STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

April 4, 2019

Ray Perry
Airosmith Development
32 Clinton Street
Saratoga Springs, NY 12866

RE: **EM-SPRINT-156-190308 –** Sprint notice of intent to modify an existing telecommunications facility located at 668 Jones Hill Road, West Haven, Connecticut.

Dear Mr. Perry:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on March 8, 2019. On March 14, 2019, the Council issued a letter (enclosed) stating that the request for exempt modification was incomplete because the Structural Analysis Report (SA) references the 2016 Connecticut State Building Code (CSBC). The 2018 CSBC became effective on October 1, 2018 and should have been applied to this project. Also, the SA did not account for the proposed mount modifications as shown in the Construction Drawings (CD), and the Antenna Mount Analysis (MA) referenced in the CD was not provided. The Council recommended that Airosmith Development provide an updated SA and MA that reference the current 2018 CSBC and the proposed antenna mount modifications referenced above, on or before April 19, 2019.

On April 3, 2019, the Council received a SA dated March 20, 2019 which referenced the 2018 CSBC, a MA dated April 1, 2019 and CD dated February 13, 2019. However, the SA lists the proposed antenna mount as SitePro1 RMV5-296 T-Arms. This is inconsistent with the MA and CD, which list the proposed antenna mount as a SitePro1 RMQP-396 Platform mount. Also, the date of the SA referenced in structural notes on sheet A-2 of the CD is not consistent with the SA provided in the response.

Therefore, the exempt modification request remains incomplete at this time. The Council recommends that Airosmith Development provide a SA that references the correct antenna mount and a CD that references the correct date of the SA, on or before May 10, 2019. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to May 10, 2019. **Please provide an electronic version and one hard copy of the SA and CD for the incomplete request to be rendered complete and processed.**

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie Bachman
Executive Director

MAB/IN/emr

Enclosure: Incomplete Letter dated March 14, 2019.

c: The Honorable Nancy R. Rossi, Mayor, City of West Haven
Fred A. Messore, Commissioner of Planning and Development, City of West Haven

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

March 14, 2019

Ray Perry
Airosmith Development
32 Clinton Street
Saratoga Springs, NY 12866

RE: **EM-SPRINT-156-190308 –** Sprint notice of intent to modify an existing telecommunications facility located at 668 Jones Hill Road, West Haven, Connecticut.

Dear Mr. Perry:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on March 8, 2019.

According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "…any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a deficiency in the Structural Analysis Report (SA) dated October 23, 2018 and prepared by American Tower Corporation. The above-referenced document refers to the 2016 Connecticut State Building Code (CSBC); however, the 2018 CSBC became effective on October 1, 2018 and should be applied to this project. Also, the SA does not account for the proposed antenna mount modifications as indicated on sheets A-2 and A-3 of the Construction Drawings (CD) dated February 13, 2019 and prepared by Infinigy.

In addition the structural notes on sheet A-2 of the CD references a Mount Analysis Report (MA) dated December 12, 2018 and prepared by American Tower Corporation. This MA has not been provided with the request for exempt modification.

Therefore, the exempt modification request is incomplete at this time. The Council recommends that Airosmith Development provide an updated SA and MA that reference the current 2018 CSBC and the proposed antenna mount modifications referenced above, on or before April 19, 2019. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to April 19, 2019.

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie Bachman
Executive Director

MAB/FOC/CW/in

c: The Honorable Nancy R. Rossi, Mayor, City of West Haven
Fred A. Messore, Commissioner of Planning and Development, City of West Haven

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Robidoux, Evan

From: Ray Perry <rperry@airosmithdevelopment.com>
Sent: Wednesday, April 03, 2019 12:01 PM
To: Robidoux, Evan
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-SPRINT-156-190308-JonesHillRd-WestHaven
Attachments: em-sprint-156-190308_incompleteltr_JonesHillRd.pdf; CT52XC076_DO Macro Redesign_Final CDs_4-3-2019.pdf; CT52XC076_DO Macro Redesign_MA_Contingent Pass_S&S_04-01-19.pdf; CT52XC076_DO MACRO Redesign_SA Pass_3-25-2018.pdf

Hello,

Please see the attached revised SA & CD's as well as the MA. Please also let me know if you would like paper copies sent as a supplement to this application.

Thank you,
Ray

Ray Perry
Site Acquisition | Airosmith Development
32 Clinton Street | Saratoga Springs | New York | 12866
(518) 796-9165 phone | (518) 306-1711 fax
rperry@asdwireless.com

From: Robidoux, Evan
Sent: Monday, March 18, 2019 8:26 AM
To: Ray Perry
Cc: CSC-DL Siting Council
Subject: Council Incomplete Letter for EM-SPRINT-156-190308-JonesHillRd-WestHaven

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	WEST HAVEN & RT 162 CT
SITE CASCADE:	CT52XC076
SITE ADDRESS:	668 JONES HILL ROAD WEST HAVEN, CT 06516
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801

LATITUDE (NAD83):
41° 15' 23.044" N
41.25640106

LONGITUDE (NAD83):
72° 58' 20.491" W
-72.97235870

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

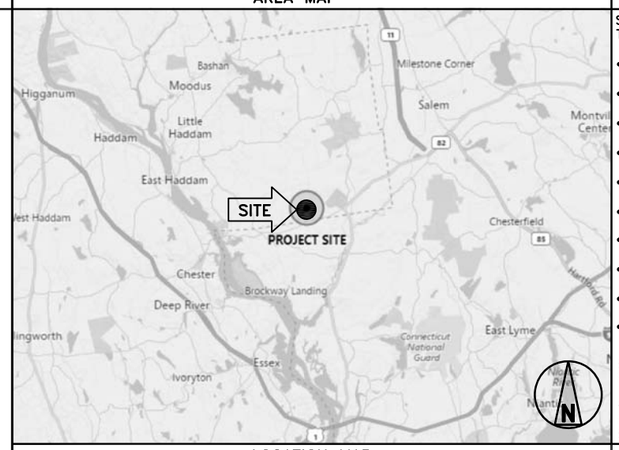
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
PHONE: (800) 286-2000

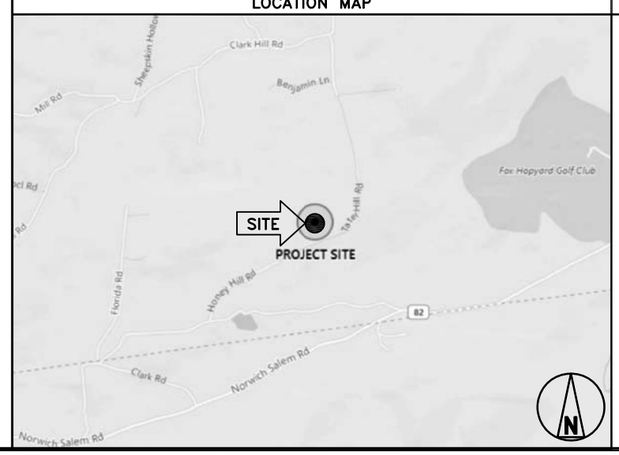
AAV PROVIDER:
AT&T
PHONE: (800) 288-2020

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
TERRI BURKHOLDER
(315) 719-2928
TBURKHOLDER@AIROSMITHDEVELOPMENT.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (3) PANEL ANTENNAS AND RRH'S
- INSTALL (6) PANEL ANTENNAS
- INSTALL (6) 800 MHz RRH'S NEAR ANTENNAS
- INSTALL (3) 1900 MHz RRH'S NEAR ANTENNAS
- INSTALL (24) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- REMOVE EXISTING CLEARWIRE GROUND EQUIPMENT
- INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING LEASE AREA
- INSTALL 7'x7' CONCRETE EQUIPMENT PAD
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS 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 (2015 IBC)
2. TIA-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

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A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	EQUIPMENT DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ONE LINE & NOTES	0
E-2	ELECTRICAL & GROUNDING DETAILS	0
E-3	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:
WEST HAVEN & RT 162 CT

SITE NUMBER:
CT52XC076

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

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-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint

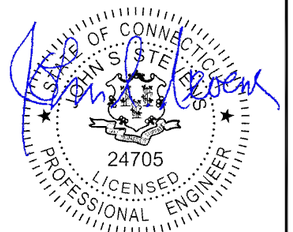
PLANS PREPARED BY:

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:



04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN & RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

668 JONES HILL ROAD
WEST HAVEN, CT 06516

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

PLANS PREPARED BY:

INFINIGY

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ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN &
RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

668 JONES HILL ROAD
WEST HAVEN, CT 06516

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

PLANS PREPARED BY:

INFINIGY

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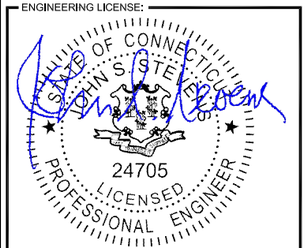
ENGINEERING LICENSE:



04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN &
RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

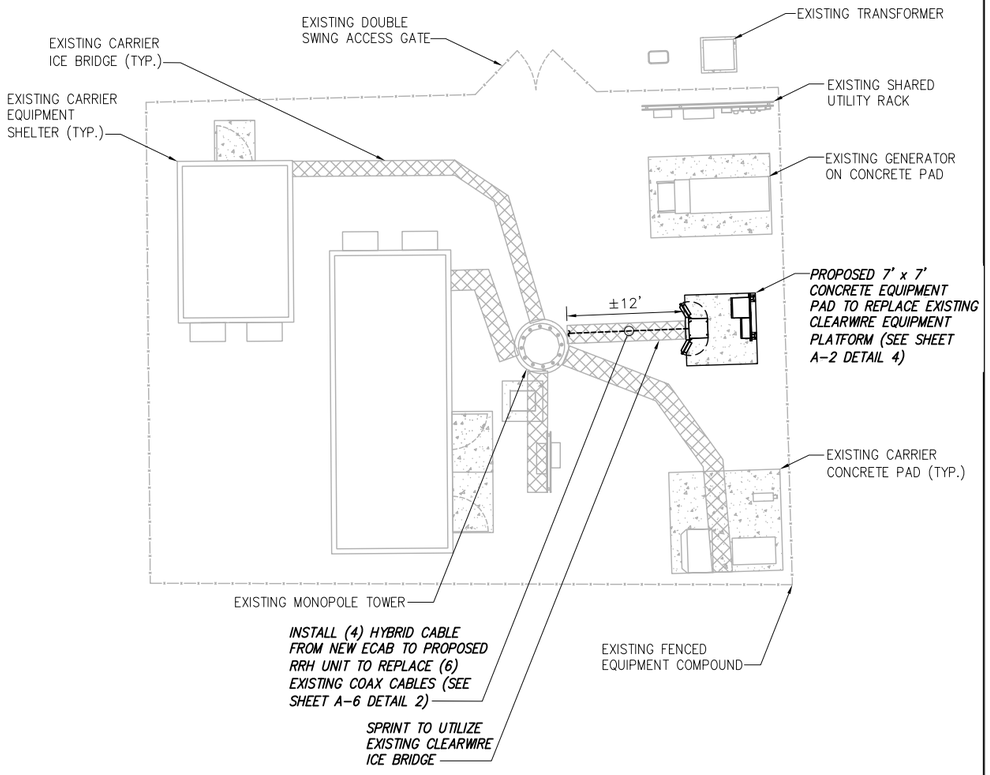
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

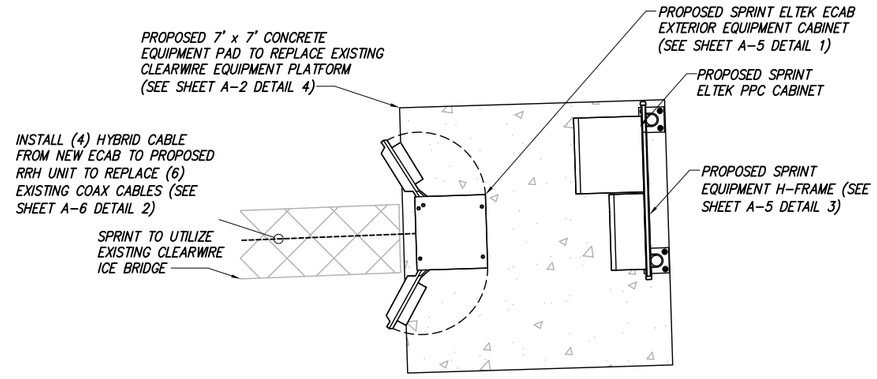
SP-3



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

GRAPHIC SCALE:
15' 7.5' 0 7.5' 15'
SCALE (11x17): 1" = 15'-0"
SCALE (22x34): 1" = 7'-6"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



GRAPHIC SCALE:
4' 2' 0 2' 4'
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY

INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN STETSON
24705
LICENSED PROFESSIONAL ENGINEER
04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:
WEST HAVEN & RT 162 CT

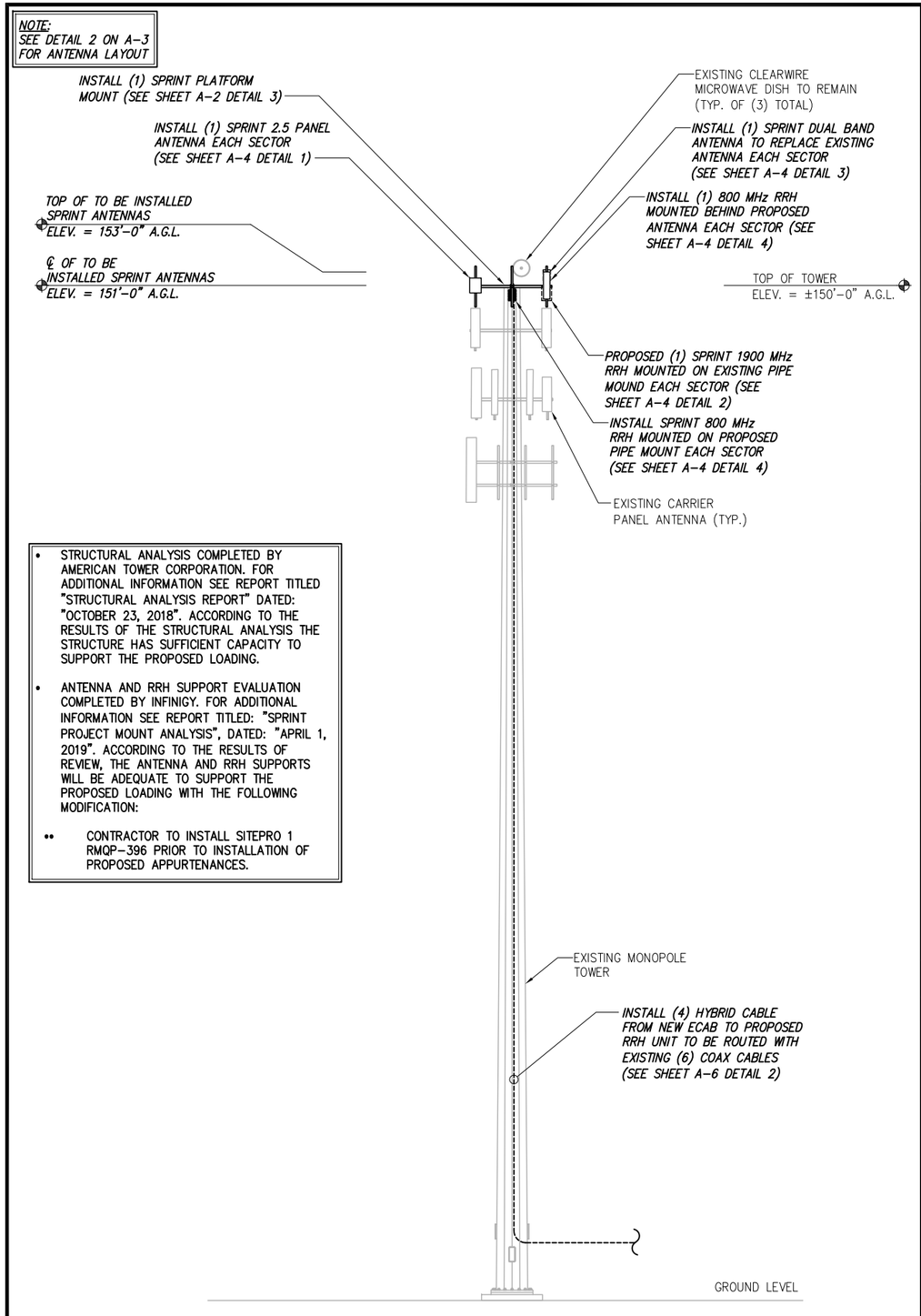
SITE NUMBER:
CT52XC076

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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



- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED "STRUCTURAL ANALYSIS REPORT" DATED: "OCTOBER 23, 2018". ACCORDING TO THE RESULTS OF THE STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT PROJECT MOUNT ANALYSIS", DATED: "APRIL 1, 2019". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING WITH THE FOLLOWING MODIFICATION:
  - CONTRACTOR TO INSTALL SITEPRO 1 RMQP-396 PRIOR TO INSTALLATION OF PROPOSED APPURTENANCES.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

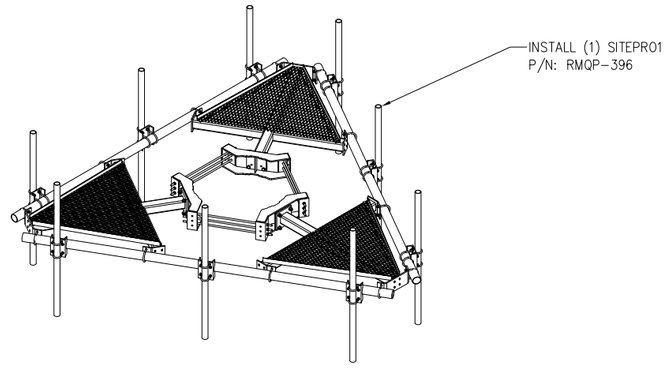
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	2.5G MAA – AAHC (64T64R)	NOKIA	35°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±182'*	±151' AGL
	PROPOSED	APXVFRR12X-C-I20	COMMSCOPE	35°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	35°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	2.5G MAA – AAHC (64T64R)	NOKIA	155°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±151' AGL
	PROPOSED	APXVFRR12X-C-I20	COMMSCOPE	155°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	155°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	2.5G MAA – AAHC (64T64R)	NOKIA	275°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±151' AGL
	PROPOSED	APXVFRR12X-C-I20	COMMSCOPE	275°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	275°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

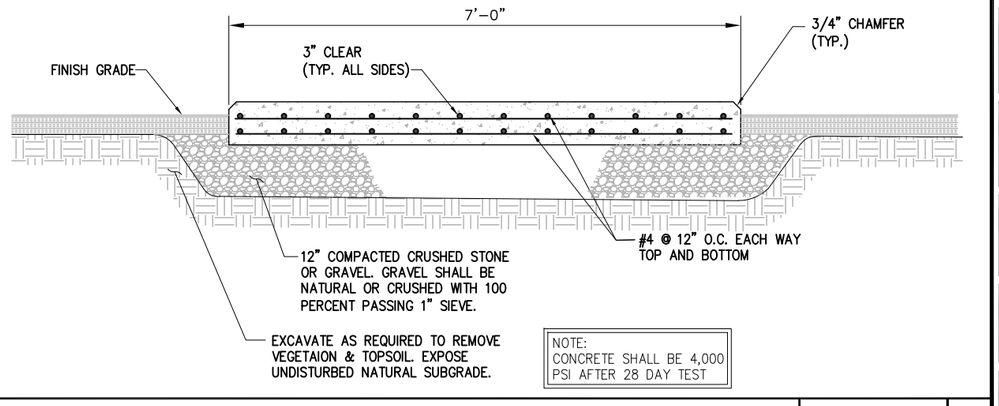
REMOVE: (3) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S

* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

SITE LOADING CHART | NO SCALE | 2



MOUNT DETAIL | NO SCALE | 3



EQUIPMENT CABINET FOUNDATION | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:

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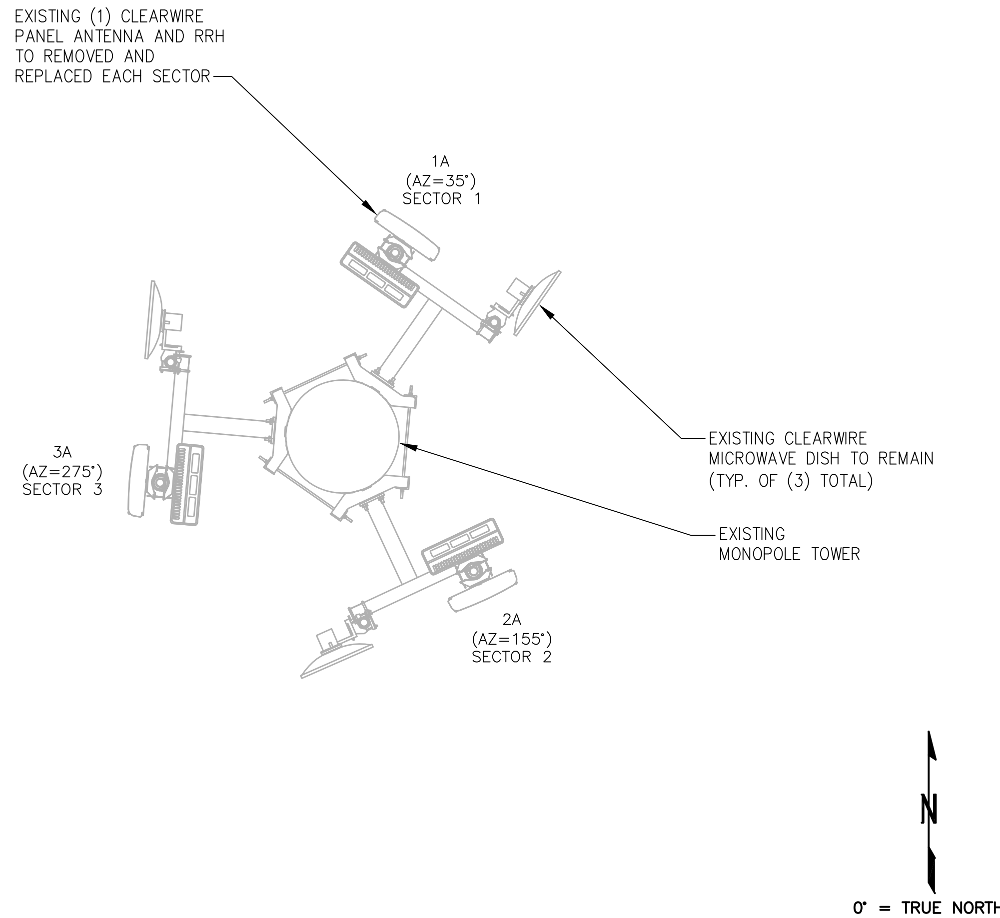
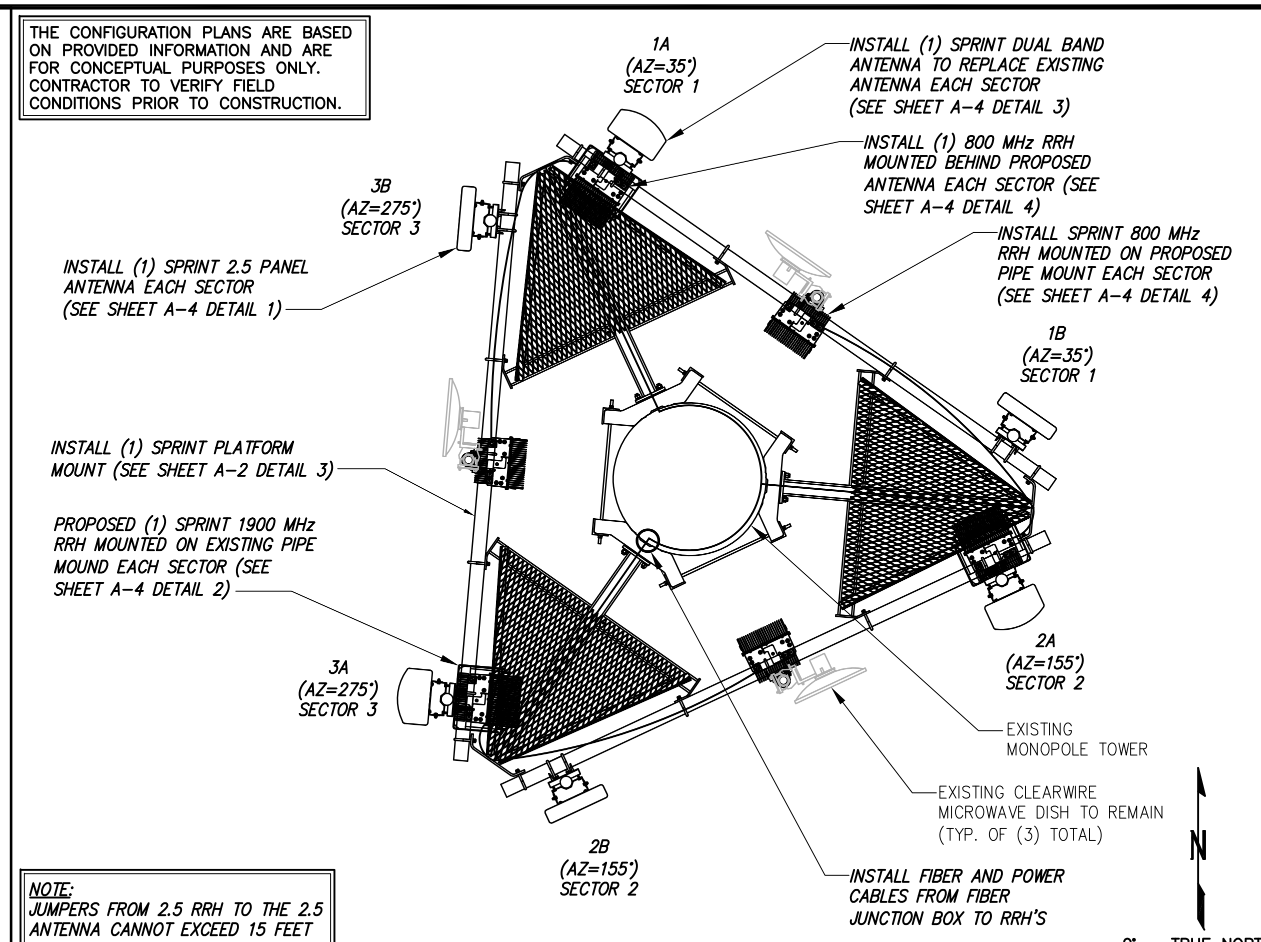
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



