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

VIA ELECTRONIC MAIL

February 6, 2020

Ryan G. Bailey
Charles Cherundolo Consulting
1280 Route 46 West, Suite 9
Parsippany, NJ 07054

RE: **EM-SPRINT-161-191211** – Sprint notice of intent to modify an existing telecommunications facility located at 24 ½ Richdale Drive, Wilton, Connecticut.

Dear Mr. Bailey:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on December 11, 2019. On December 17, 2019, the Council issued a letter (enclosed) stating that the request for exempt modification was incomplete because of the following deficiencies:

1) The Construction Drawings (CD) provided in the electronic filing was for a site at Round Hill Road in Greenwich;
2) No Structural Analysis (SA) had been provided for this request;
3) No Mount Analysis (MA) was included with the request for exempt modification; therefore, it is unclear whether the proposed antenna mount was capable of supporting the proposed equipment load;
4) The request lacked proof that the entire request for exempt modification was physically mailed to the underlying property owner;
5) The exempt modification request lacked documentation of the original facility approval and any conditions of such approval or correspondence with the Town of Wilton stating that the town no longer retains records of its decision; and
6) A property card and parcel map for the underlying property had not been provided with the request.

The Council recommended that Charles Cherundolo Consulting provide an electronic copy of the CD for the above-referenced facility, a passing (≤ 100%) SA and MA for the proposed modification that is stamped and signed by a professional engineer duly licensed in the State of Connecticut, a property card and parcel map for the underlying property, documentation showing the original facility approval with conditions if any or correspondence with the Town stating that there are no records of the original facility approval and proof of proper notice of this exempt modification request to the underlying property owner.

Council staff reviewed the February 5, 2020 response to the incomplete request and identified the following deficiencies:

1. The CD prepared by Ramaker & Associates, Inc. and dated April 25, 2019, references the 2016 Connecticut State Building Code (CSBC); however the State of Connecticut has adopted the 2018 CSBC effective October 1, 2018;
2. The ROHN quotation and the Designed Appurtenance Loading do not qualify as a SA and are not stamped and signed by a Professional Engineer licensed in the State of Connecticut;

3. The SA provided is for a facility at 395 Round Hill Road in Greenwich;
4. The MA provided does not indicate the % stress capacity for the proposed antenna mount under the proposed equipment loading; and
5. The building permit for a modification to existing equipment does not represent the original approval of the tower and compound.

Therefore, the exempt modification request remains incomplete at this time. The Council recommends that Charles Cherundolo Consulting provide an updated CD that references the 2018 CSBC, a full and complete passing (≤100%) SA that is stamped and signed by a Professional Engineer licensed in the State of Connecticut, a MA that indicates the % stress capacity of the antenna mount for the proposed modification and documentation showing the original facility approval with conditions if any or correspondence with the Town stating that there are no records of the original facility approval, on or before March 9, 2020. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to March 9, 2020. **Please provide an electronic version and one hard copy of the requested information for the incomplete exempt modification to be rendered complete and processed. Please include the Council's exempt modification identification number referenced above with the submittal.**

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 December 17, 2019.

c: The Honorable Lynne Vanderslice, First Selectwoman, Town of Wilton
Michael Wrinn, AICP, Director of Planning and Land Use Management, Town of Wilton

STATE OF CONNECTICUT

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www.ct.gov/csc

VIA ELECTRONIC MAIL

December 17, 2019

Ryan G. Bailey
Charles Cherundolo Consulting
1280 Route 46 West, Suite 9
Parsippany, NJ 07054

RE: **EM-SPRINT-161-191211** – Sprint notice of intent to modify an existing telecommunications facility located at 24 ½ Richdale Drive, Wilton, Connecticut.

Dear Mr. Bailey:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on December 11, 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 the following deficiencies in the request:

1) The Construction Drawings (CD) provided in the electronic filing are for a site at Round Hill Road in Greenwich;
2) No Structural Analysis (SA) has been provided for this request;
3) No Mount Analysis (MA) is included with the request for exempt modification; therefore, it is unclear whether the proposed antenna mount is capable of supporting the proposed equipment load;
4) The request lacks proof that the entire request for exempt modification was physically mailed to the underlying property owner;
5) The exempt modification request lacks documentation of the original facility approval and any conditions of such approval or correspondence with the Town of Wilton stating that the town no longer retains records of its decision; and
6) A property card and parcel map for the underlying property has not been provided with the request.

Therefore, the exempt modification request is incomplete at this time. The Council recommends that Charles Cherundolo Consulting provide an electronic copy of the CD for the above-referenced facility, a passing (≤ 100%) SA and MA for the proposed modification that is stamped and signed by a professional engineer duly licensed in the State of Connecticut, a property card and parcel map for the underlying property, documentation showing the original facility approval with conditions if any or correspondence with the Town stating that there are no records of the original facility approval and proof of proper notice of this exempt modification request to the underlying property owner, on or before January 21, 2020. If

additional time is needed to gather the requested information, please submit a written request for an extension of time prior to January 21, 2020. **Please provide an electronic version and one hard copy of the requested information for the incomplete exempt modification to be rendered complete and processed. Please include the Council's exempt modification identification number referenced above with the submittal.**

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

c: The Honorable Lynne Vanderslice, First Selectwoman, Town of Wilton
Robert Nerney, AICP, Director of Planning and Land Use Management, Town of Wilton

Cherundolo Consulting

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

Melanie Bachman
Executive Director
CT Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification Application
24 ½ Richdale Drive, Wilton, CT 06897

Latitude: N41.20516
Longitude: W73.4361

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antennas and three RRH units at the 68' centerline level of the existing 71' wooden pole. Sprint proposes to swap the 71' wooden pole for a 70' steel pole as well as replace the 3 panel antennas and 3 RRH unites at the 68' centerline on the pole. Sprint further proposes to add 3 remote radio heads at the base of the pole. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

.
Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to First Selectwomen Lynne Vanderslice of the Town of Wilton as well as Robert Nerney, Director of Planning for the Town of Wilton and Knapp Properties, owner of the property

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration as well as the latest CSC decision, tax sheet and tax map.

Existing Facility

CSC Summary Statement – CT60XC001 – 24 ½
Richdale Dr, Wilton CT 06897

The Communications Tower facility is located at 24 ½ Richdale Dr, Wilton CT and is owned by Knapp Properties LLC, the Site coordinates are: N41.20516 W73.43619.

The existing facility consists of a 71' wooden pole. Sprint currently operates wireless communications equipment in a shelter on the ground near the pole and has 3 antennas and 3 RRH unites mounted at centerline of 68'.

Statutory Considerations

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The new structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Ryan G Bailey
Charles Cherundolo Consulting
856-625-1596
ryan@mackenzierealtyconsulting.com

Additional Recipients:
First Selectwoman Lynne Vanderslice for the Town of Wilton– Via FedEx
Robert Nerney, Director of Planning for the Town of Wilton - Via FedEx
Knapp Properties, LLC, owner of the property

Sprint®

PROJECT: 2.5 EQUIPMENT DEPLOYMENT

SITE NAME: (R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE

SITE CASCADE: CT60XC001-R

SITE ADDRESS: 24 1/2 RICHDALE DRIVE
WILTON, CT 06897

SITE TYPE: NEW MONOPOLE

SITE INFORMATION

PROPERTY OWNER:
KNAPP PROPERTIES, LLC
P.O. BOX 264
GEORGETOWN, CT 06829

SITE ADDRESS:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

GEOGRAPHIC COORDINATES:
LATITUDE: 41.205161111° (41° 12' 18.58" N)
LONGITUDE: -73.436119722° (73° 26' 10.31" W)

ZONING JURISDICTION:
THE CONNECTICUT SITING COUNCIL

ZONING DISTRICT:
R-2A SINGLE-FAMILY RESIDENCE DISTRICT

POWER COMPANY:
CONNECTICUT LIGHT & POWER
PH.: (888) 783-6617

AAV PROVIDER:
XXX
PH.: (XXX) XXX-XXXX

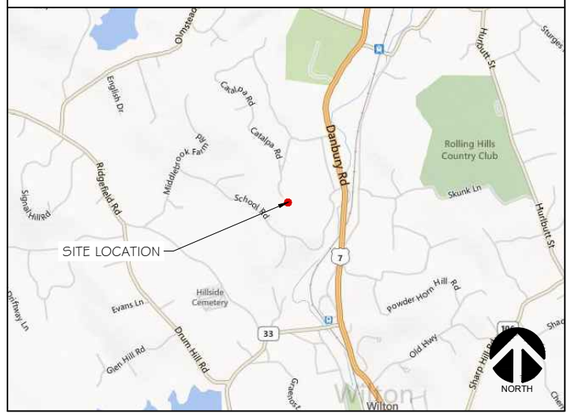
SPRINT CONSTRUCTION MANAGER:
NAME: GARY WOOD
PHONE: (860) 940-9168
E-MAIL: gary.wood@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600-700 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974
PH.: (908) 508-8080

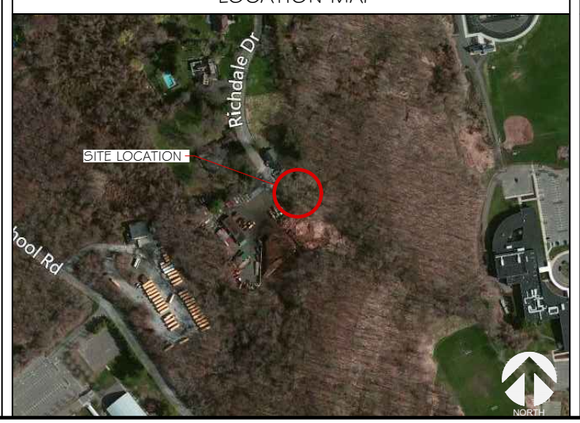
SITE ACQUISITION:
CHARLES CHERUNDOLO CONSULTING, INC.
1280 RT. 46 WEST
PARSIPPANY, NJ 07054
CONTACT: TOM JUPIN, PMP, PROJECT MANAGER
CELL: (973) 819-9033
EMAIL: tom.jupin@cherundoloconsulting.com

PLANS PREPARED BY:
RAMAKER & ASSOCIATES, INC.
CONTACT: KEITH BOHNSACK, PROJECT MANAGER
PH.: (608) 643-4100
EMAIL: kbohnsack@ramaker.com

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

- REPLACE EXISTING WOOD PLE WIT NEW MONOPOLE TOWER AND FOUNDATION (DESIGN BY OTHERS)
- INSTALL NEW 2.5 EQUIPMENT IN EXISTING BTS CABINET
  - *(1) RECTIFIER SHELF AND (3) RECTIFIERS
  - *(1) BASE BAND UNIT
- INSTALL NEW BATTERY STRING(S) IN EXISTING BATTERY CABINET
- RELOCATE (6) EXISTING RRHs AND INSTALL (6) NEW RRHs ON NEW TOWER
- RELOCATE (1) EXISTING HYBRID CABLE AND INSTALL (1) NEW HYBRID CABLE FROM EXISTING EQUIPMENT TO NEW TOWER
- INSTALL (1) NEW ANTENNA MOUNT PLATFORM ON NEW TOWER
- INSTALL (3) NEW PANEL ANTENNAS ON NEW TOWER

APPLICABLE CODES

* ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH 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. 2016 CT STATE BUILDING CODE
2. 2016 CT FIRE SAFETY CODE
3. 2014 NATIONAL ELECTRIC CODE W/ CT AMENDMENTS
4. 2012 IECC W/ CT AMENDMENTS

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SHEET INDEX

SHT NO:	SHEET TITLE:	REV:	ENGINEER:
T-1	TITLE SHEET	0	JRS
SP-1	SPRINT SPECIFICATIONS	0	JRS
SP-2	SPRINT SPECIFICATIONS	0	JRS
SP-3	SPRINT SPECIFICATIONS	0	JRS
A-1	SITE PLAN	0	JRS
A-2	EQUIPMENT PLAN	0	JRS
A-3	POLE ELEVATION & ANTENNA DETAILS	0	JRS
A-4	RF DATA SHEET	0	JRS
A-5	FIBER PLUMBING DIAGRAM	0	JRS
A-6	CABLE COLOR CODING	0	JRS
A-7	ANTENNA & HYBRID CABLE DETAILS	0	JRS
A-8	EQUIPMENT DETAILS	0	JRS
S-1	STRUCTURAL DETAILS	0	JRS
E-1	EQUIPMENT UTILITY & GROUNDING PLAN	0	JRS
E-2	GROUNDING DETAILS	0	JRS
E-3	GROUNDING DETAILS	0	JRS
E-4	GROUNDING DETAILS	0	JRS
E-5	DC POWER DETAILS & PANEL SCHEDULES	0	JRS

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Charles Cherundolo Consulting, Inc.
713 Clover Lane, Moscow, PA 18444
Phone: 570-840-5084 Fax: 570-842-5592

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 4/25/2019 Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: T-1

DRAWN BY: LHB CHECKED BY: KAB

SECTION 01 100 - SCOPE OF WORK

THE WORK:
THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND THE SITE SPECIFIC WORK ORDER, DESCRIBE THE WORK TO BE PERFORMED BY THIS CONSTRUCTION CONTRACTOR (SUPPLIER).

RELATED DOCUMENTS:
A. THE REQUIREMENTS OF EACH SECTION OF THIS SPECIFICATION APPLY TO ALL SECTIONS, INDIVIDUALLY AND COLLECTIVELY.
B. RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING.
   1. EN-2012-001: (FIBER OPTIC, DC CABLE, AND DC CIRCUIT BREAKER TAGGING STANDARDS)
   2. TS-0200 - (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
   3. EL-0568: (FIBER TESTING POLICY)
   4. NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING)
   5. NP-760-500: ETHERNET, MICROWAVE, TESTING AND ACCEPTANCE

PRECEDENCE:
SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

NATIONALLY RECOGNIZED CODES AND STANDARDS:
THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
D. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
G. AMERICAN CONCRETE INSTITUTE (ACI)
H. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
I. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
J. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
K. PORTLAND CEMENT ASSOCIATION (PCA)
L. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
M. BRICK INDUSTRY ASSOCIATION (BIA)
N. AMERICAN WELDING SOCIETY (AWS)
O. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
P. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
Q. DOOR AND HARDWARE INSTITUTE (DHI)
R. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
S. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

DEFINITIONS:
A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: "SPRINT"; SPRINT NEXTEL CORPORATION AND IT'S OPERATING ENTITIES.
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, 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. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

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.

POINT OF CONTACT:
COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

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.

DRAWINGS REQUIRED AT JOBSITE:
THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS 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. 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.

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.

UTILITY 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:

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.

CONTRACTOR:
CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:
CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

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 LESSOR'S OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

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.

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

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

FURNISHED MATERIALS:
COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR (OFIC) IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

RECEIPT OF MATERIAL AND EQUIPMENT:
A. 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.
B. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
C. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
D. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

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.

SECTION 01 300 - CELL SITE CONSTRUCTION

NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S 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.

GENERAL REQUIREMENTS FOR 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

FUNCTIONAL REQUIREMENTS:
A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. CONTRACTOR SHALL TAKE 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:
   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 BACKHAUL (FIBER, COPPER, OR MICROWAVE).
   4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
   5. INSTALL ABOVE GROUND GROUNDING SYSTEMS, CONDUIT AND BOXES.
   6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
   7. INSTALL "H-FRAMES", CABINETS AND PADS AND PLATFORMS 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. CONDUCT ALL REQUIRED TESTS AND INSPECTIONS
   19. PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
   20. PERFORM ALL ADDITIONAL WORK AS IDENTIFIED IN SCOPE OF SERVICES ATTACHED TO THE SUPPLIER AGREEMENT FOR THIS PROJECT. THIS WORK MAY INCLUDE COMMISSIONING, INTEGRATION, SPECIAL WAREHOUSING, REVERSE LOGISTICS ACTIVITIES, ETC. PERFORM COMMISSIONING AND INTEGRATION ACTIVITIES PER APPLICABLE MOPS.

DELIVERABLES:
A. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
   1. PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION IF REQUESTED BY SPRINT
   2. ACTUALIZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINE FORMS AND COMPLETE DOCUMENT UP-LOADS. UPLOAD ALL REQUIRED CLOSEOUT DOCUMENTS AND FINAL SITE PHOTOS
   3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT LEFT ON SITE INSIDE BASE OF MAIN RF CABINET IN A PROTECTIVE POUCH.
   4. ALL REQUIRED TEST REPORTS.
   5. REQUIRED CLOSEOUT DOCUMENTATION INCLUDING BUT NOT LIMITED TO:
      a. ALL JURISDICTIONAL PERMITTING AND OCCUPANCY INFORMATION
      b. PDF SCAN OF REDLINES PRODUCED IN THE FIELD
      c. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS
      d. LIEN WAIVERS
      e. FINAL PAYMENT APPLICATION
      f. REQUIRED FINAL CONSTRUCTION PHOTOS
      g. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
      h. LISTS OF SUBCONTRACTORS
B. PROVIDE ADDITIONAL 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. PRE-CONSTRUCTION MEETING NOTES.

SECTION 01 400 - TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT CLOSEOUT

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 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE STANDARDS
   2. POST CONSTRUCTION HEIGHT VERIFICATION, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
   3. CONCRETE BREAK TESTS
   4. SITE RESISTANCE TO EARTH TEST
   5. STRUCTURAL BACKFILL COMPACTION TESTS
   6. 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.
   7. ADDITIONAL TESTING AS REQUIRED ELSEWHERE IN THIS SPECIFICATION.

SUBMITTALS:
A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
B. UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
   2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
   3. CHEMICAL GROUNDING SYSTEM .
   4. REINFORCEMENT CERTIFICATIONS
   5. STRUCTURAL BACKFILL TEST RESULTS
   6. SWEEP AND FIBER TESTS
   7. ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION
   8. POST CONSTRUCTION HEIGHT VERIFICATION
   9. ADDITIONAL SUBMITTALS MAY BE REQUIRED FOR SPECIAL CONSTRUCTION OR MINOR MATERIALS
C. 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.

TESTING BY THIRD PARTY AGENCY:
A. EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS. AGENCY SHALL HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND BE LICENSED AS PROFESSIONAL ENGINEERS IN THE STATE WHERE THE PROJECT IS LOCATED. AGENCY IS SUBJECT TO APPROVAL BY COMPANY.
   1. AGENCY MUST HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
   2. 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.
B. REQUIRED THIRD PARTY TESTS:
   1. SITE RESISTANCE TO EARTH TEST PER NP-312-201
   2. CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED STANDARDS
   3. STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS
   4. REBAR PLACEMENT VERIFICATION WITH REPORT
   5. TESTING TENSION STUDY FOR ROCK ANCHORS
   6. ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION
C. REQUIRED TESTS BY CONTRACTOR
   1. COAX SWEEP TESTS PER SPRINT STANDARD TS-0200
   2. FIBER TESTS PER SPRINT STANDARD EL-0568
   3. MICROWAVE LINK TESTS PER NP-760-500
   4. ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL PER ANTENNA INSTALLATION SPECIFICATION HEREIN.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Charles Cherundolo Consulting, Inc.
713 Clover Lane, Moscow, PA 18444
Phone: 570-840-5084 Fax: 570-842-5592

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

James R Skowronski 4/25/2019
Signature: Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: SP-1

DRAWN BY: LHB CHECKED BY: KAB

5. POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HEREWITH IN THE TOWER INSTALLATION SPECIFICATIONS.
6. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED HEREWITH IN THE ASPHALT PAVING SPECIFICATIONS.
7. FIELD QUALITY CONTROL TESTING AS SPECIFIED HEREWITH IN THE CONCRETE PAVING SPECIFICATIONS.
8. TESTING REQUIRED HEREWITH UNDER SPECIFICATIONS FOR AGGREGATE BASE FOR ROADWAYS
9. ALL OTHER TESTS REQUIRED BY LOCAL JURISDICTION

D. INSPECTIONS BY COMPANY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN INSPECTION ACTIVITIES, FINAL ACCEPTANCE / PUNCH WALK REVIEW, AND/OR AS A RESULT OF TESTING

E. SPRINT RESERVES THE RIGHT TO INSPECT THE CONSTRUCTION SITE AT ANY TIME VIA SITE WALKS AND/OR PHOTO REVIEWS. CONTRACTOR SHALL GIVE SPRINT 24 HOURS NOTICE PRIOR TO THE COMMENCEMENT OF THE FOLLOWING CONSTRUCTION ACTIVITIES AND PHOTOGRAPHS OF THE IN-PROGRESS WORK.
1. GROUNDING SYSTEM AND BURIED UTILITIES 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. PRIOR TO CONSTRUCTION ACTIVITIES AND AFTER CONSTRUCTION IS COMPLETE, PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ROOF, FLASHINGS, AND PARAPETS, BOTH BEFORE AND AFTER CONSTRUCTION IS COMPLETE.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. TOWER TOP AND INACCESSIBLE EQUIPMENT (RRUS, ANTENNAS, AND CABLING): PROVIDE PHOTOS OF THE BACKS OF ALL ANTENNAS, RRUS, COMBINERS, FILTERS, FIBER AND DC CABLING, CABLE COLOR CODING, EQUIPMENT GROUNDING AND CONNECTOR WATER PROOFING INCLUDING NAME PLATE AND SERIAL NUMBER FOR ALL SERIALIZED EQUIPMENT.

PROJECT CLOSEOUT:

A. FINAL ACCEPTANCE PUNCH WALK AND INSPECTION: AS IDENTIFIED IN THE SCOPE OF SERVICES, SPRINT WILL CONDUCT A FINAL PUNCH WALK OR FINAL DESK TOP PHOTO REVIEW (SITE MODIFICATIONS). PUNCH WALKS MUST BE SCHEDULED IN ADVANCE AS REQUIRED. AT THE PUNCH WALK / REVIEW, SPRINT MAY IDENTIFY CRITICAL DEFICIENCIES WHICH MUST BE CORRECTED PRIOR TO PUTTING SITE ON AIR. MINOR DEFICIENCIES MUST BE CORRECTED WITHIN 30 DAYS EXCEPT AS OTHERWISE REQUIRED. VERIFICATIONS OF CORRECTIONS MAY BE MADE BY COMPANY DURING A REPEAT SITE WALK OR DESK TOP PHOTO REVIEW AT COMPANY'S SOLE DISCRETION.

B. CLOSEOUT DOCUMENTATION: ALL CLOSEOUT DOCUMENTATION AND PHOTOGRAPHS SHALL BE UPLOADED PRIOR TO FINAL ACCEPTANCE. SPRINT WILL REVIEW CLOSEOUT DOCUMENTATION FOR PRESENCE AND CONTENT. CLOSEOUT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING AS APPLICABLE:
1. COAX SWEEP TESTS:
2. FIBER TESTS:
3. JURISDICTION FINAL INSPECTION DOCUMENTATION
4. REINFORCEMENT CERTIFICATION (MILL CERTIFICATION)
5. CONCRETE MIX DESIGN AND PRODUCT DATA (TOWER FOUNDATION)
6. LIEN WAIVERS AND RELEASES.
7. POST -CONSTRUCTION HEIGHT VERIFICATION
8. JURISDICTION CERTIFICATE OF OCCUPANCY
9. ELECTRONIC ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
10. STRUCTURAL BACKFILL TEST RESULTS (IF APPLICABLE)
11. CELL SITE UTILITY SETUP
12. AS-BUILT REDLINE CONSTRUCTION DRAWINGS (PDF SCAN OF FIELD MARKS)
13. AS-BUILT CONSTRUCTION DRAWINGS IN DWG AND PDF FORMATS
14. LIST OF SUB CONTRACTORS
15. APPROVED PERMITTING DOCUMENTS
16. FINAL SITE PHOTOS UP-LOADED TO SITERRA. INCLUDE THE FOLLOWING AS APPLICABLE:
    a. TOWER, ANTENNAS, RRUS, AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAXCABLE 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.
    b. 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;
    c. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
    d. 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.

PROJECT PHOTOGRAPHS:

A. PROVIDE PROJECT CLOSEOUT GENERAL ARRANGEMENT PHOTOS OF ALL NEW WORK. THE FOLLOWING LIST REPRESENTS MINIMUM REQUIREMENTS AND MINIMUM QUANTITY. ADDITIONAL PHOTOS MAY BE REQUIRED TO ADEQUATELY DOCUMENT THE WORK.
1. ASR AND RF MPE SIGNAGE (IF NOT IN PLACE, SUPPLIER NOTIFIES EMS FIELD REPRESENTATIVE)
2. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR)
3. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR) CLOSE UP SHOWING WEATHERPROOFING AND GROUNDING (AS REQUIRED). CLOSE-UP OF BACK SIDE OF EACH PERMANENT RRU SHOWING SERIAL NUMBER/BAR CODE.
4. VIEW (1 EACH SECTOR) ALONG THE AZIMUTH AND TILT OF THE ANTENNAS
5. TOP OF TOWER FROM GROUND, 1 EACH SECTOR
6. MAINLINE HYBRID CABLE ROUTE DOWN TOWER SHOWING FASTENERS AND SUPPORT
7. MAINLINE/HYBRID CABLE ROUTE ALONG ICE BRIDGE OR IN CABLE TRAY SHOWING FASTENERS AND SUPPORT
8. GROUND MOUNTED RRU RACKS (FRONT AND BACK)
9. FRONT, SIDE AND BACK ELEVATIONS OF ALL GROUND CABINETS
10. VIEW OF COMPOUND FROM A DISTANCE
11. VIEW OF EACH GROUND CABINET (POWER, RF, FIBER SPOOL, PPC POWER, PPC TELCO WITH DOOR OPEN)
12. BACKHAUL FIBER MEET-ME-POINT AND CONDUIT ROUTE (MICROWAVE INSTALLATION IF NOT FIBER)
13. AAV NETWORK INTERFACE DEVICE OR MICROWAVE RADIO INSTALLATION

DEFICIENCY CORRECTIONS:

CONTRACTOR IS RESPONSIBLE FOR ALL CORRECTIONS TO DEFICIENCIES IDENTIFIED THROUGH TESTING, REVIEW OF SUBMITTALS, INSPECTIONS AND CLOSEOUT REVIEWS.

SECTION 01 500 - PROJECT REPORTING

WEEKLY REPORTS:

A. CONTRACTOR SHALL REPORT TO SPRINT AT MINIMUM ON A WEEKLY BASIS VIA SITERRA BY UPDATING ALL APPLICABLE POST END KEEPING MILESTONES WITH ACTUAL AND FORECASTED COMPLETION DATES.

B. ADDITIONAL REQUIREMENTS FOR REPORTING MAY BE IDENTIFIED ELSEWHERE OR REQUIRED BY THE SCOPE OF SERVICES OR SPRINTS LOCAL MARKET CONSTRUCTION MANAGER. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

PROJECT CONFERENCE CALLS:

SPRINT MAY HOLD PERIODIC 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.

FINAL PROJECT ACCEPTANCE: PRIOR TO SPRINTS FINAL PROJECT ACCEPTANCE. ALL REQUIRED MILESTONE ACTUALS MUST BE UPDATED IN SITERRA AND ALL REQUIRED REPORTING TASKS MUST BE COMPLETE.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

SUMMARY:

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRU'S:

THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:

HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURERS REQUIREMENTS.

JUMPERS AND CONNECTORS:

FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN. LENGTH FOR JUMPER SHALL BE 10'-0".

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:

INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:

THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.

B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLE INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
    a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
    b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
    a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
    b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
    c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 (CURRENT VERSION).
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

DC CIRCUIT BREAKER LABELING

A. NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING SERVICED.

SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS

SUMMARY:

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS

QUALITY ASSURANCE:

A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.

B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.

C. MATERIALS AND EQUIPMENT: ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
1. ALLIED TUBE AND CONDUIT.
2. B-LINE SYSTEM.
3. UNISTRUT DIVERSIFIED PRODUCTS.
4. THOMAS & BETTS.

B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

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STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED PROFESSIONAL ENGINEER

Signature: 4/25/2019 Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: SP-2

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SUPPORTING DEVICES:

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:

1. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

2. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.

B. CABLE TERMINATION FITTINGS FOR CONDUIT

1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.

2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM:

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO-OX.

C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

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Signature: 4/25/2019 Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 28753

SHEET NUMBER: SP-3

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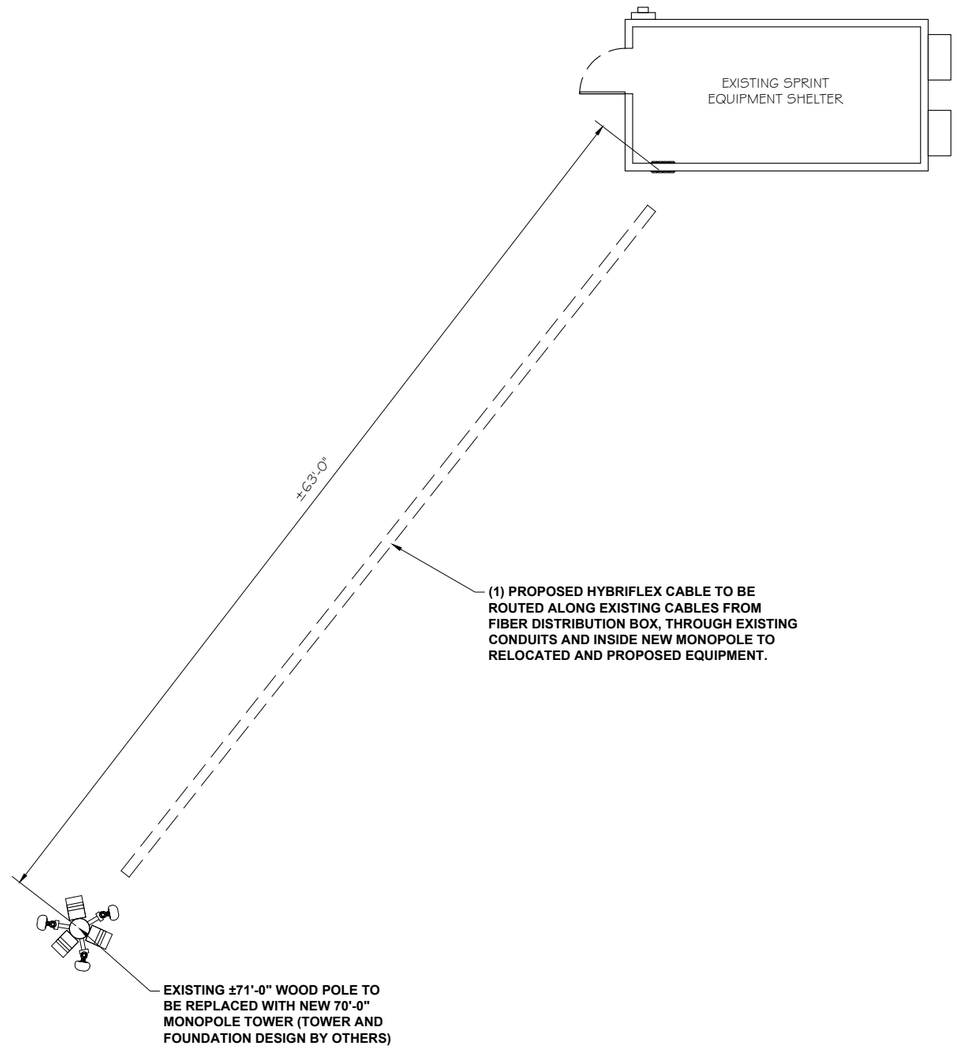

SITE PLAN
SCALE: 1" = 10'

1

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DATE ISSUED: 04/25/2019

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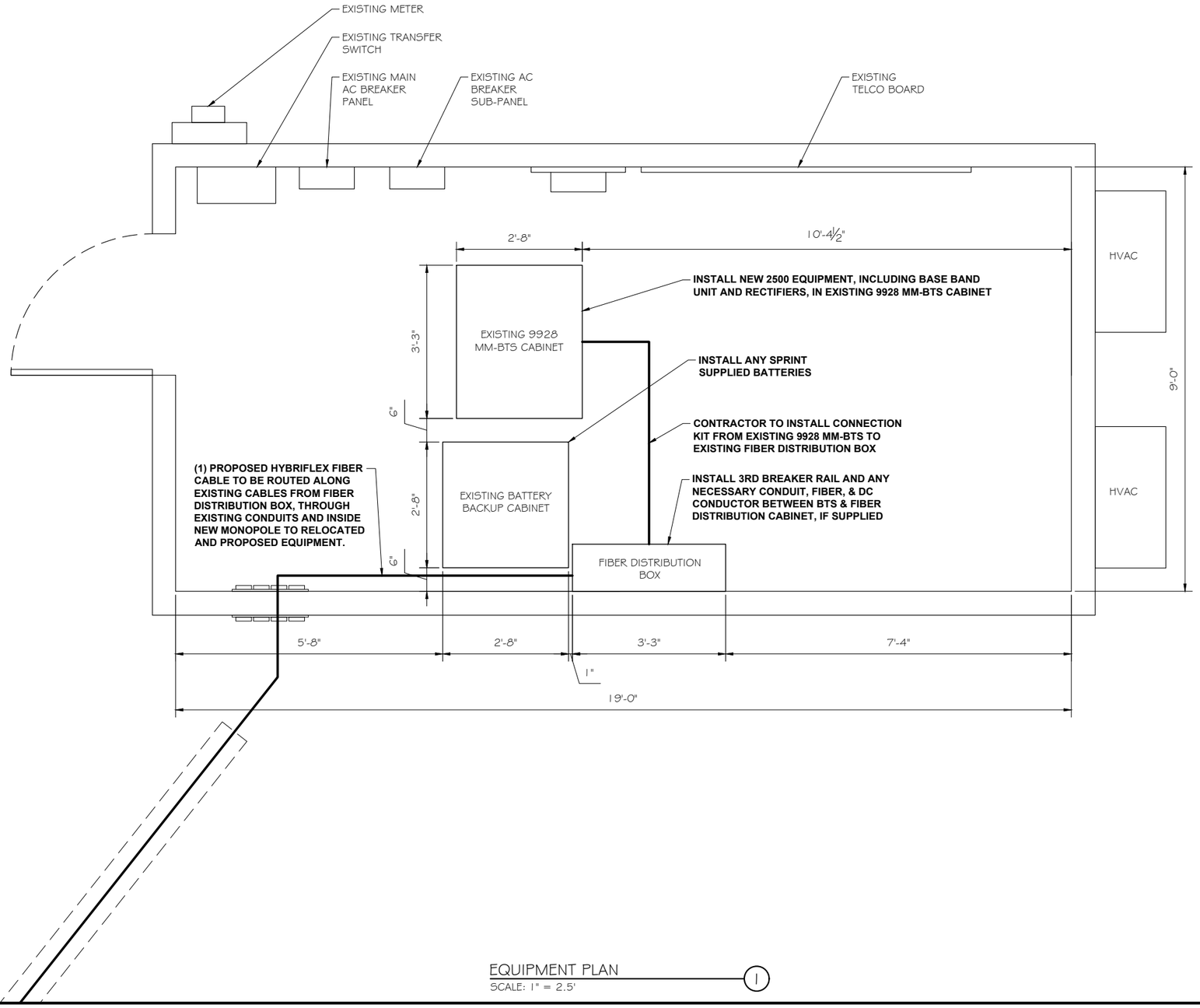
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
SITE PLAN

