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

February 27, 2015

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

RE: **Sprint PCS-Exempt Modification - Crown Site BU: 876333**
Sprint PCS Site ID: CT03XC086
Located at: 10 Sparks Street, Plainville, CT 06062

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of Sprint PCS (Sprint). Sprint is making modifications to certain existing sites in its Connecticut system in order to implement their 2.5GHz LTE technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mr. Robert E. Lee, Town Manager for the Town of Plainville and Heartland-Plainville LLC, Property Owner.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **10 Sparks Street, Plainville, CT 06062**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to Sprint's operations at the site (Exhibit-3).

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Sprint's additional antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. A Structural Modification Report confirming that the tower and foundation can support Sprint's proposed modifications is included as Exhibit-2.

5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for Sprint's modified facility is included as Exhibit-3.

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

Sincerely,

Susan Vale
Real Estate Specialist

Enclosures

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: Mr. Robert E. Lee, Town Manager
Plainville Municipal Center
One Central Square
Plainville, CT 06062

Heartland-Plainville LLC
P.O. Box 311
Bound Brook, NJ 08805

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	CREATIVE DIMENSIONS
SITE CASCADE:	CT03XC086
SITE NUMBER:	876333
SITE ADDRESS:	10 SPARK STREET PLAINVILLE, CT 06062
SITE TYPE:	MONOPOLE
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN ATLANTIC COMPANY LLC
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(704) 405-6555

LATITUDE (NAD83):
41° 40' 24.52" N
41.673478°

LONGITUDE (NAD83):
-72° 51' 16.17" W
-72.854492°

COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
(860) 947-2000

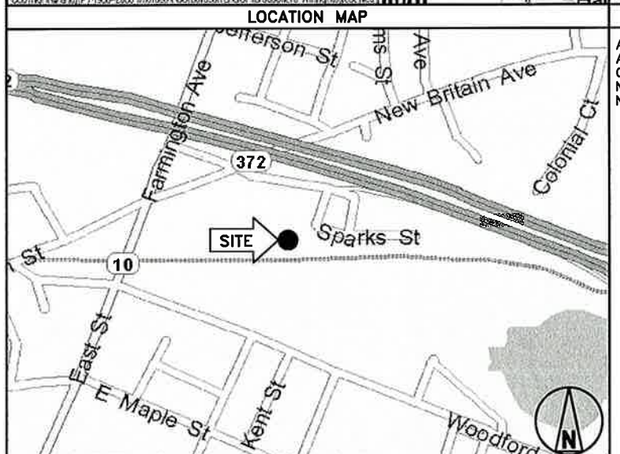
SPRINT PM:
PETER GIARD
(508) 801-0074
peter.giard@sprint.com

SPRINT CM:
PETER CULBERT
(603) 203-6446
(603) 969-0686
peter.culbert@sprint.com

CROWN CASTLE CM:
JASON D'AMICO
(860) 209-0104
JASON.D'AMICO@CROWNCASTLE.COM

AREA MAP

LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS CABINET
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) FIBER CABLE
- INSTALL (4) 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.

1. INTERNATIONAL BUILDING CODE (2012 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

811 Know what's **below.** **Call** before you dig. www.call811.com

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 & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & 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

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 353-XXX

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:
CREATIVE DIMENSIONS

SITE CASCADE:
CT03XC086

SITE ADDRESS:
10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

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-0588, 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.

TOWER OWNER NOTIFICATION
ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

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:
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 353-XXX

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:
CREATIVE DIMENSIONS

SITE CASCADE:
CT03XC086

SITE ADDRESS:
10 SPARK STREET
PLAINVILLE, CT 06062

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 ANTENNAL 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:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

10 SPARK STREET
PLAINVILLE, CT 06062

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. 1SHELTER 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:

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 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

10 SPARK STREET
PLAINVILLE, CT 06062

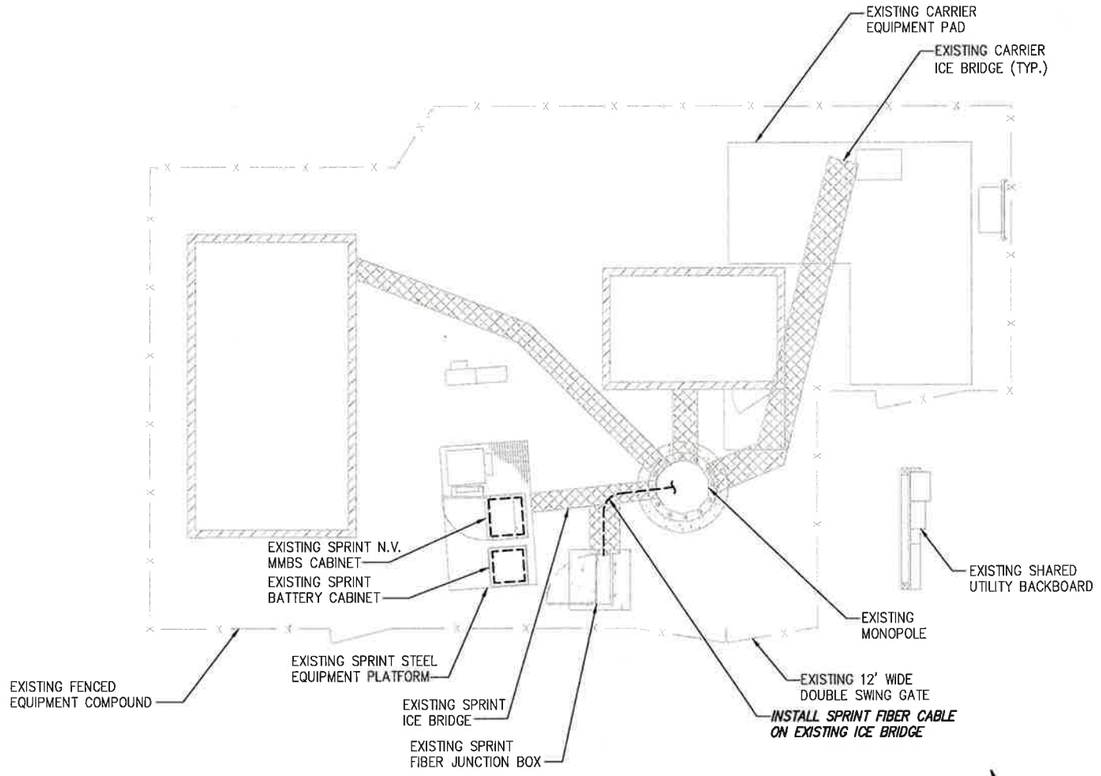
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

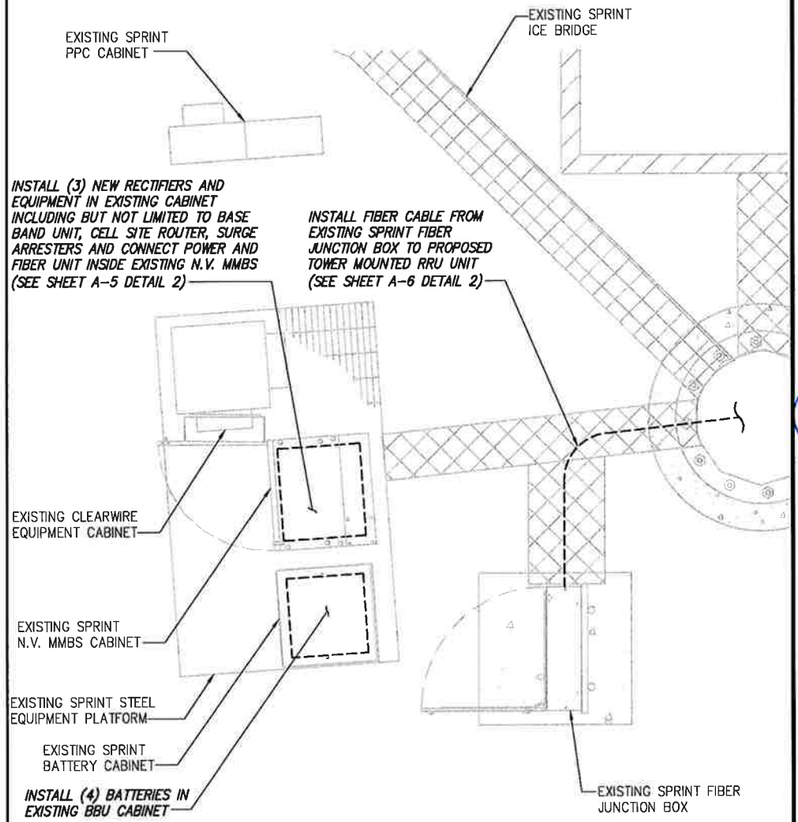
SHEET NUMBER:

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
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Office # (518) 690-0790
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DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
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SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

10 SPARK STREET
PLAINVILLE, CT 06062

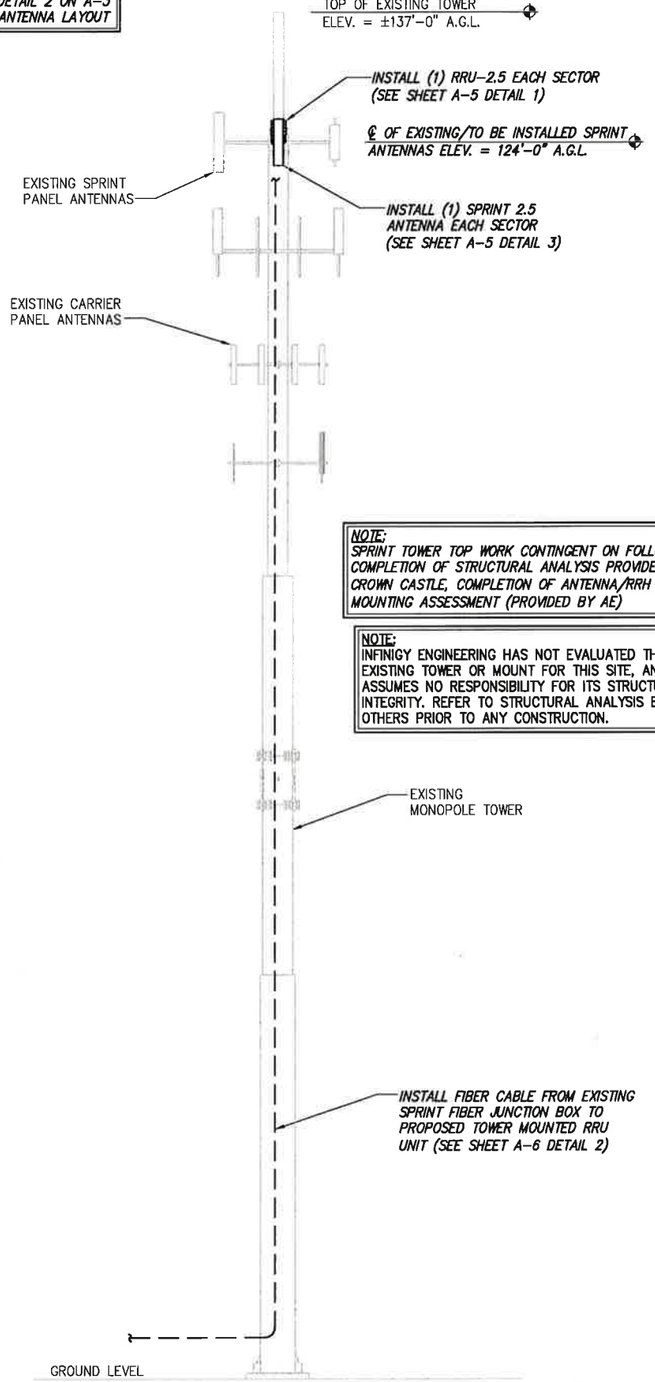
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

NOTE:
SEE DETAIL 2 ON A-3
FOR ANTENNA LAYOUT



NOTE:
SPRINT TOWER TOP WORK CONTINGENT ON FOLLOWING: COMPLETION OF STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, COMPLETION OF ANTENNA/RRH MOUNTING ASSESSMENT (PROVIDED BY AE)

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING TOWER OR MOUNT FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

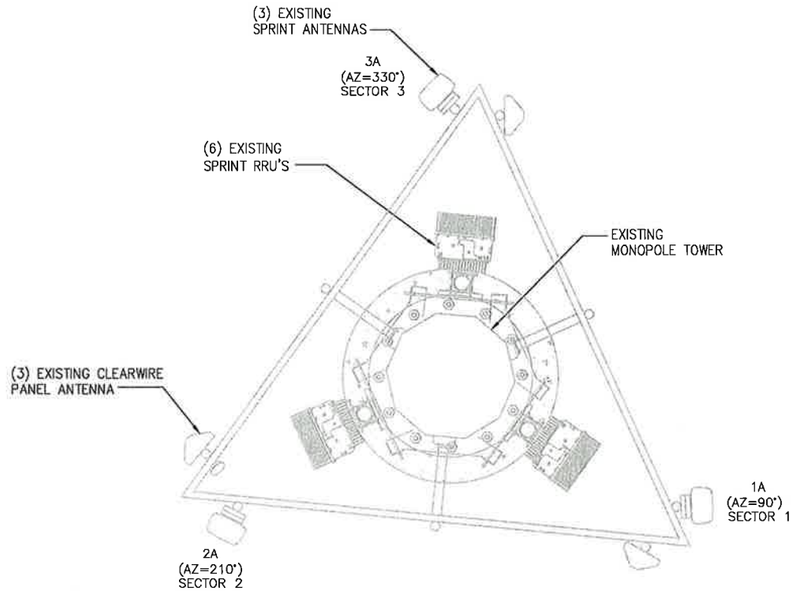
10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:

TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:

A-2

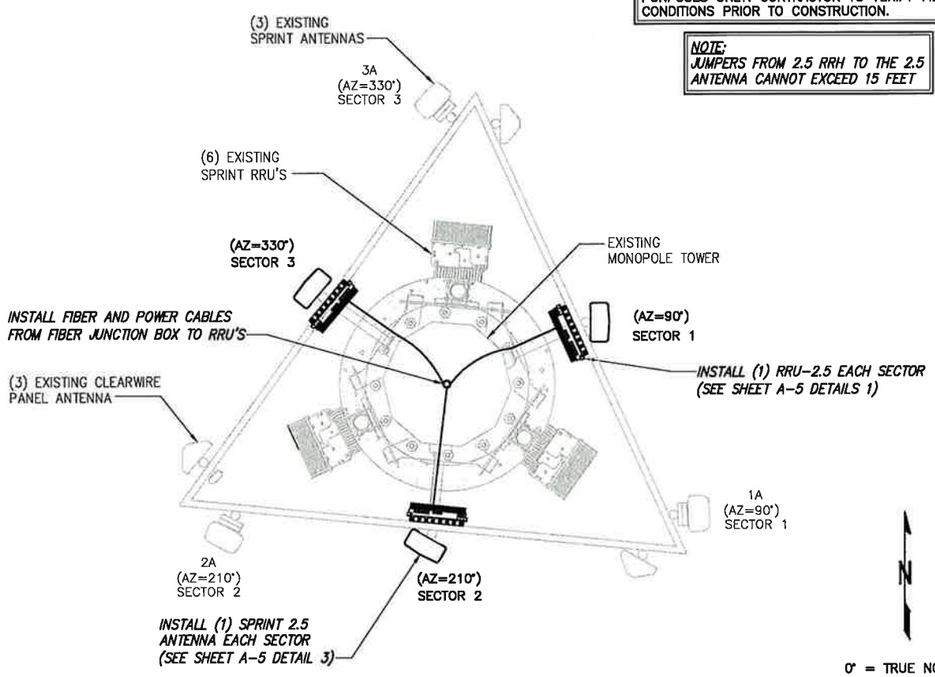


0° = TRUE NORTH

EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

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

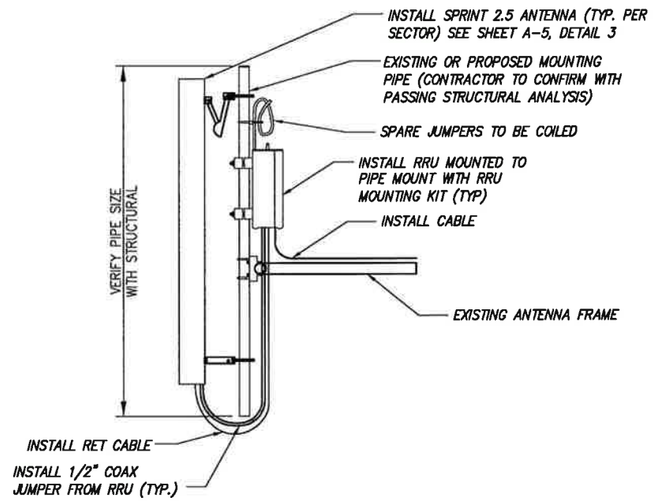
NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET



0° = TRUE NORTH

FINAL ANTENNA LAYOUT | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRU.
3. DO NO 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

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

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 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

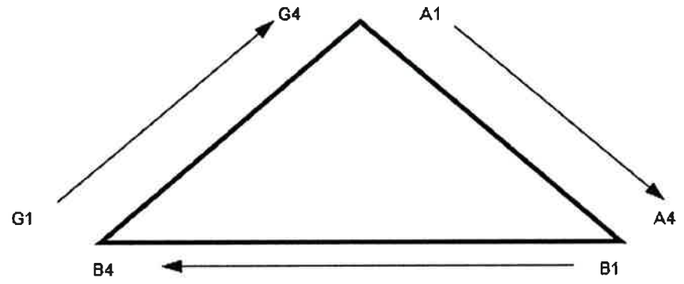
A-3

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:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

8. 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
1	2		No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2			No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2			
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	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	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1

Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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Office # (518) 690-0790
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JOB NUMBER 353-XXX

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

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SITE NAME:
CREATIVE DIMENSIONS

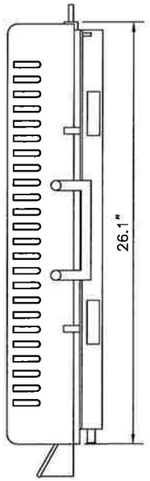
SITE CASCADE:
CT03XC086

SITE ADDRESS:
10 SPARK STREET
PLAINVILLE, CT 06062

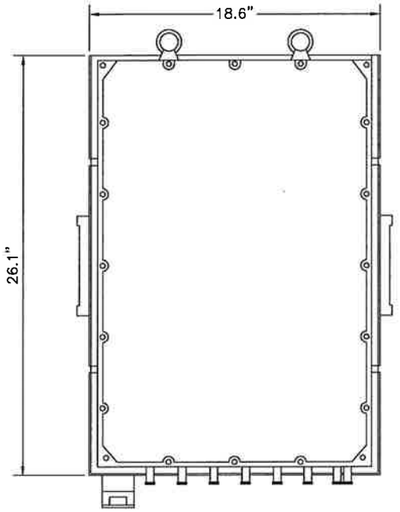
SHEET DESCRIPTION:
COLOR CODING AND NOTES

SHEET NUMBER:
A-4

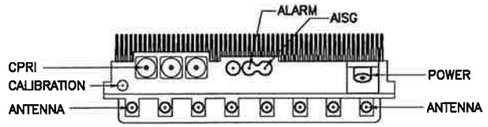
RRU: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

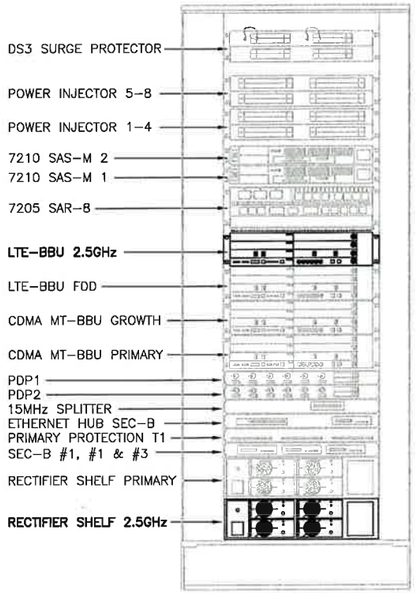


PLAN VIEW

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

2.5 RRU | NO SCALE | 1

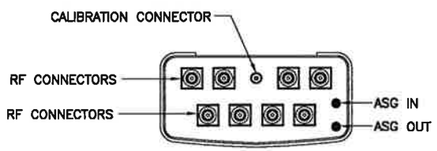


FRONT VIEW

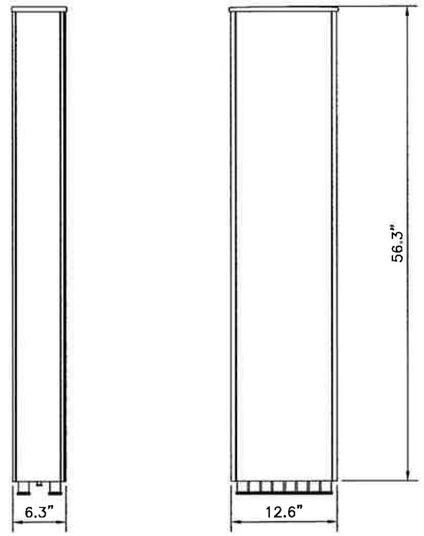
NEW EQUIPMENT IN EXISTING CABINET | NO SCALE | 2

ANTENNA: RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
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



PLAN VIEW



2.5 ANTENNA | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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 353-XXX

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:
CREATIVE DIMENSIONS

SITE CASCADE:
CT03XC086

SITE ADDRESS:
10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

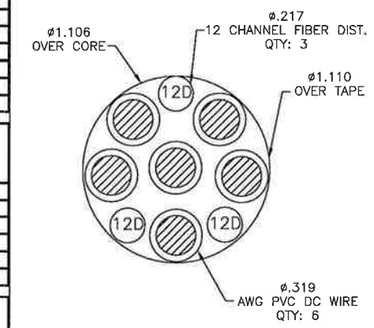
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

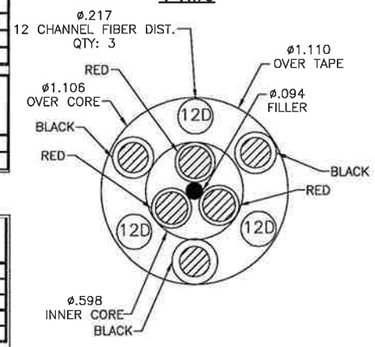
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

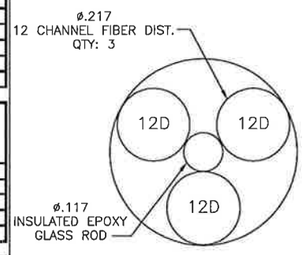
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

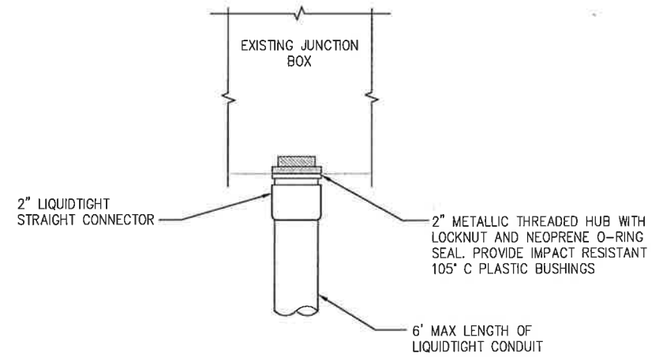


8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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 353-XXX

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

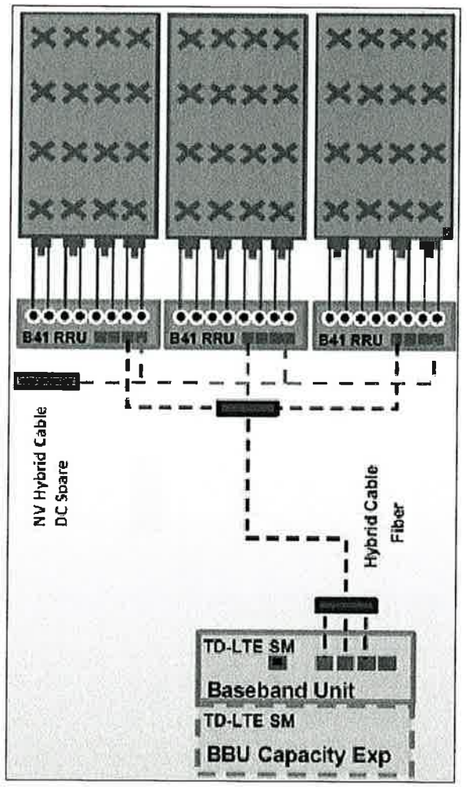
SITE NAME:
CREATIVE DIMENSIONS

SITE CASCADE:
CT03XC086

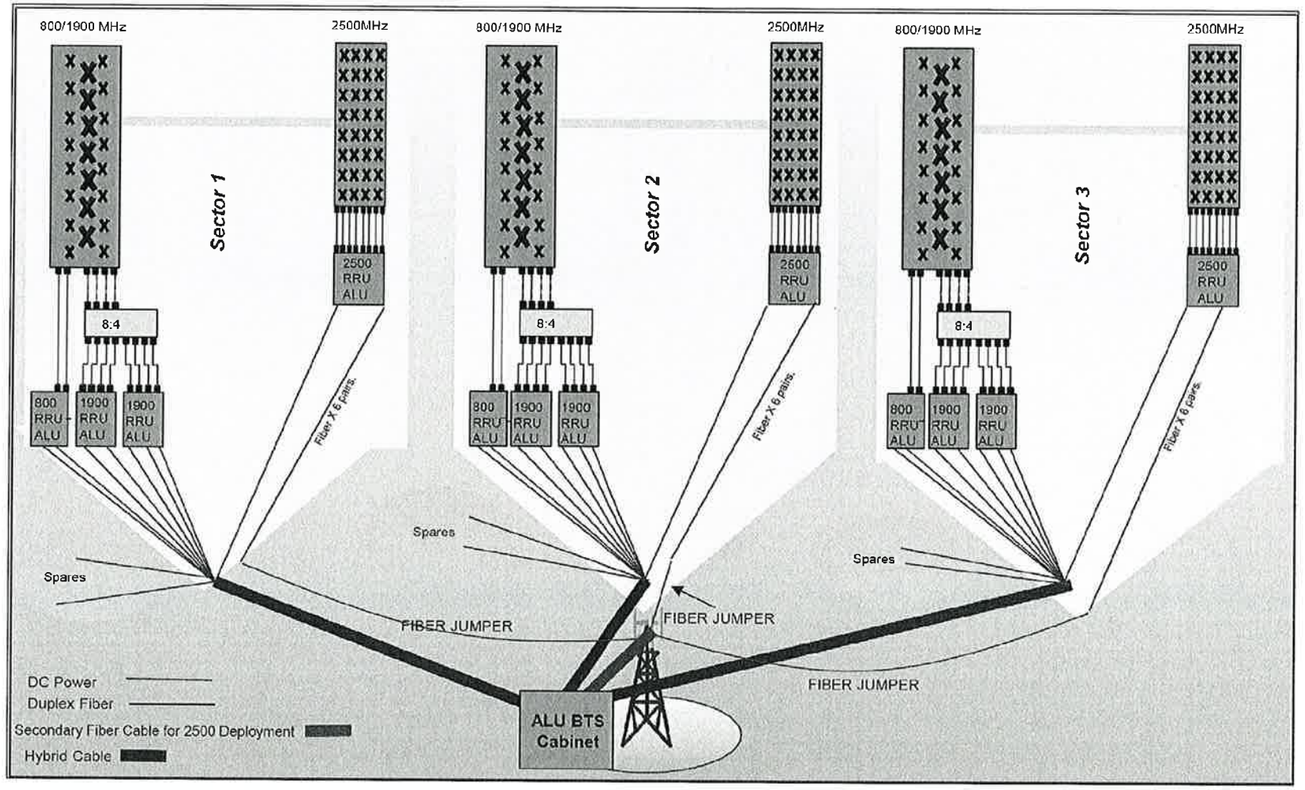
SITE ADDRESS:
10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:
CIVIL DETAILS

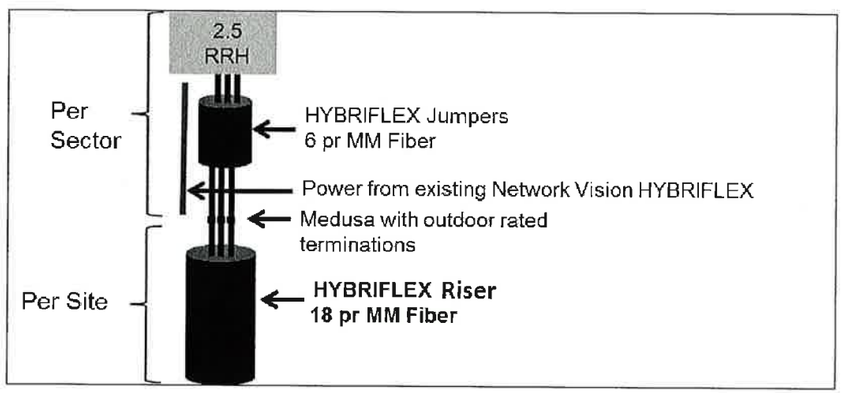
SHEET NUMBER:
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM

NO SCALE

1

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.
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LICENSED PROFESSIONAL ENGINEER

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10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:

CIVIL DETAILS

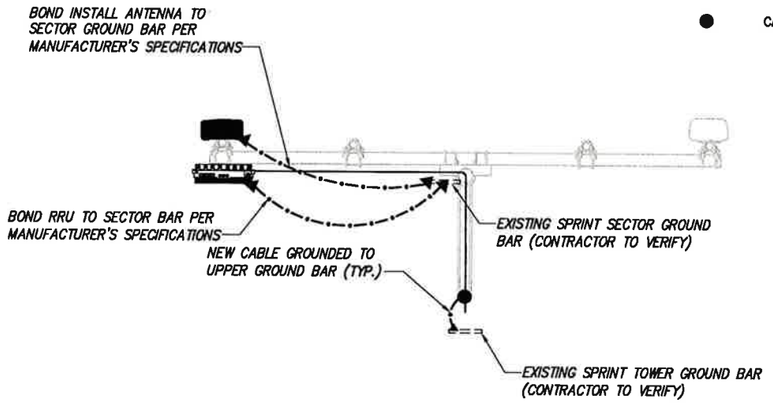
SHEET NUMBER:

A-7

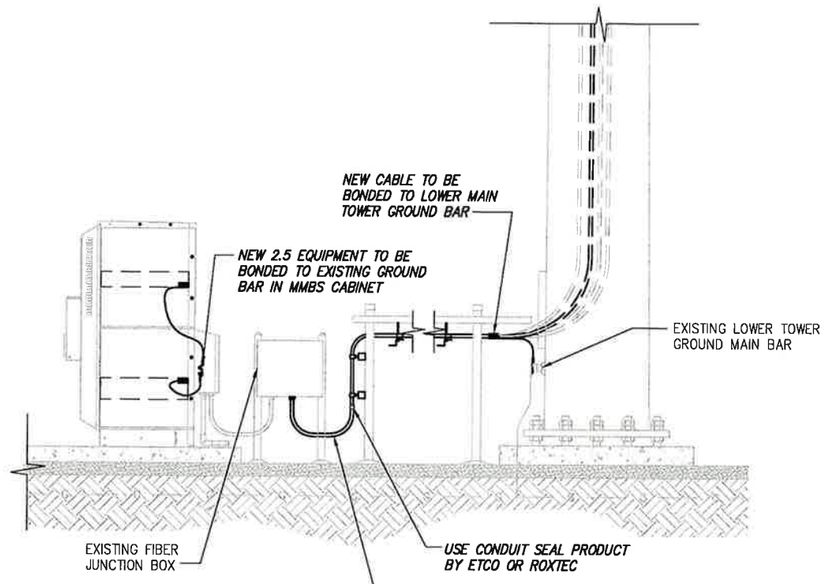
PLAN NOT USED | NO SCALE | 1

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



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

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

PLANS PREPARED FOR:

Sprint

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Overland Park, Kansas 66251

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10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:

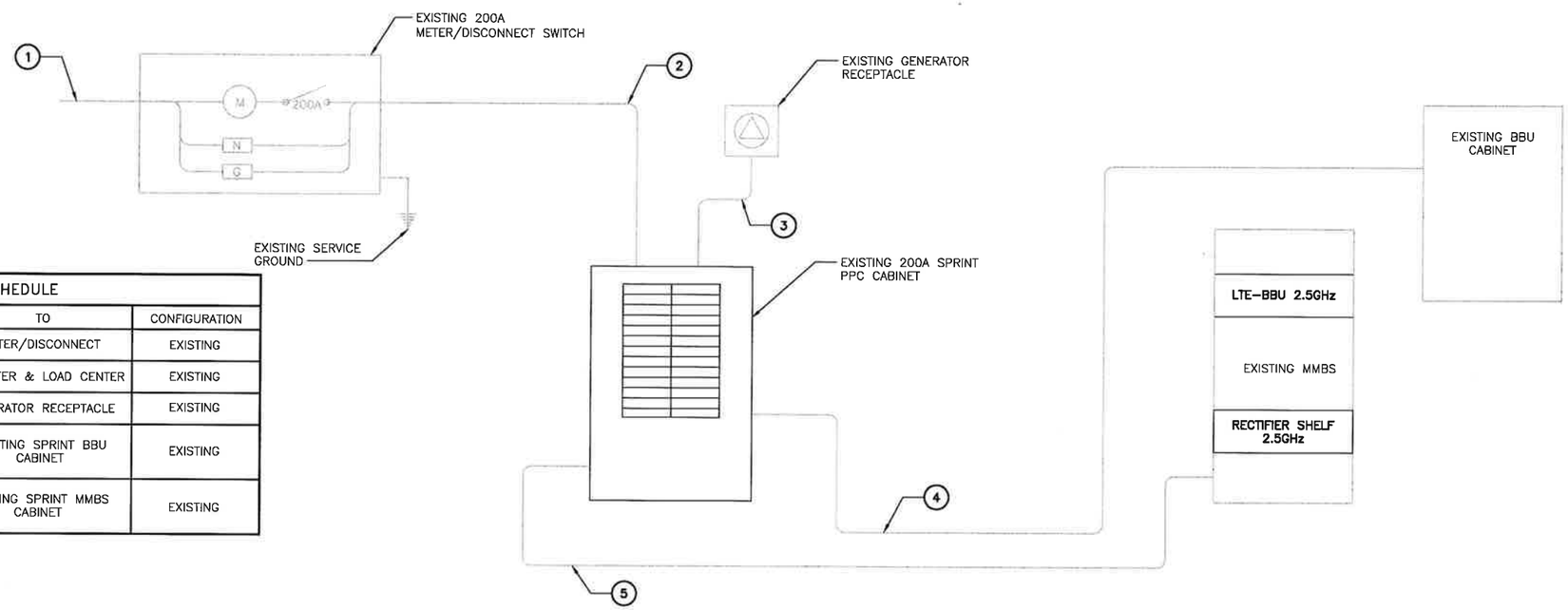
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

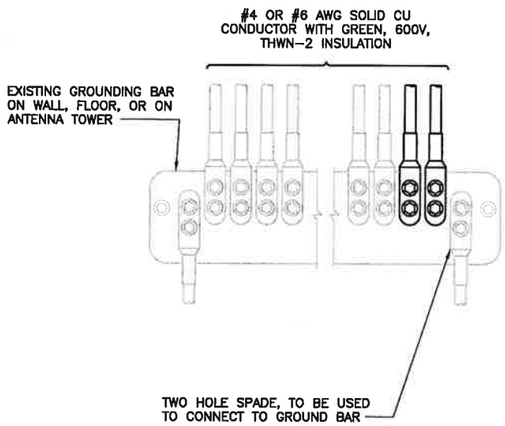
NOTES

CG 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 SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

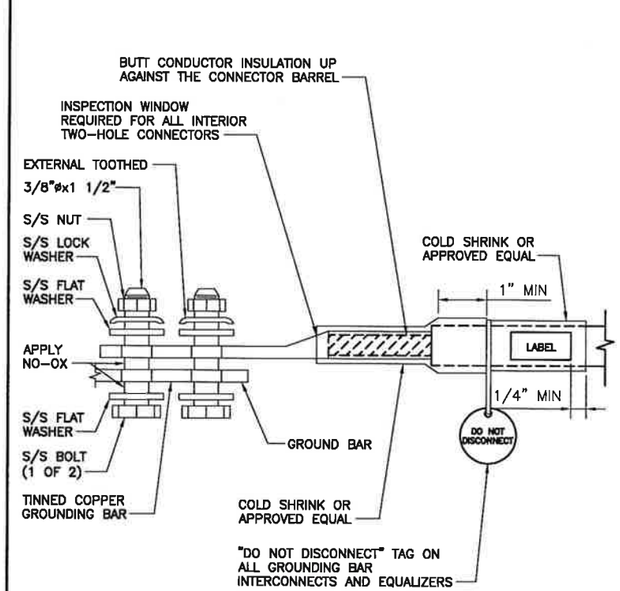
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



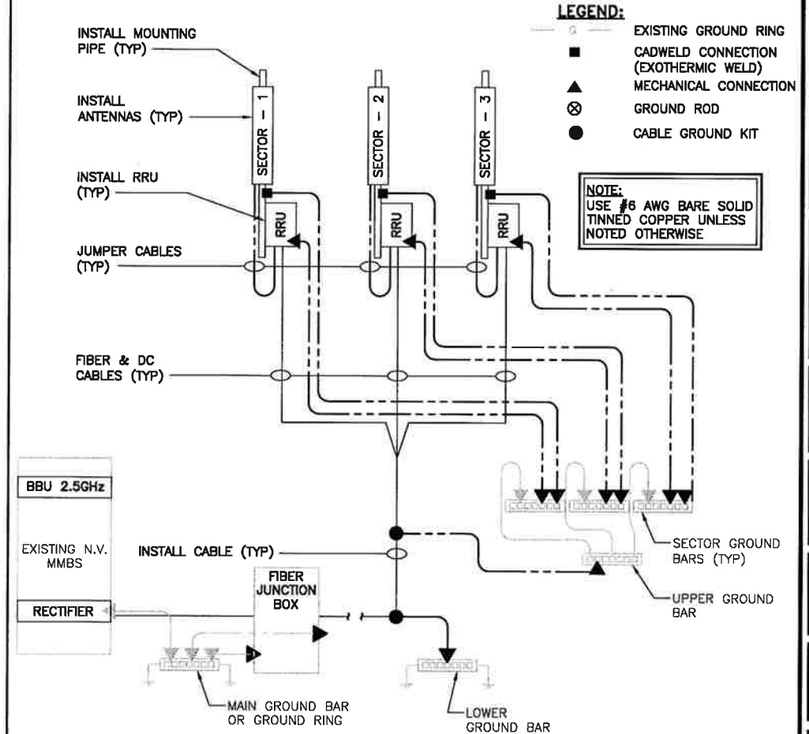
NOTES

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.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR — NO SCALE — 2



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

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 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT · JOHN S. STEVENS · No. 24705 · LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	05/22/14	SKB	0

SITE NAME:

CREATIVE DIMENSIONS

SITE CASCADE:

CT03XC086

SITE ADDRESS:

10 SPARK STREET
PLAINVILLE, CT 06062

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

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

Date: **January 14, 2015**

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

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

Subject: Structural Modification Report

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC086
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	876333
	Crown Castle Site Name:	CREATIVE DIMENSIONS
	Crown Castle JDE Job Number:	286429
	Crown Castle Work Order Number:	992444
	Crown Castle Application Number:	245371 Rev. 2
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37515-0123.001.7700
Site Data:	**10 Sparks St., PLAINVILLE, Hartford County, CT** **Latitude *41° 40' 24.52"*, Longitude *-72° 51' 16.17"*** **137 Foot - Monopole Tower**	

Dear Timothy Howell,

Paul J. Ford and Company is pleased to submit this **"Structural Modification Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 745970, in accordance with application 245371, revision 2.

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

LC4.5: Modified Structure w/ Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

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

We at *Paul J. Ford and Company* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Joey Meinerding, E.I.
Structural Designer

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED
PROFESSIONAL ENGINEER

1.21.15

tnxTower Report - version 6.1.4.1

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

Date: **January 14, 2015**

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Respectfully submitted by:

Joey Meinerding, E.I.
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 137 ft. monopole tower designed by PITTSBURG MONOPOLE in April of 1997. The original design standard and wind speed are unknown.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
124.0	124.0	3	alcatel lucent	TD-RRH8x20-25	1	1-1/4	--
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			
		1	tower mounts	Miscellaneous [NA 509-3]			
		1	tower mounts	Site Pro 1 HRK-12			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
124.0	131.0	1	andrew	VHLP1-23	10 3	5/16 1-1/4	1
		1	andrew	VHLP2.5-18			
		2	samsung telecommunications	WIMAX DAP HEAD			
	124.0	3	argus technologies	LLPX310R-V4 w/ Mount Pipe			
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe			
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	IBC1900BB-1			
		3	rfs celwave	IBC1900HG-2A			
		3	samsung telecommunications	WIMAX DAP HEAD			
		1	tower mounts	Platform Mount [LP 601-1]			
122.0	125.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	--	--	1
	122.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
		1	tower mounts	Pipe Mount [PM 601-3]			
113.0	115.0	6	ericsson	RRUS-11	1 2 12	3/8 3/4 7/8	1
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	lucent	LGP21401			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		3	powerwave technologies	LGP21903			
		1	raycap	DC6-48-60-18-8F			
	113.0	1	tower mounts	Platform Mount [LP 601-1]			
100.0	100.0	1	tower mounts	T-Arm Mount [TA 602-3]	--	--	2
92.0	93.0	3	andrew	HBX-6516DS-VTM w/ Mount Pipe	1 6	3/8 7/8	1
	92.0	1	tower mounts	T-Arm Mount [TA 601-3]			
50.0	50.0	1	gps	GPS_A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Equipment To Be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welt, P.E., P.C., 07/23/1996	1529723	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Hodge Design Associates, M97-0012, 08/07/1997	1616541	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Pittsburg Monopole Division, 367, 04/15/1997	1615369	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 67310-0038, 07/01/2010	2680348	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Flange information was not available at the 125 ft. elevation. Therefore, the flange was assumed to match the capacity of the 12" pipe section. As the pipe section is at 4%, the flange and bolts were assumed to be sufficient.
5) Monopole was reinforced in conformance with the referenced modification drawings.
6) Monopole will be reinforced in conformance with the attached proposed modification drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	137 - 125	Pole	P12 STD	1	-0.61	408.11	4.0	Pass
L2	125 - 120	Pole	P24x0.375	2	-4.01	779.12	8.4	Pass
L3	120 - 89.5	Pole	P24x0.375	3	-10.19	779.12	95.9	Pass
L4	89.5 - 85.7296	Pole	RPS 24" x 0.47745"	4	-10.74	963.40	89.1	Pass
L5	85.7296 - 80	Pole	RPS 24" x 0.61443"	5	-11.75	1125.35	91.9	Pass
L6	80 - 65.5	Pole	36" x 0.375"	6	-14.45	1169.03	91.3	Pass
L7	65.5 - 58.6458	Pole	RPS 36" x 0.46401"	7	-15.81	1310.88	85.9	Pass
L8	58.6458 - 57.5	Pole	RPS 36" x 0.61364"	8	-16.10	1726.30	67.2	Pass
L9	57.5 - 49.5	Pole	RPS 36" x 0.52234"	9	-17.92	1473.71	90.8	Pass
L10	49.5 - 40	Pole	RPS 36" x 0.5885"	10	-20.27	1623.25	96.7	Pass
L11	40 - 19.5	Pole	P42x1/2	11	-25.64	1824.81	98.1	Pass
L12	19.5 - 13	Pole	RPS 42" x 0.55394"	12	-27.41	1996.54	97.4	Pass
L13	13 - 1.5	Pole	RPS 42" x 0.65533"	13	-31.05	2330.34	95.7	Pass
L14	1.5 - 0	Pole	RPS 42" x 0.66863"	14	-31.53	2362.28	96.0	Pass
							Summary	
						Pole (L11)	98.1	Pass
						RATING =	98.1	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	93.4	Pass
1	Base Plate	0	57.4	Pass
1	Base Foundation Structural Steel	0	73.9	Pass
1,2	Base Foundation Soil Interaction	0	33.9	Pass
1	Flange Connection	40	91.4	Pass
1	Flange Connection	80	98.5	Pass
1	Flange Connection	120	27.7	Pass

Structure Rating (max from all components) =	**98.5%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Foundation Analysis Notes: According to the procedures prescribed and agreed to by the Crown Castle Engineering Foundation Committee, held in January 2010, the existing caisson foundation was analyzed using the methodology in the software ‘PLS-Caisson’ (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the caisson is the greater of the geotechnical report’s recommendation, the frost depth of the site or half of the caisson diameter.

4.1) Recommendations

Install the proposed modifications per the attached drawings.

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

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

1) Tower is located in Hartford County, Connecticut.
2) Basic wind speed of 80.0 mph.
3) Nominal ice thickness of 1.00 in.
4) Ice density of 56 pcf.
5) A wind speed of 37.6 mph is used in combination with ice.
6) Temperature drop of 50 °F.
7) Deflections calculated using a wind speed of 50.0 mph.
8) A non-linear (P-delta) analysis was used.
9) Pressures are calculated at each section.
10) Stress ratio used in pole design is 1.333.
11) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	137.00-125.00	12.00	P12 STD	A53-B-35 (35 ksi)	
L2	125.00-120.00	5.00	P24x0.375	A53-B-35 (35 ksi)	
L3	120.00-89.50	30.50	P24x0.375	A53-B-35 (35 ksi)	
L4	89.50-85.73	3.77	RPS 24" x 0.47745"	Reinf 34.14 ksi (34 ksi)	
L5	85.73-80.00	5.73	RPS 24" x 0.61443"	Reinf 31.17 ksi (31 ksi)	
L6	80.00-65.50	14.50	36" x 0.375"	A53-B-35 (35 ksi)	
L7	65.50-58.65	6.85	RPS 36" x 0.46401"	Reinf 31.64 ksi (32 ksi)	
L8	58.65-57.50	1.15	RPS 36" x 0.61364"	Reinf 31.64 ksi	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L9	57.50-49.50	8.00	RPS 36" x 0.52234"	(32 ksi) Reinf 31.65 ksi (32 ksi)	
L10	49.50-40.00	9.50	RPS 36" x 0.5885"	(32 ksi) Reinf 31.21 ksi (31 ksi)	
L11	40.00-19.50	20.50	P42x1/2	A53-B-35 (35 ksi)	
L12	19.50-13.00	6.50	RPS 42" x 0.55394"	Reinf 34.61 ksi (35 ksi)	
L13	13.00-1.50	11.50	RPS 42" x 0.65533"	Reinf 34.23 ksi (34 ksi)	
L14	1.50-0.00	1.50	RPS 42" x 0.66863"	Reinf 34.02 ksi (34 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 137.00-125.00				1	1	1		
L2 125.00-120.00				1	1	1		
L3 120.00-89.50				1	1	1		
L4 89.50-85.73				1	1	1		
L5 85.73-80.00				1	1	1		
L6 80.00-65.50				1	1	1		
L7 65.50-58.65				1	1	1		
L8 58.65-57.50				1	1	1		
L9 57.50-49.50				1	1	1		
L10 49.50-40.00				1	1	1		
L11 40.00-19.50				1	1	1		
L12 19.50-13.00				1	1	1		
L13 13.00-1.50				1	1	1		
L14 1.50-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
9207(5/16")	C	No	Inside Pole	124.00 - 0.00	10	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
2" Conduit	C	No	Inside Pole	124.00 - 0.00	2	No Ice	0.00	1.16
						1/2" Ice	0.00	1.16
						1" Ice	0.00	1.16

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HB114-1-08U4-M5J(1 1/4")	C	No	CaAa (Out Of Face)	124.00 - 0.00	2	No Ice	0.00	1.08
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.18
HB114-1-08U4-M5J(1 1/4")	C	No	CaAa (Out Of Face)	124.00 - 0.00	1	No Ice	0.15	1.08
						1/2" Ice	0.25	2.33
						1" Ice	0.35	4.18
HB114-21U3M12-XXXF(1-1/4")	C	No	CaAa (Out Of Face)	124.00 - 0.00	1	No Ice	0.00	1.22
						1/2" Ice	0.00	2.47
						1" Ice	0.00	4.32
***								
LDF5-50A(7/8")	C	No	Inside Pole	113.00 - 0.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
FB-L98B-002-75000(3/8")	C	No	Inside Pole	113.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	113.00 - 0.00	2	No Ice	0.00	0.59
						1/2" Ice	0.00	0.59
						1" Ice	0.00	0.59
2" Conduit	C	No	Inside Pole	113.00 - 0.00	1	No Ice	0.00	1.16
						1/2" Ice	0.00	1.16
						1" Ice	0.00	1.16
***								
LDF2-50(3/8")	C	No	Inside Pole	92.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
FXL 780 PE(7/8)	C	No	Inside Pole	92.00 - 0.00	6	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
***								
LDF4-50A(1/2")	C	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
***								
WT 4X6.5	C	No	CaAa (Out Of Face)	125.00 - 0.00	1	No Ice	0.67	0.01
						1/2" Ice	0.78	0.01
						1" Ice	0.89	0.01
***								
1" Flat Reinforcement	A	No	CaAa (Out Of Face)	14.50 - 0.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	A	No	CaAa (Out Of Face)	59.00 - 38.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
3/4" Flat Reinforcement	A	No	CaAa (Out Of Face)	86.00 - 79.00	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
***								
3/4" Flat Reinforcement	A	No	CaAa (Out Of Face)	20.50 - 0.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	A	No	CaAa (Out Of Face)	50.50 - 40.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	A	No	CaAa (Out Of Face)	66.50 - 56.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	A	No	CaAa (Out Of Face)	90.50 - 80.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	137.00-125.00	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
L2	125.00-120.00	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	3.949	0.03
L3	120.00-89.50	A	0.000	0.000	0.000	0.125	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	25.030	0.38
L4	89.50-85.73	A	0.000	0.000	0.000	0.505	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.094	0.06
L5	85.73-80.00	A	0.000	0.000	0.000	1.370	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.702	0.09
L6	80.00-65.50	A	0.000	0.000	0.000	0.250	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.900	0.22
L7	65.50-58.65	A	0.000	0.000	0.000	0.916	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.625	0.11
L8	58.65-57.50	A	0.000	0.000	0.000	0.334	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.940	0.02
L9	57.50-49.50	A	0.000	0.000	0.000	1.583	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.565	0.12
L10	49.50-40.00	A	0.000	0.000	0.000	2.708	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	7.796	0.15
L11	40.00-19.50	A	0.000	0.000	0.000	0.375	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	16.824	0.32
L12	19.50-13.00	A	0.000	0.000	0.000	1.063	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.334	0.10
L13	13.00-1.50	A	0.000	0.000	0.000	3.354	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.438	0.18
L14	1.50-0.00	A	0.000	0.000	0.000	0.375	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.231	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	137.00-125.00	A	1.000	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
L2	125.00-120.00	A	1.000	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	5.860	0.08
L3	120.00-89.50	A	1.000	0.000	0.000	0.000	0.347	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	37.908	0.76
L4	89.50-85.73	A	1.000	0.000	0.000	0.000	1.403	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.686	0.10
L5	85.73-80.00	A	1.000	0.000	0.000	0.000	3.805	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	7.121	0.16
L6	80.00-65.50	A	1.000	0.000	0.000	0.000	0.694	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	18.022	0.40

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L7	65.50-58.65	A	1.000	0.000	0.000	0.000	2.518	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.519	0.19
L8	58.65-57.50	A	1.000	0.000	0.000	0.000	0.843	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.424	0.03
L9	57.50-49.50	A	1.000	0.000	0.000	0.000	3.806	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.943	0.22
L10	49.50-40.00	A	1.000	0.000	0.000	0.000	6.819	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.807	0.27
L11	40.00-19.50	A	1.000	0.000	0.000	0.000	0.931	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.479	0.57
L12	19.50-13.00	A	1.000	0.000	0.000	0.000	2.840	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.079	0.18
L13	13.00-1.50	A	1.000	0.000	0.000	0.000	8.465	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	14.293	0.32
L14	1.50-0.00	A	1.000	0.000	0.000	0.000	0.931	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.864	0.04

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	137.00-125.00	0.00	0.00	0.00	0.00
L2	125.00-120.00	-0.74	0.42	-0.91	0.53
L3	120.00-89.50	-0.75	0.43	-0.94	0.53
L4	89.50-85.73	-0.72	0.28	-0.85	0.20
L5	85.73-80.00	-0.70	0.17	-0.79	-0.03
L6	80.00-65.50	-0.83	0.46	-1.09	0.58
L7	65.50-58.65	-0.81	0.31	-1.01	0.24
L8	58.65-57.50	-0.78	0.13	-0.94	-0.10
L9	57.50-49.50	-0.80	0.24	-0.99	0.13
L10	49.50-40.00	-0.78	0.14	-0.94	-0.08
L11	40.00-19.50	-0.86	0.47	-1.14	0.61
L12	19.50-13.00	-0.83	0.29	-1.06	0.18
L13	13.00-1.50	-0.81	0.14	-1.00	-0.11
L14	1.50-0.00	-0.82	0.18	-1.02	0.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LLPX310R-V4 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	4.97 5.36 5.75	2.85 3.37 3.90	0.04 0.08 0.12
LLPX310R-V4 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice	4.97 5.36 5.75	2.85 3.37 3.90	0.04 0.08 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LLPX310R-V4 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	4.97 5.36 5.75	2.85 3.37 3.90	0.04 0.08 0.12
WIMAX DAP HEAD	A	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.80 1.99 2.18	0.78 0.92 1.07	0.03 0.04 0.06
WIMAX DAP HEAD	B	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.80 1.99 2.18	0.78 0.92 1.07	0.03 0.04 0.06
WIMAX DAP HEAD	C	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.80 1.99 2.18	0.78 0.92 1.07	0.03 0.04 0.06
WIMAX DAP HEAD	B	From Leg	4.00 0.00 7.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.80 1.99 2.18	0.78 0.92 1.07	0.03 0.04 0.06
WIMAX DAP HEAD	C	From Leg	4.00 0.00 7.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.80 1.99 2.18	0.78 0.92 1.07	0.03 0.04 0.06
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.95 8.13 9.02	0.08 0.15 0.23
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	7.47 8.66 9.56	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.95 8.13 9.02	0.08 0.15 0.23
IBC1900HG-2A	A	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
IBC1900HG-2A	B	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
IBC1900HG-2A	C	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
IBC1900BB-1	A	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
IBC1900BB-1	B	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
IBC1900BB-1	C	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	1.13 1.27 1.43	0.53 0.65 0.77	0.02 0.03 0.04
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	124.00	1" Ice No Ice 1/2" Ice 1" Ice	7.13 7.66 8.18	4.96 5.75 6.47	0.08 0.13 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	7.13 7.66 8.18	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	7.13 7.66 8.18	4.96 5.75 6.47	0.08 0.13 0.19
TD-RRH8x20-25	A	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	4.72 5.01 5.32	1.70 1.92 2.15	0.07 0.10 0.13
TD-RRH8x20-25	B	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	4.72 5.01 5.32	1.70 1.92 2.15	0.07 0.10 0.13
TD-RRH8x20-25	C	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice	4.72 5.01 5.32	1.70 1.92 2.15	0.07 0.10 0.13
Platform Mount [LP 601-1]	C	None		0.000	124.00	No Ice 1/2" Ice 1" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91
Site Pro 1 HRK-12	C	None		0.000	124.00	No Ice 1/2" Ice 1" Ice	4.80 6.70 8.60	4.80 6.70 8.60	0.25 0.29 0.34
Miscellaneous [NA 509-3]	C	None		0.000	124.00	No Ice 1/2" Ice 1" Ice	11.84 16.96 22.08	11.84 16.96 22.08	0.28 0.30 0.32
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PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
Pipe Mount [PM 601-3]	C	None		0.000	122.00	No Ice 1/2" Ice 1" Ice	4.39 5.48 6.57	4.39 5.48 6.57	0.20 0.24 0.28
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AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice	8.50 9.15 9.77	6.30 7.48 8.37	0.07 0.14 0.21

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.30 7.48 8.37	0.07 0.14 0.21
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.30 7.48 8.37	0.07 0.14 0.21
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	6.22 6.71 7.22	4.82 5.51 6.21	0.09 0.14 0.21
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	6.22 6.71 7.22	4.82 5.51 6.21	0.09 0.14 0.21
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	6.22 6.71 7.22	4.82 5.51 6.21	0.09 0.14 0.21
(2) RRUS-11	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	3.25 3.49 3.74	1.37 1.55 1.74	0.05 0.07 0.09
(2) RRUS-11	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	3.25 3.49 3.74	1.37 1.55 1.74	0.05 0.07 0.09
(2) RRUS-11	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	3.25 3.49 3.74	1.37 1.55 1.74	0.05 0.07 0.09
LGP21401	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.95 1.09 1.24	0.37 0.48 0.60	0.02 0.02 0.03
LGP21401	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.95 1.09 1.24	0.37 0.48 0.60	0.02 0.02 0.03
LGP21401	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.95 1.09 1.24	0.37 0.48 0.60	0.02 0.02 0.03
(2) LGP13519	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.34 0.42 0.51	0.21 0.28 0.36	0.01 0.01 0.01
(2) LGP13519	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.34 0.42 0.51	0.21 0.28 0.36	0.01 0.01 0.01
(2) LGP13519	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.34 0.42 0.51	0.21 0.28 0.36	0.01 0.01 0.01
LGP21903	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.27 0.34 0.43	0.18 0.25 0.32	0.01 0.01 0.02
LGP21903	B	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.27 0.34 0.43	0.18 0.25 0.32	0.01 0.01 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LGP21903	C	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	0.27 0.34 0.43	0.18 0.25 0.32	0.01 0.01 0.02
DC6-48-60-18-8F	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice 1/2" Ice 1" Ice	1.47 1.67 1.88	1.47 1.67 1.88	0.02 0.04 0.06
Platform Mount [LP 601-1]	C	None		0.000	113.00	No Ice 1/2" Ice 1" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91
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HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	3.60 4.00 4.43	3.24 3.91 4.56	0.03 0.06 0.10
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	3.60 4.00 4.43	3.24 3.91 4.56	0.03 0.06 0.10
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	3.60 4.00 4.43	3.24 3.91 4.56	0.03 0.06 0.10
2.375" OD x 5' Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	92.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
T-Arm Mount [TA 601-3]	C	None		0.000	92.00	No Ice 1/2" Ice 1" Ice	10.90 14.65 18.40	10.90 14.65 18.40	0.73 0.93 1.13
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GPS_A	C	From Leg	3.00 0.00 0.00	0.000	50.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.46	0.30 0.37 0.46	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	C	None		0.000	50.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09
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Bridge Stiffener (53" x 9" x 1")	A	None		0.000	40.00	No Ice 1/2" Ice 1" Ice	4.64 5.04 5.46	0.74 1.24 1.71	0.11 0.13 0.15
Bridge Stiffener (53" x 9" x 1")	B	None		0.000	40.00	No Ice 1/2" Ice 1" Ice	4.64 5.04 5.46	0.74 1.24 1.71	0.11 0.13 0.15
Bridge Stiffener (53" x 9" x 1")	C	None		0.000	40.00	No Ice 1/2" Ice 1" Ice	4.64 5.04 5.46	0.74 1.24 1.71	0.11 0.13 0.15
Bridge Stiffener (43" x 9.5"	A	None		0.000	80.00	No Ice	3.97	0.60	0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
x 1")						1/2" Ice	4.32	1.01	0.13
						1" Ice	4.67	1.29	0.15
Bridge Stiffener (43" x 9.5" x 1")	B	None		0.000	80.00	No Ice	3.97	0.60	0.12
						1/2" Ice	4.32	1.01	0.13
						1" Ice	4.67	1.29	0.15
Bridge Stiffener (43" x 9.5" x 1")	C	None		0.000	80.00	No Ice	3.97	0.60	0.12
						1/2" Ice	4.32	1.01	0.13
						1" Ice	4.67	1.29	0.15

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2.5-18	B	Paraboloid w/Shroud (HP)	From Leg	4.00 / 0.00 / 7.00	0.000		124.00	2.92	No Ice	6.68	0.05
									1/2" Ice	7.07	0.08
									1" Ice	7.46	0.12
VHLP1-23	C	Paraboloid w/o Radome	From Leg	4.00 / 0.00 / 7.00	0.000		124.00	1.27	No Ice	1.28	0.01
									1/2" Ice	1.45	0.02
									1" Ice	1.62	0.03

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 137.00-125.00	131.00	1.483	24	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	0.000
L2 125.00-120.00	122.50	1.455	24	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	3.949
L3 120.00-89.50	104.91	1.392	23	61.000	A	0.000	61.000	61.000	100.00	0.000	0.125
					B	0.000	61.000		100.00	0.000	0.000
					C	0.000	61.000		100.00	0.000	25.030
L4 89.50-85.73	87.61	1.322	22	7.541	A	0.000	7.541	7.541	100.00	0.000	0.505
					B	0.000	7.541		100.00	0.000	0.000
					C	0.000	7.541		100.00	0.000	3.094
L5 85.73-80.00	82.86	1.301	21	11.459	A	0.000	11.459	11.459	100.00	0.000	1.370
					B	0.000	11.459		100.00	0.000	0.000
					C	0.000	11.459		100.00	0.000	4.702
L6 80.00-65.50	72.75	1.253	21	43.500	A	0.000	43.500	43.500	100.00	0.000	0.250
					B	0.000	43.500		100.00	0.000	0.000
					C	0.000	43.500		100.00	0.000	11.900
L7 65.50-58.65	62.07	1.198	20	20.563	A	0.000	20.563	20.563	100.00	0.000	0.916
					B	0.000	20.563		100.00	0.000	0.000
					C	0.000	20.563		100.00	0.000	5.625
L8 58.65-	58.07	1.175	19	3.437	A	0.000	3.437	3.437	100.00	0.000	0.334