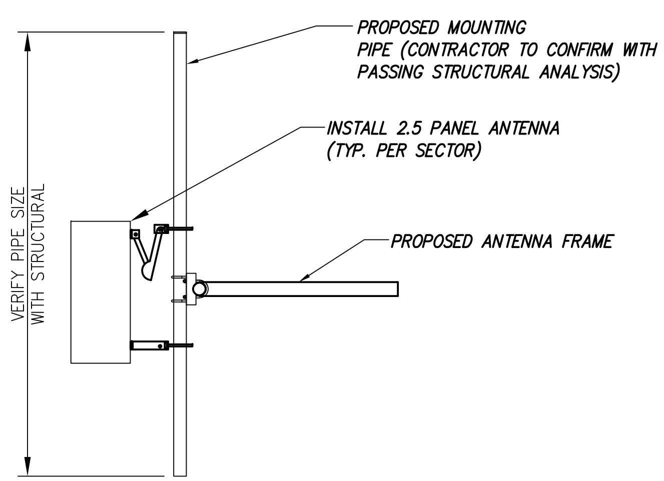
EXISTING ANTENNA LAYOUT	NO SCALE	1

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

FINAL ANTENNA & RRH LAYOUT	NO SCALE	2

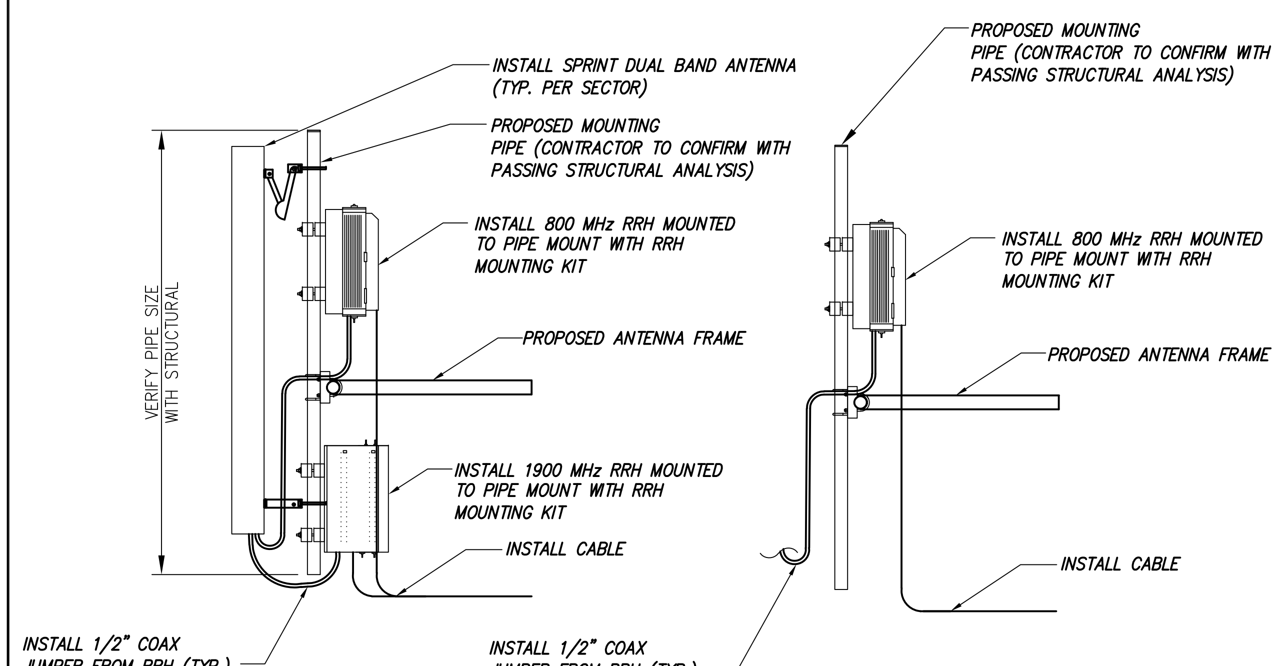


NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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

NOTES:
1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
3. DO NO EXCEED BEND RADIUS.

TYPICAL 2.5 ANTENNA MOUNTING DETAILS	NO SCALE	3



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

NOTE:
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NOTES:
1. CUT DC CONDUCTORS TO LENGTH.
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3. DO NO EXCEED BEND RADIUS.

TYPICAL DUAL BAND ANTENNA & RRH MOUNTING DETAILS	NO SCALE	4

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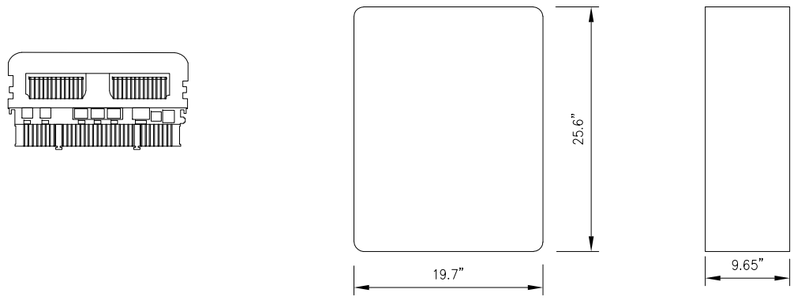
SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:
A-3

ANTENNA NOKIA AAHC

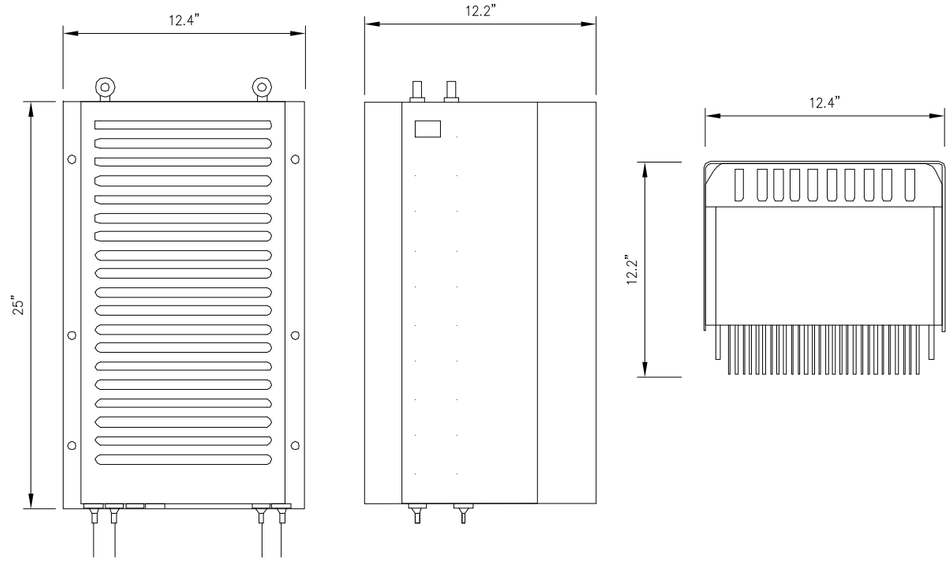
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	25.6"x19.7"x9.9" (651x501x245mm)
WEIGHT:	99.2 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



2.5 ANTENNA DETAIL | NO SCALE | 1

RRH: ALCATEL LUCENT 1900 MHz

COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)

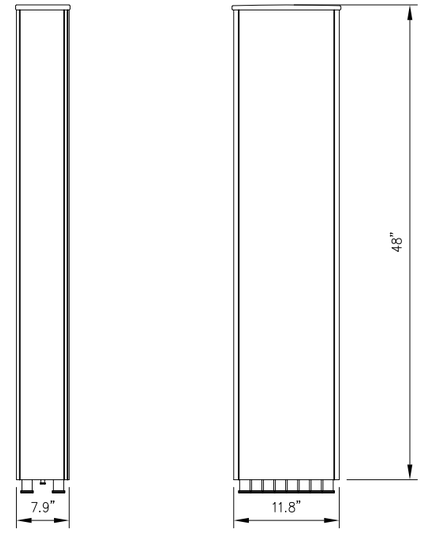


FRONT VIEW | SIDE VIEW | TOP VIEW

1900 MHz RRH | NO SCALE | 2

ANTENNA RFS APXVFRR12X-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	48"x11.8"x7.9"
WEIGHT:	46 lbs

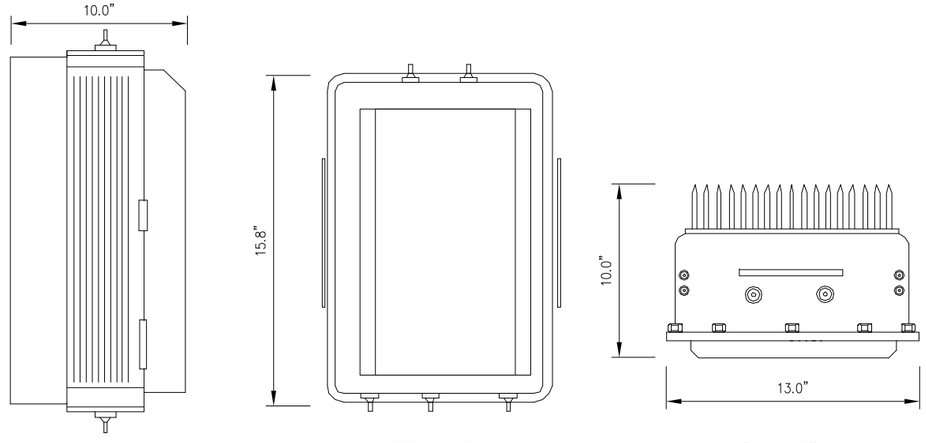


SIDE VIEW | FRONT VIEW

DUAL BAND ANTENNA | NO SCALE | 3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY
WEIGHT: 53 LBS.



SIDE VIEW | FRONT VIEW | PLAN VIEW

NOTES

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

800 MHz RRH | NO SCALE | 4

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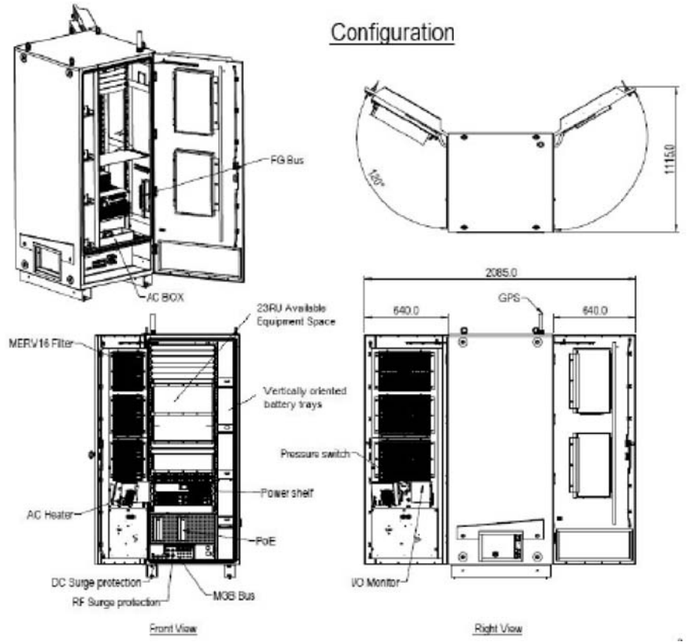
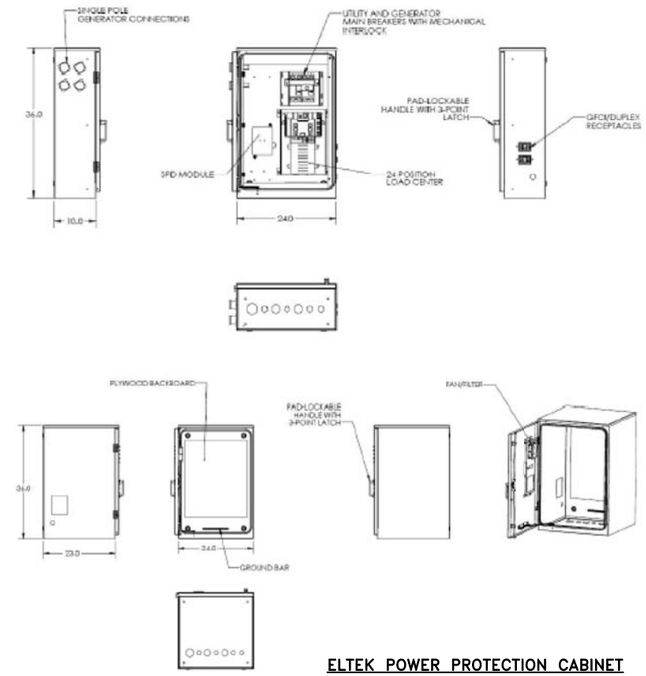
EQUIPMENT &
MOUNTING DETAILS

SHEET NUMBER:
A-4



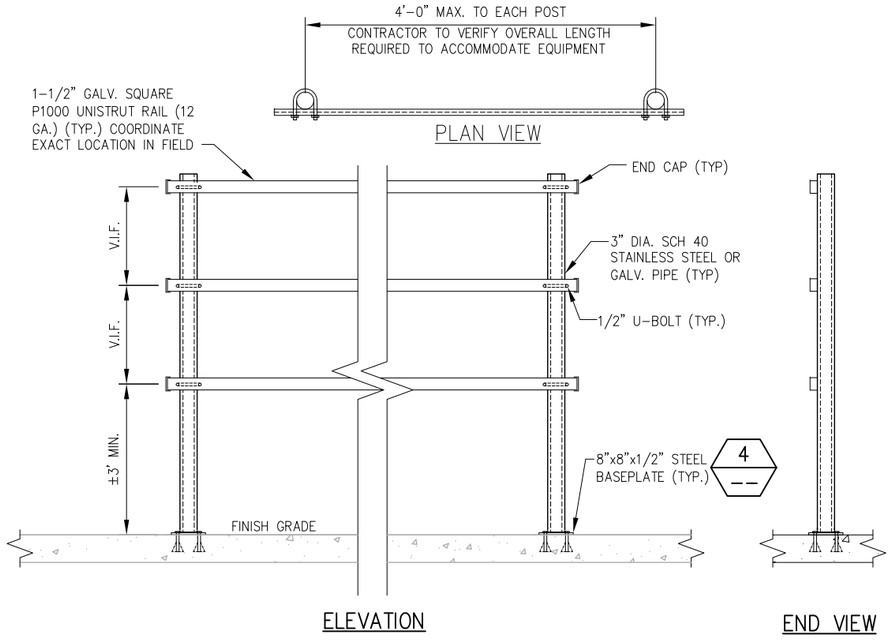
ELTEK ECAB EXTERIOR CABINET
P/N: ESOA220-SCA02

EQUIPMENT CABINET DETAIL	NO SCALE	1

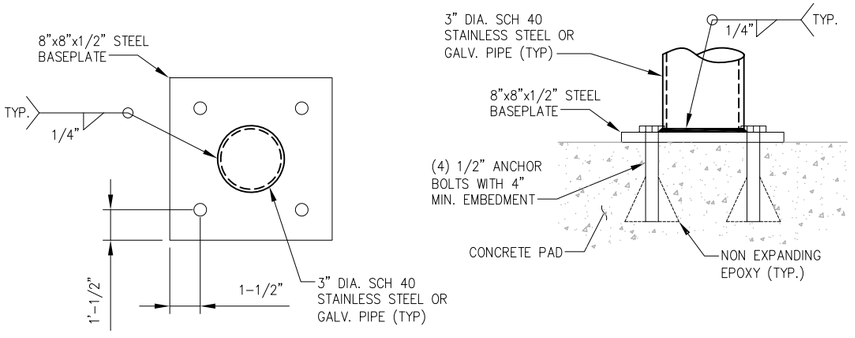


ELTEK POWER PROTECTION CABINET
P/N: 5811122212

EQUIPMENT CABINET DETAIL	NO SCALE	2



H-FRAME DETAIL	NO SCALE	3



SUPPORT POST MOUNTING DETAIL	NO SCALE	4

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EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

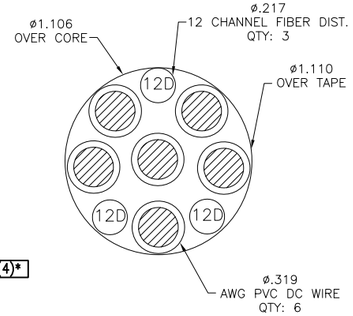
RFS HYBRIFLEX RISER CABLE SCHEDULE

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 (4)*
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

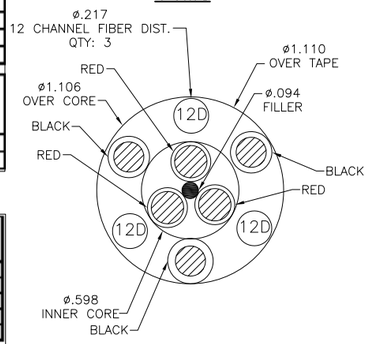
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

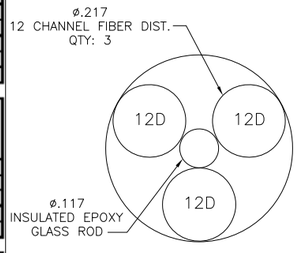
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



8 & 6 AWG



FIBER ONLY

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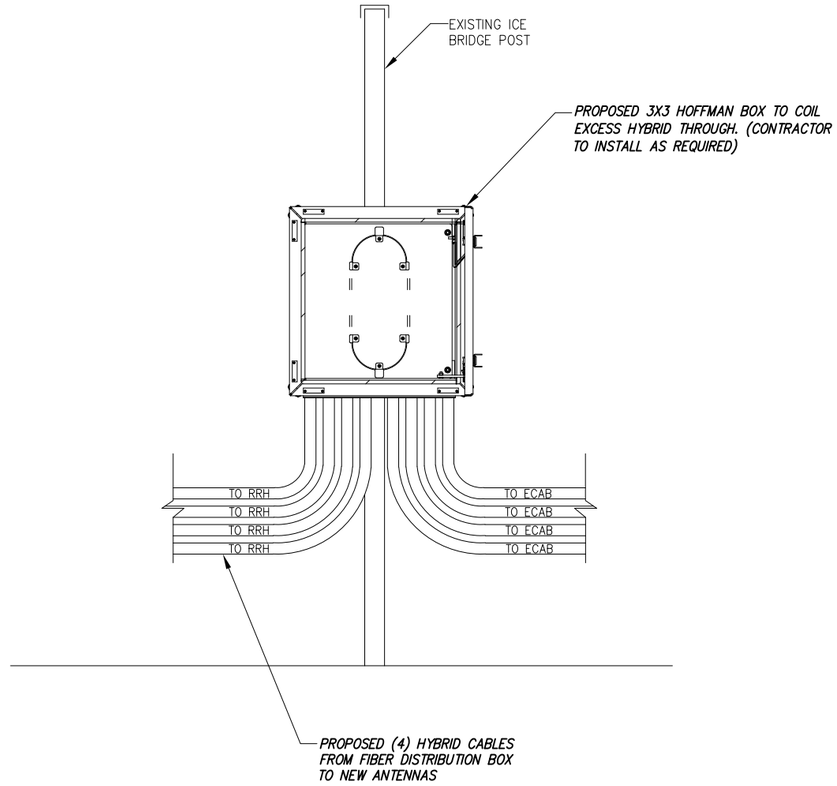
800/1900/2500 CABLE CROSS SECTION DATA | NO SCALE | 1



OPTIONAL HYBRID SLACK BOX | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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CIVIL DETAILS

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A-6

NOTE:
PLUMBING DIAGRAM NOT AVAILABLE UPON ISSUANCE OF PLANS.

PLUMBING DIAGRAM | NO SCALE | 1

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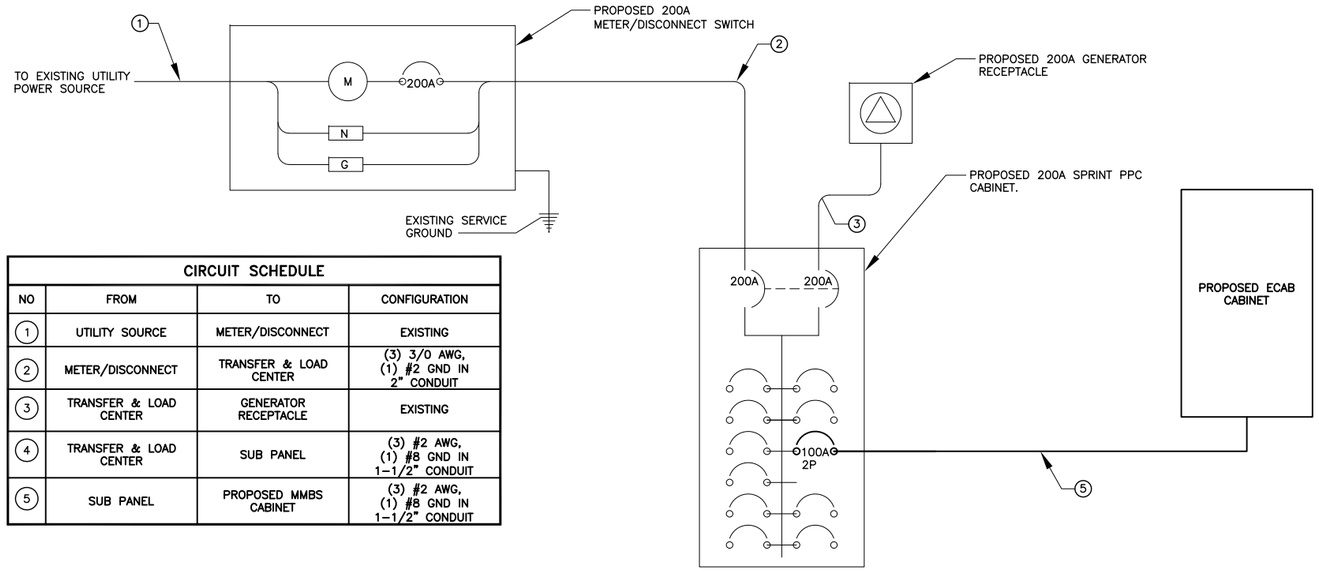
PLUMBING DIAGRAM

SHEET NUMBER:

A-7



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	(3) 3/0 AWG, (1) #2 GND IN 2" CONDUIT
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	SUB PANEL	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT
5	SUB PANEL	PROPOSED MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT

ONE LINE DIAGRAM | NO SCALE | 1

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. CONDUITS EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. ALL UNDERGROUND CONDUIT SHALL TRANSITION FROM PVC TO RIGID ABOVE GRADE. PROVIDE 36" SEPARATION BETWEEN UNDERGROUND POWER AND TELEPHONE CONDUITS. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

ELECTRICAL NOTES | NO SCALE | 2

GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
   – #2/0 BARE TINNED SOLID COPPER CONDUCTOR: CADWELD TO RODS OR GROUND RING
   – LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. DO NOT INSTALL GROUND RING OUTSIDE OF LEASED AREA.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'–0" (MAX. 15'–0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250–30.