0 5' 10' 20'
11" x 17" - 1" = 10'
22" x 34" - 1" = 5'

PROJECT NUMBER: 28753
SHEET NUMBER: A-1



EQUIPMENT PLAN
SCALE: 1" = 2.5'
1

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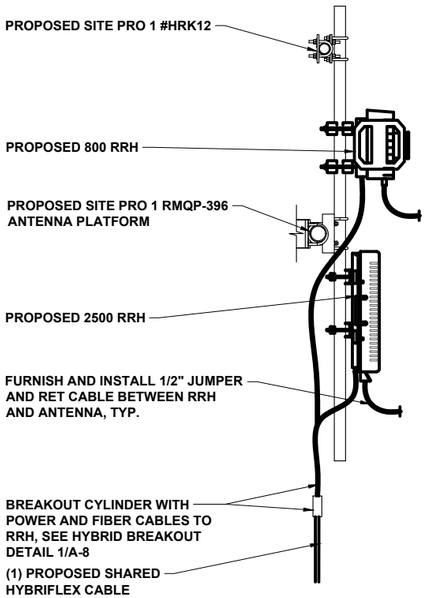
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

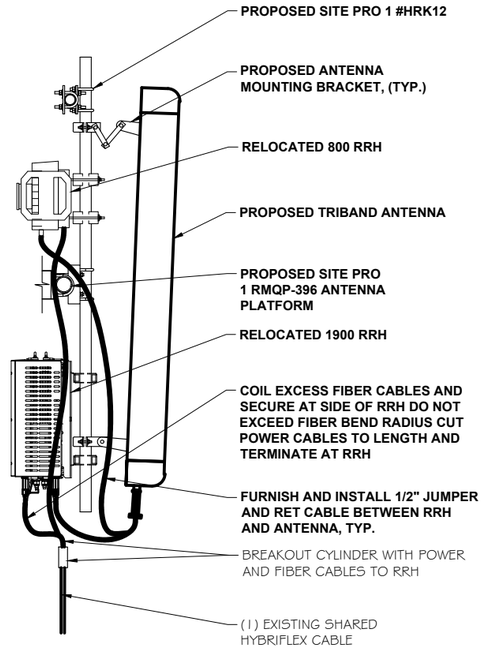
PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT PLAN

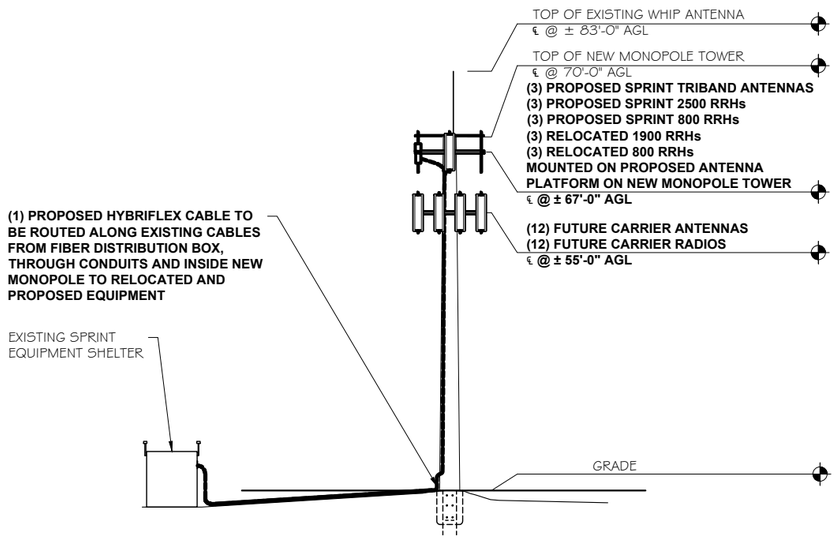
0 1.25' 2.5' 5'
11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

PROJECT NUMBER: 28753
SHEET NUMBER: A-2

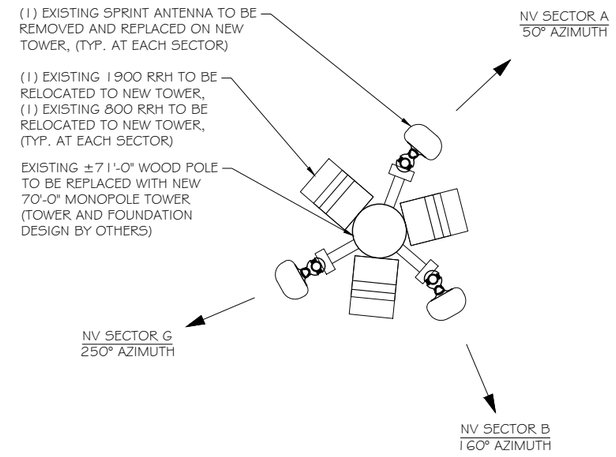




ANTENNA & RRH MOUNTING DETAILS (1)
SCALE: NTS

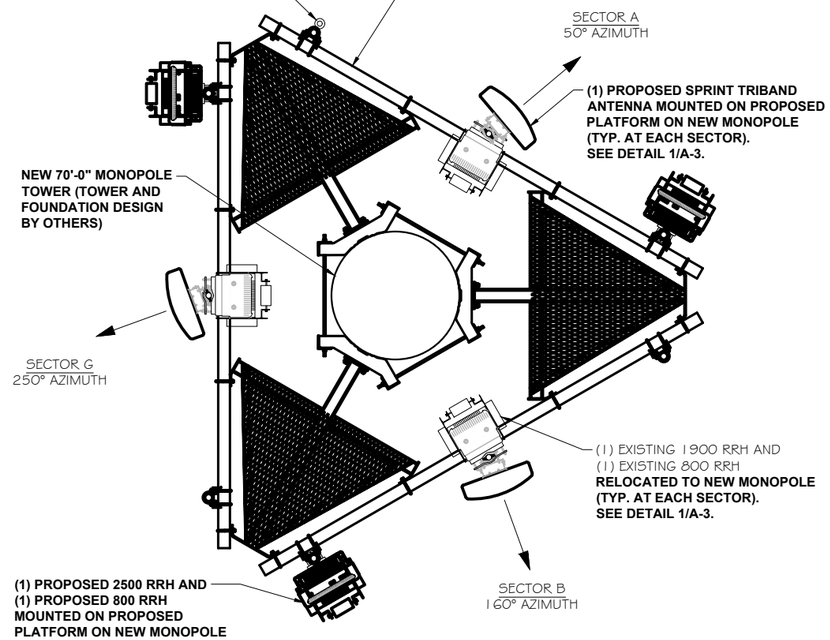


BUILDING ELEVATION (2)
SCALE: 1" = 30'



NORTH

EXISTING ANTENNA ARRAY (3)
SCALE: NTS



NORTH

PROPOSED ANTENNA ARRAY (4)
SCALE: NTS

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WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
POLE ELEVATIONS & ANTENNA DETAILS

0 15' 30' 60'
11" x 17" - 1" = 30'
22" x 34" - 1" = 15'

PROJECT NUMBER: 28753
SHEET NUMBER: A-3

800/1900/2.5 EQUIPMENT SCHEDULE

SECTOR	POSITION	ANTENNA MAKE/MODEL	AZIMUTH	CENTERLINE	RRH	CABLE TYPE	CABLE LENGTH	JUMPER TYPE
ALPHA	1	(1) RELOCATED WHIP ANTENNA	-	-	-	-	-	-
	2	**(1) PROPOSED TRIBAND PANEL ANTENNA (KMW ETCR-654L12H6)**	**50°**	**67'-0"**	(1) RELOCATED 800 RRH (ALU RRH-2x50-800) (1) RELOCATED 1900 RRH (ALU RRH-4x45-1900)	EXISTING HYBRIFLEX	N/A	EXISTING
	3	-	-	-	**(1) PROPOSED 800 RRH (ALU RRH-2x50-800)** **(1) PROPOSED 2500 RRH (NOKIA FZHN)**	**(1) PROPOSED HYBRIFLEX**	**144'**	**8' HYBRID**
BETA	**1**	-	-	-	-	-	-	-
	2	**(1) PROPOSED TRIBAND PANEL ANTENNA (KMW ETCR-654L12H6)**	**160°**	**67'-0"**	(1) RELOCATED 800 RRH (ALU RRH-2x50-800) (1) RELOCATED 1900 RRH (ALU RRH-4x45-1900)	EXISTING HYBRIFLEX	N/A	EXISTING
	3	-	-	-	**(1) PROPOSED 800 RRH (ALU RRH-2x50-800)** **(1) PROPOSED 2500 RRH (NOKIA FZHN)**	**SHARED W/ ALPHA**	**144'**	**8' HYBRID**
GAMMA	**1**	-	-	-	-	-	-	-
	2	**(1) PROPOSED TRIBAND PANEL ANTENNA (KMW ETCR-654L12H6)**	**250°**	**67'-0"**	(1) RELOCATED 800 RRH (ALU RRH-2x50-800) (1) RELOCATED 1900 RRH (ALU RRH-4x45-1900)	EXISTING HYBRIFLEX	N/A	EXISTING
	3	-	-	-	**(1) PROPOSED 800 RRH (ALU RRH-2x50-800)** **(1) PROPOSED 2500 RRH (NOKIA FZHN)**	**SHARED W/ ALPHA**	**144'**	**8' HYBRID**

*EQUIPMENT SCHEDULE WAS GENERATED BY RAMAKER & ASSOCIATES FROM PLAN OF RECORD (POR) PROVIDED BY SPRINT. CONTRACTOR SHALL VERIFY AND OBTAIN FINAL RFDS FROM SPRINT CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

NOTES:

1. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND C/L HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5GHZ ANTENNA AT SAME C/L HEIGHT AS 1.9GHZ ANTENNA AND EMAIL CORRECT C/L HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT C/L HEIGHT. ALSO EMAIL CORRECT 1.9GHZ AND 800MHZ ANTENNA C/L HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
2. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5GHZ. TEST TO INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
3. GENERAL CONTRACTOR MUST ENSURE THAT NO OBJECT IS LOCATED WITHIN 45 DEGREES OF LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5GHZ ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
4. 2.5GHZ ANTENNA MUST BE AT LEAST 6" FROM 1.9GHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30" FROM DUAL BAND 1.9GHZ AND 800MHZ ANTENNA.
5. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREE. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 32 RF ALIGNMENT TOOL OR EQUIVALENT TOOL.

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CT60XC001-R

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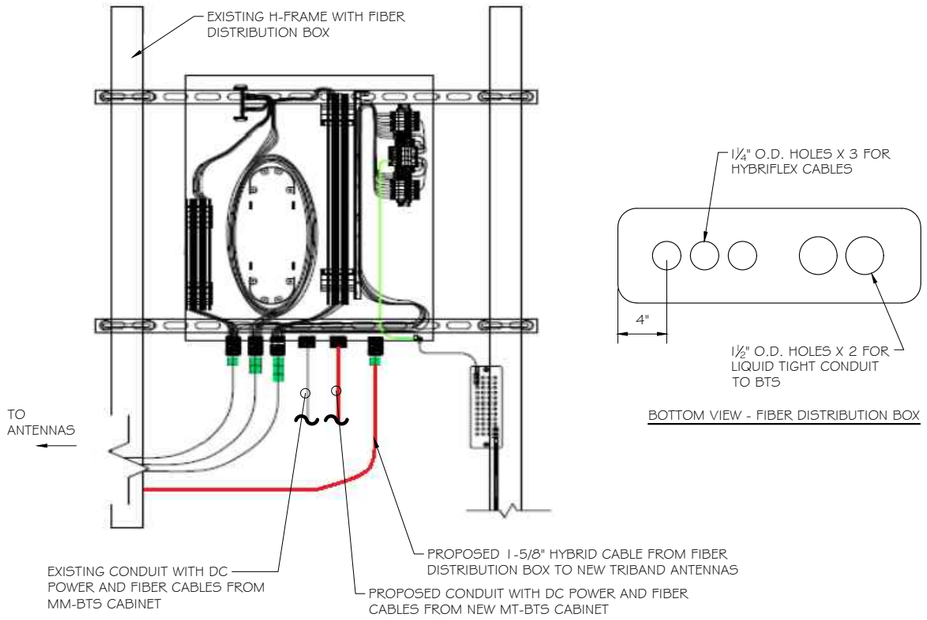
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
RF DATA SHEET

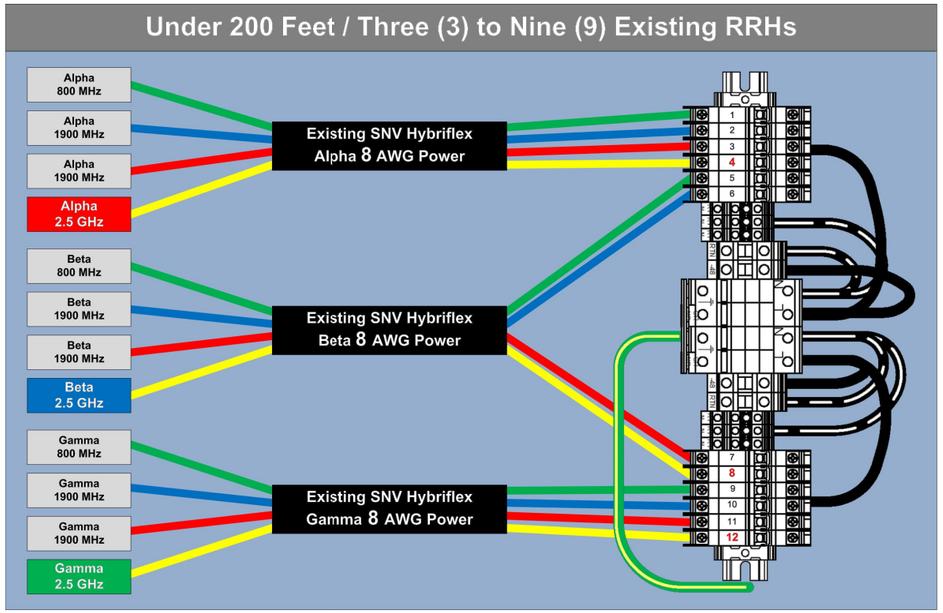
SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: A-4

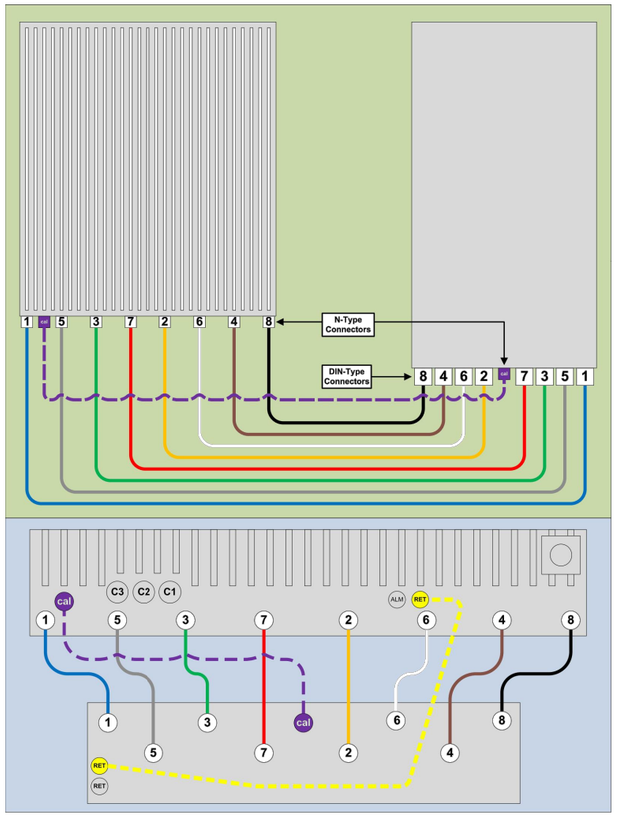


TYPICAL FIBER DISTRIBUTION BOX DETAIL (1)
SCALE: NTS

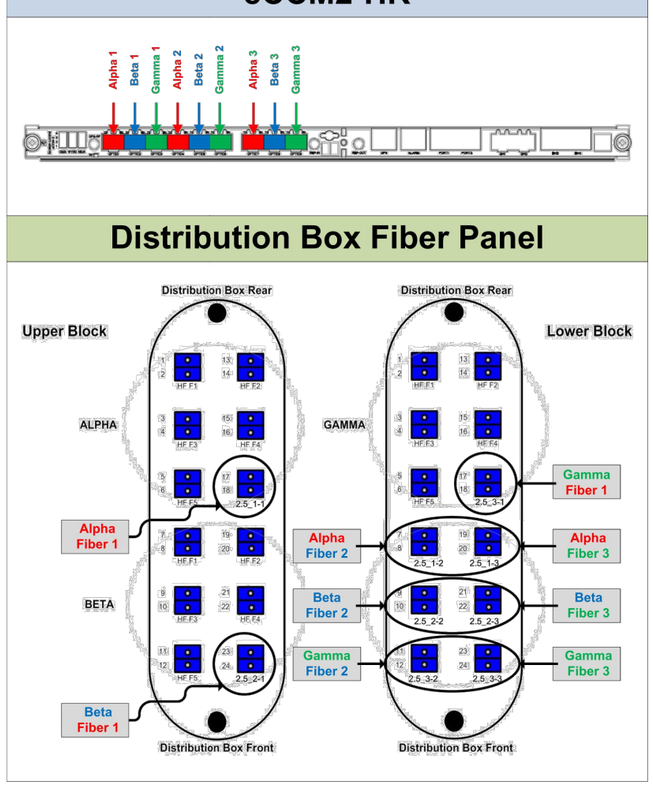
BOTTOM VIEW - FIBER DISTRIBUTION BOX



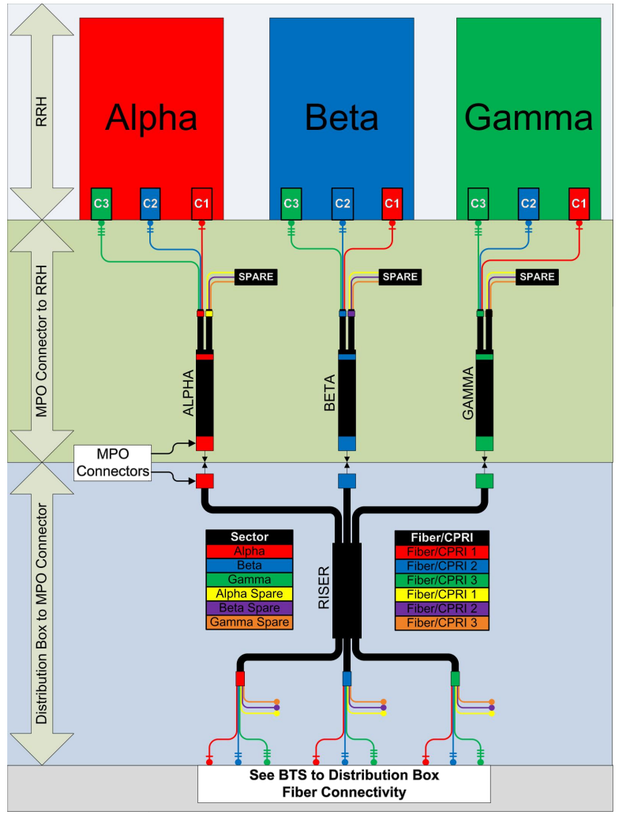
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL (2)
SCALE: NTS



8T8R DETAIL (3)
SCALE: NTS



BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL (4)
SCALE: NTS



RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL (5)
SCALE: NTS

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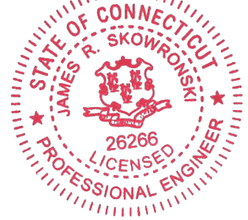


Signature: 4/25/2019 Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

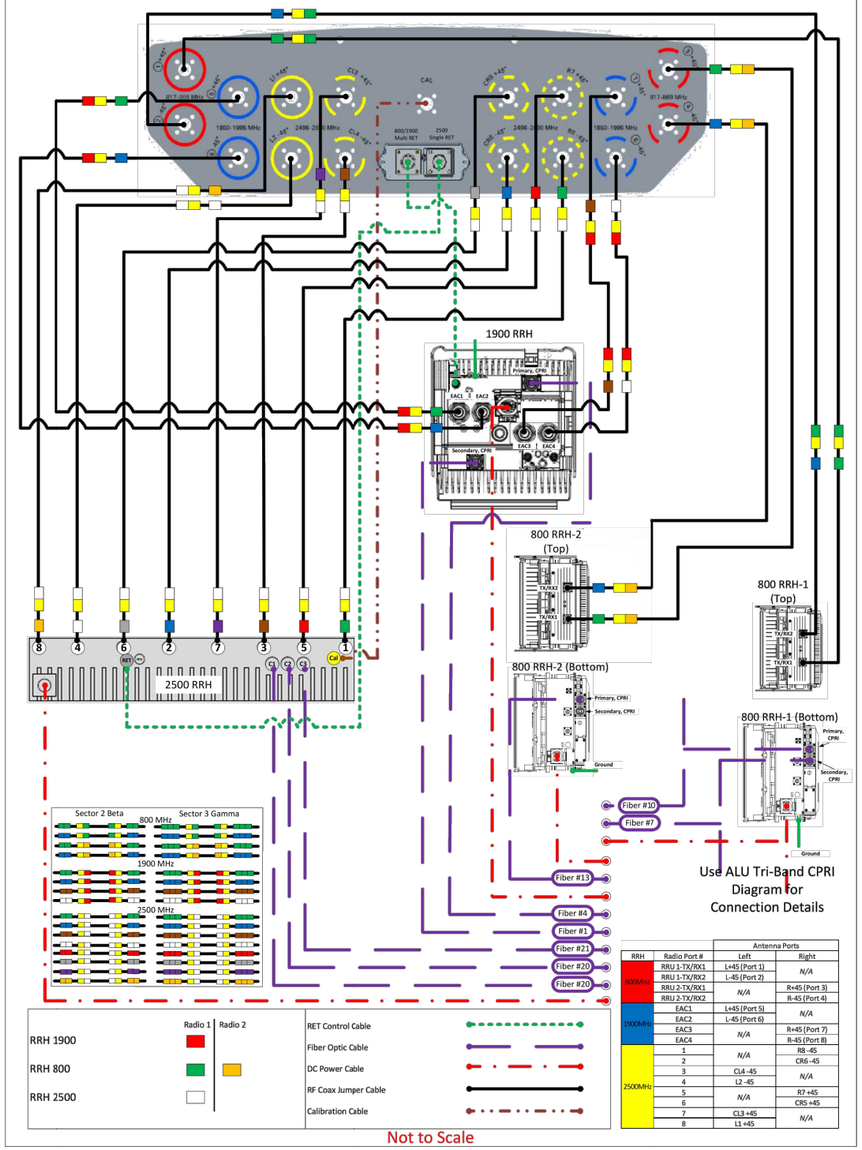
SHEET TITLE:
FIBER PLUMBING DIAGRAM

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: A-5

I:\28700\28753\CAD\28753_CT60XC001_DO Macro Upgrade_CDs.dwg Printed by: bwtmer on Apr 25, 2019 - 1:55pm

KMW 16 Port Nokia-A RRH 800, 1900, and 2500



RRH	Radio Port #	Antenna Ports Left	Antenna Ports Right
800MHz	RRU 1-TX/RX1	L+45 (Port 1)	N/A
	RRU 1-TX/RX2	L-45 (Port 2)	
	RRU 2-TX/RX1	N/A	R+45 (Port 3)
	RRU 2-TX/RX2		R-45 (Port 4)
1900MHz	EAC1	L+45 (Port 5)	N/A
	EAC2	L-45 (Port 6)	
	EAC3	N/A	R+45 (Port 7)
	EAC4		R-45 (Port 8)
2500MHz	1	N/A	R8 -45
	2		CR6 -45
	3	CL4 -45	N/A
	4	L2 -45	
	5	N/A	R7 +45
	6		CR5 +45
	7	CL3 +45	N/A
	8	L1 +45	

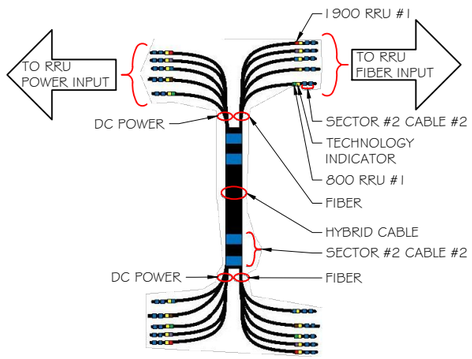
Not to Scale

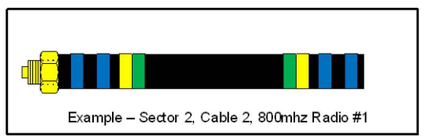
ANTENNA COLOR CODING CHART (1)
SCALE: NTS

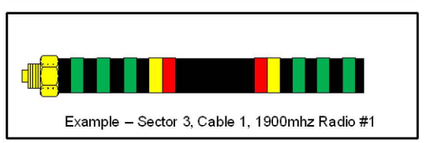
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue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

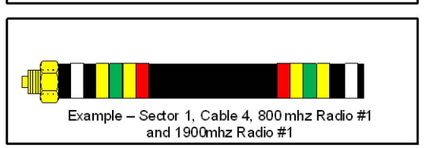
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

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




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


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


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

COLOR CODING CHARTS (2)
SCALE: NTS

CABLE MARKING NOTES

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

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STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 4/25/2019

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

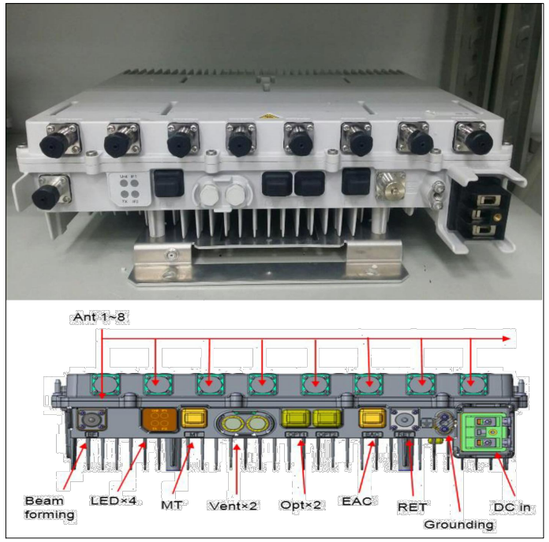
PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
CABLE COLOR CODING

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: A-6



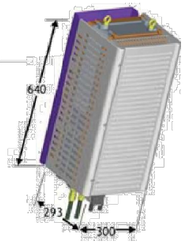
MECHANICAL	
DIMENSION (HxWxD)	4.9"x16.6"x14.6"
WEIGHT	44 lbs

RRH MODEL: NOKIA #FZHN - RADIO SPECS

MECHANICAL	
DIMENSION (HxWxD)	84.9" x 21.0" x 6.3"
WEIGHT	84.9 lbs

ANTENNA MODEL: KMW #ETCR-654L12H6 - ANTENNA SPECS

1900MHz Remote Radio Head (RRH)



Capacity & Features

CDMA / LTE Multi technology RRH 65MHz bandwidth (PCS A-G Band)

- Sprint is free to deploy any combination of CDMA (1XRTT or EVDO) and LTE carriers in Sprint's spectrum up to 160 Watts of RF power.
- E.g. "A block" and "G block" both with 4 branch MIMO (4Tx & 4Rx)

2 CPRI Optical Connections for multi-carrier LTE and CDMA (1X & DO)

Power Supply: -48 VDC

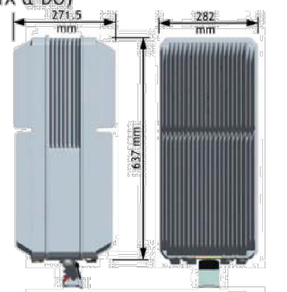
Power Consumption: 700W Typical

Dimensions:

- Size: 282 x 271.5 x 637mm (11.1" x 10.69" x 25.1")
- Volume: 49 Liter
  56 liters with solar shield & mounting OD

Weight: 27 kg (59.5 lbs)

Operating Temp range -40°C/+55°C



Alcatel-Lucent's 65MHz RRH satisfies Sprint's requirements.

MECHANICAL	
DIMENSION (HxWxD)	25.2"x11.8"x11.5"
WEIGHT	59.5 lbs

RRH MODEL: ALU #1900 MHZ 4X45W - RADIO SPECS

800MHz 2X50W Remote Radio Head (RRH)

Simultaneous CDMA & LTE Multi technology RRH 862-869 MHz

- Any combination of CDMA and LTE carriers supported by 100W RF Power

2 CPRI-like Optical Connections for daisy chaining

Software Switchable External Filter for use before Public Safety is cleared

Dimensions:	w/o Filter	w/ Filter
Height:	480 mm (19")	480 mm (19")
Width:	330 mm (13")	330 mm (13")
Depth:	218 mm (8.6")	310 (12.2")
Weight:	24 kg (53 lbs)	29 kg (64 lbs)
	49 liters,	<29kg

Power Supply: -48 VDC

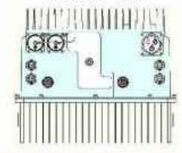
Power Consumption: <400W Typical

Operating Temp range -40°C to +55°C

Option to mount on Ground at tower base

Front/Top View

Bottom View



Alcatel-Lucent's 800 RRH satisfies Sprint's requirements.