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
57.50					B	0.000	3.437		100.00	0.000	0.000
					C	0.000	3.437		100.00	0.000	0.940
L9 57.50-49.50	53.50	1.148	19	24.000	A	0.000	24.000	24.000	100.00	0.000	1.583
					B	0.000	24.000		100.00	0.000	0.000
					C	0.000	24.000		100.00	0.000	6.565
L10 49.50-40.00	44.75	1.091	18	28.500	A	0.000	28.500	28.500	100.00	0.000	2.708
					B	0.000	28.500		100.00	0.000	0.000
					C	0.000	28.500		100.00	0.000	7.796
L11 40.00-19.50	29.75	1	16	71.750	A	0.000	71.750	71.750	100.00	0.000	0.375
					B	0.000	71.750		100.00	0.000	0.000
					C	0.000	71.750		100.00	0.000	16.824
L12 19.50-13.00	16.25	1	16	22.750	A	0.000	22.750	22.750	100.00	0.000	1.063
					B	0.000	22.750		100.00	0.000	0.000
					C	0.000	22.750		100.00	0.000	5.334
L13 13.00-1.50	7.25	1	16	40.250	A	0.000	40.250	40.250	100.00	0.000	3.354
					B	0.000	40.250		100.00	0.000	0.000
					C	0.000	40.250		100.00	0.000	9.438
L14 1.50-0.00	0.75	1	16	5.250	A	0.000	5.250	5.250	100.00	0.000	0.375
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	1.231

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 137.00-125.00	131.00	1.483	5	1.00	14.750	A	0.000	14.750	14.750	100.00	0.000	0.000
						B	0.000	14.750		100.00	0.000	0.000
						C	0.000	14.750		100.00	0.000	0.000
L2 125.00-120.00	122.50	1.455	5	1.00	10.833	A	0.000	10.833	10.833	100.00	0.000	0.000
						B	0.000	10.833		100.00	0.000	0.000
						C	0.000	10.833		100.00	0.000	5.860
L3 120.00-89.50	104.91	1.392	5	1.00	66.083	A	0.000	66.083	66.083	100.00	0.000	0.347
						B	0.000	66.083		100.00	0.000	0.000
						C	0.000	66.083		100.00	0.000	37.908
L4 89.50-85.73	87.61	1.322	5	1.00	8.169	A	0.000	8.169	8.169	100.00	0.000	1.403
						B	0.000	8.169		100.00	0.000	0.000
						C	0.000	8.169		100.00	0.000	4.686
L5 85.73-80.00	82.86	1.301	5	1.00	12.414	A	0.000	12.414	12.414	100.00	0.000	3.805
						B	0.000	12.414		100.00	0.000	0.000
						C	0.000	12.414		100.00	0.000	7.121
L6 80.00-65.50	72.75	1.253	5	1.00	45.917	A	0.000	45.917	45.917	100.00	0.000	0.694
						B	0.000	45.917		100.00	0.000	0.000
						C	0.000	45.917		100.00	0.000	18.022
L7 65.50-58.65	62.07	1.198	4	1.00	21.705	A	0.000	21.705	21.705	100.00	0.000	2.518
						B	0.000	21.705		100.00	0.000	0.000
						C	0.000	21.705		100.00	0.000	8.519
L8 58.65-57.50	58.07	1.175	4	1.00	3.628	A	0.000	3.628	3.628	100.00	0.000	0.843
						B	0.000	3.628		100.00	0.000	0.000
						C	0.000	3.628		100.00	0.000	1.424
L9 57.50-49.50	53.50	1.148	4	1.00	25.333	A	0.000	25.333	25.333	100.00	0.000	3.806
						B	0.000	25.333		100.00	0.000	0.000
						C	0.000	25.333		100.00	0.000	9.943
L10 49.50-40.00	44.75	1.091	4	1.00	30.083	A	0.000	30.083	30.083	100.00	0.000	6.819
						B	0.000	30.083		100.00	0.000	0.000
						C	0.000	30.083		100.00	0.000	11.807
L11 40.00-19.50	29.75	1	4	1.00	75.167	A	0.000	75.167	75.167	100.00	0.000	0.931
						B	0.000	75.167		100.00	0.000	0.000
						C	0.000	75.167		100.00	0.000	25.479
L12 19.50-13.00	16.25	1	4	1.00	23.833	A	0.000	23.833	23.833	100.00	0.000	2.840
						B	0.000	23.833		100.00	0.000	0.000
						C	0.000	23.833		100.00	0.000	8.079

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L13 13.00-1.50	7.25	1	4	1.00	42.167	A	0.000	42.167	42.167	100.00	0.000	8.465
						B	0.000	42.167		100.00	0.000	0.000
						C	0.000	42.167		100.00	0.000	14.293
L14 1.50-0.00	0.75	1	4	1.00	5.500	A	0.000	5.500	5.500	100.00	0.000	0.931
						B	0.000	5.500		100.00	0.000	0.000
						C	0.000	5.500		100.00	0.000	1.864

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 137.00-125.00	131.00	1.483	9	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	0.000
L2 125.00-120.00	122.50	1.455	9	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	3.949
L3 120.00-89.50	104.91	1.392	9	61.000	A	0.000	61.000	61.000	100.00	0.000	0.125
					B	0.000	61.000		100.00	0.000	0.000
					C	0.000	61.000		100.00	0.000	25.030
L4 89.50-85.73	87.61	1.322	8	7.541	A	0.000	7.541	7.541	100.00	0.000	0.505
					B	0.000	7.541		100.00	0.000	0.000
					C	0.000	7.541		100.00	0.000	3.094
L5 85.73-80.00	82.86	1.301	8	11.459	A	0.000	11.459	11.459	100.00	0.000	1.370
					B	0.000	11.459		100.00	0.000	0.000
					C	0.000	11.459		100.00	0.000	4.702
L6 80.00-65.50	72.75	1.253	8	43.500	A	0.000	43.500	43.500	100.00	0.000	0.250
					B	0.000	43.500		100.00	0.000	0.000
					C	0.000	43.500		100.00	0.000	11.900
L7 65.50-58.65	62.07	1.198	8	20.563	A	0.000	20.563	20.563	100.00	0.000	0.916
					B	0.000	20.563		100.00	0.000	0.000
					C	0.000	20.563		100.00	0.000	5.625
L8 58.65-57.50	58.07	1.175	8	3.437	A	0.000	3.437	3.437	100.00	0.000	0.334
					B	0.000	3.437		100.00	0.000	0.000
					C	0.000	3.437		100.00	0.000	0.940
L9 57.50-49.50	53.50	1.148	7	24.000	A	0.000	24.000	24.000	100.00	0.000	1.583
					B	0.000	24.000		100.00	0.000	0.000
					C	0.000	24.000		100.00	0.000	6.565
L10 49.50-40.00	44.75	1.091	7	28.500	A	0.000	28.500	28.500	100.00	0.000	2.708
					B	0.000	28.500		100.00	0.000	0.000
					C	0.000	28.500		100.00	0.000	7.796
L11 40.00-19.50	29.75	1	6	71.750	A	0.000	71.750	71.750	100.00	0.000	0.375
					B	0.000	71.750		100.00	0.000	0.000
					C	0.000	71.750		100.00	0.000	16.824
L12 19.50-13.00	16.25	1	6	22.750	A	0.000	22.750	22.750	100.00	0.000	1.063
					B	0.000	22.750		100.00	0.000	0.000
					C	0.000	22.750		100.00	0.000	5.334
L13 13.00-1.50	7.25	1	6	40.250	A	0.000	40.250	40.250	100.00	0.000	3.354
					B	0.000	40.250		100.00	0.000	0.000
					C	0.000	40.250		100.00	0.000	9.438
L14 1.50-0.00	0.75	1	6	5.250	A	0.000	5.250	5.250	100.00	0.000	0.375
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	1.231

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	137 - 125	Pole	Max Tension	11	0.00	0	0
			Max. Compression	14	-0.95	0	0
			Max. Mx	5	-0.61	-4	0
			Max. My	8	-0.62	-1	-4
			Max. Vy	11	-0.71	4	1
			Max. Vx	2	-0.62	1	4
			Max. Torque	3			-1
L2	125 - 120	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-7.71	0	-1
			Max. Mx	11	-4.01	32	1
			Max. My	8	-4.02	-1	-31
			Max. Vy	11	-6.97	32	1
			Max. Vx	2	-6.84	1	31
			Max. Torque	3			-1
L3	120 - 89.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-18.45	0	-1
			Max. Mx	11	-10.19	391	4
			Max. My	2	-10.20	4	385
			Max. Vy	11	-14.58	391	4
			Max. Vx	2	-14.45	4	385
			Max. Torque	3			-1
L4	89.5 - 85.7296	Pole	Max Tension	1	0.00	0	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-19.12	0	-1
			Max. Mx	11	-10.74	446	4
			Max. My	2	-10.75	5	440
			Max. Vy	11	-14.86	446	4
			Max. Vx	2	-14.73	5	440
			Max. Torque	3			-1
L5	85.7296 - 80	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-20.34	0	-1
			Max. Mx	11	-11.75	533	5
			Max. My	2	-11.76	5	526
			Max. Vy	11	-15.32	533	5
			Max. Vx	2	-15.19	5	526
			Max. Torque	3			-1
L6	80 - 65.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-23.92	1	-1
			Max. Mx	11	-14.45	771	6
			Max. My	2	-14.46	7	762
			Max. Vy	11	-17.06	771	6
			Max. Vx	2	-16.93	7	762
			Max. Torque	3			-1
L7	65.5 - 58.6458	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-25.63	1	-1
			Max. Mx	11	-15.81	890	7
			Max. My	2	-15.82	7	880
			Max. Vy	11	-17.67	890	7
			Max. Vx	2	-17.54	7	880
			Max. Torque	3			-1
L8	58.6458 - 57.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-25.98	1	-1
			Max. Mx	11	-16.10	910	7
			Max. My	2	-16.10	8	900
			Max. Vy	11	-17.78	910	7
			Max. Vx	2	-17.65	8	900
			Max. Torque	3			-1
L9	57.5 - 49.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-28.25	1	-1
			Max. Mx	11	-17.92	1055	8
			Max. My	2	-17.93	8	1044
			Max. Vy	11	-18.53	1055	8
			Max. Vx	2	-18.40	8	1044
			Max. Torque	3			-1
L10	49.5 - 40	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-31.06	1	-1
			Max. Mx	11	-20.27	1235	9
			Max. My	2	-20.27	9	1222
			Max. Vy	11	-19.30	1235	9
			Max. Vx	2	-19.17	9	1222
			Max. Torque	3			-1
L11	40 - 19.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-37.71	2	-2
			Max. Mx	11	-25.64	1655	11
			Max. My	2	-25.64	12	1639
			Max. Vy	11	-21.20	1655	11
			Max. Vx	2	-21.07	12	1639
			Max. Torque	3			-1
L12	19.5 - 13	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-39.82	2	-2
			Max. Mx	11	-27.41	1794	12
			Max. My	2	-27.41	12	1778
			Max. Vy	11	-21.67	1794	12
			Max. Vx	2	-21.54	12	1778
			Max. Torque	12			1
L13	13 - 1.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-44.08	2	-2
			Max. Mx	11	-31.05	2048	13
			Max. My	2	-31.05	13	2030
			Max. Vy	11	-22.52	2048	13

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-22.39	13	2030
			Max. Torque	12			1
L14	1.5 - 0	Pole	Max Tension	1	0.00	0	0
			Max. Compression	14	-44.65	2	-2
			Max. Mx	11	-31.53	2082	13
			Max. My	2	-31.53	14	2064
			Max. Vy	11	-22.63	2082	13
			Max. Vx	2	-22.50	14	2064
			Max. Torque	12			1

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	44.65	-0.00	0.00
	Max. H_x	11	31.54	22.62	0.10
	Max. H_z	2	31.54	0.10	22.49
	Max. M_x	2	2064	0.10	22.49
	Max. M_z	5	2075	-22.57	-0.04
	Max. Torsion	12	1	19.60	11.28
	Min. Vert	11	31.54	22.62	0.10
	Min. H_x	5	31.54	-22.57	-0.04
	Min. H_z	8	31.54	-0.09	-22.45
	Min. M_x	8	-2060	-0.09	-22.45
	Min. M_z	11	-2082	22.62	0.10
	Min. Torsion	6	-1	-19.59	-11.21

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	31.54	-0.00	0.00	1	0	0
Dead+Wind 0 deg - No Ice	31.54	-0.10	-22.49	-2064	14	0
Dead+Wind 30 deg - No Ice	31.54	11.32	-19.42	-1780	-1042	0
Dead+Wind 60 deg - No Ice	31.54	19.58	-11.17	-1021	-1801	1
Dead+Wind 90 deg - No Ice	31.54	22.57	0.04	6	-2075	1
Dead+Wind 120 deg - No Ice	31.54	19.59	11.21	1028	-1803	1
Dead+Wind 150 deg - No Ice	31.54	11.33	19.43	1782	-1043	0
Dead+Wind 180 deg - No Ice	31.54	0.09	22.45	2060	-12	0
Dead+Wind 210 deg - No Ice	31.54	-11.22	19.45	1785	1029	0
Dead+Wind 240 deg - No Ice	31.54	-19.60	11.10	1014	1805	0
Dead+Wind 270 deg - No Ice	31.54	-22.62	-0.10	-13	2082	-1
Dead+Wind 300 deg - No Ice	31.54	-19.60	-11.28	-1037	1805	-1
Dead+Wind 330 deg - No Ice	31.54	-11.38	-19.48	-1787	1051	-1
Dead+Ice+Temp	44.65	0.00	-0.00	2	2	0
Dead+Wind 0 deg+Ice+Temp	44.65	-0.02	-6.43	-602	5	0
Dead+Wind 30 deg+Ice+Temp	44.65	3.23	-5.55	-519	-302	0
Dead+Wind 60 deg+Ice+Temp	44.65	5.59	-3.19	-297	-524	0
Dead+Wind 90 deg+Ice+Temp	44.65	6.45	0.01	3	-604	0
Dead+Wind 120 deg+Ice+Temp	44.65	5.59	3.20	302	-525	0
Dead+Wind 150 deg+Ice+Temp	44.65	3.23	5.55	523	-302	0
Dead+Wind 180 deg+Ice+Temp	44.65	0.02	6.42	604	-1	0

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 210 deg+Ice+Temp	44.65	-3.21	5.56	524	303	0
Dead+Wind 240 deg+Ice+Temp	44.65	-5.60	3.18	299	529	0
Dead+Wind 270 deg+Ice+Temp	44.65	-6.46	-0.02	-1	610	0
Dead+Wind 300 deg+Ice+Temp	44.65	-5.60	-3.22	-301	529	0
Dead+Wind 330 deg+Ice+Temp	44.65	-3.25	-5.57	-521	309	0
Dead+Wind 0 deg - Service	31.54	-0.04	-8.79	-806	6	0
Dead+Wind 30 deg - Service	31.54	4.42	-7.59	-695	-407	0
Dead+Wind 60 deg - Service	31.54	7.65	-4.36	-399	-703	0
Dead+Wind 90 deg - Service	31.54	8.82	0.01	3	-811	0
Dead+Wind 120 deg - Service	31.54	7.65	4.38	402	-704	0
Dead+Wind 150 deg - Service	31.54	4.43	7.59	697	-407	0
Dead+Wind 180 deg - Service	31.54	0.04	8.77	806	-4	0
Dead+Wind 210 deg - Service	31.54	-4.38	7.60	698	402	0
Dead+Wind 240 deg - Service	31.54	-7.65	4.34	397	706	0
Dead+Wind 270 deg - Service	31.54	-8.83	-0.04	-5	814	0
Dead+Wind 300 deg - Service	31.54	-7.66	-4.41	-405	706	0
Dead+Wind 330 deg - Service	31.54	-4.45	-7.61	-698	411	0

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-31.54	0.00	0.00	31.54	-0.00	0.000%
2	-0.10	-31.54	-22.49	0.10	31.54	22.49	0.007%
3	11.32	-31.54	-19.42	-11.32	31.54	19.42	0.000%
4	19.58	-31.54	-11.17	-19.58	31.54	11.17	0.000%
5	22.57	-31.54	0.04	-22.57	31.54	-0.04	0.007%
6	19.59	-31.54	11.21	-19.59	31.54	-11.21	0.000%
7	11.33	-31.54	19.43	-11.33	31.54	-19.43	0.000%
8	0.09	-31.54	22.46	-0.09	31.54	-22.45	0.007%
9	-11.22	-31.54	19.45	11.22	31.54	-19.45	0.000%
10	-19.60	-31.54	11.10	19.60	31.54	-11.10	0.000%
11	-22.62	-31.54	-0.10	22.62	31.54	0.10	0.007%
12	-19.60	-31.54	-11.28	19.60	31.54	11.28	0.000%
13	-11.38	-31.54	-19.48	11.38	31.54	19.48	0.000%
14	0.00	-44.65	0.00	-0.00	44.65	0.00	0.000%
15	-0.02	-44.65	-6.43	0.02	44.65	6.43	0.001%
16	3.23	-44.65	-5.55	-3.23	44.65	5.55	0.001%
17	5.59	-44.65	-3.19	-5.59	44.65	3.19	0.001%
18	6.45	-44.65	0.01	-6.45	44.65	-0.01	0.001%
19	5.60	-44.65	3.20	-5.59	44.65	-3.20	0.001%
20	3.23	-44.65	5.55	-3.23	44.65	-5.55	0.001%
21	0.02	-44.65	6.42	-0.02	44.65	-6.42	0.001%
22	-3.21	-44.65	5.56	3.21	44.65	-5.56	0.001%
23	-5.60	-44.65	3.18	5.60	44.65	-3.18	0.001%
24	-6.46	-44.65	-0.02	6.46	44.65	0.02	0.001%
25	-5.60	-44.65	-3.22	5.60	44.65	3.22	0.001%
26	-3.25	-44.65	-5.57	3.25	44.65	5.57	0.001%
27	-0.04	-31.54	-8.79	0.04	31.54	8.79	0.003%
28	4.42	-31.54	-7.59	-4.42	31.54	7.59	0.003%
29	7.65	-31.54	-4.36	-7.65	31.54	4.36	0.003%
30	8.82	-31.54	0.01	-8.82	31.54	-0.01	0.003%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
31	7.65	-31.54	4.38	-7.65	31.54	-4.38	0.003%
32	4.43	-31.54	7.59	-4.43	31.54	-7.59	0.003%
33	0.04	-31.54	8.77	-0.04	31.54	-8.77	0.003%
34	-4.38	-31.54	7.60	4.38	31.54	-7.60	0.003%
35	-7.66	-31.54	4.34	7.65	31.54	-4.34	0.003%
36	-8.84	-31.54	-0.04	8.83	31.54	0.04	0.003%
37	-7.66	-31.54	-4.41	7.66	31.54	4.41	0.003%
38	-4.45	-31.54	-7.61	4.45	31.54	7.61	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00008130	0.00008547
3	Yes	18	0.00000001	0.00007885
4	Yes	18	0.00000001	0.00007388
5	Yes	14	0.00008128	0.00010571
6	Yes	18	0.00000001	0.00007792
7	Yes	18	0.00000001	0.00007652
8	Yes	14	0.00008131	0.00010710
9	Yes	18	0.00000001	0.00007355
10	Yes	18	0.00000001	0.00007716
11	Yes	14	0.00008126	0.00009145
12	Yes	18	0.00000001	0.00007678
13	Yes	18	0.00000001	0.00007834
14	Yes	6	0.00000001	0.00000502
15	Yes	16	0.00000001	0.00011062
16	Yes	16	0.00000001	0.00012200
17	Yes	16	0.00000001	0.00012194
18	Yes	16	0.00000001	0.00011144
19	Yes	16	0.00000001	0.00012337
20	Yes	16	0.00000001	0.00012282
21	Yes	16	0.00000001	0.00011126
22	Yes	16	0.00000001	0.00012276
23	Yes	16	0.00000001	0.00012341
24	Yes	16	0.00000001	0.00011238
25	Yes	16	0.00000001	0.00012354
26	Yes	16	0.00000001	0.00012326
27	Yes	14	0.00000001	0.00004167
28	Yes	14	0.00000001	0.00012205
29	Yes	14	0.00000001	0.00010079
30	Yes	14	0.00000001	0.00004328
31	Yes	14	0.00000001	0.00011642
32	Yes	14	0.00000001	0.00010970
33	Yes	14	0.00000001	0.00004272
34	Yes	14	0.00000001	0.00010066
35	Yes	14	0.00000001	0.00011742
36	Yes	14	0.00000001	0.00004329
37	Yes	14	0.00000001	0.00010779
38	Yes	14	0.00000001	0.00011433

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	137 - 125	23.56	36	1.450	0.006
L2	125 - 120	19.92	36	1.445	0.003
L3	120 - 89.5	18.41	36	1.440	0.003

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	89.5 - 85.7296	9.95	36	1.101	0.001
L5	85.7296 - 80	9.11	36	1.029	0.001
L6	80 - 65.5	7.94	36	0.928	0.001
L7	65.5 - 58.6458	5.34	36	0.770	0.000
L8	58.6458 - 57.5	4.29	36	0.693	0.000
L9	57.5 - 49.5	4.13	36	0.682	0.000
L10	49.5 - 40	3.06	36	0.586	0.000
L11	40 - 19.5	2.01	36	0.468	0.000
L12	19.5 - 13	0.48	36	0.234	0.000
L13	13 - 1.5	0.21	36	0.154	0.000
L14	1.5 - 0	0.00	36	0.019	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	VHLP2.5-18	36	21.74	1.447	0.005	103518
124.00	LLPX310R-V4 w/ Mount Pipe	36	19.62	1.444	0.003	56567
122.00	PCS 1900MHz 4x45W-65MHz	36	19.01	1.443	0.003	52010
113.00	AM-X-CD-16-65-00T-RET w/ Mount Pipe	36	16.31	1.409	0.003	10347
92.00	HBX-6516DS-VTM w/ Mount Pipe	36	10.54	1.146	0.001	2953
80.00	Bridge Stiffener (43" x 9.5" x 1")	36	7.94	0.928	0.001	4419
50.00	GPS_A	36	3.13	0.593	0.000	4621
40.00	Bridge Stiffener (53" x 9" x 1")	36	2.01	0.468	0.000	5156

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	137 - 125	60.24	11	3.709	0.015
L2	125 - 120	50.93	11	3.695	0.009
L3	120 - 89.5	47.07	11	3.683	0.008
L4	89.5 - 85.7296	25.45	11	2.814	0.003
L5	85.7296 - 80	23.30	11	2.630	0.002
L6	80 - 65.5	20.29	11	2.372	0.002
L7	65.5 - 58.6458	13.67	11	1.969	0.001
L8	58.6458 - 57.5	10.98	11	1.771	0.001
L9	57.5 - 49.5	10.56	11	1.744	0.001
L10	49.5 - 40	7.83	11	1.500	0.001
L11	40 - 19.5	5.14	11	1.198	0.001
L12	19.5 - 13	1.22	11	0.599	0.000
L13	13 - 1.5	0.55	11	0.393	0.000
L14	1.5 - 0	0.01	11	0.048	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	VHLP2.5-18	11	55.58	3.701	0.011	45202
124.00	LLPX310R-V4 w/ Mount Pipe	11	50.16	3.694	0.008	24232
122.00	PCS 1900MHz 4x45W-65MHz	11	48.61	3.690	0.008	21695
113.00	AM-X-CD-16-65-00T-RET w/	11	41.70	3.604	0.007	4070

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Mount Pipe					
92.00	HBX-6516DS-VTM w/ Mount Pipe	11	26.96	2.931	0.003	1160
80.00	Bridge Stiffener (43" x 9.5" x 1")	11	20.29	2.372	0.002	1734
50.00	GPS_A	11	7.99	1.516	0.001	1809
40.00	Bridge Stiffener (53" x 9" x 1")	11	5.14	1.198	0.001	2018

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	137 - 125 (1)	P12 STD	12.00	0.00	0.0	21.00	14.58	-0.61	306.16	0.002
L2	125 - 120 (2)	P24x0.375	5.00	0.00	0.0	21.00	27.83	-4.01	584.48	0.007
L3	120 - 89.5 (3)	P24x0.375	30.50	0.00	0.0	21.00	27.83	-10.19	584.48	0.017
L4	89.5 - 85.7296 (4)	RPS 24" x 0.47745"	3.77	0.00	0.0	20.48	35.28	-10.74	722.73	0.015
L5	85.7296 - 80 (5)	RPS 24" x 0.61443"	5.73	0.00	0.0	18.70	45.14	-11.75	844.23	0.014
L6	80 - 65.5 (6)	36" x 0.375"	14.50	0.00	0.0	20.90	41.97	-14.45	876.99	0.016
L7	65.5 - 58.6458 (7)	RPS 36" x 0.46401"	6.85	0.00	0.0	18.98	51.80	-15.81	983.41	0.016
L8	58.6458 - 57.5 (8)	RPS 36" x 0.61364"	1.15	0.00	0.0	18.98	68.22	-16.10	1295.05	0.012
L9	57.5 - 49.5 (9)	RPS 36" x 0.52234"	8.00	0.00	0.0	18.99	58.22	-17.92	1105.56	0.016
L10	49.5 - 40 (10)	RPS 36" x 0.5885"	9.50	0.00	0.0	18.60	65.47	-20.27	1217.74	0.017
L11	40 - 19.5 (11)	P42x1/2	20.50	0.00	0.0	21.00	65.19	-25.64	1368.95	0.019
L12	19.5 - 13 (12)	RPS 42" x 0.55394"	6.50	0.00	0.0	20.77	72.13	-27.41	1497.78	0.018
L13	13 - 1.5 (13)	RPS 42" x 0.65533"	11.50	0.00	0.0	20.54	85.12	-31.05	1748.19	0.018
L14	1.5 - 0 (14)	RPS 42" x 0.66863"	1.50	0.00	0.0	20.41	86.82	-31.53	1772.15	0.018

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	137 - 125 (1)	P12 STD	4	1.18	23.10	0.051	0	0.00	23.10	0.000
L2	125 - 120 (2)	P24x0.375	32	2.39	23.10	0.104	0	0.00	23.10	0.000
L3	120 - 89.5 (3)	P24x0.375	391	28.99	23.10	1.255	0	0.00	23.10	0.000
L4	89.5 - 85.7296 (4)	RPS 24" x 0.47745"	446	26.34	22.53	1.169	0	0.00	22.53	0.000
L5	85.7296 - 80 (5)	RPS 24" x 0.61443"	533	24.85	20.57	1.208	0	0.00	20.57	0.000
L6	80 - 65.5 (6)	36" x 0.375"	771	25.01	20.90	1.197	0	0.00	20.90	0.000
L7	65.5 - 58.6458 (7)	RPS 36" x 0.46401"	890	23.50	20.88	1.126	0	0.00	20.88	0.000
L8	58.6458 - 57.5 (8)	RPS 36" x 0.61364"	910	18.41	20.88	0.882	0	0.00	20.88	0.000
L9	57.5 - 49.5 (9)	RPS 36" x 0.52234"	1055	24.88	20.89	1.191	0	0.00	20.89	0.000
L10	49.5 - 40 (10)	RPS 36" x 0.5885"	1235	25.99	20.46	1.270	0	0.00	20.46	0.000
L11	40 - 19.5 (11)	P42x1/2	1655	29.71	23.10	1.286	0	0.00	23.10	0.000
L12	19.5 - 13 (12)	RPS 42" x 0.55394"	1794	29.19	22.84	1.278	0	0.00	22.84	0.000
L13	13 - 1.5 (13)	RPS 42" x 0.65533"	2048	28.37	22.59	1.256	0	0.00	22.59	0.000
L14	1.5 - 0 (14)	RPS 42" x 0.66863"	2082	28.29	22.45	1.260	0	0.00	22.45	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	137 - 125 (1)	P12 STD	0.69	0.09	14.00	0.007	0	0.01	14.00	0.001
L2	125 - 120 (2)	P24x0.375	6.97	0.50	14.00	0.036	1	0.02	14.00	0.002
L3	120 - 89.5 (3)	P24x0.375	14.58	1.05	14.00	0.075	0	0.01	14.00	0.001
L4	89.5 - 85.7296 (4)	RPS 24" x 0.47745"	14.86	0.84	13.66	0.062	0	0.01	13.66	0.001
L5	85.7296 - 80 (5)	RPS 24" x 0.61443"	15.32	0.68	12.47	0.054	0	0.01	12.47	0.001
L6	80 - 65.5 (6)	36" x 0.375"	17.06	0.81	14.00	0.058	0	0.01	11.90	0.001
L7	65.5 - 58.6458 (7)	RPS 36" x 0.46401"	17.67	0.68	12.66	0.054	0	0.01	12.66	0.000
L8	58.6458 - 57.5 (8)	RPS 36" x 0.61364"	17.78	0.52	12.66	0.041	0	0.00	12.66	0.000
L9	57.5 - 49.5 (9)	RPS 36" x 0.52234"	18.53	0.64	12.66	0.050	1	0.01	12.66	0.000
L10	49.5 - 40 (10)	RPS 36" x 0.5885"	19.30	0.59	12.40	0.048	1	0.01	12.40	0.000
L11	40 - 19.5 (11)	P42x1/2	21.20	0.65	14.00	0.046	1	0.01	14.00	0.000
L12	19.5 - 13 (12)	RPS 42" x 0.55394"	21.67	0.60	13.84	0.043	1	0.00	13.84	0.000
L13	13 - 1.5 (13)	RPS 42" x 0.65533"	22.52	0.53	13.69	0.039	1	0.00	13.69	0.000
L14	1.5 - 0 (14)	RPS 42" x 0.66863"	22.63	0.52	13.61	0.038	1	0.00	13.61	0.000