GROUNDING NOTES | NO SCALE | 3

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY

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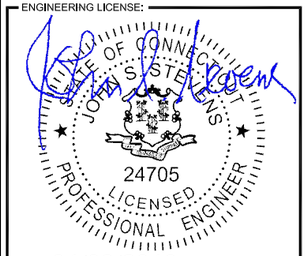
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT

32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:



04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN & RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

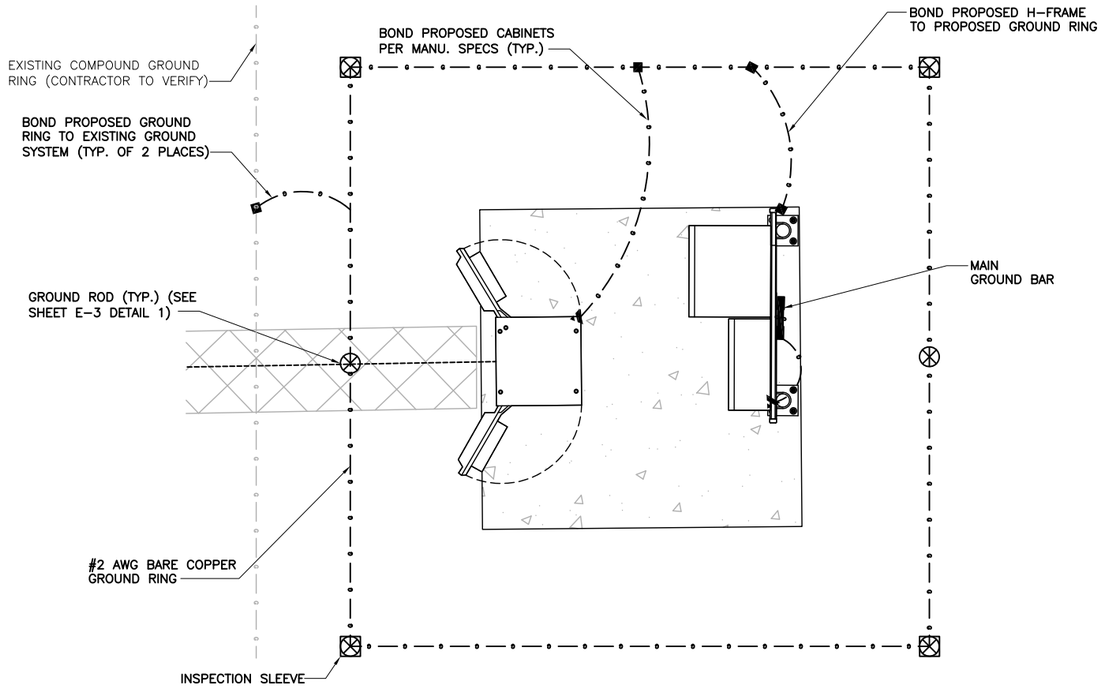
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

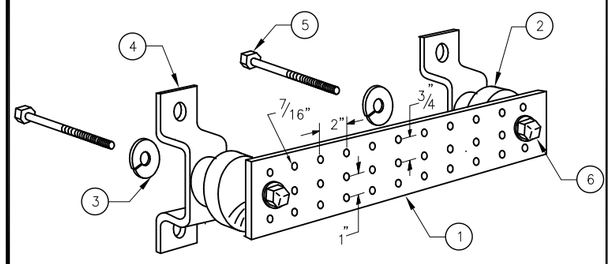


LEGEND:

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

GROUNDING PLAN

NO SCALE | 1



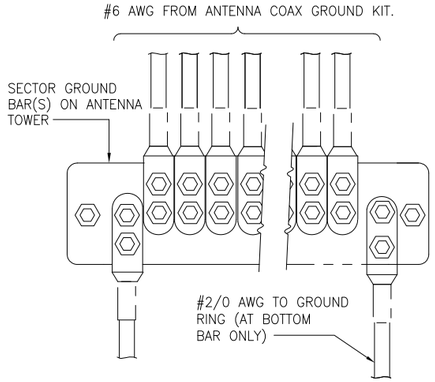
LEGEND

1 – TINNED COPPER GROUND BAR, 1/4"x 4"x 24"
2 – INSULATORS (NO INSULATORS ON TOWER)
3 – 5/8" LOCK WASHERS
4 – MOUNTING BRACKET (MOUNT HORIZONTAL ON VERTICAL CABLE LADDER)
5 – 5/8-11 X 1" H.H.C.S.BOLTS
6 – "LOCTITE" THREAD LOCK (RED) ON ALL REMOVABLE BOLTS

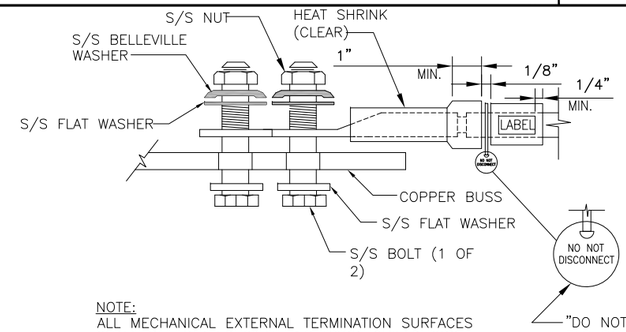
TINNED GROUND BAR DETAIL | NO SCALE | 2

NOTE:

1. COPPER GROUND BAR 1/4"x4"x24" 2-HOLE CONTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.

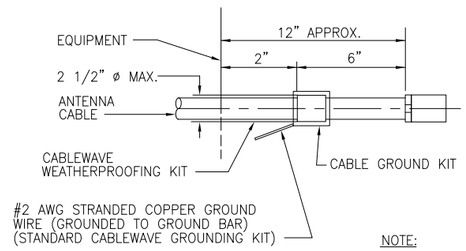


ANTENNA GROUND WIRE INSTALLATION | NO SCALE | 3



NOTE:
ALL MECHANICAL EXTERNAL TERMINATION SURFACES SHALL BE TREATED WITH T&B KOPR-SHIELD CP8 ANTI-OXIDATION COMPOUND.

EQUIPMENT GROUND CONNECTION | NO SCALE | 4



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

CABLE GROUND KIT CONNECTION | NO SCALE | 5

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY

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Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER

04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN & RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

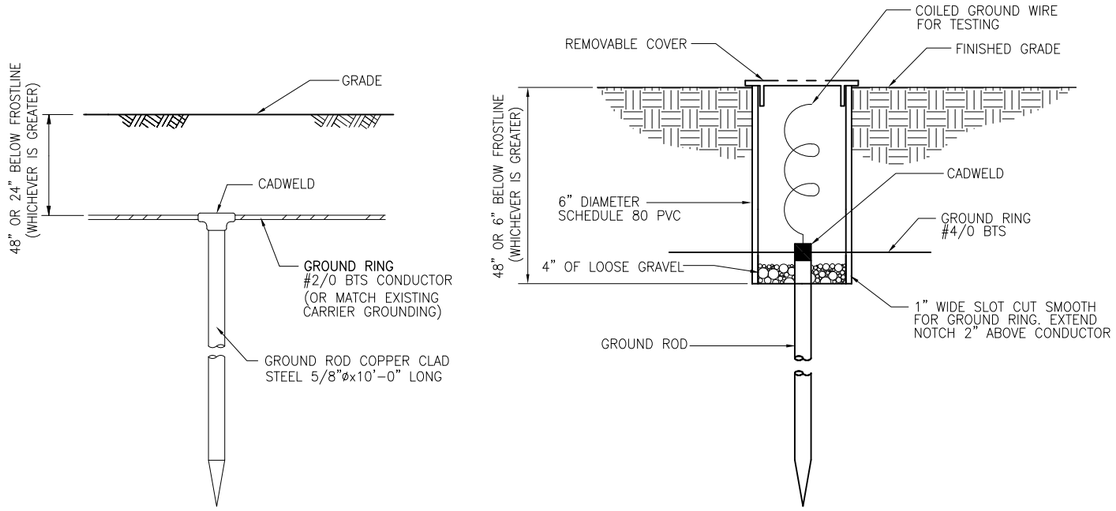
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING PLAN

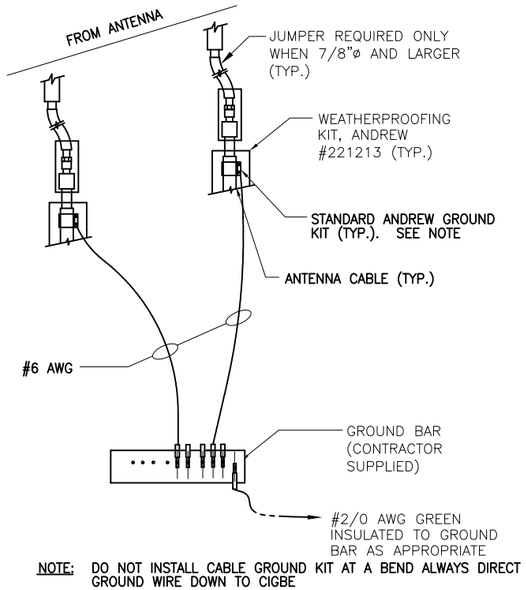
SHEET NUMBER:

E-2



GROUND ROD & INSPECTION SLEEVE DETAIL

NO SCALE | 1



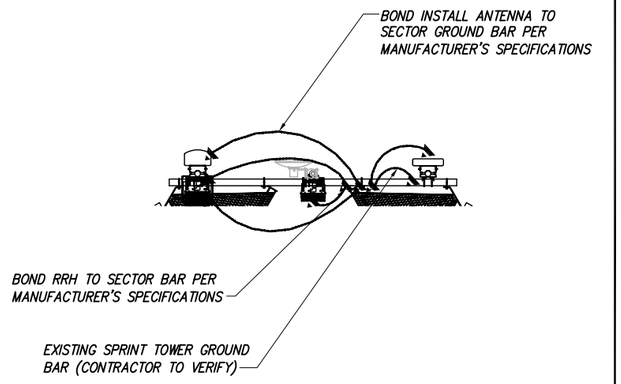
NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BARS @ ANTENNAS

NO SCALE | 2

LEGEND:

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

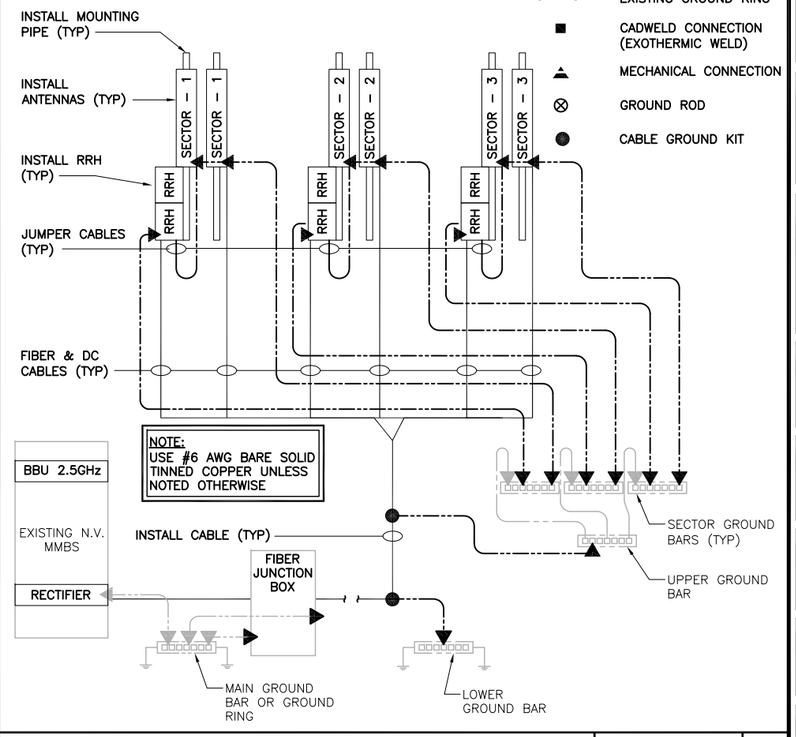


TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 3

LEGEND:

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



GROUNDING RISER DIAGRAM

NO SCALE | 4

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
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JOB NUMBER 526-104

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AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
04/03/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/13/19	MAP	0

SITE NAME:

WEST HAVEN & RT 162 CT

SITE NUMBER:

CT52XC076

SITE ADDRESS:

668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-3

INFINIGY
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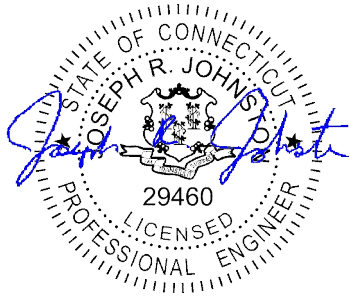
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

April 1, 2019

Site Name	West Haven & RT 162 CT
Site ID	CT52XC076
Client	Airosmith
Carrier	Sprint
Infinigy Job Number	526-104
Site Location	668 Jones Hill Road West Haven, CT 06516 41° 15' 23.04" N NAD83 72° 58' 20.49" W NAD83
Mount Centerline EL.	151.0 ft
Mount Classification	Platform
Mount Usage	**63.5%**
Overall Result	**Contingent Pass**
Note	**Mount must be replaced with new SitePro1 RMQP-396 prior to installation of proposed appurtenances.**



04-01-19

Kevin Berger Jr.

Contents

Introduction

Infinigy Engineering has been requested to perform a mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 17.0.2 analysis software.

Supporting Documentation

Construction Drawing	Infinigy Engineering Job #526-104, dated October 29, 2018
RFDS	Sprint Site ID #CT52XC076, dated March 13, 2017
Structural Analysis	American Tower Corporation, dated January 8, 2018

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 0.75" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC/ 2018 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the mount meets the specified TIA code requirements. The mounts and connections for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Kevin Berger Jr.
1033 Watervliet Shaker Road
Albany NY 12205
(O) 518-690-0790 | Structural@Infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT(ft)	Vert. O/S(ft)	Horiz. O/S(ft)(1)	Qty	Appurtenance(2)	Carrier
151.0	151.0	0.0	1.3	3	Nokia 2.56 MAA-AAHC	Sprint
			11.2	3	RFS APXVFRR12X-C-120	
			1.3, 6.3	6	ALU RRH 800 Mhz 2x50W	
			11.2	3	ALU RRH 1900 Mhz 4x45	
			6.3	1	2' Clearwire Dish	
			6.3	1	1' Clearwire Dish	

(1)Horizontal Offset is defined as the distance from the left most edge of the mount when viewed facing the tower.
(2)Radios are mounted behind antennas at respective locations see appended documents for vertical locations.

Structure Usages

Standoff	63.5%	Pass
Horizontal	19.3%	Pass
Mount Pipe	39.1%	Pass
Results	**63.5%**	**Pass**

Mount Connection Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Max Tension (lb)	19660.0	1611.2	8.2%
Max Shear (lb)	12020.0	2257.3	21.4%
Unity Check	--	--	29.6%

***Assumed (2) 5/8" A307 Anchors. Contractor to field to verify anchor diameters prior to proper installation.**

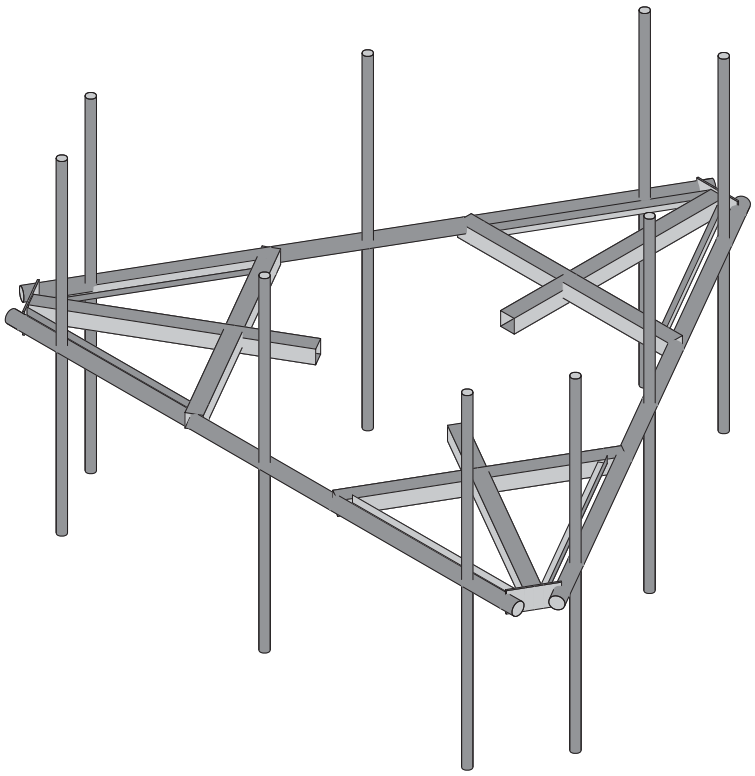
- Mount Connection reactions are acceptable per code calculate capacity.

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.



Envelope Only Solution

Infinigy Engineering, PLLC.	CT52XC076	Final Configuration
KLB		Apr 1, 2019 at 11:42 AM
526-104		CT52XC076.r3d

Site Name:	CT52XC076
Client:	Airosmith
Carrier:	Sprint
Engineer:	KLB
Date:	4/1/2019

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the solutions are endless

INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

Adopted Building Code:	2015 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Platform
Number of Sectors:	3
Structure Shape 1:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	151.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
31.59	1.00	**37.90**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
8.39	1.00	**23.79**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Nokia 2.56 MAA-AAHC (64T64R)	151.0	3	1.00	Flat	Flat	31.59	4.20	132.74	66.92	83.38	116.29
RFS APXVFRR12X-C-120	151.0	3	1.00	Flat	Flat	31.59	4.99	157.74	113.03	124.21	146.56
ALU RRH 800 Mhz 2x50W	151.0	3	1.00	Flat	Flat	31.59	1.71	54.06	41.59	44.71	50.94
ALU RRH 800 Mhz 2x50W	151.0	3	1.00	Flat	Flat	31.59	1.71	54.06	41.59	44.71	50.94
ALU RRH 1900 Mhz 4x45	151.0	3	1.00	Flat	Flat	31.59	2.58	81.60	80.28	80.61	81.27
2' Clearwire Dish	151.0	1	1.00	Round	Round	31.59	2.35	74.14	28.64	40.02	62.76
1' Clearwire Dish	151.0	1	1.00	Round	Round	31.59	0.68	21.50	12.28	14.59	19.19

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
2	M2	N3	N4			Corner Plate	Beam	None	A53 Gr.B	Typical
3	M3	N5	N8			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
4	M4	N9	N10			Corner Plate	Beam	None	A53 Gr.B	Typical
5	M5	N6	N11			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
6	M6	N12	N13			Corner Plate	Beam	None	A53 Gr.B	Typical
7	M7	N16	N15			3" STD Pipe	Beam	None	A53 Gr.B	Typical
8	M8	N19	N18			3" STD Pipe	Beam	None	A53 Gr.B	Typical
9	M9	N22	N21			3" STD Pipe	Beam	None	A53 Gr.B	Typical
10	M10	N26	N27			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
11	M11	N28	N29			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
12	M12	N30	N31			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
13	M13	N33	N34			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
14	M14	N32	N35		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
15	M15	N37	N38			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
16	M16	N36	N39		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
17	M17	N41	N42			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
18	M18	N40	N43		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
19	MP1	N100	N101			2" STD Pipe	Beam	None	A53 Gr.B	Typical
20	MP2	N102	N103			2" STD Pipe	Beam	None	A53 Gr.B	Typical
21	MP3	N104	N105			2" STD Pipe	Beam	None	A53 Gr.B	Typical
22	MP7	N112	N113			2" STD Pipe	Beam	None	A53 Gr.B	Typical
23	MP8	N114	N115			2" STD Pipe	Beam	None	A53 Gr.B	Typical
24	MP9	N116	N117			2" STD Pipe	Beam	None	A53 Gr.B	Typical
25	MP4	N106	N107			2" STD Pipe	Beam	None	A53 Gr.B	Typical
26	MP5	N108	N109			2" STD Pipe	Beam	None	A53 Gr.B	Typical
27	MP6	N110	N111			2" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	L2x2x2	6	303.1	0
3	A53 Gr.B	6"x0.37" Plate	3	36	0
4	A53 Gr.B	HSS4X4X4	6	374.3	.4
5	A53 Gr.B	PIPE_2.0	9	864	.2
6	A53 Gr.B	PIPE_3.0	3	450	.3
7	Total HR Steel		27	2027.4	.9

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			23		3	
2	Wind Load AZI 000	WLZ					23		1	
3	Wind Load AZI 090	WLX					23		1	
4	Ice Weight	OL1					23	27	3	
5	Wind + Ice Load AZI ...	OL2					23		1	
6	Wind + Ice Load AZI ...	OL3					23		1	
7	Service Live 1	LL				6				
8	BLC 1 Transient Area...	None						60		
9	BLC 2 Transient Area...	None						26		
10	BLC 3 Transient Area...	None						22		
11	BLC 4 Transient Area...	None						60		
12	BLC 5 Transient Area...	None						26		
13	BLC 6 Transient Area...	None						22		

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.6																
3	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.386	W...	.8														
4	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	.8	W...	1.386														
5	1.2D + 1.6..	Yes	Y		DL	1.2			W...	1.6														
6	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-.8	W...	1.386														
7	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.3...	W...	.8														
8	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.6																
9	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.3...	W...	-.8														
10	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-.8	W...	-1.3...														
11	1.2D + 1.6..	Yes	Y		DL	1.2			W...	-1.6														
12	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	.8	W...	-1.3...														
13	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.386	W...	-.8														
14	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.6																
15	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.386	W...	.8														
16	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	.8	W...	1.386														
17	0.9D + 1.6..	Yes	Y		DL	.9			W...	1.6														
18	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-.8	W...	1.386														
19	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.3...	W...	.8														
20	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.6																
21	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.3...	W...	-.8														
22	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-.8	W...	-1.3...														
23	0.9D + 1.6..	Yes	Y		DL	.9			W...	-1.6														
24	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	.8	W...	-1.3...														
25	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.386	W...	-.8														
26	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1																
27	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	1														
28	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5												
29	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866												
30	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1			OL3	1												
31	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866												
32	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5												
33	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-1														
34	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5												
35	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866												
36	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1			OL3	-1												
37	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866												
38	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5												
39	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.111														
40	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.096	W...	.056												
41	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.056	W...	.096												
42	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5			W...	.111												
43	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.056	W...	.096												
44	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.096	W...	.056												
45	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.111														
46	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.096	W...	-.056												
47	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.056	W...	-.096												
48	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5			W...	-.111												
49	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.056	W...	-.096												
50	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.096	W...	-.056												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N6	max	1402.348	17	2124.757	38	1204.282	14	6782.787	39	4649.602	11	104.256	23
2		min	-1402.348	11	668.072	14	-1204.282	8	1822.041	20	-4646.674	5	-827.617	30
3	N5	max	1611.234	4	2257.253	35	1430.641	14	-573.156	14	1699.159	6	4967.801	46
4		min	-1610.853	22	662.228	16	-1430.799	8	-3547.669	33	-1695.698	24	1287.12	15
5	N1	max	1511.629	18	2065.963	29	1413.09	2	-513.313	14	1719.549	16	-1006.429	24
6		min	-1511.965	12	585.742	22	-1412.931	20	-3865.732	33	-1723.207	10	-4894.98	43
7	Totals:	max	3892.216	17	6429.058	38	4048.003	14						
8		min	-3892.216	11	1990.715	14	-4048.003	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M5	HSS4X4X4	.635	0	36	.153	0	y	30	97436.9...	106155	12311.25	12311.25	2....	H1-1b
2	M1	HSS4X4X4	.531	0	34	.161	0	y	34	97437.38	106155	12311.25	12311.25	2....	H1-1b
3	M3	HSS4X4X4	.530	0	31	.135	0	y	33	97436.9...	106155	12311.25	12311.25	2....	H1-1b
4	MP3	PIPE_2.0	.391	48	8	.027	48		8	14916.0...	32130	1871.625	1871.625	1....	H1-1b
5	M13	L2x2x2	.357	50.52	20	.013	50.52	z	2	6606.013	15908.4	402.563	784.952	2....	H2-1
6	M18	L2x2x2	.352	50.52	20	.013	50.52	y	2	6606.013	15908.4	402.563	784.918	2....	H2-1
7	MP9	PIPE_2.0	.349	48	11	.024	48		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
8	MP6	PIPE_2.0	.348	48	11	.024	48		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
9	MP1	PIPE_2.0	.324	48	8	.019	48		8	14916.0...	32130	1871.625	1871.625	1....	H1-1b
10	MP7	PIPE_2.0	.305	48	5	.018	48		5	14916.0...	32130	1871.625	1871.625	1....	H1-1b
11	MP4	PIPE_2.0	.305	48	5	.018	48		5	14916.0...	32130	1871.625	1871.625	1....	H1-1b
12	M4	6"x0.37" Pla...	.277	6	9	.180	0	y	8	36343.6...	69930	538.125	8741.25	1....	H1-1b
13	M2	6"x0.37" Pla...	.275	6	8	.224	8.125	y	2	36343.6...	69930	538.125	8741.25	1....	H1-1b
14	M16	L2x2x2	.251	50.52	29	.012	50.52	z	32	6606.013	15908.4	402.563	794.201	2....	H2-1
15	M15	L2x2x2	.241	50.52	31	.014	50.52	y	31	6606.013	15908.4	402.563	822.918	2....	H2-1
16	M17	L2x2x2	.223	50.52	36	.014	50.52	y	35	6606.013	15908.4	402.563	825.863	2....	H2-1
17	M14	L2x2x2	.215	50.52	36	.012	50.52	z	29	6606.013	15908.4	402.563	807.163	2....	H2-1
18	M8	PIPE_3.0	.193	95.3...	27	.097	53.1...		8	28250.5...	65205	5748.75	5748.75	1....	H1-1b
19	M12	HSS4X4X4	.184	31.26	34	.102	58.6...	z	2	97364.86	106155	12311.25	12311.25	1....	H1-1b
20	MP2	PIPE_2.0	.180	48	8	.017	48		8	14916.0...	32130	1871.625	1871.625	1....	H1-1b
21	MP5	PIPE_2.0	.172	48	5	.017	48		17	14916.0...	32130	1871.625	1871.625	1....	H1-1b
22	M10	HSS4X4X4	.166	31.26	37	.063	31.26	z	12	97364.86	106155	12311.25	12311.25	1....	H1-1b
23	M11	HSS4X4X4	.166	31.26	32	.111	3.907	z	8	97364.86	106155	12311.25	12311.25	1....	H1-1b
24	M6	6"x0.37" Pla...	.162	6	3	.233	3.875	y	6	36343.6...	69930	538.125	8741.25	1....	H1-1b
25	MP8	PIPE_2.0	.140	48	11	.013	48		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
26	M7	PIPE_3.0	.112	53.1...	37	.080	53.1...		4	28250.5...	65205	5748.75	5748.75	2....	H1-1b
27	M9	PIPE_3.0	.090	53.1...	10	.077	53.1...		12	28250.5...	65205	5748.75	5748.75	1....	H1-1b

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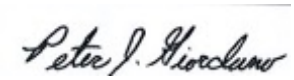
Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**West Haven & RT 162 CT, CT**
ATC Site Number	:	**243036**
Engineering Number	:	**OAA714853_C3_08**
Proposed Carrier	:	**Clearwire Corporation**
Carrier Site Name	:	**West Haven & RT 162 CT**
Carrier Site Number	:	**CT52XC076**
Site Location	:	**668 Jones Hill Road** **West Haven, CT 06516-6311** **41.256400,-72.972400**
County	:	**New Haven**
Date	:	**March 20, 2019**
Max Usage	:	**96%**
Result	:	**Pass**

Prepared By:
Peter Giordano
Structural Engineer II



Reviewed By:

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopole to reflect the change in loading by Clearwire Corporation.

