CORNER REACTIONS  
 DOWN: 74473 lb  
 UPLIFT: -3361 lb  
 SHEAR: 4599 lb





**Structural Components**  
 2400 Central Ave Suite A-1 South  
 Boulder, CO 80301  
 Phone: (866)386-7622  
 FAX: (720)489-3764

Job: **121103**  
 Project: **Wolcot (CT900), CT**  
 Client: InSite Towers  
 Code: TIA/EIA-222-F  
 Path:

Drawn by: SJS  
 Date: 01/03/13  
 Scale: NTS  
 Dwg No. E-1

## GUYED TOWER STEEL & ANTENNA MAPPING REPORT



**Wolcott, CT  
Site # CT900**

**PREPARED FOR:**



**PREPARED BY:**

Howard Rotchford  
Field Engineer  
Structural Components, LLC  
SC Job # 120900

**DATE:**

October 16, 2012



2400 Central Ave, Suite A-1 South Boulder, CO 80301 PH: 720-489-3764

CLIENT:	<u>Insite Towers, LLC</u>	DATE AT SITE:	<u>10/15/2012</u>
SITE (ID):	<u>Wolcott, CT900</u>	TOWER TYPE:	<u>Guyed Tower</u>
ADDRESS:	<u>164 County Rd Rear</u>	TOWER HEIGHT:	<u>347'</u>
	<u>Wolcott, CT 06716</u>	WEATHER:	<u>Overcast, 65°F, Wind: 15-20 mph NW</u>
LEAD:	<u>Howard Rotchford</u>	SUPPORT:	<u>David Sacco</u>

**EXISTING TOWER INFORMATION**

Data	Existing Information	Discrepancy	Scope of Work
Tower Mast Information	Tectonic Structural Analysis Dated June 16, 2006 / Tectonic Reinforcement Drawings Dated July 7, 2006	Yes	Map Steel
Antenna Information	Tectonic Structural Analysis Dated June 16, 2006 / Tectonic Reinforcement Drawings Dated July 7, 2006	Yes	Map Antennas
Foundation Information	Tectonic Structural Analysis Dated June 16, 2006 / Tectonic Reinforcement Drawings Dated July 7, 2006	N/A	No Mapping Required
Soils Information	None	N/A	No Soil Information Required
Site Constraints	None	N/A	Compound Mapping
Reinforcement Constraints	None	N/A	Not Required
Tower Condition	None	N/A	General TIA/Maintenance Inspection

**REPORT CONTENTS**

Mapping Cut Sheets	Required Yes/No	Field Work Completed By	# of Pages	Notes
TIA Maintenance Issues	Yes	HR/DS	3	
Compound Details	Yes	HR/DS	1	
Tower Mast Profile	Yes	HR/DS	1	
Tower Base Details	Yes	HR	1	
Tower Section Details	Yes	HR	1	
Leg Splice Details	Yes	HR/DS	1	
Guy Attachment Details	Yes	HR	1	
Torque Arm Details	Yes	HR	1	
Guy Wire & Anchor Details	Yes	HR	3	
Antenna & Coax Details	Yes	HR	3	
Tensions and Alignment	Yes	HR/DS	2	
Site Photos	Yes	HR/DS	20	Contact Sheets of All Site Photos

**2400 Central Ave, Suite A-1 South      Boulder, CO 80301      PH: 720-489-3764**

CLIENT:	<u>Insite Towers, LLC</u>	DATE AT SITE:	<u>10/15/2012</u>
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ADDRESS:	<u>164 County Rd Rear</u>	TOWER HEIGHT:	<u>347'</u>
	<u>Wolcott, CT 06716</u>	WEATHER:	<u>Overcast, 65°F, Wind: 15-20 mph NW</u>
LEAD:	<u>Howard Rotchford</u>	SUPPORT:	<u>David Sacco</u>

ISSUE #1: Overgrown compound.  
RECOMMENDATION: Remove vegetation and clean compound.  
PHOTO #: 9



ISSUE #2: No safety climb.  
RECOMMENDATION: Install proper safety climb length of tower on climbing face.  
PHOTO #: 36



ISSUE #3: Loose coax on tower on face CA  
RECOMMENDATION: Secure coax to tower every 4'.  
PHOTO #: 35



ISSUE #4: Level I-II rust on 30% of tower  
RECOMMENDATION: Remove rust with wire brush or similar. Cold-galvanize affected areas with minimum (2) coats of 95% ZRC paint and re-paint tower.  
PHOTO #: 170



ISSUE #5: Level III rust on guy wires at elevations 1 and 2.  
RECOMMENDATION: Replace first 2 levels of guy wires.  
PHOTO #: 53



ISSUE #6: Level III rust on guy attachment and torque arm shackles and hardware.  
RECOMMENDATION: Replace torque arm hardware and guy attachment shackles.  
PHOTO #: 57 & 102





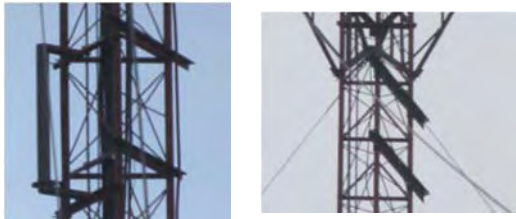
**2400 Central Ave, Suite A-1 South Boulder, CO 80301 PH: 720-489-3764**

CLIENT:	Insite Towers, LLC	DATE AT SITE:	10/15/2012
SITE (ID):	Wolcott, CT900	TOWER TYPE:	Guyed Tower
ADDRESS:	164 County Rd Rear	TOWER HEIGHT:	347'
	Wolcott, CT 06716	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**ISSUE #7:** Unused mounts on tower.

**RECOMMENDATION:** Removed unused mounts to reduce loading.

**PHOTO #:** 508



**ISSUE #8:** (6) Dead lines starting at 100' going to dead yagi's/to top of tower.

**RECOMMENDATION:** Remove dead lines and appurtenances to reduce tower loading.

**PHOTO #:** 66 & 495



**ISSUE #9:** Guy wires level 1 and 2 are secured with crosby clamps.

**RECOMMENDATION:** Determine if adequate number of crosby clamps are used, and if not, install additional clamps or conventional grips.

**PHOTO #:** 320



**ISSUE #10:** Inner anchors turnbuckle locks are not in figure 8 configuration.

**RECOMMENDATION:** Re-install turnbuckle locks in figure 8.

**PHOTO #:** 320



**ISSUE #11:** (18) guy wire tensions out of allowable TIA-222 range. Tower alignment is out of range between 327' and 347'.

**RECOMMENDATION:** Complete structural analysis of tower and re-tension wires to within 10% of specified tension in structural.

**PHOTO #:**

No photo available

**ISSUE #12:** Turnbuckle for guy wires B1 and C1 are out of allowable range.

**RECOMMENDATION:** Monitor gaps and install longer hardware or re-grip wires if required.

**PHOTO #:** 420 & 446




**2400 Central Ave, Suite A-1 South      Boulder, CO 80301      PH: 720-489-3764**

CLIENT:	<u>Insite Towers, LLC</u>	DATE AT SITE:	<u>10/15/2012</u>
SITE (ID):	<u>Wolcott, CT900</u>	TOWER TYPE:	<u>Guyed Tower</u>
ADDRESS:	<u>164 County Rd Rear</u>	TOWER HEIGHT:	<u>347'</u>
	<u>Wolcott, CT 06716</u>	WEATHER:	<u>Overcast, 65°F, Wind: 15-20 mph NW</u>
LEAD:	<u>Howard Rotchford</u>	SUPPORT:	<u>David Sacco</u>

ISSUE #13:      Level I rust on turnbuckles.

RECOMMENDATION:      Remove rust with wire brush or similar. Cold-galvanize affected areas with minimum (2) coats of 95% ZRC paint.

PHOTO #:      413



ISSUE #14:      Fence damaged at A outer.

RECOMMENDATION:      Repair damaged fence.

PHOTO #:      442



ISSUE #15:      Lightning rod is not tallest appurtenance on tower.

RECOMMENDATION:      Install existing lightning rod on 6' extension to put above tallest antenna.

PHOTO #:      497



ISSUE #16:

RECOMMENDATION:

PHOTO #:

ISSUE #17:

RECOMMENDATION:

PHOTO #:

ISSUE #18:

RECOMMENDATION:

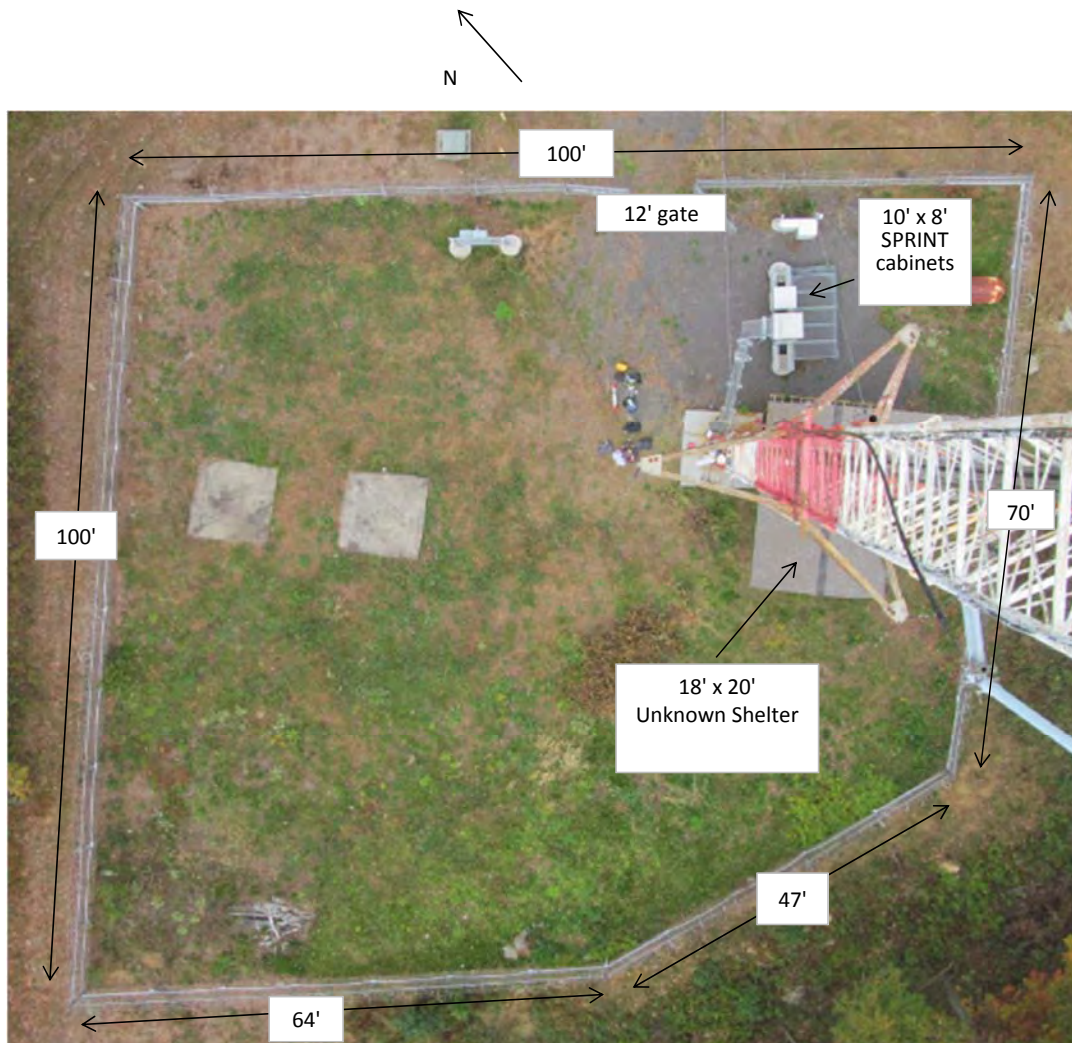
PHOTO #:



**2400 Central Ave, Suite A-1 South    Boulder, CO 80301    PH: 720-489-3764**

CLIENT:	Insite Towers, LLC	DATE AT SITE:	10/15/2012
SITE (ID):	Wolcott, CT900	TOWER TYPE:	Guyed Tower
ADDRESS:	164 County Rd Rear	TOWER HEIGHT:	347'
	Wolcott, CT 06716	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**SITE ACCESS:** 4WD, High-Clearance  
**GATE COMBO:** 2611  
**POWER:** Available  
**WATER:** Not Available



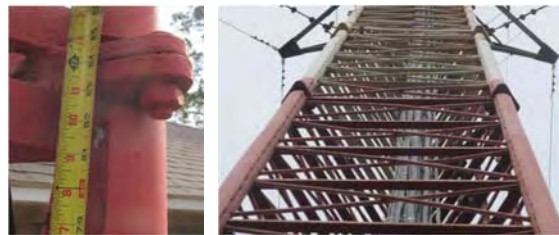
**TOWER MAST PROFILE**

**2400 Central Ave, Suite A-1 South    Boulder, CO 80301    PH: 720-489-3764**

CLIENT:	<u>Insite Towers, LLC</u>	DATE AT SITE:	<u>10/15/2012</u>
SITE (ID):	<u>Wolcott, CT900</u>	TOWER TYPE:	<u>Guyed Tower</u>
ADDRESS:	<u>164 County Rd Rear</u>	TOWER HEIGHT:	<u>347'</u>
	<u>Wolcott, CT 06716</u>	WEATHER:	<u>Overcast, 65°F, Wind: 15-20 mph NW</u>
LEAD:	<u>Howard Rotchford</u>	SUPPORT:	<u>David Sacco</u>

Elevation (ft.)	Section #	Face Width	Panel Height	Panel Type	Leg Size (in)	Splice Detail	Diagonal Size	Horizontal Size	Redundant Horizontal	Gusset Detail	Guy Attach Detail
0	7	1	36-1/2"	33-1/2"/48"	X- Braced	2.5" STD*	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
7	27	2	36-1/2"	48"	X- Braced	2.5" STD*	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
27	47	3	36-1/2"	48"	X- Braced	2.5" STD*	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
47	67	4	36-1/2"	48"	X- Braced	2.5" STD	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
67	87	5	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
87	107	6	36-1/2"	48"	X- Braced	2.5" STD	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
107	127	7	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
127	147	8	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
147	167	9	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
167	187	10	36-1/2"	48"	X- Braced	2.5" STD	S2	3/4" SR	2" x 1-1/2" x 1/4" LV	N/A	N/A
187	207	11	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
207	227	12	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
227	247	13	36-1/2"	48"	X- Braced	2.5" STD	S2	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
247	267	14	36-1/2"	48"	X- Braced	2.5" STD	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
267	287	15	36-1/2"	48"	X- Braced	2.5" STD	S2	7/8" SR	2" x 2" x 1/4"	N/A	N/A
287	307	16	36-1/2"	48"	X- Braced	2.5" STD	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
307	327	17	36-1/2"	48"	X- Braced	2.5" STD	S1	5/8" SR	2" x 1-1/2" x 3/16" LV	N/A	N/A
327	347	18	36-1/2"	48"	X- Braced	2.5" STD	S2	7/8" SR	2" x 2" x 1/4"	N/A	N/A

\* Note: Legs are reinforced with split pipe from 0' to 63' with 3.5" x 0.300" HSS. Reinforcement terminates approximately 1/2" from splice plates and at 63' with 3/16" x 6" welds. Stitch welds are 3/16" x 3" at approximately 12" C-C

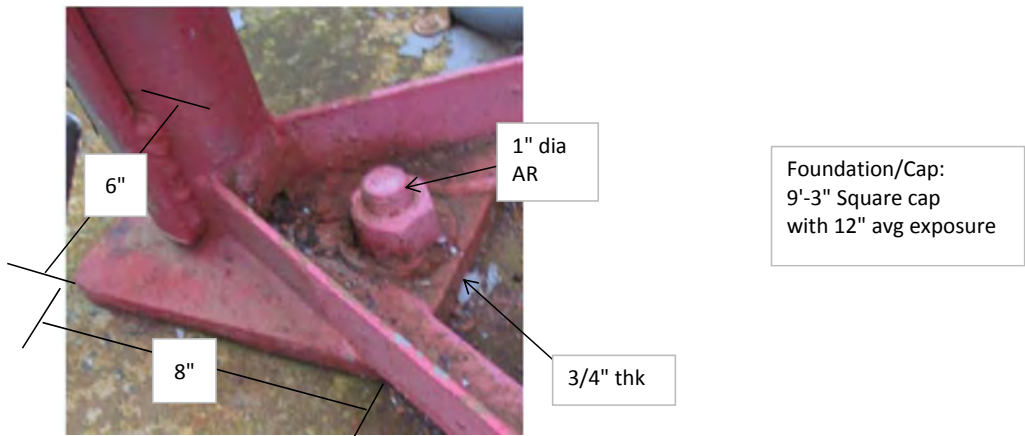
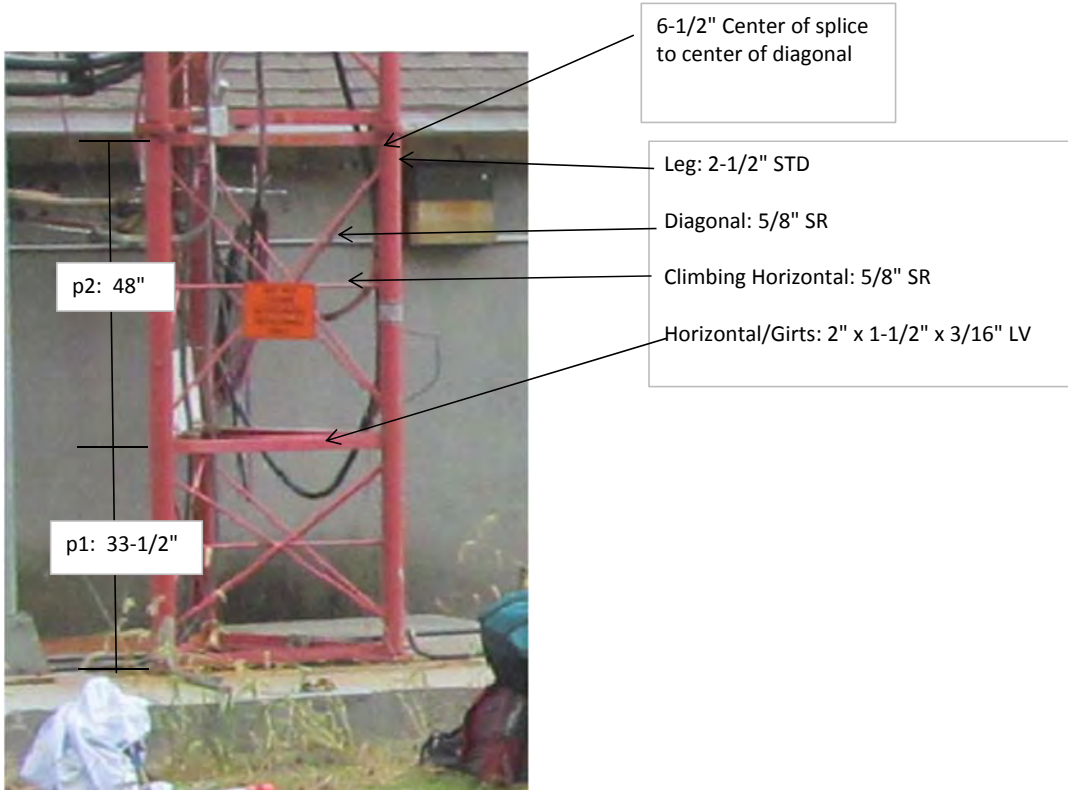


ELEVATIONS TAKEN WITH:    {TAPE MEASURE}    LASER

**2400 Central Ave, Suite A-1 South    Boulder, CO 80301    PH: 720-489-3764**

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SITE (ID):	Wolcott, CT900	TOWER TYPE:	Guyed Tower
ADDRESS:	164 County Rd Rear	TOWER HEIGHT:	347'
	Wolcott, CT 06716	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**TOWER BASE PHOTOS/SECTION 1: 0'-7'**



**GROUT UNDER BASE PLATE: N/A    CONDITION: N/A    PHOTO #: N/A**

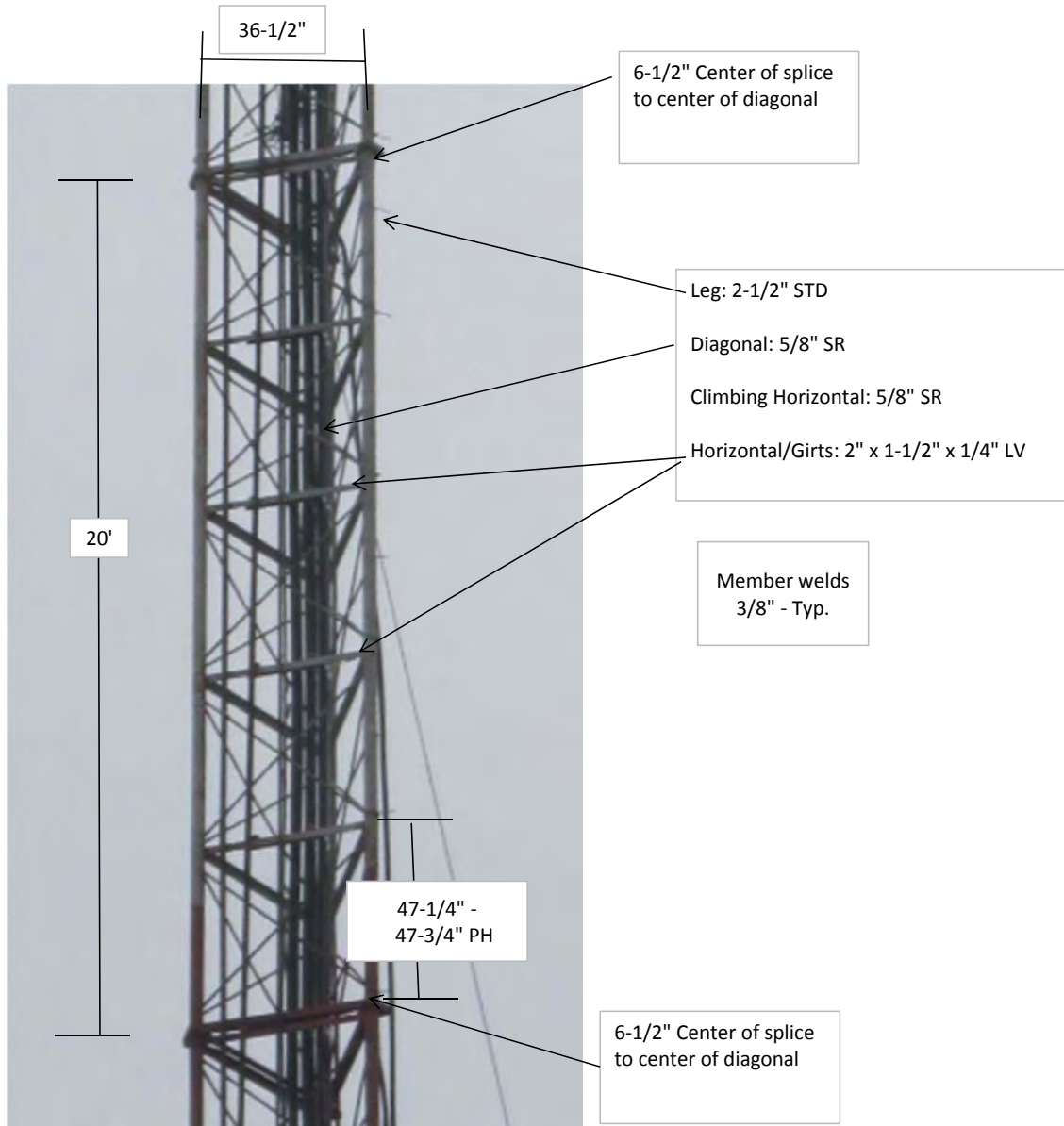
**2400 Central Ave, Suite A-1 South    Boulder, CO 80301    PH: 720-489-3764**

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**TYPICAL TOWER SECTIONS**

**SECTIONS #: 2 - 18 (7' - 347')**

**PHOTO #: 514**



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LEAD:	<u>Howard Rotchford</u>	SUPPORT:	<u>David Sacco</u>

**LEG SPLICE DETAILS**

**DETAIL #: S1**

**Section: 2-4,6,14,16,17**



**DETAIL #: S2**

**Sections: 1,5,7-13,15,18**



**DETAIL #:**

**ELEV:**

**DETAIL #:**

**ELEV:**

Detail #	Plate Dimensions	Bolt Size and Type	# of Bolts	Bolt Spacing	Weld Size
S1	6" Triangle x 5/8" thk	5/8" Ø UNK	3	4-1/2"	3/8"
S2	6-1/4" Triangle x 3/4" thk	5/8" Ø UNK	3	4-1/2"	3/8"

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**GUY ATTACHMENT DETAILS**

**DETAIL #: GA1**  
**ELEV: 67'**  
**PHOTO #: 57, 58, 59, & 62**



Detail #	Plate Dimensions	Bolt Size and End Dist.	Strapping Plate	Weld Size	To Anchor
GA1	(2) 3" x 7/16" strapping bent	3/4" Ø Hole with 1-3/4"c-e	3" Tall x 7/16" thk	N/A	Inner



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LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**TORQUE ARM DETAILS**

DETAIL #: TA1

ELEV: 131', 204', 271', 331' (Top of Torque Arms)

PHOTOS #: 102, 124, & 529

12" x 12" x 5/8" bent plate

19-1/2" C-C

7' 5-1/2"

(2) 3/4" 2-3/4" c-c

Upper Arm: 3" x 3" x 5/16"

Support Verts: 2" x 1-1/2" x 1/4" LV

Support Hors: 2" x 1-1/2" x 1/4" LV (TA #3 and #4 - 1-1/2" x 1-1/2" x 1/4")

Lower Arm/Diag: 3" x 3" x 5/16"

10" x 1-1/2" x 1/2"

4"

3/8" weld

5/16" thk

(2) 5/8" U-bolts 4-1/4" c-c

6"

9"