Pole Interaction Design Data

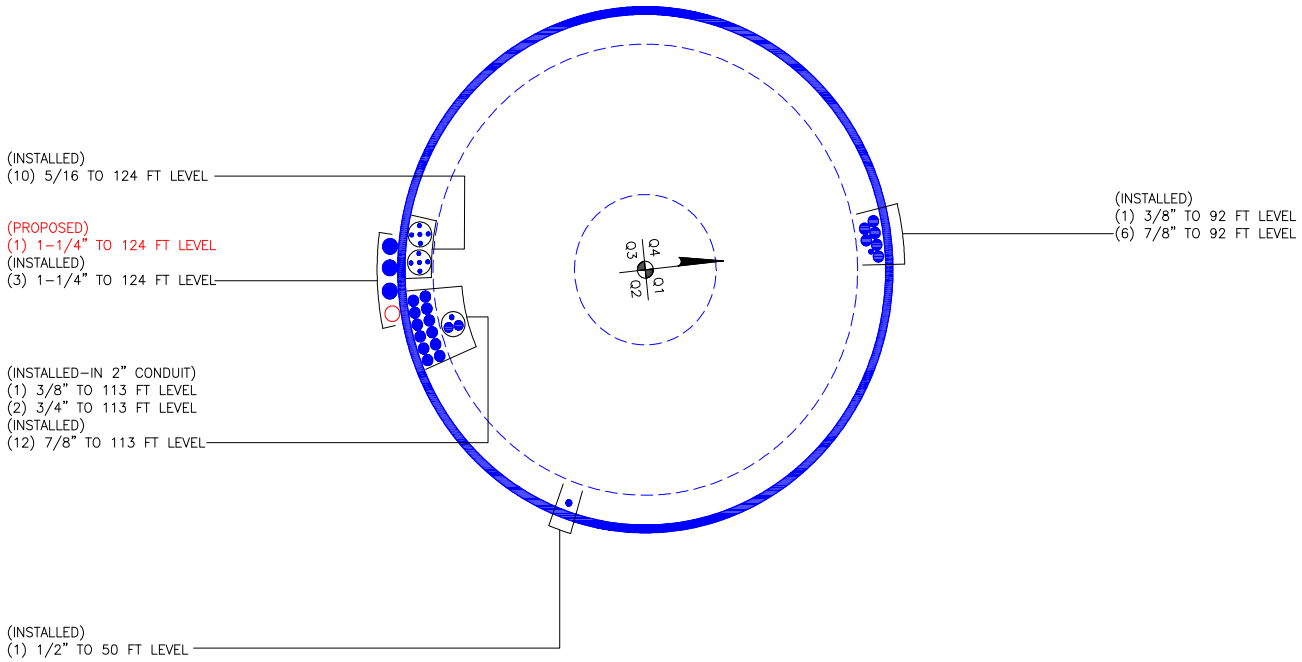
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	137 - 125 (1)	0.002	0.051	0.000	0.007	0.001	0.053 ✔	1.333	H1-3+VT ✔
L2	125 - 120 (2)	0.007	0.104	0.000	0.036	0.002	0.112 ✔	1.333	H1-3+VT ✔
L3	120 - 89.5 (3)	0.017	1.255	0.000	0.075	0.001	1.278 ✔	1.333	H1-3+VT ✔
L4	89.5 - 85.7296 (4)	0.015	1.169	0.000	0.062	0.001	1.188 ✔	1.333	H1-3+VT ✔
L5	85.7296 - 80 (5)	0.014	1.208	0.000	0.054	0.001	1.225 ✔	1.333	H1-3+VT ✔
L6	80 - 65.5 (6)	0.016	1.197	0.000	0.058	0.001	1.217 ✔	1.333	H1-3+VT ✔
L7	65.5 - 58.6458 (7)	0.016	1.126	0.000	0.054	0.000	1.145 ✔	1.333	H1-3+VT ✔
L8	58.6458 - 57.5 (8)	0.012	0.882	0.000	0.041	0.000	0.896 ✔	1.333	H1-3+VT ✔
L9	57.5 - 49.5 (9)	0.016	1.191	0.000	0.050	0.000	1.210 ✔	1.333	H1-3+VT ✔
L10	49.5 - 40 (10)	0.017	1.270	0.000	0.048	0.000	1.289 ✔	1.333	H1-3+VT ✔
L11	40 - 19.5 (11)	0.019	1.286	0.000	0.046	0.000	1.307 ✔	1.333	H1-3+VT ✔
L12	19.5 - 13 (12)	0.018	1.278	0.000	0.043	0.000	1.298 ✔	1.333	H1-3+VT ✔
L13	13 - 1.5 (13)	0.018	1.256	0.000	0.039	0.000	1.275 ✔	1.333	H1-3+VT ✔
L14	1.5 - 0 (14)	0.018	1.260	0.000	0.038	0.000	1.279 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	137 - 125	Pole	P12 STD	1	-0.61	408.11	4.0	Pass
L2	125 - 120	Pole	P24x0.375	2	-4.01	779.12	8.4	Pass
L3	120 - 89.5	Pole	P24x0.375	3	-10.19	779.12	95.9	Pass
L4	89.5 - 85.7296	Pole	RPS 24'' x 0.47745''	4	-10.74	963.40	89.1	Pass
L5	85.7296 - 80	Pole	RPS 24'' x 0.61443''	5	-11.75	1125.35	91.9	Pass
L6	80 - 65.5	Pole	36'' x 0.375''	6	-14.45	1169.03	91.3	Pass
L7	65.5 - 58.6458	Pole	RPS 36'' x 0.46401''	7	-15.81	1310.88	85.9	Pass
L8	58.6458 - 57.5	Pole	RPS 36'' x 0.61364''	8	-16.10	1726.30	67.2	Pass
L9	57.5 - 49.5	Pole	RPS 36'' x 0.52234''	9	-17.92	1473.71	90.8	Pass
L10	49.5 - 40	Pole	RPS 36'' x 0.5885''	10	-20.27	1623.25	96.7	Pass
L11	40 - 19.5	Pole	P42x1/2	11	-25.64	1824.81	98.1	Pass
L12	19.5 - 13	Pole	RPS 42'' x 0.55394''	12	-27.41	1996.54	97.4	Pass
L13	13 - 1.5	Pole	RPS 42'' x 0.65533''	13	-31.05	2330.34	95.7	Pass
L14	1.5 - 0	Pole	RPS 42'' x 0.66863''	14	-31.53	2362.28	96.0	Pass
							Summary	
						Pole (L11)	98.1	Pass
						RATING =	**98.1**	**Pass**

APPENDIX B

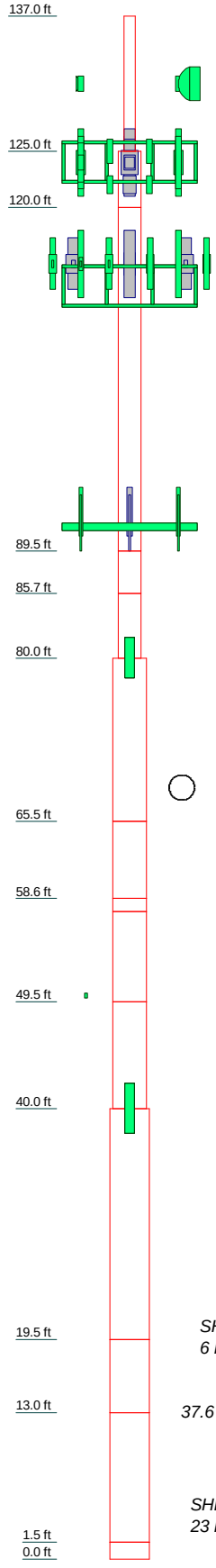
BASE LEVEL DRAWING

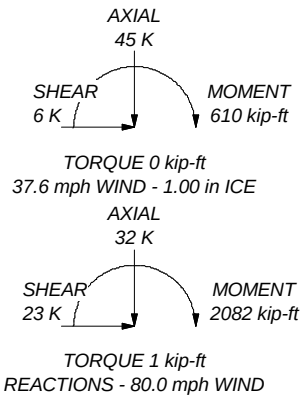

(INSTALLED)
(10) 5/16 TO 124 FT LEVEL
(PROPOSED)
(1) 1-1/4" TO 124 FT LEVEL
(INSTALLED)
(3) 1-1/4" TO 124 FT LEVEL
(INSTALLED-IN 2" CONDUIT)
(1) 3/8" TO 113 FT LEVEL
(2) 3/4" TO 113 FT LEVEL
(INSTALLED)
(12) 7/8" TO 113 FT LEVEL
(INSTALLED)
(1) 1/2" TO 50 FT LEVEL
(INSTALLED)
(1) 3/8" TO 92 FT LEVEL
(6) 7/8" TO 92 FT LEVEL
Q4
Q3
Q1
Q2

APPENDIX C

ADDITIONAL CALCULATIONS

Section	Size	Length (ft)	Grade	Weight (K)
1	P12 STD	12.00	A53-B-35	0.6
2	P24x0.375	5.00		0.5
3	P24x0.375	30.50		2.9
4	RPS 24" x 0.47745"	3.77	Reinf 34.14 ksi	0.5
5	RPS 24" x 0.4773"	5.73	Reinf 31.17 ksi	0.9
6	RPS 36" x 0.375"	14.50	A53-B-35	2.1
7	RPS 36" x 0.46401"	6.85	Reinf 31.64 ksi	1.2
8	RPS 36" x 0.4636"	1.15	Reinf 31.64 ksi	0.3
9	RPS 36" x 0.4636"	8.00	Reinf 31.65 ksi	1.6
10	RPS 36" x 0.5885"	9.50	Reinf 31.21 ksi	2.1
11	P42x1/2	20.50	A53-B-35	4.5
12	RPS 42" x 0.5539"	6.50	Reinf 34.61 ksi	1.6
13	RPS 42" x 0.6553"	11.50	Reinf 34.23 ksi	3.3
14	RPS 42" x 0.6553"	1.50	Reinf 34.02 ksi	0.4
		112.00		22.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
LLPX310R-V4 w/ Mount Pipe	124	(2) 7770.00 w/ Mount Pipe	113
LLPX310R-V4 w/ Mount Pipe	124	(2) 7770.00 w/ Mount Pipe	113
LLPX310R-V4 w/ Mount Pipe	124	(2) 7770.00 w/ Mount Pipe	113
WIMAX DAP HEAD	124	(2) RRUS-11	113
WIMAX DAP HEAD	124	(2) RRUS-11	113
WIMAX DAP HEAD	124	(2) RRUS-11	113
WIMAX DAP HEAD	124	LGP21401	113
WIMAX DAP HEAD	124	LGP21401	113
APXVSPP18-C-A20 w/ Mount Pipe	124	LGP21401	113
APXV9ERR18-C-A20 w/ Mount Pipe	124	(2) LGP13519	113
APXVSPP18-C-A20 w/ Mount Pipe	124	(2) LGP13519	113
IBC1900HG-2A	124	(2) LGP13519	113
IBC1900HG-2A	124	LGP21903	113
IBC1900HG-2A	124	LGP21903	113
IBC1900BB-1	124	LGP21903	113
IBC1900BB-1	124	DC6-48-60-18-8F	113
IBC1900BB-1	124	Platform Mount [LP 601-1]	113
APXVTM14-C-120 w/ Mount Pipe	124	AM-X-CD-16-65-00T-RET w/ Mount Pipe	113
APXVTM14-C-120 w/ Mount Pipe	124		
APXVTM14-C-120 w/ Mount Pipe	124	AM-X-CD-16-65-00T-RET w/ Mount Pipe	113
TD-RRH8x20-25	124		
TD-RRH8x20-25	124	HBX-6516DS-VTM w/ Mount Pipe	92
TD-RRH8x20-25	124	2.375" OD x 5' Mount Pipe	92
Platform Mount [LP 601-1]	124	2.375" OD x 5' Mount Pipe	92
Site Pro 1 HRK-12	124	2.375" OD x 5' Mount Pipe	92
Miscellaneous [NA 509-3]	124	T-Arm Mount [TA 601-3]	92
VHLP2.5-18	124	HBX-6516DS-VTM w/ Mount Pipe	92
VHLP1-23	124	HBX-6516DS-VTM w/ Mount Pipe	92
PCS 1900MHz 4x45W-65MHz	122	Bridge Stiffener (43" x 9.5" x 1")	80
800MHz 2X50W RRH W/FILTER	122	Bridge Stiffener (43" x 9.5" x 1")	80
800MHz 2X50W RRH W/FILTER	122	Bridge Stiffener (43" x 9.5" x 1")	80
800MHz 2X50W RRH W/FILTER	122	GPS_A	50
Pipe Mount [PM 601-3]	122	Side Arm Mount [SO 701-1]	50
PCS 1900MHz 4x45W-65MHz	122	Bridge Stiffener (53" x 9" x 1")	40
PCS 1900MHz 4x45W-65MHz	122	Bridge Stiffener (53" x 9" x 1")	40
AM-X-CD-16-65-00T-RET w/ Mount Pipe	113	Bridge Stiffener (53" x 9" x 1")	40

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	Reinf 31.21 ksi	31 ksi	39 ksi
Reinf 34.14 ksi	34 ksi	43 ksi	Reinf 34.61 ksi	35 ksi	44 ksi
Reinf 31.17 ksi	31 ksi	39 ksi	Reinf 34.23 ksi	34 ksi	43 ksi
Reinf 31.64 ksi	32 ksi	40 ksi	Reinf 34.02 ksi	34 ksi	43 ksi
Reinf 31.65 ksi	32 ksi	40 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80.0 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 37.6 mph basic wind with 1.00 in ice.
4. Deflections are based upon a 50.0 mph wind.
5. TOWER RATING: 98.1%

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

Job:	***137 ft Monopole / Creative Dimensions***		
Project:	***PJF 37515-0123 / BU 876333***		
Client: CCI	Drawn by: Joey Meinerding	App'd:	
Code: TIA/EIA-222-F	Date: 01/21/15	Scale: NTS	
Path:		Dwg No. E-1	

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876333*
Site Name: *Creative Dimensions*
App #:

Pole Manufacturer:	Other

Reactions		
Moment:	32	ft-kips
Axial:	4.01	kips
Shear:	6.97	kips
Elevation:	120	feet

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

Bolt Data			
Qty:	8		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	25		

Plate Data		
Diam:	32	in
Thick, t:	0.75	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	2.75	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Flange Bolt Results

			Non-Rigid
Bolt Tension Capacity, **B**:	25.92	kips	Service, ASD
Max Bolt directly applied T:	7.18	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	0.443	in	
Min PL "treq" for actual **T w/ Pry**:	0.179	in	
Min PL "t1" for actual **T w/o Pry**:	0.233	in	
T allowable w/o Prying:	25.92	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	7.18	kips	
Non-Prying Bolt Stress Ratio, T/B:	27.7%	**Pass**	

Exterior Flange Plate Results

	Flexural Check		Non-Rigid
Compression Side Plate Stress:	6.2	ksi	Service ASD
Allowable Plate Stress:	36.0	ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	17.3%	**Pass**	Comp. Y.L. Length:
No Prying			7.00
Tension Side Stress Ratio, (treq/t)^2:	5.7%	**Pass**	

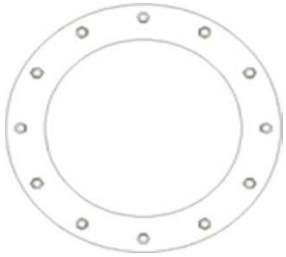
n/a

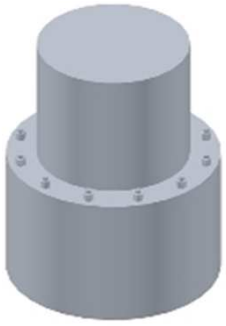
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

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

v4.4 - Effective 7-12-13

Date: 1/21/2015
PJF Project: 37515-0123.001.7700
Client Ref. # 876333
Site Name: Creative Dimensions
Description: 80' Flange
Owner: CCI
Engineer: JWM

Asymmetric Bolt Analysis

Moment =	533	k-ft	TIA Ref.	F	Location =	Flange Plate		
Axial =	11.8	kips	ASIF =	1.3333	η =	N/A	for BP, Rev. G Sect. 4.9.9	
Shear =	15.3	kips	Max Ratio =	100.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	28							

**** For Flange Plates: Prying action is not considered in the bolt loads. ****

Item	Nominal Bolt Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Bolt Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	0.750	A325	92	120	0.0	29.63	0.00	0.44	9.75	9.32	9.32	0.00	25.92	36.0%
2	0.750	A325	92	120	15.0	29.63	0.00	0.44	10.20	9.76	9.76	0.00	25.92	37.7%
3	0.750	A325	92	120	30.0	29.63	0.00	0.44	11.20	10.76	10.76	0.00	25.92	41.5%
4	0.750	A325	92	120	45.0	29.63	0.00	0.44	12.35	11.92	11.92	0.00	25.92	46.0%
5	0.750	A325	92	120	60.0	29.63	0.00	0.44	13.33	12.89	12.89	0.00	25.92	49.7%
6	0.750	A325	92	120	75.0	29.63	0.00	0.44	13.92	13.48	13.48	0.00	25.92	52.0%
7	0.750	A325	92	120	90.0	29.63	0.00	0.44	14.03	13.60	13.60	0.00	25.92	52.5%
8	0.750	A325	92	120	105.0	29.63	0.00	0.44	13.68	13.24	13.24	0.00	25.92	51.1%
9	0.750	A325	92	120	120.0	29.63	0.00	0.44	12.96	12.53	12.53	0.00	25.92	48.3%
10	0.750	A325	92	120	135.0	29.63	0.00	0.44	12.10	11.66	11.66	0.00	25.92	45.0%
11	0.750	A325	92	120	150.0	29.63	0.00	0.44	11.38	10.95	10.95	0.00	25.92	42.2%
12	0.750	A325	92	120	165.0	29.63	0.00	0.44	11.13	10.70	10.70	0.00	25.92	41.3%
13	0.750	A325	92	120	180.0	29.63	0.00	0.44	11.52	11.08	11.08	0.00	25.92	42.8%
14	0.750	A325	92	120	195.0	29.63	0.00	0.44	12.46	12.02	12.02	0.00	25.92	46.4%
15	0.750	A325	92	120	210.0	29.63	0.00	0.44	13.66	13.23	13.23	0.00	25.92	51.1%
16	0.750	A325	92	120	225.0	29.63	0.00	0.44	14.83	14.39	14.39	0.00	25.92	55.5%
17	0.750	A325	92	120	240.0	29.63	0.00	0.44	15.69	15.26	15.26	0.00	25.92	58.9%
18	0.750	A325	92	120	255.0	29.63	0.00	0.44	16.10	15.66	15.66	0.00	25.92	60.4%
19	0.750	A325	92	120	270.0	29.63	0.00	0.44	15.96	15.52	15.52	0.00	25.92	59.9%
20	0.750	A325	92	120	285.0	29.63	0.00	0.44	15.27	14.84	14.84	0.00	25.92	57.2%
21	0.750	A325	92	120	300.0	29.63	0.00	0.44	14.12	13.69	13.69	0.00	25.92	52.8%
22	0.750	A325	92	120	315.0	29.63	0.00	0.44	12.68	12.25	12.25	0.00	25.92	47.3%
23	0.750	A325	92	120	330.0	29.63	0.00	0.44	11.23	10.79	10.79	0.00	25.92	41.6%
24	0.750	A325	92	120	345.0	29.63	0.00	0.44	10.13	9.70	9.70	0.00	25.92	37.4%
25							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
26	0.000	CCI 4.5 x 1 (65 ksi)	65	80	56.0	37.00	4.50	4.50	169.10	164.70	169.10	171.67	171.67	98.5%
27	0.000	CCI 4.5 x 1 (65 ksi)	65	80	176.0	37.00	4.50	4.50	141.66	137.25	141.66	171.67	171.67	82.5%
28	0.000	CCI 4.5 x 1 (65 ksi)	65	80	320.0	37.00	4.50	4.50	153.67	149.27	153.67	171.67	171.67	89.5%
								24.10						

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876333*
Site Name: *Creative Dimensions*
App #:

Pole Manufacturer:	Other

Reactions		
Moment:	235.2	ft-kips
Axial:	5.2	kips
Shear:	6.7	kips
Elevation:	80	feet

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

Bolt Data			
Qty:	24		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	29.625		

Plate Data		
Diam:	35	in
Thick, t:	1.875	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.14	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Flange Bolt Results

			Rigid
Bolt Tension Capacity, **B**:	25.92	kips	Service, ASD
Max Bolt directly applied T:	15.66	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.831	in	
Min PL "treq" for actual **T w/ Pry**:	1.078	in	
Min PL "t1" for actual **T w/o Pry**:	1.423	in	
T allowable w/o Prying:	25.92	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	15.66	kips	
Non-Prying Bolt Stress Ratio, T/B:	60.4%	**Pass**	

Exterior Flange Plate Results

	Flexural Check		Rigid
Compression Side Plate Stress:	13.8	ksi	Service ASD
Allowable Plate Stress:	36.0	ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	38.3%	**Pass**	Comp. Y.L. Length:
No Prying			17.37
Tension Side Stress Ratio, (treq/t)^2:	33.1%	**Pass**	

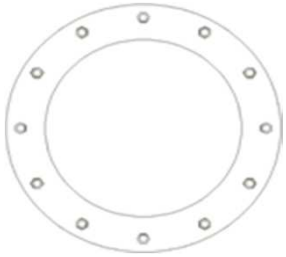
n/a

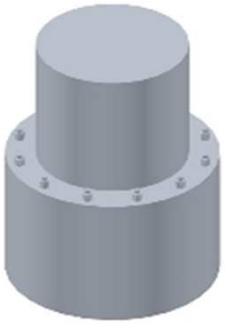
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev F

Site Data	
BU#:	*876333*
Site Name:	*Creative Dimensions*
App #:	

Manufacturer:	Other

Bolt Data			
Qty:	24		
Diam:	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle:	29.625	in	

Plate Data		
Plate Outer Diam:	35.25	in
Plate Inner Diam:	24.25	in (Hole @ Ctr)
Thick:	1.875	in
Grade:	36	ksi
Effective Width:	4.61	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

Pole Data		
Pole OuterDiam:	36	in
Thick:	0.375	in
Pole Inner Diam:	35.25	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi

Stress Increase Factor	
ASIF:	1.3333333

Reactions		
Moment:	235.2	ft-kips
Axial:	5.2	kips
Shear:	6.7	kips
Exterior Flange Run, T+Q:	15.66	kips

Elevation: 80 feet

Interior Flange Bolt Results

Maximum Bolt Tension:	15.7	Kips, Ext. T=Interior T
Allowable Tension:	25.9	Kips
Bolt Stress Ratio:	60.4%	**Pass**

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	16.1	Kips, Ext. C= Interior C
Plate Stress:	16.7	ksi
Allowable Plate Stress:	36.0	ksi
Plate Stress Ratio:	46.5%	**Pass**

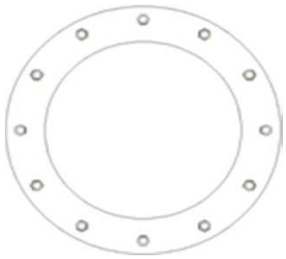
n/a

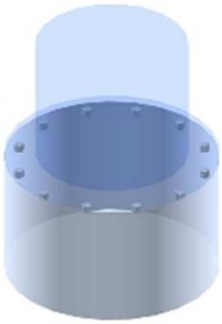
Stiffener Results

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

Pole Results

Pole Punching Shear Check:	n/a





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

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

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v4.4 - Effective 7-12-13

Date: 1/21/2015
PJF Project: 37515-0123.001.7700
Client Ref. # 876333
Site Name: Creative Dimensions
Description: 40' Flange
Owner: CCI
Engineer: JWM

Asymmetric Bolt Analysis

Moment =	1235	k-ft	TIA Ref.	F	Location =	Flange Plate		
Axial =	20.3	kips	ASIF =	1.3333	η =	N/A	for BP, Rev. G Sect. 4.9.9	
Shear =	19.3	kips	Max Ratio =	100.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	36							

**** For Flange Plates: Prying action is not considered in the bolt loads. ****

Item	Nominal Bolt Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Bolt Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	0.750	A325	92	120	0.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
2	0.750	A325	92	120	11.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
3	0.750	A325	92	120	22.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
4	0.750	A325	92	120	33.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
5	0.750	A325	92	120	45.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
6	0.750	A325	92	120	56.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
7	0.750	A325	92	120	67.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
8	0.750	A325	92	120	78.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
9	0.750	A325	92	120	90.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
10	0.750	A325	92	120	101.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
11	0.750	A325	92	120	112.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
12	0.750	A325	92	120	123.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
13	0.750	A325	92	120	135.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
14	0.750	A325	92	120	146.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
15	0.750	A325	92	120	157.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
16	0.750	A325	92	120	168.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
17	0.750	A325	92	120	180.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
18	0.750	A325	92	120	191.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
19	0.750	A325	92	120	202.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
20	0.750	A325	92	120	213.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
21	0.750	A325	92	120	225.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
22	0.750	A325	92	120	236.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
23	0.750	A325	92	120	247.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
24	0.750	A325	92	120	258.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
25	0.750	A325	92	120	270.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
26	0.750	A325	92	120	281.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
27	0.750	A325	92	120	292.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
28	0.750	A325	92	120	303.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
29	0.750	A325	92	120	315.0	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
30	0.750	A325	92	120	326.3	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
31	0.750	A325	92	120	337.5	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
32	0.750	A325	92	120	348.8	38.50	0.00	0.44	15.38	14.92	14.92	0.00	25.92	57.6%
33	0.000				0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
34	0.000	CCI 6.5 x 1.25 (65 ksi)	65	80	56.0	43.25	8.13	8.13	317.30	308.74	317.30	347.22	347.22	91.4%
35	0.000	CCI 6.5 x 1.25 (65 ksi)	65	80	176.0	43.25	8.13	8.13	317.30	308.74	317.30	347.22	347.22	91.4%
36	0.000	CCI 6.5 x 1.25 (65 ksi)	65	80	296.0	43.25	8.13	8.13	317.30	308.74	317.30	347.22	347.22	91.4%
								38.51						

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876333*
Site Name: *Creative Dimensions*
App #:

Pole Manufacturer:	Other

Reactions		
Moment:	388.9	ft-kips
Axial:	7.5	kips
Shear:	7.1	kips
Elevation:	40	feet

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

Bolt Data			
Qty:	32		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	38.5		

Plate Data		
Diam:	40.75	in
Thick, t:	1.75	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

Pole Data		
Diam:	36	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Flange Bolt Results — Rigid (Service, ASD; Fty*ASIF)

Bolt Tension Capacity, **B**:	25.92	kips	
Max Bolt directly applied T:	14.92	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	1.034	in	
Min PL "treq" for actual **T w/ Pry**:	0.590	in	
Min PL "t1" for actual **T w/o Pry**:	0.785	in	
T allowable w/o Prying:	25.92	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	14.92	kips	
Non-Prying Bolt Stress Ratio, T/B:	57.6%	**Pass**	

Exterior Flange Plate Results — Flexural Check — Rigid (Service ASD; 0.75*Fy*ASIF; Comp. Y.L. Length: 13.65)

Compression Side Plate Stress:	6.9	ksi
Allowable Plate Stress:	36.0	ksi
Compression Plate Stress Ratio:	19.1%	**Pass**
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	11.4%	**Pass**

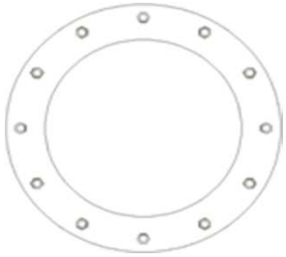
n/a

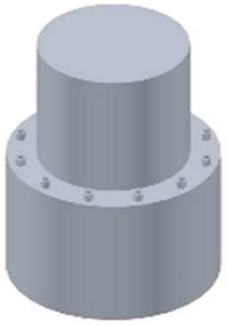
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev F

Site Data	
BU#:	*876333*
Site Name:	*Creative Dimensions*
App #:	

Manufacturer:	Other

Reactions		
Moment:	388.9	ft-kips
Axial:	7.5	kips
Shear:	7.1	kips
Exterior Flange Run, T+Q:	14.92	kips

Elevation: 40 feet

Bolt Data			
Qty:	32		
Diam:	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle:	38.5	in	

Interior Flange Bolt Results

Maximum Bolt Tension:	14.9	Kips, Ext. Flange T+Q
Allowable Tension:	25.9	Kips
Bolt Stress Ratio:	57.6%	**Pass**

Plate Data		
Plate Outer Diam:	41	in
Plate Inner Diam:	36.25	in (Hole @ Ctr)
Thick:	1.75	in
Grade:	36	ksi
Effective Width:	4.03	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	15.4	Kips, Ext. C= Interior C
Plate Stress:	9.4	ksi
Allowable Plate Stress:	36.0	ksi
Plate Stress Ratio:	26.0%	**Pass**

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

n/a

Stiffener Results

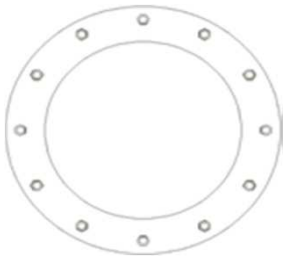
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

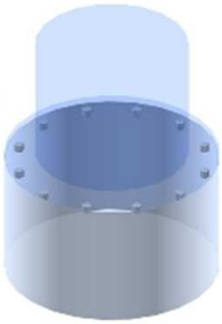
Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Pole OuterDiam:	42	in
Thick:	0.5	in
Pole Inner Diam:	41	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi

Stress Increase Factor		
ASIF:	1.3333333	





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

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

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v4.0 - Effective 1-12-12

Date: 1/21/2015
PJF Project: 37515-0123.001.7700
Client Ref. # 876333
Site Name: Creative Dimensions
Description: 138' Pole
Owner: CCI
Engineer: JWM

Asymmetric Anchor Rod Analysis

Moment =	2082	k-ft	TIA Ref.	F		Location =	Base Plate	
Axial =	32.0	kips	ASIF =	1.3333		η =	N/A	for BP, Rev. G Sect. 4.9.9
Shear =	23.0	kips	Max Ratio =	100.0%		Threads =	N/A	for FP, Rev. G
Anchor Qty =	27							

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Anchor Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.000	Other	36	58	9.0	48.00	0.00	3.14	69.80	67.50	67.50	0.00	80.17	84.2%
2	2.000	Other	36	58	27.0	48.00	0.00	3.14	68.31	66.01	66.01	0.00	80.17	82.3%
3	2.000	Other	36	58	45.0	48.00	0.00	3.14	67.76	65.46	65.46	0.00	80.17	81.6%
4	2.000	Other	36	58	63.0	48.00	0.00	3.14	68.64	66.34	66.34	0.00	80.17	82.7%
5	2.000	Other	36	58	81.0	48.00	0.00	3.14	70.80	68.50	68.50	0.00	80.17	85.4%
6	2.000	Other	36	58	99.0	48.00	0.00	3.14	73.53	71.23	71.23	0.00	80.17	88.8%
7	2.000	Other	36	58	117.0	48.00	0.00	3.14	75.93	73.62	73.62	0.00	80.17	91.8%
8	2.000	Other	36	58	135.0	48.00	0.00	3.14	77.20	74.90	74.90	0.00	80.17	93.4%
9	2.000	Other	36	58	153.0	48.00	0.00	3.14	76.92	74.62	74.62	0.00	80.17	93.1%
10	2.000	Other	36	58	171.0	48.00	0.00	3.14	75.12	72.82	72.82	0.00	80.17	90.8%
11	2.000	Other	36	58	189.0	48.00	0.00	3.14	72.26	69.96	69.96	0.00	80.17	87.3%
12	2.000	Other	36	58	207.0	48.00	0.00	3.14	69.18	66.88	66.88	0.00	80.17	83.4%
13	2.000	Other	36	58	225.0	48.00	0.00	3.14	66.86	64.56	64.56	0.00	80.17	80.5%
14	2.000	Other	36	58	243.0	48.00	0.00	3.14	66.04	63.73	63.73	0.00	80.17	79.5%
15	2.000	Other	36	58	261.0	48.00	0.00	3.14	66.83	64.53	64.53	0.00	80.17	80.5%
16	2.000	Other	36	58	279.0	48.00	0.00	3.14	68.70	66.40	66.40	0.00	80.17	82.8%
17	2.000	Other	36	58	297.0	48.00	0.00	3.14	70.74	68.44	68.44	0.00	80.17	85.4%
18	2.000	Other	36	58	315.0	48.00	0.00	3.14	72.11	69.80	69.80	0.00	80.17	87.1%
19	2.000	Other	36	58	333.0	48.00	0.00	3.14	72.33	70.03	70.03	0.00	80.17	87.3%
20	2.000	Other	36	58	351.0	48.00	0.00	3.14	71.41	69.11	69.11	0.00	80.17	86.2%
21	2.000	A193 Gr B7	105	125	72.0	54.00	0.00	3.14	77.93	75.63	75.63	0.00	172.79	43.8%
22	2.000	A193 Gr B7	105	125	162.0	54.00	0.00	3.14	85.31	83.01	83.01	0.00	172.79	48.0%
23	2.000	A193 Gr B7	105	125	252.0	54.00	0.00	3.14	74.59	72.29	72.29	0.00	172.79	41.8%
24	2.000	A193 Gr B7	105	125	342.0	54.00	0.00	3.14	81.11	78.80	78.80	0.00	172.79	45.6%
25	2.250	A193 Gr B7	105	125	54.0	54.50	0.00	3.98	97.38	94.46	94.46	0.00	218.68	43.2%
26	2.250	A193 Gr B7	105	125	216.0	54.50	0.00	3.98	97.32	94.40	94.40	0.00	218.68	43.2%
27	2.250	A193 Gr B7	105	125	306.0	54.50	0.00	3.98	103.06	100.15	100.15	0.00	218.68	45.8%
								87.33						

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

TIA Rev F

Site Data

BU#:	*876333*
Site Name:	*Creative Dimensions*
App #:	
Pole Manufacturer:	*Other*

Reactions		
Moment:	1520.9	ft-kips
Axial:	23	kips
Shear:	16.5	kips

Reactions adjusted to account for additional anchor rods.