Supporting Documents

Tower Drawings	Sabre Job #06-08204, dated August 19, 2005
Foundation Drawing	Sabre Job #06-10095, dated October 12, 2005
Geotechnical Report	EBI Project #61051509, dated July 12, 2005

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
151.0	2	DragonWave A-ANT-11G-2-C	-	(3) 1/2" Coax	CLEARWIRE CORPORATION
	1	DragonWave A-ANT-23G-1-C			
	3	DragonWave Horizon Compact			
143.0	3	Ericsson KRY 112 144/2	Platform with Handrails	(3) 1 1/4" Hybriflex Cable (15) 1 5/8" Coax	T-MOBILE
	3	Ericsson KRY 112 489/1			
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson AIR-32 B2A/B66Aa			
	3	RFS APX16DWV-16DWVS-E-A20			
	3	RFS APXVAARR24_43-U-NA20			
137.0	3	Alcatel-Lucent RRH2x40-AWS	Low Profile Platform	(1) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
134.0	3	Antel BXA-185085/12CF ___			
	3	Amphenol Antel BXA-171063-12BF-EDIN-X			
	6	RFS FD9R6004/2C-3L			
	1	RFS DB-T1-6Z-8AB-0Z			
	3	Commscope LNX-6514DS-A1M			
	3	Andrew DB854DG65ESX			
125.0	1	Raycap DC6-48-60-0-8F	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (2) 0.39" (9.8mm) Cable (4) 0.78" (19.7mm) 8 AWG 6 (1) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-0-8F (24" Height)			
	1	Raycap DC6-48-60-0-8F (24" Height)			
	3	Ericsson Radio 4415 B30			
	3	Ericsson 8843 Rev 2			
	3	Ericsson RRUS 4449 B5, B12			
	6	Kathrein Scala 80010966			
	3	CCI CCI-HPA-65R-BUU-H8			
115.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	METRO PCS INC
106.0	1	Proxim 5054-R-LR	Side Arm	(1) 0.28" (7mm) RG-6	OTHER
	1	Generic 3' Dish w/ Radome			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
151.0	3	Argus LLPX310R	Flush	(6) 5/16" (0.31"-7.9mm) Coax	CLEARWIRE CORPORATION
	3	NextNet BTS-2500			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
151.0	6	Alcatel-Lucent RRH2x50-08	SitePro1 RMV5-296 T-Arms	(3) 1 1/4" Hybriflex Cable (1) 1.7" (43.2mm) Hybrid	CLEARWIRE CORPORATION
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	3	RFS APXVFRR12X-C-I20			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	57%	Pass
Shaft	96%	Pass
Base Plate	47%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,840.0	3,834.0	2,872.0	73%
Shear (Kips)	26.3	35.5	24.8	70%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
149.0	DragonWave A-ANT-23G-1-C	CLEARWIRE CORPORATION	2.298	1.780
	Alcatel-Lucent RRH2x50-08			
	Alcatel-Lucent 1900 MHz 4X45 RRH			
	Nokia 2.5G MAA - AAHC(64T64R)			
	DragonWave A-ANT-11G-2-C			
	DragonWave A-ANT-11G-2-C			
	RFS APXVFRR12X-C-I20			
106.0	Generic 3' Dish w/ Radome	OTHER	1.085	1.290

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

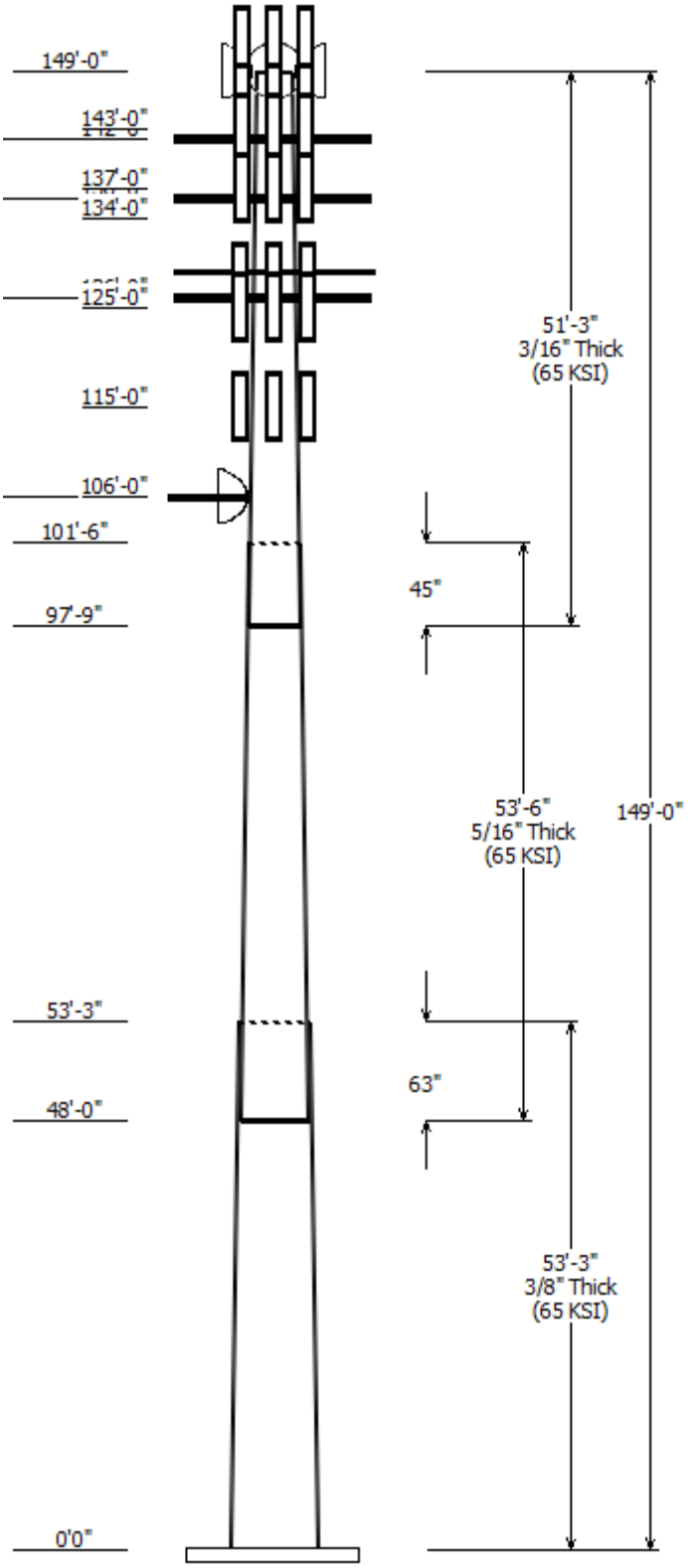
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Pole :	243036	Code:	ANSI/TIA-222-G
Location :	WEST HAVEN & RT 162 CT, CT		
Description :	Tower Model Verified: 12/13/2012		
Client :	CLEARWIRE CORPORATION	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	149.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.234964 (in/ft)		

Sections Properties

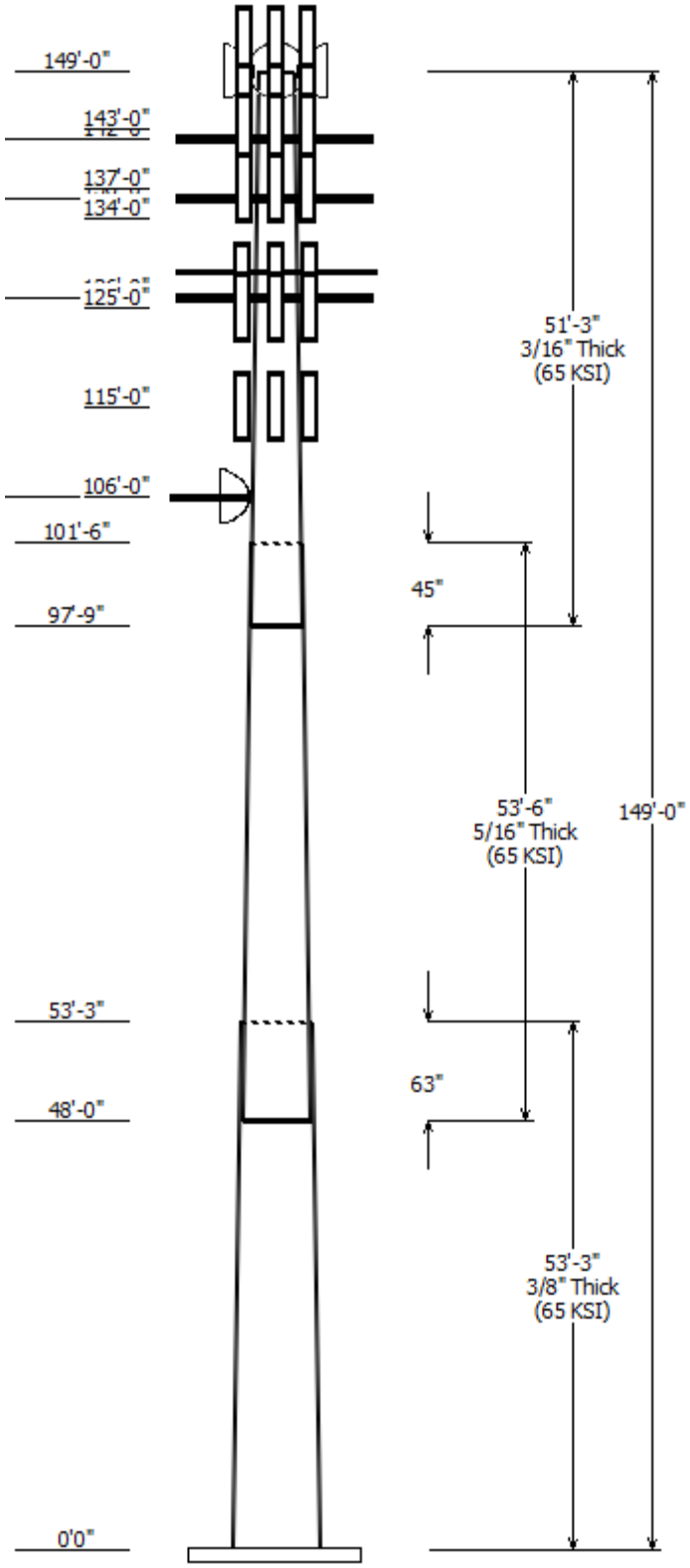
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Steel Grade Shape	(ksi)
1	53.250	39.49	52.01	0.375		0.000	18 Sides	65
2	53.500	28.78	41.35	0.313	Slip Joint	63.000	18 Sides	65
3	51.250	18.00	30.04	0.188	Slip Joint	45.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	149.000	3	SitePro1 RMV5-296
149.000	152.000	3	RFS APXVFRR12X-C-I20
149.000	149.000	2	DragonWave A-ANT-11G-2-C
149.000	152.000	3	Nokia 2.5G MAA -
149.000	152.000	3	Alcatel-Lucent 1900 MHz 4X45
149.000	152.000	6	Alcatel-Lucent RRH2x50-08
149.000	149.000	1	DragonWave A-ANT-23G-1-C
149.000	149.000	3	DragonWave Horizon Compact
143.000	143.000	3	RFS APXVAARR24_43-U-NA20
143.000	143.000	3	RFS APX16DWV-16DWVS-E-A20
143.000	144.000	3	Ericsson AIR-32 B2A/B66Aa
143.000	143.000	3	Ericsson Radio 4449 B12,B71
143.000	144.000	3	Ericsson KRY 112 489/1
143.000	143.000	3	Ericsson KRY 112 144/2
142.000	142.000	1	Flat Platform w/ Handrails
137.000	137.000	3	Alcatel-Lucent RRH2x40-AWS
136.000	136.000	1	Round Low Profile Platform
134.000	137.000	3	Commscope LNX-6514DS-A1M
134.000	137.000	3	Andrew DB854DG65ESX
134.000	136.000	1	RFS DB-T1-6Z-8AB-0Z
134.000	137.000	3	Antel BXA-185085/12CF ___
134.000	136.000	3	Amphenol Antel BXA-171063-
134.000	136.000	6	RFS FD9R6004/2C-3L
126.000	126.000	1	Round Platform w/ Handrails
125.000	125.000	6	Kathrein Scala 80010966
125.000	126.000	3	CCI CCI-HPA-65R-BUU-H8
125.000	125.000	3	Ericsson RRUS 4449 B5, B12
125.000	125.000	3	Ericsson 8843 Rev 2
125.000	125.000	3	Ericsson Radio 4415 B30
125.000	126.000	1	Raycap DC6-48-60-0-8F (24" Hei
125.000	126.000	1	Raycap DC6-48-60-0-8F (24" Hei
125.000	125.000	1	Raycap DC6-48-60-0-8F
115.000	115.000	3	RFS APXV18-206517S-C
106.000	106.000	1	Flat Side Arm
106.000	106.000	1	Generic 3' Dish w/ Radome
106.000	106.000	1	Proxim 5054-R-LR

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
4.000	106.0	0.28" (7mm) RG-6	No
4.000	115.0	1 5/8" Coax	No
4.000	125.0	0.39" (10mm)	No



4.000	125.0	0.39" (10mm)	No
4.000	125.0	0.39" (9.8mm)	No
4.000	125.0	0.78" (19.7mm) 8	No
4.000	125.0	0.78" (19.7mm) 8	No
4.000	125.0	3" conduit	No
4.000	134.0	1 5/8" (1.63"-	No
4.000	134.0	1 5/8" Coax	No
4.000	143.0	1 1/4" Hybriflex	Yes
4.000	143.0	1 5/8" Coax	No
4.000	143.0	1 5/8" Coax	No
4.000	149.0	1 1/4" Hybriflex	No
4.000	149.0	1.7" (43.2mm)	No
4.000	149.0	1/2" Coax	No

Load Cases

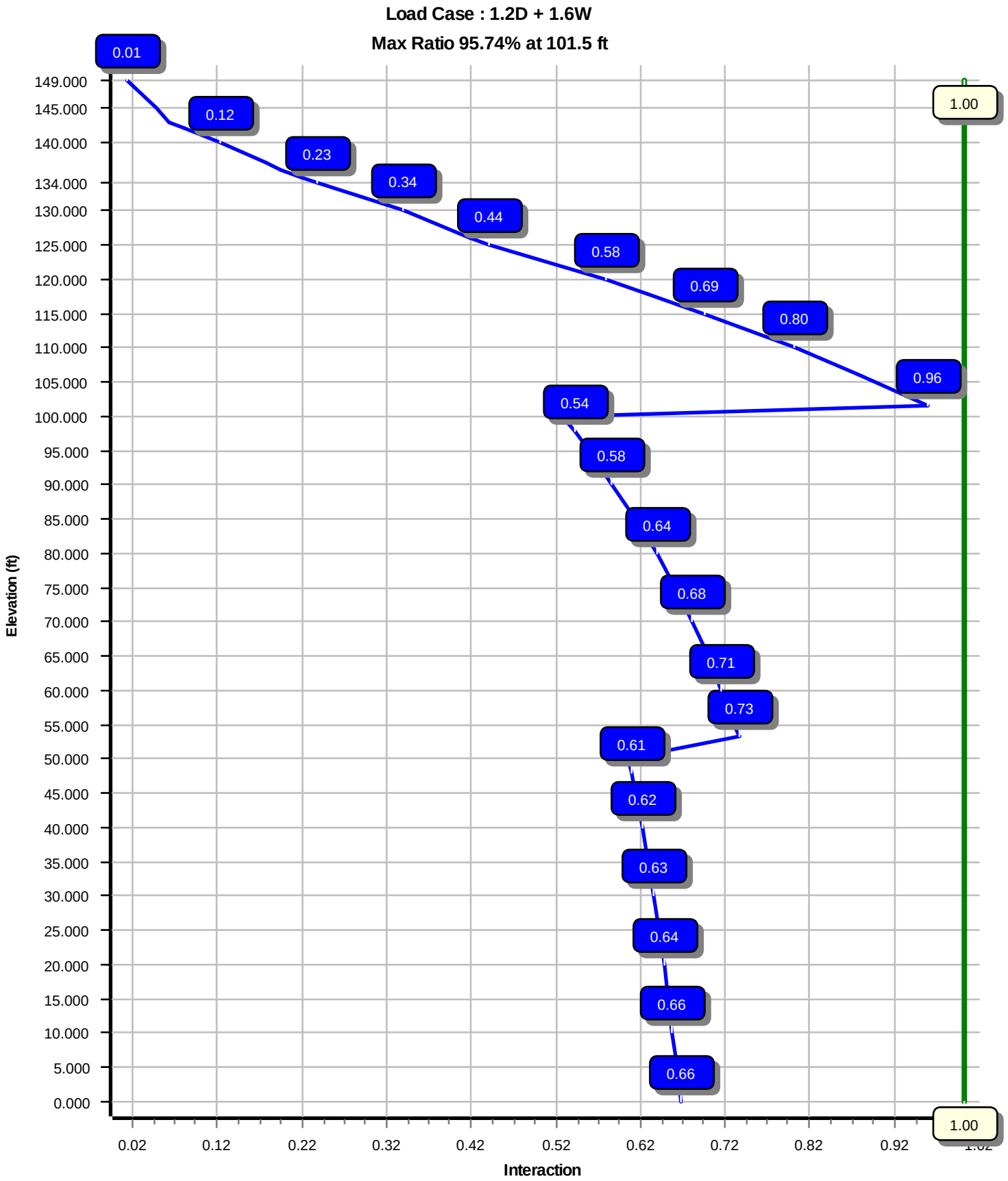
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2872.01	24.77	43.02
0.9D + 1.6W	2827.41	24.75	32.26
1.2D + 1.0Di + 1.0Wi	836.34	6.87	79.95
(1.2 + 0.2Sds) * DL + E ELFM	140.28	1.08	43.17
(1.2 + 0.2Sds) * DL + E EMAM	265.29	2.10	43.17
(0.9 - 0.2Sds) * DL + E ELFM	137.54	1.08	29.93
(0.9 - 0.2Sds) * DL + E EMAM	259.63	2.10	29.93
1.0D + 1.0W	680.91	5.92	35.89

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	106.00	13.015	1.289
1.0D + 1.0W	149.00	27.582	1.781
1.0D + 1.0W	149.00	27.582	1.781


Load Case : 1.2D + 1.6W
Max Ratio 95.74% at 101.5 ft
0.01
0.12
0.23
0.34
0.44
0.58
0.69
0.80
0.96
0.54
0.58
0.64
0.68
0.71
0.73
0.61
0.62
0.63
0.64
0.66
0.66
1.00
1.00
149.000
145.000
140.000
134.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:OAA714853_C3_08 3/20/2019 5:12:20 PM

Customer: CLEARWIRE

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	149
Code :	ANSI/TIA-222-G	Base Diameter (in) :	52.01
Shape :	18 Sides	Top Diameter (in) :	18.00
Pole Type :	Taper	Taper (in/ft) :	0.235
Pole Manfacturer :	Sabre	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.74				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.188	S_1:	0.062	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.201	S_{d1}:	0.099		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:OAA714853_C3_08 3/20/2019 5:12:20 PM

Customer: CLEARWIRE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.250	0.3750	65		0.00	9,787	52.01	0.00	61.46	20701.4	22.69	138.69	39.49	53.25	46.56	9004.7	16.81	105.33	0.234964
2-18	53.500	0.3125	65	Slip	63.00	6,276	41.35	48.00	40.71	8664.4	21.57	132.34	28.78	101.50	28.24	2892.7	14.48	92.11	0.234964
3-18	51.250	0.1875	65	Slip	45.00	2,473	30.04	97.75	17.77	2000.7	26.49	160.22	18.00	149.00	10.60	424.9	15.16	96.00	0.234964
				Shaft Weight		18,536													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
149.00	DragonWave Horizon Compact	3	0.80	0.000	10.60	0.720	0.50	33.09	1.288	0.50
149.00	DragonWave A-ANT-23G-1-C	1	1.00	0.000	15.00	1.610	1.00	50.33	2.367	1.00
149.00	Alcatel-Lucent RRH2x50-08	6	0.80	3.000	52.90	1.700	0.50	112.16	2.562	0.50
149.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	3.000	60.00	2.320	0.67	140.59	3.400	0.67
149.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	3.000	103.60	4.200	0.64	216.34	5.540	0.64
149.00	DragonWave A-ANT-11G-2-C	2	1.00	0.000	27.00	4.690	1.00	124.46	5.964	1.00
149.00	RFS APXVFRR12X-C-I20	3	0.80	3.000	46.00	4.990	0.71	171.02	6.857	0.71
149.00	SitePro1 RMV5-296	3	0.75	0.000	370.00	10.000	0.67	679.32	18.499	0.67
143.00	Ericsson KRY 112 144/2	3	0.75	0.000	9.70	0.480	0.50	23.85	0.952	0.50
143.00	Ericsson KRY 112 489/1	3	0.75	1.000	15.40	0.560	0.50	32.93	1.085	0.50
143.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.81	2.482	0.50
143.00	Ericsson AIR-32 B2A/B66Aa	3	0.75	1.000	132.20	6.510	0.71	291.32	8.694	0.71
143.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	0.000	40.70	6.590	0.60	157.16	8.750	0.60
143.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	519.28	23.937	0.63
142.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,415.31	63.286	1.00
137.00	Alcatel-Lucent RRH2x40-AWS	3	1.00	0.000	44.00	2.160	0.67	104.16	3.198	0.67
136.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,142.65	40.744	1.00
134.00	RFS FD9R6004/2C-3L	6	0.80	2.000	2.60	0.310	0.50	10.52	0.687	0.50
134.00	Amphenol Antel BXA-171063-	3	0.80	2.000	15.00	4.730	0.72	108.73	7.045	0.72
134.00	Antel BXA-185085/12CF ___	3	0.80	3.000	13.00	4.790	0.72	131.38	6.000	0.72
134.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	2.000	44.00	4.800	1.00	168.52	6.206	1.00
134.00	Andrew DB854DG65ESX	3	0.80	3.000	18.50	5.250	0.65	149.40	6.230	0.65
134.00	Commscope LNX-6514DS-A1M	3	0.80	3.000	38.80	8.170	0.69	212.86	10.957	0.69
126.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,275.49	51.262	1.00
125.00	Raycap DC6-48-60-0-8F	1	0.80	0.000	32.80	1.360	1.00	89.88	2.011	1.00
125.00	Raycap DC6-48-60-0-8F (24"	1	0.80	1.000	32.80	1.470	1.00	137.97	2.156	1.00
125.00	Raycap DC6-48-60-0-8F (24"	1	0.80	1.000	32.80	1.470	1.00	137.97	2.156	1.00
125.00	Ericsson Radio 4415 B30	3	0.80	0.000	43.00	1.650	0.50	84.39	2.484	0.50
125.00	Ericsson 8843 Rev 2	3	0.80	0.000	75.00	1.650	0.50	135.95	2.484	0.50
125.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.970	0.50	134.29	2.886	0.50
125.00	CCI CCI-HPA-65R-BUU-H8	3	0.80	1.000	68.00	12.980	0.67	320.31	16.496	0.67
125.00	Kathrein Scala 80010966	6	0.80	0.000	114.60	17.360	0.63	429.91	20.982	0.63
115.00	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	116.61	7.463	0.68
106.00	Proxim 5054-R-LR	1	1.00	0.000	6.00	1.320	1.00	36.21	2.054	1.00
106.00	Generic 3' Dish w/ Radome	1	1.00	0.000	100.00	6.100	1.00	276.10	7.259	1.00
106.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	1.00	220.76	8.678	1.00
Totals	Num Loadings:36	94			11,196.40			25,194.05		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
4.00	149.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	CLEARWIRE CORPORATION
4.00	149.00	1	1.7" (43.2mm) Hybrid	1.70	1.78	N	0.00	N	CLEARWIRE CORPORATION