MECHANICAL	
DIMENSION (HxWxD)	19" x 13" x 12.2"
WEIGHT	64 lbs

RRH MODEL: ALU #800 MHz 2x50W - RADIO SPECS

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Signature: 4/25/2019 Date:

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

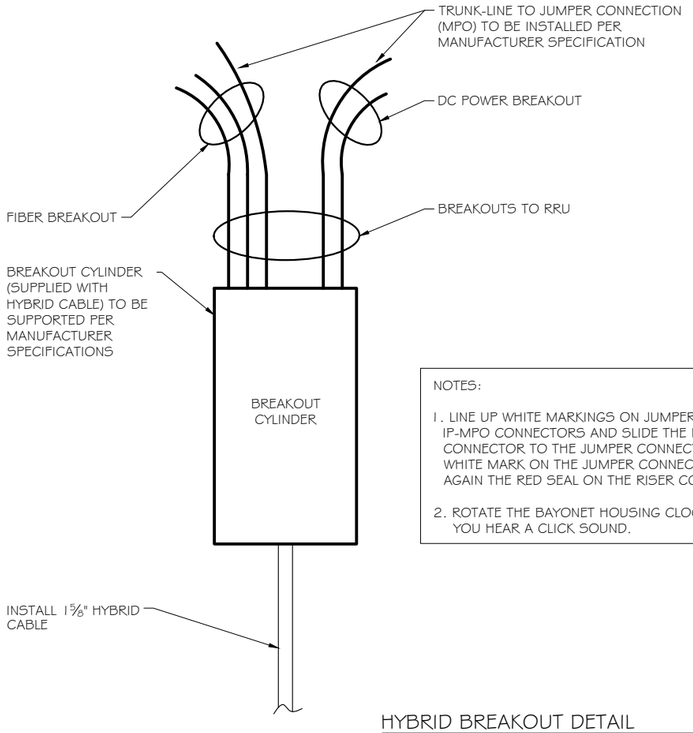
PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
ANTENNA & HYBRID CABLE DETAILS

SCALE: NONE

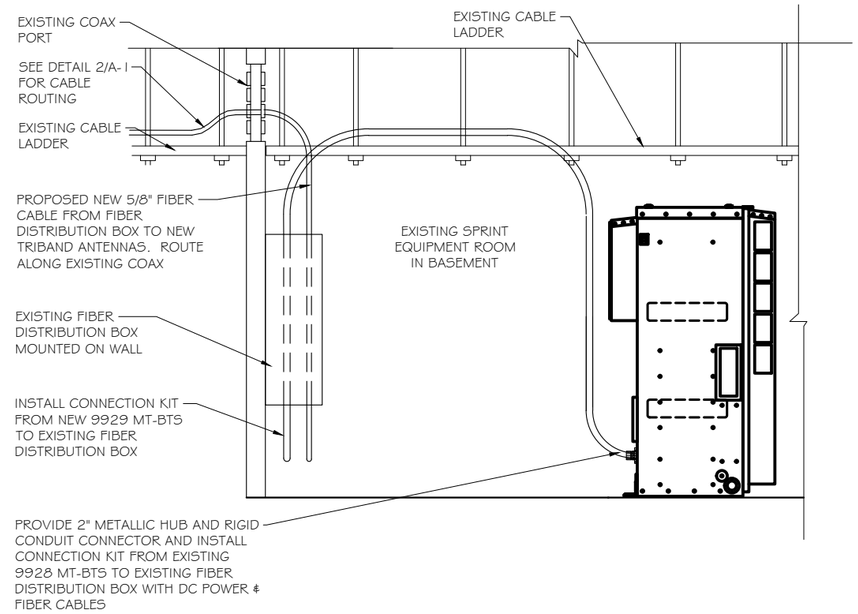
PROJECT NUMBER: 28753
SHEET NUMBER: A-7



NOTES:

1. LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.
2. ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND.

HYBRID BREAKOUT DETAIL (1)
SCALE: NTS

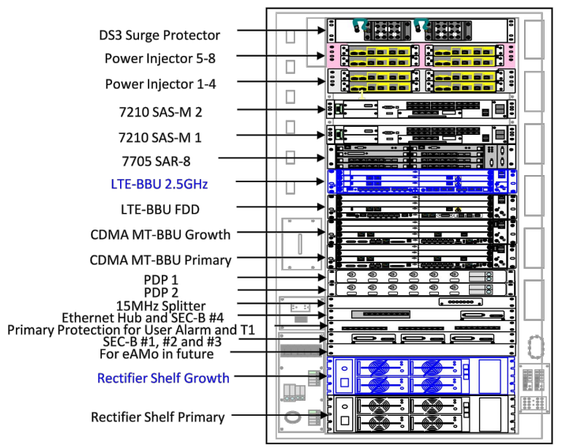


CABLE ROUTE FROM CABINET (2)
SCALE: NTS

(2) PROPOSED BATTERY STRINGS TO BE INSTALLED IN EXISTING BATTERY CABINET

EXISTING BBU CABINET (3)
SCALE: NTS

INSTALL NEW 2500 EQUIPMENT, INCLUDING BASE BAND UNIT, CELL SITE ROUTER, RECTIFIERS, AND SURGE ARRESTORS AS NEEDED IN EXISTING MM-BTS CABINET



EXISTING MMBS CABINET (4)
SCALE: NTS

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WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT DETAILS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: A-8

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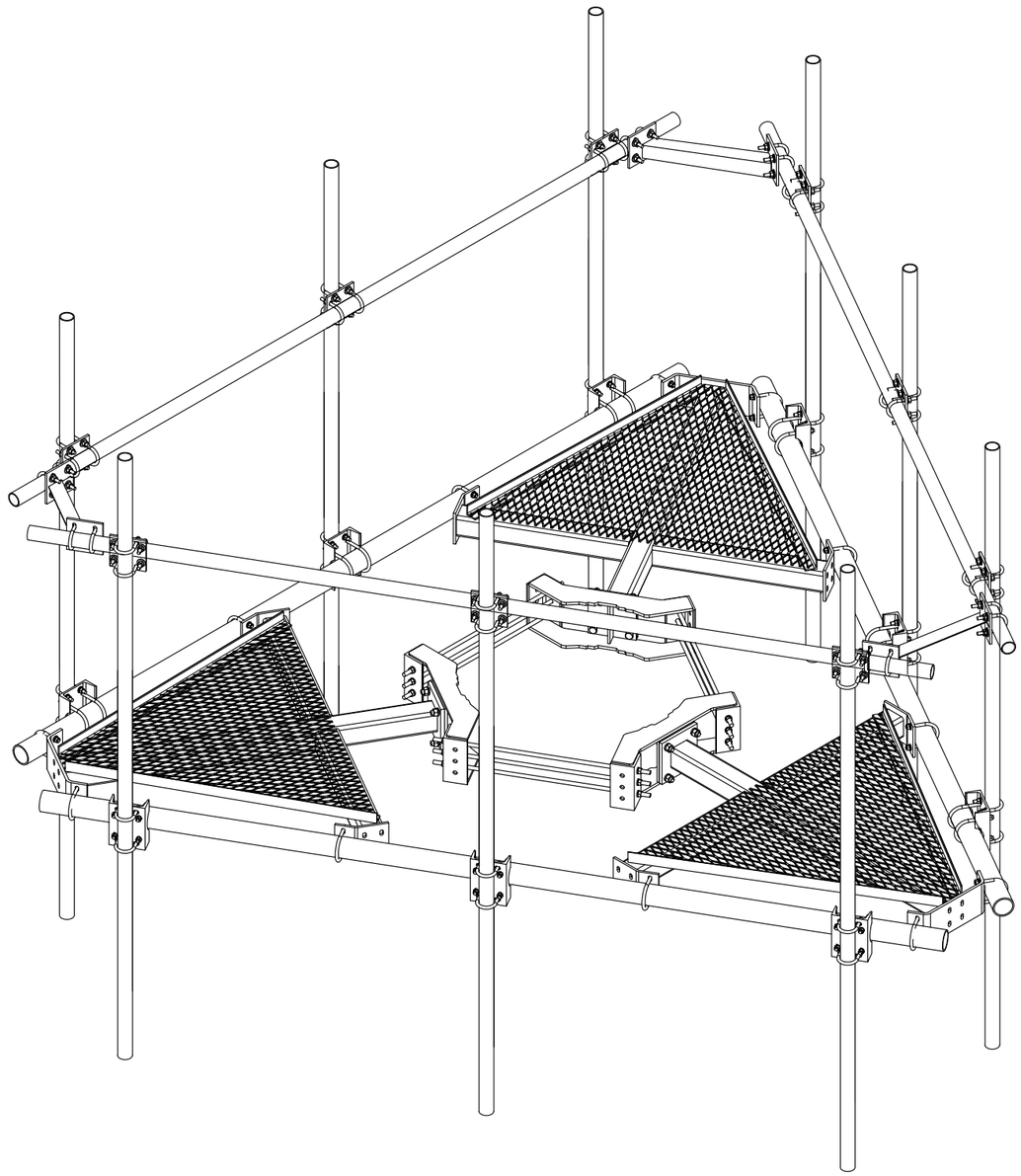

PROPOSED ANTENNA MOUNTING PLATFORM:
SITE PRO 1 #RMQP-396 W/ #HRK12 HANDRAIL (1)
SCALE: NTS

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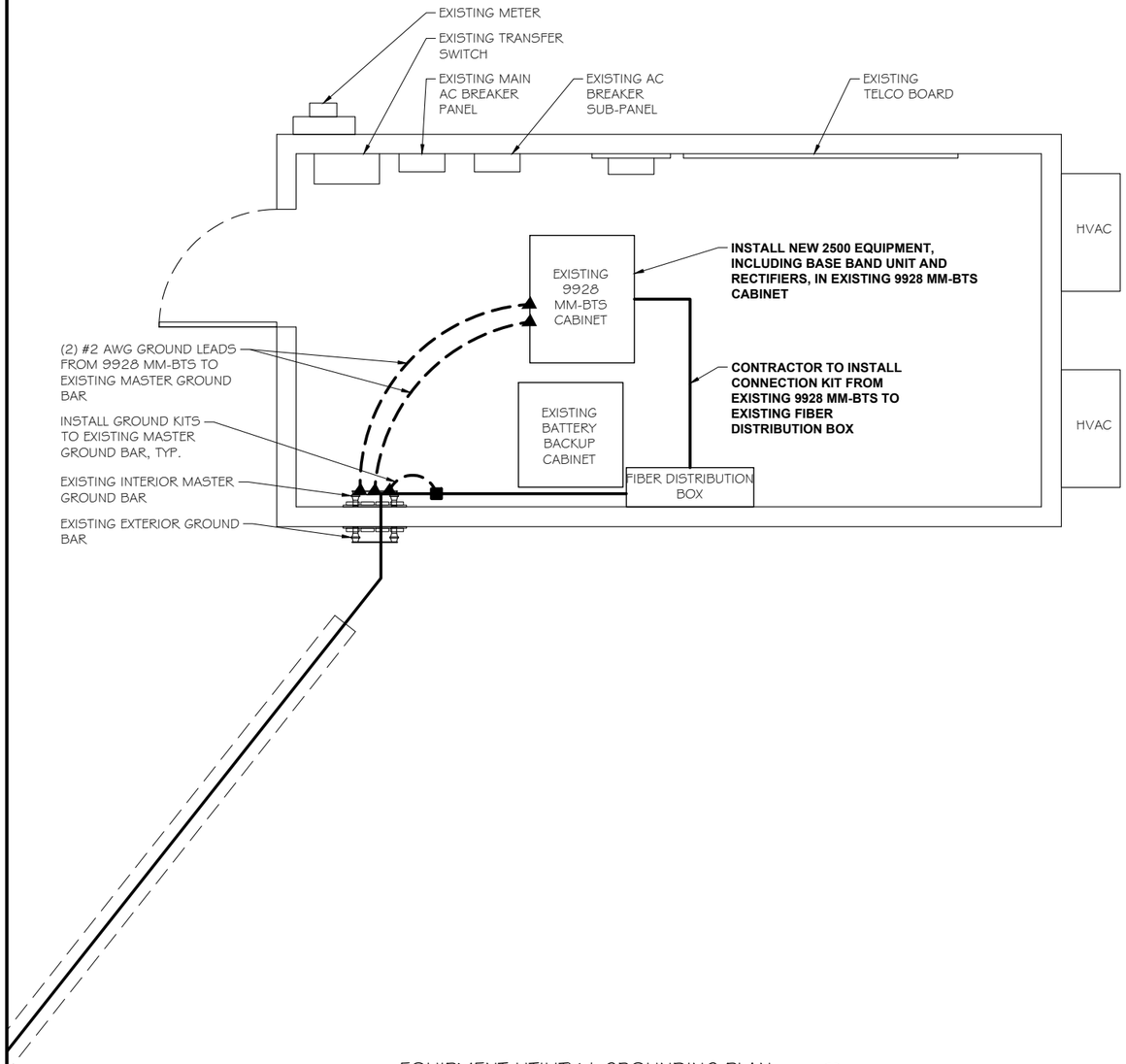
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

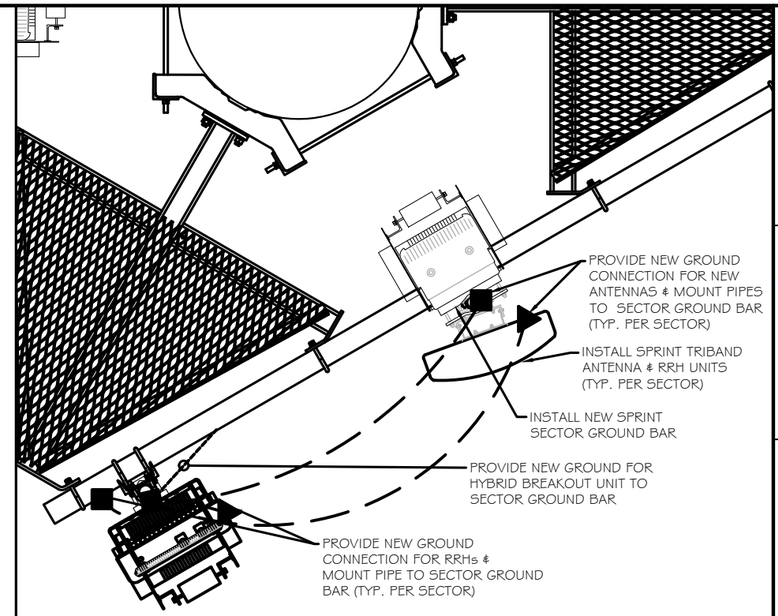
SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: S-1



EQUIPMENT UTILITY & GROUNDING PLAN (1)
SCALE: NTS



ANTENNA GROUNDING DETAIL (2)
SCALE: NTS

GROUNDING NOTES:

1. CONTRACTOR TO ENSURE PROPER SEQUENCING OF GROUNDING AND UNDERGROUND CONDUIT INSTALLATION TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM AND/OR DAMAGE TO THE CONDUIT.
2. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS NOTED OTHERWISE.
3. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
4. ALL GROUND CONNECTIONS ABOVE GRADE AND/OR INTERIOR SHALL BE COMPRESSION TYPE, TWO-HOLE LUGS OR DOUBLE-CRIMP "C" TAPS.
5. CONTACT AREAS WHERE CONNECTIONS ARE MADE SHALL BE PREPARED TO A BARE BRIGHT FINISH AND COATED WITH AN ANTI-OXIDATION MATERIAL BEFORE CONNECTIONS ARE MADE.
6. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
7. WHERE GROUNDING CONNECTIONS ARE MADE TO PAINTED METAL SURFACES, PAINT SHALL BE REMOVED TO BEAR METAL TO ENSURE PROPER CONTACT AND RESTORED/PAINTED TO ORIGINAL FINISH.
8. GROUND DEPTH SHALL BE 30" MINIMUM BELOW FINISHED GRADE, OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.

LEGEND:	
– – – – – – – – – – – – –	EXISTING GROUND CABLE
▬▬▬▬▬▬▬▬▬▬▬▬	PROPOSED GROUND CABLE
▲	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
—E—E—E—E—	PROPOSED ELECTRIC

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STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 4/25/2019

MARK	DATE	DESCRIPTION
0	04/25/19	FINAL CDs ISSUED

ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

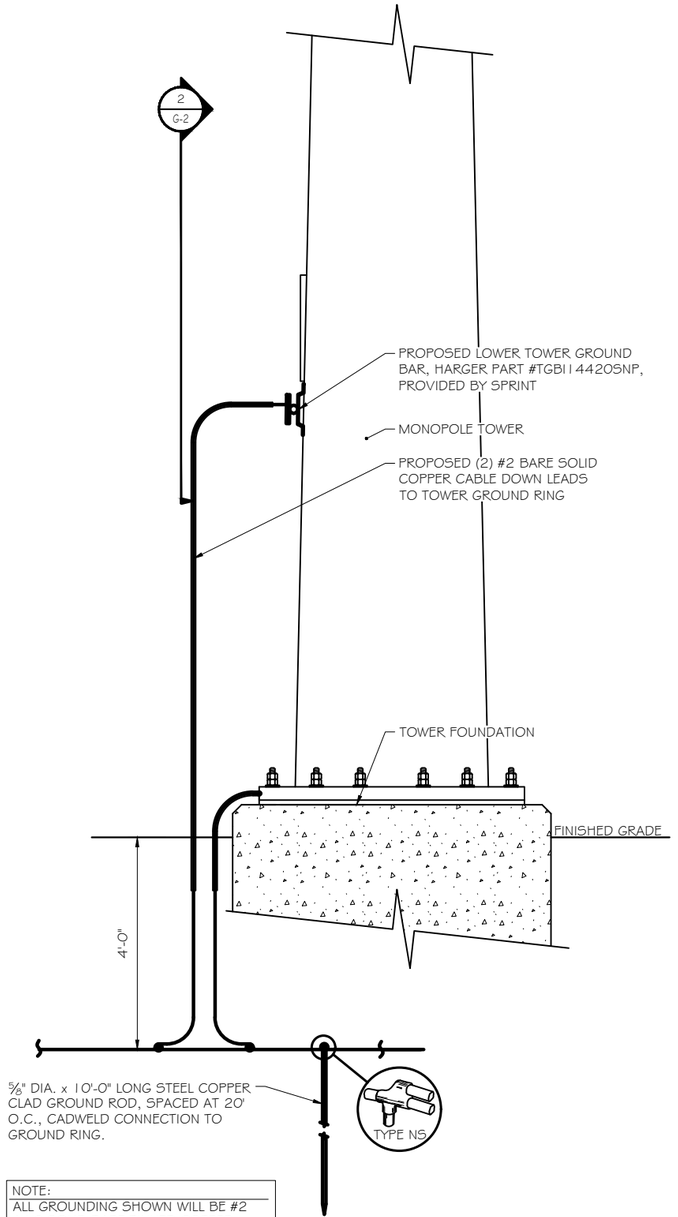
PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT UTILITY & GROUNDING PLAN

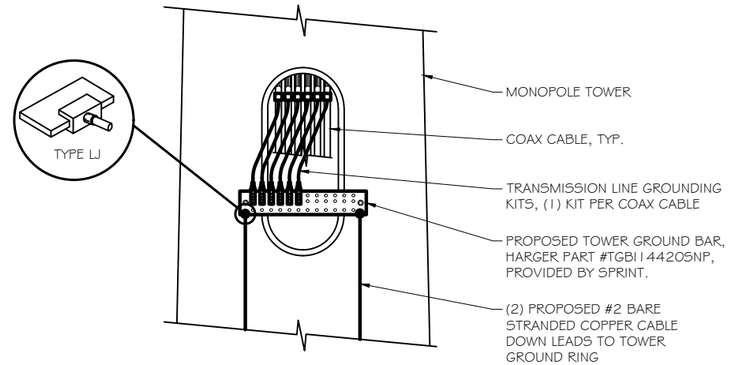
SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: E-1

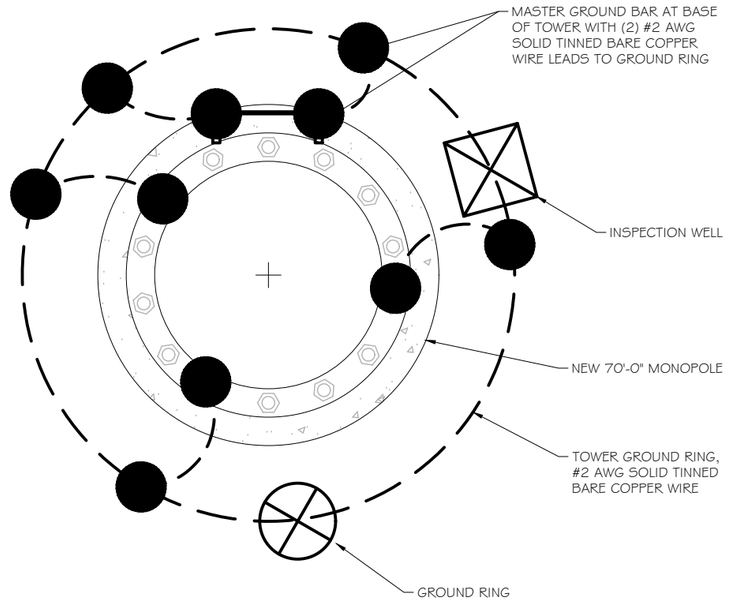


NOTE:
ALL GROUNDING SHOWN WILL BE #2 AWG SOLID BARE TINNED COPPER, UNLESS NOTED OTHERWISE IN DETAILS.

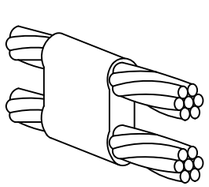
TOWER GROUNDING RISER 1
SCALE: NTS



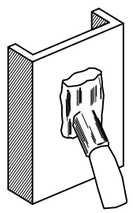
GROUNDING DETAIL AT TOWER 2
SCALE: NTS



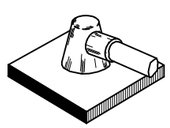
TOWER GROUNDING PLAN 3
SCALE: NTS



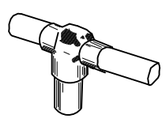
TYPE PT (PARALLEL HORIZ. COND.)
PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES
TYPE PT



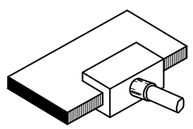
TYPE VS (VERT. STEEL SURFACE)
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE
TYPE VS



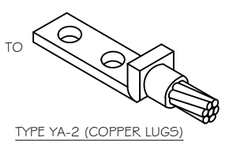
TYPE HS (HORIZ. STEEL SURFACE)
TO FLAT STEEL SURFACE OR HORIZONTAL PIPE
TYPE HS



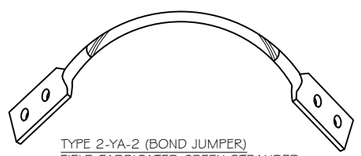
TYPE GT (THROUGH CABLE TO GROUND ROD)
THROUGH CABLE TO TOP OF GROUND ROD
TYPE GT



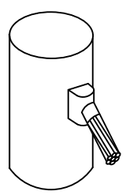
TYPE LJ (FLAT BUSBAR)
TAP OF HORIZONTAL CABLE TO EDGE OF HORIZONTAL
TYPE LJ



TYPE YA-2 (COPPER LUGS)
TWO HOLE- LONG BARREL LENGTH
TYPE YA-2



TYPE 2-YA-2 (BOND JUMPER)
FIELD FABRICATED GREEN STRANDED INSULATED
TYPE 2-YA-2



TYPE VS (VERTICAL PIPE)
CABLE TAP DOWN AT 45° TO RANGE OF VERTICAL PIPES
TYPE VS

TYPICAL CADWELD TYPES 4
SCALE: NTS

Sprint

1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

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STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED PROFESSIONAL ENGINEER

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ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

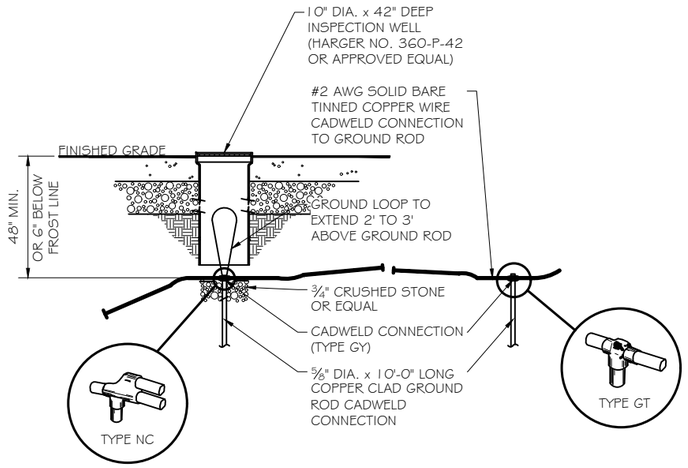
PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

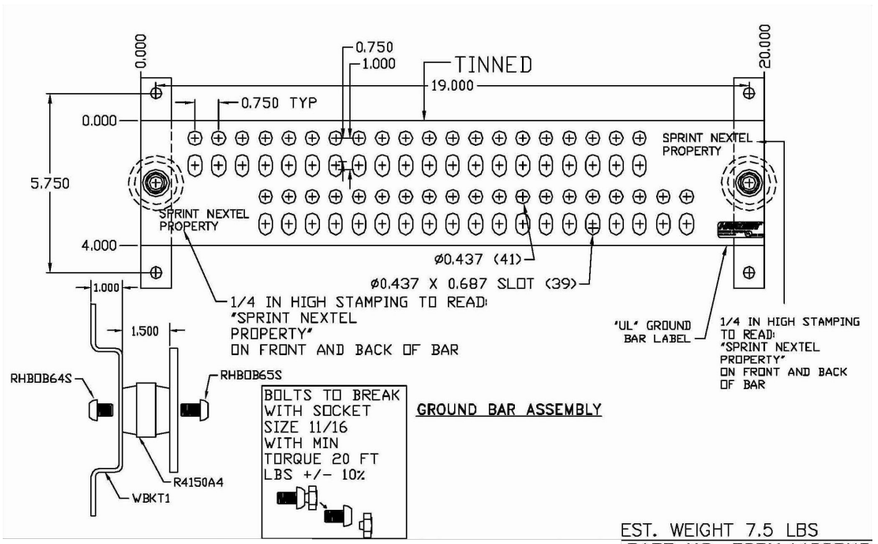
SHEET TITLE:
GROUNDING PLAN & DETAILS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: E-2



TEST WELL GROUNDING DETAIL (1)
SCALE: NTS



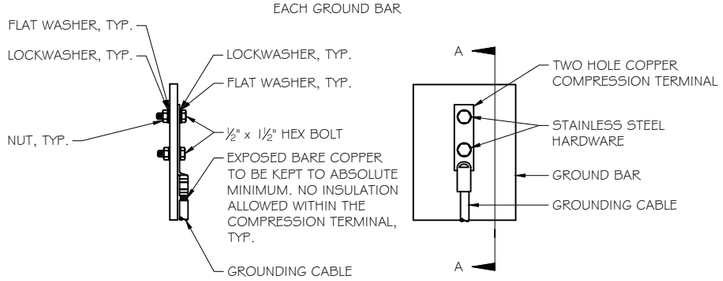
GROUND BAR ASSEMBLY

EST. WEIGHT 7.5 LBS
PART NO. TGBI14420SNP
TINNED 1/4 X 4 X 20 IN CU M PATTERN
SPRINT - NEXTEL CORPORATION

DRAWN BY: DVBV	HARGER 301 ZIEGLER DRIVE GRAYSLAKE, IL 60030 (847) 548-8700	REVISION: -
CHECKED BY: -		SCALE: 3/8
DATE: 011107		SHEET: 1 OF 1

GROUND BAR DETAIL (2)
SCALE: NTS

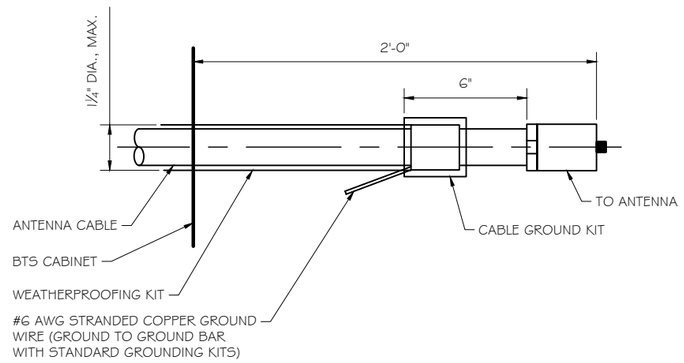
NOTE:
FLAT AND LOCK WASHERS ON BOTH SIDES, TYP. FOR EACH GROUND BAR



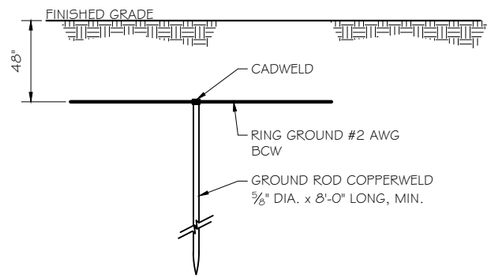
SECTION A-A ELEVATION

NOTE:
1. DOUBLING UP OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
4. APPLY ANTI-OCIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND BAR CONNECTION DETAIL (3)
SCALE: NTS



GROUND KIT DETAIL (4)
SCALE: NTS



GROUND ROD DETAIL (5)
SCALE: NTS

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ISSUE PHASE: FINAL DATE ISSUED: 04/25/2019

PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

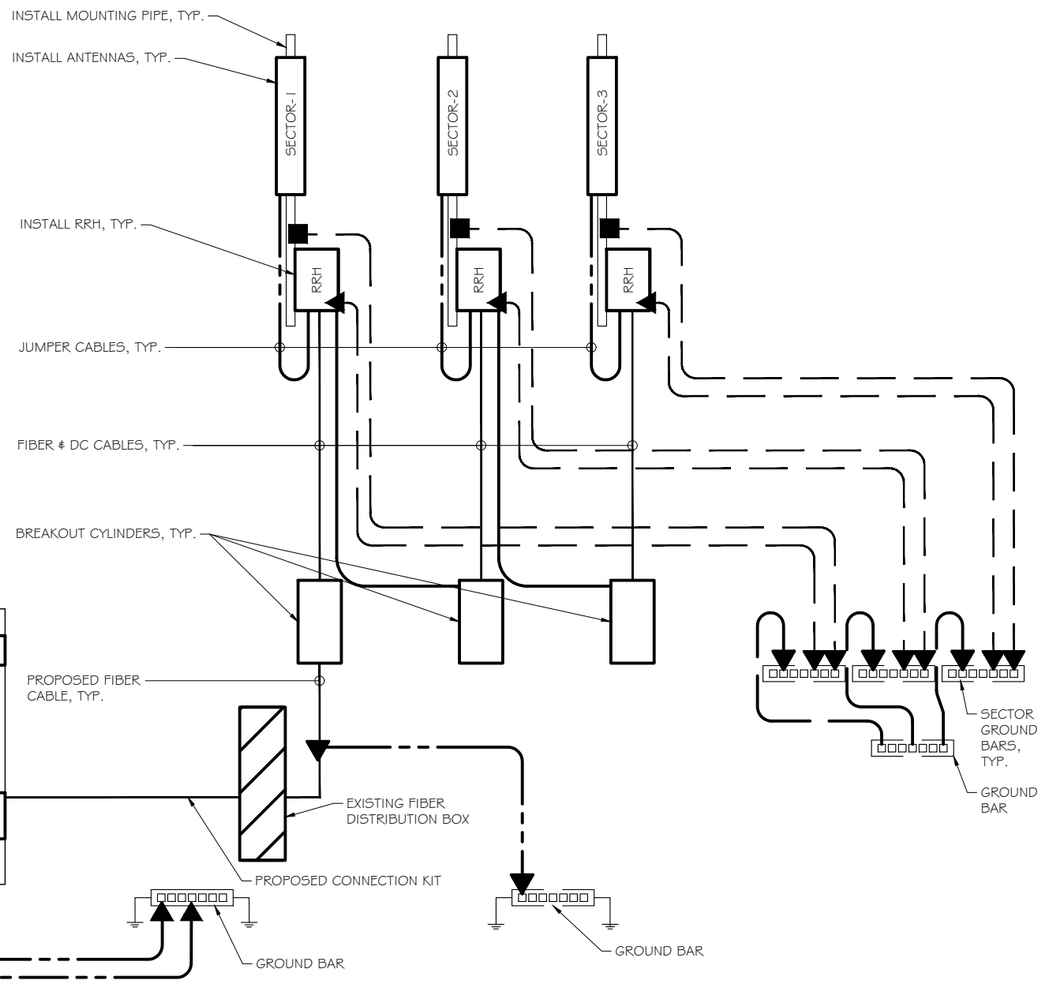
PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
GROUNDING DETAILS

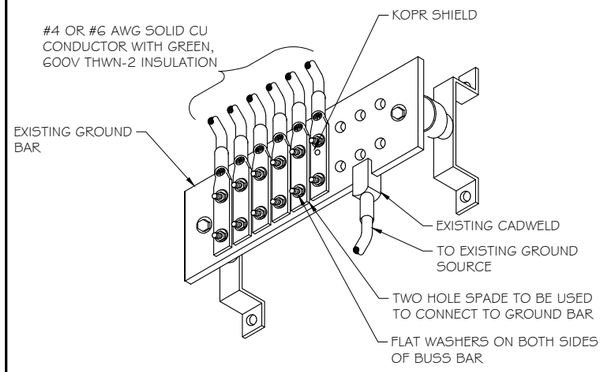
SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: E-3

SYMBOL LEGEND
- MECHANICAL CONNECTION
- EXOTHERMIC CONNECTION



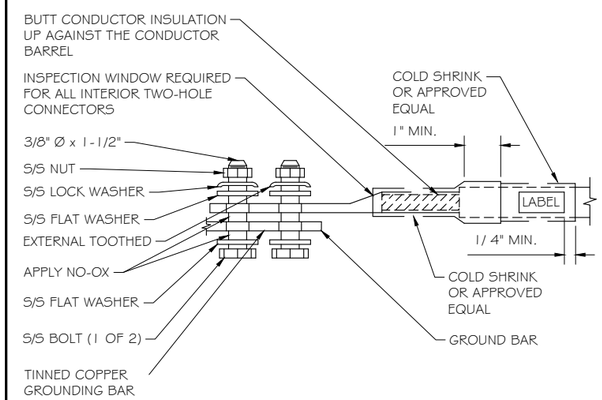
GROUNDING RISER DIAGRAM (1)
SCALE: NTS



NOTES:
1. APPLY NO-OX TO LUG AND GROUND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.

2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

GROUNDING CONDUCTOR INSTALLATION (2)
SCALE: NTS



TWO-HOLE LUG (3)
SCALE: NTS

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ISSUE PHASE: FINAL
DATE ISSUED: 04/25/2019

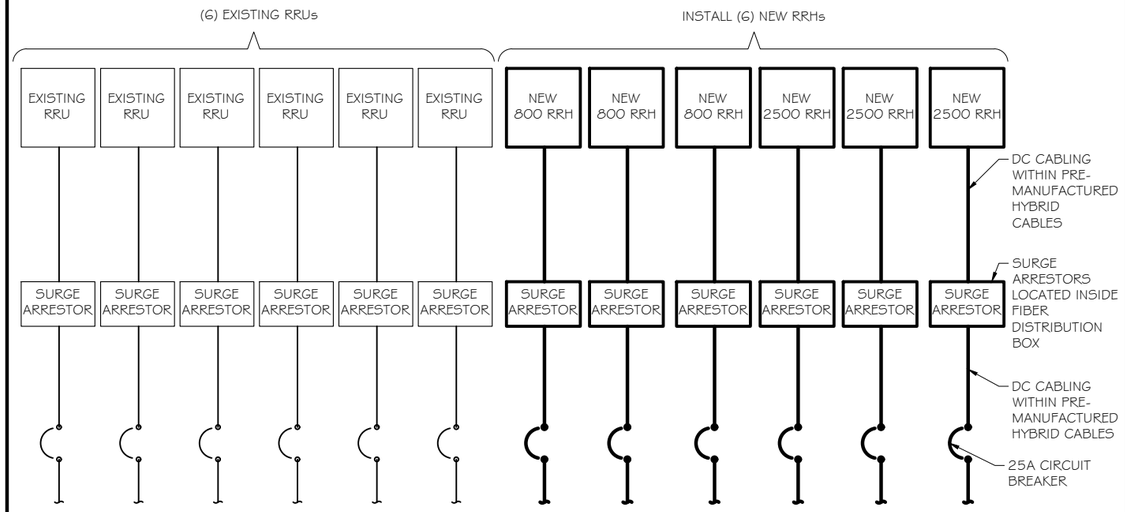
PROJECT TITLE:
(R2E) CT60-001 to CT0065
WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: E-4

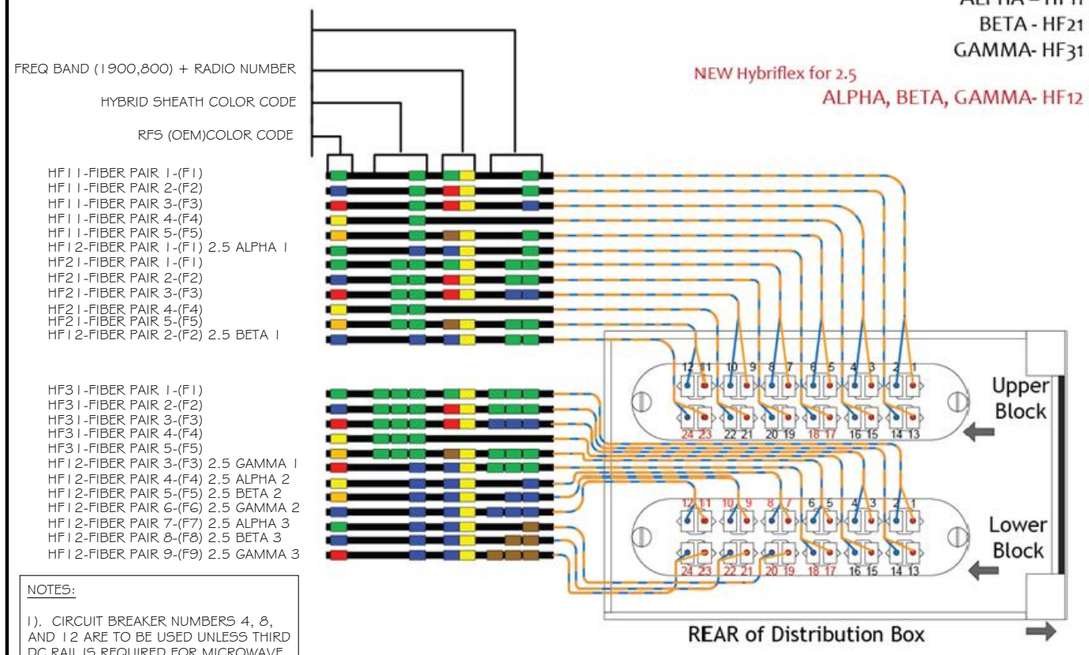


DC ONE-LINE DIAGRAM (1)
SCALE: NTS

Each sector has separate Hybriflex cable .
Hybriflex cable naming as follows:

ALPHA – HF11
BETA - HF21
GAMMA- HF31

NEW Hybriflex for 2.5
ALPHA, BETA, GAMMA- HF12



NOTES:

1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

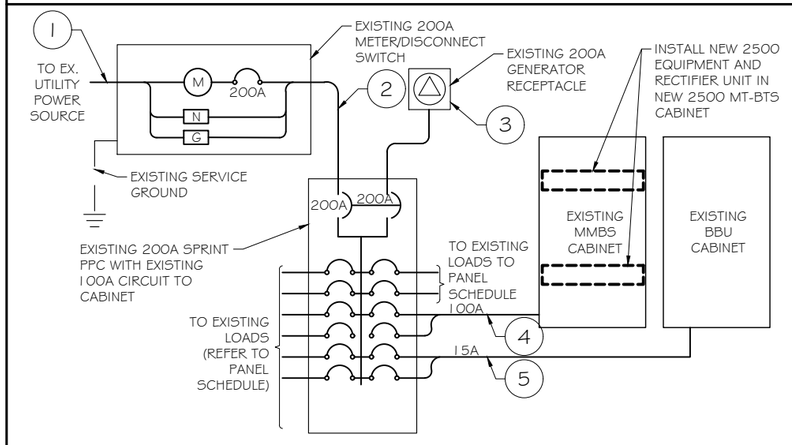
TYPICAL FIBER DISTRIBUTION (3)
SCALE: NTS

A/C PANEL SCHEDULE

VOLTAGE:	240V/120	PANEL STATUS:	EXISTING	N TO GROUND BOND:	YES
MAIN BREAKER:	200 AMP	MODEL NUMBER:	TBD	INTERNAL TVSS:	YES
MOUNT:	SHELTER	PHASE:	1	WIRE:	3
ENCLOSURE TYPE:	NEMA 3R	BUSS RATING:	200 AMP	GROUND BAR:	YES
		NEUTRAL BAR:	YES		

CKT	DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	PHASE A VA	PHASE B VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	DESCRIPTION	CKT
1	NOT LABELED	20	1	ON		■	ON	1	20	NOT LABELED	2
3	NOT LABELED	20	1	ON	■		ON	1	20	NOT LABELED	4
5	NOT LABELED	20	1	ON		■	ON	1	20	NOT LABELED	6
7	NOT LABELED	-	2	ON	■		ON	2	-	NOT LABELED	8
9						■					10
11	NOT LABELED	-	2	ON	■		OFF	2	20	NOT LABELED	12
13						■					14
15	NOT LABELED	15	1	ON	■		OFF	1	20	NOT LABELED	16
17	NOT LABELED	30	2	ON		■	ON	2	30	NOT LABELED	18
19					■						20
21	NOT LABELED	30	2	ON		■	ON	2	30	NOT LABELED	22
23					■						24
25	NOT LABELED	30	2	ON		■	ON	2	30	NOT LABELED	26
27					■						28
29	NOT LABELED	30	2	ON		■	ON	2	30	NOT LABELED	30
31					■						32
33	NOT LABELED	40	2	ON		■	OFF	1	20	NOT LABELED	34
35					■		ON	2	100	SPRINT MMBTS	36
37	NOT LABELED	10	1	ON	■						38
39	BLANK (UNUSED)	-	-	-	■		-	-	-	BLANK (UNUSED)	40

AC PANEL SCHEDULE (2)
SCALE: NTS



CIRCUIT SCHEDULE			
NO.	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/ DISCONNECT	EXISTING
2	METER/ DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EX. MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1½" CONDUIT
5	TRANSFER & LOAD CENTER	EX. BBU CABINET	(2) #12 AWG, (1) #12 GND IN ¾" CONDUIT

ELECTRICAL ONE-LINE DIAGRAM (4)
SCALE: NTS

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WILTON-RICHDALE TERRACE
CT60XC001-R

PROJECT INFORMATION:
24 1/2 RICHDALE DRIVE
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE:
DC POWER DETAILS & PANEL SCHEDULES

SCALE: NONE

PROJECT NUMBER: 28753
SHEET NUMBER: E-5

Shipping Address
#1 Fairholm Avenue, Peoria, Illinois 61603 USA

Mailing Address
P.O. Box 5999, Peoria, Illinois 61601-5999 USA

Phone: 309-566-3000

www.rohntower.com

QUOTATION

Please Reference This Quotation Number: Q19-11267 - 1

August 21, 2019

Sprint

Thank you for the opportunity to meet the supply requirements of your current need. ROHN is pleased to supply the attached quotation. We have carefully reviewed your requirements and believe our proposal meets those requirements, unless otherwise noted. Please note the validity period and related terms and conditions as attached.