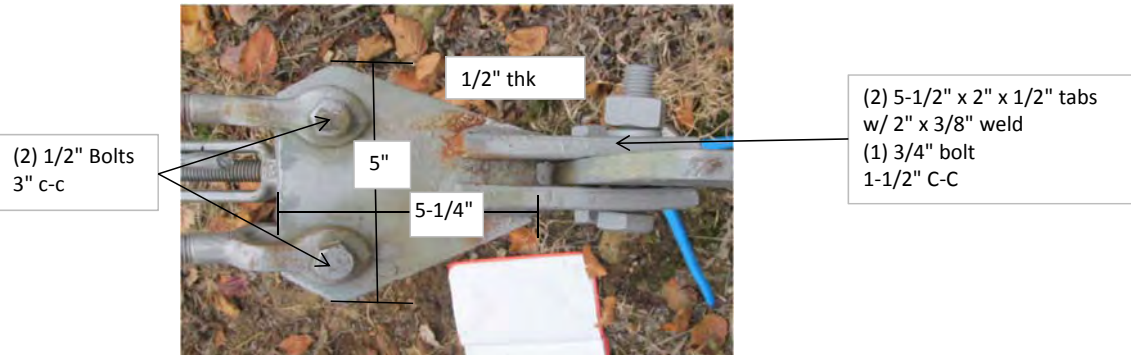
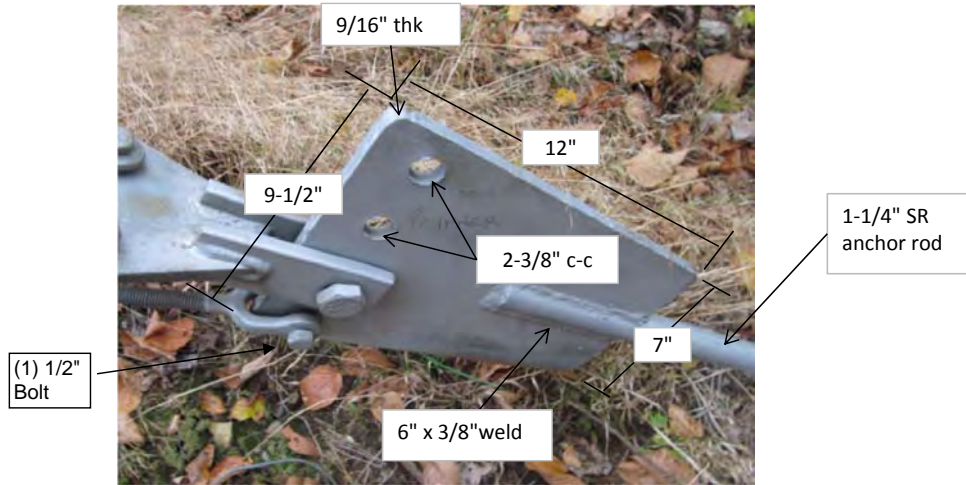
7" x 6" x 1/2"

TA #	Shackle dia	Pin Diameter	Hole Size and End Distance	To Anchor
1	5/8"	3/4"	13/16", 1-1/4" c-e	Inner
2	5/8"	3/4"	13/16", 1-1/4" c-e	Middle
3	5/8"	3/4"	13/16", 1-1/4" c-e	Middle
4	5/8"	3/4"	13/16", 1-1/4" c-e	Outer

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LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**ANCHOR HEAD DETAILS**
**ANCHOR LOCATION:** A, B, C - INNER

**LOCATION MEASUREMENTS TAKEN WITH:** LASER


<b>Anchor A</b>	Radius	<u>169'</u>	Height	<u>15'</u>	Az.	<u>0</u>
<b>Anchor B</b>	Radius	<u>170'</u>	Height	<u>-12'</u>	Az.	<u>120</u>
<b>Anchor C</b>	Radius	<u>166'</u>	Height	<u>8'</u>	Az.	<u>240</u>

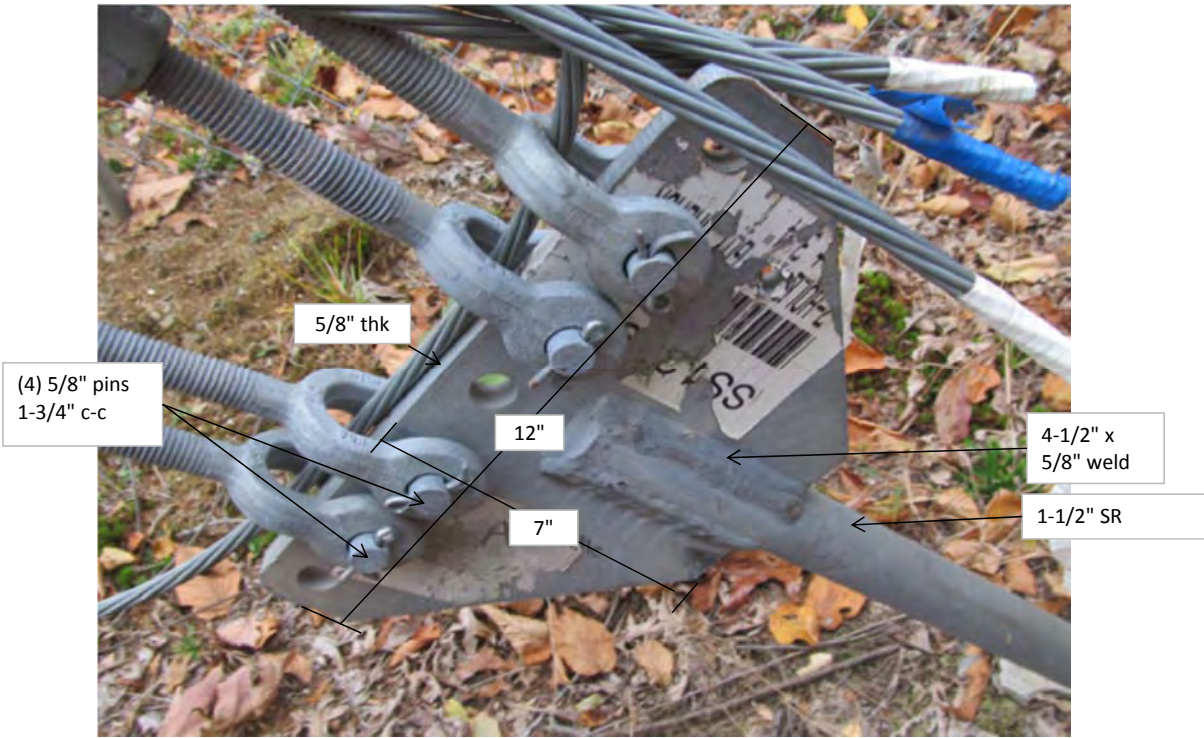
Hole #	To Elevation	Hole Diameter	Tear Out Dist.	Guy Size	Turnbuckle Size	Grounding Condition
4	--	7/8"	1-1/4"e-e	--	--	--
3	--	7/8"	1-1/4"e-e	--	--	--
2B	131'	7/8"	3/4"e-e	3/8" x 7	5/8 x 12"	Satisfactory
2A	131'	7/8"	3/4" e-e	3/8" x 7	5/8 x 12"	Satisfactory
2	2A & 2B	7/8"	1-1/4"e-e	--	--	--
1	67'	7/8"	1-1/4"e-e	3/8" x 7	5/8" x 12"	Satisfactory

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**ANCHOR HEAD DETAILS**

ANCHOR LOCATION: A, B, C - MIDDLE  
 LOCATION MEASUREMENTS TAKEN WITH: LASER



<b>Anchor A</b>	Radius	<u>223'</u>	Height	<u>24'</u>	Az.	<u>0</u>
<b>Anchor B</b>	Radius	<u>224'</u>	Height	<u>-17'</u>	Az.	<u>120</u>
<b>Anchor C</b>	Radius	<u>222'</u>	Height	<u>16'</u>	Az.	<u>240</u>

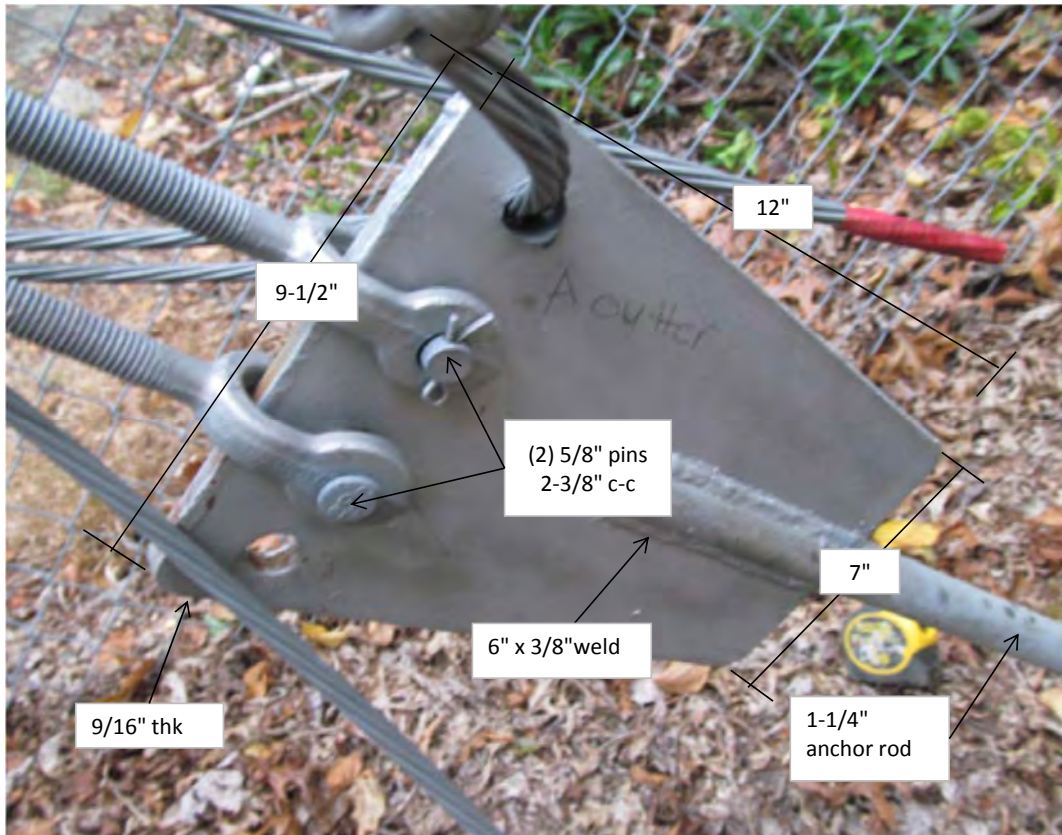
Hole #	To Elevation	Hole Diameter	Tear Out Dist.	Guy Size	Turnbuckle Size	Grounding Condition
7	--	11/16"	9/16" e-e	--	--	--
6	271'	11/16"	9/16" e-e	7/16" x 7 EHS	3/4" x 12"	Satisfactory
5	271'	11/16"	9/16" e-e	7/16" x 7 EHS	3/4" x 12"	Satisfactory
4	--	11/16"	9/16" e-e	--	--	--
3	204'	11/16"	9/16" e-e	3/8" x 7 EHS	3/4" x 12"	Satisfactory
2	204'	11/16"	9/16" e-e	3/8" x 7 EHS	3/4" x 12"	Satisfactory
1	--	11/16"	9/16" e-e	--	--	--

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	Wolcott, CT 06716	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**ANCHOR HEAD DETAILS**

ANCHOR LOCATION: A, B, C - OUTER  
LOCATION MEASUREMENTS TAKEN WITH: LASER



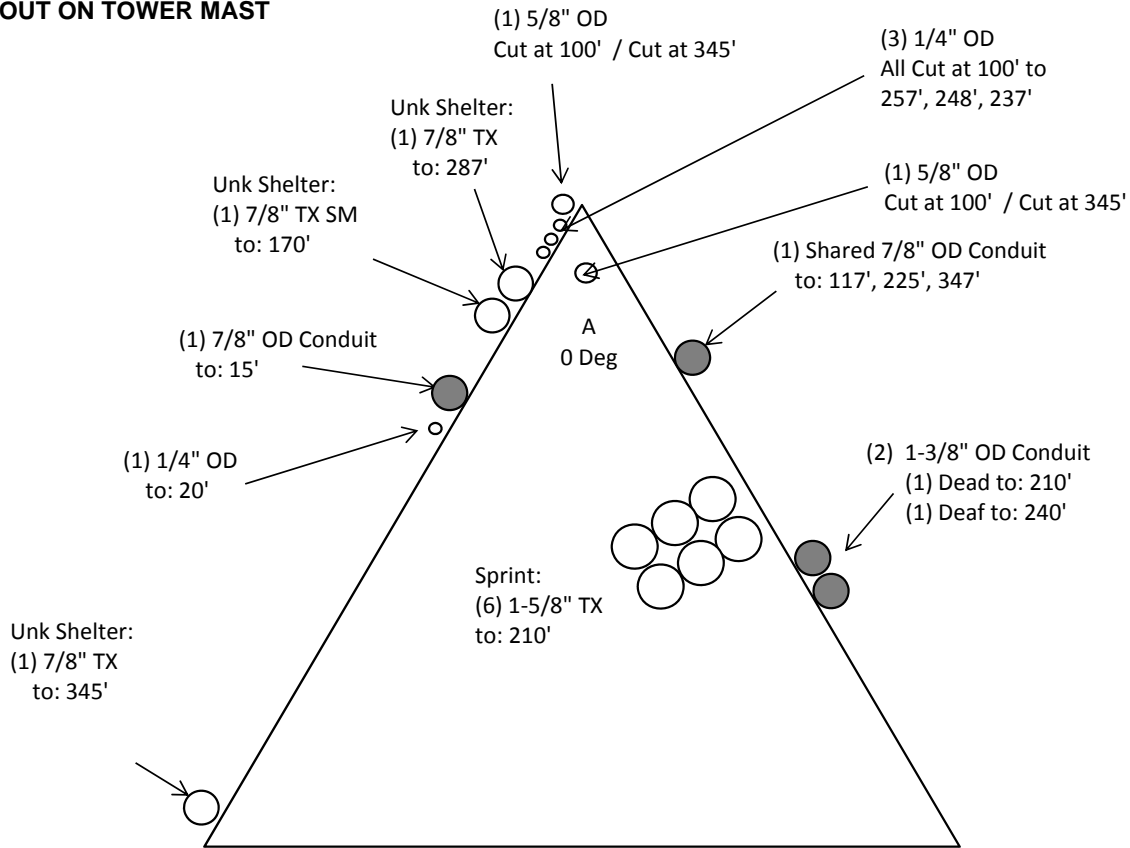
<b>Anchor A</b>	Radius	<u>277'</u>	Height	<u>34'</u>	Az.	<u>0</u>
<b>Anchor B</b>	Radius	<u>280'</u>	Height	<u>-13'</u>	Az.	<u>120</u>
<b>Anchor C</b>	Radius	<u>280'</u>	Height	<u>13'</u>	Az.	<u>240</u>

Hole #	To Elevation	Hole Diameter	Tear Out Dist.	Guy Size	Turnbuckle Size	Grounding Condition
4	--	7/8"	1-1/4"e-e	--	--	--
3	371'	7/8"	1-1/4"e-e	7/16" x 7 EHS	3/4" x 12"	Satisfactory
2	371'	7/8"	1-1/4"e-e	7/16" x 7 EHS	3/4" x 12"	Satisfactory
1	--	7/8"	1-1/4"e-e	--	--	--

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LEAD:	Howard Rotchford	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
		SUPPORT:	David Sacco

**COAX LAYOUT ON TOWER MAST**



Face AB



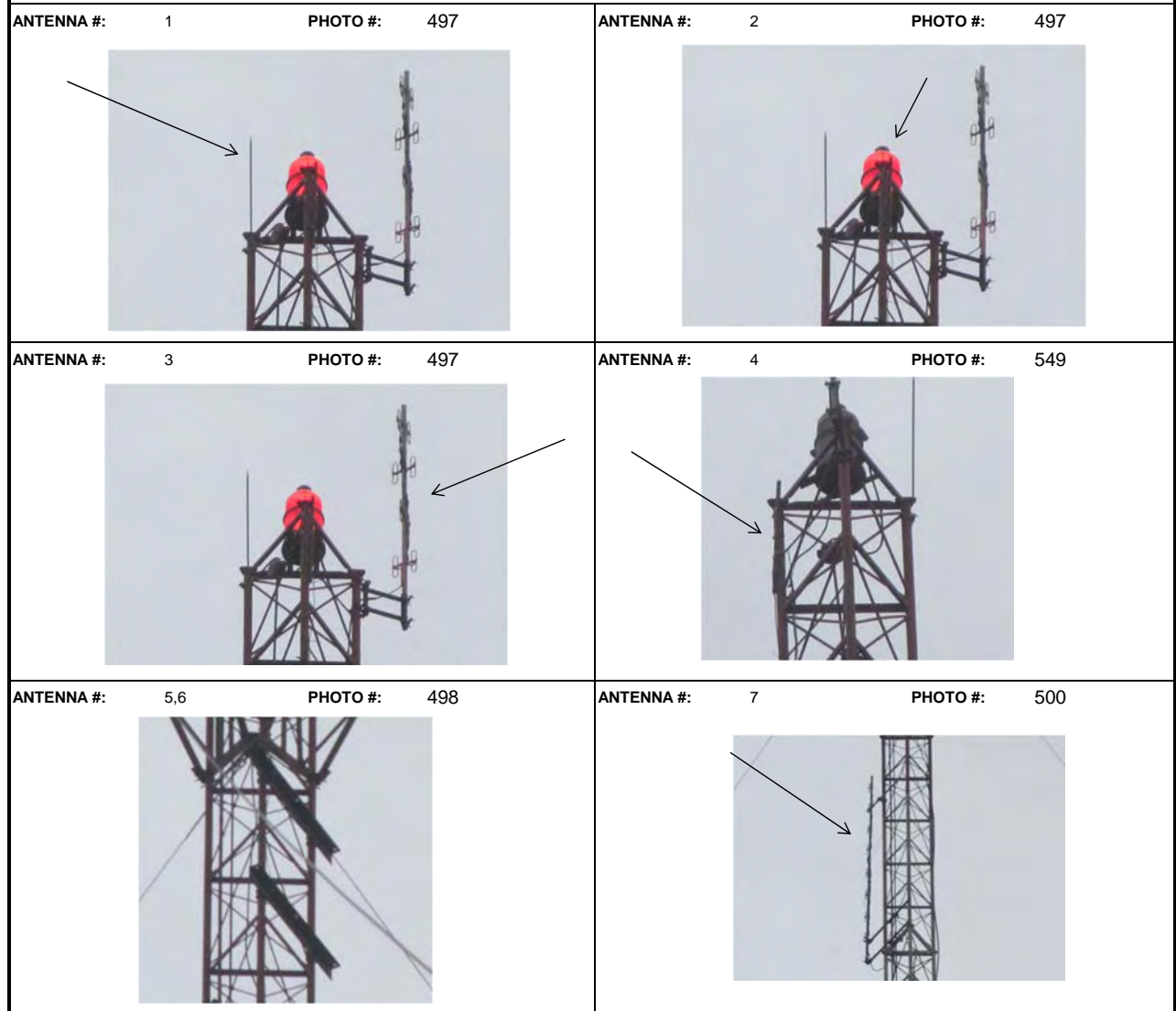
Face BC



Face CA

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<u>Wolcott, CT 06716</u>	WEATHER: <u>Overcast, 65°F, Wind: 15-20 mph NW</u>
LEAD: <u>Howard Rotchford</u>	SUPPORT: <u>David Sacco</u>

**ANTENNA HEIGHTS TAKEN WITH: TAPE**




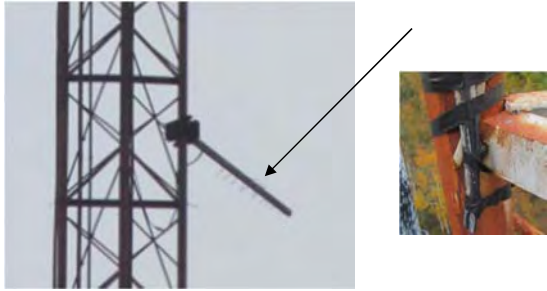



Antenna #	Elevation (ft.)	Quantity	Appurtenance	Coax	Owner	Azimuth (°)
1	347.0	1	5' x 5/8" Lightning rod bolted to top of leg B.	N/A	Insite	120
2	347.0	1	12" dia x 16" Beacon centered at top of tower.	Shared 7/8" conduit	Insite	N/A
3	345.0	1	2" x 10' x (8) Element Loop Dipole on 18" standoff clamped to leg C.	(1) 7/8" TX	TELCO	240
4	345.0	1	2-3/8" x 4' Unused Pipe on Leg A	N/A	Unk (Dead)	0
5,6	317.5	2	Unused 6" x 4" x 3/8" x 5' long angle mounts	N/A	Unk (Dead)	300
7	287.0	1	2-1/2" x 16' x (8) Element Dipole on 18" standoff clamped to leg B.	(1) 7/8" TX	Unk Shelter	150

Note: Elevations reference centerline of panel, yagi, and dish antennas, and base of whip and omni antennas, in relation to the base of the tower.

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**ANTENNA HEIGHTS TAKEN WITH: TAPE**

<b>ANTENNA #:</b> 8 <b>PHOTO #:</b> 66 & 501 	<b>ANTENNA #:</b> 9 <b>PHOTO #:</b> 66 & 502 
<b>ANTENNA #:</b> 10 <b>PHOTO #:</b> 66 & 502 	<b>ANTENNA #:</b> 11, 12 <b>PHOTO #:</b> 503 
<b>ANTENNA #:</b> 13-18 <b>PHOTO #:</b> 143 & 505 	<b>ANTENNA #:</b> 19 <b>PHOTO #:</b> 507 


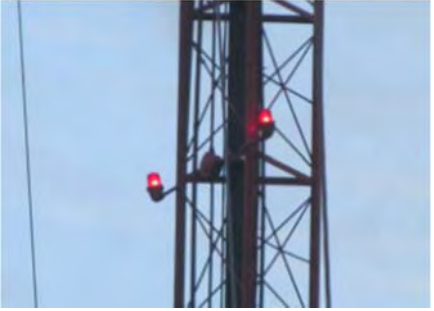


Antenna #	Elevation (ft.)	Quantity	Appurtenance	Coax	Owner	Azimuth (°)
8	257.0	1	12' x (9) Element Yagi clamped to leg A.	(1) dead 1/4" OD (starting at 100')	Unk (Dead)	30
9	248.0	1	10' x (20) Element Yagi clamped to leg C.	(1) dead 1/4" OD (starting at 100')	Unk (Dead)	220
10	237.0	1	4-1/2' x (34) Element Yagi clamped to leg C	(1) dead 1/4" OD (starting at 100')	Unk (Dead)	220
11,12	225.0	2	Small Red Lights off legs A and B.	Shared 7/8" conduit	Insite	0 / 120
13-18	210.0	6	Decibel Panels model: 950F85T2E-M on 2-3/8" OD x 7" pipe mounts clamped to 12' x 4' x 2' off tower T-arm mounts clamped to each leg.	(6) 1-5/8" TX	Sprint	20 / 120 / 220
19	170.0	1	20' Tapered Omni (3-1/2" - 1-1/2") on 12" standoff mount clamped to leg C.	(1) 7/8" TX Smooth	Unk Shelter	240

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**ANTENNA HEIGHTS TAKEN WITH: TAPE**

ANTENNA #: 20                      PHOTO #: 508 	ANTENNA #: 21, 22                      PHOTO #: 510 
ANTENNA #: 23                      PHOTO #: 49 	ANTENNA #: 24                      PHOTO #: 37 
ANTENNA #:                      PHOTO #:	ANTENNA #: 19                      PHOTO #:

Antenna #	Elevation (ft.)	Quantity	Appurtenance	Coax	Owner	Azimuth (°)
20	137.0	1	Unused 4.5" Dia. X 4.5' pipe mount	N/A	Unk (Dead)	180
21, 22	117.0	2	Small Red Lights off legs A and B	Shared 7/8" conduit	Unknown	0 / 120
23	20.0	1	Small Weather Station on 12" standoff off face AB.	(1) 1/4" OD	Unknown	60
24	15.0	1	Floodlight on a 2" x 4' Pipe mount	Direct power	Unknown	0

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**Tension Sheet**

Wolcott, CT guy wire tensions						
Guy Label	Guy Elevation (ft.)	Guy Size	Temperature of Guy Wire (°F)	Measured Tension at 60 °F (kip)	Design Tension at 60 °F (kip)	Measured Tension in Field
A1	67.00	3/8" 1x7 EHS	65.00	2.37	1.54 (1.078 to 2.31 )	2.33
A2L	67.00	3/8" 1x7 EHS	65.00	1.44	1.54 (1.078 to 2.31 )	1.40
A2R	67.00	3/8" 1x7 EHS	65.00	1.67	1.54 (1.078 to 2.31 )	1.63
A3L	131.00	3/8" 1x7 EHS	65.00	0.83	1.54 (1.078 to 2.31 )	0.80
A3R	131.00	3/8" 1x7 EHS	65.00	0.96	1.54 (1.078 to 2.31 )	0.93
A4L	131.00	7/16" 1x7 EHS	65.00	1.06	2.08 (1.456 to 3.12 )	1.02
A4R	131.00	7/16" 1x7 EHS	65.00	1.08	2.08 (1.456 to 3.12 )	1.04
A5L	204.00	7/16" 1x7 EHS	65.00	1.34	2.08 (1.456 to 3.12 )	1.30
A5R	204.00	7/16" 1x7 EHS	65.00	1.75	2.08 (1.456 to 3.12 )	1.71
B1	67.00	3/8" 1x7 EHS	65.00	1.84	1.54 (1.078 to 2.31 )	1.79
B2L	67.00	3/8" 1x7 EHS	65.00	1.13	1.54 (1.078 to 2.31 )	1.09
B2R	67.00	3/8" 1x7 EHS	65.00	1.13	1.54 (1.078 to 2.31 )	1.08
B3L	131.00	3/8" 1x7 EHS	65.00	0.76	1.54 (1.078 to 2.31 )	0.73
B3R	131.00	3/8" 1x7 EHS	65.00	0.91	1.54 (1.078 to 2.31 )	0.87
B4L	131.00	7/16" 1x7 EHS	65.00	0.87	2.08 (1.456 to 3.12 )	0.83
B4R	131.00	7/16" 1x7 EHS	65.00	0.77	2.08 (1.456 to 3.12 )	0.72
B5L	204.00	7/16" 1x7 EHS	65.00	1.05	2.08 (1.456 to 3.12 )	1.01
B5R	204.00	7/16" 1x7 EHS	65.00	1.04	2.08 (1.456 to 3.12 )	0.99
C1	67.00	3/8" 1x7 EHS	65.00	1.60	1.54 (1.078 to 2.31 )	1.56
C2L	67.00	3/8" 1x7 EHS	65.00	1.61	1.54 (1.078 to 2.31 )	1.57
C2R	67.00	3/8" 1x7 EHS	65.00	1.57	1.54 (1.078 to 2.31 )	1.52
C3L	131.00	3/8" 1x7 EHS	65.00	1.03	1.54 (1.078 to 2.31 )	1.00
C3R	131.00	3/8" 1x7 EHS	65.00	0.94	1.54 (1.078 to 2.31 )	0.91
C4L	131.00	7/16" 1x7 EHS	65.00	0.88	2.08 (1.456 to 3.12 )	0.84
C4R	131.00	7/16" 1x7 EHS	65.00	0.90	2.08 (1.456 to 3.12 )	0.86
C5L	204.00	7/16" 1x7 EHS	65.00	1.33	2.08 (1.456 to 3.12 )	1.29
C5R	204.00	7/16" 1x7 EHS	65.00	1.37	2.08 (1.456 to 3.12 )	1.33