4.00	149.00	3	1/2" Coax	0.63	0.15	N	0.00	N	CLEARWIRE CORPORATION
4.00	143.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	1.54	Y	T-MOBILE
4.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-MOBILE
4.00	143.00	3	1 5/8" Coax	1.98	0.82	N	0.00	N	T-MOBILE
4.00	134.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0.00	N	VERIZON WIRELESS
4.00	134.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	VERIZON WIRELESS
4.00	125.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
4.00	125.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
4.00	125.00	2	0.39" (9.8mm) Cable	0.39	0.07	N	0.00	N	AT&T MOBILITY
4.00	125.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
4.00	125.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
4.00	125.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY
4.00	115.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	METRO PCS INC
4.00	106.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0.00	N	Other

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	52.010	61.456	20,701.4	22.69	138.69	74.7	784.0	0.0	0.0
5.00		0.3750	50.835	60.058	19,320.3	22.14	135.56	75.4	748.6	0.0	1,033.7
10.00		0.3750	49.660	58.659	18,002.0	21.59	132.43	76.0	714.0	0.0	1,009.9
15.00		0.3750	48.485	57.261	16,745.1	21.03	129.29	76.7	680.2	0.0	986.1
20.00		0.3750	47.310	55.863	15,548.1	20.48	126.16	77.3	647.3	0.0	962.3
25.00		0.3750	46.136	54.465	14,409.6	19.93	123.03	78.0	615.2	0.0	938.5
30.00		0.3750	44.961	53.066	13,328.0	19.38	119.90	78.6	583.9	0.0	914.8
35.00		0.3750	43.786	51.668	12,301.9	18.83	116.76	79.3	553.4	0.0	891.0
40.00		0.3750	42.611	50.270	11,329.9	18.27	113.63	79.9	523.7	0.0	867.2
45.00		0.3750	41.436	48.871	10,410.6	17.72	110.50	80.6	494.9	0.0	843.4
48.00	Bot - Section 2	0.3750	40.731	48.032	9,883.6	17.39	108.62	80.9	477.9	0.0	494.6
50.00		0.3750	40.261	47.473	9,542.3	17.17	107.36	81.2	466.8	0.0	600.4
53.25	Top - Section 1	0.3125	40.123	39.485	7,906.5	20.88	128.39	76.8	388.1	0.0	960.8
55.00		0.3125	39.712	39.078	7,664.0	20.64	127.08	77.1	380.1	0.0	233.9
60.00		0.3125	38.537	37.912	6,998.6	19.98	123.32	77.9	357.7	0.0	654.9
65.00		0.3125	37.362	36.747	6,373.0	19.32	119.56	78.7	336.0	0.0	635.1
70.00		0.3125	36.187	35.582	5,785.7	18.66	115.80	79.5	314.9	0.0	615.3
75.00		0.3125	35.012	34.417	5,235.7	17.99	112.04	80.2	294.5	0.0	595.5
80.00		0.3125	33.838	33.251	4,721.7	17.33	108.28	81.0	274.8	0.0	575.6
85.00		0.3125	32.663	32.086	4,242.5	16.67	104.52	81.8	255.8	0.0	555.8
90.00		0.3125	31.488	30.921	3,796.9	16.00	100.76	82.6	237.5	0.0	536.0
95.00		0.3125	30.313	29.756	3,383.6	15.34	97.00	82.6	219.9	0.0	516.2
97.75	Bot - Section 3	0.3125	29.667	29.115	3,169.7	14.98	94.93	82.6	210.4	0.0	275.4
100.0		0.3125	29.138	28.591	3,001.5	14.68	93.24	82.6	202.9	0.0	355.7
101.5	Top - Section 2	0.1875	29.161	17.242	1,828.7	25.66	155.52	71.2	123.5	0.0	233.6
105.0		0.1875	28.338	16.753	1,677.4	24.89	151.14	72.1	116.6	0.0	202.4
106.0		0.1875	28.103	16.613	1,635.7	24.67	149.89	72.4	114.6	0.0	56.8
110.0		0.1875	27.164	16.054	1,476.0	23.78	144.87	73.4	107.0	0.0	222.3
115.0		0.1875	25.989	15.354	1,291.4	22.68	138.61	74.7	97.9	0.0	267.2
117.9		0.1875	25.299	14.944	1,190.5	22.03	134.93	75.5	92.7	0.0	151.4
120.0		0.1875	24.814	14.655	1,122.9	21.57	132.34	76.0	89.1	0.0	103.9
125.0		0.1875	23.639	13.956	969.8	20.47	126.08	77.3	80.8	0.0	243.4
126.0		0.1875	23.404	13.816	940.9	20.25	124.82	77.6	79.2	0.0	47.3
130.0		0.1875	22.464	13.257	831.2	19.36	119.81	78.6	72.9	0.0	184.2
134.0		0.1875	21.524	12.698	730.4	18.48	114.80	79.7	66.8	0.0	176.6
135.0		0.1875	21.290	12.558	706.5	18.26	113.54	79.9	65.4	0.0	43.0
136.0		0.1875	21.055	12.418	683.2	18.04	112.29	80.2	63.9	0.0	42.5
137.0		0.1875	20.820	12.278	660.4	17.82	111.04	80.4	62.5	0.0	42.0
140.0		0.1875	20.115	11.859	595.0	17.15	107.28	81.2	58.3	0.0	123.2
142.0		0.1875	19.645	11.579	553.8	16.71	104.77	81.7	55.5	0.0	79.8
143.0		0.1875	19.410	11.439	534.0	16.49	103.52	82.0	54.2	0.0	39.2
145.0		0.1875	18.940	11.160	495.8	16.05	101.01	82.5	51.6	0.0	76.9
149.0		0.1875	18.000	10.600	424.9	15.16	96.00	82.6	46.5	0.0	148.1
											18,536.1

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:OAA714853_C3_08 3/20/2019 5:12:21 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	1,240.5					0.0	56.6	394.1	1,297.0	0.0	0.0
10.00		385.0	1,211.9					0.0	282.8	385.0	1,494.7	0.0	0.0
15.00		375.9	1,183.4					0.0	282.8	375.9	1,466.1	0.0	0.0
20.00		366.8	1,154.8					0.0	282.8	366.8	1,437.6	0.0	0.0
25.00		357.7	1,126.3					0.0	282.8	357.7	1,409.0	0.0	0.0
30.00		352.7	1,097.7					0.0	282.8	352.7	1,380.5	0.0	0.0
35.00		354.8	1,069.2					0.0	282.8	354.8	1,351.9	0.0	0.0
40.00		358.7	1,040.6					0.0	282.8	358.7	1,323.4	0.0	0.0
45.00		288.5	1,012.1					0.0	282.8	288.5	1,294.8	0.0	0.0
48.00	Bot - Section 2	181.8	593.5					0.0	169.7	181.8	763.2	0.0	0.0
50.00		192.7	720.5					0.0	113.1	192.7	833.6	0.0	0.0
53.25	Top - Section 1	183.4	1,153.0					0.0	183.8	183.4	1,336.8	0.0	0.0
55.00		247.0	280.7					0.0	99.0	247.0	379.7	0.0	0.0
60.00		364.4	785.9					0.0	282.8	364.4	1,068.7	0.0	0.0
65.00		361.5	762.1					0.0	282.8	361.5	1,044.9	0.0	0.0
70.00		357.6	738.4					0.0	282.8	357.6	1,021.1	0.0	0.0
75.00		352.9	714.6					0.0	282.8	352.9	997.3	0.0	0.0
80.00		347.4	690.8					0.0	282.8	347.4	973.6	0.0	0.0
85.00		341.2	667.0					0.0	282.8	341.2	949.8	0.0	0.0
90.00		334.3	643.2					0.0	282.8	334.3	926.0	0.0	0.0
95.00		254.7	619.4					0.0	282.8	254.7	902.2	0.0	0.0
97.75	Bot - Section 3	162.4	330.5					0.0	155.5	162.4	486.1	0.0	0.0
100.00		121.4	426.9					0.0	127.3	121.4	554.1	0.0	0.0
101.50	Top - Section 2	159.4	280.3					0.0	84.8	159.4	365.1	0.0	0.0
105.00		142.5	242.9					0.0	197.9	142.5	440.9	0.0	0.0
106.00	Appurtenance(s)	155.0	68.1	555.2	0.0	0.0	307.2	0.0	56.6	710.3	431.9	0.0	0.0
110.00		274.1	266.8					0.0	226.1	274.1	492.9	0.0	0.0
115.00	Appurtenance(s)	236.5	320.6	436.0	0.0	0.0	95.0	0.0	282.6	672.6	698.3	0.0	0.0
117.94		145.6	181.7					0.0	148.7	145.6	330.4	0.0	0.0
120.00		199.9	124.6					0.0	104.4	199.9	229.0	0.0	0.0
125.00	Appurtenance(s)	168.0	292.1	3,528.7	0.0	987.4	1,868.4	0.0	253.1	3,696.7	2,413.6	0.0	0.0
126.00	Appurtenance(s)	135.2	56.7	1,156.4	0.0	0.0	2,400.0	0.0	38.4	1,291.7	2,495.1	0.0	0.0
130.00		212.0	221.1					0.0	153.5	212.0	374.6	0.0	0.0
134.00	Appurtenance(s)	129.7	212.0	1,860.6	0.0	5,027.4	378.6	0.0	153.5	1,990.3	744.1	0.0	0.0
135.00		50.8	51.6					0.0	24.6	50.8	76.2	0.0	0.0
136.00	Appurtenance(s)	50.3	51.0	943.0	0.0	0.0	1,800.0	0.0	24.6	993.3	1,875.6	0.0	0.0
137.00	Appurtenance(s)	98.8	50.4	189.1	0.0	0.0	158.4	0.0	24.6	287.9	233.5	0.0	0.0
140.00		121.8	147.8					0.0	73.9	121.8	221.7	0.0	0.0
142.00	Appurtenance(s)	71.7	95.7	1,865.3	0.0	0.0	2,400.0	0.0	49.3	1,937.0	2,545.0	0.0	0.0
143.00	Appurtenance(s)	70.2	47.0	2,249.2	0.0	487.2	1,439.6	0.0	24.6	2,319.4	1,511.3	0.0	0.0
145.00		136.9	92.3					0.0	12.6	136.9	104.8	0.0	0.0
149.00	Appurtenance(s)	90.3	177.7	2,222.3	0.0	3,063.5	2,588.4	0.0	25.1	2,312.5	2,791.2	0.0	0.0
								Totals:		24,890.7	43,067.3	0.00	0.00

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:27 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.02	-24.77	0.00	-2,872.01	0.00	2,872.01	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.664
5.00	-41.64	-24.51	0.00	-2,748.19	0.00	2,748.19	4,073.39	2,036.69	8,449.37	4,230.97	0.10	-0.19	0.660
10.00	-40.07	-24.26	0.00	-2,625.63	0.00	2,625.63	4,012.85	2,006.43	8,128.58	4,070.33	0.41	-0.39	0.655
15.00	-38.52	-24.01	0.00	-2,504.34	0.00	2,504.34	3,950.68	1,975.34	7,810.43	3,911.02	0.93	-0.59	0.650
20.00	-37.00	-23.76	0.00	-2,384.31	0.00	2,384.31	3,886.87	1,943.43	7,495.19	3,753.17	1.66	-0.80	0.645
25.00	-35.51	-23.51	0.00	-2,265.51	0.00	2,265.51	3,821.43	1,910.71	7,183.08	3,596.88	2.62	-1.01	0.639
30.00	-34.05	-23.26	0.00	-2,147.95	0.00	2,147.95	3,754.35	1,877.17	6,874.35	3,442.28	3.79	-1.23	0.633
35.00	-32.61	-23.01	0.00	-2,031.63	0.00	2,031.63	3,685.64	1,842.82	6,569.23	3,289.50	5.20	-1.45	0.627
40.00	-31.21	-22.74	0.00	-1,916.59	0.00	1,916.59	3,615.29	1,807.64	6,267.96	3,138.64	6.85	-1.68	0.619
45.00	-29.85	-22.51	0.00	-1,802.90	0.00	1,802.90	3,543.30	1,771.65	5,970.78	2,989.83	8.74	-1.92	0.612
48.00	-29.04	-22.36	0.00	-1,735.38	0.00	1,735.38	3,499.33	1,749.66	5,794.53	2,901.57	9.99	-2.06	0.607
50.00	-28.17	-22.20	0.00	-1,690.66	0.00	1,690.66	3,469.68	1,734.84	5,677.92	2,843.18	10.87	-2.16	0.603
53.25	-26.79	-22.02	0.00	-1,618.51	0.00	1,618.51	2,730.90	1,365.45	4,467.29	2,236.97	12.40	-2.32	0.734
55.00	-26.35	-21.85	0.00	-1,579.97	0.00	1,579.97	2,712.29	1,356.15	4,390.67	2,198.60	13.27	-2.41	0.729
60.00	-25.19	-21.56	0.00	-1,470.73	0.00	1,470.73	2,658.02	1,329.01	4,173.50	2,089.85	15.94	-2.69	0.713
65.00	-24.06	-21.27	0.00	-1,362.92	0.00	1,362.92	2,602.11	1,301.05	3,959.12	1,982.50	18.91	-2.98	0.697
70.00	-22.95	-20.98	0.00	-1,256.57	0.00	1,256.57	2,544.56	1,272.28	3,747.77	1,876.67	22.19	-3.27	0.679
75.00	-21.87	-20.68	0.00	-1,151.69	0.00	1,151.69	2,485.39	1,242.69	3,539.70	1,772.48	25.77	-3.57	0.659
80.00	-20.81	-20.38	0.00	-1,048.29	0.00	1,048.29	2,424.57	1,212.29	3,335.13	1,670.04	29.67	-3.87	0.637
85.00	-19.79	-20.08	0.00	-946.41	0.00	946.41	2,362.12	1,181.06	3,134.31	1,569.49	33.88	-4.17	0.612
90.00	-18.79	-19.77	0.00	-846.03	0.00	846.03	2,297.27	1,148.64	2,936.51	1,470.44	38.40	-4.47	0.584
95.00	-17.83	-19.52	0.00	-747.18	0.00	747.18	2,210.70	1,105.35	2,718.30	1,361.17	43.24	-4.77	0.557
97.75	-17.31	-19.36	0.00	-693.51	0.00	693.51	2,163.09	1,081.54	2,601.88	1,302.87	46.03	-4.93	0.541
100.00	-16.73	-19.22	0.00	-649.95	0.00	649.95	2,124.13	1,062.07	2,508.52	1,256.12	48.39	-5.07	0.526
101.50	-16.33	-19.07	0.00	-621.12	0.00	621.12	1,105.19	552.59	1,317.56	659.76	49.99	-5.16	0.957
105.00	-15.85	-18.93	0.00	-554.36	0.00	554.36	1,087.53	543.77	1,259.48	630.68	53.85	-5.36	0.895
106.00	-15.42	-18.24	0.00	-535.43	0.00	535.43	1,082.34	541.17	1,242.93	622.39	54.98	-5.45	0.876
110.00	-14.84	-18.02	0.00	-462.46	0.00	462.46	1,060.92	530.46	1,177.04	589.40	59.69	-5.80	0.800
115.00	-14.12	-17.36	0.00	-372.35	0.00	372.35	1,032.68	516.34	1,095.47	548.55	65.98	-6.20	0.694
117.94	-13.75	-17.22	0.00	-321.37	0.00	321.37	1,015.32	507.66	1,048.03	524.80	69.86	-6.43	0.627
120.00	-13.48	-17.05	0.00	-285.86	0.00	285.86	1,002.79	501.40	1,014.98	508.24	72.67	-6.58	0.577
125.00	-11.48	-13.13	0.00	-199.62	0.00	199.62	971.28	485.64	935.83	468.61	79.71	-6.89	0.439
126.00	-9.13	-11.57	0.00	-186.49	0.00	186.49	964.78	482.39	920.18	460.77	81.16	-6.94	0.415
130.00	-8.75	-11.34	0.00	-140.21	0.00	140.21	938.12	469.06	858.24	429.76	87.05	-7.14	0.336
134.00	-8.24	-9.29	0.00	-89.82	0.00	89.82	910.42	455.21	797.47	399.33	93.09	-7.30	0.234
135.00	-8.17	-9.23	0.00	-80.54	0.00	80.54	903.33	451.67	782.47	391.82	94.62	-7.33	0.215
136.00	-6.43	-8.01	0.00	-71.31	0.00	71.31	896.18	448.09	767.56	384.35	96.15	-7.36	0.193
137.00	-6.23	-7.70	0.00	-63.30	0.00	63.30	888.96	444.48	752.72	376.92	97.69	-7.39	0.175
140.00	-6.02	-7.55	0.00	-40.21	0.00	40.21	866.91	433.46	708.75	354.90	102.35	-7.46	0.121
142.00	-3.75	-5.30	0.00	-25.10	0.00	25.10	851.88	425.94	679.88	340.45	105.47	-7.49	0.078
143.00	-2.55	-2.81	0.00	-19.31	0.00	19.31	844.27	422.14	665.60	333.29	107.04	-7.50	0.061
145.00	-2.46	-2.66	0.00	-13.70	0.00	13.70	828.85	414.43	637.31	319.13	110.18	-7.52	0.046
149.00	0.00	-2.31	0.00	-3.06	0.00	3.06	787.55	393.77	574.90	287.88	116.47	-7.54	0.011

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:27 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 27 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	930.3					0.0	42.4	394.1	972.8	0.0	0.0
10.00		385.0	908.9					0.0	212.1	385.0	1,121.0	0.0	0.0
15.00		375.9	887.5					0.0	212.1	375.9	1,099.6	0.0	0.0
20.00		366.8	866.1					0.0	212.1	366.8	1,078.2	0.0	0.0
25.00		357.7	844.7					0.0	212.1	357.7	1,056.8	0.0	0.0
30.00		352.7	823.3					0.0	212.1	352.7	1,035.4	0.0	0.0
35.00		354.8	801.9					0.0	212.1	354.8	1,014.0	0.0	0.0
40.00		358.7	780.5					0.0	212.1	358.7	992.5	0.0	0.0
45.00		288.5	759.0					0.0	212.1	288.5	971.1	0.0	0.0
48.00	Bot - Section 2	181.8	445.2					0.0	127.3	181.8	572.4	0.0	0.0
50.00		192.7	540.4					0.0	84.8	192.7	625.2	0.0	0.0
53.25	Top - Section 1	183.4	864.8					0.0	137.9	183.4	1,002.6	0.0	0.0
55.00		247.0	210.5					0.0	74.2	247.0	284.8	0.0	0.0
60.00		364.4	589.5					0.0	212.1	364.4	801.5	0.0	0.0
65.00		361.5	571.6					0.0	212.1	361.5	783.7	0.0	0.0
70.00		357.6	553.8					0.0	212.1	357.6	765.9	0.0	0.0
75.00		352.9	535.9					0.0	212.1	352.9	748.0	0.0	0.0
80.00		347.4	518.1					0.0	212.1	347.4	730.2	0.0	0.0
85.00		341.2	500.2					0.0	212.1	341.2	712.3	0.0	0.0
90.00		334.3	482.4					0.0	212.1	334.3	694.5	0.0	0.0
95.00		254.7	464.6					0.0	212.1	254.7	676.6	0.0	0.0
97.75	Bot - Section 3	162.4	247.9					0.0	116.6	162.4	364.5	0.0	0.0
100.00		121.4	320.2					0.0	95.4	121.4	415.6	0.0	0.0
101.50	Top - Section 2	159.4	210.2					0.0	63.6	159.4	273.8	0.0	0.0
105.00		142.5	182.2					0.0	148.5	142.5	330.7	0.0	0.0
106.00	Appurtenance(s)	155.0	51.1	555.2	0.0	0.0	230.4	0.0	42.4	710.3	323.9	0.0	0.0
110.00		274.1	200.1					0.0	169.6	274.1	369.6	0.0	0.0
115.00	Appurtenance(s)	236.5	240.5	436.0	0.0	0.0	71.3	0.0	211.9	672.6	523.7	0.0	0.0
117.94		145.6	136.3					0.0	111.5	145.6	247.8	0.0	0.0
120.00		199.9	93.5					0.0	78.3	199.9	171.8	0.0	0.0
125.00	Appurtenance(s)	168.0	219.1	3,528.7	0.0	987.4	1,401.3	0.0	189.8	3,696.7	1,810.2	0.0	0.0
126.00	Appurtenance(s)	135.2	42.5	1,156.4	0.0	0.0	1,800.0	0.0	28.8	1,291.7	1,871.3	0.0	0.0
130.00		212.0	165.8					0.0	115.1	212.0	281.0	0.0	0.0
134.00	Appurtenance(s)	129.7	159.0	1,860.6	0.0	5,027.4	283.9	0.0	115.1	1,990.3	558.1	0.0	0.0
135.00		50.8	38.7					0.0	18.5	50.8	57.1	0.0	0.0
136.00	Appurtenance(s)	50.3	38.2	943.0	0.0	0.0	1,350.0	0.0	18.5	993.3	1,406.7	0.0	0.0
137.00	Appurtenance(s)	98.8	37.8	189.1	0.0	0.0	118.8	0.0	18.5	287.9	175.1	0.0	0.0
140.00		121.8	110.9					0.0	55.4	121.8	166.3	0.0	0.0
142.00	Appurtenance(s)	71.7	71.8	1,865.3	0.0	0.0	1,800.0	0.0	37.0	1,937.0	1,908.7	0.0	0.0
143.00	Appurtenance(s)	70.2	35.2	2,249.2	0.0	487.2	1,079.7	0.0	18.5	2,319.4	1,133.5	0.0	0.0
145.00		136.9	69.2					0.0	9.4	136.9	78.6	0.0	0.0
149.00	Appurtenance(s)	90.3	133.3	2,222.3	0.0	3,063.5	1,941.3	0.0	18.8	2,312.5	2,093.4	0.0	0.0
								Totals:		24,890.7	32,300.5	0.00	0.00