Your quotation was prepared by:	Janelle Houge j.houge@rohntower.com 309-566-3017
Your ROHN primary contact is:	Danny Otten d.otten@rohntower.com (309) 566-3018

Please carefully review the quotation supplied. Feel free to contact any of the persons listed above with additional questions or clarifications. ROHN believes you, as our valued client should have a single point of contact for your business with ROHN. That is normally your sales contact person. They can assist you answering a wide variety of questions and bring in additional resources as required.

Lastly, the entire ROHN team is here to serve your needs and requirements. Please call on any of us to assist you as needed. ROHN values both our relationship and your business.

Sincerely,

The ROHN Quotation Team

Shipping Address
#1 Fairholm Avenue, Peoria, Illinois 61603 USA

Mailing Address
P.O. Box 5999, Peoria, Illinois 61601-5999 USA

Phone: 309-566-3000

www.rohntower.com

QUOTATION

Quote To: Sprint
Kimberly Hassebroek
kimberly.hassebroek@sprint.com
Phone Number: 321-280-2074

Proposal Number: Q19-11267 - 1
Quote Date: 8/21/2019
Quote Valid for: 30 days

ROHN Contact: Danny Otten Phone: (309) 566-3018 Email: d.otten@rohntower.com

Item #	Qty	Description	Unit Price
C-21977	1	ROHN Structure: 70ft Tapered Steel Pole Designed to Support the Antennas & Transmission Lines as shown on enclosed drawing "Q19-11267-1 PROFILE" for site "WILTON-RICHDALE TERRACE" located in Fairfield County, CT	
		**** EXCEPTION TO TOPO 3: ROHN DESIGNED AS TOPO CATEGORY 1 ****	
STRUCTURE		Rohn Structure Parts Total	$10,995.00
C-21977-A		Anchor Bolts & Templates	$1,850.00
DESIGN		Design Drawings & Calculations w/State of CT PE Seal & Conventional Foundation design based on submitted soil report	$1,500.00
		SUB TOTAL	**$14,345.00**
		TOTAL	**$14,345.00**

This Structure is designed for:
Design Code: ANSI/TIA-222-REV G 2005
Wind Speed: ASCE 7-16 Factored Wind Speed (No Ice) = 117 MPH
Wind Speed With Ice: 50 MPH with 1.0 inches Ice
Structure Class: II
Exposure Category: B
Topographic Category: 1

Price above includes:
Pole Sections
Step Bolts for Climbing
Tuf Tug Safety Cable Type System w/o Trolley or Harness
3) Base Grounding Lugs - see Optional Items for pricing on TIA Grounding Materials
(3) 8" x 20" Reinforced Hand Holes at 65ft
(2) 11.5" x 31.5" Reinforced Exit Ports (Customer to Identify Elevations & Azimuths)

See Optional Items for Pricing on Mount, Grounding etc.

Any Applicable State Sales Tax is NOT INCLUDED in the Prices Quoted. Please provide Sales Tax Exemption Information if Applicable.

NOTES:

-Structure Height is Nominal, unless otherwise stated.

-Structure is designed to support the Antennas and Transmission Lines as per the attached preliminary profile drawing.

- Sealed Design Drawings and Calculations will be supplied in electronic format only unless otherwise requested.

- If Each Page of a Design set must be sealed, Please ADD $250.00 for EACH set prepared in this manner.

-All welding conforms to AWS.

Additional corrosion protection may be required for steel guy anchors and direct embedded poles that come in direct contact with soil. This additional corrosion protection is to be provided by others, unless otherwise indicated.

-Estimated foundation based on soil report (PROJECT # 28753): see attached drawing.

-Step Bolts are provided for Climbing.

-ROHN'S proposal does not include GROUNDING, unless, the Optional REV G Standard Base Grounding Kits are purchased.

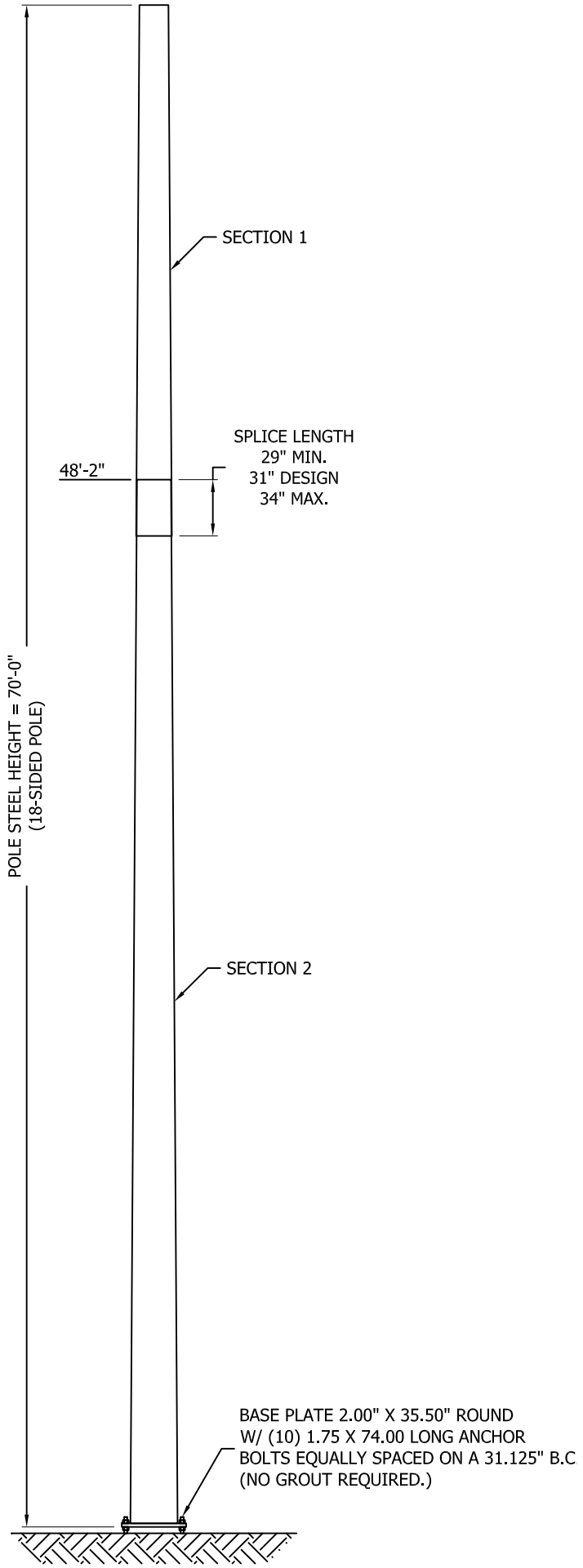
- EXCEPTION: AFTER REVIEWING THE LATITUDE AND LONGITUDE - ROHN DETERMINED THE SITE IS A TOPOGRAPHIC CATEGORY 1 (NOT 3) AND HAVE DESIGNED AS SUCH. IF SPRINT FEELS THAT TOPO 3 IS REQUIRED, THEN ROHN RESERVES THE RIGHT TO REQUOTE THE POLE.

Please note that lead times are estimated and can fluctuate due to production capacity and material availability. The estimated lead times are reassessed upon receiving the Purchase Order. Please contact ROHN to verify current lead times or if a better delivery date is possible when placing an order.

Estimated Current Engineering Design Package Lead Time (ARO):	5-7 Business Days
Estimated Current Structure Lead Time (ARO):	To Be Determined

Optional Items: Not Included in Total Price. Price is Per Each Item

Qty	Description	Unit Price	Extended Price
1	Trolley Only	$190.00	$190.00
1	Journeyman Harness (Tuf Tug)	$150.00	$150.00
1	(1) 5ft Lightning Rod (no downlead)	$75.00	$75.00
1	TIA REV G Standard Grounding	$445.00	$445.00
1	14ft LP Platform w/(12) Mtg Pipes & Toprails	$6,525.00	$6,525.00
1	Estimated Freight for Anchor Bolt Shipment to Wilton, CT 06897	$495.00	$495.00
1	Estimated Freight Charges (1 FLAT BED TRAILER) for shipment of the Above Quoted Tower Material to an accessible delivery site in Wilton, CT 06897 with unloading by the customer	$3,960.00	$3,960.00



POLE DESIGN LOADING		
DESIGN WIND LOAD PER ANSI/TIA-222-G USING THE FOLLOWING DESIGN CRITERIA: ASCE 7-16 FACTORED WIND SPEED (NO ICE): 117 MPH BASIC WIND SPEED (WITH ICE): 50 MPH DESIGN ICE THICKNESS: 1.0" EXPOSURE CATEGORY: C STRUCTURE CLASSIFICATION: II TOPOGRAPHIC CATEGORY: 1 EARTHQUAKE SPECTRAL RESPONSE ACCELERATION, Ss: 0.241 THIS POLE IS DESIGNED TO SUPPORT THE FOLLOWING LOADS:		
ELEVATION (FT)	**ANTENNA TYPE**	**LINE SIZE (NOM)**
TOP	LIGHTNING ROD	-
67	(3) PANEL ANTENNAS & (12) RRUS ON A 14FT LP MOUNT	(4) 1-5/8"

MAXIMUM FACTORED REACTIONS		
DOWNLOAD =	16.2	KIPS
SHEAR =	5.4	KIPS
O.T.M. =	285.8	FT-KIPS

GENERAL NOTES:

1. ROHN PRODUCTS POLE DESIGNS CONFORM TO ANSI/TIA-222-G UNLESS OTHERWISE SPECIFIED UNDER POLE DESIGN LOADING.
2. THE DESIGN LOADING CRITERIA INDICATED HAS BEEN PROVIDED TO ROHN. THE DESIGN LOADING CRITERIA HAS BEEN ASSUMED TO BE BASED ON SITE-SPECIFIC DATA IN ACCORDANCE WITH ANSI/TIA-222-G AND MUST BE VERIFIED BY OTHERS PRIOR TO INSTALLATION.
3. ANTENNAS AND LINES LISTED IN POLE DESIGN LOADING TABLE ARE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED.
4. STEP BOLTS ARE PROVIDED AS A CLIMBING FACILITY FOR THE INSTALLATION OF THE STRUCTURE.
5. POLE MEMBER DESIGN DOES NOT INCLUDE STRESSES DUE TO ERECTION SINCE ERECTION EQUIPMENT AND CONDITIONS ARE UNKNOWN. DESIGN ASSUMES COMPETENT AND QUALIFIED PERSONNEL WILL ERECT THE POLE.
6. WORK SHALL BE IN ACCORDANCE WITH ANSI/TIA-222-G, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
7. FIELD CONNECTIONS SHALL BE BOLTED. NO FIELD WELDS SHALL BE ALLOWED.
8. STRUCTURAL BOLTS SHALL CONFORM TO GRADE A325 PER ASTM F3125, EXCEPT WHERE NOTED.
9. A NUT LOCKING DEVICE SHALL BE PROVIDED FOR ALL STRUCTURAL BOLTS ON THE POLE.
10. STRUCTURAL STEEL AND CONNECTION BOLTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ANSI/TIA-222-G.
11. ALL HIGH STRENGTH BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". NO OTHER MINIMUM BOLT TENSION OR TORQUE VALUES ARE REQUIRED.
12. PURCHASER SHALL VERIFY THE INSTALLATION IS IN CONFORMANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS FOR OBSTRUCTION MARKING AND LIGHTING.
13. TOLERANCE ON POLE STEEL HEIGHT IS EQUAL TO PLUS 1% OR MINUS 1/2%.
14. DESIGN ASSUMES THAT, AS A MINIMUM, MAINTENANCE AND INSPECTION WILL BE PERFORMED OVER THE LIFE OF THE STRUCTURE IN ACCORDANCE WITH ANSI/TIA-222-G.
15. DESIGN ASSUMES LEVEL GRADE AT POLE SITE.
16. FOUNDATIONS SHALL BE DESIGNED TO SUPPORT THE REACTIONS SHOWN FOR THE CONDITIONS EXISTING AT THE SITE.
17. DESIGN ASSUMES ALL TRANSMISSION LINES ARE ROUTED INTERNALLY.
18. POLE SHAFT CONFORMS TO ASTM A572 GR 65. POLE BASE PLATE AND TOP PLATE STEEL CONFORMS TO ASTM A572 GR 50. POLE ANCHOR BOLTS CONFORM TO ASTM F1554.

SECTION SCHEDULE						
SECTION	**LENGTH (FT)**	**DIAMETER**		**WALL THICK (IN)**	**Fy (KSI)**	**WEIGHT (KIPS)**
		BOT	**TOP**			
1	24.42	19.67	16.00	0.1875	65.0	0.924
2	48.00	26.00	18.79	0.1875	65.0	2.300

FOR POLYGONAL POLES, DIAMETER IS MEASURED ACROSS FLATS.

NOTE: TABULATED WEIGHTS ARE APPROXIMATE. REFER TO ASSEMBLY DRAWING FOR FINAL WEIGHTS. ALL WEIGHTS SHALL BE VERIFIED PRIOR TO LIFTING.

FILE NO.
Q19-11267-1

REVISIONS

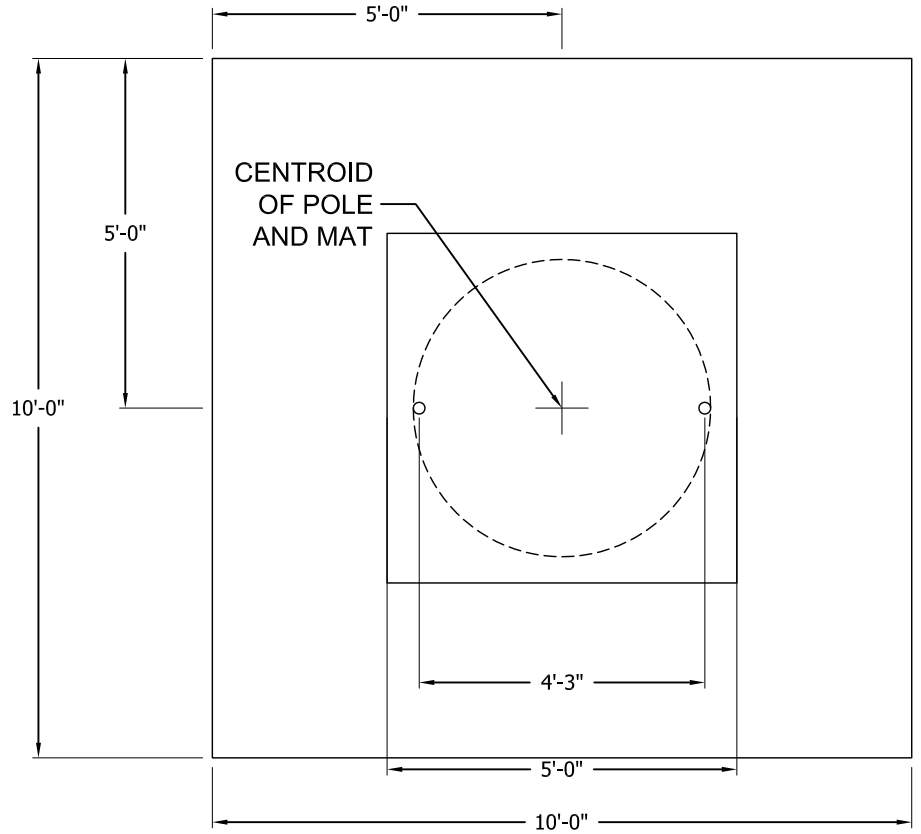
REV.	DESCRIPTION	DWN	CHK	APP

ROHN® PRODUCTS LLC
PO BOX 5999
PEORIA, IL 61601-5999
TOLL FREE 800-727-ROHN

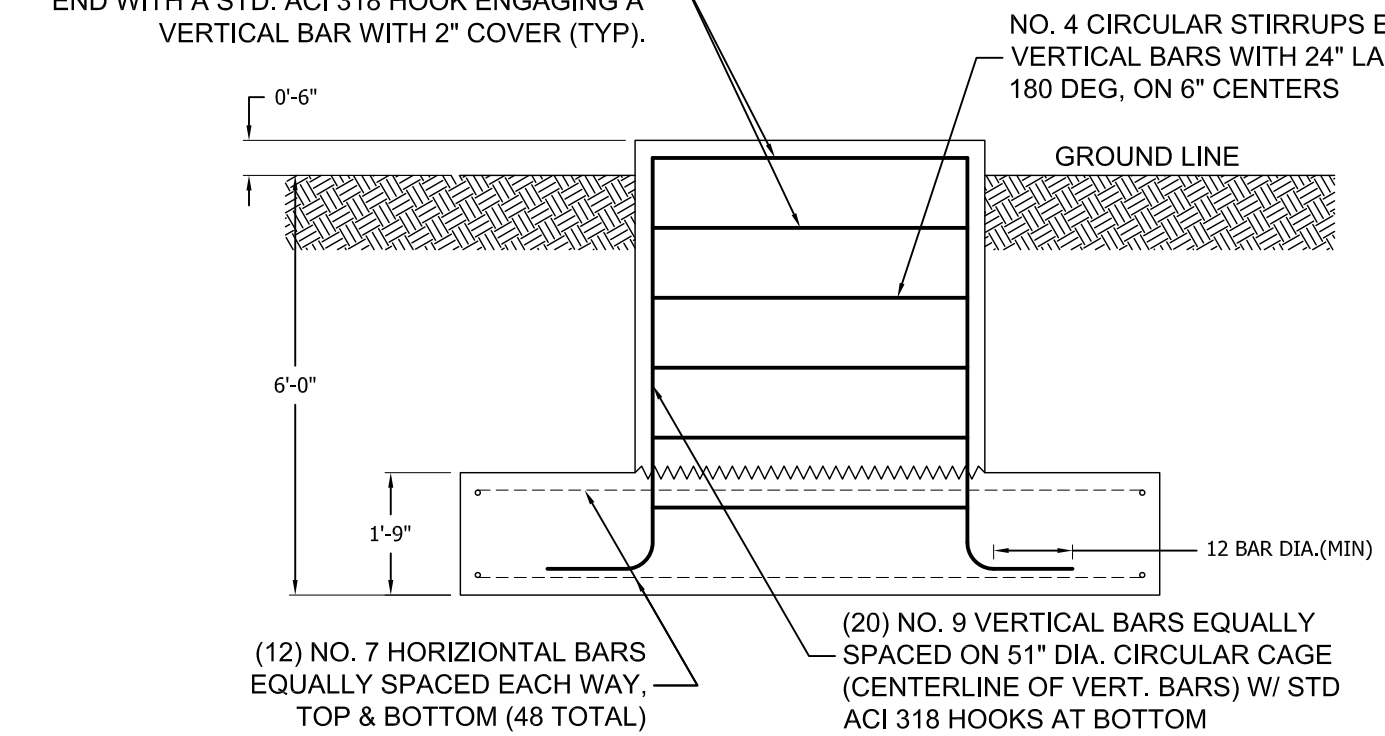
SPRINT
DESIGN PROFILE
70' TAPERED STEEL POLE
WILTON, RICHDALE TERRACE, CT

DWN: SWG	CHK'D:	DATE: 8/20/2019
ENG'R:	SHEET #: 1 OF 1	
PRJ. ENG'R: SWG	PRJ. MANG'R:	
DRAWING NO: Q19-11267-1 PROFILE		REV: 0

NOTE: SEE DRAWING NO. B090548 FOR STANDARD FOUNDATION NOTES.



PLAN VIEW



ELEVATION VIEW

FACTORED REACTIONS

O.T.M. =	285.8 FT-K
DOWNLOAD =	16.2 KIPS
SHEAR =	5.4 KIPS

CONCRETE VOLUME

SQUARE PIER	4.4 CU.YDS
PAD	6.5 CU.YDS
TOTAL	10.9 CU.YDS

FILE NO.
Q19-11267-1

REVISIONS

REV.	DESCRIPTION	DWN	CHK	APP

PRELIMINARY
NOT FOR CONSTRUCTION

ROHN® PRODUCTS LLC
PO BOX 5999
PEORIA, IL 61601-5999
TOLL FREE 800-727-ROHN

MAT W/RAISED PIER
PRESUMPTIVE CLAY PER ANSI/TIA-222-G

DWN: SWG	CHK'D:	DATE: 8/20/2019
ENG'R:		SHEET #: 1 OF 1
PRJ. ENG'R: SWG	PRJ. MANG'R:	
DRAWING NO: Q19-11267-1 FOUNDATION		REV: 0

Quote Specific Terms:

1- This proposal is valid for 30 calendar days from the quotation date. Please refer to ROHN's proposal number when submitting your purchase order.

2- ROHN's Terms for Material Purchases are: 40% down payment with the order; 40% down payment –when fabrication is complete and the tower is ready to ship; 20% within 30 days of shipment from the point of manufacturing.

3- This proposal is subject to the attached Terms and Conditions of Sale.

4- Foundation and tower designs, if ordered independently, are $1500. This cost is deductible from the overall price of the structure once the structure is released for production and shipped. Design work will be billed at the time the work is provided. Please specify as a separate line item on your purchase order.

5- Quoted prices do not include taxes. Refer to Terms and Conditions of Sale. Taxes will be invoiced unless an exemption certificate is provided with the order.

6- Shipment schedules are contingent upon the backlog at the time of order and the availability of materials and resources.

7- Certification of ROHN's products or foundation designs based on specifications provided to ROHN's do not include services for serving as a project's prime professional or engineer of record for the purposes of reviewing and coordinating documents submitted for a building permit, including deferred submittals and documents prepared by others. ROHN's has not verified that the design parameters provided to ROHN's for this proposal meets the requirements for the intended application or meets the requirements of the appropriate regulatory agencies. Price adjustments may apply for requirements in addition to those stated in this proposal.

8- Prices for foundation designs to be based on geotechnical data to be supplied at the time of an order are based on the design of conventional foundations consisting of pier and pad, caissons, mat and deadman anchor blocks. Other types of foundation designs, if required for site-specific conditions, will be quoted upon receipt of the geotechnical data.

9- Materials and work placed on hold for more than 30 days after placement of an order will be subject to a price review upon notification to proceed with the order. This may result in an increase to the quoted prices.

10- For structures to be shipped by the customer at the point of manufacturing, dunnage and loading charges of $350 may apply and will be invoiced with the structure.

11- Storage charges will be .02% of invoice amount per day with a minimum charge of $8.00 a day. These charges will be invoiced on a monthly basis for material requested to be withheld from shipment. Storage will begin 30 days from the date the buyer is notified that the shipment is ready for pickup or delivery.

12- Estimated freight pricing is obtained at the time the proposal is generated. If a significant amount of time elapses between the proposal and the customers order date, freight prices may fluctuate. Final freight pricing will be reviewed and confirmed at the time an order is placed. Final freight pricing is subject to change.

13- Additional freight may apply for optional items ordered. Prices for optional items are based on the optional items being ordered with the structure.

14- Acceptance of an order is contingent on customer credit approval. Terms, as noted above, may be subject to change.

15- Design profile provided at time of quotation is preliminary and is subject to change based upon final design.

16- This quotation is proprietary, confidential and a trade secret of ROHN. This proposal is being provided for the exclusive use of our customer and is not to be disclosed to third parties.

17- Unless noted above, ROHN's general terms and conditions (attached) apply.

18- Purchaser agrees to accept delivery on the mutually agreed upon delivery date, typically stated in the customer's purchase order. If this date passes, and the product is completed and staged for delivery, the Purchaser acknowledges that they have accepted title to the goods by default. If customer has requested early shipment of partial materials, such materials may be invoiced at the time of shipment.

19- Sealed Design Drawings and Calculations will be supplied in ELECTRONIC format only unless otherwise requested.

20- If EACH Page of a Design set must be sealed, Please ADD $250.00 for EACH set prepared in this manner.

21- For quotes including installation service the following apply:

a. Non-union, non-prevailing wages, and non-winter conditions.

b. In the event existing soil conditions are found to be other than assumed for design, change orders for a price adjustment from the quoted price may be required.

c. Customer agrees to obtain any and all required permits pursuant to the job.

d. Site accessible for over the road truck delivery of materials. Customer is responsible for unloading the truck in a timely manner, otherwise waiting charges may apply.

e. ROHN assumes sufficient room for delivery of tower and sufficient room for installation of tower and foundation (if applicable) at tower site.

Rohn Products LLC Terms and Conditions Relating to All Sales

1. All quotation, proposals, prices, or other terms are made for acceptance within 30 days (after 30 days, prices in effect at time of shipment will apply) and shipment within 30 days of purchase order date, unless otherwise stated. They are subject to change without notice; however, ROHN invites your request for an extension. Prices are also subject to review prior to acceptance of any order due to raw material price fluctuations. No other price protection is available. Any order placed on hold will have the price reviewed and adjusted upon release.

2. Every effort will be made to maintain shipping schedules, either on ROHN equipment or via common carrier. ROHN cannot be responsible for delays in shipping caused by state or local agencies with regard to permits, routing, weather, detours, etc. All deliveries and schedules are contingent on availability of raw materials, fuel, and transportation. ROHN will not be liable for damages on account of any delays or abnormalities caused in shipping due to causes beyond our reasonable control. ROHN reserves the right to make partial shipments and to submit invoices accordingly.

3. Changes or modifications to orders can be made only by written agreement executed by all parties affected thereby, which agreement shall include any price modification.

4. ROHN's responsibility ceases upon delivery of all shipments to the carrier. The unloading of all shipments is the responsibility of the Buyer, not the carrier or ROHN. Buyer is warned against receipting for merchandises until careful inspection has been made. Any claim made against ROHN must be made within 90 days after receipt of merchandise. All merchandise leaving ROHN's factory has been carefully inspected and ROHN does not assume responsibility for damages or shortages which occur in transit. Buyer must make all claims and report all damages and losses to the delivering transportation company.

5. No federal, state, or local taxes are included in quoted prices. All quotations, proposals, prices, or other terms are subject to increase without notification by the amount of any sales, excise, or other tax levied or charged to seller by any governmental agency and any such tax will be passed onto purchaser as a tax or as an addition to the selling price. This also applies to all costs incurred due to local statutes or governmental regulations.

6. Orders are not subject to cancellation by Buyer except by written agreement with seller. Any order canceled, after any work has been done by ROHN, such as drawings, production, etc., will have a cancellation charge, to be determined solely at the discretion of ROHN for whatever work has been performed with a minimum of 25% of the purchase order price. If Buyer so chooses, he shall have the right to receive the material already performed at time of cancellation at the quoted price. If an order is canceled before any work has been done by ROHN, a $200 cancellation charge will apply.

7. Material received may not be returned by Buyer except by written agreement with seller. In all cases, permission must be secured from ROHN prior to the returning of any goods for credit. All returned goods are subject to a minimum service charge of 25%, plus all transportation charges, and are subject to inspection by ROHN. Returned goods will be offered and paid for only upon proof of purchase (i.e. invoice no.) and credit will be issued against invoice value. ROHN reserves the sole right to determine amount of credit to be issued on all goods returned for credit. Only standard, currently manufactured ROHN products may be considered for return and credit. Unsaleable products will be scrapped and no credit will be received. If returned goods are determined to have no value and Buyer wishes them returned, the Buyer will be charged return freight. Safety equipment, erection equipment, insulators, transformers, nuts and bolts are not returnable.

8. ROHN warrants the commercial items of its manufacture only, to be reasonably fit for the purpose for which they are manufactured and sold, provided, however, that this warranty shall be effective only if purchaser installs all material according to ROHN's recommendations and specifications and that purchaser during the warranty period shall regularly, not less than semi-annually, inspect and properly maintain all items. Any item found unfit for its purpose within 12 months from date of delivery will be repaired or replaced free of charge, F.O.B. ROHN's plant. ROHN shall be immediately notified in writing of such unfitness. ROHN reserves the sole right to determine if any material is to be repaired or replaced free of charge or to be supplied at ROHN's standard prices. Such obligation shall be limited to parts returned for inspection, properly packed and expenses prepaid, and providing inspection shall satisfactorily indicate defects. The warranty herein made is in lieu of all other warranties and, except as expressly stated herein, ROHN does not make and there are no warranties or obligations of any kind or nature whatsoever either expressed or implied including, but not restricted to, warranty or obligations as to product, material, workmanship, or manufacture or as to the use of the items covered hereby. ROHN shall not under any circumstances be liable to third persons for any claims for damages including direct, special, indirect, or consequential damages for any reason.

The Buyer agrees to indemnify and to hold ROHN harmless for, of, and from any loss, claims, damages, expenses and attorney's fees, including but not limited to, any fines, penalties and corrective measures ROHN may sustain by reason of Buyer's failure to comply with said laws, rules, and regulations in connection with the performance of this sale. The above warranty warranted applies only to items manufactured by ROHN.

Items not manufactured by ROHN are guaranteed only to the extent and in the manner warranted and guaranteed to ROHN by the manufacturer of such items and then only to the extent ROHN is liable to enforce such warranty or guarantee.

ROHN will assume no responsibility for the adequacy of any product if material is used which is not totally supplied by ROHN. The above sets forth the only warranty made by ROHN in connection with items manufactured or sold by it, and any provisions in any proposals, specifications, advertising, or other provisions hereof, are merely descriptive and are not to be construed as warranties made by ROHN. All warranties are void on drawings made by others, whether by a professional engineer, sealed or not, that are not rechecked by ROHN and approved by ROHN. ROHN assumes no liability for the adequacy of the drawings or the product. Without limiting the generality of the foregoing, the Buyer hereby indemnifies ROHN and hold ROHN harmless from any and all claims and/or damages (including direct, special, indirect or consequential damages, attorneys' fees and costs) relating to or arising out of any highway structure or component not designed by ROHN.

ROHN hereby disclaims any and all warranties, including express or implied warranties of merchantability and fitness for any particular purpose, relating to or arising out of metal fatigue.

9. ROHN reserves the right to change or modify the product and construction of any product manufactured by ROHN and to substitute material equal to or superior to that originally specified.

10. Buyer agrees not to disclose or make available to any third party processes, drawings, specifications, reports, photographs, data and other technical or proprietary information relating to ROHN products without obtaining prior written consent of ROHN.

11. No proposal, order, quotation, or acceptance may be changed or varied by verbal agreement, and all orders are accepted only under the provisions set forth herein.

12. Purchase orders and requests for quotations must be submitted in writing to ROHN. It is the responsibility of the Buyer or Buyer Representative to provide ROHN design criteria (environmental loads, equipment loads, operational limitations, geotechnical information, etc.) based on site-specific data. In designing the product for the Buyer, ROHN is relying solely and entirely on design criteria provided by the Buyer to ROHN. Without limiting the generality of the indemnities in these Terms & Conditions, the Buyer hereby indemnifies ROHN and holds ROHN harmless from and against any and all claims and/or damages (including direct, special, indirect or consequential damages, attorneys' fees and costs) relating to or arising out of any inaccuracy or incompleteness in design criteria provided to ROHN by the Buyer, and the Buyer waives all claims against ROHN for same.