Anchor Rod Data		
Qty:	20	
Diam:	2	in
Rod Material:	Other	
Strength (Fu):	58	ksi
Yield (Fy):	36	ksi
Bolt Circle:	48	in

Plate Data		
Diam:	54	in
Thick:	2.5	in
Grade:	36	ksi
Single-Rod B-eff:	6.60	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	42	in
Thick:	0.5	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

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

Anchor Rod Results

Maximum Rod Tension:	74.9 Kips	Rigid
Allowable Tension:	80.2 Kips	Service, ASD
Anchor Rod Stress Ratio:	93.4% **Pass**	Fty*ASIF

Base Plate Results

Base Plate Stress:	20.6 ksi	Rigid
Allowable Plate Stress:	36.0 ksi	Service ASD
Base Plate Stress Ratio:	57.4% **Pass**	0.75*Fy*ASIF
Flexural Check		Y.L. Length: 23.24

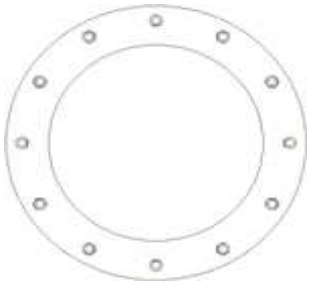
n/a

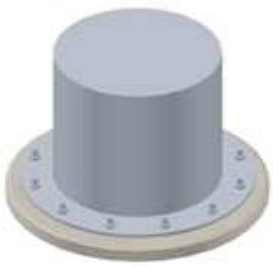
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

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

Job Number: 37515-0123.001.7700
Site Number: 876333
Site Name: Creative Dimensions

By: JWM
Date: 1/21/2015

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =	2082.0		k-ft
Shear, V =	23.0		kips
Axial Load, P =	32.0		kips
OTM =	2093.5	0.0	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Monopole DP
ACI Code =	ACI 318-02
Seismic Design Category =	D
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	6.5	ft
Height Above Grade =	0.5	ft
Depth Below Grade =	30	ft
fc' =	4	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =		ft
Mat Ftdn. Cap Length =		ft
Depth Below Grade =		ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00
 + Effective Soil Wt. - Buoyant Conc. Wt. ≥ Comp.
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	16	
Rebar Size =	#11	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#5	
Side Clear Cover to Ties =	4	in

Soil Parameters

Water Table Depth =	8.00	ft
Depth to Ignore Soil =	3.33	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	100.0%
Maximum Steel Ratio =	100.0%

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	36.5	115	0	34	Sand	8000			36.5
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	20.71	ft, from Grade	Shear, V =	23.00	kips
Bending Moment, M =	2569.90	k-ft, from COR	Resisting Shear, Va =	67.82	kips
Resisting Moment, Ma =	7577.47	k-ft, from COR			

MOMENT RATIO = 33.9% OK **SHEAR RATIO = 33.9% OK**

Soil Results: Uplift

Uplift, T =	0.00	kips
Allowable Uplift Cap., Ta =	85.01	kips

UPLIFT RATIO = 0.0% OK

Soil Results: Compression

Compression, C =	32.00	kips
Allowable Comp. Cap., Ca =	95.40	kips

COMPRESSION RATIO = 33.5% OK

Steel Results (ACI 318-02):

Minimum Steel Area =	15.93	sq in	Axial Load, P =	63.11	kips @ 5.75 ft Below Grade
Actual Steel Area =	24.96	sq in	Moment, M =	2209.46	k-ft @ 5.75 ft Below Grade
			Allowable Moment, Ma =	2988.36	k-ft
Allowable Min Axial, Pa =	-1036.80	kips, Where Ma = 0 k-ft			
Allowable Max Axial, Pa =	7063.67	kips, Where Ma = 0 k-ft			

MOMENT RATIO = 73.9% OK

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *876333*
Site Name: *Creative Dimensions*
App #:

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties

Concrete:

Pier Diameter =	6.5	ft
Concrete Area =	4778.4	in^2

Reinforcement:

Clear Cover to **Tie**=	4.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	5.61	ft
Vert. Cage Diameter =	67.34	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	16	
As Total=	24.96	in^2
A s/ Aconc, Rho:	0.0052	0.52%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0032
200 / Fy: 0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.52%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	9182.77	kips
at Mu=(ϕ=0.65)Mn=	5173.38	ft-kips
Max Tu, (φ=0.9) Tn =	1347.84	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	2209.46	ft-kips **(* Note)**
Max. Service Shaft P:	63.11	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	**Shaft Factored Loads**		
1.30	Mu:	2872.298	ft-kips
1.30	Pu:	82.043	kips

Material Properties

Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code=	2002	

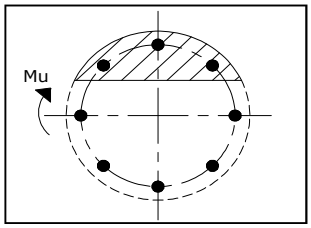
Seismic Properties

Seismic Design Category =	D	
Seismic Risk =	**High**	

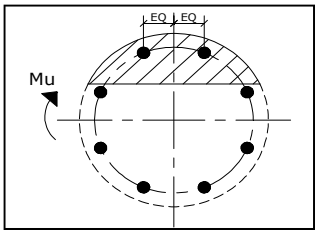
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**10.96**	in
Extreme Steel Strain, ϵt:	**0.0169**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	82.04	kips
Drilled Shaft Moment Capacity, φMn:	**3884.88**	ft-kips
Drilled Shaft Superimposed Mu:	**2872.30**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**73.9%**

37515-0123.001.DWG

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

BU NUMBER; SITE NAME

BU #876333; CREATIVE DIMENSIONS

APP: 245371 REV. 2; WO: 992444

SITE ADDRESS

10 SPARKS ST.
PLAINVILLE, CONNECTICUT 06062
HARTFORD COUNTY

PROJECT NOTES

1. DETAILED FIELD INFORMATION REGARDING INTERFERENCES AND/OR EXISTING FIELD CONDITIONS MAY BE AVAILABLE ON CROWN'S CCISITES AND FROM CONTRACTOR'S PRE-MOD MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT PLANS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO PAUL J. FORD AND COMPANY AND CROWN CASTLE FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.

2. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

3. ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

4. (A.) DTI'S REQUIRED: ALL AJAX BOLTS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. ALL AJAX M20 BOLTS WITH SHEAR SLEEVES SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DIRECT TENSION INDICATOR (DTI) WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAILS ON SHEET S-3 FOR REQUIREMENTS ON THE USE OF DIRECT TENSION INDICATOR (DTI) WASHERS WITH THE AJAX M20 BOLTS.

   (B.) EFFECTIVE 5/30/2012: UNTIL FURTHER NOTICE, CROWN CASTLE WILL ACCEPT AJAX BOLTS TIGHTENED USING AISC "TURN-OF-NUT" METHOD. INSTALLERS SHALL FOLLOW CROWN GUIDELINES FOR AISC "TURN-OF-NUT" METHOD AND ALSO PROVIDE COMPLETE INSPECTION DOCUMENTATION IN THE PMI. PRIOR TO STARTING WORK, CONTRACTOR SHALL CONSULT WITH CROWN ENGINEERING TO DETERMINE WHETHER THIS POLICY IS STILL IN PLACE.

   (C.) REQUIREMENT EFFECTIVE 04/20/2013, PER CROWN CASTLE DIRECTIVE: ANY AND ALL STRUCTURAL BOLTS THAT ARE TIGHTENED TO THE PRETENSIONED CONDITION USING THE AISC "TURN-OF-NUT" TENSIONING PROCEDURE (NON-TENSION CONTROLLED ['NON-TC'] BOLTS AND/OR BOLTS WITHOUT DTI'S INSTALLED) SHALL BE INSPECTED ONSITE BY AN INDEPENDENT THIRD-PARTY BOLT INSPECTOR, AS APPROVED BY CROWN. **THIS INSPECTION IS REQUIRED TO BE AN ONSITE FIELD INSPECTION.** THE THIRD-PARTY BOLT INSPECTOR SHALL FOLLOW THE PUBLISHED CROWN CASTLE INSPECTION PROCEDURE "MI NON-TC BOLT INSPECTION", DATED APRIL 2013. THE THIRD-PARTY BOLT INSPECTOR SHALL PREPARE A FULLY DOCUMENTED BOLT INSPECTION REPORT, AS SPECIFIED BY CROWN, AND SHALL SUBMIT A COPY OF THE BOLT INSPECTION REPORT TO THE MI INSPECTOR, THE EOR, AND TO CROWN CASTLE.

5. NDE OF THE CIRCUMFERENTIAL WELD OF THE BASE PLATE TO SHAFT CONNECTION IS REQUIRED. SEE CCI DOCUMENTS ENG-SOW-1033 '*TOWER BASE PLATE NDE*' AND ENG-BUL-10051 '*NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE*'. NOTIFY THE EOR AND CROWN ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING REINFORCEMENTS THAT HAVE BEEN WELDED TO THE BASE PLATE. ANY FULL PENETRATION WELDING TO THE BASE PLATE REQUIRED AS PART OF THIS ACTIVE REINFORCEMENT DESIGN SHALL BE INCLUDED IN THE NDE SCOPE OF WORK.

PROJECT CONTACT:

MONOPOLE OWNER:
CROWN CASTLE
MOD PM: TIMOTHY HOWELL AT TIMOTHY.HOWELL@CROWNCASTLE.COM
PH: (724) 416-2000

DESIGN STANDARD

THIS REINFORCEMENT DESIGN IS BASED UPON THE REQUIREMENTS OF THE 2005 CONNECTICUT BUILDING CODE AND THE TIA/EIA-222-F-1996 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, USING A DESIGN BASIC WIND SPEED OF 80 MPH (FASTEST MILE) WITH NO ICE, 37.6 MPH WITH 1 INCH ICE AND 50 MPH SERVICE LOADS.

REFER TO THE POLE DESIGN AND ANTENNA LOADING DOCUMENTED IN THE PJF STRUCTURAL ANALYSIS FOR THIS SITE (PJF#37515-0123.001.7700), DATED 1-14-2015.

THIS PROJECT INCLUDES THE FOLLOWING ITEMS:

BOLTED FLANGE BRIDGE STIFFENERS
SHAFT REINFORCING
FIELD WELDED ANCHOR BRACKETS
POST INSTALLED ANCHOR RODS
REMOVAL OF ABANDONED MOUNT

SHEET INDEX

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CROWN CASTLE
3530 TORINGDON WAY, SUITE 300, CHARLOTTE, NC 28277
PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY:
DATE: 1-14-2015

TITLE SHEET

T-1

37515-0123.001.DWG

CROWN CASTLE PROJECT: BU #876333; CREATIVE DIMENSIONS; PLAINVILLE, CONNECTICUT
MONOPOLE RETROFIT PROJECT MASTER NOTES DOCUMENT (REV. 2, 1/22/2009)

A. GENERAL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO FABRICATION AND CONSTRUCTION. THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED TO PAUL J. FORD & COMPANY BY CROWN CASTLE. THIS INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY PAUL J. FORD & COMPANY FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. ANY DISCREPANCIES AND/OR CHANGES BETWEEN THE INFORMATION CONTAINED IN THESE DRAWINGS AND THE ACTUAL VERIFIED SITE CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF CROWN CASTLE AND PAUL J. FORD & COMPANY SO THAT ANY CHANGES AND/OR ADJUSTMENTS, IF NECESSARY, CAN BE MADE TO THE DESIGN AND DRAWINGS.
2. THE EXISTING UNREINFORCED MONOPOLE STRUCTURE DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE ANTENNA AND PLATFORM LOADS SHOWN ON THESE DRAWINGS AT THE REQUIRED MINIMUM TIA/EIA-222-F-1996 BASIC WIND SPEEDS. DO NOT INSTALL ANY ADDITIONAL OR NEW ANTENNA AND PLATFORM LOADS UNTIL THE MONOPOLE REINFORCING SYSTEM IS COMPLETELY AND SUCCESSFULLY INSTALLED.
3. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
4. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING REPAIR SYSTEM HAS BEEN PROPERLY AND ADEQUATELY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO INSURE THE SAFETY AND STABILITY OF THE MONOPOLE AND ITS COMPONENT PARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT. IMPORTANT CUTTING, WELDING AND SAFETY GUIDELINES: THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE CUTTING, WELDING, FIRE PREVENTION AND SAFETY GUIDELINES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT CROWN CASTLE GUIDELINES FROM CROWN CASTLE. PER THE 12-01-2005 CROWN CASTLE DIRECTIVE: "ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN CASTLE POLICY 'CUTTING AND WELDING PLAN' (DOC # ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT".
5. THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
6. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY THE INSPECTION/TESTING AGENCY. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
7. ALL MATERIALS AND EQUIPMENT FURNISHED WILL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK AS WELL AS CROWN CASTLE SAFETY GUIDELINES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COAXIAL CABLES AND OTHER EQUIPMENT DURING CONSTRUCTION.
10. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE REINFORCING SYSTEM WILL HAVE TO BE REMOVED, AND/OR RELOCATED, AND/OR REPLACED AND RE-INSTALLED AFTER THE REINFORCING IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH THE OWNER, TESTING AGENCY, AND ENGINEER.
11. ANY AND ALL EXISTING PLATFORMS THAT ARE LOCATED IN AREAS OF THE POLE SHAFT WHERE SHAFT REINFORCING MUST BE APPLIED SHALL BE TEMPORARILY REMOVED OR OTHERWISE SUPPORTED TO PERMIT NEW CONTINUOUS REINFORCEMENT TO BE ATTACHED. AFTER THE CONTRACTOR HAS SUCCESSFULLY INSTALLED THE MONOPOLE REINFORCEMENT SYSTEM, THE CONTRACTOR SHALL RE-INSTALL THE PLATFORMS. IN NO CASE SHALL ANY NEW AND/OR ADDITIONAL PLATFORMS AND/OR ANTENNAS AND/OR COAX CABLES AND/OR OTHER EQUIPMENT BE INSTALLED ON THE MONOPOLE UNTIL THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF ALL OF THE REQUIRED STRUCTURAL REINFORCING SYSTEM COMPONENTS.

B. (SECTION NOT USED)

C. SPECIAL INSPECTION AND TESTING

1. ALL WORK SHALL BE SUBJECT TO REVIEW AND OBSERVATION BY THE OWNER'S REPRESENTATIVE AND THE OWNER'S AUTHORIZED INDEPENDENT INSPECTION AND TESTING AGENCY. REFER TO CROWN CASTLE DOCUMENT ENG-SOW-10066 FOR SPECIFICATION.
2. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
3. OBSERVED DISCREPANCIES BETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
4. AN INDEPENDENT QUALIFIED INSPECTION/TESTING AGENCY SHALL BE SELECTED, RETAINED AND PAID FOR BY THE OWNER FOR THE SOLE PURPOSE OF INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.
   (A.) ACCESS TO ANY PLACE WHERE WORK IS BEING DONE SHALL BE PERMITTED AT ALL TIMES.
   (B.) THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDINATE WITH, THE WORK IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK SCHEDULE WITH THE TESTING AGENCY. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY TO PERFORM THEIR DUTIES.
5. THE INSPECTION AND TESTING AGENCY SHALL BE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES FOR THE OWNER. THE TESTING AGENCY SHALL INSPECT THE FOLLOWING ITEMS IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS. THE TESTING AGENCY SHALL INSPECT ITEMS ON THIS LIST AND OTHER ITEMS AS NECESSARY TO FULFILL THEIR RESPONSIBILITY. THE TESTING AGENCY SHALL UTILIZE EXPERIENCED, TRAINED INSPECTORS INCLUDING AWS CERTIFIED WELDING INSPECTORS (CWI). INSPECTORS SHALL HAVE THE TRAINING, CREDENTIALS, AND EXPERIENCE APPROPRIATE FOR AND COMMENSURATE WITH THE SCOPE AND TYPE OF INSPECTION WORK TO BE PERFORMED.
   A. GENERAL:
      (1.) PERFORM PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY OWNER IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.
   B. FOUNDATIONS, CONCRETE, AND SOIL PREPARATION - (NOT REQUIRED)
   C. CONCRETE TESTING PER ACI - (NOT REQUIRED)
   D. STRUCTURAL STEEL
      (1.) CHECK THE STEEL ON THE JOB WITH THE PLANS.
      (2.) CHECK MILL CERTIFICATIONS.
      (3.) CHECK GRADE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWINGS.
      (4.) INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.
      (5.) CALL FOR LABORATORY TEST REPORTS WHEN IN DOUBT.
      (6.) CHECK STEEL MEMBERS FOR SIZES, SWEEP AND DIMENSIONAL TOLERANCES.
      (7.) CHECK FOR SURFACE FINISH SPECIFIED, GALVANIZED.
      (8.) CHECK BOLT TIGHTENING ACCORDING TO AISC "TURN OF THE NUT" METHOD.
   E. WELDING:
      (1.) VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D1.1.
      (2.) INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND IN ACCORDANCE WITH AWS D1.1.
      (3.) APPROVE FIELD WELDING SEQUENCE.
         (A.) A PROGRAM OF THE APPROVED SEQUENCES SHALL BE SUBMITTED TO THE OWNER BEFORE WELDING BEGINS. NO CHANGE IN APPROVED SEQUENCES MAY BE MADE WITHOUT PERMISSION FROM THE OWNER.
      (4.) INSPECT WELDED CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS D1.1:
         (A.) INSPECT WELDING EQUIPMENT FOR CAPACITY, MAINTENANCE AND WORKING CONDITIONS.
         (B.) VERIFY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.
         (C.) INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH AWS D1.1.
         (D.) VISUALLY INSPECT ALL WELDS AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D1.1.
         (E.) SPOT TEST AT LEAST ONE FILLET WELD OF EACH MEMBER USING MAGNETIC PARTICLE OR DYE PENETRANT.
         (F.) INSPECT FOR SIZE, SPACING, TYPE AND LOCATION AS PER APPROVED PLANS.
         (G.) VERIFY THAT THE BASE METAL CONFORMS TO THE DRAWINGS.
         (H.) REVIEW THE REPORTS BY TESTING LABS.
         (I.) CHECK TO SEE THAT WELDS ARE CLEAN AND FREE FROM SLAG.
         (J.) INSPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.
         (K.) CHECK THAT DEFECTIVE WELDS ARE CLEARLY MARKED AND HAVE BEEN ADEQUATELY REPAIRED.
   F. REPORTS:
      (1.) COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO THE OWNER.
6. THE INSPECTION PLAN OUTLINED HEREIN IS INTENDED AS A DESCRIPTION OF GENERAL AND SPECIFIC ITEMS OF CONCERN. IT IS NOT INTENDED TO BE ALL-INCLUSIVE. IT DOES NOT LIMIT THE TESTING AND INSPECTION AGENCY TO THE ITEMS LISTED. ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULD BE ANTICIPATED. THE TESTING AGENCY SHALL USE THEIR PROFESSIONAL JUDGMENT AND KNOWLEDGE OF THE JOB SITE CONDITIONS AND THE CONTRACTOR'S PERFORMANCE TO DECIDE WHAT OTHER ITEMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY'S JUDGMENT MUST PREVAIL ON ITEMS NOT SPECIFICALLY COVERED. ANY DISCREPANCIES AND PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO THE OWNER'S ATTENTION. RESOLUTIONS ARE NOT TO BE MADE WITHOUT THE OWNER'S REVIEW AND SPECIFIC WRITTEN CONSENT. THE OWNER RESERVES THE RIGHT TO DETERMINE WHAT IS AN ACCEPTABLE RESOLUTION OF DISCREPANCIES AND PROBLEMS.
7. AFTER EACH INSPECTION, THE TESTING AGENCY WILL PREPARE A WRITTEN ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO THE OWNER. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR A LIST OF ITEMS TO BE CORRECTED, PRIOR TO CONTINUING CONSTRUCTION, AND/OR LOADING OF STRUCTURAL ITEMS.
8. RESPONSIBILITY: THE TESTING AGENCY DOES NOT RELIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE OFFICIAL CONTRACT DOCUMENTS. THE TESTING AGENCY WILL NOT REPLACE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700
DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY:
DATE: 1-14-2015
GENERAL NOTES
S-1

D. STRUCTURAL STEEL

1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARDS:

A. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (**AISC**):
   (A.) "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
   (B.) "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS," AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS OF THE ENGINEERING FOUNDATION.
   (C.) "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (PARAGRAPH 4.2.1 SPECIFICALLY EXCLUDED).

B. BY THE AMERICAN WELDING SOCIETY (**AWS**):
   (A.) "STRUCTURAL WELDING CODE - STEEL D1.1."
   (B.) "SYMBOLS FOR WELDING AND NON-DESTRUCTIVE TESTING"

2. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
3. TIGHTEN ALL STRUCTURAL BOLTS, INCLUDING THE AJAX M20 BOLTS WITH SHEAR SLEEVES, ACCORDING TO THE REQUIREMENTS OF THE AISC "TURN OF THE NUT" METHOD. TIGHTEN BOLTS 1/3 TURN PAST THE SNUG TIGHT CONDITION AS DEFINED BY AISC.
4. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1. ALL WELD ELECTRODES SHALL BE E80XX UNLESS NOTED OTHERWISE ON THE DRAWINGS.
5. ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWS. CONTRACTOR SHALL SUBMIT WELDERS' CERTIFICATION AND QUALIFICATION DOCUMENTATION TO THE OWNER'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
6. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A572 GRADE 65 (FY = 65 KSI MIN.) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
7. SURFACES OF EXISTING STEEL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING PER AWS. SEE SECTION I NOTES REGARDING TOUCH-UP OF GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS FIELD WELDING.
8. UNLESS OTHERWISE NOTED, ALL STEEL MEMBERS SHALL BE HOT-DIP GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH ASTM A123. SEE SECTION J FOR FURTHER NOTES AND FOR EXCEPTIONS (IF ANY).
9. ALL WELDS SHALL BE VISUALLY INSPECTED BY THE OWNER'S APPROVED TESTING AGENCY. OTHER TESTS MAY ALSO BE PERFORMED ON THE WELDS BY THE TESTING AGENCY IN ORDER FOR THEM TO PERFORM THEIR DUTIES FOR THIS PROJECT. THE CONTRACTOR SHALL COOPERATE WITH THE TESTING AGENCY IN THEIR TESTING EFFORTS.
10. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
11. FIELD CUTTING OF STEEL:
   (A.) PRIOR TO ANY FIELD CUTTING, THE CONTRACTOR SHALL MARK THE CUT OUTLINES ON THE STEEL AND THE INSPECTION/TESTING AGENCY SHALL VERIFY PROPOSED LAYOUT, LOCATION, AND DIMENSIONS.
   (B.) ANY REQUIRED CUTS IN THE STEEL SHALL BE CAREFULLY CUT BY MECHANICAL METHODS SUCH AS DRILLING, SAW CUTTING, AND GRINDING. THE CONTRACTOR IS RESPONSIBLE TO PREVENT ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, DURING THE CUTTING WORK. ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, RESULTING FROM THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.
   (C.) ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CUT EDGES THAT ARE TO BE FIELD WELDED SHALL BE PREPARED FOR FIELD WELDING PER AWS D1.1 AND AS SHOWN ON THE DRAWINGS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUTS. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

E. BASE PLATE GROUT - (NOT REQUIRED)

F. FOUNDATION WORK - (NOT REQUIRED)

G. CAST-IN-PLACE CONCRETE - (NOT REQUIRED)

H. EPOXY GROUTED REINFORCING ANCHOR RODS

1. UNLESS OTHERWISE NOTED, REINFORCING ANCHOR RODS SHALL BE 150 KSI ALL-THREAD BAR CONFORMING TO ASTM A722. RECOMMENDED MANUFACTURERS/SUPPLIERS OF 150 KSI ALL-THREAD BAR ARE WILLIAMS FORM ENGINEERING CORPORATION AND DYWIDAG SYSTEMS INTERNATIONAL.
2. ALL REINFORCING ANCHOR RODS SHALL BE HOT DIP GALVANIZED PER ASTM A153. ALTERNATIVELY, ALL REINFORCING ANCHOR RODS MAY BE EPOXY COATED PER ASTM A775.
3. THE CORE-DRILLED HOLES IN THE CONCRETE FOR THE ANCHOR RODS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROD AND EPOXY MANUFACTURERS' INSTRUCTIONS, PRIOR TO PLACEMENT OF ANCHOR RODS AND EPOXY. CONTRACTOR SHALL FOLLOW ALL ANCHOR ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF RODS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.
4. ULTRABOND 1, HILTI HIT RE-500 OR ANCHORTITE EPOXY SHALL BE USED TO ANCHOR THE 150 KSI ALL-THREAD BAR IN THE DRILL HOLES. IF CONTRACTOR WISHES TO USE A DIFFERENT EPOXY, A REQUEST INCLUDING THE EPOXY TECHNICAL DATA SHEET(S) SHALL BE SUBMITTED TO PAUL J FORD AND COMPANY FOR REVIEW PRIOR TO CONSTRUCTION. AS NOTED ABOVE, FOLLOW ALL EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.
5. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN INSTALLED AND ALL EPOXY AND GROUT HAVE CURED (IF BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED PRIOR TO TESTING), ALL REINFORCING ANCHOR RODS SHALL BE LOAD TESTED PER CROWN CASTLE ENGINEERING DOCUMENT #ENG-PRC-10119. REFER TO THE NEW ANCHOR & BRACKET DETAIL ON FOLLOWING DRAWING SHEETS FOR SPECIFIED ANCHOR ROD PROOF LOAD.
6. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN SUCCESSFULLY LOAD TESTED AND APPROVED AND BASE PLATE / BEARING PLATE GROUT HAS CURED (IF BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED AFTER TESTING), CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NUTS TO SNUG TIGHT PLUS 1/8 TURN OF NUT.

I. TOUCH UP OF GALVANIZING

1. THE CONTRACTOR SHALL TOUCH UP ANY AND/OR ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION. **GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ABRASIONS, CUTS, FIELD DRILLING, AND ALL FIELD WELDING SHALL BE TOUCHED UP WITH TWO (2) COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.**
2. CONTRACTOR SHALL CLEAN AND PREPARE ALL FIELD WELDS ON GALVANIZED AND PRIME PAINTED SURFACES FOR TOUCH-UP COATING IN ACCORDANCE WITH AWS D1.1. THE OWNER'S TESTING AGENCY SHALL VERIFY THE PREPARED SURFACE PRIOR TO APPLICATION OF THE TOUCH-UP COATING.
3. THE OWNER'S TESTING AGENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRIED. AREAS FOUND TO BE INADEQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

J. HOT DIP GALVANIZING

1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123 OR PER ASTM A153, AS APPROPRIATE.
2. PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING.
3. DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES AS REQUIRED.
4. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

K. PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MONOPOLE REINFORCING SYSTEM AND THE WORK HAS BEEN ACCEPTED BY THE OWNER, THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM.
2. THE MONOPOLE REINFORCING SYSTEM INDICATED IN THESE DOCUMENTS USES REINFORCING COMPONENTS THAT INVOLVE FIELD WELDING STEEL MEMBERS TO THE EXISTING GALVANIZED STEEL POLE STRUCTURE. THESE FIELD WELDED CONNECTIONS ARE SUBJECT TO CORROSION DAMAGE AND DETERIORATION IF THEY ARE NOT PROPERLY MAINTAINED AND COVERED WITH CORROSION PREVENTIVE COATING SUCH AS THE ZRC GALVANIZING COMPOUND SPECIFIED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE REINFORCED POLE SYSTEM IS DEPENDENT UPON THE INSTALLED SIZE AND QUALITY, MAINTAINED SOUND CONDITION AND STRENGTH OF THESE FIELD WELDED CONNECTIONS. **ANY CORROSION OF, DAMAGE TO, FATIGUE, FRACTURE, AND/OR DETERIORATION OF THESE WELDS AND/OR THE CONNECTED COMPONENTS WILL RESULT IN THE LOSS OF STRUCTURAL LOAD CARRYING CAPACITY AND MAY LEAD TO FAILURE OF THE STRUCTURAL SYSTEM. THEREFORE, IT IS IMPERATIVE THAT THE OWNER REGULARLY INSPECTS, MAINTAINS, AND REPAIRS AS NECESSARY, ALL OF THESE WELDS, CONNECTIONS, AND COMPONENTS FOR THE LIFE OF THE STRUCTURE.**
3. THE OWNER SHALL REFER TO TIA/EIA-222-F-1996, SECTION 14 AND ANNEX E FOR RECOMMENDATIONS FOR MAINTENANCE AND INSPECTION. THE FREQUENCY OF THE INSPECTION AND MAINTENANCE INTERVALS IS TO BE DETERMINED BY THE OWNER BASED UPON ACTUAL SITE AND ENVIRONMENTAL CONDITIONS. **PAUL J. FORD & COMPANY RECOMMENDS THAT A COMPLETE AND THOROUGH INSPECTION OF THE ENTIRE REINFORCED MONOPOLE STRUCTURAL SYSTEM BE PERFORMED YEARLY AND/OR AS FREQUENTLY AS CONDITIONS WARRANT.** ACCORDING TO TIA/EIA-222-F-1996 SECTION 14.1, NOTE 1: "IT IS RECOMMENDED THAT THE STRUCTURE BE INSPECTED AFTER SEVERE WIND AND/OR ICE STORMS OR OTHER EXTREME LOADING CONDITIONS".

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	GENERAL NOTES
CHECKED BY: J.W.M.	
APPROVED BY:	S-2
DATE: 1-14-2015	

37515-0123.001.DWG

AJAX BOLT NOTE SHEET: REV. 1.5, 5-12-2014

NOTES:

1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

3. ALL AJAX M20 BOLTS WITH SHEAR SLEEVES SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DIRECT TENSION INDICATOR (DTI) WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAIL BELOW FOR THE USE OF DIRECT TENSION INDICATOR (DTI) WASHERS WITH THE AJAX M20 BOLTS.