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:33 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 27 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.26	-24.75	0.00	-2,827.41	0.00	2,827.41	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.652
5.00	-31.20	-24.45	0.00	-2,703.68	0.00	2,703.68	4,073.39	2,036.69	8,449.37	4,230.97	0.10	-0.19	0.647
10.00	-30.00	-24.17	0.00	-2,581.41	0.00	2,581.41	4,012.85	2,006.43	8,128.58	4,070.33	0.41	-0.38	0.642
15.00	-28.82	-23.88	0.00	-2,460.58	0.00	2,460.58	3,950.68	1,975.34	7,810.43	3,911.02	0.91	-0.58	0.637
20.00	-27.66	-23.60	0.00	-2,341.16	0.00	2,341.16	3,886.87	1,943.43	7,495.19	3,753.17	1.64	-0.79	0.631
25.00	-26.53	-23.33	0.00	-2,223.14	0.00	2,223.14	3,821.43	1,910.71	7,183.08	3,596.88	2.57	-1.00	0.625
30.00	-25.41	-23.05	0.00	-2,106.51	0.00	2,106.51	3,754.35	1,877.17	6,874.35	3,442.28	3.73	-1.21	0.619
35.00	-24.32	-22.77	0.00	-1,991.25	0.00	1,991.25	3,685.64	1,842.82	6,569.23	3,289.50	5.12	-1.43	0.612
40.00	-23.25	-22.47	0.00	-1,877.42	0.00	1,877.42	3,615.29	1,807.64	6,267.96	3,138.64	6.73	-1.65	0.605
45.00	-22.21	-22.23	0.00	-1,765.05	0.00	1,765.05	3,543.30	1,771.65	5,970.78	2,989.83	8.58	-1.88	0.597
48.00	-21.60	-22.07	0.00	-1,698.37	0.00	1,698.37	3,499.33	1,749.66	5,794.53	2,901.57	9.81	-2.02	0.592
50.00	-20.94	-21.90	0.00	-1,654.23	0.00	1,654.23	3,469.68	1,734.84	5,677.92	2,843.18	10.68	-2.12	0.588
53.25	-19.90	-21.72	0.00	-1,583.05	0.00	1,583.05	2,730.90	1,365.45	4,467.29	2,236.97	12.18	-2.28	0.715
55.00	-19.55	-21.53	0.00	-1,545.03	0.00	1,545.03	2,712.29	1,356.15	4,390.67	2,198.60	13.03	-2.36	0.710
60.00	-18.66	-21.22	0.00	-1,437.40	0.00	1,437.40	2,658.02	1,329.01	4,173.50	2,089.85	15.65	-2.64	0.695
65.00	-17.80	-20.91	0.00	-1,331.31	0.00	1,331.31	2,602.11	1,301.05	3,959.12	1,982.50	18.57	-2.92	0.679
70.00	-16.95	-20.60	0.00	-1,226.77	0.00	1,226.77	2,544.56	1,272.28	3,747.77	1,876.67	21.78	-3.21	0.661
75.00	-16.12	-20.28	0.00	-1,123.79	0.00	1,123.79	2,485.39	1,242.69	3,539.70	1,772.48	25.29	-3.50	0.641
80.00	-15.31	-19.97	0.00	-1,022.39	0.00	1,022.39	2,424.57	1,212.29	3,335.13	1,670.04	29.11	-3.79	0.619
85.00	-14.52	-19.65	0.00	-922.55	0.00	922.55	2,362.12	1,181.06	3,134.31	1,569.49	33.23	-4.08	0.594
90.00	-13.76	-19.34	0.00	-824.29	0.00	824.29	2,297.27	1,148.64	2,936.51	1,470.44	37.65	-4.37	0.567
95.00	-13.03	-19.08	0.00	-727.61	0.00	727.61	2,210.70	1,105.35	2,718.30	1,361.17	42.39	-4.66	0.541
97.75	-12.63	-18.92	0.00	-675.13	0.00	675.13	2,163.09	1,081.54	2,601.88	1,302.87	45.12	-4.83	0.524
100.00	-12.19	-18.79	0.00	-632.56	0.00	632.56	2,124.13	1,062.07	2,508.52	1,256.12	47.42	-4.96	0.510
101.50	-11.88	-18.64	0.00	-604.38	0.00	604.38	1,105.19	552.59	1,317.56	659.76	48.99	-5.05	0.928
105.00	-11.52	-18.49	0.00	-539.15	0.00	539.15	1,087.53	543.77	1,259.48	630.68	52.76	-5.24	0.867
106.00	-11.20	-17.80	0.00	-520.66	0.00	520.66	1,082.34	541.17	1,242.93	622.39	53.87	-5.33	0.848
110.00	-10.74	-17.56	0.00	-449.46	0.00	449.46	1,060.92	530.46	1,177.04	589.40	58.48	-5.67	0.774
115.00	-10.20	-16.89	0.00	-361.66	0.00	361.66	1,032.68	516.34	1,095.47	548.55	64.62	-6.06	0.670
117.94	-9.92	-16.75	0.00	-312.05	0.00	312.05	1,015.32	507.66	1,048.03	524.80	68.41	-6.28	0.605
120.00	-9.70	-16.57	0.00	-277.50	0.00	277.50	1,002.79	501.40	1,014.98	508.24	71.15	-6.42	0.557
125.00	-8.29	-12.72	0.00	-193.65	0.00	193.65	971.28	485.64	935.83	468.61	78.04	-6.72	0.422
126.00	-6.56	-11.23	0.00	-180.94	0.00	180.94	964.78	482.39	920.18	460.77	79.45	-6.78	0.400
130.00	-6.27	-11.00	0.00	-136.02	0.00	136.02	938.12	469.06	858.24	429.76	85.20	-6.97	0.324
134.00	-5.95	-8.97	0.00	-86.98	0.00	86.98	910.42	455.21	797.47	399.33	91.10	-7.13	0.225
135.00	-5.89	-8.91	0.00	-78.01	0.00	78.01	903.33	451.67	782.47	391.82	92.59	-7.16	0.206
136.00	-4.62	-7.76	0.00	-69.10	0.00	69.10	896.18	448.09	767.56	384.35	94.09	-7.19	0.185
137.00	-4.48	-7.45	0.00	-61.34	0.00	61.34	888.96	444.48	752.72	376.92	95.59	-7.21	0.168
140.00	-4.32	-7.31	0.00	-38.99	0.00	38.99	866.91	433.46	708.75	354.90	100.14	-7.28	0.115
142.00	-2.67	-5.15	0.00	-24.36	0.00	24.36	851.88	425.94	679.88	340.45	103.19	-7.31	0.075
143.00	-1.84	-2.71	0.00	-18.72	0.00	18.72	844.27	422.14	665.60	333.29	104.71	-7.32	0.058
145.00	-1.78	-2.56	0.00	-13.31	0.00	13.31	828.85	414.43	637.31	319.13	107.78	-7.34	0.044
149.00	0.00	-2.31	0.00	-3.06	0.00	3.06	787.55	393.77	574.90	287.88	113.92	-7.36	0.011

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:34 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 27 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		63.8	0.0					0.0	0.0	63.8	0.0	0.0	0.0
5.00		126.6	1,617.9					0.0	63.0	126.6	1,680.9	0.0	0.0
10.00		124.3	1,624.7					0.0	319.2	124.3	1,944.0	0.0	0.0
15.00		121.7	1,608.4					0.0	321.5	121.7	1,929.9	0.0	0.0
20.00		119.1	1,584.4					0.0	323.1	119.1	1,907.6	0.0	0.0
25.00		116.5	1,556.5					0.0	324.4	116.5	1,880.9	0.0	0.0
30.00		115.2	1,526.1					0.0	325.5	115.2	1,851.6	0.0	0.0
35.00		116.2	1,494.0					0.0	326.4	116.2	1,820.3	0.0	0.0
40.00		117.8	1,460.6					0.0	327.1	117.8	1,787.7	0.0	0.0
45.00		94.9	1,426.2					0.0	327.8	94.9	1,754.0	0.0	0.0
48.00	Bot - Section 2	59.9	840.2					0.0	197.0	59.9	1,037.2	0.0	0.0
50.00		63.6	886.5					0.0	131.5	63.6	1,017.9	0.0	0.0
53.25	Top - Section 1	60.6	1,419.2					0.0	213.8	60.6	1,633.1	0.0	0.0
55.00		81.7	423.3					0.0	115.2	81.7	538.6	0.0	0.0
60.00		120.8	1,184.4					0.0	329.6	120.8	1,514.0	0.0	0.0
65.00		120.2	1,152.3					0.0	330.1	120.2	1,482.4	0.0	0.0
70.00		119.3	1,119.8					0.0	330.6	119.3	1,450.3	0.0	0.0
75.00		118.1	1,086.9					0.0	331.0	118.1	1,417.9	0.0	0.0
80.00		116.7	1,053.7					0.0	331.4	116.7	1,385.1	0.0	0.0
85.00		115.0	1,020.2					0.0	331.8	115.0	1,352.0	0.0	0.0
90.00		113.1	986.4					0.0	332.2	113.1	1,318.5	0.0	0.0
95.00		86.5	952.4					0.0	332.5	86.5	1,284.9	0.0	0.0
97.75	Bot - Section 3	55.3	510.7					0.0	183.0	55.3	693.8	0.0	0.0
100.00		41.4	574.0					0.0	149.8	41.4	723.8	0.0	0.0
101.50	Top - Section 2	54.5	377.4					0.0	99.9	54.5	477.4	0.0	0.0
105.00		48.7	464.1					0.0	233.3	48.7	697.4	0.0	0.0
106.00	Appurtenance(s)	53.2	131.0	120.9	0.0	0.0	840.3	0.0	66.7	174.1	1,037.9	0.0	0.0
110.00		94.4	510.8					0.0	266.7	94.4	777.5	0.0	0.0
115.00	Appurtenance(s)	81.8	614.5	104.7	0.0	0.0	444.9	0.0	333.6	186.5	1,393.0	0.0	0.0
117.94		50.5	350.7					0.0	178.8	50.5	529.5	0.0	0.0
120.00		69.7	241.4					0.0	125.6	69.7	367.0	0.0	0.0
125.00	Appurtenance(s)	58.7	563.5	736.3	0.0	211.6	6,838.5	0.0	304.6	795.0	7,706.6	0.0	0.0
126.00	Appurtenance(s)	47.5	110.6	361.9	0.0	0.0	5,675.5	0.0	48.7	409.5	5,834.8	0.0	0.0
130.00		74.8	429.1					0.0	195.0	74.8	624.1	0.0	0.0
134.00	Appurtenance(s)	46.0	412.6	412.0	0.0	1,100.6	2,322.9	0.0	195.2	458.0	2,930.6	0.0	0.0
135.00		18.1	101.3					0.0	35.1	18.1	136.4	0.0	0.0
136.00	Appurtenance(s)	17.9	100.3	294.0	0.0	0.0	3,942.7	0.0	35.1	311.9	4,078.0	0.0	0.0
137.00	Appurtenance(s)	35.3	99.2	46.5	0.0	0.0	470.9	0.0	35.1	81.8	605.2	0.0	0.0
140.00		43.6	289.9					0.0	105.3	43.6	395.2	0.0	0.0
142.00	Appurtenance(s)	25.8	188.5	462.3	0.0	0.0	5,815.3	0.0	70.3	488.1	6,074.1	0.0	0.0
143.00	Appurtenance(s)	25.4	93.0	474.0	0.0	110.8	4,902.7	0.0	35.2	499.3	5,030.8	0.0	0.0
145.00		49.6	182.3					0.0	12.6	49.6	194.8	0.0	0.0
149.00	Appurtenance(s)	32.8	349.9	560.9	0.0	710.9	7,281.7	0.0	25.1	593.7	7,656.6	0.0	0.0
								Totals:		6,889.92	79,953.1	0.00	0.00

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:40 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 27 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-79.95	-6.87	0.00	-836.34	0.00	836.34	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.210
5.00	-78.26	-6.82	0.00	-802.01	0.00	802.01	4,073.39	2,036.69	8,449.37	4,230.97	0.03	-0.06	0.209
10.00	-76.31	-6.77	0.00	-767.93	0.00	767.93	4,012.85	2,006.43	8,128.58	4,070.33	0.12	-0.11	0.208
15.00	-74.37	-6.72	0.00	-734.10	0.00	734.10	3,950.68	1,975.34	7,810.43	3,911.02	0.27	-0.17	0.207
20.00	-72.46	-6.67	0.00	-700.51	0.00	700.51	3,886.87	1,943.43	7,495.19	3,753.17	0.49	-0.23	0.205
25.00	-70.57	-6.62	0.00	-667.15	0.00	667.15	3,821.43	1,910.71	7,183.08	3,596.88	0.76	-0.30	0.204
30.00	-68.71	-6.58	0.00	-634.03	0.00	634.03	3,754.35	1,877.17	6,874.35	3,442.28	1.11	-0.36	0.203
35.00	-66.89	-6.53	0.00	-601.16	0.00	601.16	3,685.64	1,842.82	6,569.23	3,289.50	1.52	-0.43	0.201
40.00	-65.09	-6.47	0.00	-568.53	0.00	568.53	3,615.29	1,807.64	6,267.96	3,138.64	2.01	-0.49	0.199
45.00	-63.33	-6.42	0.00	-536.18	0.00	536.18	3,543.30	1,771.65	5,970.78	2,989.83	2.56	-0.56	0.197
48.00	-62.29	-6.39	0.00	-516.91	0.00	516.91	3,499.33	1,749.66	5,794.53	2,901.57	2.93	-0.61	0.196
50.00	-61.27	-6.36	0.00	-504.13	0.00	504.13	3,469.68	1,734.84	5,677.92	2,843.18	3.19	-0.64	0.195
53.25	-59.64	-6.32	0.00	-483.47	0.00	483.47	2,730.90	1,365.45	4,467.29	2,236.97	3.64	-0.68	0.238
55.00	-59.09	-6.29	0.00	-472.41	0.00	472.41	2,712.29	1,356.15	4,390.67	2,198.60	3.90	-0.71	0.237
60.00	-57.57	-6.23	0.00	-440.98	0.00	440.98	2,658.02	1,329.01	4,173.50	2,089.85	4.69	-0.80	0.233
65.00	-56.08	-6.18	0.00	-409.83	0.00	409.83	2,602.11	1,301.05	3,959.12	1,982.50	5.57	-0.88	0.228
70.00	-54.62	-6.12	0.00	-378.95	0.00	378.95	2,544.56	1,272.28	3,747.77	1,876.67	6.54	-0.97	0.223
75.00	-53.20	-6.06	0.00	-348.37	0.00	348.37	2,485.39	1,242.69	3,539.70	1,772.48	7.60	-1.06	0.218
80.00	-51.81	-6.00	0.00	-318.08	0.00	318.08	2,424.57	1,212.29	3,335.13	1,670.04	8.76	-1.15	0.212
85.00	-50.45	-5.93	0.00	-288.10	0.00	288.10	2,362.12	1,181.06	3,134.31	1,569.49	10.01	-1.24	0.205
90.00	-49.12	-5.87	0.00	-258.43	0.00	258.43	2,297.27	1,148.64	2,936.51	1,470.44	11.36	-1.33	0.197
95.00	-47.83	-5.81	0.00	-229.08	0.00	229.08	2,210.70	1,105.35	2,718.30	1,361.17	12.81	-1.42	0.190
97.75	-47.14	-5.78	0.00	-213.10	0.00	213.10	2,163.09	1,081.54	2,601.88	1,302.87	13.64	-1.48	0.185
100.00	-46.41	-5.74	0.00	-200.11	0.00	200.11	2,124.13	1,062.07	2,508.52	1,256.12	14.35	-1.52	0.181
101.50	-45.93	-5.71	0.00	-191.49	0.00	191.49	1,105.19	552.59	1,317.56	659.76	14.83	-1.55	0.332
105.00	-45.23	-5.68	0.00	-171.49	0.00	171.49	1,087.53	543.77	1,259.48	630.68	15.99	-1.61	0.314
106.00	-44.19	-5.53	0.00	-165.81	0.00	165.81	1,082.34	541.17	1,242.93	622.39	16.33	-1.64	0.307
110.00	-43.40	-5.50	0.00	-143.69	0.00	143.69	1,060.92	530.46	1,177.04	589.40	17.74	-1.74	0.285
115.00	-42.01	-5.34	0.00	-116.17	0.00	116.17	1,032.68	516.34	1,095.47	548.55	19.64	-1.87	0.253
117.94	-41.48	-5.32	0.00	-100.48	0.00	100.48	1,015.32	507.66	1,048.03	524.80	20.81	-1.94	0.232
120.00	-41.11	-5.29	0.00	-89.51	0.00	89.51	1,002.79	501.40	1,014.98	508.24	21.66	-1.99	0.217
125.00	-33.43	-4.25	0.00	-62.86	0.00	62.86	971.28	485.64	935.83	468.61	23.79	-2.08	0.169
126.00	-27.61	-3.65	0.00	-58.60	0.00	58.60	964.78	482.39	920.18	460.77	24.23	-2.10	0.156
130.00	-26.98	-3.58	0.00	-44.01	0.00	44.01	938.12	469.06	858.24	429.76	26.02	-2.16	0.131
134.00	-24.07	-3.02	0.00	-28.60	0.00	28.60	910.42	455.21	797.47	399.33	27.85	-2.21	0.098
135.00	-23.94	-3.00	0.00	-25.58	0.00	25.58	903.33	451.67	782.47	391.82	28.32	-2.22	0.092
136.00	-19.87	-2.53	0.00	-22.58	0.00	22.58	896.18	448.09	767.56	384.35	28.79	-2.23	0.081
137.00	-19.27	-2.43	0.00	-20.04	0.00	20.04	888.96	444.48	752.72	376.92	29.25	-2.24	0.075
140.00	-18.88	-2.38	0.00	-12.74	0.00	12.74	866.91	433.46	708.75	354.90	30.67	-2.26	0.058
142.00	-12.83	-1.65	0.00	-7.98	0.00	7.98	851.88	425.94	679.88	340.45	31.62	-2.27	0.039
143.00	-7.82	-0.96	0.00	-6.22	0.00	6.22	844.27	422.14	665.60	333.29	32.10	-2.28	0.028
145.00	-7.63	-0.90	0.00	-4.31	0.00	4.31	828.85	414.43	637.31	319.13	33.05	-2.28	0.023
149.00	0.00	-0.59	0.00	-0.71	0.00	0.71	787.55	393.77	574.90	287.88	34.97	-2.29	0.002

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:40 PM

Customer: CLEARWIRE

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		47.7	0.0					0.0	0.0	47.7	0.0	0.0	0.0
5.00		94.2	1,033.7					0.0	47.1	94.2	1,080.8	0.0	0.0
10.00		92.1	1,009.9					0.0	235.7	92.1	1,245.6	0.0	0.0
15.00		89.9	986.1					0.0	235.7	89.9	1,221.8	0.0	0.0
20.00		87.7	962.3					0.0	235.7	87.7	1,198.0	0.0	0.0
25.00		85.5	938.5					0.0	235.7	85.5	1,174.2	0.0	0.0
30.00		84.3	914.8					0.0	235.7	84.3	1,150.4	0.0	0.0
35.00		84.8	891.0					0.0	235.7	84.8	1,126.6	0.0	0.0
40.00		85.8	867.2					0.0	235.7	85.8	1,102.8	0.0	0.0
45.00		69.0	843.4					0.0	235.7	69.0	1,079.0	0.0	0.0
48.00	Bot - Section 2	43.5	494.6					0.0	141.4	43.5	636.0	0.0	0.0
50.00		46.1	600.4					0.0	94.3	46.1	694.7	0.0	0.0
53.25	Top - Section 1	43.9	960.8					0.0	153.2	43.9	1,114.0	0.0	0.0
55.00		59.1	233.9					0.0	82.5	59.1	316.4	0.0	0.0
60.00		87.1	654.9					0.0	235.7	87.1	890.6	0.0	0.0
65.00		86.4	635.1					0.0	235.7	86.4	870.8	0.0	0.0
70.00		85.5	615.3					0.0	235.7	85.5	850.9	0.0	0.0
75.00		84.4	595.5					0.0	235.7	84.4	831.1	0.0	0.0
80.00		83.1	575.6					0.0	235.7	83.1	811.3	0.0	0.0
85.00		81.6	555.8					0.0	235.7	81.6	791.5	0.0	0.0
90.00		80.0	536.0					0.0	235.7	80.0	771.6	0.0	0.0
95.00		60.9	516.2					0.0	235.7	60.9	751.8	0.0	0.0
97.75	Bot - Section 3	38.8	275.4					0.0	129.6	38.8	405.1	0.0	0.0
100.00		29.0	355.7					0.0	106.0	29.0	461.8	0.0	0.0
101.50	Top - Section 2	38.1	233.6					0.0	70.7	38.1	304.3	0.0	0.0
105.00		34.1	202.4					0.0	165.0	34.1	367.4	0.0	0.0
106.00	Appurtenance(s)	37.1	56.8	132.8	0.0	0.0	256.0	0.0	47.1	169.8	359.9	0.0	0.0
110.00		65.5	222.3					0.0	188.4	65.5	410.7	0.0	0.0
115.00	Appurtenance(s)	56.6	267.2	104.3	0.0	0.0	79.2	0.0	235.5	160.8	581.9	0.0	0.0
117.94		34.8	151.4					0.0	123.9	34.8	275.3	0.0	0.0
120.00		47.8	103.9					0.0	87.0	47.8	190.9	0.0	0.0
125.00	Appurtenance(s)	40.2	243.4	843.8	0.0	236.1	1,557.0	0.0	210.9	884.0	2,011.3	0.0	0.0
126.00	Appurtenance(s)	32.3	47.3	276.5	0.0	0.0	2,000.0	0.0	32.0	308.9	2,079.2	0.0	0.0
130.00		50.7	184.2					0.0	127.9	50.7	312.2	0.0	0.0
134.00	Appurtenance(s)	31.0	176.6	444.9	0.0	1,202.2	315.5	0.0	127.9	476.0	620.1	0.0	0.0
135.00		12.1	43.0					0.0	20.5	12.1	63.5	0.0	0.0
136.00	Appurtenance(s)	12.0	42.5	225.5	0.0	0.0	1,500.0	0.0	20.5	237.5	1,563.0	0.0	0.0
137.00	Appurtenance(s)	23.6	42.0	45.2	0.0	0.0	132.0	0.0	20.5	68.8	194.5	0.0	0.0
140.00		29.1	123.2					0.0	61.6	29.1	184.8	0.0	0.0
142.00	Appurtenance(s)	17.1	79.8	446.1	0.0	0.0	2,000.0	0.0	41.1	463.2	2,120.8	0.0	0.0
143.00	Appurtenance(s)	16.8	39.2	537.9	0.0	116.5	1,199.7	0.0	20.5	554.7	1,259.4	0.0	0.0
145.00		32.7	76.9					0.0	10.5	32.7	87.4	0.0	0.0
149.00	Appurtenance(s)	21.6	148.1	531.4	0.0	732.6	2,157.0	0.0	20.9	553.0	2,326.0	0.0	0.0
								Totals:		5,952.19	35,889.4	0.00	0.00

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA714853_C3_08 3/20/2019 5:12:46 PM

Customer: CLEARWIRE

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.89	-5.92	0.00	-680.91	0.00	680.91	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.164
5.00	-34.80	-5.85	0.00	-651.32	0.00	651.32	4,073.39	2,036.69	8,449.37	4,230.97	0.02	-0.05	0.162
10.00	-33.55	-5.79	0.00	-622.06	0.00	622.06	4,012.85	2,006.43	8,128.58	4,070.33	0.10	-0.09	0.161
15.00	-32.32	-5.72	0.00	-593.13	0.00	593.13	3,950.68	1,975.34	7,810.43	3,911.02	0.22	-0.14	0.160
20.00	-31.12	-5.66	0.00	-564.53	0.00	564.53	3,886.87	1,943.43	7,495.19	3,753.17	0.39	-0.19	0.158
25.00	-29.94	-5.59	0.00	-536.25	0.00	536.25	3,821.43	1,910.71	7,183.08	3,596.88	0.62	-0.24	0.157
30.00	-28.79	-5.53	0.00	-508.28	0.00	508.28	3,754.35	1,877.17	6,874.35	3,442.28	0.90	-0.29	0.155
35.00	-27.66	-5.46	0.00	-480.63	0.00	480.63	3,685.64	1,842.82	6,569.23	3,289.50	1.23	-0.34	0.154
40.00	-26.55	-5.40	0.00	-453.31	0.00	453.31	3,615.29	1,807.64	6,267.96	3,138.64	1.62	-0.40	0.152
45.00	-25.47	-5.34	0.00	-426.33	0.00	426.33	3,543.30	1,771.65	5,970.78	2,989.83	2.07	-0.45	0.150
48.00	-24.83	-5.30	0.00	-410.31	0.00	410.31	3,499.33	1,749.66	5,794.53	2,901.57	2.37	-0.49	0.149
50.00	-24.13	-5.26	0.00	-399.70	0.00	399.70	3,469.68	1,734.84	5,677.92	2,843.18	2.58	-0.51	0.148
53.25	-23.02	-5.22	0.00	-382.60	0.00	382.60	2,730.90	1,365.45	4,467.29	2,236.97	2.94	-0.55	0.179
55.00	-22.70	-5.18	0.00	-373.46	0.00	373.46	2,712.29	1,356.15	4,390.67	2,198.60	3.14	-0.57	0.178
60.00	-21.80	-5.11	0.00	-347.57	0.00	347.57	2,658.02	1,329.01	4,173.50	2,089.85	3.78	-0.64	0.175
65.00	-20.92	-5.03	0.00	-322.04	0.00	322.04	2,602.11	1,301.05	3,959.12	1,982.50	4.48	-0.71	0.170
70.00	-20.07	-4.96	0.00	-296.87	0.00	296.87	2,544.56	1,272.28	3,747.77	1,876.67	5.25	-0.77	0.166
75.00	-19.23	-4.89	0.00	-272.06	0.00	272.06	2,485.39	1,242.69	3,539.70	1,772.48	6.10	-0.84	0.161
80.00	-18.42	-4.82	0.00	-247.61	0.00	247.61	2,424.57	1,212.29	3,335.13	1,670.04	7.02	-0.91	0.156
85.00	-17.62	-4.74	0.00	-223.52	0.00	223.52	2,362.12	1,181.06	3,134.31	1,569.49	8.02	-0.99	0.150
90.00	-16.85	-4.67	0.00	-199.80	0.00	199.80	2,297.27	1,148.64	2,936.51	1,470.44	9.09	-1.06	0.143
95.00	-16.09	-4.61	0.00	-176.44	0.00	176.44	2,210.70	1,105.35	2,718.30	1,361.17	10.24	-1.13	0.137
97.75	-15.68	-4.57	0.00	-163.76	0.00	163.76	2,163.09	1,081.54	2,601.88	1,302.87	10.90	-1.17	0.133
100.00	-15.22	-4.54	0.00	-153.46	0.00	153.46	2,124.13	1,062.07	2,508.52	1,256.12	11.45	-1.20	0.129
101.50	-14.91	-4.51	0.00	-146.65	0.00	146.65	1,105.19	552.59	1,317.56	659.76	11.84	-1.22	0.236
105.00	-14.54	-4.47	0.00	-130.87	0.00	130.87	1,087.53	543.77	1,259.48	630.68	12.75	-1.27	0.221
106.00	-14.18	-4.31	0.00	-126.40	0.00	126.40	1,082.34	541.17	1,242.93	622.39	13.02	-1.29	0.216
110.00	-13.77	-4.26	0.00	-109.16	0.00	109.16	1,060.92	530.46	1,177.04	589.40	14.13	-1.37	0.198
115.00	-13.19	-4.10	0.00	-87.88	0.00	87.88	1,032.68	516.34	1,095.47	548.55	15.62	-1.47	0.173
117.94	-12.91	-4.07	0.00	-75.84	0.00	75.84	1,015.32	507.66	1,048.03	524.80	16.54	-1.52	0.157
120.00	-12.72	-4.03	0.00	-67.46	0.00	67.46	1,002.79	501.40	1,014.98	508.24	17.20	-1.55	0.145
125.00	-10.73	-3.09	0.00	-47.10	0.00	47.10	971.28	485.64	935.83	468.61	18.87	-1.63	0.112
126.00	-8.66	-2.73	0.00	-44.00	0.00	44.00	964.78	482.39	920.18	460.77	19.22	-1.64	0.105
130.00	-8.34	-2.68	0.00	-33.08	0.00	33.08	938.12	469.06	858.24	429.76	20.61	-1.69	0.086
134.00	-7.74	-2.19	0.00	-21.17	0.00	21.17	910.42	455.21	797.47	399.33	22.04	-1.73	0.062
135.00	-7.67	-2.17	0.00	-18.99	0.00	18.99	903.33	451.67	782.47	391.82	22.40	-1.73	0.057
136.00	-6.12	-1.89	0.00	-16.82	0.00	16.82	896.18	448.09	767.56	384.35	22.77	-1.74	0.051
137.00	-5.93	-1.81	0.00	-14.93	0.00	14.93	888.96	444.48	752.72	376.92	23.13	-1.75	0.046
140.00	-5.74	-1.78	0.00	-9.48	0.00	9.48	866.91	433.46	708.75	354.90	24.24	-1.76	0.033
142.00	-3.64	-1.25	0.00	-5.92	0.00	5.92	851.88	425.94	679.88	340.45	24.98	-1.77	0.022
143.00	-2.39	-0.66	0.00	-4.55	0.00	4.55	844.27	422.14	665.60	333.29	25.35	-1.77	0.016
145.00	-2.31	-0.62	0.00	-3.23	0.00	3.23	828.85	414.43	637.31	319.13	26.09	-1.78	0.013
149.00	0.00	-0.55	0.00	-0.73	0.00	0.73	787.55	393.77	574.90	287.88	27.58	-1.78	0.003