**2400 Central Ave, Suite A-1 South**
**Boulder, CO 80301**
**PH: 720-489-3764**

CLIENT:	Insite Towers, LLC	DATE AT SITE:	10/15/2012
SITE (ID):	Wolcott, CT900	TOWER TYPE:	Guyed Tower
ADDRESS:	164 County Rd Rear	TOWER HEIGHT:	347'
	Wolcott, CT 06716	WEATHER:	Overcast, 65°F, Wind: 15-20 mph NW
LEAD:	Howard Rotchford	SUPPORT:	David Sacco

**Alignment Sheet**
**[5\_12A] - MAST ALIGNMENT - PLUMB - WITH TIA/EIA-222-F TOWER STANDARD**

Reference Elevation	Deviation along Axis (1)	Deviation along Axis (2)	Resultant Deviation	Allowable Resultant Deviation	Resultant Deviation b/w Elev.	Allowable Deviation b/w Elev.
(ft)	(in)	(in)	(in)	(in)	(in)	(in)
347	0.83	0.36	0.90	10.41	0.86	0.60
327	1.45	0.96	1.74	9.81	1.08	1.80
267	0.52	0.42	0.67	8.01	0.32	2.01
200	0.21	0.36	0.41	6.00	0.55	2.19
127	-0.31	0.18	0.36	3.81	0.12	1.80
67	-0.21	0.12	0.24	2.01	0.24	2.01

**[5\_12B] - MAST ALIGNMENT - TWIST - WITH TIA/EIA-222-F STANDARD**

Reference Elevation	Twist w.r.t Tower Base	Allowable Twist w.r.t. Base	Relative Twist b/w Ref. Points	Allowable Twist b/w Ref. Points
(ft)	(degrees)	(+ or - degrees)		(in)
347	1.47	5.00	-1.63	1.00
327	3.10	5.00	2.44	3.00
267	0.65	5.00	-0.33	3.35
200	0.98	5.00	0.49	3.65
127	0.49	5.00	0.16	3.00
67	0.33	3.35	0.33	3.35

# CASCADE NO. CT60XC956B COX COMMUNICATIONS TOWER



## CO-LO GUYED LATTICE TOWER



6580 SPRINT PARKWAY  
OVERLAND PARK, KANSAS 66251

**TECTONIC** - PLANNING  
- SURVEYING  
- CONSTRUCTION MANAGEMENT  
TECTONIC Engineering & Surveying Consultants P.C.  
955 Little Britain Road  
New Windsor, NY 12553  
Phone: (845) 567-8656  
Fax: (845) 567-8703  
www.tectonicengineering.com

PROJECT NO: 2850.CT956  
DRAWN BY: WRB  
CHECKED BY: DML

REV	DATE	DESCRIPTION
5	7/25/06	PER RF COMMENTS
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1	4/04/06	PER CONST. COMMENTS
0	3/25/04	FOR ZONING
A	2/19/04	ISSUE FOR COMMENTS



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CT60XC956B  
COX COMMUNICATION TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO LATTICE TOWER

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
**T-1**

### SITE INFORMATION

OWNER: COX COMMUNICATIONS  
1400 LAKE HEARN ROAD  
ATLANTA, GA. 30319-1464

APPLICANT: SPRINT  
6580 SPRINT PARKWAY  
OVERLAND PARK, KS 66251-6110

SITE ADDRESS: 164 COUNTY ROAD REAR  
WOLCOTT, CT. 06716-2504

COUNTY: NEW HAVEN

LATITUDE: 41° 34' 34.4" N

LONGITUDE: 72° 57' 24.1" W

ZONING CLASSIFICATION: CONNECTICUT SITING COUNCIL

ZONING JURISDICTION: TOWN OF WOLCOTT

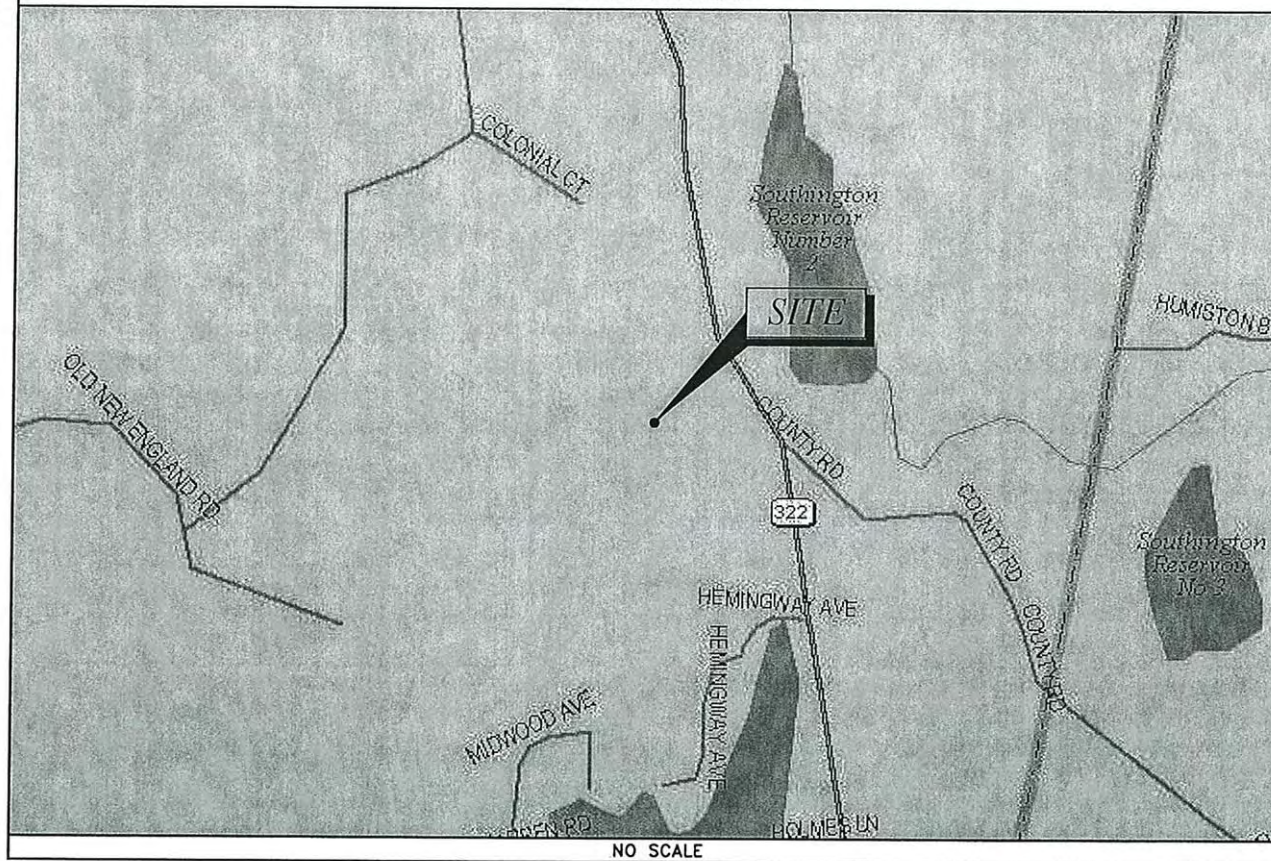
POWER COMPANY: CL&P  
ED HUMUL  
PHONE: (203) 597-4246

TELEPHONE COMPANY: SNET  
DAVID JETMAR  
PHONE: (203) 634-6324

ENGINEER: TECTONIC ENGINEERING &  
SURVEYING CONSULTANTS P.C.  
PHONE: (860) 563-2341  
FAX: (860) 257-4882

SURVEYOR: TECTONIC ENGINEERING &  
SURVEYING CONSULTANTS P.C.  
PHONE: (860) 563-2341  
FAX: (860) 257-4882

### LOCATION MAP



NO SCALE

### APPROVALS

SPRINT REPRESENTATIVE: \_\_\_\_\_  
SPRINT RF ENGINEER: \_\_\_\_\_  
SITE OWNER: \_\_\_\_\_

### DRAWING INDEX

SHEET NO:	SHEET TITLE	REV.	DATE
T-1	TITLE SHEET	5	7/25/06
A-1	SITE PLAN & ENLARGED SITE PLAN	5	7/25/06
A-2	ELEVATION	5	7/25/06
A-3	ANTENNA MOUNTING PLAN & DETAILS	5	7/25/06
A-4	EQUIPMENT ELEVATION & DETAILS	5	7/25/06
E-1	EQUIPMENT/FOUNDATION PLAN & DETAILS	5	7/25/06
E-2	ANTENNA SCHEMATIC & MATERIALS LIST	5	7/25/06
G-1	GROUNDING PLAN, DETAILS & NOTES	5	7/25/06
G-2	GROUNDING DETAILS	5	7/25/06
S-1	TOWER REINFORCEMENT, ELEVATION & DETAILS	5	7/25/06
S-2	TOWER REINF., FND. PLAN & GUY ANCHOR DETAILS	5	7/25/06

### DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME



UNDERGROUND  
SERVICE ALERT  
CALL TOLL FREE  
1-888-DIG-SAFE

THREE WORKING DAYS BEFORE YOU DIG

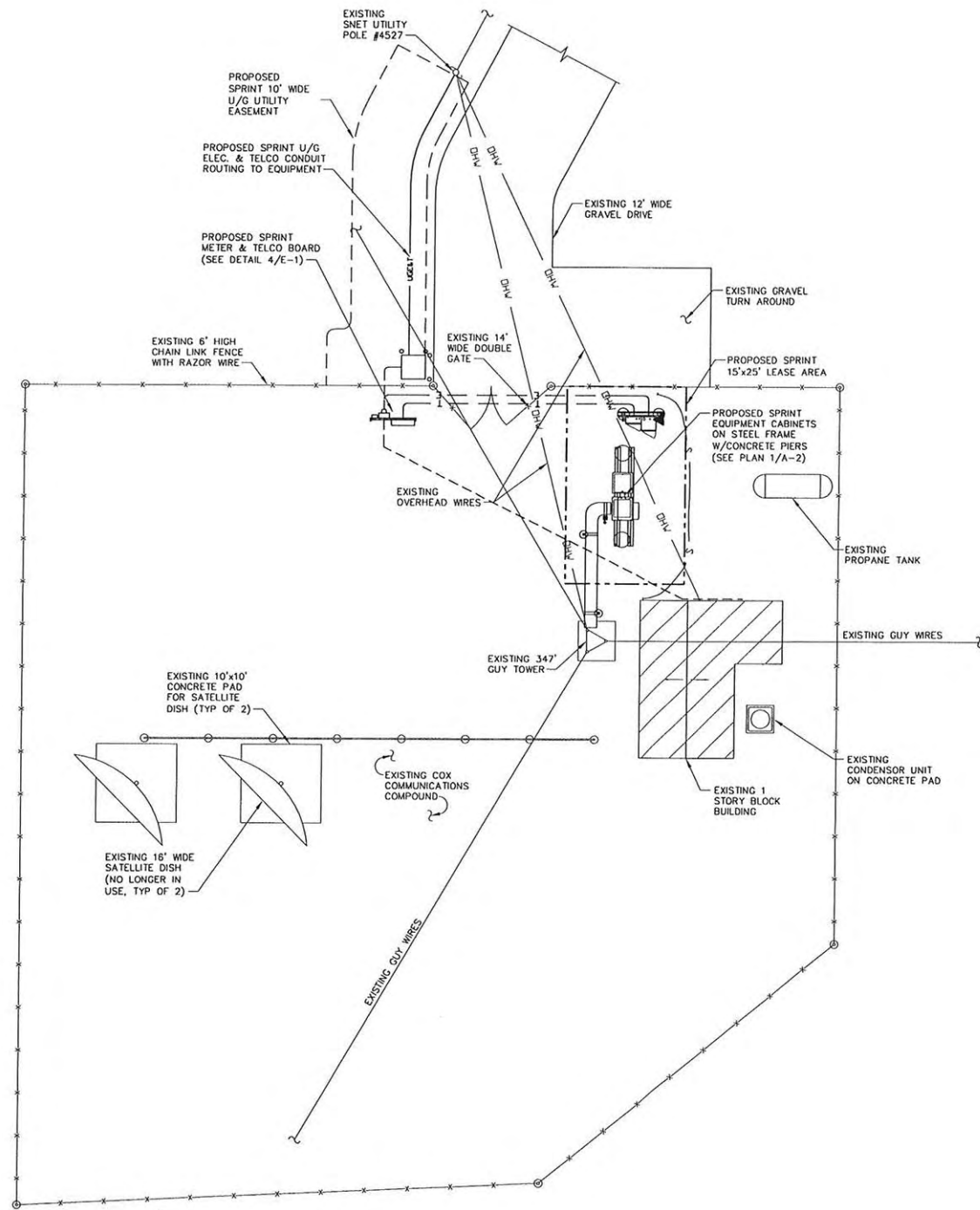
### CONTACT INFORMATION

ENGINEER: TECTONIC ENGINEERING &  
SURVEYING CONSULTANTS P.C.  
1344 SILAS DEANE HIGHWAY, SUITE 500  
ROCKY HILL, CT. 06067-1342

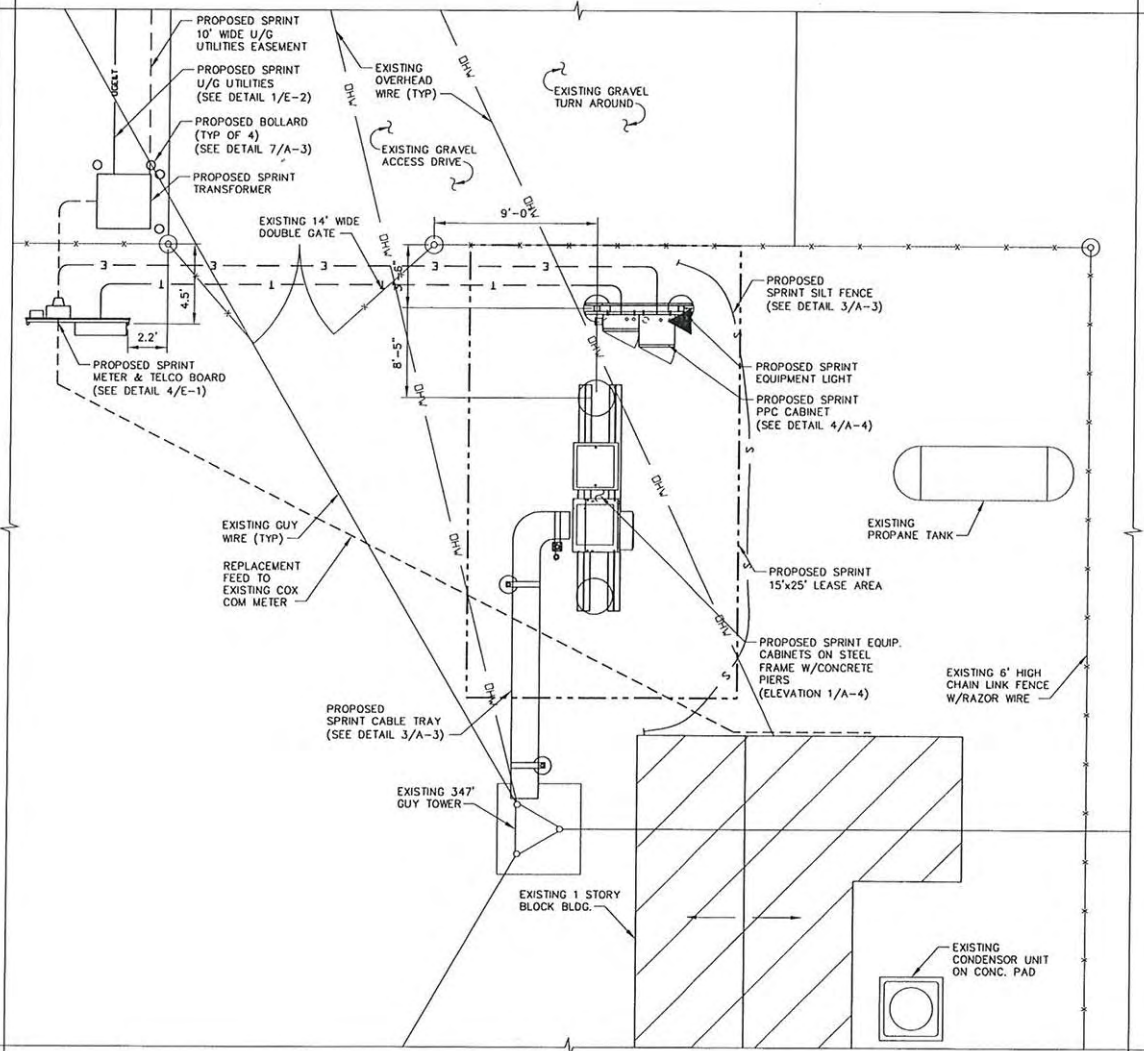
CONTACT: JAMES F. LOW  
PHONE: (860) 563-2341

### DRIVING DIRECTIONS

DIRECTIONS FROM SPRINT RF MARKET OFFICE FROM BARNES INDUSTRIAL ROAD, TURN RIGHT ON NORTH MAIN STREET. TURN LEFT ON IVES ROAD AND RIGHT ON NORTH COLONY ROAD. TAKE ROUTE 15 NORTH (TOWARD HARTFORD). TAKE I-691 WEST, EXIT 68W TO I-84 WEST, EXIT 1 (TOWARD DANBURY / WATERBURY). TAKE ROUTE 70, EXIT 26 (TOWARD CHESHIRE / PROSPECT). TURN LEFT ON WATERBURY ROAD. TURN RIGHT ON BYAM ROAD. TURN RIGHT ON MERIDEN ROAD. BEAR LEFT ONTO EAST STREET. CONTINUE ONTO COUNTY ROAD. THE SITE, 164 COUNTY ROAD REAR WILL BE ON THE LEFT.



1 SITE PLAN  
A-1 SCALE: 1" = 10'



2 ENLARGED SITE PLAN  
A-1 SCALE: 1" = 5'



6580 SPRINT PARKWAY  
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Fax: (845) 567-8703  
www.tectonicengineering.com

PROJECT NO: 2850.CT956  
DRAWN BY: WRB  
CHECKED BY: DML

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CT60XC956B  
COX COMMUNICATION TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO LATTICE TOWER

SHEET TITLE  
SITE PLAN &  
ENLARGED SITE PLAN

SHEET NUMBER  
**A-1**



6580 SPRINT PARKWAY  
OVERLAND PARK, KANSAS 66251



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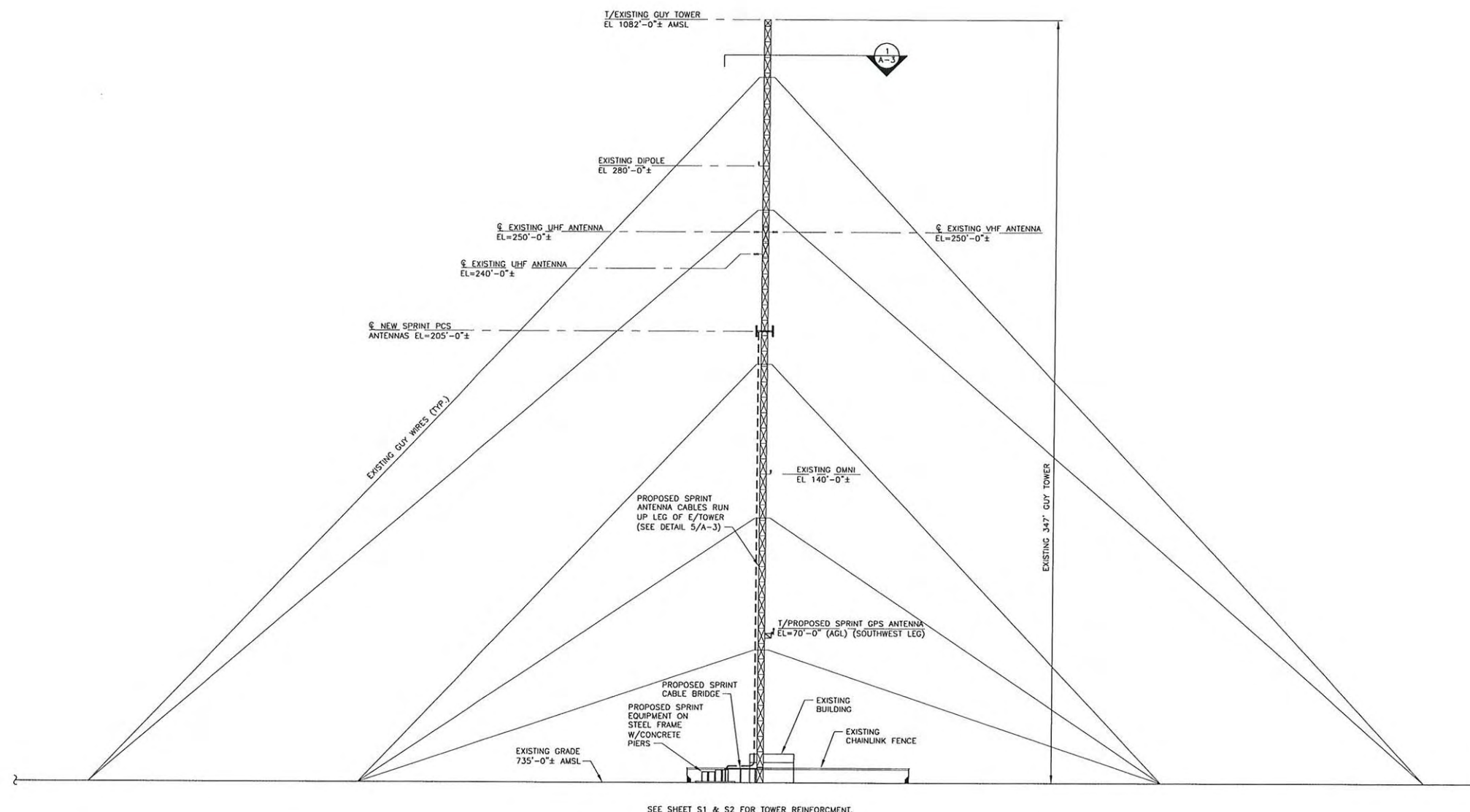
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164 COUNTY ROAD REAR  
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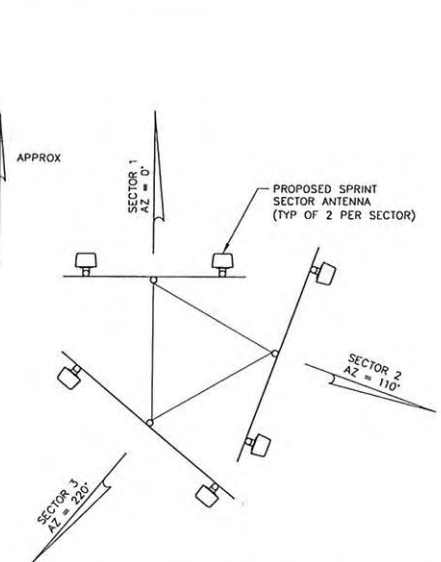
SHEET TITLE  
ELEVATION

SHEET NUMBER

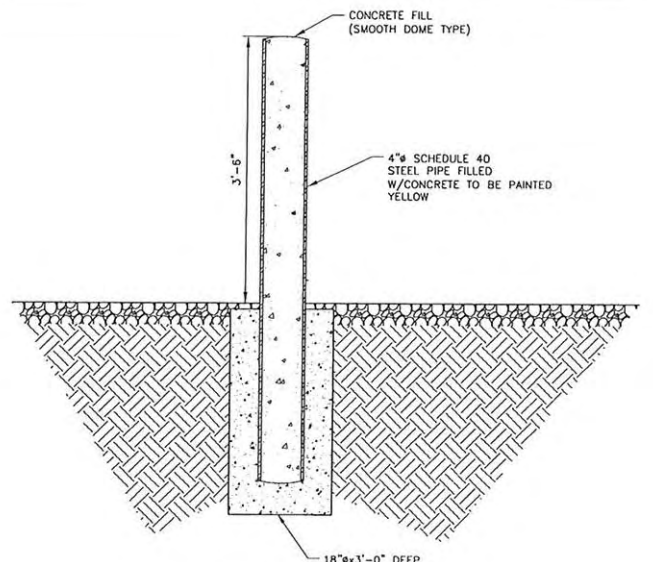
A-2



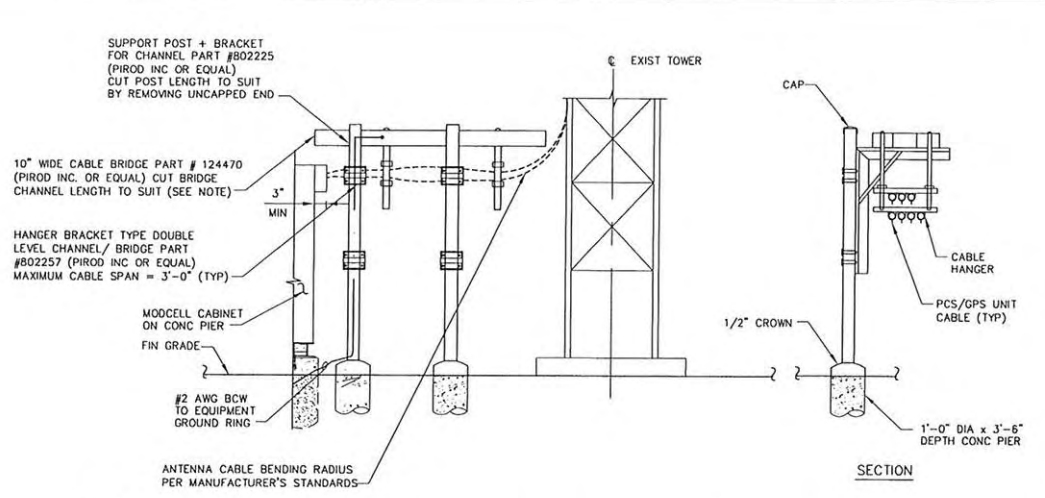
1  
A-2  
ELEVATION  
SCALE: 1" = 30'



1 ANTENNA MOUNTING PLAN  
SCALE: 6" = 1'-0"

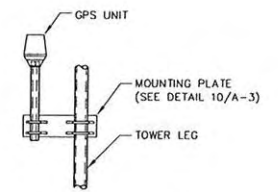


2 BOLLARD SECTION  
SCALE: 3/4" = 1'-0"

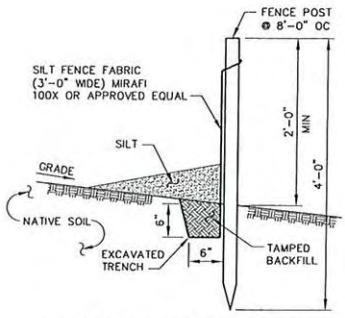


- NOTES:
1. MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 19 FEET FOR 20 FOOT BRIDGE CHANNEL OR 9 FEET FOR 10 FOOT BRIDGE CHANNEL.
  2. CABLE BRIDGE SPLICES SHOULD BE PROVIDED AT A SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE NEAREST SUPPORT.
  3. MAINTAIN A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE CABLE BRIDGE.
  4. CUT BRIDGE CHANNEL SECTIONS SHOULD HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THE EDGES TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.
  5. CABLE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM MANUFACTURERS OTHER THAN PIROD, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
  6. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
  7. DEVIATIONS FROM CABLE BRIDGE FOUNDATIONS SHOWN ON SITE SPECIFIC DRAWINGS OR STANDARD DETAILS REQUIRE ENGINEERING APPROVAL.