13. If outside source inspection, assembly, etc. is required prior to shipment of an order, $50.00 per man hour (plus equipment time, if applicable) is chargeable, with $300.00 as a minimum.

14. Any welding inspection required by Buyer or Buyer's specifications must be done at ROHN's plant prior to packing and shipment of material from ROHN's plant.

15. A minimum charge of $25.00 will be billed for special handling and preparation of material for air shipments.

16. ROHN reserves the right to apply all remittances and credit memos to the oldest outstanding balance in your account. No credits will be issued for any reason against a purchase order whose billing is more than 90 days old. Buyer corrections or complaints must be made within this period of time.

17. Standard catalog prices do not include special drawings or product evaluations. If any are required, there will be a charge.

18. ROHN at all times reserves the right to take pictures of any or all of its products after installation for advertising purposes, except those which are under classified governmental control.

19. The Buyer will be responsible for any extra charges incurred on prepaid shipments.

20. A service charge not to exceed 2% per month or maximum allowable per State law will be billed on all accounts not paid within 30 days of invoice date.

21. Minimum total net worth of merchandise which can be ordered is $100.00. Any orders placed for less will be billed at $100.00.

22. Storage charges will be .02% of invoice amount per day with a minimum charge of $8.00 a day. These charges will be invoiced on a monthly basis for material requested to be withheld from shipment. Storage will begin 30 days from the date the buyer is notified that the shipment is ready for pickup or delivery

23. All CIA requirements must be met with certified checks or money orders to insure prompt shipment.

24. Should it become necessary for ROHN to enforce the provisions of this contract, a purchase order or an invoice through pre-suit negotiations, or by instituting or participating in any legal (including bankruptcy) proceedings, including but not limited to injunctive or other equitable/legal relief, including any appeals associated with the foregoing, ROHN shall be entitled to recover for reasonable attorney's fees, costs of collection and court costs incurred whether the attorney's fees are incurred for the purpose of negotiation, trial, appellate or other legal services.

25. Once the equipment is ready for pickup or has been shipped, an invoice for payment in full shall be issued by ROHN.

26. Buyer is responsible for inspection of material upon delivery. ROHN should be notified of any shortages or discrepancies within 48 hours of delivery. ROHN will not be responsible for down time or equipment ordered.

DESIGNED APPURTENANCE LOADING

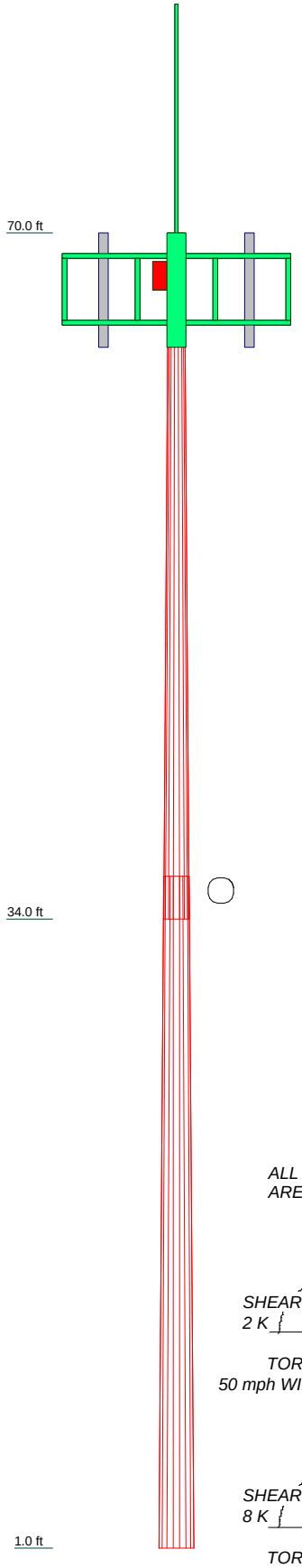
TYPE	ELEVATION	TYPE	ELEVATION
15 ft x 3" dia whip	74.5	(12) RRU	67
72.1" x 11.9" x 7.1" w/ mount pipe	67	72.1" x 11.9" x 7.1" w/ mount pipe	67
72.1" x 11.9" x 7.1" w/ mount pipe	67	14' Platform w/ Handrail	67

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 94 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 3 with Crest Height of 125.00 ft
8. ANSI/TIA-222-G wind speeds are Vasd winds. Refer to IBC Table 1609.3.1 for Vult wind speed conversions.
9. TOWER RATING: 98.5%



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	36.00	18	0.1875	2.25	10.5000	16.1739	A572-65	1.0
2	35.25	18	0.2188		15.4443	21.0000		1.5
								2.5

95 MPH Vasd ASCE-7-05 POLE DESIGN IS EQUIVALENT TO AN ASCE-7-10 123 MPH Vult WIND SPEED

ALL REACTIONS ARE FACTORED

AXIAL 17 K
SHEAR 2 K
MOMENT 127 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 8 K
SHEAR 8 K
MOMENT 446 kip-ft
TORQUE 1 kip-ft
REACTIONS - 94 mph WIND

DESIGN MEETS TIA-222-H

Preliminary Design
Not For Fabrication

Estimated Total Structure Wt. = 2847 lbs

BASE PLATE:	2" x 34" ROUND (50 KSI)
ANCHOR BOLTS:	(4) ANCHORS ON 28" B.C 2.25 in. A615 GR. 75 X 7'-0"

TAPP
QUALITY STEEL POLES. DELIVERED.

Michael F. Plahovinsak, P.E.
18301 State Route 161
Plain City, OH 43064
Phone: 614-398-6250
FAX: mike@mfpeng.com

Job: ***70-ft Monopole - MFP #23519-590***			
Project: ***CT60XC001 Wilton Richdale Terrace***			
Client: 19-0982	Drawn by: Mike	App'd:	
Code: TIA-222-G	Date: 08/14/19	Scale: NTS	
Path: J:\Projects\235-TAPP\23519-590\23519-590.eri		Dwg No. E-1	

Structural Analysis Report

Prepared for:

KGI
805 Las Cimas Parkway
Building Three, Suite 370
Austin, TX 78746

ATTN: Mr. Sean Rock

Structure	:	**114 ft Monopole**
Site ID	:	**27741_B**
Proposed Carrier	:	**Sprint**
Site Name	:	**Round Hill CT**
Site Location	:	**395 Round Hill Road** **Greenwich, CT** **41.095117, -73.664219**
County	:	**Greenwich**
Date	:	**September 16, 2019**
Max Usage	:	**51%**
Result	:	**Pass**

Prepared By:
Jung Hyun Hong
Structural Engineer

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 114 ft monopole to reflect the change in loading by Sprint.

Supporting Documents

Tower Drawings	EEI Drawing #GS56652-2, dated September 28, 2007
Foundation Drawing	EEI Drawing #14679S-115.0, dated February 12, 2007
Geotechnical Report	Clarence Welti Associate, dated Feruary 6, 2007

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:	93 mph (3-Second Gust) Vasd / 120 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:	D (Hurricane Zone)
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.26, S_1 = 0.07
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.

The pier reinforcement is less than the minimum allowance. Due to this, the pier should be frequently monitored for cracking/spalling.

If you have any questions or require additional information, please contact Semaan Engineering Solutions at 402-289-1888.

Existing and Reserved Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
110.0	110.0	3	DBXNH-6565A-A2M	Flush Mount Inside Canister	(12) 1 5/8"	T-Mobile
		3	TMAT1921XB6811A			
		3	782 11066			
100.0	-	-	-	Flush Mount Inside Canister	(6) 1 5/8"	Sprint
90.0	-	-	-	Empty Flush Mount Inside Canister	-	-

Equipment to be Removed

This loading **is not** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
100.0	100.0	3	RR65-18-00DPL2	-	-	Sprint

Proposed Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
100.0	100.0	3	APXVSPP18-C-A20	Existing Flush Mount Inside Canister	(2) 1 1/4"	Sprint
		6	KIT-FD9R6004/1C-DL			
		9	IBC1900HG-SA			

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Shaft	31%	Pass
Base Plate	31%	Pass
Anchor Bolts	51%	Pass
Flange Bolts	9%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	504.0	46%
Axial (Kips)	27.0	18%
Shear (Kips)	8.9	19%
Reinf. Conc. Foundation Capacity	N/A	22%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	APXVSPP18-C-A20	Sprint	0.390	0.752
	KIT-FD9R6004/1C-DL			
	IBC1900HG-SA			

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

Standard Conditions

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

-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

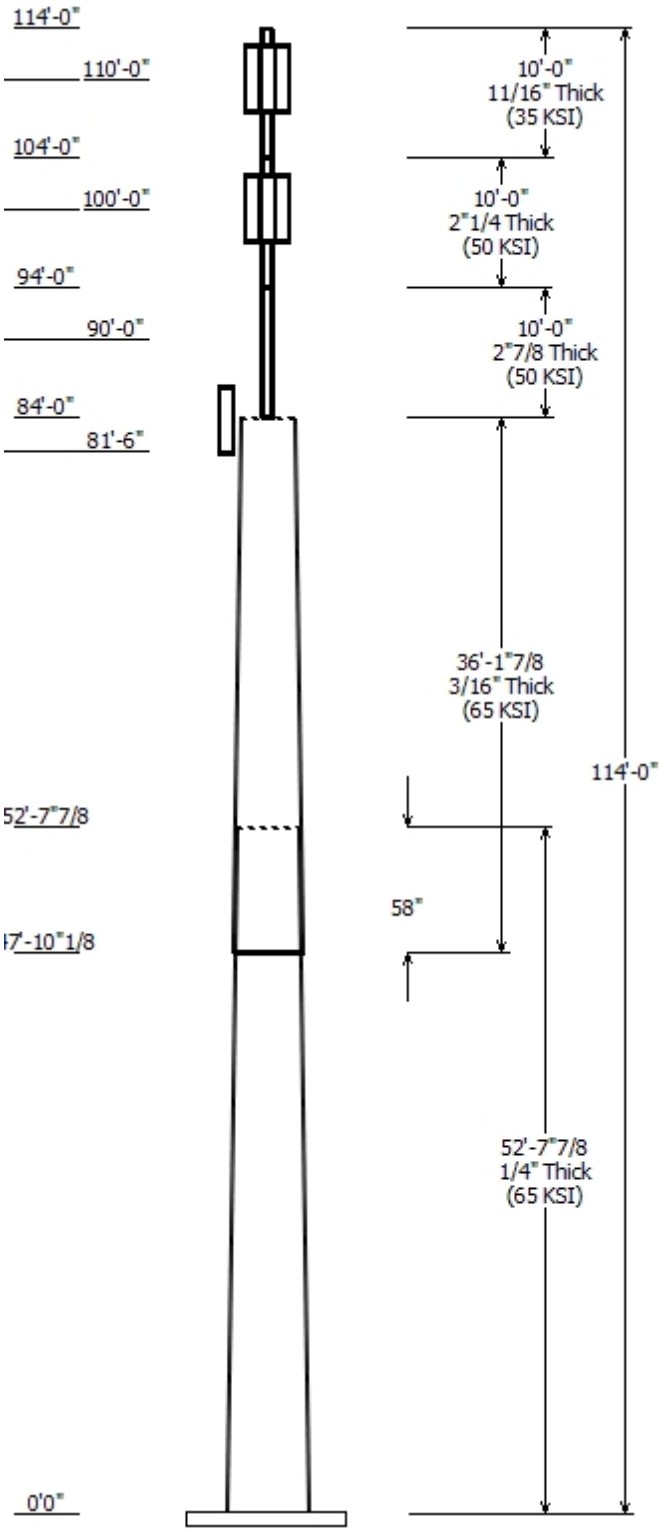
It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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

Job Information

Pole :	27741_B	Code:	ANSI/TIA-222-G
Description :			
Client :	KGI	Struct Class :	II
Location :	Round Hill CT, Greenwich, CT		
Shape :	18 Sides	Exposure :	D
Height :	114.00 (ft)	Topo :	1
Base Elev (ft):	1.00		
Taper:	0.14434 (in/ft)		



Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	52.658	33.39	41.00	0.250		0.000	0.144341	65
2	36.158	29.25	34.46	0.188	Slip Joint	57.781	0.144341	65
3	10.000	5.750	5.750	2.875	Butt Joint	0.000	0.000000	50
4	10.000	4.500	4.500	2.250	Butt Joint	0.000	0.000000	50
5	10.000	4.500	4.500	0.674	Butt Joint	0.000	0.000000	35

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.000	110.000	3	782 11066
110.000	110.000	3	TMAT1921XB6811A
110.000	110.000	3	DBXNH-6565A-A2M
110.000	110.000	1	Flush Mount
100.000	100.000	9	IBC1900HG-SA
100.000	100.000	6	KIT-FD9R6004/1C-DL
100.000	100.000	3	APXVSPP18-C-A20
100.000	100.000	1	Flush Mount
90.000	90.000	1	Flush Mount
81.500	83.000	1	GPS
81.500	81.500	1	3 ft Standoff

Linear Appurtenance

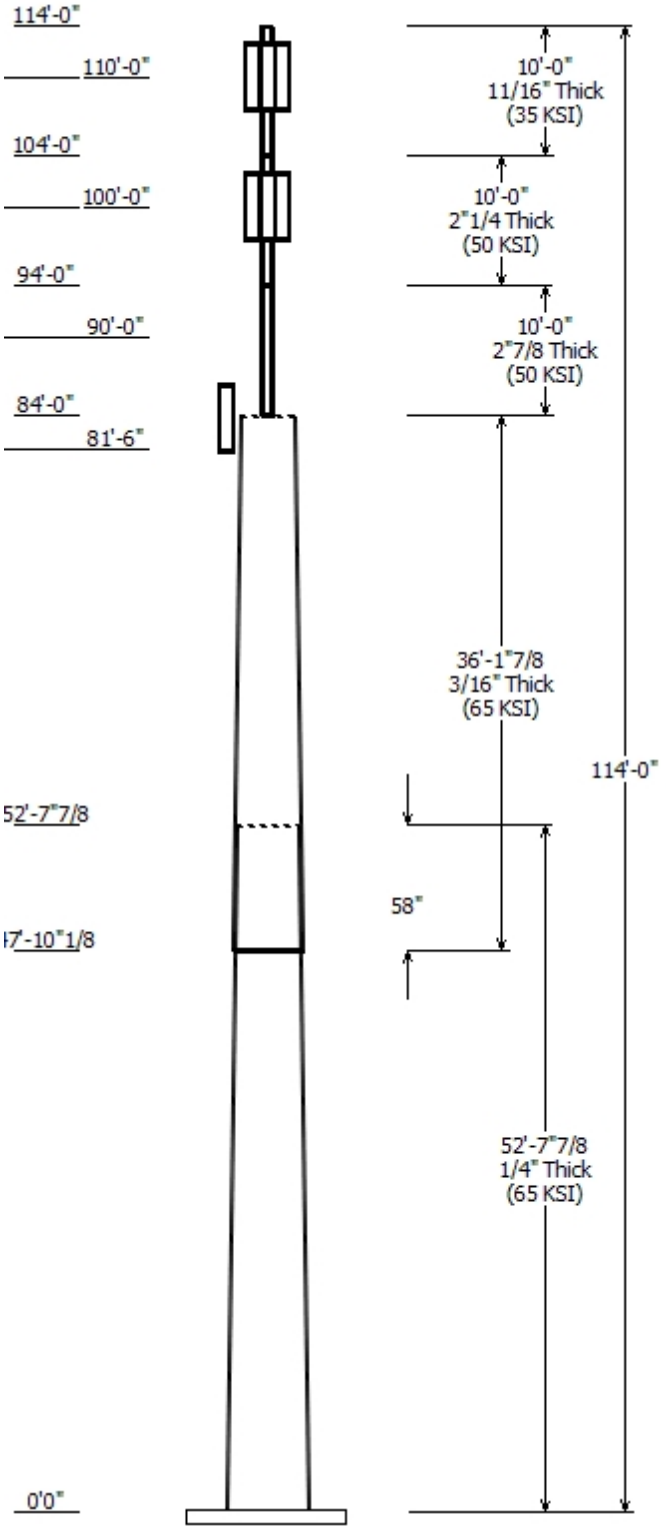
Elev (ft) From	To	Description	Exposed To Wind
104.0	114.0	Concealment	Yes
94.000	104.0	Concealment	Yes
84.000	94.000	Concealment	Yes
0.000	100.0	.32"	No
0.000	100.0	1 1/4" Coax	No
0.000	100.0	1 5/8" Coax	No
0.000	110.0	.32"	No
0.000	110.0	1 5/8" Coax	No
0.000	81.500	1/2" Coax	No

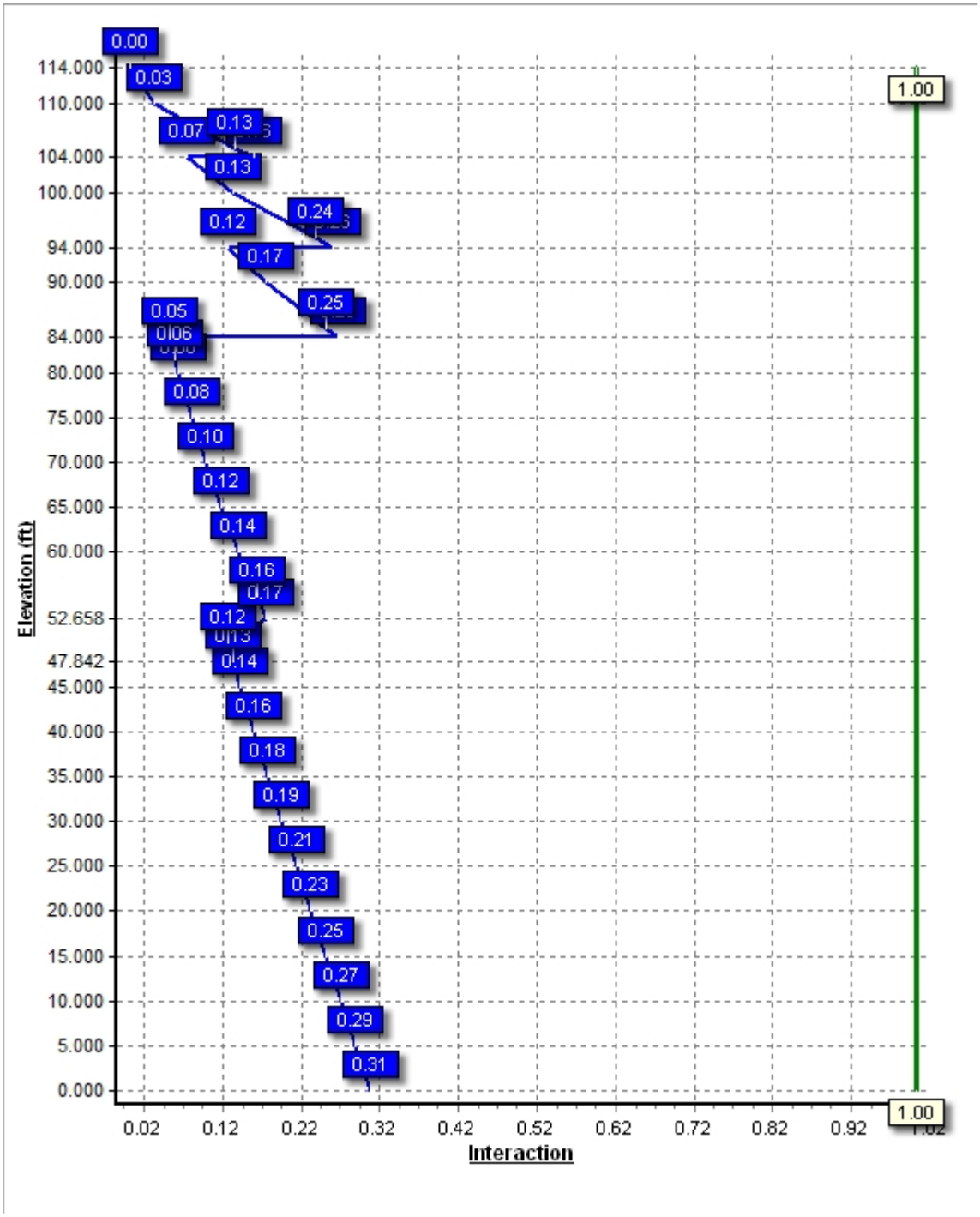
Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 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	503.96	8.95	15.49
0.9D + 1.6W	501.34	8.94	11.61
1.2D + 1.0Di + 1.0Wi	196.12	3.32	27.00
(1.2 + 0.2Sds) * DL + E ELFM	67.58	0.83	15.40
(1.2 + 0.2Sds) * DL + E EMAM	61.07	0.80	15.40
(0.9 - 0.2Sds) * DL + E ELFM	67.07	0.83	10.37
(0.9 - 0.2Sds) * DL + E EMAM	60.55	0.80	10.37
1.0D + 1.0W	130.62	2.33	12.91

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




0.00
0.03
0.07
0.13
0.13
0.12
0.24
0.17
0.25
0.05
0.08
0.10
0.12
0.14
0.16
0.17
0.12
0.14
0.16
0.18
0.19
0.21
0.23
0.25
0.27
0.29
0.31
1.00
1.00
114.000
110.000
104.000
100.000
94.000
90.000
84.000
80.000
75.000
70.000
65.000
60.000
52.658
47.842
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:	**27741_B**	**Code: ANSI/TIA-222-G**	
Site Name:	**Round Hill CT, Greenwich, CT**	**Engineering Number: REV01**	**9/16/2019 9:52:08 AM**
Customer:	**KGI**		

Analysis Parameters

Location:	**Greenwich County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**114**
Shape:	**18 Sides. Sect 3: Round Solid. Sect 4: Round Solid. Sect 5: Round**		**41.00**
Pole Type:	**Custom**	**Top Diameter (in):**	**4.50**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.144**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**93 mph**
Exposure Catagory:	**D**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Catagory:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 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):	**1.53**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.050**
S_s:	**0.259**	**S_1:**	**0.071**	**C_s Max:**	**0.050**
F_a:	**1.593**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.275**	**S_{d1}:**	**0.114**		

Load Cases

1.2D + 1.6W	**93 mph with No Ice**
0.9D + 1.6W	**93 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:	**27741_B**	**Code:**	**ANSI/TIA-222-G**
Site Name:	**Round Hill CT, Greenwich, CT**	**Engineering Number:**	**REV01**
Customer:	**KGI**		

9/16/2019 9:52:08 AM

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	52.658	0.2500	65		0.00	5,253	41.00	0.00	32.33	6783.7	27.51	164.00	33.39	52.66	26.30	3651.8	22.15	133.60	0.144341
2-18	36.158	0.1875	65	Slip	57.78	2,319	34.46	47.84	20.40	3029.3	31.00	183.84	29.25	84.00	17.30	1845.7	26.10	156.00	0.144341
3-RS	10.000	2.8750	50	Butt	0.00	884	5.750	84.00	25.97	53.7	0.00	2.00	5.750	94.00	25.97	53.7	0.00	2.00	0.000000
4-RS	10.000	2.2500	50	Butt	0.00	541	4.500	94.00	15.90	20.1	0.00	2.00	4.500	104.00	15.90	20.1	0.00	2.00	0.000000
5-R	10.000	0.6740	35	Butt	0.00	276	4.500	104.00	8.10	14.8	0.00	6.68	4.500	114.00	8.10	14.8	0.00	6.68	0.000000
				Shaft Weight		9,273													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
110.00	782 11066	3	1.76	0.000	1.00	5.33	0.000	1.00	0.000	0.000
110.00	DBXNH-6565A-A2M	3	34.20	0.000	1.00	153.17	0.000	1.00	0.000	0.000
110.00	Flush Mount	1	120.00	0.000	1.00	282.20	0.000	1.00	0.000	0.000
110.00	TMAT1921XB6811A	3	17.60	0.000	1.00	35.49	0.000	1.00	0.000	0.000
100.00	APXVSPP18-C-A20	3	57.00	0.000	1.00	171.46	0.000	1.00	0.000	0.000
100.00	Flush Mount	1	120.00	0.000	1.00	280.64	0.000	1.00	0.000	0.000
100.00	IBC1900HG-SA	9	22.00	0.000	1.00	66.18	0.000	1.00	0.000	0.000
100.00	KIT-FD9R6004/1C-DL	6	6.40	0.000	1.00	17.57	0.000	1.00	0.000	0.000
90.00	Flush Mount	1	120.00	0.000	1.00	278.93	0.000	1.00	0.000	0.000
81.50	3 ft Standoff	1	40.00	2.630	1.00	115.55	8.247	1.00	0.000	0.000
81.50	GPS	1	10.00	0.070	1.00	13.74	0.200	1.00	0.000	1.500
	Totals	32	978.08		2,768.38			Number of Loadings :		11

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Protected Width (in)	Exposed To Wind	Carrier
104.00	114.00	1	Concealment (0.5)	30.00	16.95	N	12.75	Y	
0.00	110.00	1	.32"	0.32	0.06	N	0.00	N	T-Mobile
0.00	110.00	12	1 5/8" Coax	1.98	1.04	N	0.00	N	T-Mobile
94.00	104.00	1	Concealment (0.5)	30.00	16.95	N	12.75	Y	
0.00	100.00	1	.32"	0.32	0.06	N	0.00	N	Sprint
0.00	100.00	2	1 1/4" Coax	1.55	0.66	N	0.00	N	Sprint
0.00	100.00	6	1 5/8" Coax	1.98	1.04	N	0.00	N	Sprint
84.00	94.00	1	Concealment (0.5)	30.00	16.95	N	12.12	Y	
0.00	81.50	1	1/2" Coax	0.65	0.16	N	0.00	N	Sprint

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	Fy (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.2500	41.000	32.334	6,783.7	27.51	164.00	69.0	325.9	0.0	0.0
5.00		0.2500	40.278	31.761	6,429.6	27.00	161.11	69.6	314.4	0.0	545.3
10.00		0.2500	39.557	31.189	6,088.1	26.49	158.23	70.2	303.1	0.0	535.5
15.00		0.2500	38.835	30.616	5,758.9	25.98	155.34	70.8	292.1	0.0	525.8
20.00		0.2500	38.113	30.043	5,441.7	25.47	152.45	71.4	281.2	0.0	516.0
25.00		0.2500	37.391	29.471	5,136.4	24.96	149.57	72.0	270.6	0.0	506.3
30.00		0.2500	36.670	28.898	4,842.8	24.45	146.68	72.6	260.1	0.0	496.5
35.00		0.2500	35.948	28.325	4,560.6	23.94	143.79	73.2	249.9	0.0	486.8
40.00		0.2500	35.226	27.753	4,289.5	23.43	140.91	73.8	239.8	0.0	477.1
45.00		0.2500	34.505	27.180	4,029.4	22.93	138.02	74.4	230.0	0.0	467.3
47.84	Bot - Section 2	0.2500	34.094	26.855	3,886.4	22.64	136.38	74.8	224.5	0.0	261.3
50.00		0.2500	33.783	26.607	3,780.1	22.42	135.13	75.0	220.4	0.0	345.3
52.66	Top - Section 1	0.1875	33.774	19.988	2,848.7	30.35	180.13	65.7	166.1	0.0	421.0
55.00		0.1875	33.436	19.786	2,763.6	30.03	178.33	66.1	162.8	0.0	158.5
60.00		0.1875	32.715	19.357	2,587.5	29.35	174.48	66.9	155.8	0.0	333.0
65.00		0.1875	31.993	18.927	2,419.1	28.68	170.63	67.7	148.9	0.0	325.7
70.00		0.1875	31.271	18.498	2,258.1	28.00	166.78	68.5	142.2	0.0	318.4
75.00		0.1875	30.549	18.069	2,104.4	27.32	162.93	69.3	135.7	0.0	311.1
80.00		0.1875	29.828	17.639	1,957.9	26.64	159.08	70.1	129.3	0.0	303.8
81.50		0.1875	29.611	17.510	1,915.3	26.44	157.93	70.3	127.4	0.0	89.7
84.00	Top - Section 2	0.1875	29.250	17.295	1,845.7	26.10	156.00	70.7	124.3	0.0	148.0
84.00	Bot - Section 3	2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	
85.00		2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	88.4
90.00		2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	441.8
94.00	Top - Section 3	2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	353.4
94.00	Bot - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	
95.00		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	54.1
100.0		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	270.6
104.0	Top - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	216.5
104.0	Bot - Section 5	0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	
105.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	27.6
110.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	137.8
114.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	110.3
											9,272.8

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:09 AM

Customer: KGI

Load Case: 1.2D + 1.6W | 93 mph with No Ice | 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
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		213.1	0.0					0.0	0.0	213.1	0.0	0.0	0.0
5.00		422.4	654.3					0.0	121.9	422.4	776.2	0.0	0.0
10.00		414.8	642.6					0.0	121.9	414.8	764.5	0.0	0.0
15.00		414.8	630.9					0.0	121.9	414.8	752.8	0.0	0.0
20.00		423.3	619.2					0.0	121.9	423.3	741.2	0.0	0.0
25.00		431.2	607.5					0.0	121.9	431.2	729.5	0.0	0.0
30.00		436.1	595.8					0.0	121.9	436.1	717.8	0.0	0.0
35.00		438.9	584.2					0.0	121.9	438.9	706.1	0.0	0.0
40.00		439.9	572.5					0.0	121.9	439.9	694.4	0.0	0.0
45.00		345.0	560.8					0.0	121.9	345.0	682.7	0.0	0.0
47.84	Bot - Section 2	220.6	313.6					0.0	69.3	220.6	382.9	0.0	0.0
50.00		213.4	414.4					0.0	52.6	213.4	467.0	0.0	0.0
52.66	Top - Section 1	221.1	505.2					0.0	64.8	221.1	570.0	0.0	0.0
55.00		323.2	190.2					0.0	57.1	323.2	247.3	0.0	0.0
60.00		437.9	399.6					0.0	121.9	437.9	521.5	0.0	0.0
65.00		434.1	390.8					0.0	121.9	434.1	512.7	0.0	0.0
70.00		429.8	382.1					0.0	121.9	429.8	504.0	0.0	0.0
75.00		424.8	373.3					0.0	121.9	424.8	495.2	0.0	0.0
80.00		273.9	364.5					0.0	121.9	273.9	486.4	0.0	0.0
81.50	Appertunance(s)	166.9	107.6	138.5	0.0	5.4	60.0	0.0	36.6	305.4	204.2	0.0	0.0
84.00	Top - Section 2	118.9	177.7					0.0	60.5	118.9	238.1	0.0	0.0
85.00		89.5	106.0					31.3	44.5	120.8	150.6	0.0	0.0
90.00	Appertunance(s)	134.9	530.2	0.0	0.0	0.0	144.0	157.4	222.7	292.2	896.8	0.0	0.0
94.00	Top - Section 3	72.1	424.1					127.0	178.1	199.1	602.3	0.0	0.0
95.00		71.4	64.9					33.5	44.5	104.9	109.5	0.0	0.0
100.00	Appertunance(s)	107.5	324.7	0.0	0.0	0.0	632.9	168.6	222.7	276.2	1,180.3	0.0	0.0
104.00	Top - Section 4	60.0	259.8					136.0	141.6	196.0	401.3	0.0	0.0
105.00		72.6	33.1					34.1	35.4	106.7	68.5	0.0	0.0
110.00	Appertunance(s)	109.3	165.4	0.0	0.0	0.0	336.8	171.5	176.9	280.8	679.2	0.0	0.0
114.00		48.8	132.3					138.2	81.4	186.9	213.7	0.0	0.0
								Totals:		9,146.23	15,496.6	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:09 AM

Customer: KGI

Load Case: 1.2D + 1.6W | 93 mph with No Ice | 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance 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	-15.49	-8.95	0.00	-503.96	0.00	503.96	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.306
5.00	-14.70	-8.55	0.00	-459.22	0.00	459.22	1,990.85	995.43	3,279.75	1,642.31	0.05	-0.10	0.287
10.00	-13.92	-8.16	0.00	-416.48	0.00	416.48	1,971.76	985.88	3,189.37	1,597.06	0.21	-0.20	0.268
15.00	-13.16	-7.76	0.00	-375.70	0.00	375.70	1,952.06	976.03	3,099.16	1,551.88	0.47	-0.29	0.249
20.00	-12.41	-7.35	0.00	-336.91	0.00	336.91	1,931.73	965.87	3,009.15	1,506.81	0.82	-0.38	0.230
25.00	-11.67	-6.93	0.00	-300.16	0.00	300.16	1,910.79	955.40	2,919.43	1,461.88	1.26	-0.46	0.211
30.00	-10.95	-6.50	0.00	-265.52	0.00	265.52	1,889.23	944.62	2,830.03	1,417.12	1.79	-0.54	0.193
35.00	-10.24	-6.07	0.00	-233.01	0.00	233.01	1,867.06	933.53	2,741.01	1,372.54	2.40	-0.61	0.175
40.00	-9.54	-5.63	0.00	-202.68	0.00	202.68	1,844.27	922.13	2,652.43	1,328.19	3.08	-0.68	0.158
45.00	-8.86	-5.28	0.00	-174.52	0.00	174.52	1,820.86	910.43	2,564.34	1,284.08	3.82	-0.74	0.141
47.84	-8.48	-5.06	0.00	-159.50	0.00	159.50	1,807.27	903.64	2,514.51	1,259.12	4.28	-0.78	0.131
50.00	-8.01	-4.85	0.00	-148.58	0.00	148.58	1,796.83	898.42	2,476.80	1,240.24	4.63	-0.80	0.124
52.66	-7.44	-4.62	0.00	-135.69	0.00	135.69	1,181.92	590.96	1,634.85	818.64	5.09	-0.83	0.172
55.00	-7.20	-4.30	0.00	-124.87	0.00	124.87	1,176.68	588.34	1,611.12	806.76	5.50	-0.85	0.161
60.00	-6.68	-3.86	0.00	-103.37	0.00	103.37	1,165.04	582.52	1,560.37	781.35	6.43	-0.91	0.138
65.00	-6.17	-3.42	0.00	-84.07	0.00	84.07	1,152.79	576.40	1,509.51	755.88	7.41	-0.96	0.117
70.00	-5.67	-2.99	0.00	-66.95	0.00	66.95	1,139.92	569.96	1,458.59	730.38	8.45	-1.01	0.097
75.00	-5.18	-2.56	0.00	-52.01	0.00	52.01	1,126.44	563.22	1,407.67	704.88	9.52	-1.05	0.078
80.00	-4.70	-2.28	0.00	-39.22	0.00	39.22	1,112.33	556.17	1,356.80	679.41	10.64	-1.08	0.062
81.50	-4.50	-1.97	0.00	-35.80	0.00	35.80	1,107.98	553.99	1,341.56	671.78	10.98	-1.08	0.057
84.00	-4.27	-1.85	0.00	-30.88	0.00	30.88	1,100.61	550.30	1,316.18	659.07	11.55	-1.10	0.051
84.00	-4.27	-1.85	0.00	-30.88	0.00	30.88	1,168.53	584.26	139.98	118.82	11.55	-1.10	0.264
85.00	-4.11	-1.75	0.00	-29.03	0.00	29.03	1,168.53	584.26	139.98	118.82	11.78	-1.10	0.248
90.00	-3.21	-1.46	0.00	-20.29	0.00	20.29	1,168.53	584.26	139.98	118.82	13.30	-1.76	0.174
94.00	-2.61	-1.25	0.00	-14.45	0.00	14.45	1,168.53	584.26	139.98	118.82	14.93	-2.12	0.124
94.00	-2.61	-1.25	0.00	-14.45	0.00	14.45	715.69	357.85	67.10	56.95	14.93	-2.12	0.257
95.00	-2.49	-1.16	0.00	-13.20	0.00	13.20	715.69	357.85	67.10	56.95	15.38	-2.20	0.235
100.00	-1.32	-0.84	0.00	-7.40	0.00	7.40	715.69	357.85	67.10	56.95	18.10	-2.93	0.132
104.00	-0.93	-0.63	0.00	-4.03	0.00	4.03	715.69	357.85	67.10	56.95	20.70	-3.25	0.072
104.00	-0.93	-0.63	0.00	-4.03	0.00	4.03	255.19	127.60	34.57	26.17	20.70	-3.25	0.158
105.00	-0.86	-0.52	0.00	-3.40	0.00	3.40	255.19	127.60	34.57	26.17	21.38	-3.30	0.133
110.00	-0.20	-0.20	0.00	-0.80	0.00	0.80	255.19	127.60	34.57	26.17	24.97	-3.50	0.031
114.00	0.00	-0.19	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	27.91	-3.53	0.000