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.19	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.74	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	35.89	k
Seismic Base Shear (E):	1.08	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
42	147.00	169	3,652	0.011	12	210
41	144.00	87	1,811	0.006	6	108
40	142.50	60	1,212	0.004	4	74
39	141.00	121	2,402	0.007	8	150
38	138.50	185	3,545	0.011	12	229
37	136.50	63	1,165	0.004	4	78
36	135.50	63	1,157	0.004	4	78
35	134.50	63	1,149	0.004	4	79
34	132.00	305	5,307	0.016	17	378
33	128.00	312	5,115	0.016	17	387
32	125.50	79	1,248	0.004	4	98
31	122.50	454	6,817	0.021	22	563
30	118.97	191	2,701	0.008	9	237
29	116.47	275	3,735	0.011	12	341
28	112.50	503	6,362	0.019	21	623
27	108.00	411	4,791	0.015	16	509
26	105.50	104	1,156	0.004	4	129
25	103.25	367	3,917	0.012	13	456
24	100.75	304	3,089	0.009	10	377
23	98.88	462	4,514	0.014	15	573
22	96.38	405	3,762	0.011	12	502
21	92.50	752	6,433	0.020	21	932
20	87.50	772	5,908	0.018	19	957

19	82.50	791	5,387	0.016	18	982
18	77.50	811	4,873	0.015	16	1,006
17	72.50	831	4,369	0.013	14	1,031
16	67.50	851	3,877	0.012	13	1,055
15	62.50	871	3,401	0.010	11	1,080
14	57.50	891	2,945	0.009	10	1,104
13	54.13	316	927	0.003	3	392
12	51.63	1,114	2,969	0.009	10	1,381
11	49.00	695	1,668	0.005	5	862
10	46.50	636	1,375	0.004	5	789
9	42.50	1,079	1,949	0.006	6	1,338
8	37.50	1,103	1,551	0.005	5	1,368
7	32.50	1,127	1,190	0.004	4	1,397
6	27.50	1,150	870	0.003	3	1,427
5	22.50	1,174	594	0.002	2	1,456
4	17.50	1,198	367	0.001	1	1,486
3	12.50	1,222	191	0.001	1	1,515
2	7.50	1,246	70	0.000	0	1,545
1	2.50	1,081	7	0.000	0	1,340
DragonWave Horizon C	149.00	32	706	0.002	2	39
DragonWave A-ANT-23G	149.00	15	333	0.001	1	19
Alcatel-Lucent RRH2x	149.00	317	7,047	0.021	23	394
Alcatel-Lucent 1900	149.00	180	3,996	0.012	13	223
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.021	23	385
DragonWave A-ANT-11G	149.00	54	1,199	0.004	4	67
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.009	10	171
SitePro1 RMV5-296	149.00	1,110	24,643	0.075	81	1,377
Ericsson KRY 112 144	143.00	29	595	0.002	2	36
Ericsson KRY 112 489	143.00	46	945	0.003	3	57
Ericsson Radio 4449	143.00	222	4,540	0.014	15	275
Ericsson AIR-32 B2A/	143.00	397	8,110	0.025	27	492
RFS APX16DWV-16DWVS-	143.00	122	2,497	0.008	8	151
RFS APXVAARR24_43-U-	143.00	384	7,846	0.024	26	476
Flat Platform w/ Han	142.00	2,000	40,328	0.123	132	2,480
Alcatel-Lucent RRH2x	137.00	132	2,478	0.008	8	164
Round Low Profile Pl	136.00	1,500	27,744	0.085	91	1,860
RFS FD9R6004/2C-3L	134.00	16	280	0.001	1	19
Amphenol Antel BXA-1	134.00	45	808	0.002	3	56
Antel BXA-185085/12C	134.00	39	700	0.002	2	48
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	3	55
Andrew DB854DG65ESX	134.00	56	997	0.003	3	69
Commscope LNX-6514DS	134.00	116	2,090	0.006	7	144
Round Platform w/ Ha	126.00	2,000	31,752	0.097	104	2,480
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	41
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	41
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	41
Ericsson Radio 4415	125.00	129	2,016	0.006	7	160
Ericsson 8843 Rev 2	125.00	225	3,516	0.011	12	279
Ericsson RRUS 4449 B	125.00	213	3,328	0.010	11	264
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.010	10	253
Kathrein Scala 80010	125.00	688	10,744	0.033	35	853
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	98
Proxim 5054-R-LR	106.00	6	67	0.000	0	7
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	124
Flat Side Arm	106.00	150	1,685	0.005	6	186
		35,889	328,166	1.000	1,077	44,507

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
42	147.00	169	3,652	0.011	12	145
41	144.00	87	1,811	0.006	6	75
40	142.50	60	1,212	0.004	4	51
39	141.00	121	2,402	0.007	8	104
38	138.50	185	3,545	0.011	12	159
37	136.50	63	1,165	0.004	4	54
36	135.50	63	1,157	0.004	4	54
35	134.50	63	1,149	0.004	4	55
34	132.00	305	5,307	0.016	17	262
33	128.00	312	5,115	0.016	17	268
32	125.50	79	1,248	0.004	4	68
31	122.50	454	6,817	0.021	22	391
30	118.97	191	2,701	0.008	9	164
29	116.47	275	3,735	0.011	12	237
28	112.50	503	6,362	0.019	21	432
27	108.00	411	4,791	0.015	16	353
26	105.50	104	1,156	0.004	4	89
25	103.25	367	3,917	0.012	13	316
24	100.75	304	3,089	0.009	10	262
23	98.88	462	4,514	0.014	15	397
22	96.38	405	3,762	0.011	12	348
21	92.50	752	6,433	0.020	21	646
20	87.50	772	5,908	0.018	19	664
19	82.50	791	5,387	0.016	18	681
18	77.50	811	4,873	0.015	16	698
17	72.50	831	4,369	0.013	14	715
16	67.50	851	3,877	0.012	13	732
15	62.50	871	3,401	0.010	11	749
14	57.50	891	2,945	0.009	10	766
13	54.13	316	927	0.003	3	272
12	51.63	1,114	2,969	0.009	10	958
11	49.00	695	1,668	0.005	5	597
10	46.50	636	1,375	0.004	5	547
9	42.50	1,079	1,949	0.006	6	928
8	37.50	1,103	1,551	0.005	5	948
7	32.50	1,127	1,190	0.004	4	969
6	27.50	1,150	870	0.003	3	989
5	22.50	1,174	594	0.002	2	1,010
4	17.50	1,198	367	0.001	1	1,030
3	12.50	1,222	191	0.001	1	1,051
2	7.50	1,246	70	0.000	0	1,071
1	2.50	1,081	7	0.000	0	929
DragonWave Horizon C	149.00	32	706	0.002	2	27
DragonWave A-ANT-23G	149.00	15	333	0.001	1	13
Alcatel-Lucent RRH2x	149.00	317	7,047	0.021	23	273
Alcatel-Lucent 1900	149.00	180	3,996	0.012	13	155
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.021	23	267
DragonWave A-ANT-11G	149.00	54	1,199	0.004	4	46
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.009	10	119
SitePro1 RMV5-296	149.00	1,110	24,643	0.075	81	954
Ericsson KRY 112 144	143.00	29	595	0.002	2	25
Ericsson KRY 112 489	143.00	46	945	0.003	3	40
Ericsson Radio 4449	143.00	222	4,540	0.014	15	191
Ericsson AIR-32 B2A/	143.00	397	8,110	0.025	27	341
RFS APX16DWV-16DWVS-	143.00	122	2,497	0.008	8	105
RFS APXVAARR24_43-U-	143.00	384	7,846	0.024	26	330
Flat Platform w/ Han	142.00	2,000	40,328	0.123	132	1,720

Alcatel-Lucent RRH2x	137.00	132	2,478	0.008	8	114
Round Low Profile Pl	136.00	1,500	27,744	0.085	91	1,290
RFS FD9R6004/2C-3L	134.00	16	280	0.001	1	13
Amphenol Antel BXA-1	134.00	45	808	0.002	3	39
Antel BXA-185085/12C	134.00	39	700	0.002	2	34
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	3	38
Andrew DB854DG65ESX	134.00	56	997	0.003	3	48
Commscope LNX-6514DS	134.00	116	2,090	0.006	7	100
Round Platform w/ Ha	126.00	2,000	31,752	0.097	104	1,720
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	28
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	28
Raycap DC6-48-60-0-8	125.00	33	513	0.002	2	28
Ericsson Radio 4415	125.00	129	2,016	0.006	7	111
Ericsson 8843 Rev 2	125.00	225	3,516	0.011	12	193
Ericsson RRUS 4449 B	125.00	213	3,328	0.010	11	183
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.010	10	175
Kathrein Scala 80010	125.00	688	10,744	0.033	35	591
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	68
Proxim 5054-R-LR	106.00	6	67	0.000	0	5
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	86
Flat Side Arm	106.00	150	1,685	0.005	6	129
		35,889	328,166	1.000	1,077	30,861

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.17	-1.08	0.00	-140.28	0.00	140.28	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.042
5.00	-41.62	-1.09	0.00	-134.88	0.00	134.88	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.01	0.042
10.00	-40.11	-1.09	0.00	-129.45	0.00	129.45	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.042
15.00	-38.62	-1.10	0.00	-123.99	0.00	123.99	3,950.68	1,975.34	7,810.43	3,911.02	0.05	-0.03	0.041
20.00	-37.16	-1.10	0.00	-118.51	0.00	118.51	3,886.87	1,943.43	7,495.19	3,753.17	0.08	-0.04	0.041
25.00	-35.74	-1.10	0.00	-113.00	0.00	113.00	3,821.43	1,910.71	7,183.08	3,596.88	0.13	-0.05	0.041
30.00	-34.34	-1.11	0.00	-107.49	0.00	107.49	3,754.35	1,877.17	6,874.35	3,442.28	0.19	-0.06	0.040
35.00	-32.97	-1.10	0.00	-101.96	0.00	101.96	3,685.64	1,842.82	6,569.23	3,289.50	0.26	-0.07	0.040
40.00	-31.63	-1.10	0.00	-96.44	0.00	96.44	3,615.29	1,807.64	6,267.96	3,138.64	0.34	-0.08	0.039
45.00	-30.84	-1.10	0.00	-90.92	0.00	90.92	3,543.30	1,771.65	5,970.78	2,989.83	0.43	-0.10	0.039
48.00	-29.98	-1.10	0.00	-87.61	0.00	87.61	3,499.33	1,749.66	5,794.53	2,901.57	0.49	-0.10	0.039
50.00	-28.60	-1.09	0.00	-85.42	0.00	85.42	3,469.68	1,734.84	5,677.92	2,843.18	0.54	-0.11	0.038
53.25	-28.21	-1.09	0.00	-81.88	0.00	81.88	2,730.90	1,365.45	4,467.29	2,236.97	0.61	-0.12	0.047
55.00	-27.10	-1.08	0.00	-79.97	0.00	79.97	2,712.29	1,356.15	4,390.67	2,198.60	0.66	-0.12	0.046
60.00	-26.02	-1.07	0.00	-74.56	0.00	74.56	2,658.02	1,329.01	4,173.50	2,089.85	0.79	-0.13	0.045
65.00	-24.97	-1.07	0.00	-69.19	0.00	69.19	2,602.11	1,301.05	3,959.12	1,982.50	0.94	-0.15	0.044
70.00	-23.94	-1.05	0.00	-63.86	0.00	63.86	2,544.56	1,272.28	3,747.77	1,876.67	1.10	-0.16	0.043
75.00	-22.93	-1.04	0.00	-58.59	0.00	58.59	2,485.39	1,242.69	3,539.70	1,772.48	1.28	-0.18	0.042
80.00	-21.95	-1.03	0.00	-53.38	0.00	53.38	2,424.57	1,212.29	3,335.13	1,670.04	1.48	-0.19	0.041
85.00	-20.99	-1.01	0.00	-48.24	0.00	48.24	2,362.12	1,181.06	3,134.31	1,569.49	1.69	-0.21	0.040
90.00	-20.06	-0.99	0.00	-43.20	0.00	43.20	2,297.27	1,148.64	2,936.51	1,470.44	1.92	-0.22	0.038
95.00	-19.56	-0.98	0.00	-38.24	0.00	38.24	2,210.70	1,105.35	2,718.30	1,361.17	2.16	-0.24	0.037
97.75	-18.99	-0.97	0.00	-35.55	0.00	35.55	2,163.09	1,081.54	2,601.88	1,302.87	2.31	-0.25	0.036
100.00	-18.61	-0.96	0.00	-33.38	0.00	33.38	2,124.13	1,062.07	2,508.52	1,256.12	2.42	-0.26	0.035
101.50	-18.15	-0.94	0.00	-31.94	0.00	31.94	1,105.19	552.59	1,317.56	659.76	2.51	-0.26	0.065
105.00	-18.02	-0.94	0.00	-28.64	0.00	28.64	1,087.53	543.77	1,259.48	630.68	2.70	-0.27	0.062
106.00	-17.20	-0.92	0.00	-27.70	0.00	27.70	1,082.34	541.17	1,242.93	622.39	2.76	-0.28	0.060
110.00	-16.57	-0.90	0.00	-24.04	0.00	24.04	1,060.92	530.46	1,177.04	589.40	3.00	-0.29	0.056
115.00	-16.13	-0.88	0.00	-19.55	0.00	19.55	1,032.68	516.34	1,095.47	548.55	3.31	-0.31	0.051
117.94	-15.90	-0.88	0.00	-16.96	0.00	16.96	1,015.32	507.66	1,048.03	524.80	3.51	-0.33	0.048
120.00	-15.33	-0.85	0.00	-15.15	0.00	15.15	1,002.79	501.40	1,014.98	508.24	3.66	-0.33	0.045
125.00	-13.30	-0.76	0.00	-10.88	0.00	10.88	971.28	485.64	935.83	468.61	4.01	-0.35	0.037
126.00	-10.44	-0.62	0.00	-10.12	0.00	10.12	964.78	482.39	920.18	460.77	4.09	-0.35	0.033
130.00	-10.06	-0.60	0.00	-7.63	0.00	7.63	938.12	469.06	858.24	429.76	4.39	-0.36	0.028
134.00	-9.59	-0.58	0.00	-5.21	0.00	5.21	910.42	455.21	797.47	399.33	4.70	-0.37	0.024
135.00	-9.51	-0.58	0.00	-4.63	0.00	4.63	903.33	451.67	782.47	391.82	4.78	-0.38	0.022
136.00	-7.57	-0.47	0.00	-4.05	0.00	4.05	896.18	448.09	767.56	384.35	4.86	-0.38	0.019
137.00	-7.18	-0.45	0.00	-3.58	0.00	3.58	888.96	444.48	752.72	376.92	4.94	-0.38	0.018
140.00	-7.03	-0.44	0.00	-2.24	0.00	2.24	866.91	433.46	708.75	354.90	5.17	-0.38	0.014
142.00	-4.48	-0.29	0.00	-1.36	0.00	1.36	851.88	425.94	679.88	340.45	5.34	-0.38	0.009
143.00	-2.88	-0.19	0.00	-1.08	0.00	1.08	844.27	422.14	665.60	333.29	5.42	-0.38	0.007
145.00	-2.67	-0.18	0.00	-0.70	0.00	0.70	828.85	414.43	637.31	319.13	5.58	-0.39	0.005
149.00	0.00	-0.16	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	5.90	-0.39	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.93	-1.08	0.00	-137.54	0.00	137.54	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.039
5.00	-28.86	-1.08	0.00	-132.15	0.00	132.15	4,073.39	2,036.69	8,449.37	4,230.97	0.00	-0.01	0.038
10.00	-27.81	-1.09	0.00	-126.73	0.00	126.73	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.038
15.00	-26.78	-1.09	0.00	-121.30	0.00	121.30	3,950.68	1,975.34	7,810.43	3,911.02	0.04	-0.03	0.038
20.00	-25.77	-1.09	0.00	-115.85	0.00	115.85	3,886.87	1,943.43	7,495.19	3,753.17	0.08	-0.04	0.037
25.00	-24.78	-1.09	0.00	-110.39	0.00	110.39	3,821.43	1,910.71	7,183.08	3,596.88	0.13	-0.05	0.037
30.00	-23.81	-1.09	0.00	-104.93	0.00	104.93	3,754.35	1,877.17	6,874.35	3,442.28	0.18	-0.06	0.037
35.00	-22.86	-1.09	0.00	-99.47	0.00	99.47	3,685.64	1,842.82	6,569.23	3,289.50	0.25	-0.07	0.036
40.00	-21.93	-1.09	0.00	-94.02	0.00	94.02	3,615.29	1,807.64	6,267.96	3,138.64	0.33	-0.08	0.036
45.00	-21.39	-1.09	0.00	-88.58	0.00	88.58	3,543.30	1,771.65	5,970.78	2,989.83	0.42	-0.09	0.036
48.00	-20.79	-1.08	0.00	-85.33	0.00	85.33	3,499.33	1,749.66	5,794.53	2,901.57	0.48	-0.10	0.035
50.00	-19.83	-1.07	0.00	-83.16	0.00	83.16	3,469.68	1,734.84	5,677.92	2,843.18	0.53	-0.11	0.035
53.25	-19.56	-1.07	0.00	-79.68	0.00	79.68	2,730.90	1,365.45	4,467.29	2,236.97	0.60	-0.11	0.043
55.00	-18.79	-1.06	0.00	-77.81	0.00	77.81	2,712.29	1,356.15	4,390.67	2,198.60	0.64	-0.12	0.042
60.00	-18.04	-1.05	0.00	-72.50	0.00	72.50	2,658.02	1,329.01	4,173.50	2,089.85	0.77	-0.13	0.041
65.00	-17.31	-1.04	0.00	-67.23	0.00	67.23	2,602.11	1,301.05	3,959.12	1,982.50	0.92	-0.15	0.041
70.00	-16.60	-1.03	0.00	-62.01	0.00	62.01	2,544.56	1,272.28	3,747.77	1,876.67	1.08	-0.16	0.040
75.00	-15.90	-1.02	0.00	-56.85	0.00	56.85	2,485.39	1,242.69	3,539.70	1,772.48	1.25	-0.17	0.038
80.00	-15.22	-1.00	0.00	-51.76	0.00	51.76	2,424.57	1,212.29	3,335.13	1,670.04	1.45	-0.19	0.037
85.00	-14.56	-0.98	0.00	-46.75	0.00	46.75	2,362.12	1,181.06	3,134.31	1,569.49	1.65	-0.20	0.036
90.00	-13.91	-0.96	0.00	-41.83	0.00	41.83	2,297.27	1,148.64	2,936.51	1,470.44	1.87	-0.22	0.035
95.00	-13.56	-0.95	0.00	-37.01	0.00	37.01	2,210.70	1,105.35	2,718.30	1,361.17	2.11	-0.23	0.033
97.75	-13.16	-0.94	0.00	-34.39	0.00	34.39	2,163.09	1,081.54	2,601.88	1,302.87	2.25	-0.24	0.032
100.00	-12.90	-0.93	0.00	-32.28	0.00	32.28	2,124.13	1,062.07	2,508.52	1,256.12	2.36	-0.25	0.032
101.50	-12.59	-0.92	0.00	-30.89	0.00	30.89	1,105.19	552.59	1,317.56	659.76	2.44	-0.25	0.058
105.00	-12.50	-0.91	0.00	-27.69	0.00	27.69	1,087.53	543.77	1,259.48	630.68	2.63	-0.26	0.055
106.00	-11.92	-0.89	0.00	-26.77	0.00	26.77	1,082.34	541.17	1,242.93	622.39	2.69	-0.27	0.054
110.00	-11.49	-0.87	0.00	-23.22	0.00	23.22	1,060.92	530.46	1,177.04	589.40	2.92	-0.29	0.050
115.00	-11.19	-0.85	0.00	-18.88	0.00	18.88	1,032.68	516.34	1,095.47	548.55	3.23	-0.31	0.045
117.94	-11.02	-0.85	0.00	-16.37	0.00	16.37	1,015.32	507.66	1,048.03	524.80	3.42	-0.32	0.042
120.00	-10.63	-0.82	0.00	-14.62	0.00	14.62	1,002.79	501.40	1,014.98	508.24	3.56	-0.32	0.039
125.00	-9.22	-0.73	0.00	-10.50	0.00	10.50	971.28	485.64	935.83	468.61	3.91	-0.34	0.032
126.00	-7.24	-0.60	0.00	-9.77	0.00	9.77	964.78	482.39	920.18	460.77	3.98	-0.34	0.029
130.00	-6.97	-0.58	0.00	-7.36	0.00	7.36	938.12	469.06	858.24	429.76	4.27	-0.35	0.025
134.00	-6.65	-0.56	0.00	-5.03	0.00	5.03	910.42	455.21	797.47	399.33	4.58	-0.36	0.020
135.00	-6.59	-0.56	0.00	-4.47	0.00	4.47	903.33	451.67	782.47	391.82	4.65	-0.36	0.019
136.00	-5.25	-0.45	0.00	-3.91	0.00	3.91	896.18	448.09	767.56	384.35	4.73	-0.37	0.016
137.00	-4.98	-0.43	0.00	-3.46	0.00	3.46	888.96	444.48	752.72	376.92	4.80	-0.37	0.015
140.00	-4.88	-0.42	0.00	-2.16	0.00	2.16	866.91	433.46	708.75	354.90	5.04	-0.37	0.012
142.00	-3.11	-0.28	0.00	-1.32	0.00	1.32	851.88	425.94	679.88	340.45	5.19	-0.37	0.008
143.00	-2.00	-0.18	0.00	-1.04	0.00	1.04	844.27	422.14	665.60	333.29	5.27	-0.37	0.005
145.00	-1.85	-0.17	0.00	-0.68	0.00	0.68	828.85	414.43	637.31	319.13	5.43	-0.37	0.004
149.00	0.00	-0.16	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	5.74	-0.38	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.74
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
42	147.00	169	1.840	1.725	1.047	0.344	39	210
41	144.00	87	1.765	1.385	0.919	0.297	17	108
40	142.50	60	1.729	1.234	0.859	0.274	11	74
39	141.00	121	1.692	1.094	0.803	0.252	20	150
38	138.50	185	1.633	0.884	0.716	0.217	27	229
37	136.50	63	1.586	0.736	0.651	0.191	8	78
36	135.50	63	1.563	0.669	0.621	0.178	7	78
35	134.50	63	1.540	0.605	0.592	0.166	7	79
34	132.00	305	1.483	0.461	0.523	0.137	28	378
33	128.00	312	1.395	0.274	0.426	0.095	20	387
32	125.50	79	1.341	0.181	0.373	0.071	4	98
31	122.50	454	1.278	0.091	0.317	0.045	14	563
30	118.97	191	1.205	0.009	0.258	0.018	2	237
29	116.47	275	1.155	-0.034	0.222	0.002	0	341
28	112.50	503	1.077	-0.082	0.173	-0.021	-7	623
27	108.00	411	0.993	-0.112	0.128	-0.040	-11	509
26	105.50	104	0.948	-0.119	0.107	-0.047	-3	129
25	103.25	367	0.908	-0.122	0.090	-0.053	-13	456
24	100.75	304	0.864	-0.120	0.074	-0.057	-11	377
23	98.88	462	0.832	-0.117	0.064	-0.058	-18	573
22	96.38	405	0.791	-0.110	0.051	-0.058	-16	502
21	92.50	752	0.728	-0.095	0.036	-0.055	-27	932
20	87.50	772	0.652	-0.071	0.021	-0.043	-22	957
19	82.50	791	0.579	-0.045	0.012	-0.025	-13	982
18	77.50	811	0.511	-0.020	0.008	-0.004	-2	1,006
17	72.50	831	0.447	0.002	0.006	0.017	10	1,031
16	67.50	851	0.388	0.022	0.007	0.035	20	1,055
15	62.50	871	0.333	0.037	0.010	0.047	27	1,080
14	57.50	891	0.281	0.049	0.014	0.054	32	1,104
13	54.13	316	0.249	0.055	0.017	0.057	12	392
12	51.63	1,114	0.227	0.059	0.020	0.058	43	1,381
11	49.00	695	0.204	0.062	0.023	0.059	27	862
10	46.50	636	0.184	0.065	0.025	0.059	25	789
9	42.50	1,079	0.154	0.068	0.030	0.058	42	1,338