4. ALL AJAX BOLTS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. DTI'S SHALL BE THE SQUIRTER® STYLE, MADE TO ASTM F959 LATEST REVISION; AND HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A HARDNESS OF RC 38 OR HIGHER.

NOTES FOR AJAX M20 'ONE-SIDE BOLTS WITH DIRECT TENSION INDICATORS (DTI'S):

DTI'S REQUIRED: DTI'S SHALL BE "SELF-INDICATING" SQUIRTER® STYLE DTI'S MADE WITH RED DURABLE SQUIRT MEDIA EMBEDDED IN THEM, INSPECTED BY MEANS OF THE VISUAL EJECTION OF SILICONE AS THE DTI PROTRUSIONS COMPRESS. SQUIRTER® DTI'S SHALL BE CALIBRATED PER MANUFACTURER'S INSTRUCTIONS PRIOR TO USE.

THE DIRECT TENSION INDICATOR (DTI) WASHERS SHALL BE THE "SQUIRTER® STYLE" AS MANUFACTURED BY APPLIED BOLTING TECHNOLOGY PRODUCTS' INC.:

PART NUMBER: 2DTIM208MGAFSIF

DESCRIPTION: P.C. 8.8 DTI SQUIRTER WASHER WITH RED DURABLE SQUIRT MEDIA DESIGNED SPECIFICALLY FOR THE AJAX M20 ONESIDE BOLT. FINISH SHALL BE ZINC GALVANIZED AS PROVIDED BY THE DTI MANUFACTURER.

DISTRIBUTOR CONTACT DETAILS:
ALLFASTENERS
15401 COMMERCE PARK DR.
BROOKPARK, OHIO 44142
PHONE: 440-232-6060
E-MAIL: SALES@ALLFASTENERS.COM

DTI: USE DIRECT TENSION INDICATOR (DTI) WASHERS COMPATIBLE WITH 20 MM (M20) NOMINAL A325 BOLTS FOR THE AJAX M20 BOLTS. DTI'S SHALL NOT BE HOT-DIP GALVANIZED. DTI'S SHALL BE MECHANICALLY GALVANIZED (MG) BY THE COLD MECHANICAL PROCESS ONLY AS PROVIDED BY THE DTI MANUFACTURER.

HARDENED WASHERS REQUIRED: USE A HARDENED WASHER FOR A 20 MM (M20) NOMINAL BOLT BETWEEN THE TOP OF THE DIRECT TENSION INDICATOR (DTI) WASHER AND THE NUT OF THE AJAX M20 BOLTS. HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A MINIMUM HARDNESS OF RC 38 OR HIGHER. THE HARDENED WASHERS SHALL BE MECHANICALLY GALVANIZED BY THE COLD MECHANICAL PROCESS. ALTERNATIVELY, CORRECTLY MADE HOT DIP GALVANIZED HARDENED FLAT WASHERS HAVING A MINIMUM HARDNESS OF RC 38 CAN BE USED; CONTRACTOR SHALL PROVIDE DOCUMENTATION OF WASHER SPECIFICATION AND HARDNESS.

NUT LUBRICATION REQUIRED: PROPERLY LUBRICATE THE THREADS OF THE NUT OF THE AJAX BOLT SO THAT IT CAN BE PROPERLY TIGHTENED WITHOUT GALLING AND/OR LOCKING UP ON THE BOLT THREADS. CONTRACTOR SHALL FOLLOW DTI MANUFACTURER INSTRUCTIONS FOR PROPER LUBRICATION AND TIGHTENING.

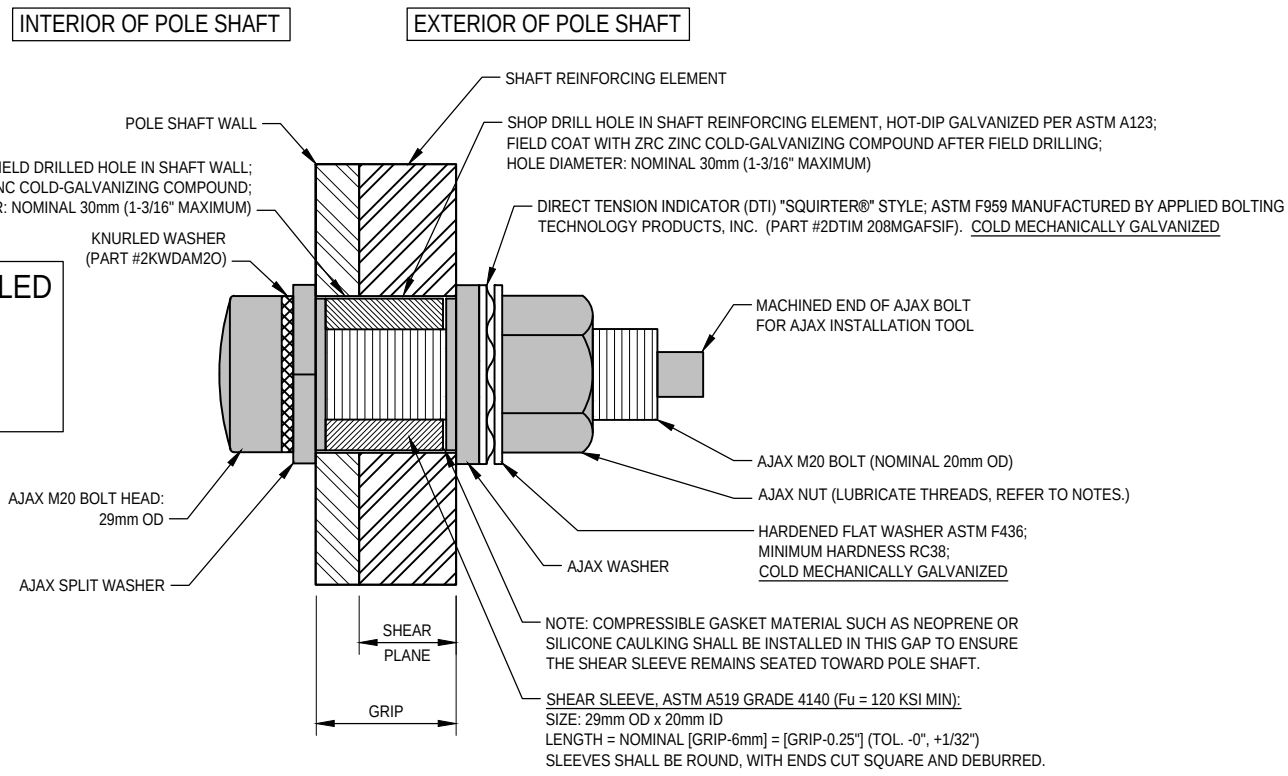
NOTE: COMPLETELY COMPRESSED DTI'S SHOWING NO VISIBLE REMAINING GAP ARE ACCEPTABLE. DTI WASHERS SHALL BE PLACED DIRECTLY AGAINST THE OUTER AJAX WASHER WITH THE DTI BUMPS FACING AWAY FROM THE AJAX WASHER. PLACE A HARDENED WASHER BETWEEN THE DTI AND THE AJAX NUT. THE DTI BUMPS SHALL BEAR AGAINST THE UNDERSIDE OF A HARDENED FLAT WASHER, NEVER DIRECTLY AGAINST THE NUT.

CONTRACTOR SHALL FOLLOW DTI MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION, LUBRICATION, TIGHTENING AND INSPECTION.

INSPECTION REQUIRED: ALL AJAX BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009, BY A QUALIFIED BOLT INSPECTOR. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE AJAX BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. IN addition, ALL AJAX BOLTS AND DTI'S SHALL BE VISUALLY INSPECTED ACCORDING TO THE DTI MANUFACTURER'S INSTRUCTIONS. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE PHOTO DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THE CONDITION OF THE DTI'S.

NOTE: ALL SHOP AND FIELD DRILLED HOLES SHALL BE NOMINAL 30MM DIAMETER. THE MAXIMUM HOLE DIAMETER PERMITTED IS 1-3/16".

NOTE: ALL AJAX BOLTS, AJAX SPLIT WASHERS, AJAX WASHERS, AJAX NUTS, AND SHEAR SLEEVES SHALL BE HOT DIP GALVANIZED PER ASTM A123 OR A153 AS APPROPRIATE. SHEAR SLEEVES MAY BE COLD GALVANIZED OR ZINC PLATED.



TYPICAL AJAX BOLT DETAIL 1/S-3

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PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	AJAX BOLT DETAIL
CHECKED BY: J.W.M.	
APPROVED BY:	S-3
DATE: 1-14-2015	

37515-0123.001.DWG

POLE SPECIFICATIONS	
POLE SHAPE TYPE:	ROUND
TAPER:	N/A
SHAFT STEEL:	ASTM A53-B-35
BASE PL STEEL:	ASTM A36
ANCHOR RODS:	2"ø ASTM A36

SHAFT SECTION DATA					
SHAFT SECTION	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IN)	
				@ TOP	@ BOTTOM
1	12.00	0.3750		12.750	12.750
2	5.00	0.3750		24.000	24.000
3	40.00	0.3750		24.000	24.000
4	40.00	0.3750		36.000	36.000
5	40.00	0.5000		42.000	42.000
NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES					

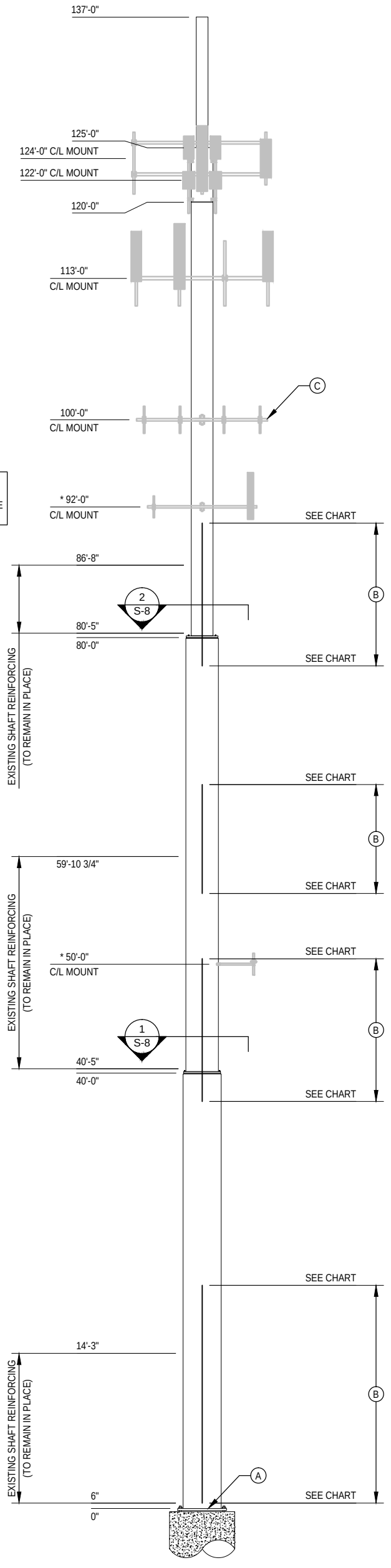
MODIFICATIONS:

(A) INSTALL NEW ANCHOR RODS AND BRACKETS AT BASE PLATE. SEE SHEET S-6.

(B) INSTALL NEW SHAFT REINFORCING AND BOLTED FLANGE JUMPS AT EL. 40' & 80'. SEE CHARTS ON SHEET S-5 AND DETAILS ON SHEET S-7.

(C) REMOVE ABANDONED MOUNT AT 100' ELEVATION.

* EXISTING MOUNTS MAY NEED TO BE ADJUSTED, MOVED AND/OR TEMPORARILY SUPPORTED DURING THE INSTALLATION OF SHAFT REINFORCING



POLE ELEVATION 1/S-4

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DRAWN BY: B.M.S.	MONOPOLE PROFILE
CHECKED BY: J.W.M.	
APPROVED BY:	S-4
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37515-0123.DWG

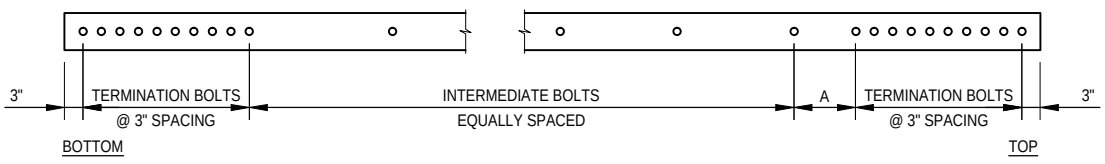
		Jump Plate Size		Unbraced Length					Filler Plate Size				
Level	QNTY	Width	ThK	(Bolt Spacing at Flange)	Jump Plate Length	Jump Weight	Bottom Bolts	Top Bolts	Width	Thk	Filler Plate Length	Filler Weight	Weld Length
40'	3	6-1/2"	1-1/4"	18''	102"	705"	14	14	5-1/2"	2-1/4"	45"	473	270''
80'	3	4-1/2"	1"	18''	78"	298"	10	10	5-1/2"	5-1/4"	33"	347	198''
					Total Jump Wt.	1003	lbs				Total Jump Wt.	820	lbs
											Total Steel Weight	1823	lbs
											Total Weld Length	468	in
											Total AJAX bolts	144	

NEW CCI FLAT PLATE (65 KSI) REINFORCING SCHEDULE

BOTTOM ELEVATION	TOP ELEVATION	FLAT # / DEGREE SEPARATION	ELEMENT	ELEMENT LENGTH	ELEMENT QUANTITY	APPROXIMATE AJAX BOLTS PER ELEMENT	APPROXIMATE TOTAL AJAX BOLT QUANTITY	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAXIMUM INTERMEDIATE BOLT SPACING	ESTIMATED TOTAL STEEL WEIGHT
0' - 6"	20' - 6"	32, 176 & 270	CCI-SFP-04007520	20' - 0"	3	21	63	4	4	16"	612 LBS.
40' - 6"	50' - 6"	56, 176 & 320	3/4" x 4" (CUSTOM)	10' - 0"	3	22	66	14	4	16"	306 LBS.
56' - 6"	66' - 6"	56, 176 & 296	CCI-SFP-04007510	10' - 0"	3	13	39	4	4	16"	306 LBS.
80' - 6"	90' - 6"	56, 176 & 320	3/4" x 4" (CUSTOM)	10' - 0"	3	19	57	10	4	16"	306 LBS.
							225				1530 LBS.

NOTES:

1.) AJAX BOLTS ARE TO BE 20mm DIAMETER WITH CORRESPONDING 29mm DIAMETER SLEEVE WITH MATCHING STEEL GRADE.
2.) ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. ALTERNATIVELY, ALL NEW STIFFENER PLATE STEEL REINFORCING MAY BE COLD GALVANIZED AS FOLLOWS: APPLY A MINIMUM OF TWO COATS OF ZRC-BRAND ZINC -RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
3.) ALL REINFORCING SHALL BE ASTM A572 GR. 65.
4.) WELDS SHALL BE E80XX OR GREATER. TERMINATION WELDS SHALL BE 3/8" FILLET WELDS.
5.) HOLES FOR AJAX BOLTS AND SHEAR SLEEVES ARE 30mm UNLESS NOTED OTHERWISE.
6.) ALL SHIMS SHALL BE ASTM A-36.
7.) ALL FILLER BARS SHALL BE ASTM A572 GR. 36



CUSTOM BOLTED BAR DETAIL

NOTE: "A" DIMENSION MAY VARY, NOT TO EXCEED MAXIMUM INTERMEDIATE BOLT SPACING

CROWN CASTLE US PATENT NOS 8,046,972; 8,156,712; 7,849,659; 8,424,269 AND PATENT PENDING

PAUL J. FORD AND COMPANY
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PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

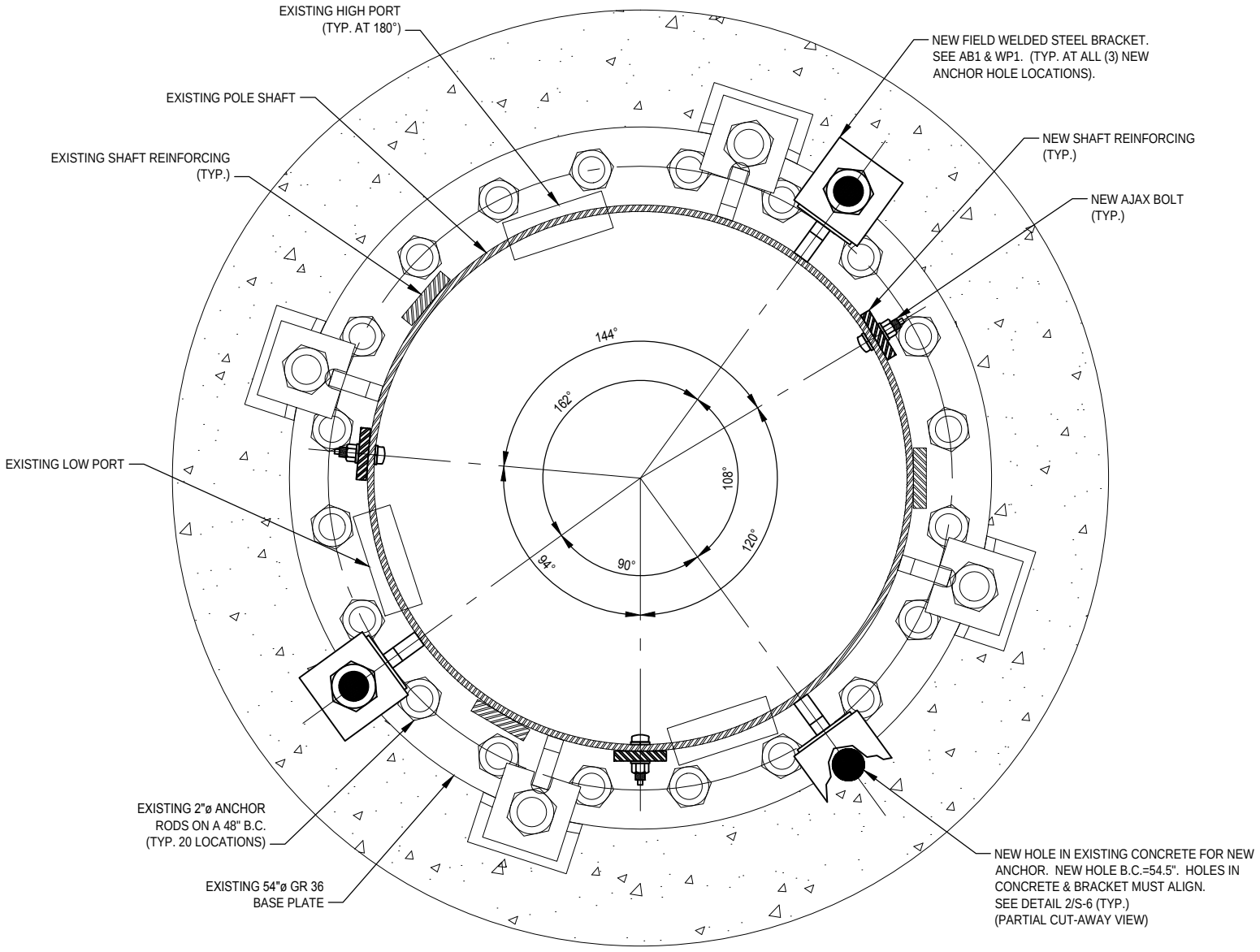
PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY:
DATE: 1-14-2015

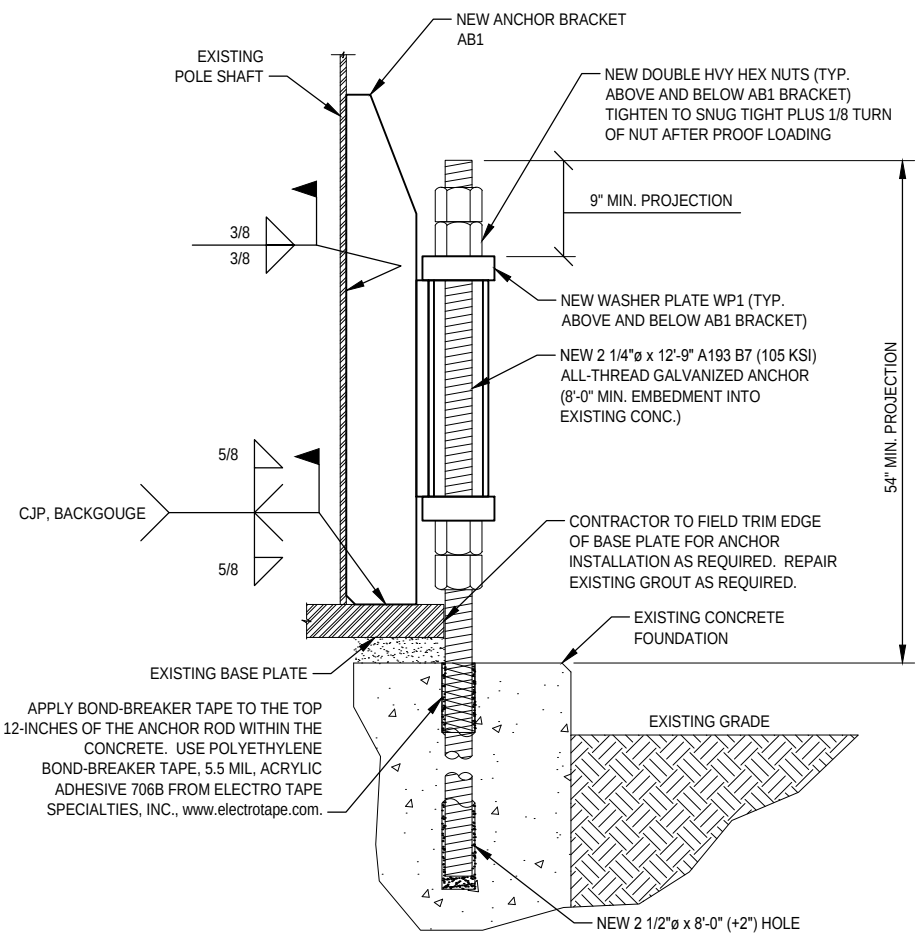
SHAFT REINFORCING CHART AND DETAIL

S-5

37515-0123.001.DWG



BASE PLATE 1 / S-6



NEW ANCHOR ROD REINFORCING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONCE ALL RESIN HAS CURED, ALL NEW ANCHOR ROD REINFORCING SHALL BE PROOF LOADED TO 200 KIPS. ONCE THE PROOF LOAD HAS BEEN RELEASED. TIGHTEN HEAVY HEX NUT TO SNUG TIGHT PLUS 1/8 TURN OF NUT. REFER TO SHEET S-2, SECTION H FOR ADDITIONAL INFORMATION.

NEW ANCHOR & BRACKET DETAIL 2 / S-6

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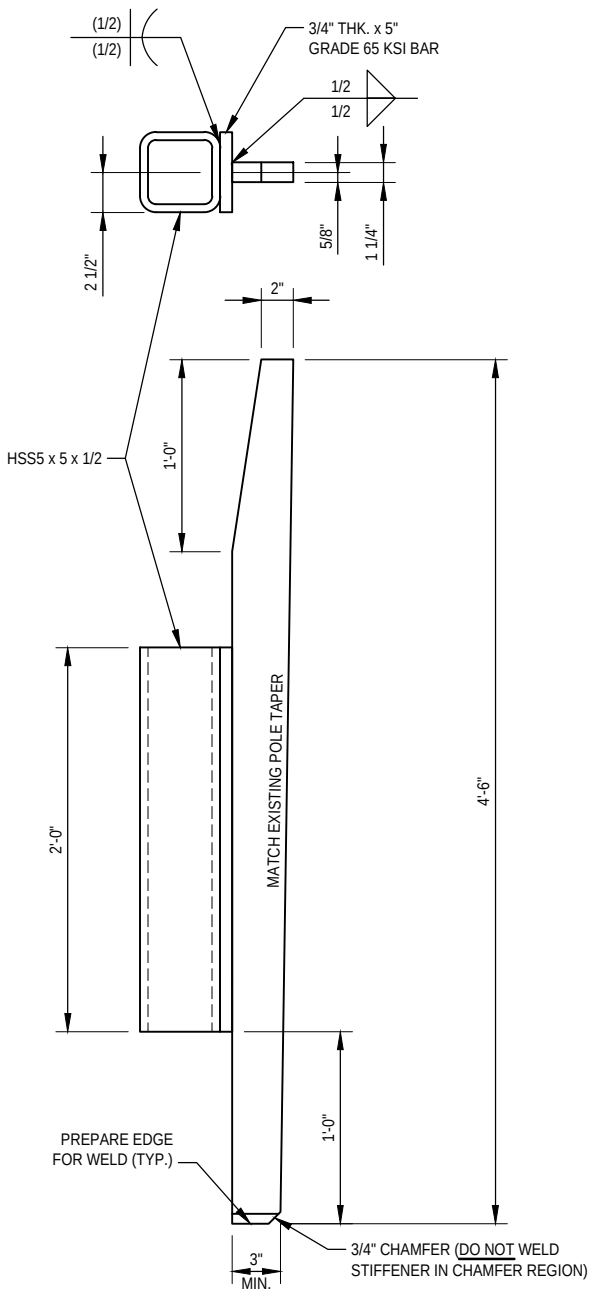
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

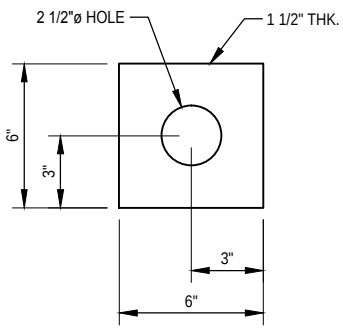
DRAWN BY: B.M.S.	BASE PLATE DETAILS
CHECKED BY: J.W.M.	
APPROVED BY:	S-6
DATE: 1-14-2015	

37515-0123.001.DWG



ANCHOR BRACKET MK~AB1

(3 REQUIRED) (TUBE Fy = 46 KSI) (STIFFENER Fy = 65 KSI)



WASHER PLATE MK~WP1

(6 REQUIRED) (Fy = 50 KSI)

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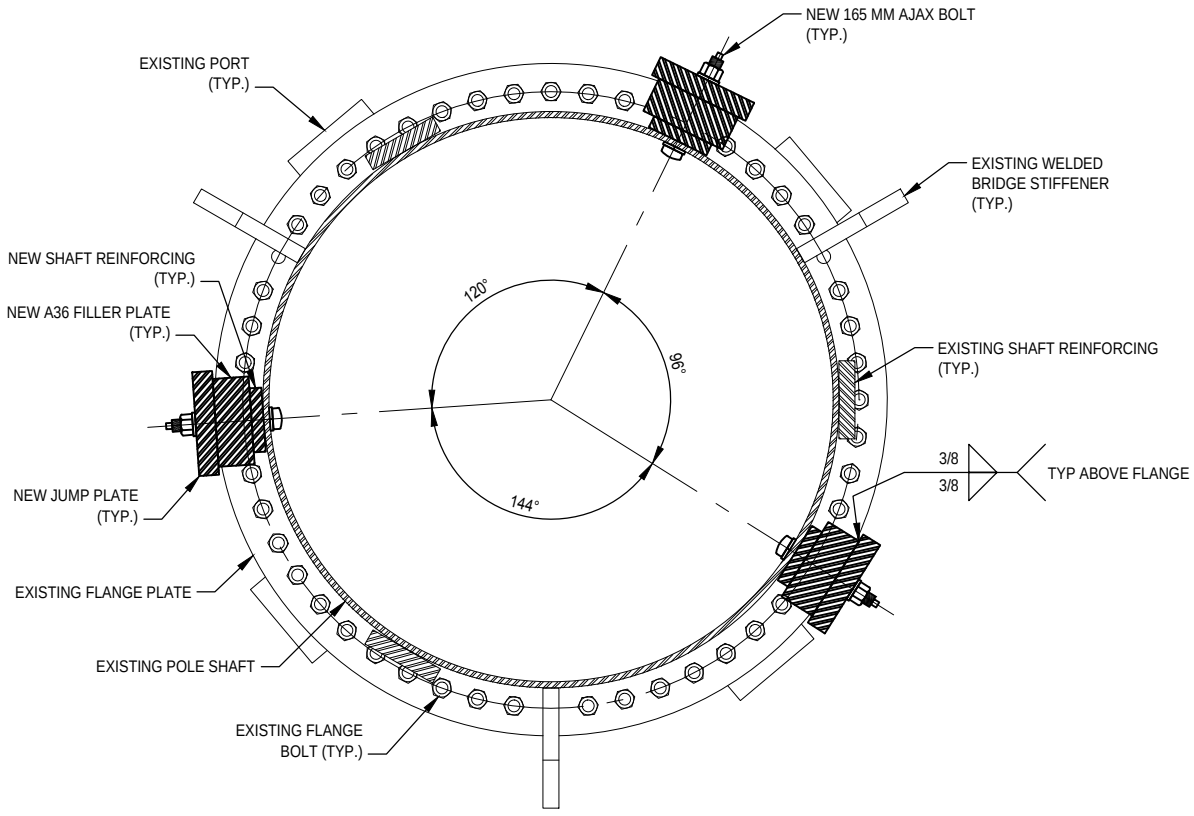
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

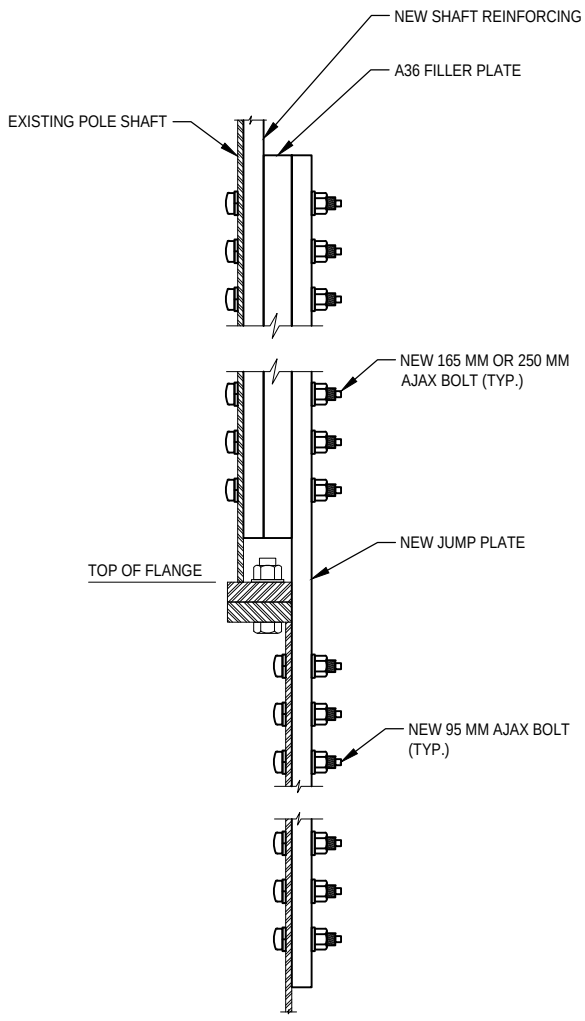
DRAWN BY: B.M.S.	MISC DETAILS
CHECKED BY: J.W.M.	
APPROVED BY:	S-7
DATE: 1-14-2015	

37515-0123.001.DWG

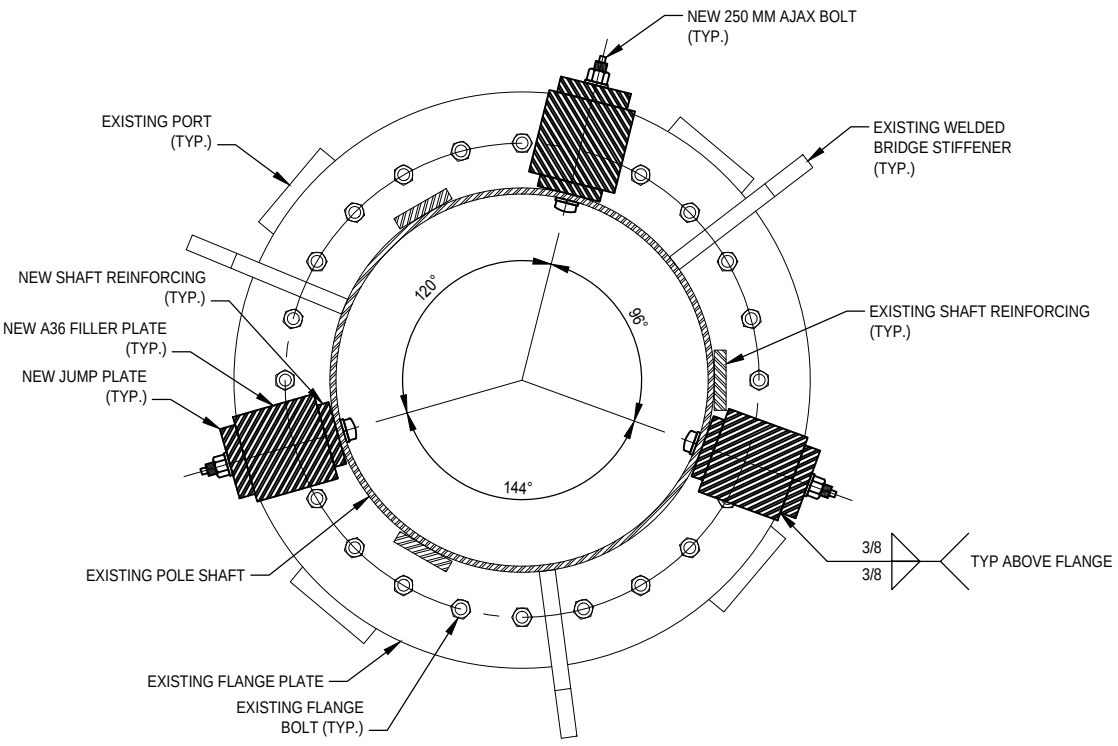


SECTION 1
EL. 40'
S-8

BOLTED FLANGE JUMP TYPICAL DETAILS. CONTRACTOR TO SEE ORIGINAL MANUFACTURER DOCUMENTS FOR EXISTING POLE INFORMATION, EXISTING FLANGE PLATE INFORMATION AND FLANGE BOLT INFORMATION. EXISTING CONDITIONS TO BE FIELD VERIFIED PRIOR TO FABRICATION.