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 25 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		213.1	0.0					0.0	0.0	213.1	0.0	0.0	0.0
5.00		422.4	490.7					0.0	91.4	422.4	582.2	0.0	0.0
10.00		414.8	482.0					0.0	91.4	414.8	573.4	0.0	0.0
15.00		414.8	473.2					0.0	91.4	414.8	564.6	0.0	0.0
20.00		423.3	464.4					0.0	91.4	423.3	555.9	0.0	0.0
25.00		431.2	455.7					0.0	91.4	431.2	547.1	0.0	0.0
30.00		436.1	446.9					0.0	91.4	436.1	538.3	0.0	0.0
35.00		438.9	438.1					0.0	91.4	438.9	529.6	0.0	0.0
40.00		439.9	429.3					0.0	91.4	439.9	520.8	0.0	0.0
45.00		345.0	420.6					0.0	91.4	345.0	512.0	0.0	0.0
47.84	Bot - Section 2	220.6	235.2					0.0	52.0	220.6	287.2	0.0	0.0
50.00		213.4	310.8					0.0	39.5	213.4	350.3	0.0	0.0
52.66	Top - Section 1	221.1	378.9					0.0	48.6	221.1	427.5	0.0	0.0
55.00		323.2	142.7					0.0	42.8	323.2	185.5	0.0	0.0
60.00		437.9	299.7					0.0	91.4	437.9	391.1	0.0	0.0
65.00		434.1	293.1					0.0	91.4	434.1	384.6	0.0	0.0
70.00		429.8	286.5					0.0	91.4	429.8	378.0	0.0	0.0
75.00		424.8	280.0					0.0	91.4	424.8	371.4	0.0	0.0
80.00		273.9	273.4					0.0	91.4	273.9	364.8	0.0	0.0
81.50	Appertunance(s)	166.9	80.7	138.5	0.0	5.4	45.0	0.0	27.4	305.4	153.2	0.0	0.0
84.00	Top - Section 2	118.9	133.2					0.0	45.4	118.9	178.6	0.0	0.0
85.00		89.5	79.5					31.3	33.4	120.8	112.9	0.0	0.0
90.00	Appertunance(s)	134.9	397.6	0.0	0.0	0.0	108.0	157.4	167.0	292.2	672.6	0.0	0.0
94.00	Top - Section 3	72.1	318.1					127.0	133.6	199.1	451.7	0.0	0.0
95.00		71.4	48.7					33.5	33.4	104.9	82.1	0.0	0.0
100.00	Appertunance(s)	107.5	243.5	0.0	0.0	0.0	474.7	168.6	167.0	276.2	885.2	0.0	0.0
104.00	Top - Section 4	60.0	194.8					136.0	106.2	196.0	301.0	0.0	0.0
105.00		72.6	24.8					34.1	26.5	106.7	51.4	0.0	0.0
110.00	Appertunance(s)	109.3	124.1	0.0	0.0	0.0	252.6	171.5	132.7	280.8	509.4	0.0	0.0
114.00		48.8	99.2					138.2	61.0	186.9	160.3	0.0	0.0
								Totals:		9,146.23	11,622.4	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:10 AM

Customer: KGI

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 25 Iterations

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

Wind Importance 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	-11.61	-8.94	0.00	-501.34	0.00	501.34	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.303
5.00	-11.02	-8.54	0.00	-456.62	0.00	456.62	1,990.85	995.43	3,279.75	1,642.31	0.05	-0.10	0.284
10.00	-10.43	-8.14	0.00	-413.92	0.00	413.92	1,971.76	985.88	3,189.37	1,597.06	0.21	-0.20	0.265
15.00	-9.86	-7.74	0.00	-373.22	0.00	373.22	1,952.06	976.03	3,099.16	1,551.88	0.47	-0.29	0.246
20.00	-9.29	-7.33	0.00	-334.53	0.00	334.53	1,931.73	965.87	3,009.15	1,506.81	0.82	-0.38	0.227
25.00	-8.74	-6.90	0.00	-297.90	0.00	297.90	1,910.79	955.40	2,919.43	1,461.88	1.26	-0.46	0.208
30.00	-8.20	-6.47	0.00	-263.39	0.00	263.39	1,889.23	944.62	2,830.03	1,417.12	1.78	-0.54	0.190
35.00	-7.66	-6.04	0.00	-231.02	0.00	231.02	1,867.06	933.53	2,741.01	1,372.54	2.38	-0.61	0.172
40.00	-7.14	-5.60	0.00	-200.83	0.00	200.83	1,844.27	922.13	2,652.43	1,328.19	3.06	-0.68	0.155
45.00	-6.63	-5.25	0.00	-172.83	0.00	172.83	1,820.86	910.43	2,564.34	1,284.08	3.80	-0.74	0.138
47.84	-6.34	-5.03	0.00	-157.90	0.00	157.90	1,807.27	903.64	2,514.51	1,259.12	4.25	-0.77	0.129
50.00	-5.99	-4.82	0.00	-147.04	0.00	147.04	1,796.83	898.42	2,476.80	1,240.24	4.60	-0.80	0.122
52.66	-5.57	-4.59	0.00	-134.23	0.00	134.23	1,181.92	590.96	1,634.85	818.64	5.05	-0.82	0.169
55.00	-5.38	-4.27	0.00	-123.48	0.00	123.48	1,176.68	588.34	1,611.12	806.76	5.47	-0.85	0.158
60.00	-5.00	-3.83	0.00	-102.12	0.00	102.12	1,165.04	582.52	1,560.37	781.35	6.38	-0.91	0.135
65.00	-4.62	-3.40	0.00	-82.96	0.00	82.96	1,152.79	576.40	1,509.51	755.88	7.36	-0.96	0.114
70.00	-4.24	-2.96	0.00	-65.98	0.00	65.98	1,139.92	569.96	1,458.59	730.38	8.39	-1.00	0.094
75.00	-3.88	-2.53	0.00	-51.17	0.00	51.17	1,126.44	563.22	1,407.67	704.88	9.45	-1.04	0.076
80.00	-3.52	-2.25	0.00	-38.50	0.00	38.50	1,112.33	556.17	1,356.80	679.41	10.56	-1.07	0.060
81.50	-3.37	-1.95	0.00	-35.12	0.00	35.12	1,107.98	553.99	1,341.56	671.78	10.89	-1.08	0.055
84.00	-3.19	-1.82	0.00	-30.25	0.00	30.25	1,100.61	550.30	1,316.18	659.07	11.46	-1.09	0.049
84.00	-3.19	-1.82	0.00	-30.25	0.00	30.25	1,168.53	584.26	139.98	118.82	11.46	-1.09	0.257
85.00	-3.07	-1.72	0.00	-28.43	0.00	28.43	1,168.53	584.26	139.98	118.82	11.69	-1.09	0.242
90.00	-2.39	-1.43	0.00	-19.83	0.00	19.83	1,168.53	584.26	139.98	118.82	13.19	-1.73	0.169
94.00	-1.95	-1.22	0.00	-14.10	0.00	14.10	1,168.53	584.26	139.98	118.82	14.80	-2.09	0.120
94.00	-1.95	-1.22	0.00	-14.10	0.00	14.10	715.69	357.85	67.10	56.95	14.80	-2.09	0.250
95.00	-1.86	-1.13	0.00	-12.88	0.00	12.88	715.69	357.85	67.10	56.95	15.24	-2.16	0.229
100.00	-0.98	-0.82	0.00	-7.22	0.00	7.22	715.69	357.85	67.10	56.95	17.91	-2.87	0.128
104.00	-0.69	-0.61	0.00	-3.93	0.00	3.93	715.69	357.85	67.10	56.95	20.46	-3.19	0.070
104.00	-0.69	-0.61	0.00	-3.93	0.00	3.93	255.19	127.60	34.57	26.17	20.46	-3.19	0.153
105.00	-0.64	-0.51	0.00	-3.32	0.00	3.32	255.19	127.60	34.57	26.17	21.14	-3.24	0.129
110.00	-0.15	-0.20	0.00	-0.78	0.00	0.78	255.19	127.60	34.57	26.17	24.65	-3.44	0.031
114.00	0.00	-0.19	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	27.55	-3.47	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice 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		75.2	0.0					0.0	0.0	75.2	0.0	0.0	0.0
5.00		149.5	965.7					0.0	121.9	149.5	1,087.6	0.0	0.0
10.00		147.6	977.9					0.0	121.9	147.6	1,099.8	0.0	0.0
15.00		148.1	976.4					0.0	121.9	148.1	1,098.3	0.0	0.0
20.00		151.7	969.7					0.0	121.9	151.7	1,091.6	0.0	0.0
25.00		154.9	960.3					0.0	121.9	154.9	1,082.2	0.0	0.0
30.00		157.1	949.0					0.0	121.9	157.1	1,070.9	0.0	0.0
35.00		158.5	936.5					0.0	121.9	158.5	1,058.4	0.0	0.0
40.00		159.3	923.1					0.0	121.9	159.3	1,045.0	0.0	0.0
45.00		125.2	908.9					0.0	121.9	125.2	1,030.8	0.0	0.0
47.84	Bot - Section 2	80.2	511.0					0.0	69.3	80.2	580.3	0.0	0.0
50.00		77.6	565.3					0.0	52.6	77.6	617.9	0.0	0.0
52.66	Top - Section 1	80.5	690.0					0.0	64.8	80.5	754.8	0.0	0.0
55.00		117.9	352.3					0.0	57.1	117.9	409.5	0.0	0.0
60.00		160.1	740.8					0.0	121.9	160.1	862.7	0.0	0.0
65.00		159.1	727.7					0.0	121.9	159.1	849.6	0.0	0.0
70.00		158.0	714.3					0.0	121.9	158.0	836.3	0.0	0.0
75.00		156.6	700.7					0.0	121.9	156.6	822.6	0.0	0.0
80.00		101.2	686.8					0.0	121.9	101.2	808.7	0.0	0.0
81.50	Appertunance(s)	61.8	204.1	78.3	0.0	2.8	126.3	0.0	36.6	140.1	366.9	0.0	0.0
84.00	Top - Section 2	42.8	336.9					0.0	60.5	42.8	397.4	0.0	0.0
85.00		25.5	120.9					14.4	161.5	39.9	282.4	0.0	0.0
90.00	Appertunance(s)	38.4	605.0	0.0	0.0	0.0	422.9	72.4	808.1	110.8	1,836.0	0.0	0.0
94.00	Top - Section 3	20.9	484.4					58.5	647.4	79.4	1,131.8	0.0	0.0
95.00		22.5	77.5					15.3	162.0	37.8	239.5	0.0	0.0
100.00	Appertunance(s)	33.9	387.8	0.0	0.0	0.0	1,563.7	76.9	810.5	110.8	2,762.0	0.0	0.0
104.00	Top - Section 4	19.0	310.5					62.1	612.7	81.0	923.2	0.0	0.0
105.00		23.0	45.8					15.6	153.3	38.5	199.1	0.0	0.0
110.00	Appertunance(s)	34.6	229.3	0.0	0.0	0.0	921.9	78.4	767.1	113.0	1,918.2	0.0	0.0
114.00		15.5	183.7					63.2	554.2	78.7	737.9	0.0	0.0
								Totals:		3,390.81	27,001.4	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:10 AM

Customer: KGI

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 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	-27.00	-3.32	0.00	-196.12	0.00	196.12	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.130
5.00	-25.91	-3.19	0.00	-179.50	0.00	179.50	1,990.85	995.43	3,279.75	1,642.31	0.02	-0.04	0.122
10.00	-24.81	-3.06	0.00	-163.54	0.00	163.54	1,971.76	985.88	3,189.37	1,597.06	0.08	-0.08	0.115
15.00	-23.71	-2.92	0.00	-148.24	0.00	148.24	1,952.06	976.03	3,099.16	1,551.88	0.18	-0.11	0.108
20.00	-22.62	-2.78	0.00	-133.61	0.00	133.61	1,931.73	965.87	3,009.15	1,506.81	0.32	-0.15	0.100
25.00	-21.53	-2.64	0.00	-119.70	0.00	119.70	1,910.79	955.40	2,919.43	1,461.88	0.50	-0.18	0.093
30.00	-20.46	-2.49	0.00	-106.51	0.00	106.51	1,889.23	944.62	2,830.03	1,417.12	0.70	-0.21	0.086
35.00	-19.40	-2.33	0.00	-94.07	0.00	94.07	1,867.06	933.53	2,741.01	1,372.54	0.94	-0.24	0.079
40.00	-18.36	-2.18	0.00	-82.39	0.00	82.39	1,844.27	922.13	2,652.43	1,328.19	1.21	-0.27	0.072
45.00	-17.33	-2.05	0.00	-71.50	0.00	71.50	1,820.86	910.43	2,564.34	1,284.08	1.51	-0.30	0.065
47.84	-16.75	-1.98	0.00	-65.66	0.00	65.66	1,807.27	903.64	2,514.51	1,259.12	1.69	-0.31	0.061
50.00	-16.13	-1.90	0.00	-61.40	0.00	61.40	1,796.83	898.42	2,476.80	1,240.24	1.83	-0.32	0.058
52.66	-15.37	-1.82	0.00	-56.35	0.00	56.35	1,181.92	590.96	1,634.85	818.64	2.01	-0.33	0.082
55.00	-14.96	-1.70	0.00	-52.10	0.00	52.10	1,176.68	588.34	1,611.12	806.76	2.18	-0.34	0.077
60.00	-14.10	-1.54	0.00	-43.60	0.00	43.60	1,165.04	582.52	1,560.37	781.35	2.55	-0.37	0.068
65.00	-13.25	-1.38	0.00	-35.90	0.00	35.90	1,152.79	576.40	1,509.51	755.88	2.94	-0.39	0.059
70.00	-12.42	-1.22	0.00	-29.00	0.00	29.00	1,139.92	569.96	1,458.59	730.38	3.36	-0.41	0.051
75.00	-11.60	-1.06	0.00	-22.90	0.00	22.90	1,126.44	563.22	1,407.67	704.88	3.79	-0.42	0.043
80.00	-10.79	-0.95	0.00	-17.60	0.00	17.60	1,112.33	556.17	1,356.80	679.41	4.24	-0.44	0.036
81.50	-10.42	-0.81	0.00	-16.17	0.00	16.17	1,107.98	553.99	1,341.56	671.78	4.38	-0.44	0.033
84.00	-10.02	-0.77	0.00	-14.13	0.00	14.13	1,100.61	550.30	1,316.18	659.07	4.61	-0.45	0.031
84.00	-10.02	-0.77	0.00	-14.13	0.00	14.13	1,168.53	584.26	139.98	118.82	4.61	-0.45	0.128
85.00	-9.74	-0.75	0.00	-13.37	0.00	13.37	1,168.53	584.26	139.98	118.82	4.71	-0.45	0.121
90.00	-7.90	-0.66	0.00	-9.60	0.00	9.60	1,168.53	584.26	139.98	118.82	5.34	-0.75	0.088
94.00	-6.77	-0.57	0.00	-6.98	0.00	6.98	1,168.53	584.26	139.98	118.82	6.05	-0.93	0.065
94.00	-6.77	-0.57	0.00	-6.98	0.00	6.98	715.69	357.85	67.10	56.95	6.05	-0.93	0.132
95.00	-6.53	-0.55	0.00	-6.41	0.00	6.41	715.69	357.85	67.10	56.95	6.25	-0.96	0.122
100.00	-3.77	-0.40	0.00	-3.64	0.00	3.64	715.69	357.85	67.10	56.95	7.46	-1.32	0.069
104.00	-2.85	-0.30	0.00	-2.02	0.00	2.02	715.69	357.85	67.10	56.95	8.64	-1.48	0.039
104.00	-2.85	-0.30	0.00	-2.02	0.00	2.02	255.19	127.60	34.57	26.17	8.64	-1.48	0.088
105.00	-2.65	-0.26	0.00	-1.72	0.00	1.72	255.19	127.60	34.57	26.17	8.95	-1.50	0.076
110.00	-0.74	-0.10	0.00	-0.40	0.00	0.40	255.19	127.60	34.57	26.17	10.59	-1.61	0.018
114.00	0.00	-0.08	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	11.95	-1.62	0.000

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 23 Iterations

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

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		55.4	0.0					0.0	0.0	55.4	0.0	0.0	0.0
5.00		109.9	545.3					0.0	101.6	109.9	646.9	0.0	0.0
10.00		107.9	535.5					0.0	101.6	107.9	637.1	0.0	0.0
15.00		107.9	525.8					0.0	101.6	107.9	627.4	0.0	0.0
20.00		110.1	516.0					0.0	101.6	110.1	617.6	0.0	0.0
25.00		112.2	506.3					0.0	101.6	112.2	607.9	0.0	0.0
30.00		113.5	496.5					0.0	101.6	113.5	598.1	0.0	0.0
35.00		114.2	486.8					0.0	101.6	114.2	588.4	0.0	0.0
40.00		114.4	477.1					0.0	101.6	114.4	578.7	0.0	0.0
45.00		89.7	467.3					0.0	101.6	89.7	568.9	0.0	0.0
47.84	Bot - Section 2	57.4	261.3					0.0	57.8	57.4	319.1	0.0	0.0
50.00		55.5	345.3					0.0	43.8	55.5	389.2	0.0	0.0
52.66	Top - Section 1	57.5	421.0					0.0	54.0	57.5	475.0	0.0	0.0
55.00		84.1	158.5					0.0	47.6	84.1	206.1	0.0	0.0
60.00		113.9	333.0					0.0	101.6	113.9	434.6	0.0	0.0
65.00		112.9	325.7					0.0	101.6	112.9	427.3	0.0	0.0
70.00		111.8	318.4					0.0	101.6	111.8	420.0	0.0	0.0
75.00		110.5	311.1					0.0	101.6	110.5	412.7	0.0	0.0
80.00		71.3	303.8					0.0	101.6	71.3	405.4	0.0	0.0
81.50	Appertunance(s)	43.4	89.7	36.0	0.0	1.4	50.0	0.0	30.5	79.4	170.2	0.0	0.0
84.00	Top - Section 2	30.9	148.0					0.0	50.4	30.9	198.4	0.0	0.0
85.00		23.3	88.4					8.1	37.1	31.4	125.5	0.0	0.0
90.00	Appertunance(s)	35.1	441.8	0.0	0.0	0.0	120.0	40.9	185.5	76.0	747.4	0.0	0.0
94.00	Top - Section 3	18.8	353.4					33.0	148.4	51.8	501.9	0.0	0.0
95.00		18.6	54.1					8.7	37.1	27.3	91.2	0.0	0.0
100.00	Appertunance(s)	28.0	270.6	0.0	0.0	0.0	527.4	43.9	185.5	71.8	983.5	0.0	0.0
104.00	Top - Section 4	15.6	216.5					35.4	118.0	51.0	334.4	0.0	0.0
105.00		18.9	27.6					8.9	29.5	27.8	57.1	0.0	0.0
110.00	Appertunance(s)	28.4	137.8	0.0	0.0	0.0	280.7	44.6	147.4	73.1	566.0	0.0	0.0
114.00		12.7	110.3					35.9	67.8	48.6	178.1	0.0	0.0
								Totals:		2,379.35	12,913.8	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:11 AM

Customer: KGI

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 23 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	-12.91	-2.33	0.00	-130.62	0.00	130.62	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.084
5.00	-12.27	-2.22	0.00	-118.99	0.00	118.99	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.03	0.079
10.00	-11.63	-2.12	0.00	-107.88	0.00	107.88	1,971.76	985.88	3,189.37	1,597.06	0.06	-0.05	0.073
15.00	-11.00	-2.01	0.00	-97.28	0.00	97.28	1,952.06	976.03	3,099.16	1,551.88	0.12	-0.08	0.068
20.00	-10.38	-1.91	0.00	-87.21	0.00	87.21	1,931.73	965.87	3,009.15	1,506.81	0.21	-0.10	0.063
25.00	-9.77	-1.80	0.00	-77.67	0.00	77.67	1,910.79	955.40	2,919.43	1,461.88	0.33	-0.12	0.058
30.00	-9.17	-1.69	0.00	-68.69	0.00	68.69	1,889.23	944.62	2,830.03	1,417.12	0.46	-0.14	0.053
35.00	-8.59	-1.57	0.00	-60.26	0.00	60.26	1,867.06	933.53	2,741.01	1,372.54	0.62	-0.16	0.049
40.00	-8.01	-1.46	0.00	-52.39	0.00	52.39	1,844.27	922.13	2,652.43	1,328.19	0.80	-0.18	0.044
45.00	-7.44	-1.37	0.00	-45.10	0.00	45.10	1,820.86	910.43	2,564.34	1,284.08	0.99	-0.19	0.039
47.84	-7.12	-1.31	0.00	-41.20	0.00	41.20	1,807.27	903.64	2,514.51	1,259.12	1.11	-0.20	0.037
50.00	-6.73	-1.26	0.00	-38.37	0.00	38.37	1,796.83	898.42	2,476.80	1,240.24	1.20	-0.21	0.035
52.66	-6.26	-1.20	0.00	-35.04	0.00	35.04	1,181.92	590.96	1,634.85	818.64	1.32	-0.21	0.048
55.00	-6.05	-1.11	0.00	-32.23	0.00	32.23	1,176.68	588.34	1,611.12	806.76	1.42	-0.22	0.045
60.00	-5.61	-1.00	0.00	-26.67	0.00	26.67	1,165.04	582.52	1,560.37	781.35	1.66	-0.24	0.039
65.00	-5.19	-0.89	0.00	-21.67	0.00	21.67	1,152.79	576.40	1,509.51	755.88	1.92	-0.25	0.033
70.00	-4.77	-0.77	0.00	-17.24	0.00	17.24	1,139.92	569.96	1,458.59	730.38	2.19	-0.26	0.028
75.00	-4.36	-0.66	0.00	-13.38	0.00	13.38	1,126.44	563.22	1,407.67	704.88	2.47	-0.27	0.023
80.00	-3.95	-0.59	0.00	-10.08	0.00	10.08	1,112.33	556.17	1,356.80	679.41	2.75	-0.28	0.018
81.50	-3.78	-0.51	0.00	-9.19	0.00	9.19	1,107.98	553.99	1,341.56	671.78	2.84	-0.28	0.017
84.00	-3.58	-0.48	0.00	-7.92	0.00	7.92	1,100.61	550.30	1,316.18	659.07	2.99	-0.28	0.015
84.00	-3.58	-0.48	0.00	-7.92	0.00	7.92	1,168.53	584.26	139.98	118.82	2.99	-0.28	0.070
85.00	-3.46	-0.45	0.00	-7.45	0.00	7.45	1,168.53	584.26	139.98	118.82	3.05	-0.28	0.066
90.00	-2.71	-0.37	0.00	-5.20	0.00	5.20	1,168.53	584.26	139.98	118.82	3.44	-0.45	0.046
94.00	-2.21	-0.32	0.00	-3.70	0.00	3.70	1,168.53	584.26	139.98	118.82	3.86	-0.55	0.033
94.00	-2.21	-0.32	0.00	-3.70	0.00	3.70	715.69	357.85	67.10	56.95	3.86	-0.55	0.068
95.00	-2.12	-0.30	0.00	-3.38	0.00	3.38	715.69	357.85	67.10	56.95	3.98	-0.57	0.062
100.00	-1.13	-0.22	0.00	-1.90	0.00	1.90	715.69	357.85	67.10	56.95	4.68	-0.75	0.035
104.00	-0.80	-0.16	0.00	-1.03	0.00	1.03	715.69	357.85	67.10	56.95	5.34	-0.83	0.019
104.00	-0.80	-0.16	0.00	-1.03	0.00	1.03	255.19	127.60	34.57	26.17	5.34	-0.83	0.043
105.00	-0.74	-0.13	0.00	-0.87	0.00	0.87	255.19	127.60	34.57	26.17	5.52	-0.85	0.036
110.00	-0.18	-0.05	0.00	-0.21	0.00	0.21	255.19	127.60	34.57	26.17	6.44	-0.90	0.009
114.00	0.00	-0.05	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	7.20	-0.91	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.26	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.59	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11	
Seismic Response Coefficient (C_s):	0.05	
Upper Limit C_s	0.05	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.53	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.51	
Total Unfactored Dead Load:	12.91	k
Seismic Base Shear (E):	0.83	k

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):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.59
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	1.53
Redundancy Factor (p):	1.30

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101

APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

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)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

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)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385

24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	8.95	0.00	15.49	0.00	0.00	503.96	0.00	0.31
0.9D + 1.6W	8.94	0.00	11.61	0.00	0.00	501.34	0.00	0.30
1.2D + 1.0Di + 1.0Wi	3.32	0.00	27.00	0.00	0.00	196.12	94.00	0.13
(1.2 + 0.2Sds) * DL + E ELFM	0.83	0.00	15.40	0.00	0.00	67.58	84.00	0.06
(1.2 + 0.2Sds) * DL + E EMAM	0.80	0.00	15.40	0.00	0.00	61.07	94.00	0.09
(0.9 - 0.2Sds) * DL + E ELFM	0.83	0.00	10.37	0.00	0.00	67.07	84.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	0.80	0.00	10.37	0.00	0.00	60.55	94.00	0.09
1.0D + 1.0W	2.33	0.00	12.91	0.00	0.00	130.62	0.00	0.08

Site Number:	**27441_B**
Site Name:	**Round Hill CT**
Job Number:	**REV01**
Engineer:	**JHH**
Date:	**9/16/2019**

Base Plate and Bolt Analysis

Reinforcement:	N	
Moment:	504.0	k-ft
Shear/Leg:	9.0	k
Compression/Leg:	15.5	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Corners	
Monopole Shaft Diameter (Across Flats):	41.0	in
Lower Monopole Thickness:	0.250	in
# of Sides of Pole:	18	
Monopole Shaft Yield Strength:	65	ksi
Baseplate Diameter / Length:	47.50	
Base Plate Thickness:	2.00	in
Base Plate Yield Strength:	60	ksi
Baseplate Detail Type:	D	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Fillet Weld Size:	0.375	in
Weld Type (CJP or F/F):	CJP	
Weld Strength:	70	ksi

Anchor Bolts

Anchor Bolt Yield Strength:	75	ksi
Anchor Bolt Ultimate Strength:	100	ksi
Anchor Bolt Diameter:	2.25	in
Anchor Bolt Circle:	49.00	in
# of Anchor Bolts:	4	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

	Baseplate Flexural Capacity					Baseplate Shear Capacity			
Failure Mode:	Effective Width (in)	Moment (k-in)	S/Z (in^3)	Capacity (k-in)	Usage	Shear (k)	Area (in^2)	Capacity (k)	Usage
AA	29.84	468.5	29.8	1611.4	0.29	127.2	59.7	1933.7	0.07
AB	29.84	461.4	29.8	1611.4	0.29	127.2	59.7	1933.7	0.07
BA	30.83	508.7	30.8	1665.0	0.31	127.2	61.7	1998.0	0.06
BB	30.83	508.7	30.8	1665.0	0.31	127.2	61.7	1998.0	0.06

Anchor Bolt Capacity

Area of Bolt:	3.25	in^2
Inertia of Bolt:	0.84	in^4
Total Bolt Inertia:	3902.2	in^4
Maximum Bolt Tension:	119.4	k
Maximum Bolt Compression:	127.2	k
Bolt Shear:	2.2	k
Tensile Bolt Capacity:	259.8	k
Compressive Bolt Capacity:	259.8	k
Shear Bolt Capacity:	140.3	k
Interaction Equation:	0.51	Result:
		OK

Base Weld Capacity

Force / Weld:	3.6	k/in
Weld Capacity:	23.8	k/in
Interaction Equation:	0.15	Result:
		OK

SES Base Plate Design Moment:	508.7	k-in
Design Stress:	15.8	ksi
SES Base Plate Allowable Stress / Moment Capacity:	1738.9	ksi / k-in
Usage:	0.29	
Moment Factor:	1.00	
Length Factor:	0.96	

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 84'

Reinforcement:	N	
Moment:	30.9	k-ft
Shear/Leg:	1.9	k
Compression/Leg:	4.3	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	4.4	k
Maximum Bolt Compression:	5.1	k
Bolt Shear:	0.2	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.09	Result:
		OK

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 94'

Reinforcement:	N	
Moment:	14.5	k-ft
Shear/Leg:	1.3	k
Compression/Leg:	2.6	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	2.0	k
Maximum Bolt Compression:	2.4	k
Bolt Shear:	0.1	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.04	Result:
		OK

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 104'

Reinforcement:	N	
Moment:	4.0	k-ft
Shear/Leg:	0.6	k
Compression/Leg:	0.9	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

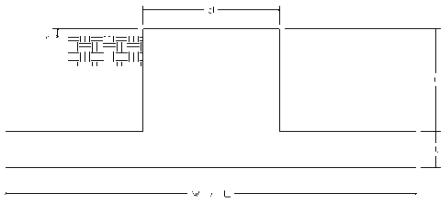
Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	0.5	k
Maximum Bolt Compression:	0.7	k
Bolt Shear:	0.1	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.01	Result:
		OK

Site Name:	Round Hill CT
Site Number:	27741_B
Engineering Number:	REV01
Engineer:	JHH
Date:	09/16/19
Tower Type:	MP

Program Last Updated: *5/13/2014*



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	0.0	k	Concrete Strength (f'_c):	4000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	32.00	in
Total Shear:	9.0	k	ϕ_{Shear}:	0.75	
Moment:	504.0	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	15.5	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	5.00	ft	β:	0.85	
Diameter of Pier (d):	6.00	ft	Bottom Pad Rebar Size #:	8	
Height of Pier above Ground (h):	1.00		# of Bottom Pad Rebar:	16	
Width of Pad (W):	15.00	ft	Pad Bottom Steel Area:	12.64	in^2
Length of Pad (L):	15.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	3.00	ft	Top Pad Rebar Size #:	8	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	16	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	12.64	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	8	
Depth Below Ground Surface to Water Table:	99.00	ft	Pier Steel Area (Single Bar):	0.79	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	22	
Unit Weight of Soil Above Water Table:	130.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	64.0	in
Unit Weight of Soil Below Water Table:	50.0	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	0.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Ultimate Compressive Bearing Pressure:	12000.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	6	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	60000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	557.7	k-ft
OTM Resistance:	1201.7	k-ft
Design OTM / OTM Resistance:	0.46	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	1601	psf
Factored Nominal Bearing Pressure:	9000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.18	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

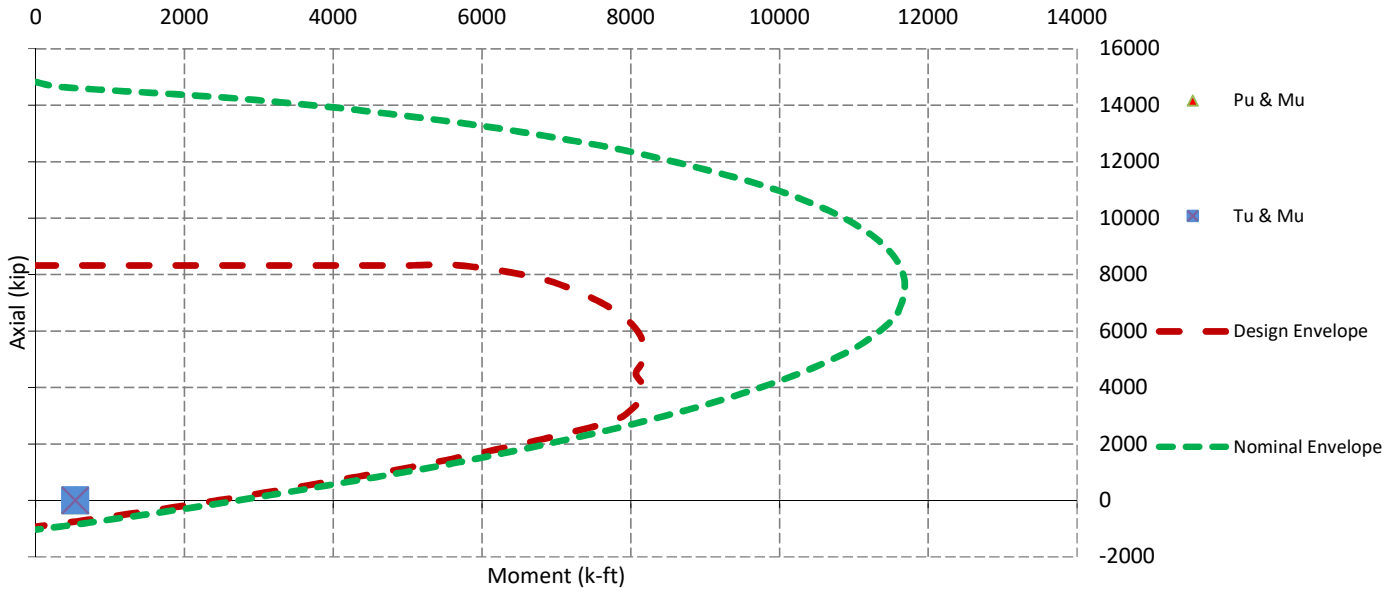
Sliding Factor of Safety

Total Factored Sliding Resistance:	46.7	k
Sliding Design / Sliding Resistance:	0.19	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	28.7	k
One Way Shear Capacity (ϕV_c):	359.9	k - ACI11.3.1.1
V_u / ϕV_c:	0.08	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	162.9	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	1736.8	k-ft - ACI10.3
M_u / ϕM_n:	0.09	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	100.2	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1790.2	k-ft
M_u / ϕM_n:	0.06	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0022	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0022	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	11	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	11	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1983.7	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	530.8	k-ft
Pier Moment Capacity (ϕM_n):	2451.3	k-ft
M_u / ϕM_n:	0.22	Result: OK
Factored Shear in Pier (V_u):	9.0	k
Pier Shear Capacity (ϕV_n):	386.3	k
V_u / ϕV_c:	0.02	Result: OK
Pier Shear Reinforcement Ratio:	0.0005	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	938.5	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	0.0	k
Pier Compression Capacity (ϕP_n):	7167.7	k - ACI10.3.6.2
P_u / ϕP_n:	0.00	Result: OK
Pier Compression Reinforcement Ratio:	0.004	NG - Increase Pier Steel - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.22	Result: OK