8	37.50	1,103	0.120	0.070	0.034	0.057	42	1,368
7	32.50	1,127	0.090	0.071	0.038	0.056	42	1,397
6	27.50	1,150	0.064	0.072	0.041	0.054	42	1,427
5	22.50	1,174	0.043	0.071	0.042	0.053	41	1,456
4	17.50	1,198	0.026	0.067	0.040	0.050	40	1,486
3	12.50	1,222	0.013	0.059	0.034	0.046	37	1,515
2	7.50	1,246	0.005	0.044	0.025	0.037	31	1,545
1	2.50	1,081	0.001	0.018	0.010	0.018	13	1,340
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.378	8	39
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.378	4	19
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.378	80	394
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.378	45	223
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.378	78	385
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.378	14	67
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.378	35	171
SitePro1 RMV5-296	149.00	1,110	1.890	1.980	1.140	0.378	280	1,377
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.281	5	36
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.281	9	57
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.281	42	275
Ericsson AIR-32 B2A/	143.00	397	1.741	1.283	0.879	0.281	74	492
RFS APX16DWV-	143.00	122	1.741	1.283	0.879	0.281	23	151
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.281	72	476
Flat Platform w/ Han	142.00	2,000	1.717	1.186	0.840	0.267	355	2,480
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.198	17	164
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.185	185	1,860
RFS FD9R6004/2C-3L	134.00	16	1.529	0.574	0.577	0.160	2	19
Amphenol Antel BXA-1	134.00	45	1.529	0.574	0.577	0.160	5	56
Antel BXA-185085/12C	134.00	39	1.529	0.574	0.577	0.160	4	48
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.160	5	55
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.160	6	69
Commscope LNX-	134.00	116	1.529	0.574	0.577	0.160	12	144
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.075	100	2,480
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	41
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	41
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	41
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.066	6	160
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.066	10	279
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.066	9	264
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.066	9	253
Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.066	30	853
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.007	0	98
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.046	0	7
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.046	-3	124
Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.046	-5	186
		35,889	88.532	39.941	33.336	9.427	2,108	44,507

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
42	147.00	169	1.840	1.725	1.047	0.344	39	145
41	144.00	87	1.765	1.385	0.919	0.297	17	75
40	142.50	60	1.729	1.234	0.859	0.274	11	51
39	141.00	121	1.692	1.094	0.803	0.252	20	104
38	138.50	185	1.633	0.884	0.716	0.217	27	159
37	136.50	63	1.586	0.736	0.651	0.191	8	54
36	135.50	63	1.563	0.669	0.621	0.178	7	54
35	134.50	63	1.540	0.605	0.592	0.166	7	55
34	132.00	305	1.483	0.461	0.523	0.137	28	262

33	128.00	312	1.395	0.274	0.426	0.095	20	268
32	125.50	79	1.341	0.181	0.373	0.071	4	68
31	122.50	454	1.278	0.091	0.317	0.045	14	391
30	118.97	191	1.205	0.009	0.258	0.018	2	164
29	116.47	275	1.155	-0.034	0.222	0.002	0	237
28	112.50	503	1.077	-0.082	0.173	-0.021	-7	432
27	108.00	411	0.993	-0.112	0.128	-0.040	-11	353
26	105.50	104	0.948	-0.119	0.107	-0.047	-3	89
25	103.25	367	0.908	-0.122	0.090	-0.053	-13	316
24	100.75	304	0.864	-0.120	0.074	-0.057	-11	262
23	98.88	462	0.832	-0.117	0.064	-0.058	-18	397
22	96.38	405	0.791	-0.110	0.051	-0.058	-16	348
21	92.50	752	0.728	-0.095	0.036	-0.055	-27	646
20	87.50	772	0.652	-0.071	0.021	-0.043	-22	664
19	82.50	791	0.579	-0.045	0.012	-0.025	-13	681
18	77.50	811	0.511	-0.020	0.008	-0.004	-2	698
17	72.50	831	0.447	0.002	0.006	0.017	10	715
16	67.50	851	0.388	0.022	0.007	0.035	20	732
15	62.50	871	0.333	0.037	0.010	0.047	27	749
14	57.50	891	0.281	0.049	0.014	0.054	32	766
13	54.13	316	0.249	0.055	0.017	0.057	12	272
12	51.63	1,114	0.227	0.059	0.020	0.058	43	958
11	49.00	695	0.204	0.062	0.023	0.059	27	597
10	46.50	636	0.184	0.065	0.025	0.059	25	547
9	42.50	1,079	0.154	0.068	0.030	0.058	42	928
8	37.50	1,103	0.120	0.070	0.034	0.057	42	948
7	32.50	1,127	0.090	0.071	0.038	0.056	42	969
6	27.50	1,150	0.064	0.072	0.041	0.054	42	989
5	22.50	1,174	0.043	0.071	0.042	0.053	41	1,010
4	17.50	1,198	0.026	0.067	0.040	0.050	40	1,030
3	12.50	1,222	0.013	0.059	0.034	0.046	37	1,051
2	7.50	1,246	0.005	0.044	0.025	0.037	31	1,071
1	2.50	1,081	0.001	0.018	0.010	0.018	13	929
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.378	8	27
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.378	4	13
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.378	80	273
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.378	45	155
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.378	78	267
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.378	14	46
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.378	35	119
SitePro1 RMV5-296	149.00	1,110	1.890	1.980	1.140	0.378	280	954
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.281	5	25
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.281	9	40
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.281	42	191
Ericsson AIR-32 B2A/	143.00	397	1.741	1.283	0.879	0.281	74	341
RFS APX16DWV-	143.00	122	1.741	1.283	0.879	0.281	23	105
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.281	72	330
Flat Platform w/ Han	142.00	2,000	1.717	1.186	0.840	0.267	355	1,720
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.198	17	114
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.185	185	1,290
RFS FD9R6004/2C-3L	134.00	16	1.529	0.574	0.577	0.160	2	13
Amphenol Antel BXA-1	134.00	45	1.529	0.574	0.577	0.160	5	39
Antel BXA-185085/12C	134.00	39	1.529	0.574	0.577	0.160	4	34
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.160	5	38
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.160	6	48
Commscope LNX-	134.00	116	1.529	0.574	0.577	0.160	12	100
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.075	100	1,720
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	28
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	28
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.066	1	28
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.066	6	111
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.066	10	193
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.066	9	183
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.066	9	175

Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.066	30	591
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.007	0	68
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.046	0	5
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.046	-3	86
Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.046	-5	129
		35,889	88.532	39.941	33.336	9.427	2,108	30,861

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.17	-2.10	0.00	-265.29	0.00	265.29	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.071
5.00	-41.62	-2.08	0.00	-254.79	0.00	254.79	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.070
10.00	-40.10	-2.06	0.00	-244.37	0.00	244.37	4,012.85	2,006.43	8,128.58	4,070.33	0.04	-0.04	0.070
15.00	-38.62	-2.03	0.00	-234.07	0.00	234.07	3,950.68	1,975.34	7,810.43	3,911.02	0.09	-0.06	0.070
20.00	-37.16	-2.00	0.00	-223.92	0.00	223.92	3,886.87	1,943.43	7,495.19	3,753.17	0.15	-0.07	0.069
25.00	-35.73	-1.97	0.00	-213.92	0.00	213.92	3,821.43	1,910.71	7,183.08	3,596.88	0.24	-0.09	0.069
30.00	-34.34	-1.94	0.00	-204.08	0.00	204.08	3,754.35	1,877.17	6,874.35	3,442.28	0.35	-0.12	0.068
35.00	-32.97	-1.90	0.00	-194.40	0.00	194.40	3,685.64	1,842.82	6,569.23	3,289.50	0.49	-0.14	0.068
40.00	-31.63	-1.87	0.00	-184.88	0.00	184.88	3,615.29	1,807.64	6,267.96	3,138.64	0.64	-0.16	0.068
45.00	-30.84	-1.85	0.00	-175.52	0.00	175.52	3,543.30	1,771.65	5,970.78	2,989.83	0.82	-0.18	0.067
48.00	-29.98	-1.83	0.00	-169.96	0.00	169.96	3,499.33	1,749.66	5,794.53	2,901.57	0.94	-0.20	0.067
50.00	-28.60	-1.79	0.00	-166.30	0.00	166.30	3,469.68	1,734.84	5,677.92	2,843.18	1.02	-0.20	0.067
53.25	-28.20	-1.78	0.00	-160.49	0.00	160.49	2,730.90	1,365.45	4,467.29	2,236.97	1.17	-0.22	0.082
55.00	-27.10	-1.75	0.00	-157.37	0.00	157.37	2,712.29	1,356.15	4,390.67	2,198.60	1.25	-0.23	0.082
60.00	-26.02	-1.73	0.00	-148.61	0.00	148.61	2,658.02	1,329.01	4,173.50	2,089.85	1.50	-0.26	0.081
65.00	-24.96	-1.72	0.00	-139.94	0.00	139.94	2,602.11	1,301.05	3,959.12	1,982.50	1.79	-0.29	0.080
70.00	-23.93	-1.72	0.00	-131.33	0.00	131.33	2,544.56	1,272.28	3,747.77	1,876.67	2.11	-0.32	0.079
75.00	-22.92	-1.73	0.00	-122.73	0.00	122.73	2,485.39	1,242.69	3,539.70	1,772.48	2.46	-0.35	0.078
80.00	-21.94	-1.75	0.00	-114.09	0.00	114.09	2,424.57	1,212.29	3,335.13	1,670.04	2.84	-0.38	0.077
85.00	-20.98	-1.78	0.00	-105.34	0.00	105.34	2,362.12	1,181.06	3,134.31	1,569.49	3.25	-0.41	0.076
90.00	-20.05	-1.81	0.00	-96.46	0.00	96.46	2,297.27	1,148.64	2,936.51	1,470.44	3.71	-0.45	0.074
95.00	-19.55	-1.83	0.00	-87.42	0.00	87.42	2,210.70	1,105.35	2,718.30	1,361.17	4.19	-0.48	0.073
97.75	-18.97	-1.85	0.00	-82.39	0.00	82.39	2,163.09	1,081.54	2,601.88	1,302.87	4.48	-0.50	0.072
100.00	-18.60	-1.86	0.00	-78.23	0.00	78.23	2,124.13	1,062.07	2,508.52	1,256.12	4.72	-0.52	0.071
101.50	-18.14	-1.88	0.00	-75.44	0.00	75.44	1,105.19	552.59	1,317.56	659.76	4.88	-0.53	0.131
105.00	-18.01	-1.88	0.00	-68.88	0.00	68.88	1,087.53	543.77	1,259.48	630.68	5.28	-0.55	0.126
106.00	-17.18	-1.90	0.00	-66.99	0.00	66.99	1,082.34	541.17	1,242.93	622.39	5.40	-0.57	0.124
110.00	-16.56	-1.92	0.00	-59.39	0.00	59.39	1,060.92	530.46	1,177.04	589.40	5.89	-0.61	0.116
115.00	-16.12	-1.92	0.00	-49.80	0.00	49.80	1,032.68	516.34	1,095.47	548.55	6.56	-0.66	0.106
117.94	-15.88	-1.93	0.00	-44.15	0.00	44.15	1,015.32	507.66	1,048.03	524.80	6.97	-0.69	0.100
120.00	-15.31	-1.91	0.00	-40.18	0.00	40.18	1,002.79	501.40	1,014.98	508.24	7.28	-0.71	0.094
125.00	-13.29	-1.82	0.00	-30.61	0.00	30.61	971.28	485.64	935.83	468.61	8.05	-0.76	0.079
126.00	-10.42	-1.67	0.00	-28.79	0.00	28.79	964.78	482.39	920.18	460.77	8.21	-0.77	0.073
130.00	-10.04	-1.64	0.00	-22.12	0.00	22.12	938.12	469.06	858.24	429.76	8.87	-0.80	0.062
134.00	-9.57	-1.59	0.00	-15.57	0.00	15.57	910.42	455.21	797.47	399.33	9.55	-0.82	0.050
135.00	-9.49	-1.59	0.00	-13.97	0.00	13.97	903.33	451.67	782.47	391.82	9.72	-0.83	0.046
136.00	-7.56	-1.37	0.00	-12.39	0.00	12.39	896.18	448.09	767.56	384.35	9.89	-0.83	0.041
137.00	-7.17	-1.32	0.00	-11.02	0.00	11.02	888.96	444.48	752.72	376.92	10.07	-0.84	0.037
140.00	-7.02	-1.30	0.00	-7.07	0.00	7.07	866.91	433.46	708.75	354.90	10.60	-0.85	0.028
142.00	-4.47	-0.89	0.00	-4.48	0.00	4.48	851.88	425.94	679.88	340.45	10.96	-0.86	0.018
143.00	-2.88	-0.63	0.00	-3.59	0.00	3.59	844.27	422.14	665.60	333.29	11.14	-0.86	0.014
145.00	-2.67	-0.58	0.00	-2.34	0.00	2.34	828.85	414.43	637.31	319.13	11.50	-0.86	0.011
149.00	0.00	-0.54	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	12.22	-0.86	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.93	-2.10	0.00	-259.63	0.00	259.63	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.066
5.00	-28.86	-2.08	0.00	-249.14	0.00	249.14	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.066
10.00	-27.81	-2.05	0.00	-238.76	0.00	238.76	4,012.85	2,006.43	8,128.58	4,070.33	0.04	-0.04	0.066
15.00	-26.78	-2.02	0.00	-228.52	0.00	228.52	3,950.68	1,975.34	7,810.43	3,911.02	0.08	-0.05	0.065
20.00	-25.77	-1.98	0.00	-218.45	0.00	218.45	3,886.87	1,943.43	7,495.19	3,753.17	0.15	-0.07	0.065
25.00	-24.78	-1.95	0.00	-208.54	0.00	208.54	3,821.43	1,910.71	7,183.08	3,596.88	0.24	-0.09	0.064
30.00	-23.81	-1.91	0.00	-198.81	0.00	198.81	3,754.35	1,877.17	6,874.35	3,442.28	0.35	-0.11	0.064
35.00	-22.86	-1.88	0.00	-189.25	0.00	189.25	3,685.64	1,842.82	6,569.23	3,289.50	0.47	-0.13	0.064
40.00	-21.93	-1.84	0.00	-179.87	0.00	179.87	3,615.29	1,807.64	6,267.96	3,138.64	0.63	-0.15	0.063
45.00	-21.38	-1.82	0.00	-170.67	0.00	170.67	3,543.30	1,771.65	5,970.78	2,989.83	0.80	-0.18	0.063
48.00	-20.79	-1.79	0.00	-165.21	0.00	165.21	3,499.33	1,749.66	5,794.53	2,901.57	0.91	-0.19	0.063
50.00	-19.83	-1.75	0.00	-161.62	0.00	161.62	3,469.68	1,734.84	5,677.92	2,843.18	1.00	-0.20	0.063
53.25	-19.56	-1.74	0.00	-155.92	0.00	155.92	2,730.90	1,365.45	4,467.29	2,236.97	1.14	-0.22	0.077
55.00	-18.79	-1.71	0.00	-152.87	0.00	152.87	2,712.29	1,356.15	4,390.67	2,198.60	1.22	-0.22	0.076
60.00	-18.04	-1.69	0.00	-144.30	0.00	144.30	2,658.02	1,329.01	4,173.50	2,089.85	1.47	-0.25	0.076
65.00	-17.31	-1.68	0.00	-135.84	0.00	135.84	2,602.11	1,301.05	3,959.12	1,982.50	1.75	-0.28	0.075
70.00	-16.59	-1.67	0.00	-127.44	0.00	127.44	2,544.56	1,272.28	3,747.77	1,876.67	2.05	-0.31	0.074
75.00	-15.89	-1.68	0.00	-119.07	0.00	119.07	2,485.39	1,242.69	3,539.70	1,772.48	2.39	-0.34	0.074
80.00	-15.21	-1.70	0.00	-110.67	0.00	110.67	2,424.57	1,212.29	3,335.13	1,670.04	2.77	-0.37	0.073
85.00	-14.55	-1.72	0.00	-102.18	0.00	102.18	2,362.12	1,181.06	3,134.31	1,569.49	3.17	-0.40	0.071
90.00	-13.90	-1.75	0.00	-93.56	0.00	93.56	2,297.27	1,148.64	2,936.51	1,470.44	3.61	-0.44	0.070
95.00	-13.55	-1.77	0.00	-84.79	0.00	84.79	2,210.70	1,105.35	2,718.30	1,361.17	4.08	-0.47	0.068
97.75	-13.15	-1.79	0.00	-79.91	0.00	79.91	2,163.09	1,081.54	2,601.88	1,302.87	4.36	-0.49	0.067
100.00	-12.89	-1.80	0.00	-75.88	0.00	75.88	2,124.13	1,062.07	2,508.52	1,256.12	4.59	-0.50	0.066
101.50	-12.57	-1.82	0.00	-73.17	0.00	73.17	1,105.19	552.59	1,317.56	659.76	4.75	-0.51	0.122
105.00	-12.48	-1.83	0.00	-66.81	0.00	66.81	1,087.53	543.77	1,259.48	630.68	5.14	-0.54	0.117
106.00	-11.91	-1.84	0.00	-64.98	0.00	64.98	1,082.34	541.17	1,242.93	622.39	5.25	-0.55	0.115
110.00	-11.48	-1.86	0.00	-57.60	0.00	57.60	1,060.92	530.46	1,177.04	589.40	5.73	-0.59	0.109
115.00	-11.17	-1.86	0.00	-48.32	0.00	48.32	1,032.68	516.34	1,095.47	548.55	6.38	-0.64	0.099
117.94	-11.00	-1.86	0.00	-42.86	0.00	42.86	1,015.32	507.66	1,048.03	524.80	6.79	-0.67	0.093
120.00	-10.61	-1.85	0.00	-39.02	0.00	39.02	1,002.79	501.40	1,014.98	508.24	7.08	-0.69	0.087
125.00	-9.21	-1.76	0.00	-29.78	0.00	29.78	971.28	485.64	935.83	468.61	7.83	-0.74	0.073
126.00	-7.22	-1.62	0.00	-28.01	0.00	28.01	964.78	482.39	920.18	460.77	7.99	-0.74	0.068
130.00	-6.96	-1.59	0.00	-21.53	0.00	21.53	938.12	469.06	858.24	429.76	8.62	-0.77	0.058
134.00	-6.63	-1.55	0.00	-15.17	0.00	15.17	910.42	455.21	797.47	399.33	9.29	-0.80	0.045
135.00	-6.58	-1.54	0.00	-13.62	0.00	13.62	903.33	451.67	782.47	391.82	9.45	-0.81	0.042
136.00	-5.24	-1.33	0.00	-12.08	0.00	12.08	896.18	448.09	767.56	384.35	9.62	-0.81	0.037
137.00	-4.96	-1.28	0.00	-10.75	0.00	10.75	888.96	444.48	752.72	376.92	9.79	-0.82	0.034
140.00	-4.86	-1.26	0.00	-6.90	0.00	6.90	866.91	433.46	708.75	354.90	10.31	-0.83	0.025
142.00	-3.09	-0.87	0.00	-4.38	0.00	4.38	851.88	425.94	679.88	340.45	10.66	-0.83	0.016
143.00	-1.99	-0.61	0.00	-3.51	0.00	3.51	844.27	422.14	665.60	333.29	10.83	-0.83	0.013
145.00	-1.85	-0.57	0.00	-2.28	0.00	2.28	828.85	414.43	637.31	319.13	11.18	-0.84	0.009
149.00	0.00	-0.54	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	11.89	-0.84	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	24.77	0.00	43.02	0.00	0.00	2872.01	101.50	0.96
0.9D + 1.6W	24.75	0.00	32.26	0.00	0.00	2827.41	101.50	0.93
1.2D + 1.0Di + 1.0Wi	6.87	0.00	79.95	0.00	0.00	836.34	101.50	0.33
(1.2 + 0.2Sds) * DL + E ELFM	1.08	0.00	43.17	0.00	0.00	140.28	101.50	0.06
(1.2 + 0.2Sds) * DL + E EMAM	2.10	0.00	43.17	0.00	0.00	265.29	101.50	0.13
(0.9 - 0.2Sds) * DL + E ELFM	1.08	0.00	29.93	0.00	0.00	137.54	101.50	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.10	0.00	29.93	0.00	0.00	259.63	101.50	0.12
1.0D + 1.0W	5.92	0.00	35.89	0.00	0.00	680.91	101.50	0.24

Base Plate & Anchor Rod Analysis

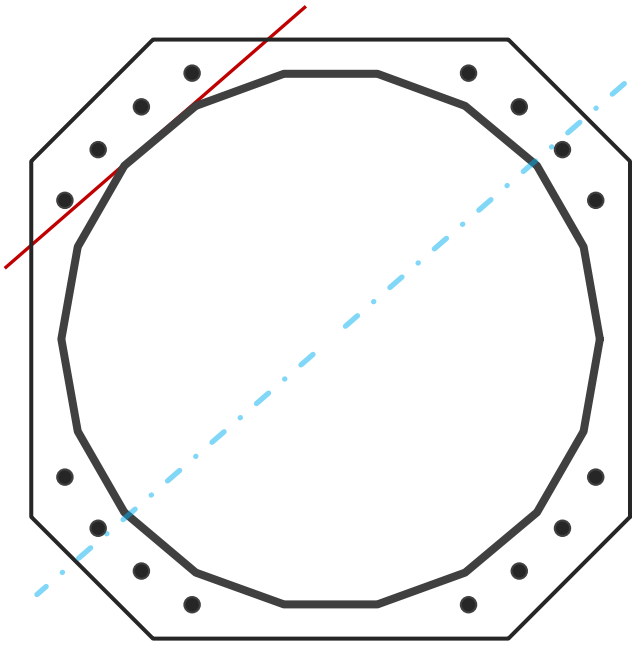
Pole Dimensions		
Number of Sides	18	-
Diameter	52.01	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2872.0	k-ft
Axial, Pu	43.0	k
Shear, Vu	24.8	k
Neutral Axis	41	°

Report Capacities		
Component	Capacity	Result
Base Plate	47%	Pass
Anchor Rods	57%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	59	in
Thickness	2 3/4	in
Grade	Other	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	12	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1481.5	k
Bending Stress, ϕMn	3183.1	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	148.6	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	24.8	2872.0	1.00
Anchor Rod Forces	24.8	2872.0	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	60.5227	3.3624	0.1582		20173.34
Bolt	3.9761	3.2477	0.8393	4.5	22623.84
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	59	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	27.856	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	148.6	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.572	OK
Interaction Capacity	0.572	OK

External Base Plate		
Chord Length AA	31.179	in
Additional AA	0.000	in
Section Modulus, Z	58.947	in^3
Applied Moment, Mu	1481.5	k-ft
Bending Capacity, ϕMn	3183.1	k-ft
Capacity, Mu/ϕMn	0.465	OK
Chord Length AB	30.372	in
Additional AB	0.000	in
Section Modulus, Z	57.423	in^3
Applied Moment, Mu	1248.4	k-ft
Bending Capacity, ϕMn	3100.8	k-ft
Capacity, Mu/ϕMn	0.403	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		