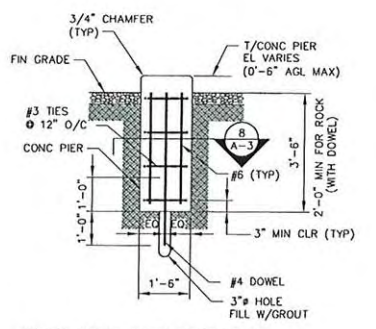
3 CABLE BRIDGE DETAIL  
SCALE: 3/8" = 1'-0"



4 GPS UNIT  
SCALE: 1" = 1'-0"

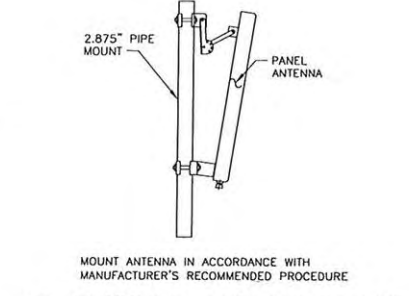
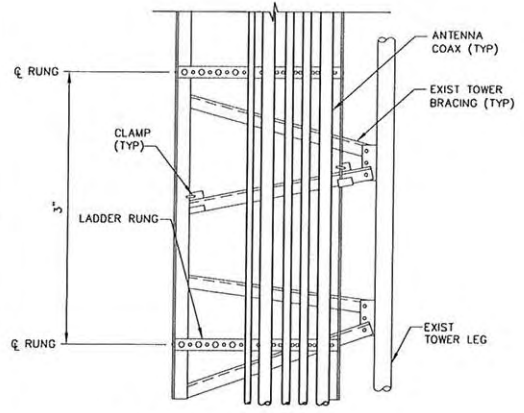


5 SILT FENCE DETAIL  
SCALE: 3/4" = 1'-0"

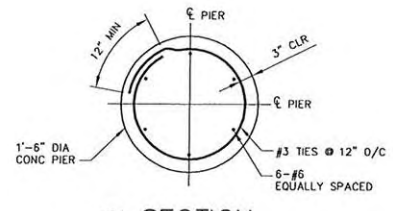


- NOTES:
1. INSTALL DOWELS INTO ROCK ONLY.
  2. FOUNDATION DESIGN IS BASED ON A MINIMUM OF 1,000 PSF SOIL BEARING PRESSURE.

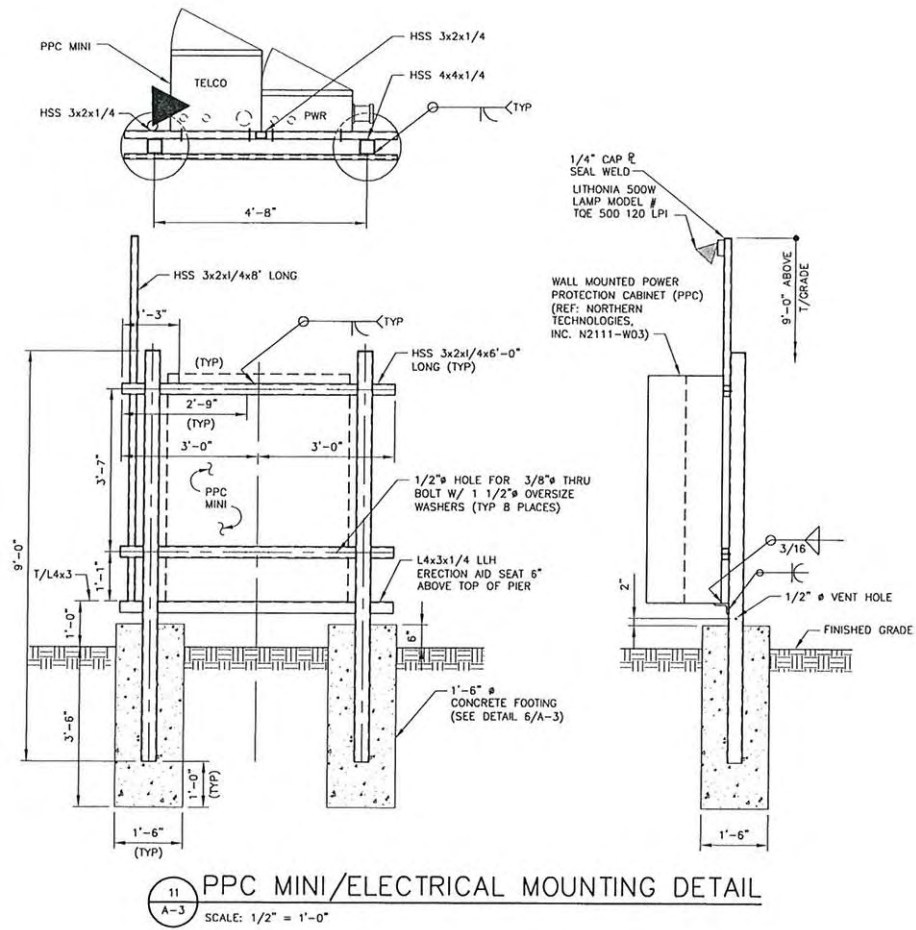
6 PIER DETAIL  
SCALE: 3/8" = 1'-0"



7 ANTENNA MOUNT DETAIL  
SCALE: N.T.S.



8 SECTION  
SCALE: 1" = 1'-0"

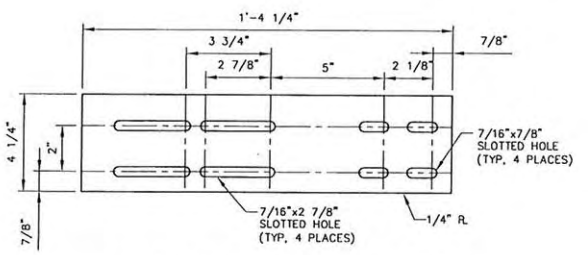


11 PPC MINI/ELECTRICAL MOUNTING DETAIL  
SCALE: 1/2" = 1'-0"

NOTE: COAX STACKED 2 LAYERS BACK TO BACK.

NOMINAL CABLE SIZE	HANGER CABLEWAVE CAT. No.	CABLE TO CABLE SPACING (D)	MAXIMUM HANGER SPACING (Y)
1/2"	915659	1/2"	4'-0"
7/8"	915660	1/2"	4'-0"
1 1/4"	915594	1/2"	4'-0"
1 5/8"	915661	1/2"	4'-0"

9 GUY TOWER  
SCALE: 1" = 1'-0"



10 MOUNTING PLATE DETAIL  
SCALE: 3" = 1'-0"

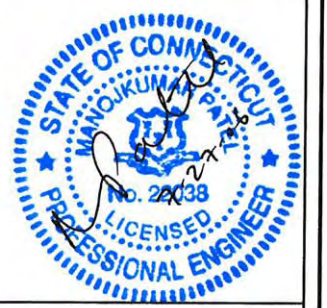


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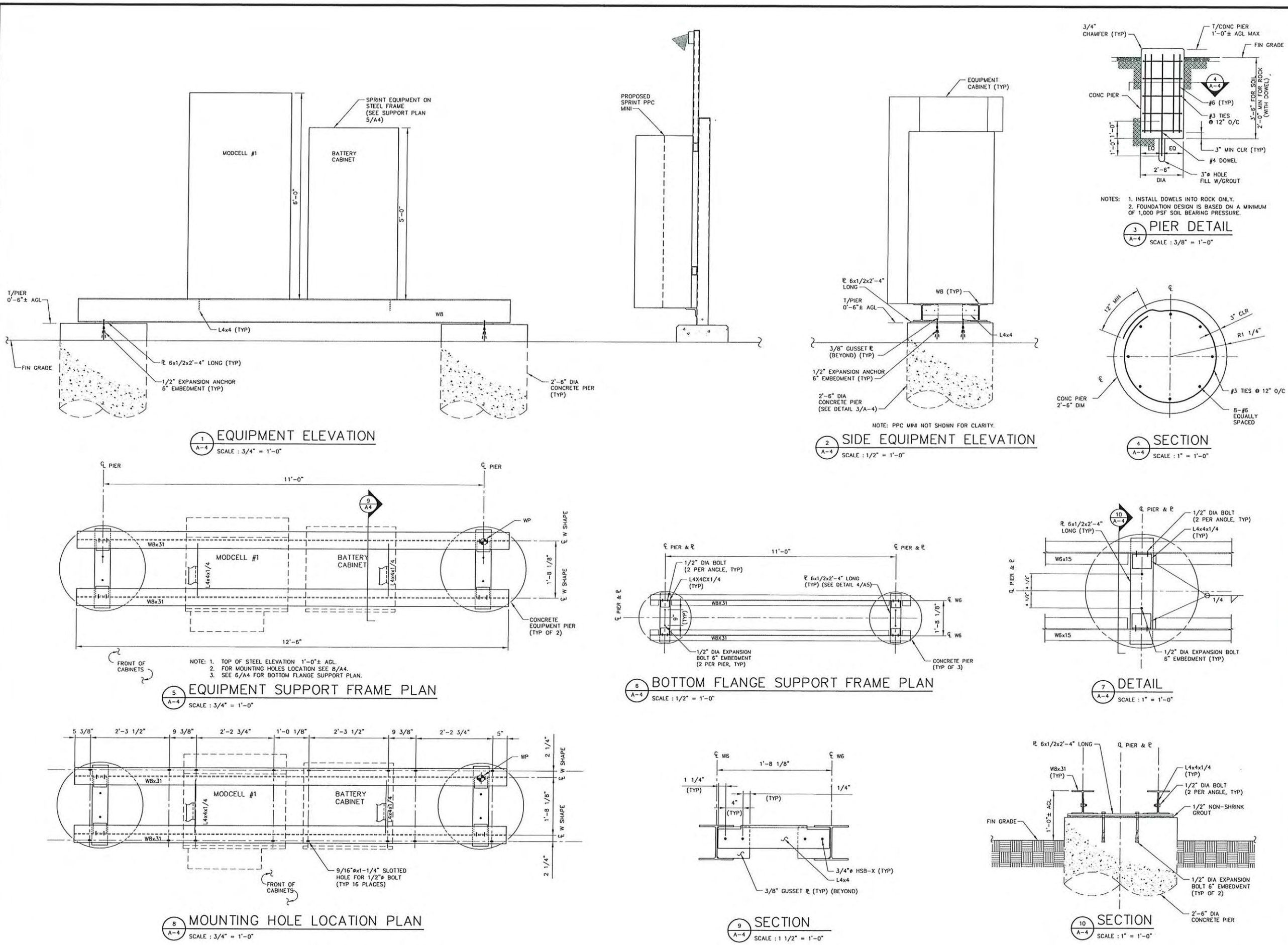


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CT60XC956B  
COX COMMUNICATION TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO LATTICE TOWER

SHEET TITLE  
ANTENNA MOUNTING  
PLAN & DETAILS

SHEET NUMBER  
**A-3**



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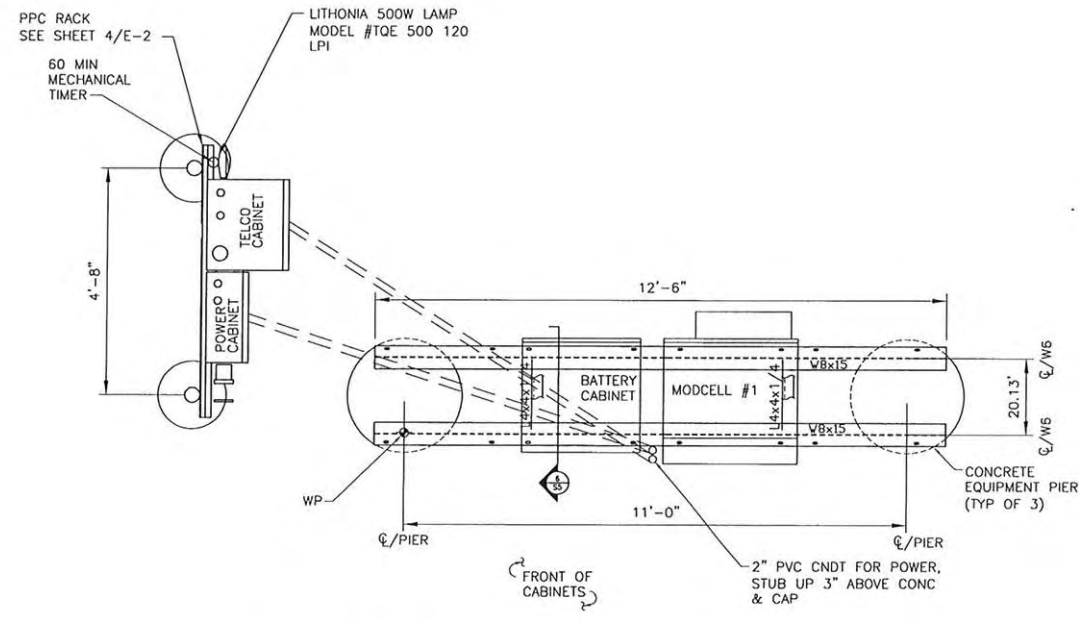


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SHEET TITLE  
EQUIPMENT ELEVATIONS  
& DETAILS

SHEET NUMBER  
**A-4**



- NOTE: 1. TOP OF STEEL ELEVATION 1'-0"± AGL.  
 2. FOR MOUNTING HOLES LOCATION SEE 2/A5.  
 3. SEE 6/A-4 FOR BOTTOM FLANGE SUPPORT PLAN.

**1 EQUIPMENT/FOUNDATION PLAN**  
 SCALE: 1/2" = 1'-0"

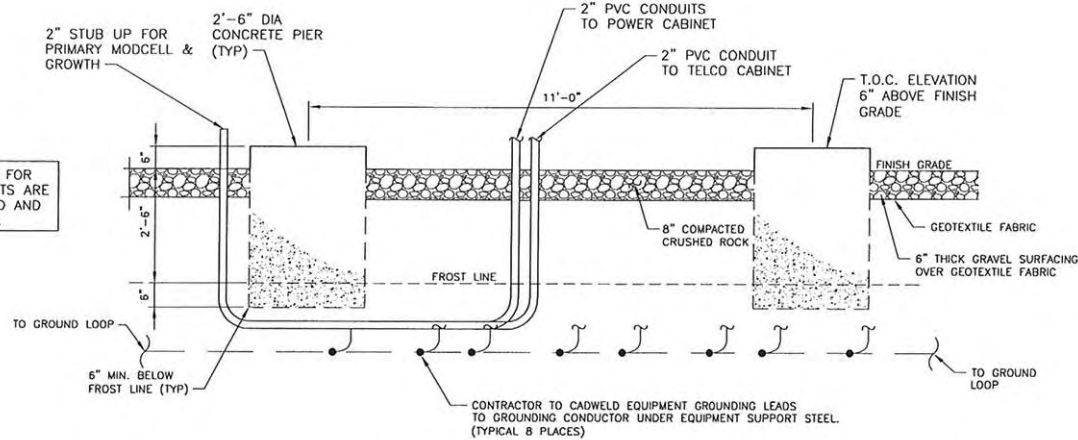
UNIT POWER PANEL SCHEDULE					
200A MAIN	20 CIRCUIT		120/240V		
LUCENT 4.0 MODCELL	80A	1 2	100A	SURGE SUPPRESSOR	
		3 4			
LUCENT 4.0 MODCELL (FUTURE)	80A	5 6	20A	RECEPTACLE	
		7 8	20A	SPARE	
LIGHT	20A	9 10	20A	SPARE	

- NOTES  
 1. COORDINATE EXACT CONNECTIONS TO OWNER PROVIDED EQUIPMENT WITH EQUIPMENT MANUFACTURER  
 2. CONTRACTOR TO FURNISH AND INSTALL ANY AND ALL PULLBOXES. VERIFY TYPE, LOCATION, AND SIZE WITH UTILITY COMPANY.

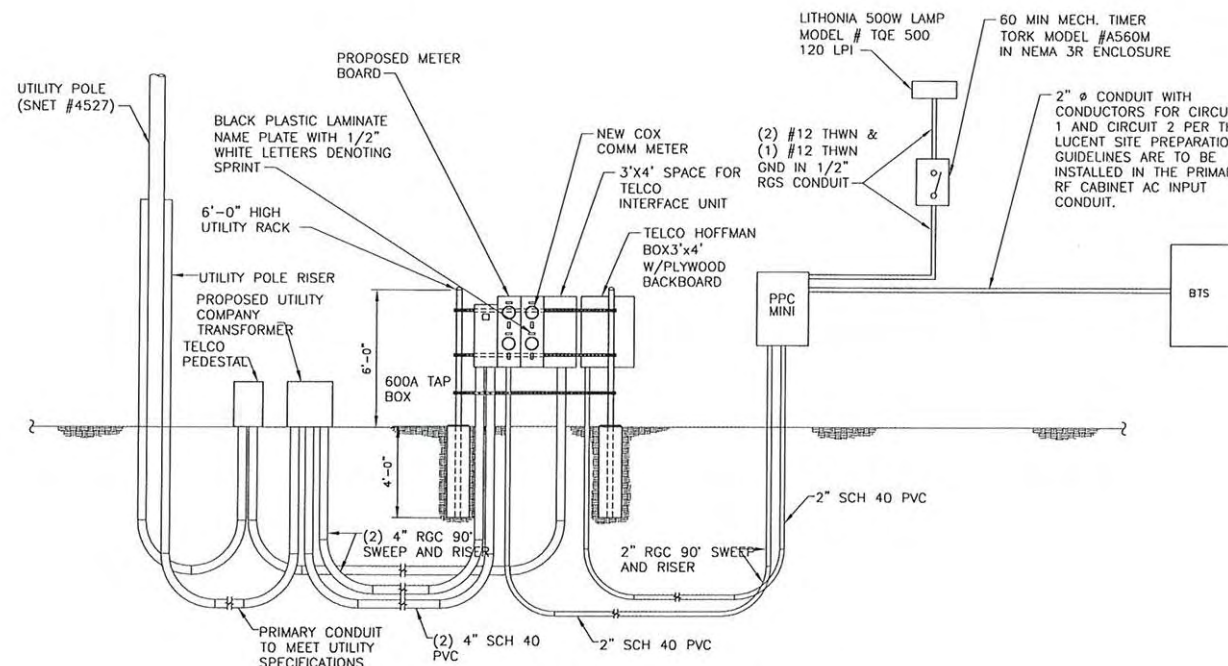
**2 PPC PANEL SCHEDULE**  
 SCALE: NTS

**GENERAL ELECTRICAL NOTES**

- CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATION, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (U.L.) AND SHALL BEAR THE INSPECTION LABEL "UL" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL COVERING BODIES HAVING JURISDICTION, AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
- WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM WITH TYPE THHN INSULATION UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL CONDUCTORS SHALL BE COPPER.
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)
- CONDUIT:
  - RIGID CONDUIT SHALL BE U.L. LISTED RIGID METAL AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS, OR EXPOSED ON THE BUILDING EXTERIOR, AND SHALL HAVE SUITABLE CORROSION PROTECTION.
  - ELECTRICAL METALLIC TUBING (EMT) SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS. NO SET SCREW OR CRIMP TYPE FITTINGS SHALL BE USED.
  - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.
  - CONDUIT SHALL BE SIZED PER THE NEC AND AS SHOWN.
  - CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION.
  - ALL CONDUIT ONLY (C.O.) RUNS SHALL HAVE A PULL WIRE OR ROPE.
- THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL ELECTRIC COMPANY. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND COORDINATION OF THE ELECTRICAL & COMMUNICATION SERVICES WITH THE UTILITY COMPANIES AND SHALL PAY ALL FEES REQUIRED TO COMPLETE THE INSTALLATION.
- COORDINATE THE INSTALLATION OF THE SECONDARY ELECTRIC & COMMUNICATION SERVICES INCLUDING SUPPORTS AND ACCESSORIES AS INDICATED. COORDINATE WITH AND MEET THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY, THE N.E.C. AND ALL APPLICABLE LOCAL AND STATE CODES.
- CONTRACTOR SHALL PROVIDE THE METER SOCKET AND ASSOCIATED EQUIPMENT, BACK BOX, ETC. FOR INSTALLATION OF METER BY UTILITY COMPANY. WORK SHALL BE COORDINATED WITH UTILITY COMPANY.



**3 FOUNDATION SECTION**  
 SCALE: 1/2" = 1'-0"



**4 SERVICE ELEVATION**  
 SCALE: NTS



6580 SPRINT PARKWAY  
 OVERLAND PARK, KANSAS 66251



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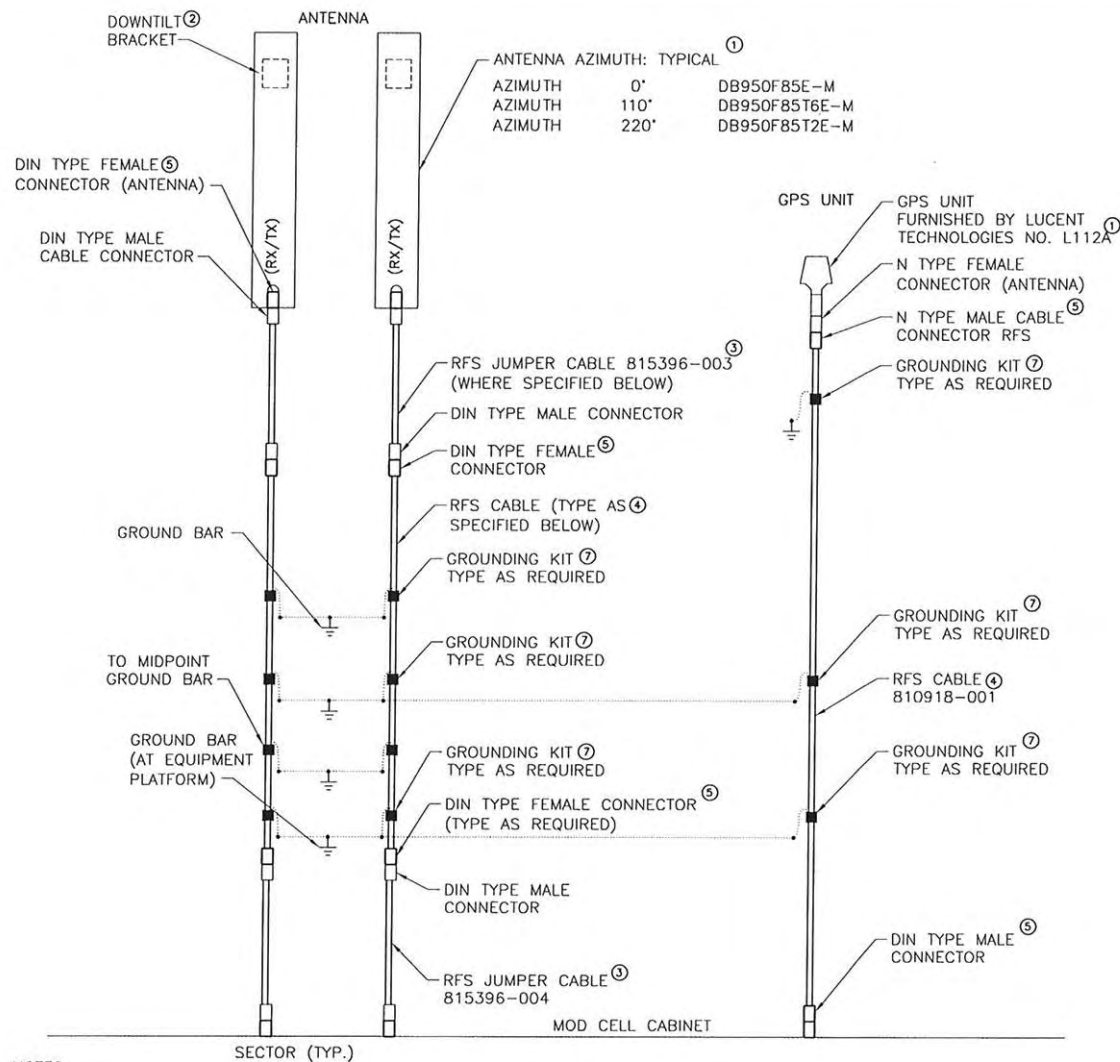
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 COX COMMUNICATION TOWER  
 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504  
 CO-LO LATTICE TOWER

SHEET TITLE  
 EQUIPMENT/FOUNDATION  
 PLAN & DETAILS

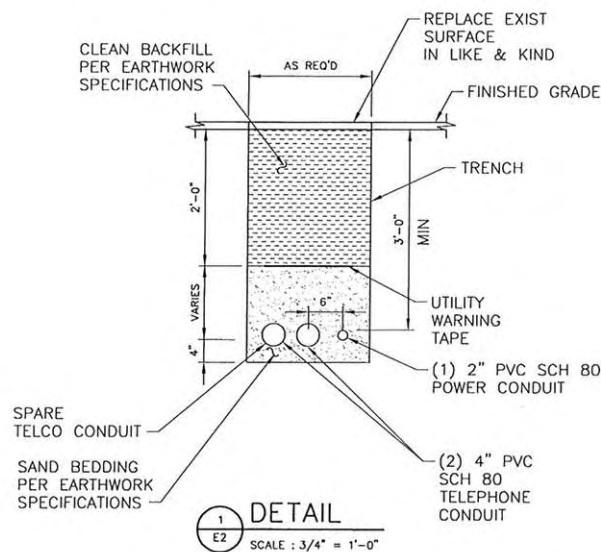
SHEET NUMBER

**E-1**





- NOTES:
- SEE LAYOUT DRAWINGS FOR ANTENNA LOCATION.
  - TOWER MOUNTED ANTENNA.
  - DO NOT INSTALL ANTENNA GROUND KIT ON CABLE BEND.