SECTION 3
S-8



SECTION 2
EL. 80'
S-8

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PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY:
DATE: 1-14-2015

BOLTED BRIDGE STIFFENER DETAILS

S-8

37515-0123.001.DWG

MODIFICATION INSPECTION NOTES:

GENERAL
THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE ENG-BUL-10173 LIST OF APPROVED MI VENDORS..

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN POINT OF CONTACT (POC).

REFER TO ENG-SOW-10007 : MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR
THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN.

GENERAL CONTRACTOR
THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST AN DENG-SOW-10007.

RECOMMENDATIONS
THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI
IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CROWN SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CROWN CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S
IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH CROWN TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CROWN'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION

MI VERIFICATION INSPECTIONS
CROWN RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEV/AESV FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

PHOTOGRAPHS
BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWINGS
X	EOR REVIEW
X	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
NA	FABRICATOR NDE INSPECTION
X	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
NA	FOUNDATION INSPECTIONS
NA	CONCRETE COMP. STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
NA	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
NA	EARTHWORK: PROVIDE PHOTO DOCUMENTATION OF EXCAVATION QUALITY AND COMPACTION
X	ON SITE COLD GALVANIZING VERIFICATION
NA	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
X	INSPECTION OF AJAX BOLTS AND DTI'S PER REQUIREMENTS ON SHEET S-3
NA	MICROPILE/ROCK ANCHOR INSTALLER'S DRILLING AND INSTALLATION LOGS AND QA/QC DOCUMENTS
NA	REFER TO MICROPILE/ROCK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

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PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY:
DATE: 1-14-2015

MI CHECKLIST

S-9

37515-0123.001.DWG

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

BU NUMBER; SITE NAME

BU #876333; CREATIVE DIMENSIONS

APP: 245371 REV. 2; WO: 992444

SITE ADDRESS

10 SPARKS ST.
PLAINVILLE, CONNECTICUT 06062
HARTFORD COUNTY

PROJECT NOTES

1. DETAILED FIELD INFORMATION REGARDING INTERFERENCES AND/OR EXISTING FIELD CONDITIONS MAY BE AVAILABLE ON CROWN'S CCISITES AND FROM CONTRACTOR'S PRE-MOD MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT PLANS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO PAUL J. FORD AND COMPANY AND CROWN CASTLE FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.

2. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

3. ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

4. (A.) DTI'S REQUIRED: ALL AJAX BOLTS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. ALL AJAX M20 BOLTS WITH SHEAR SLEEVES SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DIRECT TENSION INDICATOR (DTI) WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAILS ON SHEET S-3 FOR REQUIREMENTS ON THE USE OF DIRECT TENSION INDICATOR (DTI) WASHERS WITH THE AJAX M20 BOLTS.

   (B.) EFFECTIVE 5/30/2012: UNTIL FURTHER NOTICE, CROWN CASTLE WILL ACCEPT AJAX BOLTS TIGHTENED USING AISC "TURN-OF-NUT" METHOD. INSTALLERS SHALL FOLLOW CROWN GUIDELINES FOR AISC "TURN-OF-NUT" METHOD AND ALSO PROVIDE COMPLETE INSPECTION DOCUMENTATION IN THE PMI. PRIOR TO STARTING WORK, CONTRACTOR SHALL CONSULT WITH CROWN ENGINEERING TO DETERMINE WHETHER THIS POLICY IS STILL IN PLACE.

   (C.) REQUIREMENT EFFECTIVE 04/20/2013, PER CROWN CASTLE DIRECTIVE: ANY AND ALL STRUCTURAL BOLTS THAT ARE TIGHTENED TO THE PRETENSIONED CONDITION USING THE AISC "TURN-OF-NUT" TENSIONING PROCEDURE (NON-TENSION CONTROLLED ['NON-TC'] BOLTS AND/OR BOLTS WITHOUT DTI'S INSTALLED) SHALL BE INSPECTED ONSITE BY AN INDEPENDENT THIRD-PARTY BOLT INSPECTOR, AS APPROVED BY CROWN. **THIS INSPECTION IS REQUIRED TO BE AN ONSITE FIELD INSPECTION.** THE THIRD-PARTY BOLT INSPECTOR SHALL FOLLOW THE PUBLISHED CROWN CASTLE INSPECTION PROCEDURE "MI NON-TC BOLT INSPECTION", DATED APRIL 2013. THE THIRD-PARTY BOLT INSPECTOR SHALL PREPARE A FULLY DOCUMENTED BOLT INSPECTION REPORT, AS SPECIFIED BY CROWN, AND SHALL SUBMIT A COPY OF THE BOLT INSPECTION REPORT TO THE MI INSPECTOR, THE EOR, AND TO CROWN CASTLE.

5. NDE OF THE CIRCUMFERENTIAL WELD OF THE BASE PLATE TO SHAFT CONNECTION IS REQUIRED. SEE CCI DOCUMENTS ENG-SOW-1033 '*TOWER BASE PLATE NDE*' AND ENG-BUL-10051 '*NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE*'. NOTIFY THE EOR AND CROWN ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING REINFORCEMENTS THAT HAVE BEEN WELDED TO THE BASE PLATE. ANY FULL PENETRATION WELDING TO THE BASE PLATE REQUIRED AS PART OF THIS ACTIVE REINFORCEMENT DESIGN SHALL BE INCLUDED IN THE NDE SCOPE OF WORK.

PROJECT CONTACT:

MONOPOLE OWNER:
CROWN CASTLE
MOD PM: TIMOTHY HOWELL AT TIMOTHY.HOWELL@CROWNCASTLE.COM
PH: (724) 416-2000

DESIGN STANDARD

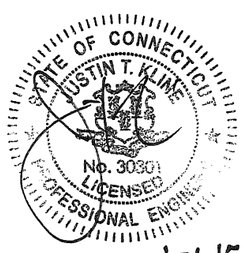
THIS REINFORCEMENT DESIGN IS BASED UPON THE REQUIREMENTS OF THE 2005 CONNECTICUT BUILDING CODE AND THE TIA/EIA-222-F-1996 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, USING A DESIGN BASIC WIND SPEED OF 80 MPH (FASTEST MILE) WITH NO ICE, 37.6 MPH WITH 1 INCH ICE AND 50 MPH SERVICE LOADS.

REFER TO THE POLE DESIGN AND ANTENNA LOADING DOCUMENTED IN THE PJF STRUCTURAL ANALYSIS FOR THIS SITE (PJF#37515-0123.001.7700), DATED 1-14-2015.

THIS PROJECT INCLUDES THE FOLLOWING ITEMS:

BOLTED FLANGE BRIDGE STIFFENERS
SHAFT REINFORCING
FIELD WELDED ANCHOR BRACKETS
POST INSTALLED ANCHOR RODS
REMOVAL OF ABANDONED MOUNT

SHEET INDEX



1-26-15

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	TITLE SHEET
CHECKED BY: J.W.M.	
APPROVED BY: [illegible]	T-1
DATE: 1-14-2015	

CROWN CASTLE PROJECT: BU #876333; CREATIVE DIMENSIONS; PLAINVILLE, CONNECTICUT
MONOPOLE RETROFIT PROJECT MASTER NOTES DOCUMENT (REV. 2, 1/22/2009)

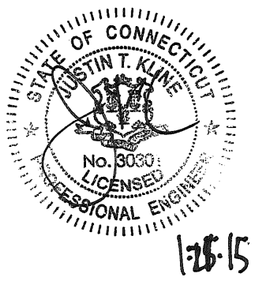
A. GENERAL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO FABRICATION AND CONSTRUCTION. THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED TO PAUL J. FORD & COMPANY BY CROWN CASTLE. THIS INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY PAUL J. FORD & COMPANY FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. ANY DISCREPANCIES AND/OR CHANGES BETWEEN THE INFORMATION CONTAINED IN THESE DRAWINGS AND THE ACTUAL VERIFIED SITE CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF CROWN CASTLE AND PAUL J. FORD & COMPANY SO THAT ANY CHANGES AND/OR ADJUSTMENTS, IF NECESSARY, CAN BE MADE TO THE DESIGN AND DRAWINGS.
2. THE EXISTING UNREINFORCED MONOPOLE STRUCTURE DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE ANTENNA AND PLATFORM LOADS SHOWN ON THESE DRAWINGS AT THE REQUIRED MINIMUM TIA/EIA-222-F-1996 BASIC WIND SPEEDS. DO NOT INSTALL ANY ADDITIONAL OR NEW ANTENNA AND PLATFORM LOADS UNTIL THE MONOPOLE REINFORCING SYSTEM IS COMPLETELY AND SUCCESSFULLY INSTALLED.
3. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
4. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING REPAIR SYSTEM HAS BEEN PROPERLY AND ADEQUATELY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO INSURE THE SAFETY AND STABILITY OF THE MONOPOLE AND ITS COMPONENT PARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT. IMPORTANT CUTTING, WELDING AND SAFETY GUIDELINES: THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE CUTTING, WELDING, FIRE PREVENTION AND SAFETY GUIDELINES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT CROWN CASTLE GUIDELINES FROM CROWN CASTLE. PER THE 12-01-2005 CROWN CASTLE DIRECTIVE: "ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN CASTLE POLICY 'CUTTING AND WELDING PLAN' (DOC # ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT".
5. THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
6. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY THE INSPECTION/TESTING AGENCY. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
7. ALL MATERIALS AND EQUIPMENT FURNISHED WILL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK AS WELL AS CROWN CASTLE SAFETY GUIDELINES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COAXIAL CABLES AND OTHER EQUIPMENT DURING CONSTRUCTION.
10. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE REINFORCING SYSTEM WILL HAVE TO BE REMOVED, AND/OR RELOCATED, AND/OR REPLACED AND RE-INSTALLED AFTER THE REINFORCING IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH THE OWNER, TESTING AGENCY, AND ENGINEER.
11. ANY AND ALL EXISTING PLATFORMS THAT ARE LOCATED IN AREAS OF THE POLE SHAFT WHERE SHAFT REINFORCING MUST BE APPLIED SHALL BE TEMPORARILY REMOVED OR OTHERWISE SUPPORTED TO PERMIT NEW CONTINUOUS REINFORCEMENT TO BE ATTACHED. AFTER THE CONTRACTOR HAS SUCCESSFULLY INSTALLED THE MONOPOLE REINFORCEMENT SYSTEM, THE CONTRACTOR SHALL RE-INSTALL THE PLATFORMS. IN NO CASE SHALL ANY NEW AND/OR ADDITIONAL PLATFORMS AND/OR ANTENNAS AND/OR COAX CABLES AND/OR OTHER EQUIPMENT BE INSTALLED ON THE MONOPOLE UNTIL THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF ALL OF THE REQUIRED STRUCTURAL REINFORCING SYSTEM COMPONENTS.

B. (SECTION NOT USED)

C. SPECIAL INSPECTION AND TESTING

1. ALL WORK SHALL BE SUBJECT TO REVIEW AND OBSERVATION BY THE OWNER'S REPRESENTATIVE AND THE OWNER'S AUTHORIZED INDEPENDENT INSPECTION AND TESTING AGENCY. REFER TO CROWN CASTLE DOCUMENT ENG-SOW-10066 FOR SPECIFICATION.
2. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
3. OBSERVED DISCREPANCIES BETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
4. AN INDEPENDENT QUALIFIED INSPECTION/TESTING AGENCY SHALL BE SELECTED, RETAINED AND PAID FOR BY THE OWNER FOR THE SOLE PURPOSE OF INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.
   (A.) ACCESS TO ANY PLACE WHERE WORK IS BEING DONE SHALL BE PERMITTED AT ALL TIMES.
   (B.) THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDINATE WITH, THE WORK IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK SCHEDULE WITH THE TESTING AGENCY. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY TO PERFORM THEIR DUTIES.
5. THE INSPECTION AND TESTING AGENCY SHALL BE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES FOR THE OWNER. THE TESTING AGENCY SHALL INSPECT THE FOLLOWING ITEMS IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS. THE TESTING AGENCY SHALL INSPECT ITEMS ON THIS LIST AND OTHER ITEMS AS NECESSARY TO FULFILL THEIR RESPONSIBILITY. THE TESTING AGENCY SHALL UTILIZE EXPERIENCED, TRAINED INSPECTORS INCLUDING AWS CERTIFIED WELDING INSPECTORS (CWI). INSPECTORS SHALL HAVE THE TRAINING, CREDENTIALS, AND EXPERIENCE APPROPRIATE FOR AND COMMENSURATE WITH THE SCOPE AND TYPE OF INSPECTION WORK TO BE PERFORMED.
   A. GENERAL:
      (1.) PERFORM PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY OWNER IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.
   B. FOUNDATIONS, CONCRETE, AND SOIL PREPARATION - (NOT REQUIRED)
   C. CONCRETE TESTING PER ACI - (NOT REQUIRED)
   D. STRUCTURAL STEEL
      (1.) CHECK THE STEEL ON THE JOB WITH THE PLANS.
      (2.) CHECK MILL CERTIFICATIONS.
      (3.) CHECK GRADE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWINGS.
      (4.) INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.
      (5.) CALL FOR LABORATORY TEST REPORTS WHEN IN DOUBT.
      (6.) CHECK STEEL MEMBERS FOR SIZES, SWEEP AND DIMENSIONAL TOLERANCES.
      (7.) CHECK FOR SURFACE FINISH SPECIFIED, GALVANIZED.
      (8.) CHECK BOLT TIGHTENING ACCORDING TO AISC "TURN OF THE NUT" METHOD.
   E. WELDING:
      (1.) VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D1.1.
      (2.) INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND IN ACCORDANCE WITH AWS D1.1.
      (3.) APPROVE FIELD WELDING SEQUENCE.
         (A.) A PROGRAM OF THE APPROVED SEQUENCES SHALL BE SUBMITTED TO THE OWNER BEFORE WELDING BEGINS. NO CHANGE IN APPROVED SEQUENCES MAY BE MADE WITHOUT PERMISSION FROM THE OWNER.
      (4.) INSPECT WELDED CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS D1.1:
         (A.) INSPECT WELDING EQUIPMENT FOR CAPACITY, MAINTENANCE AND WORKING CONDITIONS.
         (B.) VERIFY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.
         (C.) INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH AWS D1.1.
         (D.) VISUALLY INSPECT ALL WELDS AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D1.1.
         (E.) SPOT TEST AT LEAST ONE FILLET WELD OF EACH MEMBER USING MAGNETIC PARTICLE OR DYE PENETRANT.
         (F.) INSPECT FOR SIZE, SPACING, TYPE AND LOCATION AS PER APPROVED PLANS.
         (G.) VERIFY THAT THE BASE METAL CONFORMS TO THE DRAWINGS.
         (H.) REVIEW THE REPORTS BY TESTING LABS.
         (I.) CHECK TO SEE THAT WELDS ARE CLEAN AND FREE FROM SLAG.
         (J.) INSPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.
         (K.) CHECK THAT DEFECTIVE WELDS ARE CLEARLY MARKED AND HAVE BEEN ADEQUATELY REPAIRED.
   F. REPORTS:
      (1.) COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO THE OWNER.
6. THE INSPECTION PLAN OUTLINED HEREIN IS INTENDED AS A DESCRIPTION OF GENERAL AND SPECIFIC ITEMS OF CONCERN. IT IS NOT INTENDED TO BE ALL-INCLUSIVE. IT DOES NOT LIMIT THE TESTING AND INSPECTION AGENCY TO THE ITEMS LISTED. ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULD BE ANTICIPATED. THE TESTING AGENCY SHALL USE THEIR PROFESSIONAL JUDGMENT AND KNOWLEDGE OF THE JOB SITE CONDITIONS AND THE CONTRACTOR'S PERFORMANCE TO DECIDE WHAT OTHER ITEMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY'S JUDGMENT MUST PREVAIL ON ITEMS NOT SPECIFICALLY COVERED. ANY DISCREPANCIES AND PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO THE OWNER'S ATTENTION. RESOLUTIONS ARE NOT TO BE MADE WITHOUT THE OWNER'S REVIEW AND SPECIFIC WRITTEN CONSENT. THE OWNER RESERVES THE RIGHT TO DETERMINE WHAT IS AN ACCEPTABLE RESOLUTION OF DISCREPANCIES AND PROBLEMS.
7. AFTER EACH INSPECTION, THE TESTING AGENCY WILL PREPARE A WRITTEN ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO THE OWNER. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR A LIST OF ITEMS TO BE CORRECTED, PRIOR TO CONTINUING CONSTRUCTION, AND/OR LOADING OF STRUCTURAL ITEMS.
8. RESPONSIBILITY: THE TESTING AGENCY DOES NOT RELIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE OFFICIAL CONTRACT DOCUMENTS. THE TESTING AGENCY WILL NOT REPLACE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.



1-26-15

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	GENERAL NOTES
CHECKED BY: J.W.M.	
APPROVED BY: [illegible]	S-1
DATE: 1-14-2015	

D. STRUCTURAL STEEL

1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARDS:

A. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (**AISC**):
   (A.) "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
   (B.) "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS," AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS OF THE ENGINEERING FOUNDATION.
   (C.) "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (PARAGRAPH 4.2.1 SPECIFICALLY EXCLUDED).

B. BY THE AMERICAN WELDING SOCIETY (**AWS**):
   (A.) "STRUCTURAL WELDING CODE - STEEL D1.1."
   (B.) "SYMBOLS FOR WELDING AND NON-DESTRUCTIVE TESTING"

2. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
3. TIGHTEN ALL STRUCTURAL BOLTS, INCLUDING THE AJAX M20 BOLTS WITH SHEAR SLEEVES, ACCORDING TO THE REQUIREMENTS OF THE AISC "TURN OF THE NUT" METHOD. TIGHTEN BOLTS 1/3 TURN PAST THE SNUG TIGHT CONDITION AS DEFINED BY AISC.
4. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1. ALL WELD ELECTRODES SHALL BE E80XX UNLESS NOTED OTHERWISE ON THE DRAWINGS.
5. ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWS. CONTRACTOR SHALL SUBMIT WELDERS' CERTIFICATION AND QUALIFICATION DOCUMENTATION TO THE OWNER'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
6. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A572 GRADE 65 (FY = 65 KSI MIN.) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
7. SURFACES OF EXISTING STEEL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING PER AWS. SEE SECTION I NOTES REGARDING TOUCH-UP OF GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS FIELD WELDING.
8. UNLESS OTHERWISE NOTED, ALL STEEL MEMBERS SHALL BE HOT-DIP GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH ASTM A123. SEE SECTION J FOR FURTHER NOTES AND FOR EXCEPTIONS (IF ANY).
9. ALL WELDS SHALL BE VISUALLY INSPECTED BY THE OWNER'S APPROVED TESTING AGENCY. OTHER TESTS MAY ALSO BE PERFORMED ON THE WELDS BY THE TESTING AGENCY IN ORDER FOR THEM TO PERFORM THEIR DUTIES FOR THIS PROJECT. THE CONTRACTOR SHALL COOPERATE WITH THE TESTING AGENCY IN THEIR TESTING EFFORTS.
10. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
11. FIELD CUTTING OF STEEL:
   (A.) PRIOR TO ANY FIELD CUTTING, THE CONTRACTOR SHALL MARK THE CUT OUTLINES ON THE STEEL AND THE INSPECTION/TESTING AGENCY SHALL VERIFY PROPOSED LAYOUT, LOCATION, AND DIMENSIONS.
   (B.) ANY REQUIRED CUTS IN THE STEEL SHALL BE CAREFULLY CUT BY MECHANICAL METHODS SUCH AS DRILLING, SAW CUTTING, AND GRINDING. THE CONTRACTOR IS RESPONSIBLE TO PREVENT ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, DURING THE CUTTING WORK. ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, RESULTING FROM THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.
   (C.) ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CUT EDGES THAT ARE TO BE FIELD WELDED SHALL BE PREPARED FOR FIELD WELDING PER AWS D1.1 AND AS SHOWN ON THE DRAWINGS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUTS. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

E. BASE PLATE GROUT - (NOT REQUIRED)

F. FOUNDATION WORK - (NOT REQUIRED)

G. CAST-IN-PLACE CONCRETE - (NOT REQUIRED)

H. EPOXY GROUTED REINFORCING ANCHOR RODS

1. UNLESS OTHERWISE NOTED, REINFORCING ANCHOR RODS SHALL BE 150 KSI ALL-THREAD BAR CONFORMING TO ASTM A722. RECOMMENDED MANUFACTURERS/SUPPLIERS OF 150 KSI ALL-THREAD BAR ARE WILLIAMS FORM ENGINEERING CORPORATION AND DYWIDAG SYSTEMS INTERNATIONAL.
2. ALL REINFORCING ANCHOR RODS SHALL BE HOT DIP GALVANIZED PER ASTM A153. ALTERNATIVELY, ALL REINFORCING ANCHOR RODS MAY BE EPOXY COATED PER ASTM A775.
3. THE CORE-DRILLED HOLES IN THE CONCRETE FOR THE ANCHOR RODS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROD AND EPOXY MANUFACTURERS' INSTRUCTIONS, PRIOR TO PLACEMENT OF ANCHOR RODS AND EPOXY. CONTRACTOR SHALL FOLLOW ALL ANCHOR ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF RODS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.
4. ULTRABOND 1, HILTI HIT RE-500 OR ANCHORTITE EPOXY SHALL BE USED TO ANCHOR THE 150 KSI ALL-THREAD BAR IN THE DRILL HOLES. IF CONTRACTOR WISHES TO USE A DIFFERENT EPOXY, A REQUEST INCLUDING THE EPOXY TECHNICAL DATA SHEET(S) SHALL BE SUBMITTED TO PAUL J FORD AND COMPANY FOR REVIEW PRIOR TO CONSTRUCTION. AS NOTED ABOVE, FOLLOW ALL EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.
5. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN INSTALLED AND ALL EPOXY AND GROUT HAVE CURED (IF BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED PRIOR TO TESTING), ALL REINFORCING ANCHOR RODS SHALL BE LOAD TESTED PER CROWN CASTLE ENGINEERING DOCUMENT #ENG-PRC-10119. REFER TO THE NEW ANCHOR & BRACKET DETAIL ON FOLLOWING DRAWING SHEETS FOR SPECIFIED ANCHOR ROD PROOF LOAD.
6. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN SUCCESSFULLY LOAD TESTED AND APPROVED AND BASE PLATE / BEARING PLATE GROUT HAS CURED (IF BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED AFTER TESTING), CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NUTS TO SNUG TIGHT PLUS 1/8 TURN OF NUT.

I. TOUCH UP OF GALVANIZING

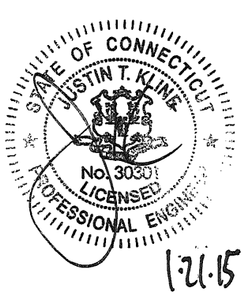
1. THE CONTRACTOR SHALL TOUCH UP ANY AND/OR ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION. **GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ABRASIONS, CUTS, FIELD DRILLING, AND ALL FIELD WELDING SHALL BE TOUCHED UP WITH TWO (2) COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.**
2. CONTRACTOR SHALL CLEAN AND PREPARE ALL FIELD WELDS ON GALVANIZED AND PRIME PAINTED SURFACES FOR TOUCH-UP COATING IN ACCORDANCE WITH AWS D1.1. THE OWNER'S TESTING AGENCY SHALL VERIFY THE PREPARED SURFACE PRIOR TO APPLICATION OF THE TOUCH-UP COATING.
3. THE OWNER'S TESTING AGENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRIED. AREAS FOUND TO BE INADEQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

J. HOT DIP GALVANIZING

1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123 OR PER ASTM A153, AS APPROPRIATE.
2. PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING.
3. DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES AS REQUIRED.
4. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

K. PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MONOPOLE REINFORCING SYSTEM AND THE WORK HAS BEEN ACCEPTED BY THE OWNER, THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM.
2. THE MONOPOLE REINFORCING SYSTEM INDICATED IN THESE DOCUMENTS USES REINFORCING COMPONENTS THAT INVOLVE FIELD WELDING STEEL MEMBERS TO THE EXISTING GALVANIZED STEEL POLE STRUCTURE. THESE FIELD WELDED CONNECTIONS ARE SUBJECT TO CORROSION DAMAGE AND DETERIORATION IF THEY ARE NOT PROPERLY MAINTAINED AND COVERED WITH CORROSION PREVENTIVE COATING SUCH AS THE ZRC GALVANIZING COMPOUND SPECIFIED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE REINFORCED POLE SYSTEM IS DEPENDENT UPON THE INSTALLED SIZE AND QUALITY, MAINTAINED SOUND CONDITION AND STRENGTH OF THESE FIELD WELDED CONNECTIONS. **ANY CORROSION OF, DAMAGE TO, FATIGUE, FRACTURE, AND/OR DETERIORATION OF THESE WELDS AND/OR THE CONNECTED COMPONENTS WILL RESULT IN THE LOSS OF STRUCTURAL LOAD CARRYING CAPACITY AND MAY LEAD TO FAILURE OF THE STRUCTURAL SYSTEM. THEREFORE, IT IS IMPERATIVE THAT THE OWNER REGULARLY INSPECTS, MAINTAINS, AND REPAIRS AS NECESSARY, ALL OF THESE WELDS, CONNECTIONS, AND COMPONENTS FOR THE LIFE OF THE STRUCTURE.**
3. THE OWNER SHALL REFER TO TIA/EIA-222-F-1996, SECTION 14 AND ANNEX E FOR RECOMMENDATIONS FOR MAINTENANCE AND INSPECTION. THE FREQUENCY OF THE INSPECTION AND MAINTENANCE INTERVALS IS TO BE DETERMINED BY THE OWNER BASED UPON ACTUAL SITE AND ENVIRONMENTAL CONDITIONS. **PAUL J. FORD & COMPANY RECOMMENDS THAT A COMPLETE AND THOROUGH INSPECTION OF THE ENTIRE REINFORCED MONOPOLE STRUCTURAL SYSTEM BE PERFORMED YEARLY AND/OR AS FREQUENTLY AS CONDITIONS WARRANT.** ACCORDING TO TIA/EIA-222-F-1996 SECTION 14.1, NOTE 1: "IT IS RECOMMENDED THAT THE STRUCTURE BE INSPECTED AFTER SEVERE WIND AND/OR ICE STORMS OR OTHER EXTREME LOADING CONDITIONS".



1.21.15

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BU #876333; CREATIVE DIMENSIONS
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MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	GENERAL NOTES
CHECKED BY: J.W.M.	
APPROVED BY: KAT	
DATE: 1-14-2015	S-2

AJAX BOLT NOTE SHEET: REV. 1.5, 5-12-2014

NOTES:

1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

3. ALL AJAX M20 BOLTS WITH SHEAR SLEEVES SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DIRECT TENSION INDICATOR (DTI) WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAIL BELOW FOR THE USE OF DIRECT TENSION INDICATOR (DTI) WASHERS WITH THE AJAX M20 BOLTS.

4. ALL AJAX BOLTS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. DTI'S SHALL BE THE SQUIRTER® STYLE, MADE TO ASTM F959 LATEST REVISION; AND HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A HARDNESS OF RC 38 OR HIGHER.

NOTES FOR AJAX M20 'ONE-SIDE BOLTS WITH DIRECT TENSION INDICATORS (DTI'S):

DTI'S REQUIRED: DTI'S SHALL BE "SELF-INDICATING" SQUIRTER® STYLE DTI'S MADE WITH RED DURABLE SQUIRT MEDIA EMBEDDED IN THEM, INSPECTED BY MEANS OF THE VISUAL EJECTION OF SILICONE AS THE DTI PROTRUSIONS COMPRESS. SQUIRTER® DTI'S SHALL BE CALIBRATED PER MANUFACTURER'S INSTRUCTIONS PRIOR TO USE.

THE DIRECT TENSION INDICATOR (DTI) WASHERS SHALL BE THE "SQUIRTER® STYLE" AS MANUFACTURED BY APPLIED BOLTING TECHNOLOGY PRODUCTS' INC.:

PART NUMBER: 2DTIM208MGAFSIF

DESCRIPTION: P.C. 8.8 DTI SQUIRTER WASHER WITH RED DURABLE SQUIRT MEDIA DESIGNED SPECIFICALLY FOR THE AJAX M20 ONESIDE BOLT. FINISH SHALL BE ZINC GALVANIZED AS PROVIDED BY THE DTI MANUFACTURER.