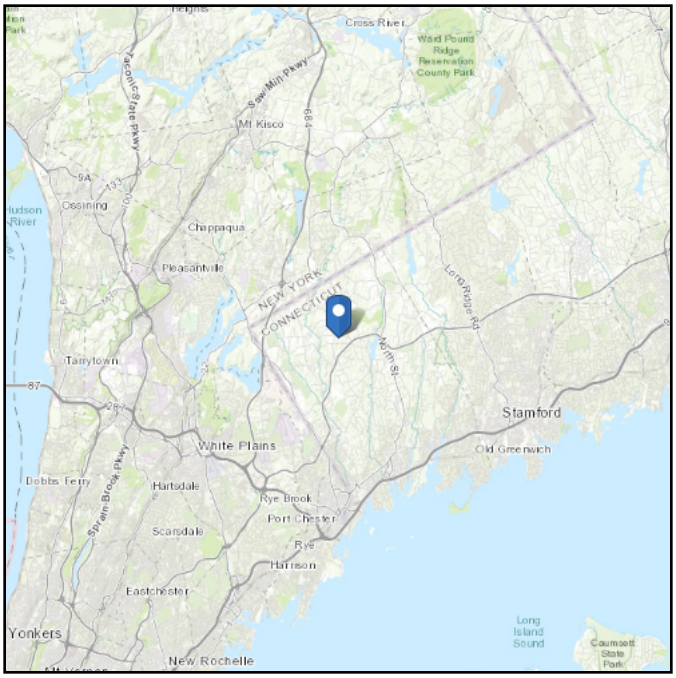
Nominal and Design Moment Capacity and Factored Design Loads



ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	378.96 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.095117
Soil Class:	D - Stiff Soil	**Longitude:**	-73.664219



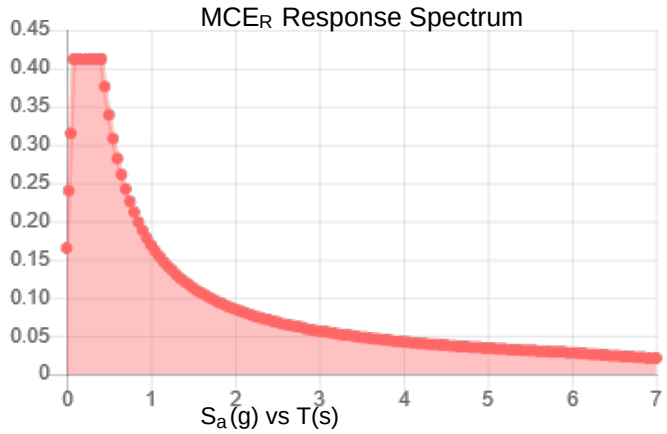
Seismic

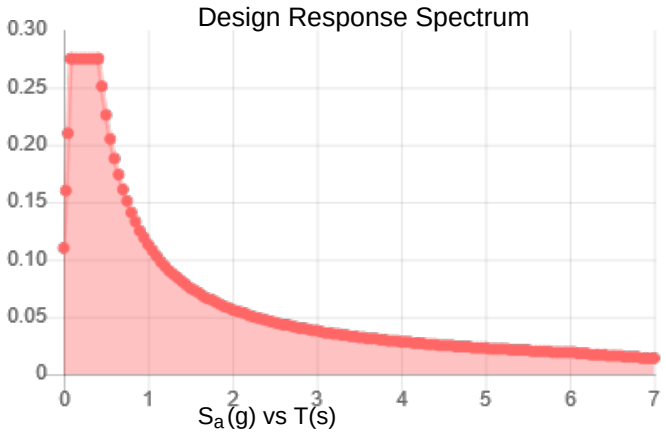
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.259	S_{DS} :	0.275
S_1 :	0.071	S_{D1} :	0.113
F_a :	1.593	T_L :	6
F_v :	2.4	PGA :	0.152
S_{MS} :	0.412	PGA_M :	0.228
S_{M1} :	0.169	F_{PGA} :	1.495
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Sep 11 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Sep 11 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load**	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

April 17, 2019

Tom Jupin
Charles Cherundolo Consulting, Inc.
1280 Route 46 West
Parsippany, NJ 07054

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT: **MOUNT ASSESSMENT**

CARRIER: **SPRINT**

SITE: **CT60XC001**
24 ½ RICHDALE DRIVE
WILTON, FAIRFIELD COUNTY, CONNECTICUT 06897
RAMAKER & ASSOCIATES PROJECT NUMBER: 28753

RESULTS: **MOUNT:** **PASS**

Dear Tom Jupin:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this mount assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the mounting structure with the proposed loading configurations. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the mount(s) using RISA analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the mount loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Tucker Schwab
Structural Designer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

ANALYSIS CRITERIA

State Building Code	2018 CT State Building Code
Adopted Building Code	2015 IBC
Referenced Standard	TIA-222-G
Risk Category	II
Ultimate Design Wind Speed, V_{ult}	120mph (3 sec. gust)
Nominal Design Wind Speed, V_{asd}	93 mph (3 sec. gust)
Design Wind Speed w/ Ice	50 mph (3 sec. gust)
Ice Thickness	3/4 inch
Exposure Category	C
Topographic Feature	None

SUPPORTING DOCUMENTATION

- Construction drawings by RAMAKER, project number 28753
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

MOUNT LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antennas and equipment configurations as shown in the following chart(s):

Antenna Mount – Alpha Sector				
Elevation	**Position**	**Appurtenance**	**Mount Type**	**Status**
67	1	(1) WHIP Antenna	Site Pro 1 RMQP-396 Platform w/HRK12	Relocated
	2	(1) RFS APXVSPP18-C-A20		Remove
		(1) KMW ETCR-654L12H6		Proposed
		(1) ALU 800MHz 2x50W RRH		Relocated
		(1) ALU 1900MHz 4x45 RRH		
	3	(1) ALU 800MHz 2x50W RRH		Proposed
		(1) Nokia FZHN		

Antenna Mount – Beta and Gamma Sector				
Elevation	**Position**	**Appurtenance**	**Mount Type**	**Status**
67	1	--	Site Pro 1 RMQP-396 Platform w/HRK12	--
	2	(1) RFS APXVSPP18-C-A20		Remove
		(1) KMW ETCR-654L12H6		Proposed
		(1) ALU 800MHz 2x50W RRH		Relocated
		(1) ALU 1900MHz 4x45 RRH		
	3	(1) ALU 800MHz 2x50W RRH		Proposed
		(1) Nokia FZHN		

MOUNT RESULTS

By engineering calculation and inspection, the ***proposed*** antenna and equipment mounting structure(s) are capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structure(s). ***The existing antenna and equipment mounting structure(s) shall be removed and replaced with the proposed antenna and equipment mounting structure(s) prior to antenna and equipment installation. See associated RAMAKER construction drawings for mount details.***

LIMITATIONS

The recommendations contained within this report were developed using the supporting documentation as previously described. All recommendations pertain only to the proposed antenna installation activities as described in this report. RAMAKER assumes no responsibility for failures caused by factors beyond our control. These include but are not limited to the following:

- Missing, corroding, and/or deteriorating members
- Improper manufacturing and/or construction
- Improper maintenance
- Member grades less than assumed grades show below:

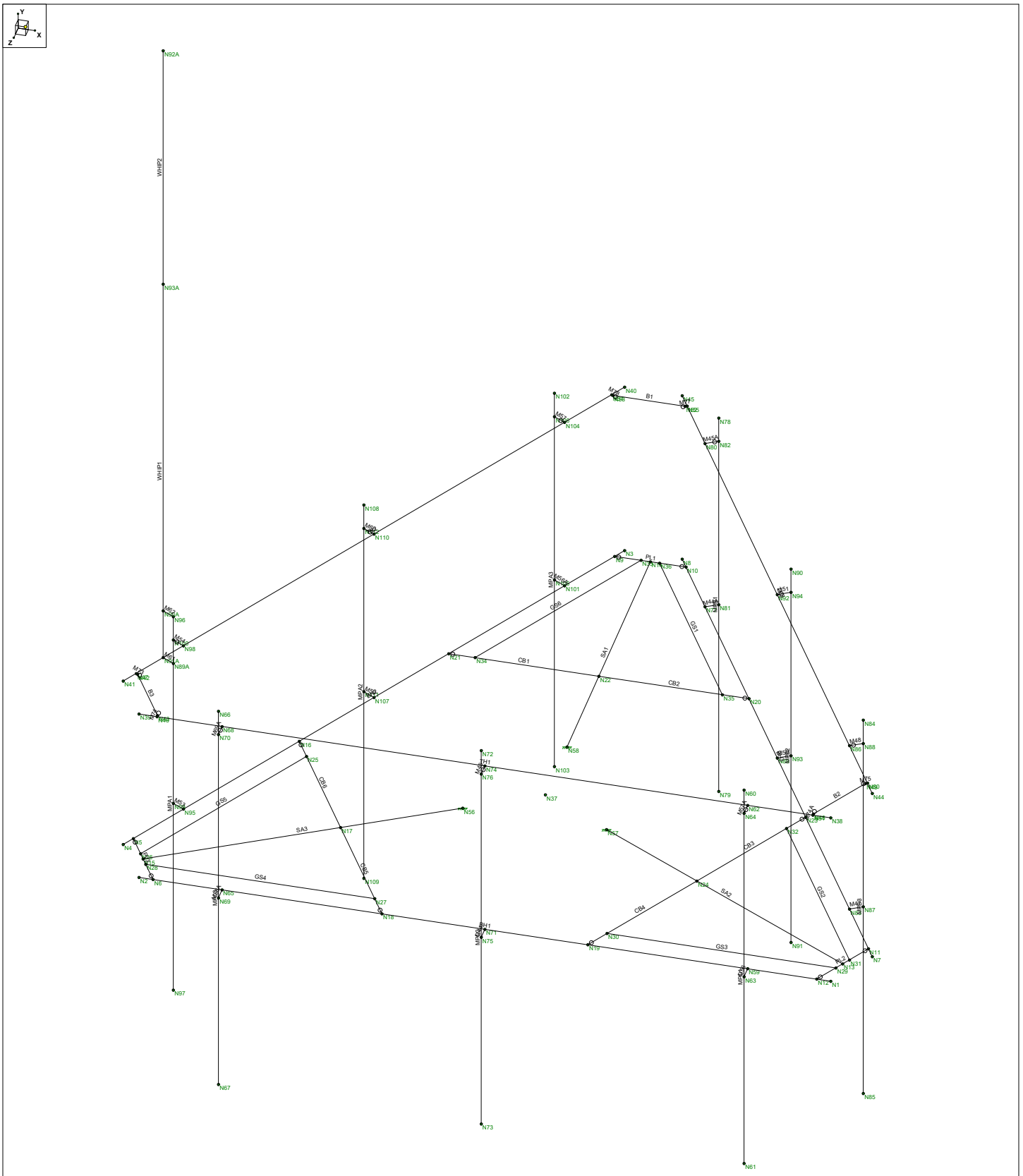
Assumed Steel Member Grades	
Angles/Plates/Channels/Solid Rods	ASTM A36, 36 ksi
Pipes	ASTM A53 Gr. B, 35 ksi
HSS (Square Tube)	ASTM A36, 36 ksi

RAMAKER is not responsible for verifying that the loading on the structure is consistent with the loading applied to the structure within this report. If there is any information contrary to that contained herein, or if there are any defects arising from the original design, material, fabrication and erection deficiencies, this report should be disregarded and RAMAKER should be contacted immediately. RAMAKER is not liable for any representation, recommendation, or conclusion not expressly stated herein.

This analysis pertains only to the mounting structure, and no analyses or conclusions were made regarding the supporting structure. Analysis and certification of the supporting structure is performed and submitted separately.

ATTACHMENTS

- Analysis Figures
- Analysis Calculations



Envelope Only Solution

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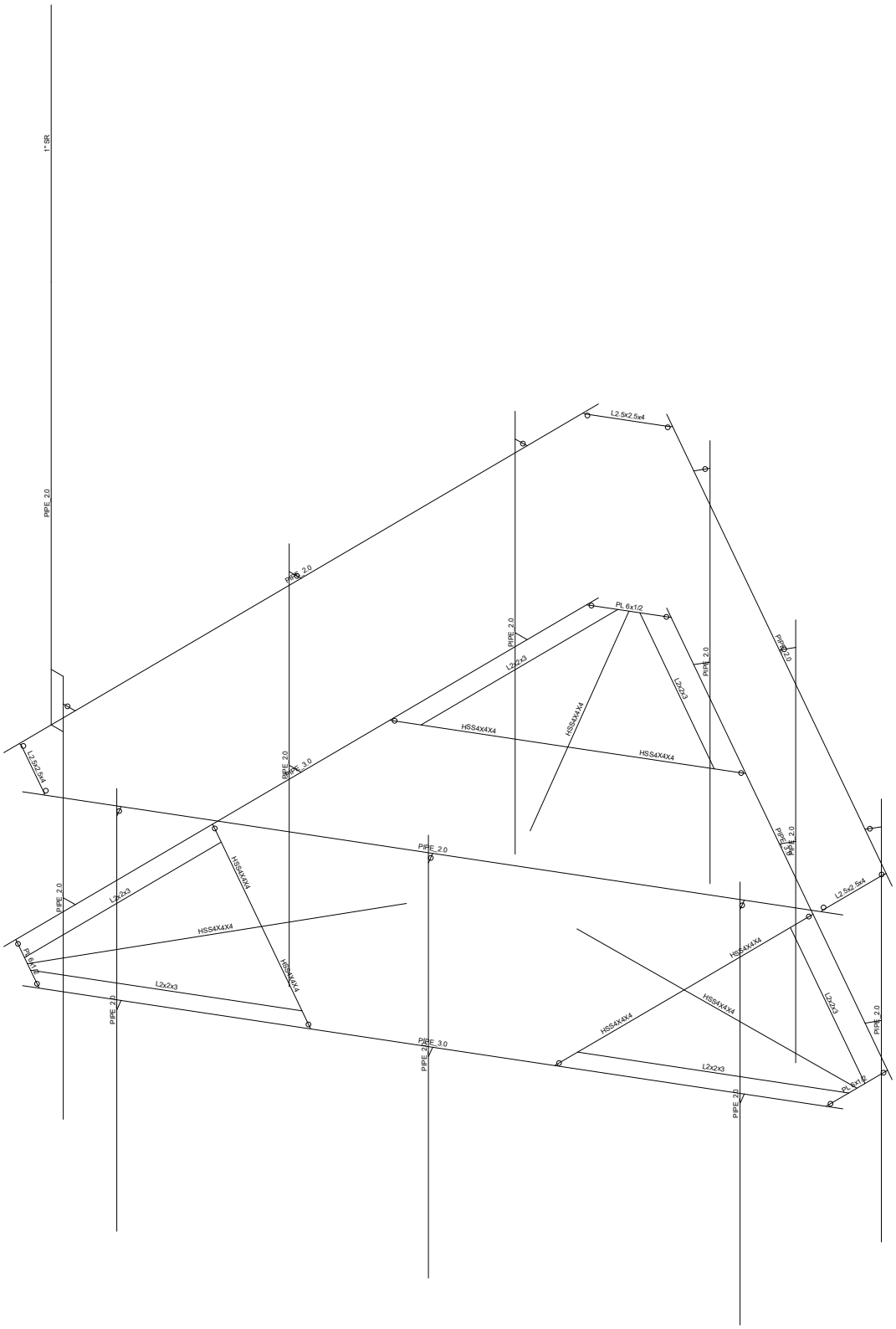
TJS		Apr 17, 2019 at 3:40 PM
28753		28753 Platform.r3d



Envelope Only Solution

Ramaker & Associates, Inc.		SK - 2
TJS	CT60XC001	Apr 17, 2019 at 3:40 PM
28753		28753 Platform.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HSS 4x4x4/16	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
2	L2x2x3/16	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	L2.5x2.5x1/4	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
4	Pipe 3.0	PIPE_3.0	Beam	Pipe	A53 Gr. B	Typical	2.07	2.85	2.85	5.69
5	Pipe 2.0	PIPE_2.0	Beam	Pipe	A53 Gr. B	Typical	1.02	.627	.627	1.25
6	PL 6X1/2	PL 6x1/2	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
7	1" SR	1" SR	Beam	RECT	A36 Gr.36	Typical	.785	.049	.049	.098

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	TH1	N38	N39			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
2	TH3	N44	N45			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
3	TH2	N40	N41			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
4	SA2	N57	N13			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
5	SA1	N58	N14			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
6	SA3	N56	N15			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
7	M78	N53	N54			RIGID	None	None	RIGID	Typical
8	M77	N52	N55			RIGID	None	None	RIGID	Typical
9	M75	N49	N50			RIGID	None	None	RIGID	Typical
10	M74A	N48	N51			RIGID	None	None	RIGID	Typical
11	M74	N43	N46			RIGID	None	None	RIGID	Typical
12	M73	N42	N47			RIGID	None	None	RIGID	Typical
13	PL2	N11	N12			PL 6X1/2	Beam	RECT	A36 Gr....	Typical
14	PL1	N9	N10			PL 6X1/2	Beam	RECT	A36 Gr....	Typical
15	PL3	N5	N6			PL 6X1/2	Beam	RECT	A36 Gr....	Typical
16	B2	N48	N49		90	L2.5x2.5x1/4	Beam	Single Angle	A36 Gr....	Typical
17	B1	N52	N53		90	L2.5x2.5x1/4	Beam	Single Angle	A36 Gr....	Typical
18	B3	N42	N43		90	L2.5x2.5x1/4	Beam	Single Angle	A36 Gr....	Typical
19	GS3	N29	N30			L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
20	GS2	N31	N32		270	L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
21	GS1	N35	N36		270	L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
22	GS6	N33	N34		270	L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
23	GS5	N25	N26		270	L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
24	GS4	N27	N28			L2x2x3/16	Beam	Single Angle	A36 Gr....	Typical
25	CB4	N24	N19			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
26	CB3	N23	N24			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
27	CB2	N22	N20			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
28	CB1	N21	N22			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
29	CB6	N16	N17			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
30	CB5	N17	N18			HSS 4x4x4/16	Beam	SquareTube	A36 Gr....	Typical
31	BH1	N1	N2			Pipe 3.0	Beam	Pipe	A53 Gr. B	Typical
32	BH3	N7	N8			Pipe 3.0	Beam	Pipe	A53 Gr. B	Typical
33	BH2	N3	N4			Pipe 3.0	Beam	Pipe	A53 Gr. B	Typical
34	MPC1	N61	N60			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
35	M56	N59	N63			RIGID	None	None	RIGID	Typical
36	M57A	N62	N64			RIGID	None	None	RIGID	Typical
37	MPC3	N67	N66			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
38	M68A	N65	N69			RIGID	None	None	RIGID	Typical
39	M69A	N68	N70			RIGID	None	None	RIGID	Typical
40	M44	N71	N75			RIGID	None	None	RIGID	Typical
41	M45	N74	N76			RIGID	None	None	RIGID	Typical
42	MPB1	N79	N78			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
43	M44A	N77	N81			RIGID	None	None	RIGID	Typical
44	M45A	N80	N82			RIGID	None	None	RIGID	Typical
45	MPB3	N85	N84			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
46	M47	N83	N87			RIGID	None	None	RIGID	Typical
47	M48	N86	N88			RIGID	None	None	RIGID	Typical
48	M50	N89	N93			RIGID	None	None	RIGID	Typical
49	M51	N92	N94			RIGID	None	None	RIGID	Typical
50	MPA1	N97	N96			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
51	M53	N95	N99			RIGID	None	None	RIGID	Typical
52	M54	N98	N100			RIGID	None	None	RIGID	Typical
53	MPA3	N103	N102			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
54	M56A	N101	N105			RIGID	None	None	RIGID	Typical
55	M57	N104	N106			RIGID	None	None	RIGID	Typical
56	M59	N107	N111			RIGID	None	None	RIGID	Typical
57	M60	N110	N112			RIGID	None	None	RIGID	Typical
58	MPC2	N73	N72			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
59	MPA2	N109	N108			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
60	MPB2	N91	N90			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
61	M61	N89A	N91A			RIGID	None	None	RIGID	Typical
62	M62	N96	N90A			RIGID	None	None	RIGID	Typical
63	WHIP1	N91A	N93A			Pipe 2.0	Beam	Pipe	A53 Gr. B	Typical
64	WHIP2	N93A	N92A			1" SR	Beam	RECT	A36 Gr....	Typical

Basic Load Cases

	BLC Description	Category	X ...	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna Dead	None					18			
2	Antenna Wind 0	None					36			
3	Antenna Wind 30	None					36			
4	Antenna Wind 45	None					36			
5	Antenna Wind 60	None					36			
6	Antenna Wind 90	None					36			
7	Antenna Wind 120	None					36			
8	Antenna Wind 135	None					36			
9	Antenna Wind 150	None					36			
10	Antenna Wind 180	None					36			
11	Antenna Wind 210	None					36			
12	Antenna Wind 225	None					36			
13	Antenna Wind 240	None					36			
14	Antenna Wind 270	None					36			
15	Antenna Wind 300	None					36			
16	Antenna Wind 315	None					36			
17	Antenna Wind 330	None					36			
18	Antenna Ice Dead	None					18			
19	Antenna Wind w/Ice 0	None					36			
20	Antenna Wind w/Ice 30	None					36			
21	Antenna Wind w/Ice 45	None					36			
22	Antenna Wind w/Ice 60	None					36			

Basic Load Cases (Continued)

	BLC Description	Category	X ...	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
23	Antenna Wind w/Ice 90	None					36			
24	Antenna Wind w/Ice 120	None					36			
25	Antenna Wind w/Ice 135	None					36			
26	Antenna Wind w/Ice 150	None					36			
27	Antenna Wind w/Ice 180	None					36			
28	Antenna Wind w/Ice 210	None					36			
29	Antenna Wind w/Ice 225	None					36			
30	Antenna Wind w/Ice 240	None					36			
31	Antenna Wind w/Ice 270	None					36			
32	Antenna Wind w/Ice 300	None					36			
33	Antenna Wind w/Ice 315	None					36			
34	Antenna Wind w/Ice 330	None					36			
35	Member Dead	None		-1					3	
36	Member Wind 0	None						70		
37	Member Wind 30	None						70		
38	Member Wind 45	None						70		
39	Member Wind 60	None						70		
40	Member Wind 90	None						70		
41	Member Wind 120	None						70		
42	Member Wind 135	None						70		
43	Member Wind 150	None						70		
44	Member Wind 180	None						70		
45	Member Wind 210	None						70		
46	Member Wind 225	None						70		
47	Member Wind 240	None						70		
48	Member Wind 270	None						70		
49	Member Wind 300	None						70		
50	Member Wind 315	None						70		
51	Member Wind 330	None						70		
52	Member Ice Dead	None						35	3	
53	Member Wind w/Ice 0	None						70		
54	Member Wind w/Ice 30	None						70		
55	Member Wind w/Ice 45	None						70		
56	Member Wind w/Ice 60	None						70		
57	Member Wind w/Ice 90	None						70		
58	Member Wind w/Ice 120	None						70		
59	Member Wind w/Ice 135	None						70		
60	Member Wind w/Ice 150	None						70		
61	Member Wind w/Ice 180	None						70		
62	Member Wind w/Ice 210	None						70		
63	Member Wind w/Ice 225	None						70		
64	Member Wind w/Ice 240	None						70		
65	Member Wind w/Ice 270	None						70		
66	Member Wind w/Ice 300	None						70		
67	Member Wind w/Ice 315	None						70		
68	Member Wind w/Ice 330	None						70		
69	LV-1	None					1			
70	LV-2	None					1			
71	LV-3	None					1			
72	LV-4	None					1			
73	LV-5	None					1			
74	LV-6	None					1			
75	LV-7	None					1			
76	LV-8	None					1			
77	LV-9	None					1			
78	LV-10	None								
79	LV-11	None								

Basic Load Cases (Continued)

	BLC Description	Category	X ...	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
80	LV-12	None								
81	LV-13	None								
82	LV-14	None								
83	LV-15	None								
84	LM-1	None					1			
85	LM-2	None					1			
86	LM-3	None					1			
87	LM-4	None					1			
88	LM-5	None					1			
89	LM-6	None					1			
90	LM-7	None					1			
91	LM-8	None					1			
92	LM-9	None					1			
93	LM-10	None								
94	LM-11	None								
95	LM-12	None								
96	LM-13	None								
97	LM-14	None								
98	LM-15	None								
99	BLC 35 Transient Area Loads	None						57		
100	BLC 52 Transient Area Loads	None						57		

Load Combinations

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4	35	1.4																
2	0.9D + 1.6 (0-Wind)	Yes	Y		1	.9	35	.9	2	1.6	36	1.6												
3	0.9D + 1.6 (30-Wind)	Yes	Y		1	.9	35	.9	3	1.6	37	1.6												
4	0.9D + 1.6 (45-Wind)	Yes	Y		1	.9	35	.9	4	1.6	38	1.6												
5	0.9D + 1.6 (60-Wind)	Yes	Y		1	.9	35	.9	5	1.6	39	1.6												
6	0.9D + 1.6 (90-Wind)	Yes	Y		1	.9	35	.9	6	1.6	40	1.6												
7	0.9D + 1.6 (120-Wind)	Yes	Y		1	.9	35	.9	7	1.6	41	1.6												
8	0.9D + 1.6 (135-Wind)	Yes	Y		1	.9	35	.9	8	1.6	42	1.6												
9	0.9D + 1.6 (150-Wind)	Yes	Y		1	.9	35	.9	9	1.6	43	1.6												
10	0.9D + 1.6 (180-Wind)	Yes	Y		1	.9	35	.9	10	1.6	44	1.6												
11	0.9D + 1.6 (210-Wind)	Yes	Y		1	.9	35	.9	11	1.6	45	1.6												
12	0.9D + 1.6 (225-Wind)	Yes	Y		1	.9	35	.9	12	1.6	46	1.6												
13	0.9D + 1.6 (240-Wind)	Yes	Y		1	.9	35	.9	13	1.6	47	1.6												
14	0.9D + 1.6 (270-Wind)	Yes	Y		1	.9	35	.9	14	1.6	48	1.6												
15	0.9D + 1.6 (300-Wind)	Yes	Y		1	.9	35	.9	15	1.6	49	1.6												
16	0.9D + 1.6 (315-Wind)	Yes	Y		1	.9	35	.9	16	1.6	50	1.6												
17	0.9D + 1.6 (330-Wind)	Yes	Y		1	.9	35	.9	17	1.6	51	1.6												
18	1.2D + 1.6 (0-Wind)	Yes	Y		1	1.2	35	1.2	2	1.6	36	1.6												
19	1.2D + 1.6 (30-Wind)	Yes	Y		1	1.2	35	1.2	3	1.6	37	1.6												
20	1.2D + 1.6 (45-Wind)	Yes	Y		1	1.2	35	1.2	4	1.6	38	1.6												
21	1.2D + 1.6 (60-Wind)	Yes	Y		1	1.2	35	1.2	5	1.6	39	1.6												
22	1.2D + 1.6 (90-Wind)	Yes	Y		1	1.2	35	1.2	6	1.6	40	1.6												
23	1.2D + 1.6 (120-Wind)	Yes	Y		1	1.2	35	1.2	7	1.6	41	1.6												
24	1.2D + 1.6 (135-Wind)	Yes	Y		1	1.2	35	1.2	8	1.6	42	1.6												
25	1.2D + 1.6 (150-Wind)	Yes	Y		1	1.2	35	1.2	9	1.6	43	1.6												
26	1.2D + 1.6 (180-Wind)	Yes	Y		1	1.2	35	1.2	10	1.6	44	1.6												
27	1.2D + 1.6 (210-Wind)	Yes	Y		1	1.2	35	1.2	11	1.6	45	1.6												
28	1.2D + 1.6 (225-Wind)	Yes	Y		1	1.2	35	1.2	12	1.6	46	1.6												
29	1.2D + 1.6 (240-Wind)	Yes	Y		1	1.2	35	1.2	13	1.6	47	1.6												
30	1.2D + 1.6 (270-Wind)	Yes	Y		1	1.2	35	1.2	14	1.6	48	1.6												
31	1.2D + 1.6 (300-Wind)	Yes	Y		1	1.2	35	1.2	15	1.6	49	1.6												

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
32	1.2D + 1.6 (315-Wind)	Yes	Y		1	1.2	35	1.2	16	1.6	50	1.6												
33	1.2D + 1.6 (330-Wind)	Yes	Y		1	1.2	35	1.2	17	1.6	51	1.6												
34	1.2D + 1.0Di + 1.0 (0-Wi...	Yes	Y		1	1.2	35	1.2	18	1	52	1	19	1	53	1								
35	1.2D + 1.0Di + 1.0 (30-W...	Yes	Y		1	1.2	35	1.2	18	1	52	1	20	1	54	1								
36	1.2D + 1.0Di + 1.0 (45-W...	Yes	Y		1	1.2	35	1.2	18	1	52	1	21	1	55	1								
37	1.2D + 1.0Di + 1.0 (60-W...	Yes	Y		1	1.2	35	1.2	18	1	52	1	22	1	56	1								
38	1.2D + 1.0Di + 1.0 (90-W...	Yes	Y		1	1.2	35	1.2	18	1	52	1	23	1	57	1								
39	1.2D + 1.0Di + 1.0 (120-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	24	1	58	1								
40	1.2D + 1.0Di + 1.0 (135-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	25	1	59	1								
41	1.2D + 1.0Di + 1.0 (150-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	26	1	60	1								
42	1.2D + 1.0Di + 1.0 (180-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	27	1	61	1								
43	1.2D + 1.0Di + 1.0 (210-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	28	1	62	1								
44	1.2D + 1.0Di + 1.0 (225-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	29	1	63	1								
45	1.2D + 1.0Di + 1.0 (240-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	30	1	64	1								
46	1.2D + 1.0Di + 1.0 (270-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	31	1	65	1								
47	1.2D + 1.0Di + 1.0 (300-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	32	1	66	1								
48	1.2D + 1.0Di + 1.0 (315-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	33	1	67	1								
49	1.2D + 1.0Di + 1.0 (330-...	Yes	Y		1	1.2	35	1.2	18	1	52	1	34	1	68	1								
50	1.2D + 1.5LV-1	Yes	Y		1	1.2	35	1.2	69	1.5														
51	1.2D + 1.5LV-2	Yes	Y		1	1.2	35	1.2	70	1.5														
52	1.2D + 1.5LV-3	Yes	Y		1	1.2	35	1.2	71	1.5														
53	1.2D + 1.5LV-4	Yes	Y		1	1.2	35	1.2	72	1.5														
54	1.2D + 1.5LV-5	Yes	Y		1	1.2	35	1.2	73	1.5														
55	1.2D + 1.5LV-6	Yes	Y		1	1.2	35	1.2	74	1.5														
56	1.2D + 1.5LV-7	Yes	Y		1	1.2	35	1.2	75	1.5														
57	1.2D + 1.5LV-8	Yes	Y		1	1.2	35	1.2	76	1.5														
58	1.2D + 1.5LV-9	Yes	Y		1	1.2	35	1.2	77	1.5														
59	1.2D + 1.5LV-10	Yes	Y		1	1.2	35	1.2	78	1.5														
60	1.2D + 1.5LV-11	Yes	Y		1	1.2	35	1.2	79	1.5														
61	1.2D + 1.5LV-12	Yes	Y		1	1.2	35	1.2	80	1.5														
62	1.2D + 1.5LV-13	Yes	Y		1	1.2	35	1.2	81	1.5														
63	1.2D + 1.5LV-14	Yes	Y		1	1.2	35	1.2	82	1.5														
64	1.2D + 1.5LV-15	Yes	Y		1	1.2	35	1.2	83	1.5														
65	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	2	.113	36	.113										
66	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	3	.113	37	.113										
67	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	4	.113	38	.113										
68	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	5	.113	39	.113										
69	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	6	.113	40	.113										
70	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	7	.113	41	.113										
71	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	8	.113	42	.113										
72	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	9	.113	43	.113										
73	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	10	.113	44	.113										
74	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	11	.113	45	.113										
75	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	12	.113	46	.113										
76	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	13	.113	47	.113										
77	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	14	.113	48	.113										
78	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	15	.113	49	.113										
79	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	16	.113	50	.113										
80	1.2D + 1.5LM-1 + Mainte...	Yes	Y		1	1.2	35	1.2	84	1.5	17	.113	51	.113										
81	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	2	.113	36	.113										
82	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	3	.113	37	.113										
83	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	4	.113	38	.113										
84	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	5	.113	39	.113										
85	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	6	.113	40	.113										
86	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	7	.113	41	.113										
87	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	8	.113	42	.113										
88	1.2D + 1.5LM-2 + Mainte...	Yes	Y		1	1.2	35	1.2	85	1.5	9	.113	43	.113										