THIRD PARTY BILL OF MATERIALS					
COX COMMUNICATION TOWER			SITE NO.: CT60XC956B		
ITEM#	DESCRIPTION	QUANTITY (each)	LENGTH (feet each)	TOTAL LENGTH (feet ordered)	GL ACCT.
①	ANTENNAS				
	GPS: L112A	1	N/A	N/A	L112A -
	ALPHA SECTOR: DB950F85E-M	2	N/A	N/A	DB950F85E-M 107001
	BETA SECTOR: DB950F85T6E-M	2	N/A	N/A	DB950F85T6E-M 107001
②	DOWN TILT MOUNTING BRACKETS MODEL NO. DB5098 (DECIBEL)	6	N/A	N/A	DB5098 107001
	JUMPER CABLES				
③	1/2" DIA HELIAX (RFS 815396-003), FITTED W/DIN MALE CONNECTORS AT BOTH ENDS	6	3	N/A	815396-003 107001
	1/2" DIA HELIAX (RFS 815396-004), FITTED W/DIN MALE CONNECTORS AT BOTH ENDS	6	4	N/A	815396-004 107001
④	MAIN CABLES				
	1 5/8" DIA HELIAX COAXIAL CABLE (RFS #810920-001)	6	220'	1520'	810920-001 107001
	1/2" DIA HELIAX (RFS #810918-001), FOR GPS	1	90'	105'	810921-001 107001
⑤	CONNECTORS				
	MALE "DIN" 1/2" (RFS 15565470) FOR GPS	1	N/A	N/A	15565470 107001
	MALE "N" 1/2" (RFS 15566070)	1	N/A	N/A	15566070 107001
	FEMALE "DIN" 1 5/8" (RFS 15575572)	12	N/A	N/A	15575572 107001
⑥	PPC MINI, IN-LINE TYPE, MANUFACTURED BY NORTHERN TECHNOLOGIES #NS252-W201 (200 AMPS)	1	N/A	N/A	NS252-W201 106004
⑦	GROUND KITS:				
	(1/2" RFS 921231-012)	6	N/A	N/A	921231-012 106011
	(1 5/8" RFS # 921231-158)	24	N/A	N/A	921231-158 106011
⑧	WEATHER PROOFING KIT CABLEWAVE # 916132	7	N/A	N/A	916132 106011

- NOTES: 1. THIS BILL OF MATERIAL IS BASED ON INFORMATION FROM RF REPORT DATED FEBRUARY 02, 2004.  
2. THIS BILL OF MATERIALS IS FOR A TOTAL OF 1 ANTENNAS WITH 2 CABLES PER SECTOR

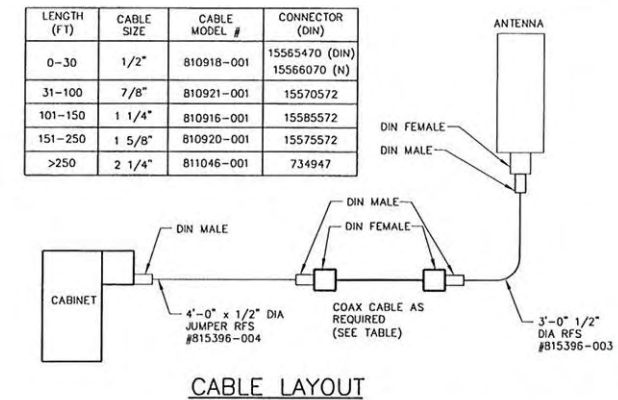
SECTOR	AZIMUTH	MODEL #	NUMBER
1	0°	DB950F85E-M	2
2	110°	DB950F85T6E-M	2
3	220°	DB950F85T2E-M	2

ANTENNA MANUFACTURER: DECIBEL

ANTENNA DIMENSIONS: DB950F85E-M  
LENGTHxWIDTHxDEPTH & WEIGHT: 60"x4"x7" 11.5 LBS

ANTENNA DIMENSIONS: DB950F85T6E-M  
LENGTHxWIDTHxDEPTH & WEIGHT: 60"x4"x7" 11.5 LBS

ANTENNA DIMENSIONS: DB950F85T2E-M  
LENGTHxWIDTHxDEPTH & WEIGHT: 60"x4"x7" 11.5 LBS



FROM/TO	ALPHA COAX CABLE TYPE/SIZE	DOWNTILT=0°		BETA COAX CABLE TYPE/SIZE	DOWNTILT=4°		GAMMA COAX CABLE TYPE/SIZE	DOWNTILT=1°		GPS UNIT	
		LENGTH (FT)*	TX/RX		LENGTH (FT)*	TX/RX		LENGTH (FT)*	TX/RX	COAX CABLE TYPE/SIZE	LENGTH (FT)*
ANTENNA TO MAIN CABLE	815396-003 1/2"	3	3	815396-003 1/2"	3	3	815396-003 1/2"	3	3	N/A	N/A
ANTENNA JUMPER CABLE TO JUMPER CABLE AT MODCELL	810920-001 1 5/8"	220	220	810920-001 1 5/8"	220	220	810920-001 1 5/8"	220	220	810918-001 1/2"	90'
MAIN CABLE TO MODCELL CABINET	815396-004 1/2"	4	4	815396-004 1/2"	4	4	815396-004 1/2"	4	4	N/A	N/A

\* ESTIMATED LENGTHS FROM AVAILABLE INFORMATION.

- NOTES: 1. TYPES AND SIZES OF THE ANTENNA CABLES ARE BASED ON THE ESTIMATED LENGTH OF THE CABLES. CONTRACTOR TO VERIFY THE ACTUAL LENGTHS IN THE FIELD BEFORE INSTALLATION AND NOTIFY THE FIELD ENGINEER FOR VERIFICATION OF SIZES OF THE CABLES.  
2. FIELD ENGINEER TO UPDATE THE LENGTH OF CABLES ON AS-BUILT DRAWINGS

TYPICAL ANTENNA CABLE CONFIGURATION



6580 SPRINT PARKWAY  
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PROJECT NO: 2850.CT956  
DRAWN BY: WRB  
CHECKED BY: DML

REV	DATE	DESCRIPTION
5	7/25/06	PER RF COMMENTS
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2	4/18/06	PER COMMENTS
1	4/04/06	PER CONST. COMMENTS
0	3/25/04	FOR ZONING
A	2/19/04	ISSUE FOR COMMENTS

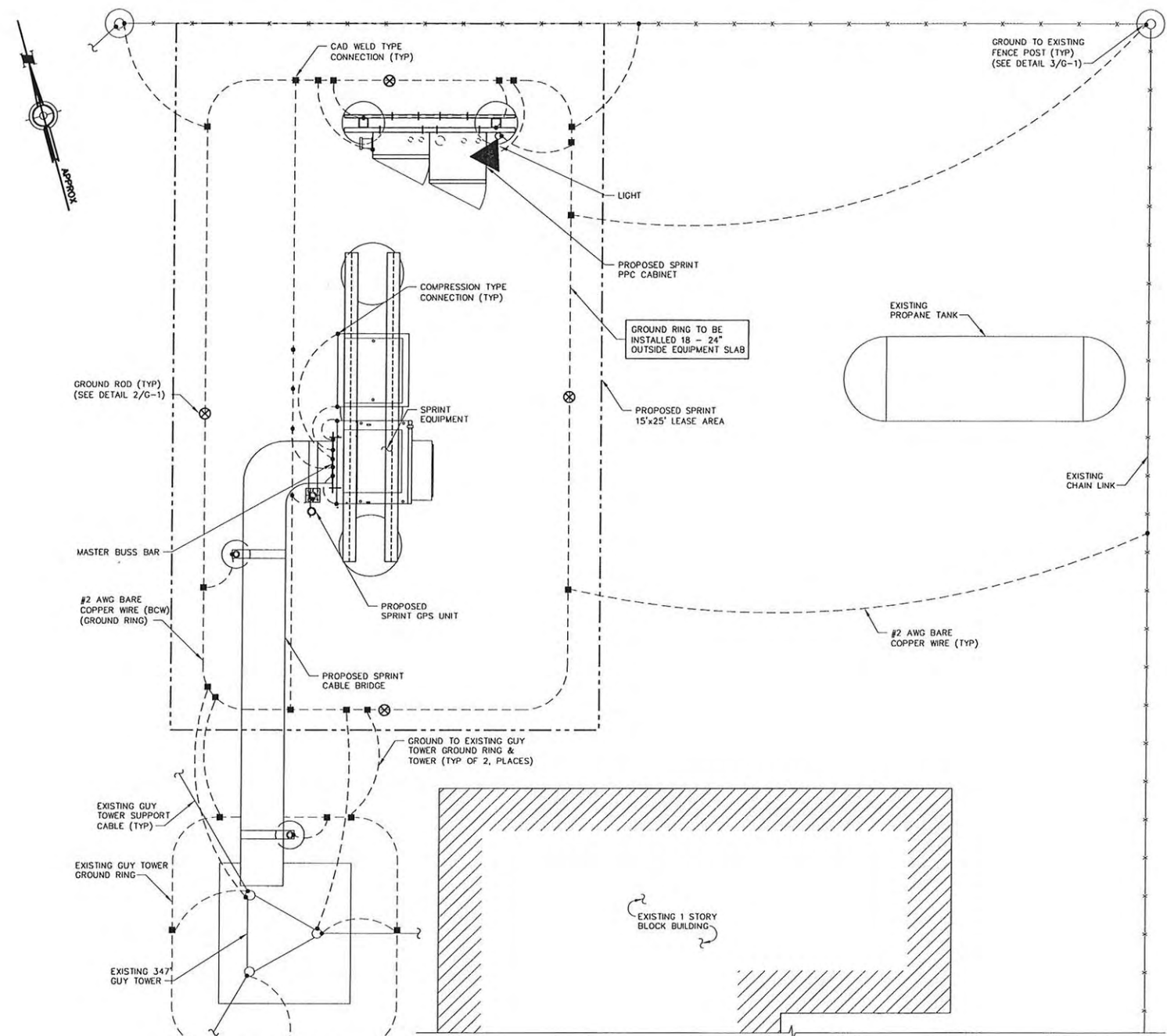


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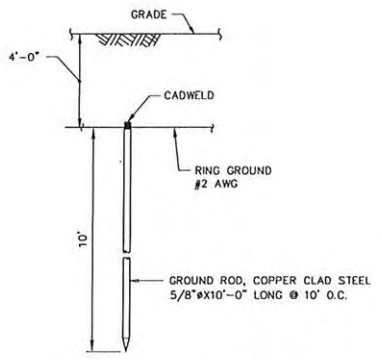
CT60XC956B  
COX COMMUNICATION TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO LATTICE TOWER

SHEET TITLE  
ANTENNA SCHEMATIC & MATERIALS LIST

SHEET NUMBER  
E-2



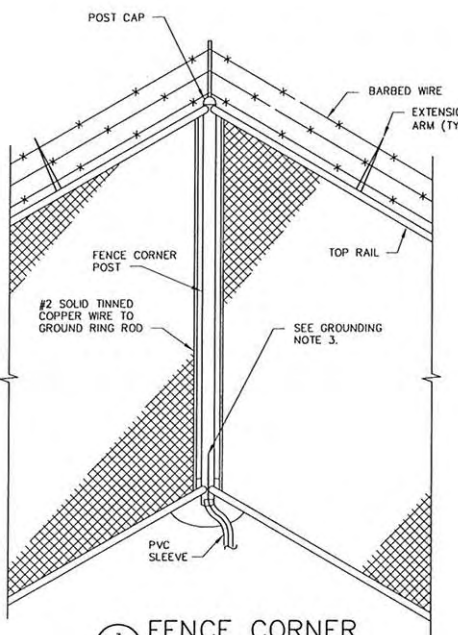
**1 GROUNDING PLAN**  
SCALE : 3/8" = 1'-0"



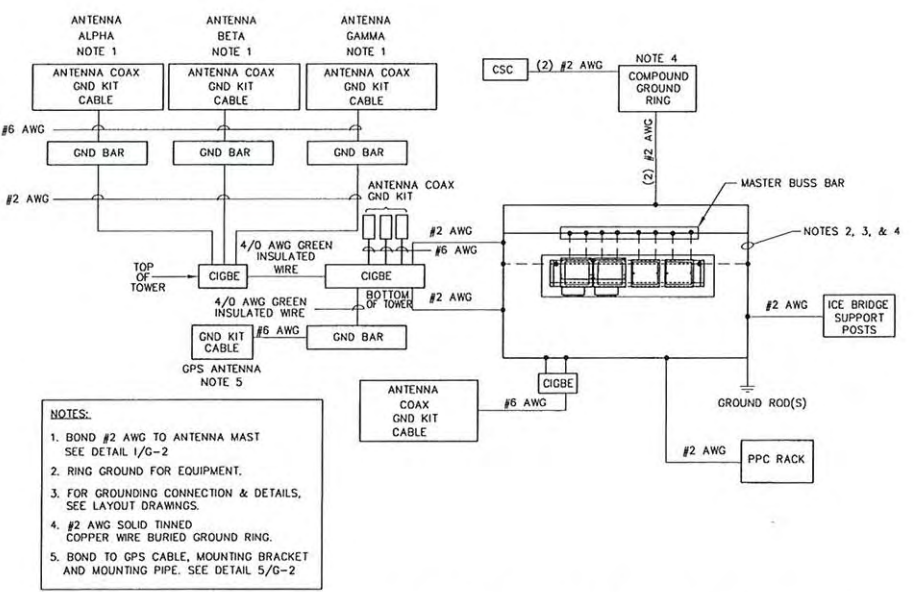
**2 GROUND ROD**  
SCALE : NTS

**LEGEND**

- EXIST #2 SOLID TINNED COPPER WIRE
- #2 GREEN INSULATED COPPER WIRE
- GROUND LUG
- CAD WELD
- GROUND WIRE



**3 FENCE CORNER**  
SCALE : NONE



- NOTES:**
1. BOND #2 AWG TO ANTENNA MAST SEE DETAIL 1/G-2
  2. RING GROUND FOR EQUIPMENT.
  3. FOR GROUNDING CONNECTION & DETAILS, SEE LAYOUT DRAWINGS.
  4. #2 AWG SOLID TINNED COPPER WIRE BURIED GROUND RING.
  5. BOND TO GPS CABLE, MOUNTING BRACKET AND MOUNTING PIPE. SEE DETAIL 5/G-2

**4 SCHEMATIC DIAGRAM GROUNDING SYSTEM**  
SCALE : NTS

**GROUNDING NOTES**

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL WIRE CONNECTORS SHALL BE THREE-CRIMP C TAP COMPRESSION, T&B 54740, ORANGE.
3. ALL GROUND CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #1B8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
6. ALL COPPER BARS SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL RADIUS.
8. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY VERIZON FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
10. WAVEGUIDE PORT AND BRIDGE SHALL BE GROUNDED TO THE EXTERNAL GROUND BAR LOCATED BELOW THE WAVEGUIDE ENTRY PORT, WITH #6 SOLID WIRE. THESE CONNECTIONS SHALL BE DOUBLE LUG-BOLTED, SCREWED MECHANICAL CONNECTIONS WITH STAR WASHERS AND NO-OX GREASE.
11. INTERNAL GROUND RING SHALL BE #2 AWG, GREEN-INSULATED, STRANDED COPPER WIRE, CLOSED LOOP, FOUR INCHES ABOVE THE CABLE LADDER AROUND THE PERIMETER OF THE ROOM.
12. SUPPORTS SHALL BE T&B #TCS376 OR PANDUIT #PP25-S10-X STANDOFFS. THE STANDOFFS SHALL BE MOUNTED ON 16-INCH CENTERS, BOTH HORIZONTALLY AND VERTICALLY, AND AT THE SAME ELEVATION AROUND THE ROOM. THE #2 GREEN WIRE SHALL BE ATTACHED TO THE STANDOFFS WITH NATURAL NYLON CABLE TIES.
13. ALL ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BAR. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE. ALL GROUND BARS SHALL BE INDEPENDENTLY TIED TO THE EXISTING GROUNDING SYSTEM.
14. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO VERIZON.
15. A GROUND BAR SHALL BE LOCATED AT THE CABLE ENTRY & EXIT OF ROOM AND AT EVERY SECTOR LOCATION FOR GROUNDING OF THE ANTENNAS & THEIR CABLES. GROUND BARS SHALL BE SIMILAR TO DETAIL 4/G-1.
16. GROUNDING CLAMPS SHALL BE BURNDY GAR-TC OR EQUAL. PREPARE SURFACE PER BURNDY SPECIFICATIONS.



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PROJECT NO: 2850.CT956  
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CT60XC956B  
COX COMMUNICATION TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO LATTICE TOWER

SHEET TITLE  
GROUNDING PLAN,  
DETAILS & NOTES

SHEET NUMBER  
**G-1**



6580 SPRINT PARKWAY  
OVERLAND PARK, KANSAS 66251

**TECTONIC** : PLANNING  
: ENGINEERING  
: SURVEYING  
: CONSTRUCTION MANAGEMENT

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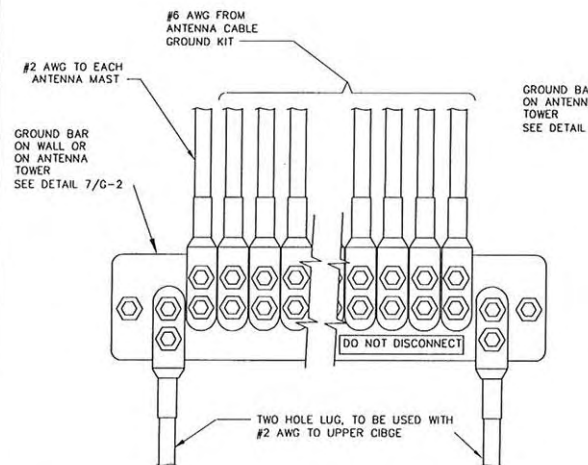
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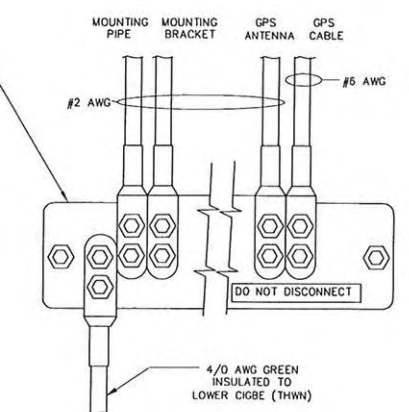
SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

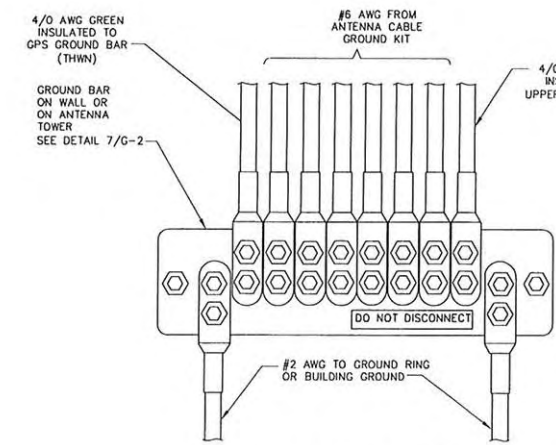
G-2



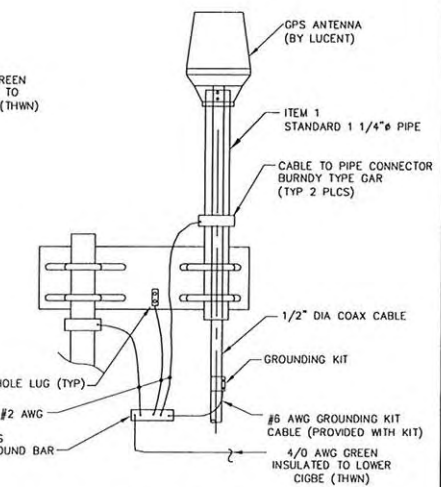
**1**  
G-2  
INSTALLATION OF GROUND WIRE TO SECTOR GROUND BAR  
SCALE: NTS



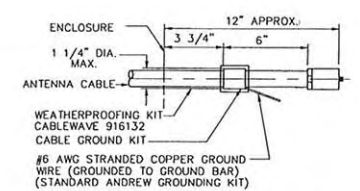
**2**  
G-2  
INSTALLATION OF GROUND WIRE TO GPS GROUND BAR  
SCALE: NTS



**3**  
G-2  
INSTALLATION OF GROUND WIRE TO CIGBE  
SCALE: NTS

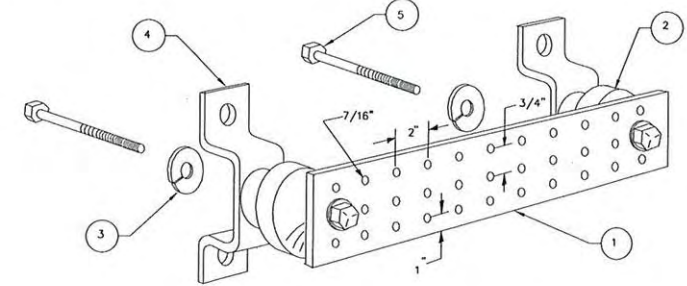


**4**  
G-2  
GPS GROUNDING  
SCALE: NTS



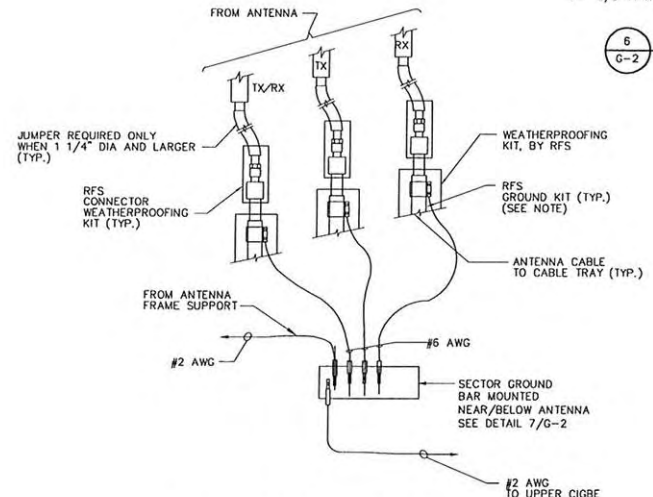
NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

**5**  
G-2  
DETAIL  
SCALE: NTS

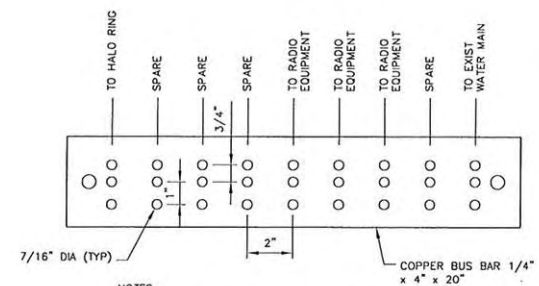


- LEGEND
- 1- TINNED COPPER GROUND BAR, 1/2" x 4" x 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
  - 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
  - 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-B
  - 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056
  - 5- 5/8-11 x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1

**6**  
G-2  
GROUND BAR DETAIL  
SCALE: NTS

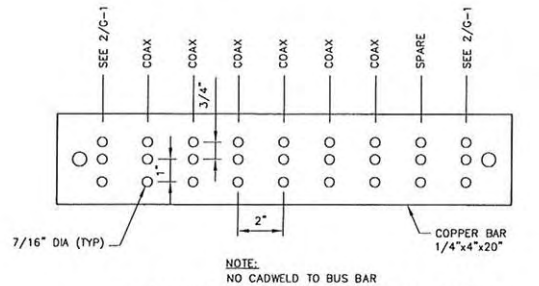


**7**  
G-2  
CONNECTION OF GROUND WIRES TO GROUND BAR AT EACH SECTOR (CIGBE)  
SCALE: NTS

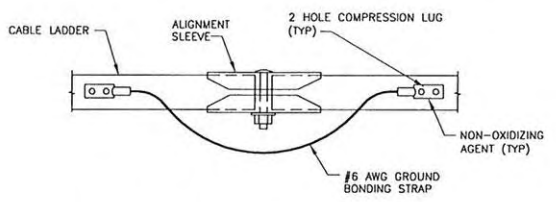


- NOTES:
- 1. ALL CONDUCTORS 2 AWG (UON) WITH 2 HOLE LUGS.
  - 2. ALL FIELD SIZED LUGS SHALL CONFORM WITH NEMA STANDARDS

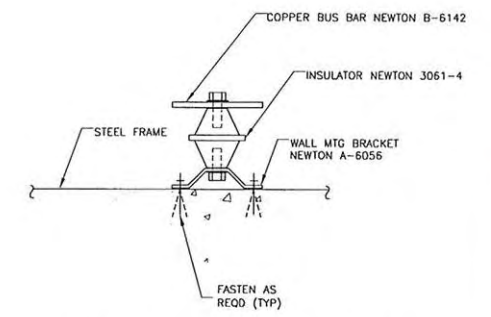
**8**  
G-2  
MASTER GROUND BAR DETAIL  
SCALE: 3" = 1'-0"