DISTRIBUTOR CONTACT DETAILS:
ALLFASTENERS
15401 COMMERCE PARK DR.
BROOKPARK, OHIO 44142
PHONE: 440-232-6060
E-MAIL: SALES@ALLFASTENERS.COM

DTI: USE DIRECT TENSION INDICATOR (DTI) WASHERS COMPATIBLE WITH 20 MM (M20) NOMINAL A325 BOLTS FOR THE AJAX M20 BOLTS. DTI'S SHALL NOT BE HOT-DIP GALVANIZED. DTI'S SHALL BE MECHANICALLY GALVANIZED (MG) BY THE COLD MECHANICAL PROCESS ONLY AS PROVIDED BY THE DTI MANUFACTURER.

HARDENED WASHERS REQUIRED: USE A HARDENED WASHER FOR A 20 MM (M20) NOMINAL BOLT BETWEEN THE TOP OF THE DIRECT TENSION INDICATOR (DTI) WASHER AND THE NUT OF THE AJAX M20 BOLTS. HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A MINIMUM HARDNESS OF RC 38 OR HIGHER. THE HARDENED WASHERS SHALL BE MECHANICALLY GALVANIZED BY THE COLD MECHANICAL PROCESS. ALTERNATIVELY, CORRECTLY MADE HOT DIP GALVANIZED HARDENED FLAT WASHERS HAVING A MINIMUM HARDNESS OF RC 38 CAN BE USED; CONTRACTOR SHALL PROVIDE DOCUMENTATION OF WASHER SPECIFICATION AND HARDNESS.

NUT LUBRICATION REQUIRED: PROPERLY LUBRICATE THE THREADS OF THE NUT OF THE AJAX BOLT SO THAT IT CAN BE PROPERLY TIGHTENED WITHOUT GALLING AND/OR LOCKING UP ON THE BOLT THREADS. CONTRACTOR SHALL FOLLOW DTI MANUFACTURER INSTRUCTIONS FOR PROPER LUBRICATION AND TIGHTENING.

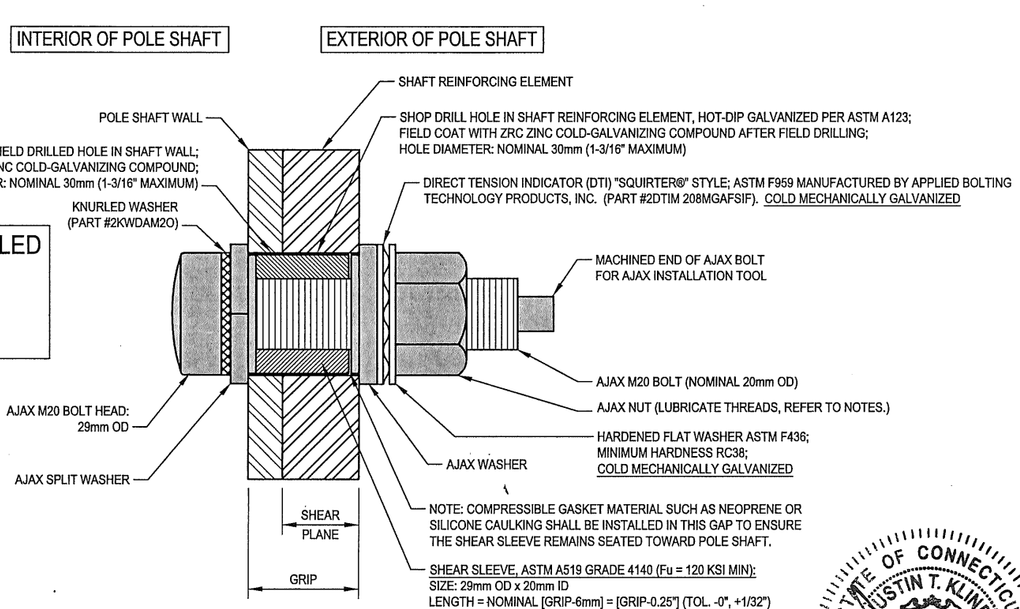
NOTE: COMPLETELY COMPRESSED DTI'S SHOWING NO VISIBLE REMAINING GAP ARE ACCEPTABLE. DTI WASHERS SHALL BE PLACED DIRECTLY AGAINST THE OUTER AJAX WASHER WITH THE DTI BUMPS FACING AWAY FROM THE AJAX WASHER. PLACE A HARDENED WASHER BETWEEN THE DTI AND THE AJAX NUT. THE DTI BUMPS SHALL BEAR AGAINST THE UNDERSIDE OF A HARDENED FLAT WASHER, NEVER DIRECTLY AGAINST THE NUT.

CONTRACTOR SHALL FOLLOW DTI MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION, LUBRICATION, TIGHTENING AND INSPECTION.

INSPECTION REQUIRED: ALL AJAX BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009, BY A QUALIFIED BOLT INSPECTOR. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE AJAX BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. IN ADDITION, ALL AJAX BOLTS AND DTI'S SHALL BE VISUALLY INSPECTED ACCORDING TO THE DTI MANUFACTURER'S INSTRUCTIONS. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE PHOTO DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THE CONDITION OF THE DTI'S.

NOTE: ALL SHOP AND FIELD DRILLED HOLES SHALL BE NOMINAL 30MM DIAMETER. THE MAXIMUM HOLE DIAMETER PERMITTED IS 1-3/16".

NOTE: ALL AJAX BOLTS, AJAX SPLIT WASHERS, AJAX WASHERS, AJAX NUTS, AND SHEAR SLEEVES SHALL BE HOT DIP GALVANIZED PER ASTM A123 OR A153 AS APPROPRIATE. SHEAR SLEEVES MAY BE COLD GALVANIZED OR ZINC PLATED.



TYPICAL AJAX BOLT DETAIL 1 / S-3

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED
PROFESSIONAL ENGINEER

1-21-15

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PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700
DRAWN BY: B.M.S.
CHECKED BY: J.W.M.
APPROVED BY: KM
DATE: 1-14-2015
AJAX BOLT DETAIL
S-3

37515-0123.001.DWG

POLE SPECIFICATIONS	
POLE SHAPE TYPE:	ROUND
TAPER:	N/A
SHAFT STEEL:	ASTM A53-B-35
BASE PL STEEL:	ASTM A36
ANCHOR RODS:	2"ø ASTM A36

SHAFT SECTION DATA					
SHAFT SECTION	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IN)	
				@ TOP	@ BOTTOM
1	12.00	0.3750		12.750	12.750
2	5.00	0.3750		24.000	24.000
3	40.00	0.3750		24.000	24.000
4	40.00	0.3750		36.000	36.000
5	40.00	0.5000		42.000	42.000
NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES					

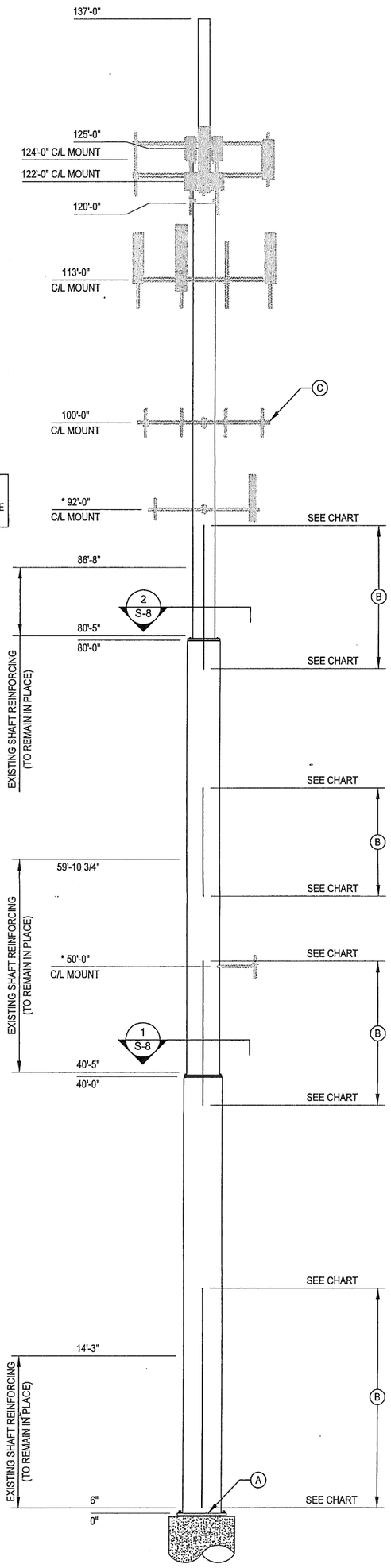
MODIFICATIONS:

(A) INSTALL NEW ANCHOR RODS AND BRACKETS AT BASE PLATE. SEE SHEET S-6.

(B) INSTALL NEW SHAFT REINFORCING AND BOLTED FLANGE JUMPS AT EL. 40' & 80'. SEE CHARTS ON SHEET S-5 AND DETAILS ON SHEET S-7.

(C) REMOVE ABANDONED MOUNT AT 100' ELEVATION.

* EXISTING MOUNTS MAY NEED TO BE ADJUSTED, MOVED AND/OR TEMPORARILY SUPPORTED DURING THE INSTALLATION OF SHAFT REINFORCING



POLE ELEVATION 1 / S-4

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	MONOPOLE PROFILE
CHECKED BY: J.W.M.	
APPROVED BY: JWT	S-4
DATE: 1-14-2015	

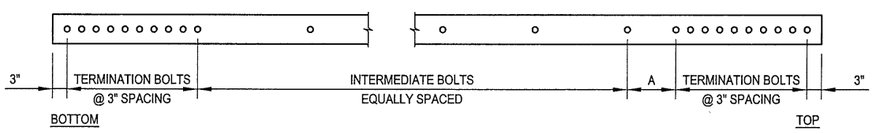
37515-0123.001.DWG

		Jump Plate Size		Unbraced Length					Filler Plate Size				
Level	QNTY	Width	ThK	(Bolt Spacing at Flange)	Jump Plate Length	Jump Weight	Bottom Bolts	Top Bolts	Width	Thk	Filler Plate Length	Filler Weight	Weld Length
40'	3	6-1/2"	1-1/4"	18"	102"	705"	14	14	5-1/2"	2-1/4"	45"	473	270"
80'	3	4-1/2"	1"	18"	78"	298"	10	10	5-1/2"	5-1/4"	33"	347	198"
					Total Jump Wt.	1003	lbs				Total Jump Wt.	820	lbs
											Total Steel Weight	1823	lbs
											Total Weld Length	468	in
											Total AJAX bolts	144	

NEW CCI FLAT PLATE (65 KSI) REINFORCING SCHEDULE											
BOTTOM ELEVATION	TOP ELEVATION	FLAT # / DEGREE SEPARATION	ELEMENT	ELEMENT LENGTH	ELEMENT QUANTITY	APPROXIMATE AJAX BOLTS PER ELEMENT	APPROXIMATE TOTAL AJAX BOLT QUANTITY	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAXIMUM INTERMEDIATE BOLT SPACING	ESTIMATED TOTAL STEEL WEIGHT
0' - 6"	20' - 6"	32, 176 & 270	CCI-SFP-04007520	20' - 0"	3	21	63	4	4	16"	612 LBS.
40' - 6"	50' - 6"	56, 176 & 320	3/4" x 4" (CUSTOM)	10' - 0"	3	22	66	14	4	16"	306 LBS.
56' - 6"	66' - 6"	56, 176 & 296	CCI-SFP-04007510	10' - 0"	3	13	39	4	4	16"	306 LBS.
80' - 6"	90' - 6"	56, 176 & 320	3/4" x 4" (CUSTOM)	10' - 0"	3	19	57	10	4	16"	306 LBS.
							225				1530 LBS.

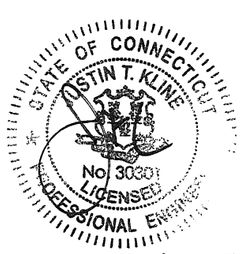
NOTES:

1.) AJAX BOLTS ARE TO BE 20mm DIAMETER WITH CORRESPONDING 29mm DIAMETER SLEEVE WITH MATCHING STEEL GRADE.
2.) ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. ALTERNATIVELY, ALL NEW STIFFENER PLATE STEEL REINFORCING MAY BE COLD GALVANIZED AS FOLLOWS: APPLY A MINIMUM OF TWO COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
3.) ALL REINFORCING SHALL BE ASTM A572 GR. 65.
4.) WELDS SHALL BE E80XX OR GREATER. TERMINATION WELDS SHALL BE 3/8" FILLET WELDS.
5.) HOLES FOR AJAX BOLTS AND SHEAR SLEEVES ARE 30mm UNLESS NOTED OTHERWISE.
6.) ALL SHIMS SHALL BE ASTM A-36.
7.) ALL FILLER BARS SHALL BE ASTM A572 GR. 36



CUSTOM BOLTED BAR DETAIL

NOTE: "A" DIMENSION MAY VARY, NOT TO EXCEED MAXIMUM INTERMEDIATE BOLT SPACING



1-21-15

CROWN CASTLE US PATENT NOS 8,046,972; 8,156,712; 7,849,659; 8,424,269 AND PATENT PENDING

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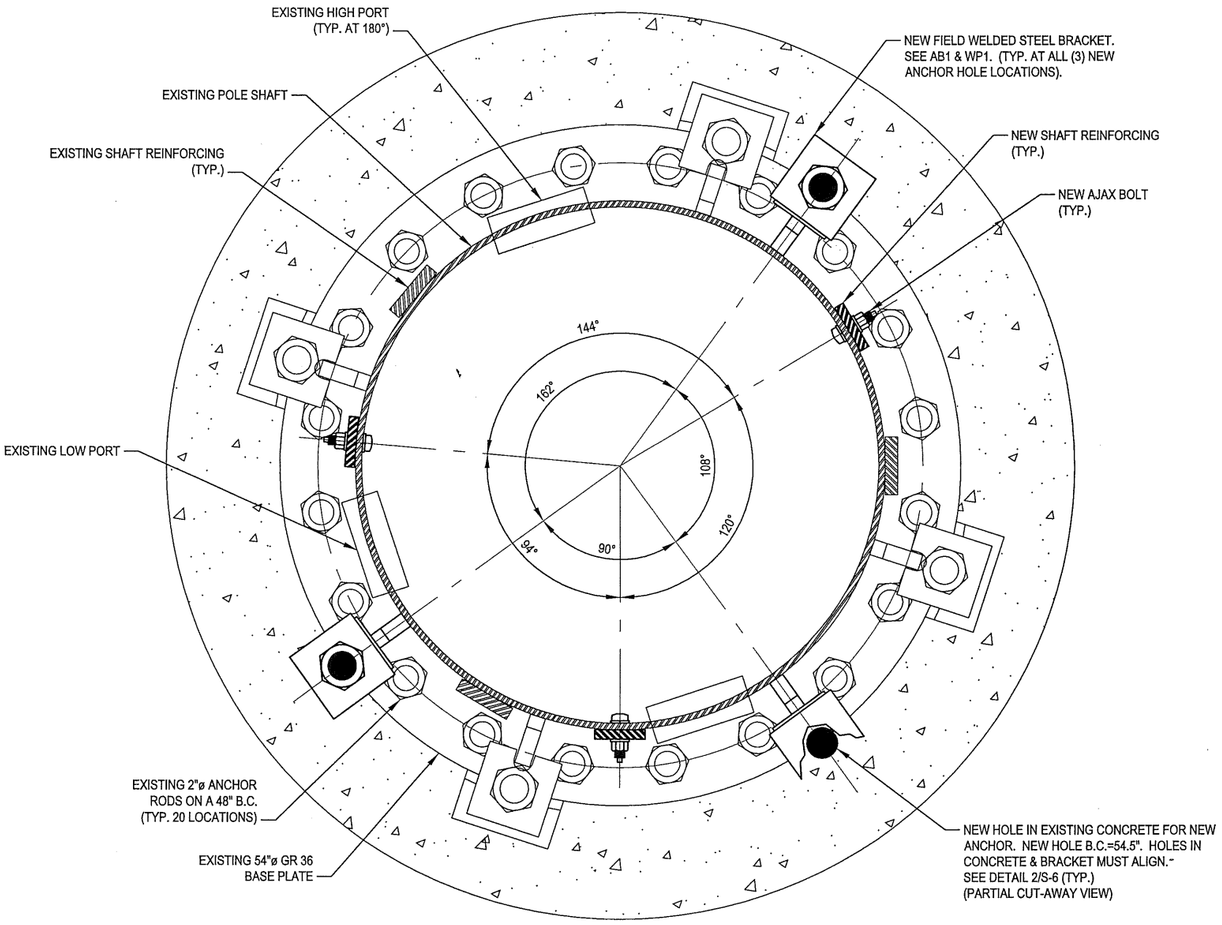
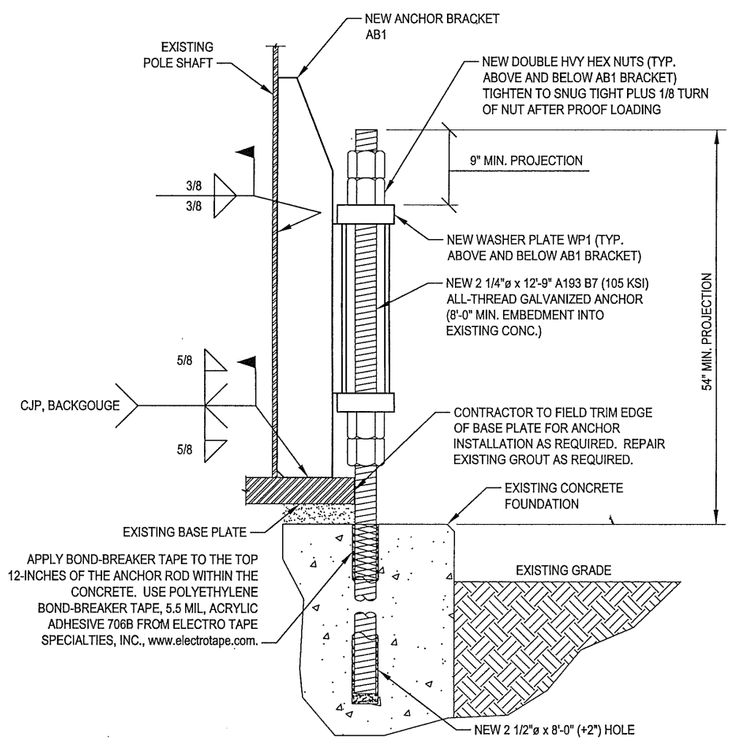
BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	SHAFT REINFORCING CHART AND DETAIL
CHECKED BY: J.W.M.	
APPROVED BY:	S-5
DATE: 1-14-2015	

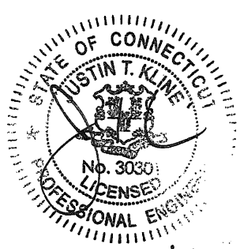


BASE PLATE 1 / S-6



NEW ANCHOR ROD REINFORCING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONCE ALL RESIN HAS CURED, ALL NEW ANCHOR ROD REINFORCING SHALL BE PROOF LOADED TO 200 KIPS. ONCE THE PROOF LOAD HAS BEEN RELEASED. TIGHTEN HEAVY HEX NUT TO SNUG TIGHT PLUS 1/8 TURN OF NUT. REFER TO SHEET S-2, SECTION H FOR ADDITIONAL INFORMATION.

NEW ANCHOR & BRACKET DETAIL 2 / S-6



1-21-15

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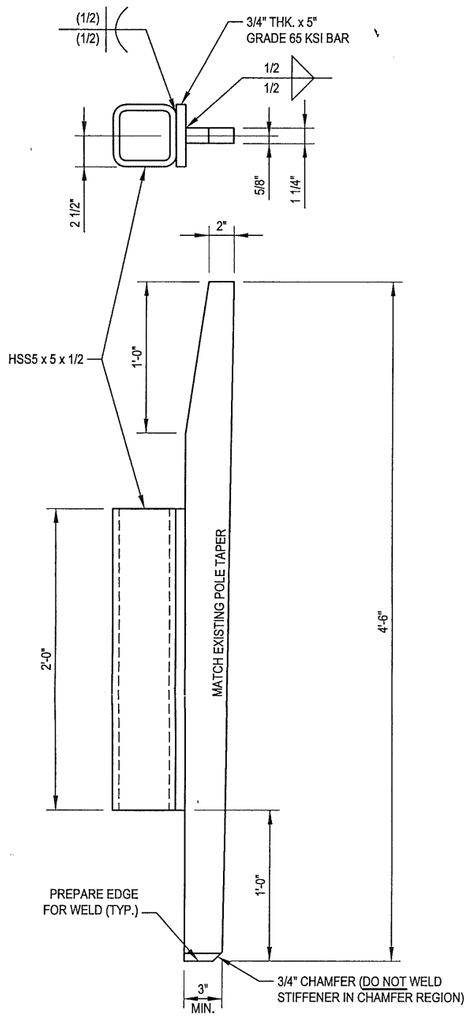
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

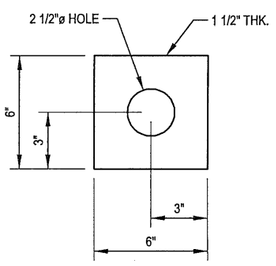
PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	BASE PLATE DETAILS
CHECKED BY: J.W.M.	
APPROVED BY: AJT	S-6
DATE: 1-14-2015	



ANCHOR BRACKET MK~AB1

(3 REQUIRED) (TUBE Fy = 46 KSI) (STIFFENER Fy = 65 KSI)



WASHER PLATE MK~WP1

(6 REQUIRED) (Fy = 50 KSI)

STATE OF CONNECTICUT
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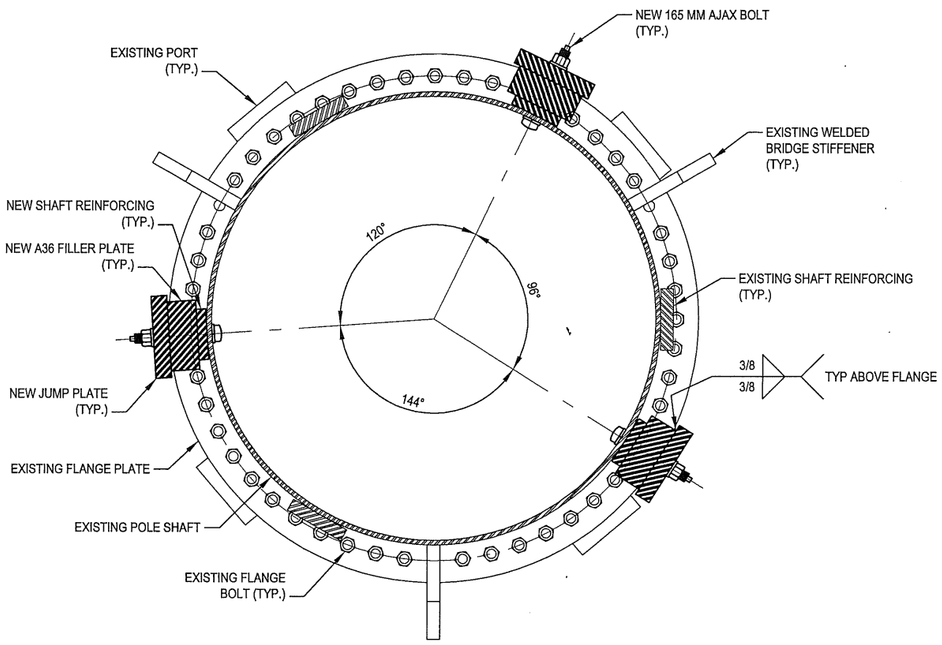
BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

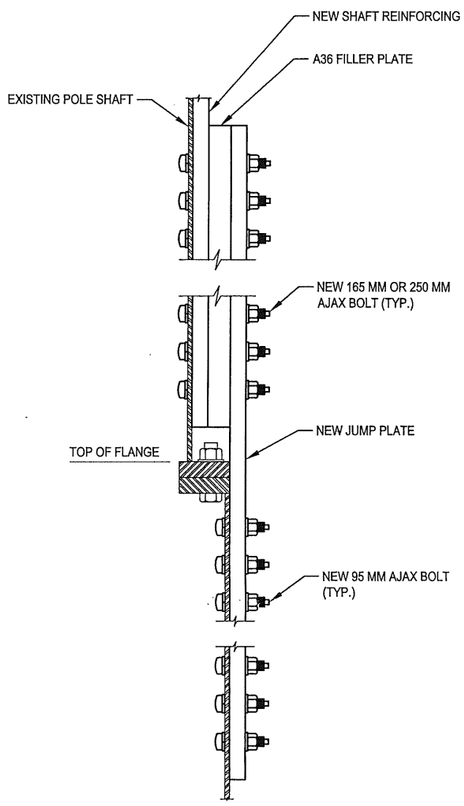
DRAWN BY: B.M.S.	MISC DETAILS
CHECKED BY: J.W.M.	
APPROVED BY: KAT	S-7
DATE: 1-14-2015	

37515-0123.001.DWG

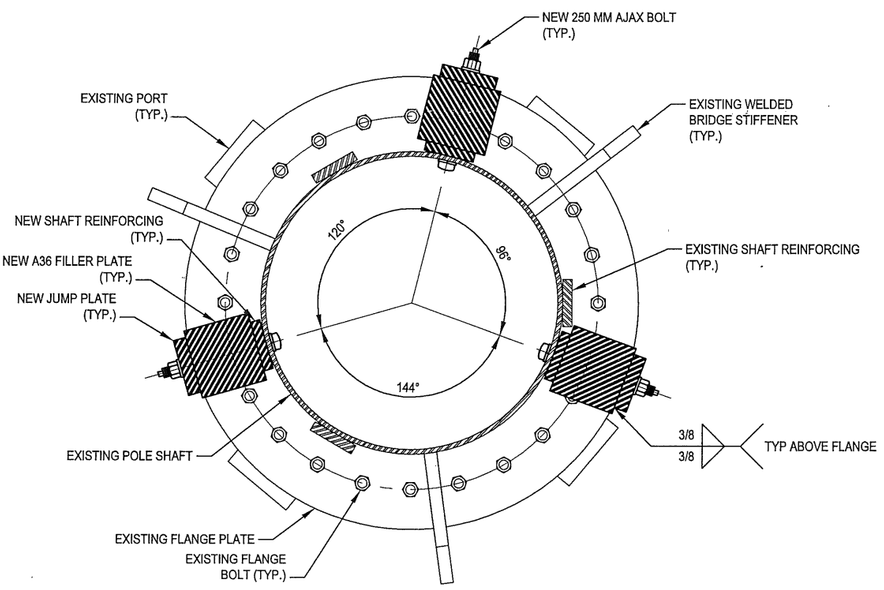


SECTION 1 / S-8
EL. 40'

BOLTED FLANGE JUMP TYPICAL DETAILS. CONTRACTOR TO SEE ORIGINAL MANUFACTURER DOCUMENTS FOR EXISTING POLE INFORMATION, EXISTING FLANGE PLATE INFORMATION AND FLANGE BOLT INFORMATION. EXISTING CONDITIONS TO BE FIELD VERIFIED PRIOR TO FABRICATION.



SECTION 3 / S-8



SECTION 2 / S-8
EL. 80'

1-26-15

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	BOLTED BRIDGE STIFFENER DETAILS
CHECKED BY: J.W.M.	
APPROVED BY: KHT	S-8
DATE: 1-14-2015	

MODIFICATION INSPECTION NOTES:

GENERAL
THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE ENG-BUL-10173 LIST OF APPROVED MI VENDORS..

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN POINT OF CONTACT (POC).

REFER TO ENG-SOW-10007 : MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR
THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN.

GENERAL CONTRACTOR
THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST AN DENG-SOW-10007.

RECOMMENDATIONS
THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI
IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CROWN SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CROWN CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S
IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH CROWN TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CROWN'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION

MI VERIFICATION INSPECTIONS
CROWN RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEV/AESV FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

PHOTOGRAPHS
BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
	PRE-CONSTRUCTION
X	MI CHECKLIST DRAWINGS
X	EOR REVIEW
X	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
NA	FABRICATOR NDE INSPECTION
X	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
	CONSTRUCTION
X	CONSTRUCTION INSPECTIONS
NA	FOUNDATION INSPECTIONS
NA	CONCRETE COMP. STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
NA	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
NA	EARTHWORK: PROVIDE PHOTO DOCUMENTATION OF EXCAVATION QUALITY AND COMPACTION
X	ON SITE COLD GALVANIZING VERIFICATION
NA	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
X	INSPECTION OF AJAX BOLTS AND DTI'S PER REQUIREMENTS ON SHEET S-3
NA	MICROPILE/ROCK ANCHOR INSTALLER'S DRILLING AND INSTALLATION LOGS AND QA/QC DOCUMENTS
NA	REFER TO MICROPILE/ROCK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.
ADDITIONAL TESTING AND INSPECTIONS:	
	POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

STATE OF CONNECTICUT
JUSTIN T. KLIME
No. 30301
LICENSED
PROFESSIONAL ENGINEER

1-21-15

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-0123.001.7700

DRAWN BY: B.M.S.	MI CHECKLIST
CHECKED BY: J.W.M.	
APPROVED BY: KAT	S-9
DATE: 1-14-2015	

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

Sprint Existing Facility

Site ID: CT03XC086

Creative Dimensions

10 Sparks Street
Plainville, CT 06062

December 8, 2014

EBI Project Number: 62146405

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

EBI Consulting
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December 8, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT03XC086 - Creative Dimensions

Site Total: 44.81% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at **10 Sparks Street, Plainville, CT**, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at **10 Sparks Street, Plainville, 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) 5 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, RFS APXV9ERR18-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 APXV9ERR18-C-A20 has a 14.9 dBd gain value at its main lobe at 1900 MHz and 11.9 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 **124 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	CT03XC086 - Creative Dimensions
Site Addresss	10 Sparks Street, Plainville, CT, 06062
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXV9ERR18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	4.9	124	118	1/2 "	0.5	0	275.42	0.71%
1a	RFS	APXV9ERR18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	1.9	124	118	1/2 "	0.5	0	27.61	0.13%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	124	118	1/2 "	0.5	0	138.69	0.63%
														Sector total Power Density Value:		1.47%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	5.9	124	118	1/2 "	0.5	0	346.74	0.90%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	124	118	1/2 "	0.5	0	39.00	0.18%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	124	118	1/2 "	0.5	0	138.69	0.63%
														Sector total Power Density Value:		1.70%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	5.9	124	118	1/2 "	0.5	0	346.74	0.90%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	124	118	1/2 "	0.5	0	39.00	0.18%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	124	118	1/2 "	0.5	0	138.69	0.63%
														Sector total Power Density Value:		1.70%

Site Composite MPE %	
Carrier	MPE %
Sprint	4.88%
AT&T	24.31%
MetroPCS	14.36%
Clearwire	1.26%
Total Site MPE %	**44.81%**

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Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **4.88% (1.47% from sector 1, 1.70% from sector 2 and 1.70% 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 **44.81%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

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