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
89	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	10	.113	44	.113										
90	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	11	.113	45	.113										
91	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	12	.113	46	.113										
92	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	13	.113	47	.113										
93	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	14	.113	48	.113										
94	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	15	.113	49	.113										
95	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	16	.113	50	.113										
96	1.2D + 1.5LM-2 + Mainte..	Yes	Y		1	1.2	35	1.2	85	1.5	17	.113	51	.113										
97	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	2	.113	36	.113										
98	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	3	.113	37	.113										
99	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	4	.113	38	.113										
100	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	5	.113	39	.113										
101	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	6	.113	40	.113										
102	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	7	.113	41	.113										
103	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	8	.113	42	.113										
104	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	9	.113	43	.113										
105	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	10	.113	44	.113										
106	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	11	.113	45	.113										
107	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	12	.113	46	.113										
108	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	13	.113	47	.113										
109	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	14	.113	48	.113										
110	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	15	.113	49	.113										
111	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	16	.113	50	.113										
112	1.2D + 1.5LM-3 + Mainte..	Yes	Y		1	1.2	35	1.2	86	1.5	17	.113	51	.113										
113	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	2	.113	36	.113										
114	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	3	.113	37	.113										
115	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	4	.113	38	.113										
116	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	5	.113	39	.113										
117	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	6	.113	40	.113										
118	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	7	.113	41	.113										
119	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	8	.113	42	.113										
120	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	9	.113	43	.113										
121	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	10	.113	44	.113										
122	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	11	.113	45	.113										
123	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	12	.113	46	.113										
124	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	13	.113	47	.113										
125	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	14	.113	48	.113										
126	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	15	.113	49	.113										
127	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	16	.113	50	.113										
128	1.2D + 1.5LM-4 + Mainte..	Yes	Y		1	1.2	35	1.2	87	1.5	17	.113	51	.113										
129	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	2	.113	36	.113										
130	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	3	.113	37	.113										
131	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	4	.113	38	.113										
132	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	5	.113	39	.113										
133	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	6	.113	40	.113										
134	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	7	.113	41	.113										
135	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	8	.113	42	.113										
136	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	9	.113	43	.113										
137	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	10	.113	44	.113										
138	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	11	.113	45	.113										
139	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	12	.113	46	.113										
140	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	13	.113	47	.113										
141	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	14	.113	48	.113										
142	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	15	.113	49	.113										
143	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	16	.113	50	.113										
144	1.2D + 1.5LM-5 + Mainte..	Yes	Y		1	1.2	35	1.2	88	1.5	17	.113	51	.113										
145	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	2	.113	36	.113										

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
146	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	3	.113	37	.113										
147	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	4	.113	38	.113										
148	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	5	.113	39	.113										
149	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	6	.113	40	.113										
150	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	7	.113	41	.113										
151	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	8	.113	42	.113										
152	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	9	.113	43	.113										
153	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	10	.113	44	.113										
154	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	11	.113	45	.113										
155	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	12	.113	46	.113										
156	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	13	.113	47	.113										
157	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	14	.113	48	.113										
158	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	15	.113	49	.113										
159	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	16	.113	50	.113										
160	1.2D + 1.5LM-6 + Mainte..	Yes	Y		1	1.2	35	1.2	89	1.5	17	.113	51	.113										
161	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	2	.113	36	.113										
162	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	3	.113	37	.113										
163	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	4	.113	38	.113										
164	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	5	.113	39	.113										
165	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	6	.113	40	.113										
166	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	7	.113	41	.113										
167	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	8	.113	42	.113										
168	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	9	.113	43	.113										
169	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	10	.113	44	.113										
170	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	11	.113	45	.113										
171	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	12	.113	46	.113										
172	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	13	.113	47	.113										
173	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	14	.113	48	.113										
174	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	15	.113	49	.113										
175	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	16	.113	50	.113										
176	1.2D + 1.5LM-7 + Mainte..	Yes	Y		1	1.2	35	1.2	90	1.5	17	.113	51	.113										
177	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	2	.113	36	.113										
178	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	3	.113	37	.113										
179	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	4	.113	38	.113										
180	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	5	.113	39	.113										
181	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	6	.113	40	.113										
182	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	7	.113	41	.113										
183	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	8	.113	42	.113										
184	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	9	.113	43	.113										
185	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	10	.113	44	.113										
186	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	11	.113	45	.113										
187	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	12	.113	46	.113										
188	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	13	.113	47	.113										
189	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	14	.113	48	.113										
190	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	15	.113	49	.113										
191	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	16	.113	50	.113										
192	1.2D + 1.5LM-8 + Mainte..	Yes	Y		1	1.2	35	1.2	91	1.5	17	.113	51	.113										
193	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	2	.113	36	.113										
194	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	3	.113	37	.113										
195	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	4	.113	38	.113										
196	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	5	.113	39	.113										
197	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	6	.113	40	.113										
198	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	7	.113	41	.113										
199	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	8	.113	42	.113										
200	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	9	.113	43	.113										
201	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	10	.113	44	.113										
202	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	11	.113	45	.113										

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
203	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	12	.113	46	.113										
204	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	13	.113	47	.113										
205	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	14	.113	48	.113										
206	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	15	.113	49	.113										
207	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	16	.113	50	.113										
208	1.2D + 1.5LM-9 + Mainte..	Yes	Y		1	1.2	35	1.2	92	1.5	17	.113	51	.113										
209	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	2	.113	36	.113										
210	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	3	.113	37	.113										
211	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	4	.113	38	.113										
212	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	5	.113	39	.113										
213	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	6	.113	40	.113										
214	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	7	.113	41	.113										
215	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	8	.113	42	.113										
216	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	9	.113	43	.113										
217	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	10	.113	44	.113										
218	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	11	.113	45	.113										
219	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	12	.113	46	.113										
220	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	13	.113	47	.113										
221	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	14	.113	48	.113										
222	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	15	.113	49	.113										
223	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	16	.113	50	.113										
224	1.2D + 1.5LM-10 + Maint..	Yes	Y		1	1.2	35	1.2	93	1.5	17	.113	51	.113										
225	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	2	.113	36	.113										
226	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	3	.113	37	.113										
227	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	4	.113	38	.113										
228	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	5	.113	39	.113										
229	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	6	.113	40	.113										
230	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	7	.113	41	.113										
231	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	8	.113	42	.113										
232	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	9	.113	43	.113										
233	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	10	.113	44	.113										
234	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	11	.113	45	.113										
235	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	12	.113	46	.113										
236	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	13	.113	47	.113										
237	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	14	.113	48	.113										
238	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	15	.113	49	.113										
239	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	16	.113	50	.113										
240	1.2D + 1.5LM-11 + Maint..	Yes	Y		1	1.2	35	1.2	94	1.5	17	.113	51	.113										
241	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	2	.113	36	.113										
242	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	3	.113	37	.113										
243	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	4	.113	38	.113										
244	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	5	.113	39	.113										
245	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	6	.113	40	.113										
246	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	7	.113	41	.113										
247	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	8	.113	42	.113										
248	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	9	.113	43	.113										
249	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	10	.113	44	.113										
250	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	11	.113	45	.113										
251	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	12	.113	46	.113										
252	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	13	.113	47	.113										
253	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	14	.113	48	.113										
254	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	15	.113	49	.113										
255	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	16	.113	50	.113										
256	1.2D + 1.5LM-12 + Maint..	Yes	Y		1	1.2	35	1.2	95	1.5	17	.113	51	.113										
257	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	2	.113	36	.113										
258	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	3	.113	37	.113										
259	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	4	.113	38	.113										

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
260	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	5	.113	39	.113										
261	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	6	.113	40	.113										
262	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	7	.113	41	.113										
263	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	8	.113	42	.113										
264	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	9	.113	43	.113										
265	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	10	.113	44	.113										
266	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	11	.113	45	.113										
267	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	12	.113	46	.113										
268	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	13	.113	47	.113										
269	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	14	.113	48	.113										
270	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	15	.113	49	.113										
271	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	16	.113	50	.113										
272	1.2D + 1.5LM-13 + Maint..	Yes	Y		1	1.2	35	1.2	96	1.5	17	.113	51	.113										
273	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	2	.113	36	.113										
274	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	3	.113	37	.113										
275	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	4	.113	38	.113										
276	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	5	.113	39	.113										
277	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	6	.113	40	.113										
278	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	7	.113	41	.113										
279	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	8	.113	42	.113										
280	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	9	.113	43	.113										
281	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	10	.113	44	.113										
282	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	11	.113	45	.113										
283	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	12	.113	46	.113										
284	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	13	.113	47	.113										
285	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	14	.113	48	.113										
286	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	15	.113	49	.113										
287	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	16	.113	50	.113										
288	1.2D + 1.5LM-14 + Maint..	Yes	Y		1	1.2	35	1.2	97	1.5	17	.113	51	.113										
289	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	2	.113	36	.113										
290	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	3	.113	37	.113										
291	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	4	.113	38	.113										
292	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	5	.113	39	.113										
293	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	6	.113	40	.113										
294	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	7	.113	41	.113										
295	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	8	.113	42	.113										
296	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	9	.113	43	.113										
297	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	10	.113	44	.113										
298	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	11	.113	45	.113										
299	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	12	.113	46	.113										
300	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	13	.113	47	.113										
301	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	14	.113	48	.113										
302	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	15	.113	49	.113										
303	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	16	.113	50	.113										
304	1.2D + 1.5LM-15 + Maint..	Yes	Y		1	1.2	35	1.2	98	1.5	17	.113	51	.113										

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	N56	max	1294.889	13	2411.956	45	1304.74	18	-574.023	2	1963.451	17	-860.016	5
2		min	-1325.378	21	572.727	5	-1287.625	10	-2789.928	201	-1965.102	25	-4685.67	45
3	N57	max	1379.346	31	2199.967	39	1086.891	18	-349.103	17	1753.596	27	4273.542	102
4		min	-1348.713	7	527.027	15	-1072.685	10	-2702.641	87	-1751.846	3	792.941	15
5	N58	max	1293.696	14	2250.383	34	1530.337	2	4865.443	34	1816.456	6	522.34	117
6		min	-1293.893	6	538.7	10	-1561.973	26	821.474	10	-1817.595	30	-616.961	173
7	Totals:	max	3917.38	14	6653.856	47	3917.614	2						

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
8		min	-3917.388	22	2039.484	7	-3917.617	26						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [l...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	TH1	PIPE_2.0	.192	6.25	24	.015	6.25		23	6295.423	32130	1871.625	1871.625	1.7	H1-1b
2	TH3	PIPE_2.0	.166	6.25	19	.013	6.25		34	6295.422	32130	1871.625	1871.625	1....	H1-1b
3	TH2	PIPE_2.0	.190	6.25	26	.025	12.109		31	6295.422	32130	1871.625	1871.625	1....	H1-1b
4	SA2	HSS4X4X4	.396	0	43	.102	0	y	1...	97795.86	109188	12663	12663	3....	H1-1b
5	SA1	HSS4X4X4	.405	0	38	.104	0	y	1...	97795.86	109188	12663	12663	3....	H1-1b
6	SA3	HSS4X4X4	.452	0	49	.102	0	y	72	97795.86	109188	12663	12663	3....	H1-1b
7	PL2	PL 6x1/2	.145	.644	22	.088	.47	y	1...	53116.305	97200	1012.5	12150	1....	H1-1b
8	PL1	PL 6x1/2	.146	.644	33	.086	.47	y	1...	53116.305	97200	1012.5	12150	1.3	H1-1b
9	PL3	PL 6x1/2	.148	.644	28	.090	.819	y	2...	53116.305	97200	1012.5	12150	1....	H1-1b
10	B2	L2.5x2.5x4	.112	1.302	25	.139	0	z	29	36482.195	38556	1113.554	2537.388	1....	H2-1
11	B1	L2.5x2.5x4	.140	0	32	.116	0	z	22	36482.195	38556	1113.554	2537.388	1....	H2-1
12	B3	L2.5x2.5x4	.240	1.302	31	.220	0	y	18	36482.195	38556	1113.554	2537.388	1....	H2-1
13	GS3	L2x2x3	.155	4.138	9	.009	4.138	y	34	9921.867	23392.8	557.717	1197.778	1....	H2-1
14	GS2	L2x2x3	.171	4.138	6	.009	4.138	z	45	9921.867	23392.8	557.717	1213.665	1....	H2-1
15	GS1	L2x2x3	.157	0	3	.010	0	z	45	9921.867	23392.8	557.717	1186.734	1....	H2-1
16	GS6	L2x2x3	.171	4.138	17	.009	4.138	z	40	9921.867	23392.8	557.717	1217.055	1....	H2-1
17	GS5	L2x2x3	.143	0	14	.010	0	z	40	9921.867	23392.8	557.717	1186.379	1....	H2-1
18	GS4	L2x2x3	.171	0	11	.010	0	y	34	9921.867	23392.8	557.717	1209.417	1....	H2-1
19	CB4	HSS4X4X4	.196	0	41	.066	2.261	y	36	106586....	109188	12663	12663	1....	H1-1b
20	CB3	HSS4X4X4	.198	2.713	37	.058	.452	y	42	106586....	109188	12663	12663	1....	H1-1b
21	CB2	HSS4X4X4	.200	0	46	.071	2.261	y	47	106586....	109188	12663	12663	1....	H1-1b
22	CB1	HSS4X4X4	.205	2.713	47	.061	.452	y	38	106586....	109188	12663	12663	1....	H1-1b
23	CB6	HSS4X4X4	.214	2.713	41	.071	.452	y	41	106586....	109188	12663	12663	1....	H1-1b
24	CB5	HSS4X4X4	.212	0	42	.068	2.261	y	48	106586....	109188	12663	12663	1....	H1-1b
25	BH1	PIPE_3.0	.173	8.073	45	.069	4.297		35	28250.555	65205	5748.75	5748.75	3....	H1-1b
26	BH3	PIPE_3.0	.169	8.073	34	.072	8.203		29	28250.554	65205	5748.75	5748.75	2....	H1-1b
27	BH2	PIPE_3.0	.173	8.073	45	.066	8.203		40	28250.554	65205	5748.75	5748.75	2....	H1-1b
28	MPC1	PIPE_2.0	.249	4	47	.085	4		26	14916.096	32130	1871.625	1871.625	1....	H1-1b
29	MPC3	PIPE_2.0	.333	4	33	.088	4		26	14916.096	32130	1871.625	1871.625	1....	H1-1b
30	MPB1	PIPE_2.0	.237	4	29	.076	4		21	14916.096	32130	1871.625	1871.625	1....	H1-1b
31	MPB3	PIPE_2.0	.281	4	29	.088	4		20	14916.096	32130	1871.625	1871.625	1....	H1-1b
32	MPA1	PIPE_2.0	.282	7	23	.124	7		31	14916.096	32130	1871.625	1871.625	1....	H1-1b
33	MPA3	PIPE_2.0	.287	4	25	.103	4		31	14916.096	32130	1871.625	1871.625	1....	H1-1b
34	MPC2	PIPE_2.0	.732	4	26	.071	4		9	14916.096	32130	1871.625	1871.625	1....	H1-1b
35	MPA2	PIPE_2.0	.731	4	31	.075	4		32	14916.096	32130	1871.625	1871.625	1....	H1-1b
36	MPB2	PIPE_2.0	.731	4	21	.054	4		6	14916.096	32130	1871.625	1871.625	1....	H1-1b

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

Job	CT60XC001
Project	28753
By	TJS
Date	4/17/19

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	67	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.16		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	24.5	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
ETCR-654L12H6	84.9	21.0	4.0	Flat	1.269	12.38	384.3	
1900MHz 4x45W RRH	25.1	11.1	2.3	Flat	1.200	1.93	56.8	
800MHz 2x50W RRH	19.0	13.0	1.5	Flat	1.200	1.72	50.4	
FZHN	14.6	16.6	1.1	Flat	1.200	1.68	49.4	
Pipe2STD x 12.5 ft	150.0	2.4	63.2	Round	1.200	2.47	72.6	5.8
Pipe3STD x 12.5 ft	150.0	3.5	42.9	Round	1.200	3.65	107.1	8.6
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	46.5	5.8
HSS4X4X1/4 x 5.8 ft	69.6	4.0	17.4	Flat	1.747	1.93	82.6	14.2
HSS4X4X1/4 x 2.7 ft	32.4	4.0	8.1	Flat	1.437	0.90	31.6	11.7
L2X2X3/16 x 4.1 ft	49.2	2.0	24.6	Flat	1.987	0.68	33.2	8.1
PL 6x1/2 x 1.3 ft	15.6	6.0	2.6	Flat	1.204	0.65	19.2	14.7
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	46.5	5.8
SR 1 x 5 ft	60.0	1.0	60.0	Round	1.200	0.42	12.2	2.4

RAMAKER & ASSOCIATES, INC.
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Job	CT60XC001
Project	28753
By	TJS
Date	4/17/19

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	67	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.16		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	24.5	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
ETCR-654L12H6	84.9	6.3	13.5	Flat	1.616	3.71	146.9	
1900MHz 4x45W RRH	25.1	10.7	2.3	Flat	1.200	1.86	54.7	
800MHz 2x50W RRH	19.0	12.2	1.6	Flat	1.200	1.61	47.3	
FZHN	14.6	4.9	3.0	Flat	1.221	0.50	14.8	
Pipe2STD x 12.5 ft	150.0	2.4	63.2	Round	1.200	2.47	72.6	5.8
Pipe3STD x 12.5 ft	150.0	3.5	42.9	Round	1.200	3.65	107.1	8.6
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	46.5	5.8
HSS4X4X1/4 x 5.8 ft	69.6	3.3	21.1	Flat	1.870	1.60	73.0	12.6
HSS4X4X1/4 x 2.7 ft	32.4	3.3	9.8	Flat	1.494	0.74	27.1	10.1
L2X2X3/16 x 4.1 ft	49.2	2.0	24.6	Flat	1.987	0.68	33.2	8.1
PL 6x1/2 x 1.3 ft	15.6	0.5	31.2	Flat	2.000	0.05	2.7	2.0
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	46.5	5.8
SR 1 x 5 ft	60.0	1.0	60.0	Round	1.200	0.42	12.2	2.4

RAMAKER & ASSOCIATES, INC.
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Job	CT60XC001
Project	28753
By	TJS
Date	4/17/19

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	67	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.16		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	7.07	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	1.61	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
ETCR-654L12H6	88.1	24.2	3.6	Flat	1.251	14.82	131.1	
1900MHz 4x45W RRH	28.3	14.3	2.0	Flat	1.200	2.82	23.9	
800MHz 2x50W RRH	22.2	16.2	1.4	Flat	1.200	2.50	21.2	
FZHN	17.8	19.8	1.1	Flat	1.200	2.45	20.8	
Pipe2STD x 12.5 ft	153.2	5.6	27.4	Round	1.200	5.95	50.5	4.0
Pipe3STD x 12.5 ft	153.2	6.7	22.8	Round	1.151	7.15	58.2	4.6
Pipe2STD x 8 ft	99.2	5.6	17.7	Round	1.039	3.86	28.3	3.4
HSS4X4X1/4 x 5.8 ft	72.8	7.2	10.1	Flat	1.503	3.65	38.8	6.4
HSS4X4X1/4 x 2.7 ft	35.6	7.2	4.9	Flat	1.308	1.79	16.5	5.6
L2X2X3/16 x 4.1 ft	52.4	5.2	10.0	Flat	1.501	1.90	20.2	4.6
PL 6x1/2 x 1.3 ft	18.8	9.2	2.0	Flat	1.200	1.21	10.2	6.5
Pipe2STD x 8 ft	99.2	5.6	17.7	Round	1.039	3.86	28.3	3.4
SR 1 x 5 ft	63.2	4.2	15.0	Round	0.977	1.85	12.8	2.4

RAMAKER & ASSOCIATES, INC.
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Job	CT60XC001
Project	28753
By	TJS
Date	4/17/19

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	67	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.16		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	7.07	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	1.61	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
ETCR-654L12H6	88.1	9.5	9.3	Flat	1.475	5.83	60.8	
1900MHz 4x45W RRH	28.3	13.9	2.0	Flat	1.200	2.74	23.2	
800MHz 2x50W RRH	22.2	15.4	1.4	Flat	1.200	2.38	20.2	
FZHN	17.8	8.1	2.2	Flat	1.200	1.00	8.5	
Pipe2STD x 12.5 ft	153.2	5.6	27.4	Round	1.200	5.95	50.5	4.0
Pipe3STD x 12.5 ft	153.2	6.7	22.8	Round	1.151	7.15	58.2	4.6
Pipe2STD x 8 ft	99.2	5.6	17.7	Round	1.039	3.86	28.3	3.4
HSS4X4X1/4 x 5.8 ft	72.8	6.5	11.2	Flat	1.539	3.30	35.9	5.9
HSS4X4X1/4 x 2.7 ft	35.6	6.5	5.5	Flat	1.332	1.61	15.2	5.1
L2X2X3/16 x 4.1 ft	52.4	5.2	10.0	Flat	1.501	1.90	20.2	4.6
PL 6x1/2 x 1.3 ft	18.8	3.7	5.1	Flat	1.314	0.49	4.5	2.9
Pipe2STD x 8 ft	99.2	5.6	17.7	Round	1.039	3.86	28.3	3.4
SR 1 x 5 ft	63.2	4.2	15.0	Round	0.977	1.85	12.8	2.4

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Job	CT60XC001
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Date	4/17/19

Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	0.75		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	67	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.07		Height Escalation Factor for Ice Thickness
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
t_{iz} :	1.61	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	Expanded	
Ice Load :	7.5	psf

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
ETCR-654L12H6	88.1	24.2	9.5	21.92	119.04	61.04	327.5	
1900MHz 4x45W RRH	28.3	14.3	13.9	15.41	86.09	50.02	70.0	
800MHz 2x50W RRH	22.2	16.2	15.4	17.83	98.32	56.84	60.5	
FZHN	17.8	19.8	8.1	17.31	95.69	49.44	45.3	
Pipe2STD x 12.5 ft	153.2	5.6	5.6	2.38	20.16	12.52	98.0	7.8
Pipe3STD x 12.5 ft	153.2	6.7	6.7	3.50	25.85	16.05	125.6	10.1
Pipe2STD x 8 ft	99.2	5.6	5.6	2.38	20.16	12.52	62.7	7.8
HSS4X4X1/4 x 5.8 ft	72.8	7.2	6.5	5.19	34.40	26.42	77.6	13.4
HSS4X4X1/4 x 2.7 ft	35.6	7.2	6.5	5.19	34.40	26.42	36.1	13.4
L2X2X3/16 x 4.1 ft	52.4	5.2	5.2	2.83	22.45	14.44	35.8	8.7
PL 6x1/2 x 1.3 ft	18.8	9.2	3.7	6.02	38.60	19.44	19.5	15.0
Pipe2STD x 8 ft	99.2	5.6	5.6	2.38	20.16	12.52	62.7	7.8
SR 1 x 5 ft	63.2	4.2	4.2	1.00	13.20	8.20	25.7	5.1

24 RICHDALE DR

Location 24 RICHDALE DR
Mblu 75/ / 9/ /

Acct# 002961
Owner KNAPP PROPERTIES LLC

Assessment $986,510
Appraisal $1,409,300

PID 4001
Building Count 3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$690,100	$719,200	$1,409,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$483,070	$503,440	$986,510

Owner of Record

Owner KNAPP PROPERTIES LLC
Co-Owner
Address PO BOX 264
GEORGETOWN, CT 06829

Sale Price $1,360,000
Certificate
Book & Page 1960/0117
Sale Date 08/14/2007
Instrument WD

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
KNAPP PROPERTIES LLC	$1,360,000		1960/0117	WD	08/14/2007
KNAPP RICHARD W	$0		0516/0143	00	11/01/1985

Building Information

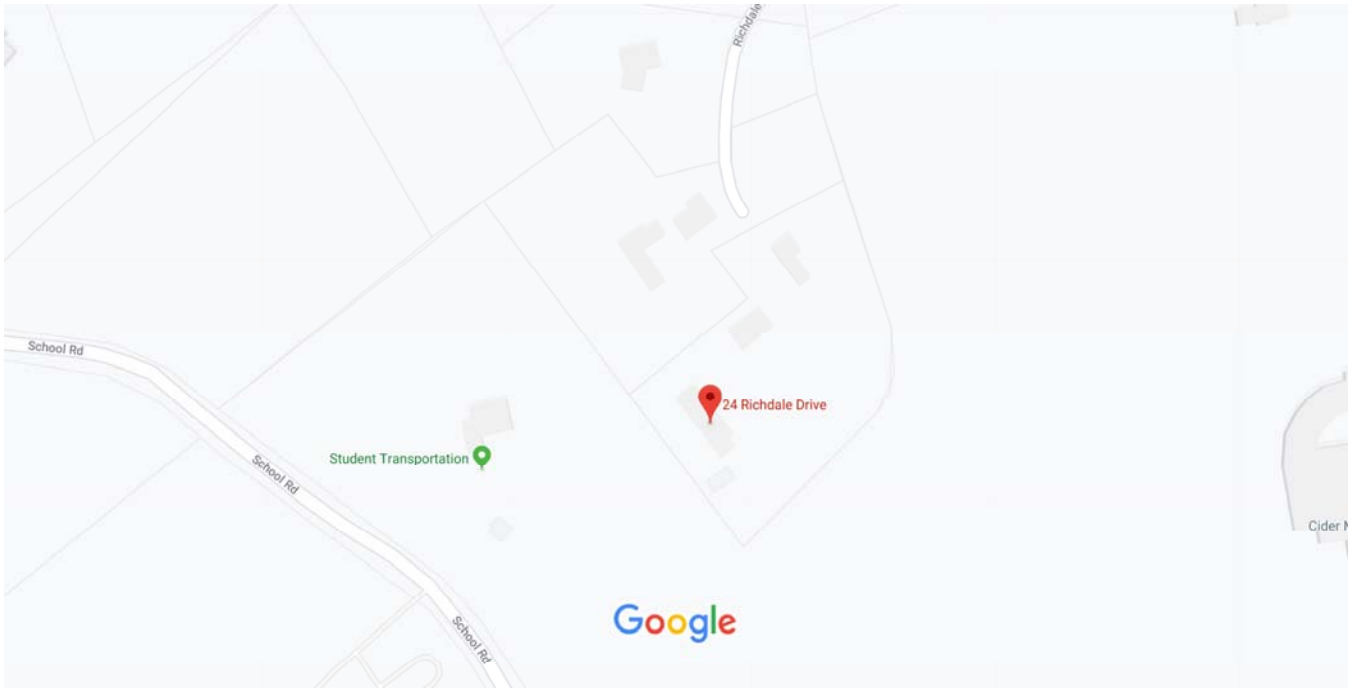
Building 1 : Section 1

Year Built: 1900
Living Area: 3,258
Replacement Cost: $243,527
Building Percent Good: 66
Replacement Cost Less Depreciation: $160,700

Building Photo

Building Attributes	
Field	**Description**
Style	Multi Family

Google Maps 6û$Puithe}m$/fi



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TOWN OF WILTON
BUILDING PERMIT

MUST BE POSTED IN PROMINENT PLACE ON PREMISES

DATE: 3/12/2013

PERMIT NO.: 21180A

PERMISSION IS HEREBY GRANTED TO:

Knapp Properties,LLC

IN ACCORDANCE WITH THE COMPLETED APPLICATION FILED ON:

3/12/2013 **Builder:** Telcom Engineering Grp In

FOR THE PURPOSE OF:

Remove and replace three existing antennas, Add six remote radio heads, New cabinets within existing enclosure, no increase in height or new ground work. The bottom fifteen feet of tower is overstressed and requires reinforcement.

(Estimated cost, plumbing, heating, and electrical):

Estimated Cost:	$25,000.00
Plan Review:	$100.00
Cert. of Occup.:	$75.00
Building Fee:	$250.00
State Zoning:	$60.00
Local Zoning:	$75.00
Septic System:	$0.00
Misc. Fee:	$0.00
Education Fund:	$6.50
Records Maint	$40.00
Total Fee:	**$606.50**

Address: 24 Richdale Drive As shown on Lot No.: Zone: R-2A

WLR Map No.: Assessors Map No.: 75 Assessors Card No.: 9

size ft.: long: ft. wide: stories high:

****RESTRICTIONS/ NOTES:**

Building Inspector Robert E Root

INSPECTION LOG

		INSPECTED BY:	DATE:
Elec. Svc:			
Footing:			
Ftg Drain:			
Framing:			
Electrical:			
Plumbing:			
HVAC:			
Rough All:			
Insulation:			
C/O Inspection:			

Est. Cost $25,000

GENERAL LAND USE CHECKLIST
TOWN OF WILTON, CONNECTICUT

HI# _____ Exp Date _____

24 Richdale Drive	75	9		2/27/13
Property Address	Map #	Lot #	* Tax Collector Approval	Date

Telcom Engineering	6 Horizon Road	(201) - 969-8812	T.C.
Applicant's Name	Applicant's Address	Phone #	Owner verified)

Knapp Properties, LLC	PO Box 264 Georgetown, CT 06829		
Property Owner's Name	Address	Phone #	Site Phone #

Description of Proposed Work: Remove + Replace three (3) existing Antennas and with three (3) New Antennas. Add Six (6) remote radio heads behind New Antennas No increase to height of tower No ground work required. Cabinets to be installed within existing Shelter

TO AVOID UNNECESSARY DELAYS, THE APPLICANT SHALL OBTAIN APPROVALS IN THE ORDER SHOWN BELOW, UNLESS OTHERWISE DIRECTED. THE APPLICANT SHALL BE RESPONSIBLE FOR PROVIDING ANY INFORMATION REQUIRED BY EACH DEPARTMENT. THIS REVIEW PROCESS FOR OBTAINING PERMITS MAY TAKE 3 TO 10 DAYS WITH ADDITIONAL TIME FOR SITE INSPECTIONS OR COMMISSION REVIEW IF NECESSARY.

Any portion of structure being demolished? _____

APPROVALS REQUIRED

(Check here if): Well ____ Septic ____

SEQUENCE	NOTE: ***Plan Reviews- 8:00am to 10:00am only***	CHECKED	PERMIT #
	HEALTH DEPARTMENT: Sanitarian **8:00am-10:00am** **563-0174** Please bring **PLOT PLAN** showing existing structures **WELL AND SEPTIC SYSTEMS** and a **SITE PLAN** showing all proposed structures And their separating distance to well. **Partial Demolitions – Asbestos Certification.**	_____	_____ **(Fee Required)**
_____	**WETLANDS REVIEW**: Dir. Env. Affairs **8:00am-10:00am-** **563-0180** Please bring **PLOT PLAN, KNOWN WETLANDS, LIMITS AND REPORTS, SITE PLAN**, showing existing features and general proposed Features including structures, grading and septic location.	_____	_____ Attach Plot Plan
_____	**EROSION AND SEDIMENT CONTROL**: P&Z **8:00am-10:00am 563-0180** Please bring **SITE PLAN** showing all proposed grading, structures, limit of disturbance, and E&S controls.	_____	_____ Attach Plot Plan
(1)	**ZONING PERMIT**: Zoning Enf. Officer, **8:00am-10:00am** **563-0185** Please bring **SITE PLAN** on a certified A-2 survey showing all existing And proposed structures.	TB	1/30/13
_____	**FIRE MARSHAL APPROVAL**: Fire Marshal - **By Appt.** **834-6246** **Georgetown Fire Marshal: 203-544-8933** This is a preliminary sign off certifying that the Fire Department has received the necessary plans/documents to do a complete review for approval.	_____	_____
_____	**PUBLIC WORKS** : Field Engineer, DPW/**By Appt.** **563-0153** Please bring plan showing proposed **driveway** and features within the road Right-of-way. For sewer/water bring appropriate drawings as required.	_____	_____
(2)	**BUILDING DEPARTMENT**: Building Official, **7:30am-10:00am** **563-0177** **Please bring 2 sets of BUILDING PLANS showing floor plans, cross sections & elevations, ResCheck for additions, Letter of Authorization from owner, Home Improvement Number with expiration date, Workers Comp Cert., Tax Collector approval, and all other approvals required above.**	_____	_____ **(Fee Required)**

RECEIVED
FEB 27 2013
WILTON BUILDING DEPT.

THE INFORMATION REQUESTED ABOVE IS PRELIMINARY AS ADDITIONAL MATERIAL MAY BE REQUIRED UPON FURTHER REVIEW OF THE PROJECT.

*****WHEN PARTIAL OR COMPLETE DEMOLITION OF A DWELLING IS BEING DONE YOU MAY BE REQUIRED TO OBTAIN A SEPARATE DEMOLITION PERMIT AND COMPLY WITH THE DEMOLITION DELAY ORDINANCE. – SEE BUILDING OFFICIAL***

NO FINAL INSPECTION FOR A CERTIFICATE OF OCCUPANCY WILL BE ISSUED UNTIL THE FIRE MARSHAL, ZONING AND HEALTH DEPARTMENTS HAVE CONDUCTED FINAL INSPECTIONS AND THE BUILDING DEPARTMENT HAS RECEIVED APPROVAL DOCUMENTS

ORIGIN ID:LKKA (973) 477-8032
STEVE SOFMAN
CHARLES CHERUNDOLO CONSULTING
976 TABOR ROAD
SUITE 4B
MORRIS PLAINS, NJ 07950
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 1.00 LB
CAD: 111040781/INET4160

BILL SENDER

TO **FIRST SELECTWOMEN, LYNNE VANDERSLIC**
TOWN OF WILTON
238 DANBURY RD

WILTON CT 06897
(203) 563-0100
INV:
PO:
REF: CT60XC001
DEPT:

567J2/18DD/05A2

J1921190911901uv

FedEx Express

TRK# 0201 **7771 8114 4226**

THU - 12 DEC 4:30P
EXPRESS SAVER

K5 DXRA

06897
CT-US **SWF**

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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:LKKA (973) 477-8032
STEVE SOFMAN
CHARLES CHERUNDOLO CONSULTING
976 TABOR ROAD
SUITE 4B
MORRIS PLAINS, NJ 07950
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 1.00 LB
CAD: 111040781/INET4160

BILL SENDER

TO **ROBERT NERNEY**
TOWN OF WILTON
238 DANBURY RD

WILTON CT 06897
(203) 563-0100

REF: CT60XC001
INV:
PO:
DEPT:

567J2/18DD/05A2

J192119091901uv

FedEx Express

THU - 12 DEC 4:30P
EXPRESS SAVER

TRK# 0201 **7771 8114 5005**

K5 DXRA

06897
CT-US **SWF**

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Your Shipment Details

From:	Steve Sofman Charles Cherundolo Consulting 976 Tabor Road Suite 4B MORRIS PLAINS, NJ 07950 US 9734778032	**Ship date:**	12/09/2019
		Weight:	1.00 LBS
		Declared value:	0.00 USD
		Package Contents:	
		Document Description:	
		Shipment Purpose:	
		Invoice number:	
		Freight On Value:	
		Pricing Option:	FedEx Standard Rate
To:	Diane Knapp Knapp Properties LLC PO Box 264 GEORGETOWN, CT 06829 US 2039383629	**Service type:**	FedEx Express Saver
		Package type:	FedEx Pak
		Pickup/Drop Off:	Drop off package at FedEx location
		Shipper account number:	My Account - 429-429
		Bill transportation to:	My Account - 429-429
		Courtesy rate quote:*	14.48 USD
		Published rates:	17.24
Tracking no.:	777181158781	**Effective net discount:**	2.76
		Discounted variable %:	
		List variable %:	
		Special services:	
		Shipment type:	Express
		Commercial/Residential Status:	Commercial

Please note :

.* The courtesy rate shown here may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.

FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.

Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits; Consult the applicable FedEx Service Guide for details.