**9**  
G-2  
EXTERIOR BUS BAR DETAIL  
SCALE: 3" = 1'-0"

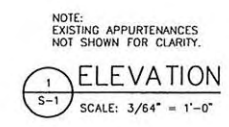
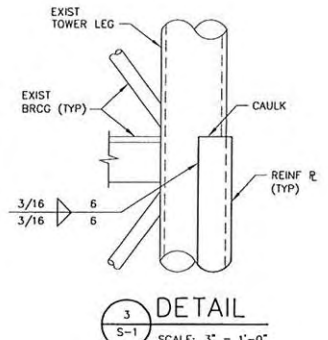
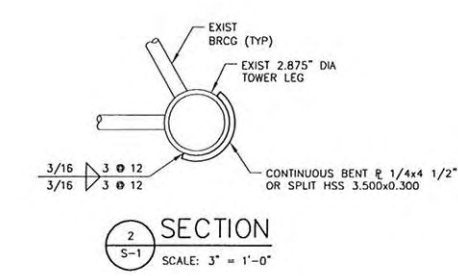
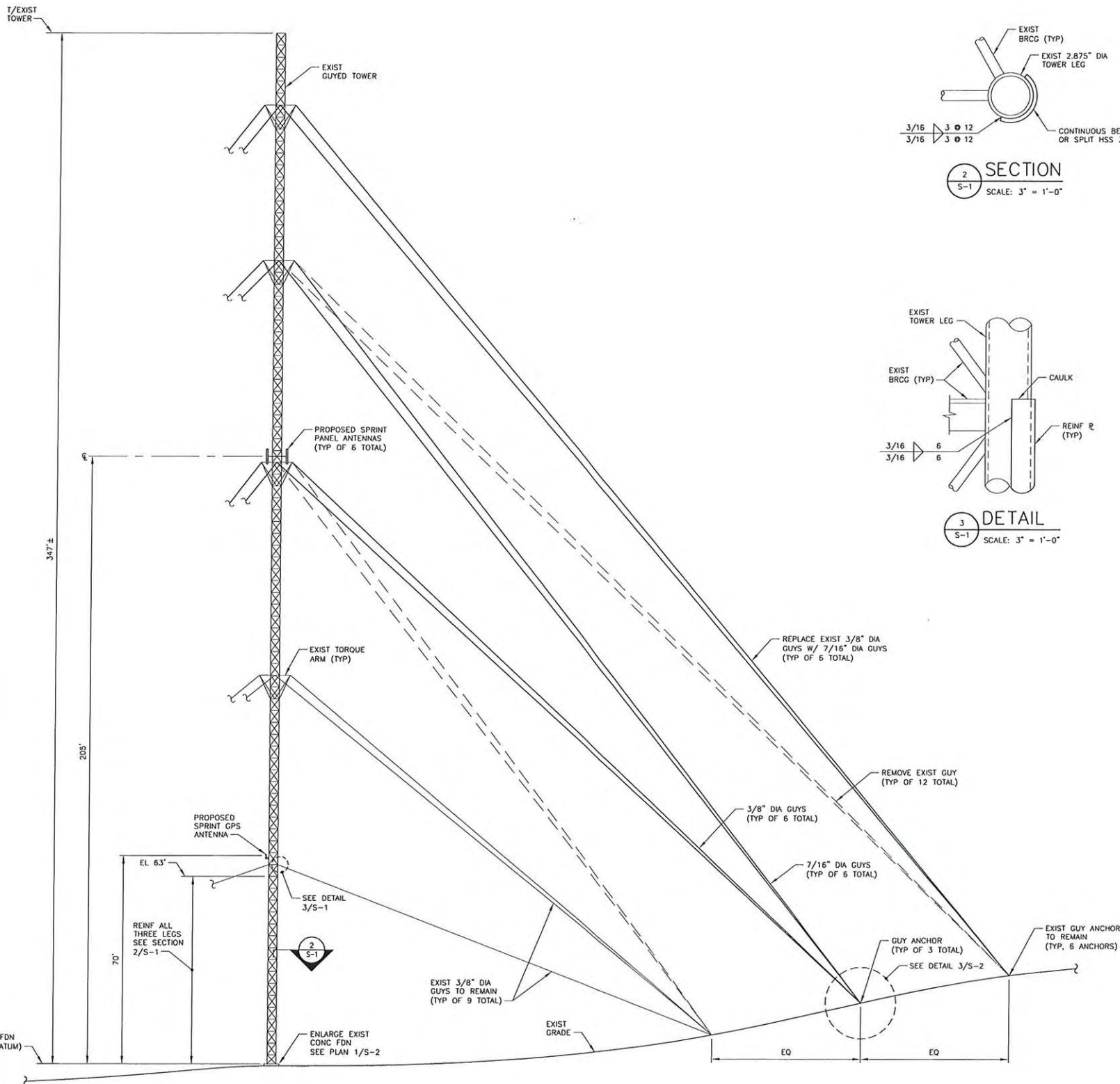


**10**  
G-2  
GROUNDING DETAIL  
SCALE: N.T.S.



**11**  
G-2  
GROUND BAR DETAIL  
SCALE: N.T.S.

NOTE: KOPPERSHIELD ANTI-CORROSION COMPOUND SHALL BE APPLIED AT ALL LUG CONNECTIONS



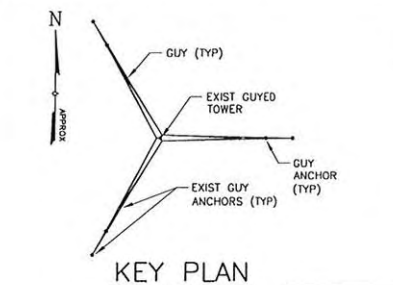
**NOTES**

- REINFORCEMENT OF THE EXISTING TOWER HAS BEEN DESIGNED TO SUPPORT THE ANTENNAS AND CABLES LISTED IN THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C.
- TOWER REINFORCEMENT IS DESIGNED IN CONFORMANCE TO ANSI/TIA-222-G-2005, "STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN".
- CONTRACTOR SHALL INSPECT THE EXISTING STRUCTURE PRIOR TO STARTING ANY WORK. IF CONDITIONS OR MATERIALS FOUND IN THE FIELD DIFFER FROM THOSE INDICATED, CONTACT THE ENGINEER FOR APPROVAL.
- PROTECT EXISTING CABLES AND EQUIPMENT FROM DAMAGE DURING INSTALLATION OF ANTENNAS AND REINFORCING.
- ALL TOWER REINFORCEMENT SHALL BE COMPLETED PRIOR TO INSTALLATION OF PROPOSED ANTENNAS, MOUNTS, AND CABLES.
- ALL WORK SHALL BE PERFORMED IN CALM WEATHER, WITH WIND GUSTS LESS THAN 10 MPH.
- NO EXISTING GUYS SHALL BE REMOVED PRIOR TO INSTALLATION AND TENSIONING OF NEW GUYS.
- PROVIDE TEMPORARY GUYS AS REQUIRED TO MAINTAIN STABILITY OF THE TOWER.
- GUY WIRE SHALL BE EXTRA HIGH-STRENGTH GRADE (TYPE EHS), SEVEN WIRE STRANDED STEEL CABLE CONFORMING TO ASTM A475 "ZINC-COATED STEEL WIRE STRAND", LATEST EDITION, MINIMUM BREAKING STRENGTH SHALL BE 20,800 LBS FOR 7/16" DIAMETER GUYS, AND 15,400 LBS FOR 3/8" DIAMETER GUYS. ZINC-COATING SHALL BE CLASS A. GUY LENGTH SHALL BE DETERMINED IN FIELD BY THE CONTRACTOR.
- GUY COMPONENTS AND HARDWARE SHALL BE AS MANUFACTURED BY VALMONT STRUCTURES. ALL MATERIALS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- GUYS SHALL BE INSTALLED AT A TEMPERATURE OF 60° F, UNLESS OTHERWISE APPROVED BY OWNER. TENSION SHALL BE ADJUSTED TO COMPENSATE FOR AMBIENT TEMPERATURE CONDITIONS. 7/16" DIAMETER GUYS SHALL BE TENSIONED TO 2,100 ±210 LBS. 3/8" DIAMETER GUYS SHALL BE TENSIONED TO 1,500 ±150 LBS.
- STEEL PLATES SHALL CONFORM TO ASTM A572 "HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL".
- HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES", GRADE B.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL GUY ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS".
- FIELD VERIFY LENGTHS OF ALL MATERIAL PRIOR TO FABRICATION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
- WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL".
- REMOVE ALL GALVANIZING IN AREAS TO BE WELDED BY GRINDING. AFTER WELDING, PROTECT ALL EXPOSED STEEL AND WELDS BY COLD GALVANIZING.
- SPACES BETWEEN INTERMITTENT WELDS SHALL BE FILLED USING CHEM-CALK 500 AS MANUFACTURED AND MARKETED BY BOSTIK SEALANTS, MIDDLETON, MA 01949 (800) 523-2678 OR APPROVED EQUAL.
- ALL WELDING TO THE TOWER SHALL BE PERFORMED WITH E70XX LOW HYDROGEN ELECTRODES. LOW HYDROGEN ELECTRODES SHALL BE PURCHASED IN HERMETICALLY SEALED CONTAINERS AND SHALL BE USED WITHIN 4 HOURS AFTER OPENING THE CONTAINER. ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE REDRIED AT A TEMPERATURE BETWEEN 450F AND 500F FOR AT LEAST 2 HOURS AND THEN STORED AT 250F. REDRIED ELECTRODES SHALL BE USED WITHIN 4 HOURS AFTER REMOVAL FROM THE STORAGE OVEN. REDRIED ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE DISCARDED.
- ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR PRIOR TO INSTALLATION OF THE PROPOSED ANTENNAS.
- GROUT SHALL BE NON-METALLIC, NON-SHRINK PREPACKAGED GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS.
- GROUNDING SYSTEM SHALL BE CHECKED AND UPGRADED AS NECESSARY, AS DIRECTED BY THE CONSTRUCTION MANAGER.
- REMOVE EXISTING SAFETY WIRES AND INSTALL NEW SAFETY WIRES AS SHOWN AT ALL GUY ANCHORS. SAFETY WIRE SHALL BE SEVEN WIRE STRANDED STEEL CABLE CONFORMING TO ASTM A475, INSTALLED AS PER VALMONT STRUCTURES' RECOMMENDATIONS.

**HARDWARE SCHEDULE**

MANUFACTURER	ITEM	SIZE	PART NUMBER	QUANTITY
	ROD-TYPE GUY ANCHOR	-	125966	3
	JAW & JAW TURNBUCKLE	3/4"x12"	320602	12
	JAW & JAW TURNBUCKLE	5/8"x12"	320601	6
	SHACKLE	3/4"	320753	12
	SHACKLE	5/8"	320752	6
VALMONT STRUCTURES	THIMBLE	7/16"	320779	24
	THIMBLE	3/8"	320778	12
	PREFORMED DEAD-END GRIP	7/16"	320504	24
	PREFORMED DEAD-END GRIP	3/8"	320503	12
	END SLEEVE	7/16"	320554	24
	END SLEEVE	3/8"	320553	12

THIS IS A PARTIAL LIST OF HARDWARE REQUIRED TO PERFORM THE WORK INDICATED. CONTRACTOR SHALL PROVIDE ALL TEMPORARY AND MISCELLANEOUS HARDWARE AND ADDITIONAL ITEMS NECESSARY FOR A COMPLETE JOB. ALL HARDWARE USED SHALL HAVE A BREAKING STRENGTH OF NOT LESS THAN 20,800 LBS FOR 7/16" DIAMETER GUYS, AND 15,400 LBS FOR 3/8" DIAMETER GUYS.



**DESIGN REACTIONS**

GUY ANCHORS	
MAXIMUM UPLIFT	22.4 K
MAXIMUM SHEAR	21.8 K
TOWER BASE	
MAXIMUM COMPRESSION	214.1 K
MAXIMUM SHEAR	41.7 K

THIS DRAWING SUPERSEDES DRAWINGS S-1 & S-2 BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., DATED 2/23/05.



6580 SPRINT PARKWAY  
OVERLAND PARK, KANSAS 66251

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ROCKY HILL, CT 06067  
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Fax: (860) 257-4882  
www.tectonicengineering.com

PROJECT NO: 2850.CT956

DRAWN BY: MB

CHECKED BY: JBK

REV	DATE	DESCRIPTION
C	7/25/06	PER COMMENTS
B	5/27/06	PER COMMENTS
A	6/21/06	FOR CONSTRUCTION
-	2/23/05	FOR APPROVAL

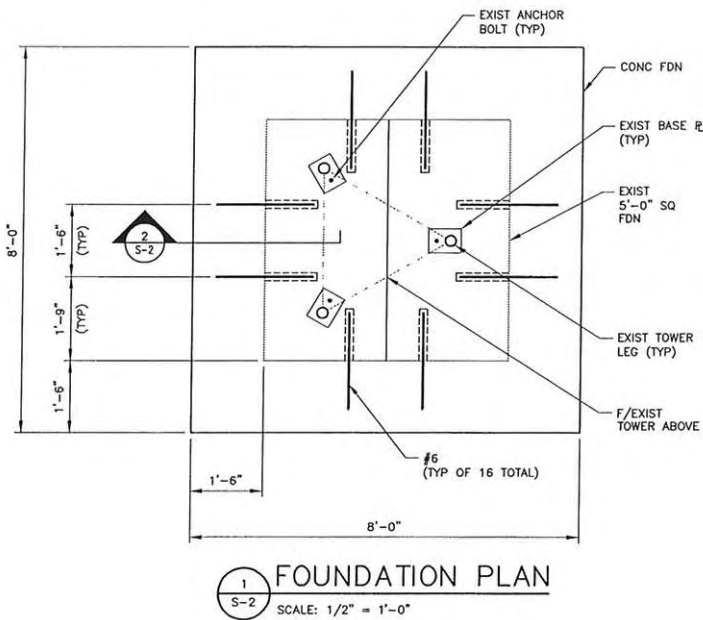


THIS PLAN IS NULL AND VOID UNLESS SIGNED WITH AN ORIGINAL BLUE WET STAMP

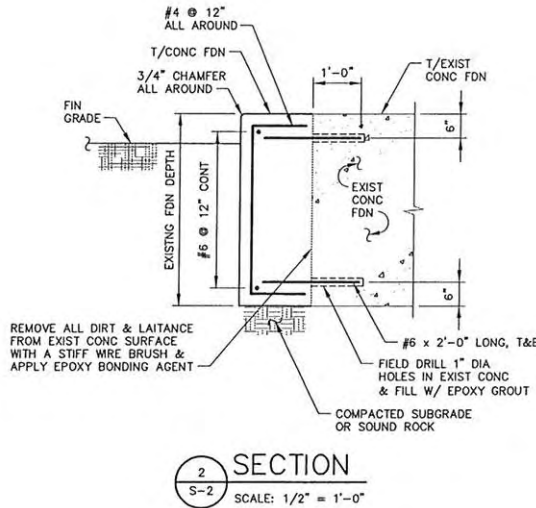
CT60XC956B  
COX COMMUNICATIONS TOWER  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504  
CO-LO GUYED TOWER

SHEET TITLE  
TOWER REINFORCEMENT  
ELEVATION & DETAILS

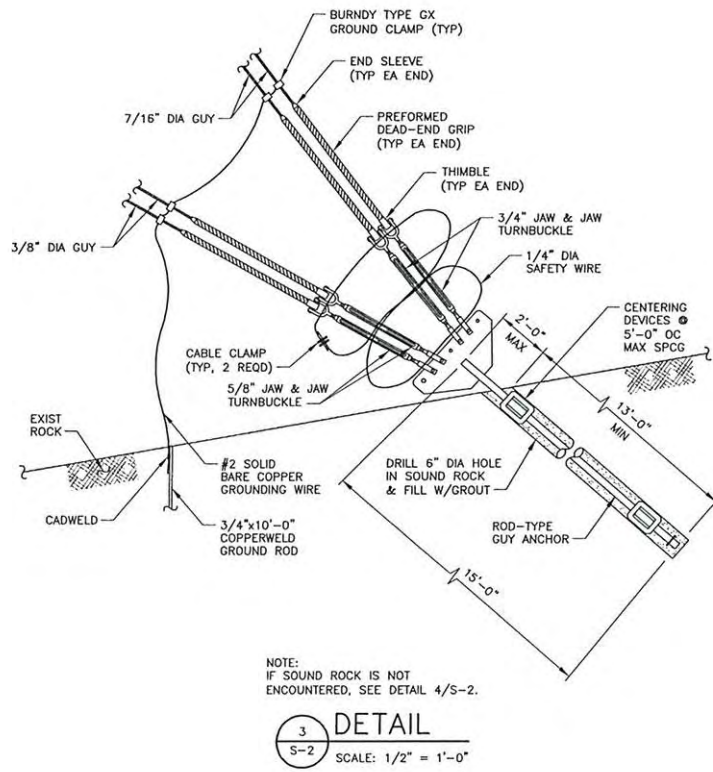
SHEET NUMBER  
**S-1**



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

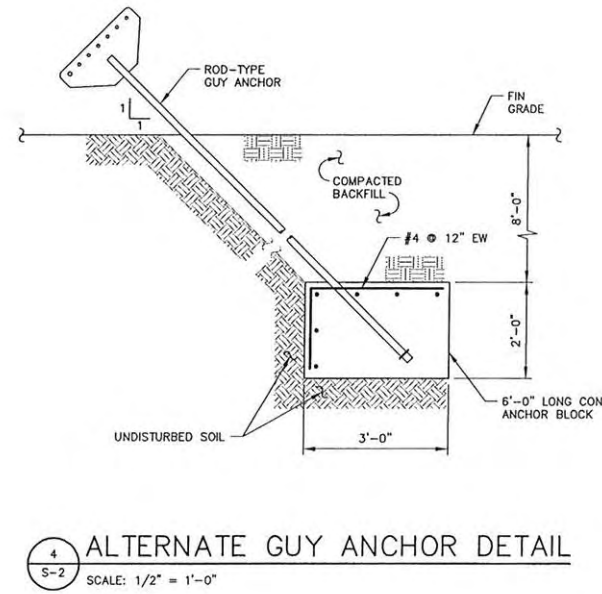


2 SECTION  
SCALE: 1/2" = 1'-0"



NOTE:  
IF SOUND ROCK IS NOT  
ENCOUNTERED, SEE DETAIL 4/S-2.

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



4 ALTERNATE GUY ANCHOR DETAIL  
SCALE: 1/2" = 1'-0"

NOTES

EARTHWORK

1. ALL EXCAVATIONS SHALL BE DEWATERED BY SUMPING, PUMPING, ETC. IN A MANNER WHICH WILL NOT LOOSEN FOUNDATION SUBGRADE MATERIAL. SURFACE WATER SHALL BE DIVERTED AWAY FROM EXCAVATIONS BY MEANS OF BERMS, DIVERSION DITCHES, OR OTHER SUITABLE METHODS.
2. CONTRACTOR SHALL MAINTAIN A GROUND WATER LEVEL AT LEAST 2 FEET BELOW THE BOTTOM OF EXCAVATION AT ALL TIMES.
3. CONFINED EXCAVATIONS FOR FOUNDATIONS, UTILITIES, ETC. SHALL BE LIMITED TO 4 FEET IN DEPTH UNLESS SHORING AND BRACING IS USED. TRENCH EXCAVATION GEOMETRY AND/OR BRACING SHALL CONFORM WITH OSHA REQUIREMENTS.
4. IF ENCOUNTERED, UNSUITABLE MATERIALS SUCH AS ORGANIC MATERIAL AND SOFT SOIL SHALL BE REMOVED AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
5. BACKFILL SHALL BE PLACED IN MAXIMUM 8" LIFTS AND COMPACTED WITH SUITABLE COMPACTION EQUIPMENT. UNLESS OTHERWISE INDICATED, ALL FILL SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 "LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT (56,000 FT-LBF/FT<sup>3</sup> (2,700 KN-M/M<sup>3</sup>))". IN CONFINED AREAS WHERE ONLY HAND TAMPING IS FEASIBLE, FILL SHALL BE PLACED IN MAXIMUM 4 INCH LIFTS AND COMPACTED TO THE AFOREMENTIONED CRITERIA.

CONCRETE

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318.
2. ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 4,000 PSI.
3. CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C150 "PORTLAND CEMENT" - TYPE I OR II.
4. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, "DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60.
5. CONCRETE WORK AND MATERIALS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "SPECIFICATIONS FOR STRUCTURAL CONCRETE", ACI 301.
6. CONCRETE AGGREGATES SHALL BE NORMAL WEIGHT, CONFORMING TO ASTM C33 "CONCRETE AGGREGATES". MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 1 1/2".
7. CHLORIDE-CONTAINING ADMIXTURES SHALL NOT BE USED.
8. CONCRETE SLUMP SHALL NOT EXCEED 5 INCHES UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER. SLUMP SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C143 "SLUMP OF HYDRAULIC CEMENT CONCRETE".
9. PROVIDE AIR ENTRAINMENT IN EXTERIOR EXPOSED CONCRETE TO OBTAIN TOTAL AIR CONTENT OF 5 ±1% IN ACCORDANCE WITH ACI 301.
10. FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH, CONCRETE COVER FOR REINFORCING SHALL BE:  
3" FOR ALL BARS  
FOR CONCRETE EXPOSED TO EARTH OR WEATHER, MINIMUM COVER SHALL BE:  
2" FOR #6 AND LARGER BARS  
1-1/2" FOR #5 AND SMALLER BARS OR WIRE FABRIC
11. LAP SPLICES FOR REINFORCING SHALL BE 40 BAR DIAMETERS, UNLESS OTHERWISE NOTED. STANDARD HOOKS SHALL BE 16 BAR DIAMETERS. ALL OTHER REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT".
12. WELDING OF REINFORCING STEEL OR THE APPLICATION OF HEAT TO FACILITATE BENDING IS SPECIFICALLY PROHIBITED.
13. ALL REINFORCING, DOWELS, AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
14. WHEN DRILLING INTO EXISTING CONCRETE, EXERCISE CAUTION TO AVOID DAMAGE TO EXISTING REINFORCING BARS AND ANCHOR BOLTS.
15. EPOXY GROUT SYSTEM SHALL BE SIKADUR "ANCHOR FIX-4" AS MANUFACTURED BY SIKA CORPORATION, LYNDHURST, NJ (800) 933-7452, OR APPROVED EQUAL. MIXING AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
16. EPOXY BONDING AGENT SHALL BE SIKA ARMATEC 110 EPOCEM AS MANUFACTURED BY SIKA CORPORATION. MIXING AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
17. PROVIDE NOT LESS THAN 48 HOURS NOTICE TO THE SPRINT FIELD REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.
18. REMOVE ALL LOOSE MATERIAL AND DEBRIS FROM SUBGRADE SURFACE PRIOR TO PLACING CONCRETE. CONCRETE SHALL NOT BE PLACED ON FROZEN SUBGRADE.
19. WHEN AMBIENT TEMPERATURE IS BELOW 50 DEGREES F, CONCRETE MATERIALS AND PLACEMENT SHALL CONFORM TO THE RECOMMENDATIONS OF ACI 306R "COLD WEATHER CONCRETING".
20. WHEN AMBIENT TEMPERATURE IS ABOVE 90 DEGREES F, CONCRETE MATERIALS AND PLACEMENT SHALL CONFORM TO THE RECOMMENDATIONS OF ACI 305R "HOT WEATHER CONCRETING".
21. CONCRETE SHALL BE SUFFICIENTLY CONSOLIDATED BY VIBRATION TO REMOVE AIR VOIDS. VIBRATION SHALL BE IN ACCORDANCE WITH ACI 309 "STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE".
22. THE TOP OF ALL CONCRETE SURFACES SHALL BE TRUE AND LEVEL WITH A BROOM FINISH, UNLESS OTHERWISE NOTED.
23. TESTING OF CONCRETE SHALL BE PERFORMED UNDER THE DIRECTION OF THE SPRINT CONSTRUCTION MANAGER.
24. THROUGHOUT CONSTRUCTION, THE CONCRETE WORK SHALL BE ADEQUATELY PROTECTED AGAINST DAMAGE DUE TO EXCESSIVE LOADING, CONSTRUCTION EQUIPMENT, MATERIALS OR METHODS, ICE, RAIN, OR SNOW. PROTECT CONCRETE FROM EXCESSIVE HEAT AND FREEZING FOR NOT LESS THAN 14 DAYS.
25. DRYING OUT OF CONCRETE, ESPECIALLY DURING THE FIRST 24 HOURS, SHALL BE CAREFULLY GUARDED AGAINST. ALL SURFACES SHALL BE MOIST CURED OR PROTECTED USING A MEMBRANE CURING AGENT CONFORMING TO ASTM C309 "LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE", APPLIED AS SOON AS FORMS ARE REMOVED. IF MEMBRANE CURING AGENT IS USED, EXERCISE CARE NOT TO DAMAGE SURFACE.
26. CONTRACTOR SHALL BRING TO THE IMMEDIATE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER ANY DEFECTS OR ERRORS IN THE WORK, PRIOR TO MAKING REPAIRS. CONTRACTOR SHALL OBTAIN PERMISSION FROM THE SPRINT CONSTRUCTION MANAGER TO PATCH OR OTHERWISE REPAIR DEFECTS OTHER THAN MINOR HONEYCOMBING.



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www.tectonicengineering.com

PROJECT NO:	2850.CT956
DRAWN BY:	MB
CHECKED BY:	JBK

REV	DATE	DESCRIPTION
C	7/25/06	PER COMMENTS
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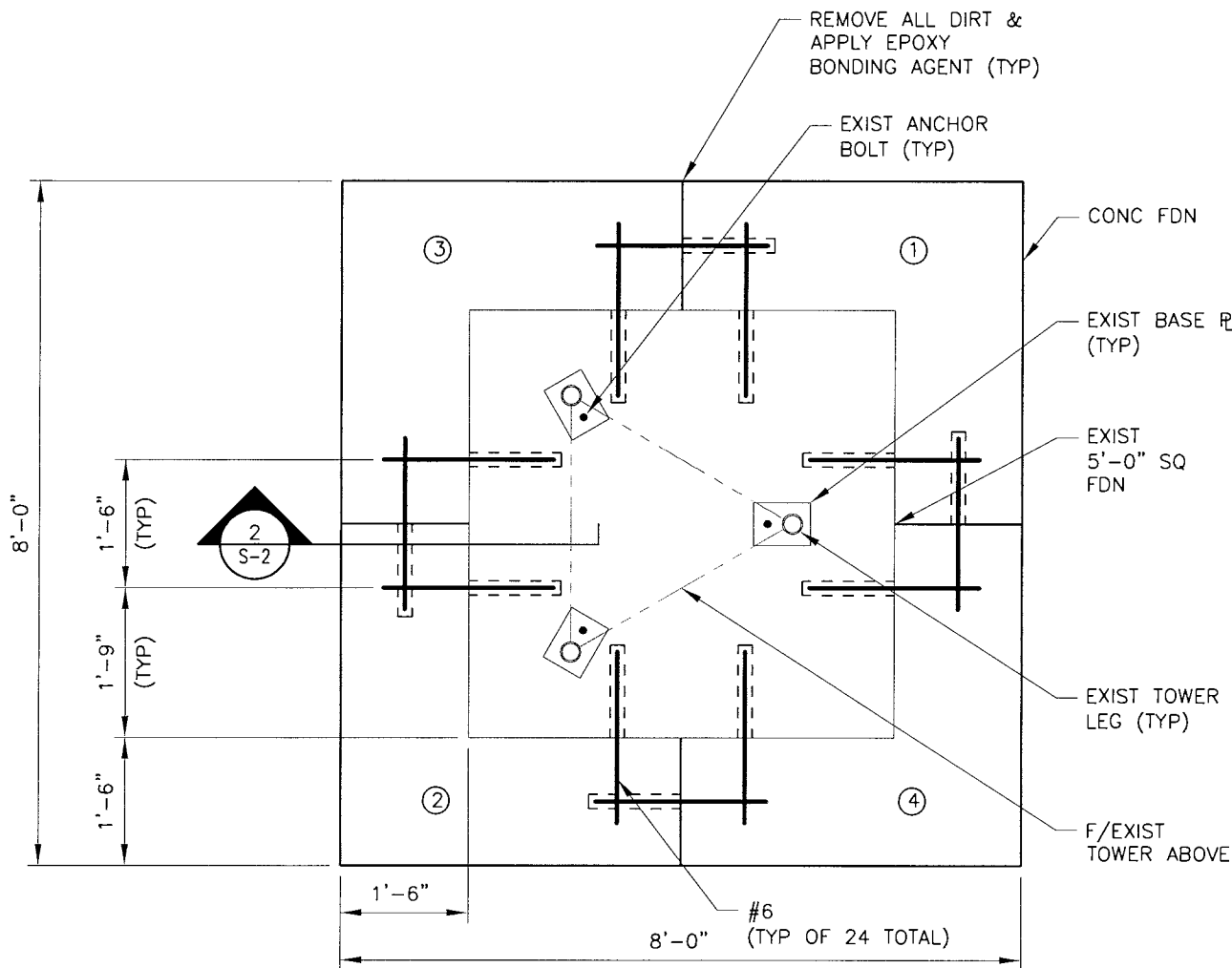


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COX COMMUNICATIONS TOWER  
164 COUNTY ROAD REAR  
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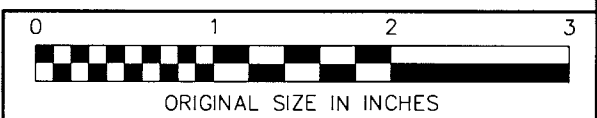
SHEET TITLE  
TOWER REINFORCEMENT  
FOUNDATION PLAN &  
GUY ANCHOR DETAILS

SHEET NUMBER  
**S-2**



1 FOUNDATION PLAN  
 ADD-1 SCALE: 1/2" = 1'-0"

1. POUR NEW CONCRETE IN FOUR (4) EQUAL POURS AT EACH CORNER IN SEQUENCE AS NUMBERED ABOVE.
2. ONLY EXCAVATE A QUARTER OF THE SURROUNDING SOIL AT A TIME, JUST ENOUGH TO ALLOW EACH CORNER POUR.
3. USE EARLY HIGH STRENGTH/QUICK SETTING CEMENT CONCRETE.
4. USE #6 DOWEL EPOXY GROUTED TO TIE INDIVIDUAL CORNER POURS.
5. ALL EXCAVATION & POUR WORK SHALL BE PERFORMED IN CALM WEATHER WITH WIND GUSTS LESS THEN 10 MPH.



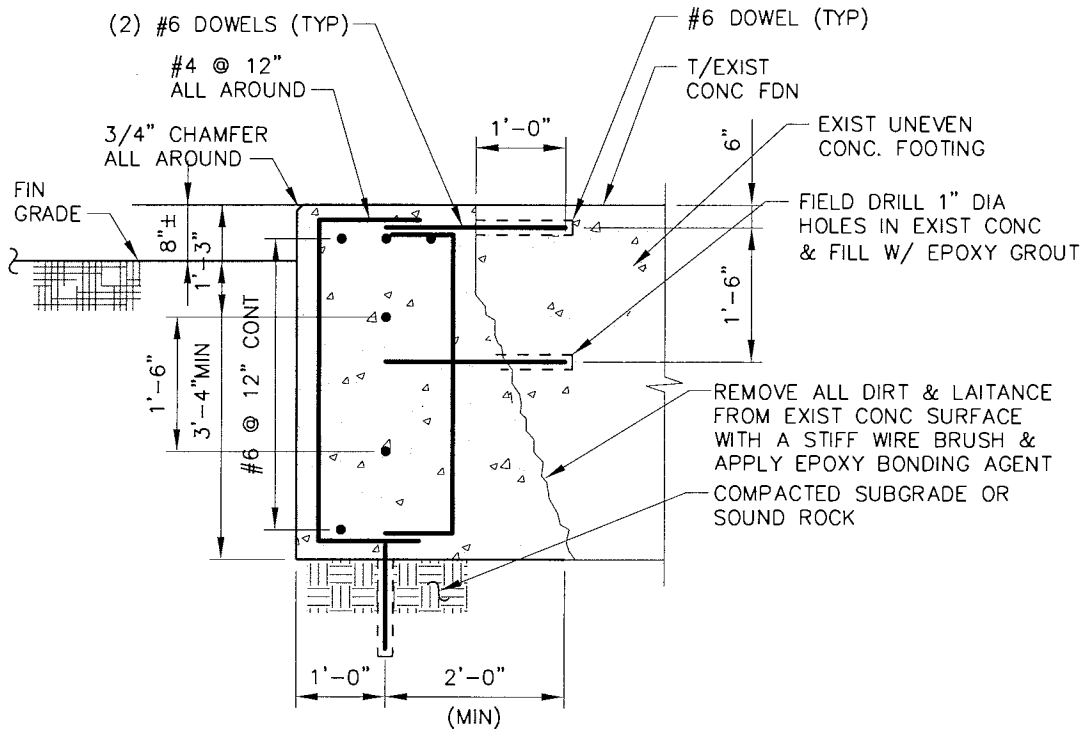
**TECTONIC**  
 • PLANNING  
 • ENGINEERING  
 • SURVEYING  
 • CONSTRUCTION MGMT.

TECTONIC Engineering & Surveying Consultants P.C.  
 955 Little Britain Road New Windsor, NY 12553  
 Phone: (845) 567-6656 Fax: (845) 567-8703

A	8/25/06
REV	DATE

**Sprint**  
 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504

TEC WO: 2850.CT956	ISSUED BY: MP	REV	DATE	SITE NO: CT60XC956B	SHEET: 1 OF 2
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NOTE: INSTALL #6 DOWEL @ 2'-0" O.C. AT THE BASE OF THE FOOTING IF ROCK IS ENCOUNTERED ABOVE FROST DEPTH.

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



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A	8/25/06
REV	DATE

**Sprint**

164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504

TEC WO: 2850.CT956 ISSUED BY: MP REV DATE SITE NO: CT60XC956B SHEET: 2 OF 2

# MODIFICATION DRAWINGS FOR WOLCOTT, CT



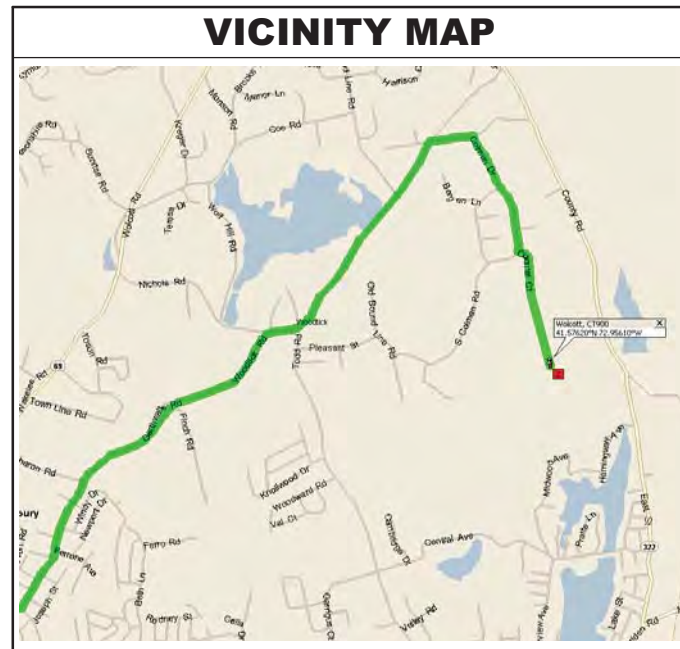
SITE NAME:  
**WOLCOTT**  
SITE NUMBER:  
**CT900**

SITE ADDRESS:  
**164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504**

**Structural Components**  
Bringing It All Together.  
2400 CENTRAL AVE.  
SUITE A-1 SOUTH  
BOULDER, CO 80301  
(866) 386 - 7622  
JOB #: 121103



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**DRIVING DIRECTIONS**  
DEPART THE LA GUARDIA AIRPORT. TAKE RAMP RIGHT ONTO GRAND CENTRAL PKWY. AT EXIT 9E, KEEP RIGHT ONTO RAMP. TAKE RAMP (LEFT) ONTO I-678 (WHITESTONE EXPY). ROAD NAME CHANGES TO HUTCHINSON RIVER PKWY N. KEEP LEFT ONTO I-884. AT EXIT 9E TAKE RAMP (RIGHT) ONTO I-84. AT EXIT 23, TAKE RAMP (RIGHT) ONTO I-84 E. TURN RIGHT ONTO RAMP. TURN RIGHT (NORTH-EAST) ONTO WASHINGTON ST. BEAR RIGHT (EAST) ONTO WOODTICK RD. TURN RIGHT (EAST) ONTO RANSOM HALL RD. TURN RIGHT (SOUTH) ONTO COLMAN DR. ROAD NAME CHANGES TO S COLMAN RD. TURN LEFT (EAST) ONTO COLONIAL CT. BEAR LEFT (SOUTH) ON LOCAL ROAD AND ARRIVE AT SITE. TOTAL DISTANCE 96.4 MILES, 1 HOUR AND 52 MINUTES.

APPROVALS		
DISCIPLINE	SIGNATURE	DATE
PRE CONSTRUCTION INSPECTION		
ZONING/ PERMITTING		
CONSTRUCTION (AS-BUILT)		
LESEE		

**CODE COMPLIANCE**  
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF ALL GOVERNING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

**PROJECT SUMMARY**

**APPLICANT/LESEE:**  
SPRINT

**CONTRACTORS:**  
CONSTRUCTION:  
TBD.

**CONSULTANTS:**  
ENGINEERING:  
STRUCTURAL COMPONENTS, LLC  
1-866-386-7622  
CONTACT: BRAD COOK, P.ENG.

**TOWER OWNER:**  
INSITE TOWERS, LLC  
301 N FAIRFAX ST., SUITE 101  
ALEXANDRIA, VA 22314  
CONTACT: MICHAEL HARKINS  
208-578-3636

**SITE INFORMATION**

LATITUDE: 41.5762°  
LONGITUDE: -72.9561°

**SHEET INDEX**

**ARCHITECTURAL:**  
T-1 TITLE SHEET  
GN-1 GENERAL CONSTRUCTION NOTES

**STRUCTURAL:**  
PL-1 PARTS LIST  
S-1 SPECIFICATIONS

**FOUNDATION:**  
F-1 GUY WIRE DETAILS

**MAINTENANCE:**  
M-1 MAINTENANCE ISSUES  
M-2 MAINTENANCE ISSUES

**JURISDICTION**

NEW HAVEN COUNTY, CT

REVISIONS:				
NO.	DATE	DESCRIPTION	BY	CHK
5			SS	APD
4			DT	CHK
3			RM	BY
2				
1				
0	1/04/13	MODIFICATION DRAWINGS		

**SITE INFORMATION:**  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504

**DESIGN TYPE:**  
GUYED TOWER REINFORCEMENT

**SHEET TITLE:**  
TITLE SHEET

**SHEET TITLE:** **T-1**      **REVISION:** **0**



**GENERAL NOTES:**

1. THE MODIFICATIONS OUTLINED IN THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE TIA-222-F TOWER CODE
2. PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
3. UNLESS NOTED OTHERWISE = U.N.O.
4. ALL WORK ON THESE DRAWINGS SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR WITH A MINIMUM OF 5 YEARS OF PAST TOWER EXPERIENCE AND SHALL FOLLOW THE DICTATES OF GOOD CONSTRUCTION PRACTICE WITH WORKING KNOWLEDGE OF THE TIA CODE "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND OSHA SAFETY REGULATIONS AND PERFORMED UNDER NORMAL WEATHER CONDITIONS WITH WINDS NOT IN EXCESS OF 20 MPH.
6. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING EQUIPMENT, ANTENNAS, TX AND STRUCTURES. THE CONTRACTOR IS ALSO RESPONSIBLE FOR THE PROTECTION OF WORKERS, PUBLIC AND PRIVATE PROPERTY DURING CONSTRUCTION UP UNTIL COMPLETION OF WORK.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE FOR COMPENSATIONS SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN THE DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER/CLIENT FOR CONSIDERATIONS BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREA.
8. ANY SUBSTITUTIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
9. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.
10. CONTRACTOR SHALL PROMPTLY REMOVE ANY AND ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION INCLUDING BUT NOT LIMITED TO ANY DIVETS ON ROADWAY OR SURROUNDING AREA.
11. DIGITAL PHOTOGRAPHS SHALL BE TAKEN OF SITE ACCESS, COMPOUND AND TOWER PRIOR TO CONSTRUCTION, DURING CONSTRUCTION AND POST CONSTRUCTION INCLUDING BUT NOT LIMITED TO ALL REINFORCED AREAS. CLOSE-OUT REPORT SHALL FOLLOW WITHIN 3 BUSINESS DAYS.

**STRUCTURAL STEEL:**

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - AISC LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, 2005, THE "CODE OF STANDARD PRACTICE", 2005, AND CHAPTER 4 OF THE TIA CODE
2. PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM GRADES (SEE FABRICATION DRAWINGS FOR SPECIFIC GRADES FOR SPECIFIC PARTS):
  - CHANNELS & ANGLES ----- ASTM A36, (FY = 36 KSI)
  - PLATES ----- A572 GR. 50, (FY = 50 KSI)
  - HSS ----- ASTM A500 GR. B, (FY = 46 KSI)
  - STEEL PIPE ----- ASTM A53 GR. B, (FY = 36 KSI)
  - U-BOLTS ----- ASTM A307, (FY = 36 KSI)
  - w/ LOCKING DEVICE U.N.O.
  - SEE TABLE 5-1 OF THE TIA CODE FOR ADDITIONAL SHAPES AND STANDARDS THAT ARE NOT LISTED ABOVE.
3. NON PRE QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS AS PER THE TIA CODE
  - THE CARBON EQUIVALENT OF STEEL SHALL NOT EXCEED 0.65 PER SECTION 5.4.2 OF THE TIA CODE
  - ELONGATION OF STEEL SHALL NOT BE LESS THAN 18%
  - TEST REPORTS SHALL BE IN ACCORDANCE WITH ASTM A6 OR A568
  - TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A6
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.

**CORROSION CONTROL:**

1. ALL STEEL MEMBERS SHALL HAVE CORROSION CONTROL AS OUTLINED IN THE TIA CODE AND STATED BELOW:
  - STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123
  - FASTENERS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A153 OR ASTM B695 CLASS 50 (A490 BOLTS SHALL NOT BE HOT DIPPED GALVANIZED)
  - GUYS STANDS SHALL BE PROTECTED IN ACCORDANCE WITH ASTM A475 OR A586 MINIMUM CLASS A COATING
  - GUY ANCHORAGE IN DIRECT CONTACT OF GROUND SHALL BE HOT DIPPED GALVANIZED PER ASTM A123
  - ALL REPAIRS SHALL BE PROTECTED IN ACCORDANCE WITH ASTM A780
2. ALL FIELD CUT SURFACES SHALL BE REPAIRED WITH (2) COATS OF A 95% ZINC RICH PAINT PER ASTM A780 (ZRC PREFERRED).
3. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH (2) COATS OF ZINC RICH PAINT (ZRC PREFERRED).
4. GUY ANCHOR GALVANIZATION SHALL EXTEND A MIN OF 2" INTO CONCRETE

**BOLTS:**

1. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED HIGH STRENGTH ASTM A325 OR A490 BOLTS WITH THREADS EXCLUDED IN SHEAR PLANE.
2. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES.
3. ALL BOLTS WITHOUT DTI WASHERS SHALL BE INSTALLED SNUG FIT UNTIL THE SECTION IS FULLY COMPACTED, AND THEN TIGHTENED FURTHER BY AISC - "TURN OF THE NUT", TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
4. ALL BOLTS WITH SQUIRTER DTI WASHERS SHALL BE TIGHTENED UNTIL THE NUMBER OF SQUIRTS IS AT LEAST EQUAL TO THE NUMBER OF BUMPS MINUS ONE ON THE DTI SQUIRTER WASHER (FOR INSTANCE, A FIVE BUMP DTI SHOULD SQUIRT IN AT LEAST FOUR PLACES).
5. PHOTOS OF THE FULLY ENGAGED SQUIRTER DTI WASHERS MUST BE TAKEN WITH IN 24 HOURS OF INSTALLATION BY THE CONTRACTOR.
6. BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG FIT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1/2 TURN BEYOND SNUG FIT.
7. ALL BOLTED CONNECTIONS SHALL USE LOCK WASHERS.

**WELDS:**

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH AISC AND AWS WELDING CODE - STEEL AWS D1.1/D1.1M:2006 SPECIFICATIONS AND RECOMMENDATIONS.
2. ALL FIELD WELDS SHALL BE PERFORMED BY SMAW OR FCAW PROCESSES ONLY AND USE THE FOLLOWING ELECTRODE SPECIFICATIONS
  - FILLER METAL YIELD <= 55 KSI
    - o SMAW - 7015-X, 7016-X, 7018-X, OR 7028-X
    - o FCAW - E7XT-X, OR E7XT-XM
  - FILLER METAL YIELD > 55 KSI
    - o SMAW - 8015-X, 8016-X OR 8018-X
    - o FCAW - E8XTX-X, OR E8XTX-XM
  - ALL FILLER METAL IS ASSUMED TO BE <= 55 KSI UNLESS WELD CALLOUT SPECIFIES OTHERWISE
  - ALL FCAW WIRE MUST BE SELF-SHEILDED
3. REFER TO STRUCTURAL DRAWINGS FOR ALL FIELD WELD SIZES AND TYPES.
4. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES.
5. REFER TO A DETAILED WELDING SPECIFICATION AND GUIDELINE BY STRUCTURAL COMPONENTS PRIOR TO COMMENCEMENT OF WORK.
6. CONTRACTOR RESPONSIBLE FOR PROTECTING NEARBY COMBUSTIBLE MATERIALS FROM HEAT, FLAME, SPARKS, AND SLAG BY MOVING OR COVERING THEM.
7. FIRE WATCH MUST REMAIN IN THE WORK AREA 30 MINUTES MINIMUM AFTER WELDING OR CUTTING OPERATIONS HAVE ENDED.

**GUY ASSEMBLIES:**

1. ALL GUY ASSEMBLIES AND COMPONENTS SHALL HAVE THE MINIMUM DESIGN STRENGTHS AS SHOWN ON THE STRUCTURAL DRAWINGS.
2. GUY STRANDS SHALL BE EXTRA HIGH STRENGTH (EHS) OR EQUAL AND SHALL BE IN ACCORDANCE WITH ASTM A475
3. STRUCTURAL STRANDS SHALL BE IN ACCORDANCE WITH ASTM A586 OR EQUAL.

4. GUY GRIPS SHALL BE DESIGNED SPECIFICALLY FOR THE LOADS AS STATED ON THE STRUCTURAL DRAWINGS
5. SOCKETS SHALL BE IN ACCORDANCE WITH ASTM A27 AND A148
6. ZINC POURED ATTACHMENTS SHALL BE IN ACCORDANCE WITH ASTM B6
7. SHACKLES AND TURNBUCKLES SHALL BE FORGED FROM AISI GRADE 1035 OR 1045 STEEL OR EQUIVALENT
8. INITIAL TENSION OF GUYS SHALL BE AS STATED ON THE STRUCTURAL DRAWINGS
9. CABLES SHALL BE INSTALLED AND SECURELY FIXED THROUGH ALL TURNBUCKLES.
10. FACTORY INSTALLED COMPONENTS SHALL BE PROOF LOADED, PRE-STRESSED AND HAVE LENGTH MEASUREMENTS CHECKED IN ACCORDANCE WITH CHAPTER 9 OF THE TIA CODE.
11. THE MAXIMUM DEVIATION FOR THE DESIGN INITIAL TENSION SHALL BE 10% FOR GUYS UP TO AND INCLUDING 1" DIAMETER OF THE SPECIFIED DESIGN INITIAL TENSION AT AN ANCHORAGE, CORRECTED FOR AMBIENT TEMPERATURE.
12. THE MAXIMUM DEVIATION FOR THE DESIGN INITIAL TENSION SHALL BE 5% FOR GUYS GREATER THAN 1" DIAMETER OF THE SPECIFIED DESIGN INITIAL TENSION AT AN ANCHORAGE, CORRECTED FOR AMBIENT TEMPERATURE.

**TOLERANCES:**

1. CONSTRUCTION OF TOWERS SHALL MEET ALL OF THE TOLERANCE REQUIREMENTS AS OUTLINED IN CHAPTER 6.1.2 OF THE TIA CODE

**STRUCTURAL ERECTION AND BRACING REQUIREMENTS:**

1. THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
2. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PROVIDE SHORING AND BRACING AS MAY BE REQUIRED DURING CONSTRUCTION TO ACHIEVE THE FINAL COMPLETED STRUCTURE.
3. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE SHORING AND BRACING ELEMENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, GUYING, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
5. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

**PAINT:**

1. AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1K.

**PROTECTIVE GROUNDING:**

1. GROUNDING OF THE TOWER SHALL BE IN ACCORDANCE WITH CHAPTER 12 OF THE TIA CODE

**MAPPING:**

1. FIELD MAPPING SHALL BE IN ACCORDANCE WITH CHAPTER 14 OF THE TIA CODE
2. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURE TO VERIFY DIMENSIONS, ELEVATIONS, FRAMING, ETC. WHICH AFFECT THE WORK SHOWN ON THE DRAWINGS.
3. REPORT ANY VARIATIONS OR DISCREPANCIES TO THE STRUCTURAL ENGINEER BEFORE PROCEEDING.

**MAINTENANCE:**

1. A CONTINUOUS INSPECTION OF THE STRUCTURE SHALL BE COMPLETED PER TIA RECOMMENDATIONS AS OUTLINED IN CHAPTER 14 OF THE TIA CODE. ANY DEFECTS SHALL BE REPORTED TO ENSURE THE STRUCTURAL INTEGRITY FOR THE LIFE OF THE STRUCTURE.

  
 2002 Production Drive  
 Apex, NC 27539



  
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 JOB #: 121103



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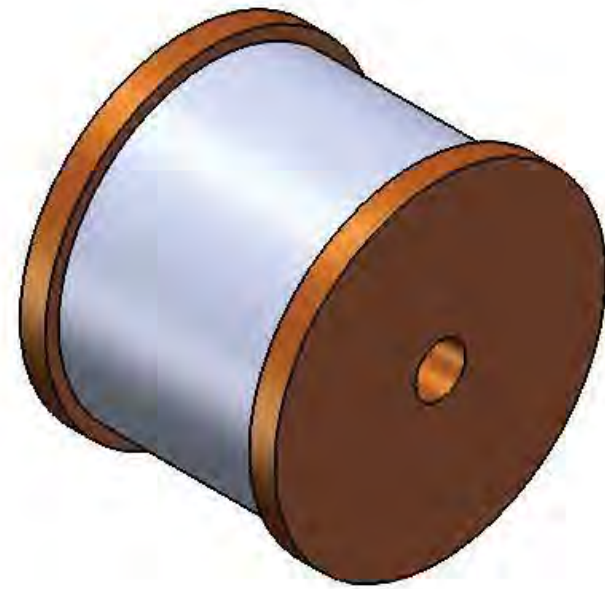
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NO.	DATE	DESCRIPTION	BY	CHK
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3				APD
2				
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0	1/04/13	MODIFICATION DRAWINGS		

SITE INFORMATION:  
 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504

DESIGN TYPE:  
 GUYED TOWER REINFORCEMENT

SHEET TITLE:  
 GENERAL CONSTRUCTION NOTES

SHEET TITLE: GN-1 REVISION: 0

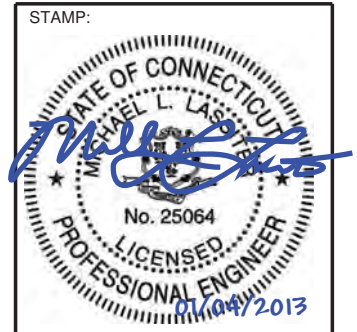


**H16-0001-07**  
 7/16" 1x7 EHS GUY STRAND  
 QTY: 1950 FT  
 WEIGHT: 780 LBS

**H44-132-001**  
 CONDUCTOR TO GUY WIRE CLAMP  
 QTY: 6



**HKG-0001-07**  
 7/16" 1x7 EHS GUY STRAND KIT  
 QTY: 6  
 WEIGHT: 8 LBS EACH



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REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
5					
4					
3					
2					
1					
0	1/04/13	MODIFICATION DRAWINGS	RM	DT	SS

SITE INFORMATION:  
 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504

DESIGN TYPE:  
 GUYED TOWER REINFORCEMENT

SHEET TITLE:  
 PARTS LIST

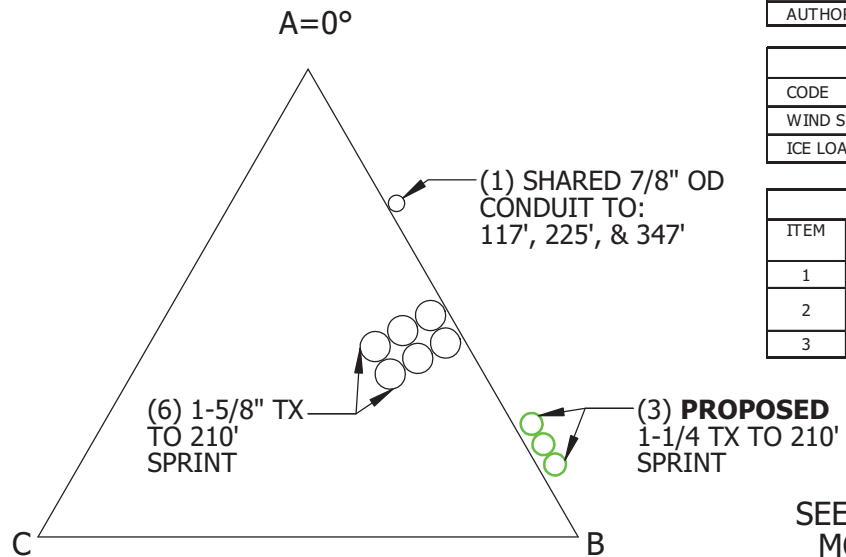
SHEET TITLE: **PL-1** REVISION: **0**

ELEV: 347'-0"  
 ELEV: 371'-0"  
 ELEV: 271'-0"  
 ELEV: 203'-0"  
 ELEV: 131'-0"  
 ELEV: 67'-0"  
 ELEV: 0'-0"

**GUY WIRE LEGEND**

- = NEW GUY WIRES
- - - = REMOVED GUY WIRES
- = EXISTING GUY WIRES (TO REMAIN)

**NOTE: ALL DEAD AND UN-USED COAX IS TO BE REMOVED.**



**COAX MAP**  
 OBTAINED FROM STRUCTURAL COMPONENTS  
 PRECONSTRUCTION TOWER MAPPING  
 DATED 10/16/12.  
 EXISTING TRANSMISSION LINE PLACEMENT SHOWN,  
 MAY DIFFER FROM LEASE AGREEMENTS.

TOWER SPECIFICATIONS	
MANUFACTURER	UNKNOWN
HEIGHT / MODEL NUMBER	347 FT. / 36.5" F.W. ALL WELD

CURRENT STRUCTURAL ANALYSIS	
COMPANY	STRUCTURAL COMPONENTS, LLC
AUTHOR / FILE # / DATE	ROGER BECKNER / 121103 / 1-03-13

DESIGN SPECIFICATIONS	
CODE	TIA/EIA-222-F (IBC 2006) NEW HAVEN COUNTY, CT
WIND SPEED	85 MPH FASTEST MILE (100 MPH 3-SEC GUST)
ICE LOADING	74 MPH FASTEST MILE (88 MPH 3-SEC GUST), 1/2" RADIAL ICE

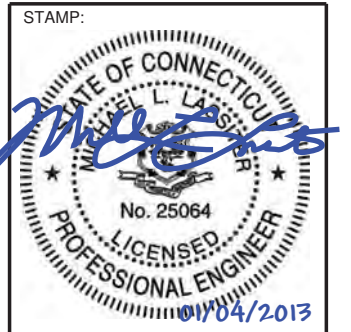
GUY MODIFICATION SCHEDULE			
ITEM	ELEV. (FT.)	DESCRIPTION	DWG. NO.
1	203' - 0"	REMOVE EXISTING 3/8" EHS WIRES	---
2	203' - 0"	INSTALL NEW 7/16" EHS GUY WIRES TO THE EXISTING TORQUE ARM	F-1
3	0' - 347'	PLUMB AND TENSION ENTIRE TOWER	F-1

SEE STRUCTURAL COMPONENTS, LLC PASSES WITH MODIFICATIONS STRUCTURAL ANALYSIS (JOB # 121103, DATED 12/31/12) FOR TOWER LOADING AND DESIGN CONSIDERATIONS.

**vertical solutions**  
 2002 Production Drive  
 Apex, NC 27539



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 JOB #: 121103



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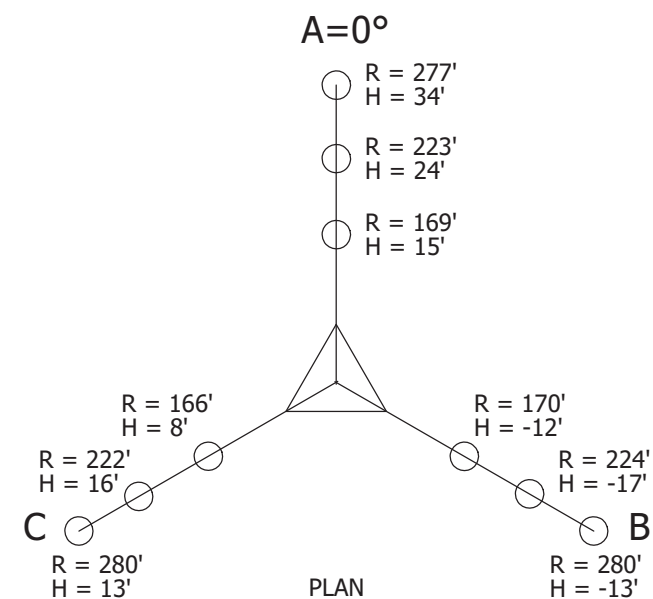
REVISIONS:				
NO.	DATE	DESCRIPTION	BY	CHK
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4				
3				
2				
1	1/04/13	MODIFICATION DRAWINGS	RM	SS
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**SITE INFORMATION:**  
 164 COUNTY ROAD REAR  
 WOLCOTT, CT 06716-2504

**DESIGN TYPE:**  
 GUYED TOWER REINFORCEMENT

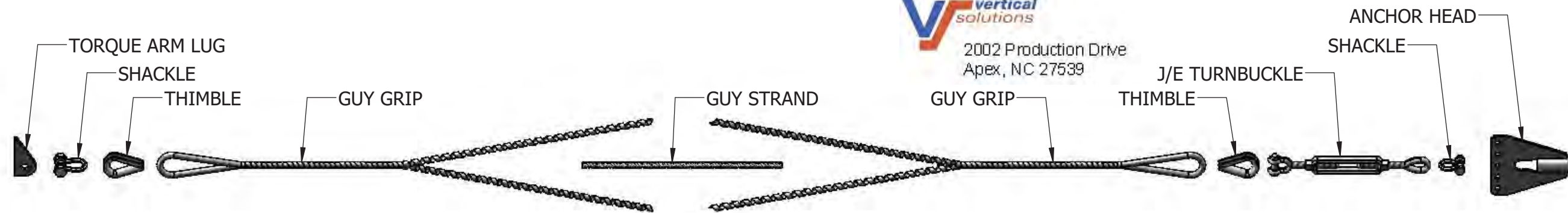
**SHEET TITLE:**  
 SPECIFICATIONS

**SHEET NO. / REVISION:**  
 S-1 / 0





2002 Production Drive  
Apex, NC 27539



ELEVATION (ft)	TOWER SHACKLE			THIMBLE	GUY GRIP	PLP SLEEVE	GUY STRAND			PLP SLEEVE	GUY GRIP	THIMBLE	J/E TURNBUCKLE		ANCHOR SHACKLE		
	SIZE	PIN Ø	T. ULT				SIZE & CONTRUC	T.ULT	LENGTH*				SIZE	T.ULT	SIZE	PIN Ø	T. ULT
203	5/8"	3/4"	39.0 k	1/2"	7/16"	7/16"	7/16" 1x7 EHS Guy Strand	20.8 k	*	7/16"	7/16"	1/2"	3/4" x 12"	26.0 k	5/8"	3/4"	39.0 k

* CUT LENGTH (FEET)				TOTAL
ELEVATION	Az 1	Az 2	Az 3	
203	313	344	318	1949

\* BEFORE CUTTING VERIFY GUY LENGTH IN FIELD, ABOVE LENGTHS INCLUDE AN ADDITIONAL 10%

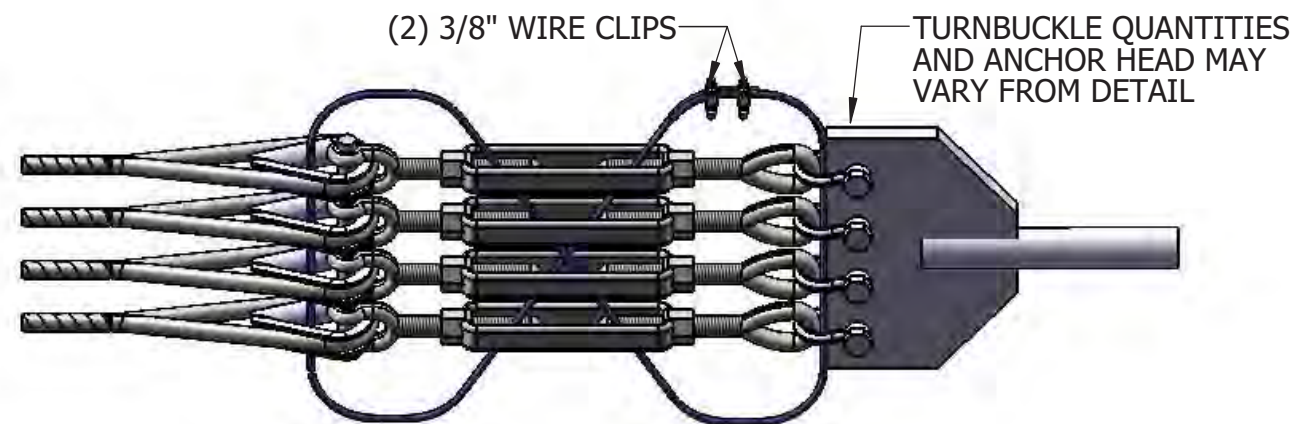
GUY INFORMATION	Temp (°F)	3 Pulse Method (seconds)			Tension (kips)		
		Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
GUY LEVEL: 1	20°	2.22	2.38	2.22	1.916	1.878	1.905
GUY HEIGHT: 67 ft	30°	2.28	2.43	2.27	1.822	1.794	1.814
GUY SIZE: 3/8" 1x7 EHS Guy Strand	40°	2.34	2.49	2.33	1.728	1.709	1.723
IT (kips): 1.54 kips	50°	2.40	2.56	2.40	1.634	1.625	1.631
IT RANGE (kips): 1.39 to 1.69	60°	2.48	2.62	2.47	1.540	1.540	1.540
Guy Length (A1) 176.8 ft	70°	2.55	2.70	2.54	1.446	1.455	1.449
Guy Length (A2) 187.5 ft	80°	2.64	2.78	2.63	1.352	1.371	1.357
Guy Length (A3) 176.2 ft	90°	2.74	2.87	2.72	1.258	1.286	1.266

GUY INFORMATION	Temp (°F)	3 Pulse Method (seconds)			Tension (kips)		
		Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
GUY LEVEL: 2	20°	2.64	2.89	2.67	1.820	1.781	1.806
GUY HEIGHT: 131 ft	30°	2.69	2.94	2.72	1.750	1.721	1.739
GUY SIZE: 3/8" 1x7 EHS Guy Strand	40°	2.75	3.00	2.78	1.680	1.660	1.673
IT (kips): 1.54 kips	50°	2.81	3.05	2.83	1.610	1.600	1.606
IT RANGE (kips): 1.39 to 1.69	60°	2.87	3.11	2.89	1.540	1.540	1.540
Guy Length (A1) 205.0 ft	70°	2.94	3.17	2.96	1.470	1.480	1.474
Guy Length (A2) 222.1 ft	80°	3.01	3.24	3.03	1.400	1.420	1.407
Guy Length (A3) 206.6 ft	90°	3.09	3.31	3.10	1.330	1.359	1.341

GUY INFORMATION	Temp (°F)	3 Pulse Method (seconds)			Tension (kips)		
		Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
GUY LEVEL: 3	20°	3.83	4.25	3.89	2.423	2.367	2.409
GUY HEIGHT: 203 ft	30°	3.90	4.32	3.96	2.337	2.295	2.327
GUY SIZE: 7/16" 1x7 EHS Guy Strand	40°	3.97	4.39	4.04	2.251	2.223	2.245
IT (kips): 2.08 kips	50°	4.05	4.46	4.11	2.166	2.152	2.162
IT RANGE (kips): 1.87 to 2.29	60°	4.13	4.53	4.19	2.080	2.080	2.080
Guy Length (A1) 286.0 ft	70°	4.22	4.61	4.28	1.994	2.008	1.998
Guy Length (A2) 314.0 ft	80°	4.31	4.70	4.37	1.909	1.937	1.915
Guy Length (A3) 290.3 ft	90°	4.41	4.79	4.47	1.823	1.865	1.833

GUY INFORMATION	Temp (°F)	3 Pulse Method (seconds)			Tension (kips)		
		Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
GUY LEVEL: 4	20°	4.54	5.02	4.62	2.333	2.292	2.323
GUY HEIGHT: 271 ft	30°	4.60	5.08	4.68	2.270	2.239	2.262
GUY SIZE: 7/16" 1x7 EHS Guy Strand	40°	4.67	5.14	4.75	2.206	2.186	2.201
IT (kips): 2.08 kips	50°	4.73	5.20	4.81	2.143	2.133	2.141
IT RANGE (kips): 1.87 to 2.29	60°	4.81	5.27	4.88	2.080	2.080	2.080
Guy Length (A1) 332.8 ft	70°	4.88	5.34	4.96	2.017	2.027	2.019
Guy Length (A2) 364.9 ft	80°	4.96	5.41	5.03	1.954	1.974	1.959
Guy Length (A3) 338.1 ft	90°	5.04	5.48	5.11	1.890	1.921	1.898

GUY INFORMATION	Temp (°F)	3 Pulse Method (seconds)			Tension (kips)		
		Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
GUY LEVEL: 5	20°	5.53	6.09	5.79	2.342	2.304	2.326
GUY HEIGHT: 331 ft	30°	5.61	6.16	5.86	2.277	2.248	2.264
GUY SIZE: 7/16" 1x7 EHS Guy Strand	40°	5.69	6.24	5.95	2.211	2.192	2.203
IT (kips): 2.08 kips	50°	5.77	6.32	6.03	2.145	2.136	2.141
IT RANGE (kips): 1.87 to 2.29	60°	5.86	6.41	6.12	2.080	2.080	2.080
Guy Length (A1) 406.1 ft	70°	5.96	6.49	6.21	2.014	2.024	2.019
Guy Length (A2) 443.5 ft	80°	6.06	6.59	6.31	1.949	1.968	1.957
Guy Length (A3) 423.7 ft	90°	6.16	6.68	6.41	1.883	1.912	1.896



TYPICAL TURNBUCKLE SAFETY DETAIL

**NOTE:** INSTALL TURNBUCKLE SAFETY AT EACH GUY ANCHOR BY PASSING 15' x 3/8" WIRE THROUGH THIMBLES (OR EYES), GAPS, AND SHACKLES (OR JAWS); SECURE WITH (2) WIRE CLIPS. EXISTING TURNBUCKLE LOCKS MAY BE RE-USED.



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REVISIONS:				
NO.	DATE	DESCRIPTION	BY	CHK
5			SS	APD
4			DT	
3			RM	
2				
1				
0	1/04/13	MODIFICATION DRAWINGS		

SITE INFORMATION:  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504

DESIGN TITLE:  
GUYED TOWER REINFORCEMENT

SHEET TITLE:  
GUY WIRE DETAILS

SHEET TITLE: **F-1** REVISION: **0**



ISSUE #1

ISSUE:  
OVERGROWN COMPOUND.  
  
RECOMMENDATION:  
REMOVE VEGETATION AND  
CLEAN COMPOUND.



ISSUE #2

ISSUE:  
NO SAFETY CLIMB ON  
TOWER.  
  
RECOMMENDATION:  
INSTALL SAFETY CLIMB  
TO THE TOP OF THE  
TOWER.

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ISSUE #3

ISSUE:  
LOOSE COAX ON TOWER  
FACE CA.  
  
RECOMMENDATION:  
SECURE COAX TO TOWER  
EVERY 4 FT.



ISSUE #4

ISSUE:  
LEVEL I-II RUST ON 30%  
OF THE TOWER.  
  
RECOMMENDATION:  
REMOVE RUST WITH A WIRE  
BRUSH OR SIMILAR. COLD-  
GALVANIZE AFFECTED AREAS  
WITH MINIMUM OF (2) COATS  
OF 95% ZRC PAINT AND  
RE-PAINT TOWER.



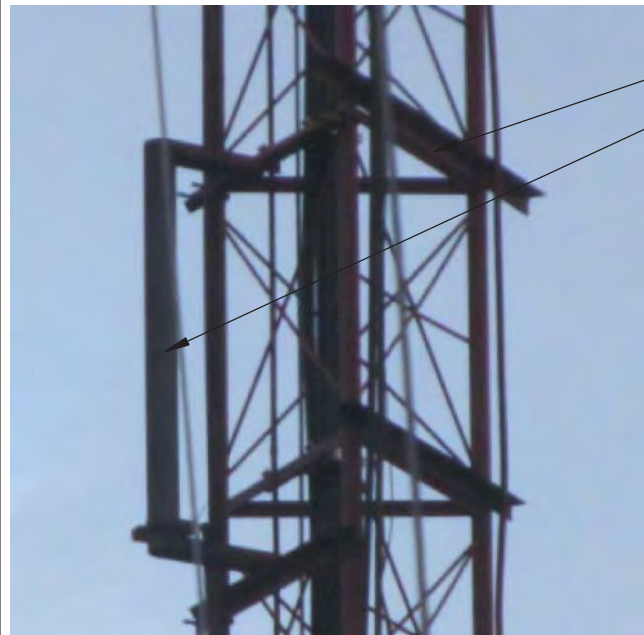
ISSUE #5

ISSUE:  
LEVEL III RUST ON GUY  
WIRES AT ELEVATIONS  
1 & 2.  
  
RECOMMENDATION:  
REPLACE FIRST 2  
LEVELS OF GUY WIRES.



ISSUE #6

ISSUE:  
LEVEL II RUST ON GUY  
ATTACHMENT AND  
TORQUE ARM SHACKLES  
AND HARDWARE.  
  
RECOMMENDATION:  
REPLACE TORQUE ARM  
HARDWARE AND GUY  
ATTACHMENT SHACKLES.



ISSUE #7

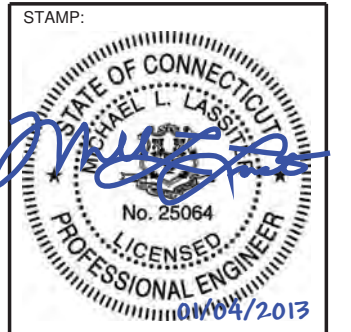


ISSUE:  
UNUSED MOUNTS ON TOWER.  
  
RECOMMENDATION:  
REMOVE UNUSED MOUNTS TO  
REDUCE TOWER LOADING.

- NOTES:**
1. TIA MAINTENANCE ISSUES DISCOVERED DURING STRUCTURAL COMPONENTS, LLC PRECONSTRUCTION TOWER MAPPING DATED 10/16/12.
  2. ALL TIA MAINTENANCE ISSUES ARE TO BE COMPLETED BY OTHERS AT INSITE'S DISCRETION.



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REVISIONS:				
NO.	DATE	DESCRIPTION	BY	CHK/APP
5				
4				
3				
2				
1				
0	1/04/13	MODIFICATION DRAWINGS	RM	SS

SITE INFORMATION:  
164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504

DESIGN TYPE:  
GUYED TOWER  
REINFORCEMENT

SHEET TITLE:  
MAINTENANCE ISSUES

SHEET NO.: **M-1** REVISION: **0**



ISSUE #8



ISSUE:  
(6) DEAD LINES STARTING 100' AND GOING TO DEAD YAGIS TOWERS TOP OF TOWER.

RECOMMENDATION:  
REMOVE DEAD LINES AND APPURTENANCES TO REDUCE TOWER LOADING.



ISSUE #10



2002 Production Drive  
Apex, NC 27539

ISSUE:  
INNER ANCHORS TURNBUCKLE LOCKS ARE NOT IN THE PROPER FIGURE 8 CONFIGURATION.

RECOMMENDATION:  
RE-INSTALL TURNBUCKLE LOCKS IN THE PROPER FIGURE 8 CONFIGURATION.



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STAMP:



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Wolcott, CT guy wire tensions						
Guy Label	Guy Elevation (ft.)	Guy Size	Temperature of Guy Wire (°F)	Measured Tension at 60 °F (kip)	Design Tension at 60 °F (kip)	Measured Tension in Field
A1	67.00	3/8" 1x7 EHS	65.00	2.37	1.54 (1.078 to 2.31)	2.33
A2L	67.00	3/8" 1x7 EHS	65.00	1.44	1.54 (1.078 to 2.31)	1.40
A2R	67.00	3/8" 1x7 EHS	65.00	1.67	1.54 (1.078 to 2.31)	1.63
A3L	131.00	3/8" 1x7 EHS	65.00	0.83	1.54 (1.078 to 2.31)	0.80
A3R	131.00	3/8" 1x7 EHS	65.00	0.96	1.54 (1.078 to 2.31)	0.93
A4L	131.00	7/16" 1x7 EHS	65.00	1.06	2.08 (1.456 to 3.12)	1.02
A4R	131.00	7/16" 1x7 EHS	65.00	1.08	2.08 (1.456 to 3.12)	1.04
A5L	204.00	7/16" 1x7 EHS	65.00	1.34	2.08 (1.456 to 3.12)	1.30
A5R	204.00	7/16" 1x7 EHS	65.00	1.75	2.08 (1.456 to 3.12)	1.71
B1	67.00	3/8" 1x7 EHS	65.00	1.84	1.54 (1.078 to 2.31)	1.79
B2L	67.00	3/8" 1x7 EHS	65.00	1.13	1.54 (1.078 to 2.31)	1.09
B2R	67.00	3/8" 1x7 EHS	65.00	1.13	1.54 (1.078 to 2.31)	1.08
B3L	131.00	3/8" 1x7 EHS	65.00	0.76	1.54 (1.078 to 2.31)	0.73
B3R	131.00	3/8" 1x7 EHS	65.00	0.91	1.54 (1.078 to 2.31)	0.87
B4L	131.00	7/16" 1x7 EHS	65.00	0.87	2.08 (1.456 to 3.12)	0.83
B4R	131.00	7/16" 1x7 EHS	65.00	0.77	2.08 (1.456 to 3.12)	0.72
B5L	204.00	7/16" 1x7 EHS	65.00	1.05	2.08 (1.456 to 3.12)	1.01
B5R	204.00	7/16" 1x7 EHS	65.00	1.04	2.08 (1.456 to 3.12)	0.99
C1	67.00	3/8" 1x7 EHS	65.00	1.80	1.54 (1.078 to 2.31)	1.56
C2L	67.00	3/8" 1x7 EHS	65.00	1.61	1.54 (1.078 to 2.31)	1.57
C2R	67.00	3/8" 1x7 EHS	65.00	1.57	1.54 (1.078 to 2.31)	1.52
C3L	131.00	3/8" 1x7 EHS	65.00	1.03	1.54 (1.078 to 2.31)	1.00
C3R	131.00	3/8" 1x7 EHS	65.00	0.94	1.54 (1.078 to 2.31)	0.91
C4L	131.00	7/16" 1x7 EHS	65.00	0.88	2.08 (1.456 to 3.12)	0.84
C4R	131.00	7/16" 1x7 EHS	65.00	0.90	2.08 (1.456 to 3.12)	0.86
C5L	204.00	7/16" 1x7 EHS	65.00	1.33	2.08 (1.456 to 3.12)	1.29
C5R	204.00	7/16" 1x7 EHS	65.00	1.37	2.08 (1.456 to 3.12)	1.33

ISSUE #11



ISSUE #13

ISSUE:  
LEVEL I RUST ON TURNBUCKLES.

RECOMMENDATION:  
REMOVE RUST WITH A WIRE BRUSH OR SIMILAR. COLD-GALVANIZE AFFECTED AREAS WITH MINIMUM OF (2) COATS OF 95%.



ISSUE #14

ISSUE:  
FENCE DAMAGED AT ANCHOR A OUTER.

RECOMMENDATION:  
REPAIR DAMAGED FENCE.

ISSUE:  
LIGHTNING ROD IS NOT THE TALLEST APPURTENANCE ON TOWER.

RECOMMENDATION:  
INSTALL THE EXISTING LIGHTNING ON A 6 FT EXTENSION TO PUT ABOVE THE TALLEST ANTENNA.



ISSUE #15



ISSUE #12

ISSUE:  
TURNBUCKLE GAPS FOR GUY WIRES B1 AND C1 ARE OUT OF RANGE.

RECOMMENDATION:  
MONITOR GAPS AND INSTALL LONGER HARDWARE OR RE-GRIP WIRES IF REQUIRED.

**NOTES:**

1. TIA MAINTENANCE ISSUES DISCOVERED DURING STRUCTURAL COMPONENTS, LLC PRECONSTRUCTION TOWER MAPPING DATED 10/16/12.
2. ALL TIA MAINTENANCE ISSUES ARE TO BE COMPLETED BY OTHERS AT INSITE'S DISCRETION.

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
5				SS	
4				DT	
3				RM	
2					
1					
0	1/04/13	MODIFICATION DRAWINGS			

SITE INFORMATION:

164 COUNTY ROAD REAR  
WOLCOTT, CT 06716-2504

DESIGN TYPE:

GUYED TOWER  
REINFORCEMENT

SHEET TITLE:

MAINTENANCE ISSUES

SHEET TITLE:

REVISION:

**M-2**

**0**

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

Sprint Existing Facility

Site ID: CT60XC956

Cox Communications Tower

164 County Road Rear  
Wolcott, CT 06716

**May 30, 2014**

**EBI Project Number: 62143192**

May 30, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:  
**CT60XC956 - Cox Communications Tower**

**Site Total: 3.08% - MPE% in full compliance**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 164 County Road Rear, Wolcott, CT, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 164 County Road Rear, Wolcott, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

- 1) 4 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
- 2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation
- 3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-I20. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS APXVTM14-C-I20 has a 15.9 dBd gain value at its main lobe at 2500 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline for the proposed antennas is **210 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Site ID	CT60XC956 - Cox Communications Tower
Site Address	164 County Road Rear, Wolcott, CT, 06716
Site Type	Guyed Tower

**Sector 1**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	5.9	210	204	1/2 "	0.5	3	139.02	0.12%
1a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	210	204	1/2 "	0.5	3	19.54	0.03%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	210	204	1/2 "	0.5	3	69.51	0.11%
Sector total Power Density Value:															0.26%	

**Sector 2**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	5.9	210	204	1/2 "	0.5	3	139.02	0.12%
2a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	210	204	1/2 "	0.5	3	19.54	0.03%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	210	204	1/2 "	0.5	3	69.51	0.11%
Sector total Power Density Value:															0.26%	

**Sector 3**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	5.9	210	204	1/2 "	0.5	3	139.02	0.12%
3a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	210	204	1/2 "	0.5	3	19.54	0.03%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	210	204	1/2 "	0.5	3	69.51	0.11%
Sector total Power Density Value:															0.26%	

Site Composite MPE %	
Carrier	MPE %
Sprint	0.77%
Cox Communications	0.63%
Clearwire	0.43%
T-Mobile	1.25%
<b>Total Site MPE %</b>	<b>3.08%</b>

## Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **0.77% (0.26% from sector 1, 0.26% from sector 2 and 0.26% from sector 3)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **3.08%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE values listed in the Connecticut Siting Council database for existing carrier emissions.

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



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