



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  
630 James Farm Rd, Stratford, CT 06614

Latitude: N41.245361  
Longitude: W73.0341

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antennas, 2 microwave dishes and 3 remote radio units at the 110' centerline level of the existing lattice tower. Sprint proposes to swap 3 panel antennas and 3 remote radio unit at the 110' centerline on the tower. Sprint further proposes to add 9 remote radio heads, 4 hybrid cable and 48 Antenna to RRH jumper cables. 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 Mayor Laura Hoydick of the Town of Stratford as well as the Town Planner for the Town of Wolcott and Dana Ravanis, daughter of the owner of the tower.

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 – CT52XC083 – 630 James Farm Rd, Stratford, CT 06614

The Communications Tower facility is located at 630 James Farm Rd, Stratford CT and is owned by the family of Petro & Wilma Fedorko, the Site coordinates are: N41.245361 W73.0341.

The existing facility consists of a 118' Lattice Tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 antennas, 2 microwave dishes and 3 RRU's mounted on at centerline of 110' feet.

## **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 existing 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](mailto:ryan@mackenzierealtyconsulting.com)

Additional Recipients:  
Mayor Laura Hoydick for the Town of Stratford– Via FedEx  
Town Planner, Town of Stratford - Via FedEx  
Dana Ravanis, owner of the tower – Via FedEx



# Sprint



**PROJECT: DO MACRO UPGRADE**

**SITE NAME: ORONOQUE**

**SITE CASCADE: CT52XC083-A**

**SITE ADDRESS: 630 JAMES FARM ROAD  
STRATFORD, CT 06614**

**Sprint**

1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223



1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324



604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS  
ARCHITECT**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

| SITE INFORMATION  | AREA MAP                    | PROJECT DESCRIPTION   | DRAWING INDEX  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
|---|-----------------------------|---|--|-----------|-------------|-----|-----|-------------|---|------|-----------------------|---|------|-----------------------|---|------|-----------------------|---|-----|-------------------|---|-----|------------------|---|-----|-----------------|---|-----|----------------|---|-----|-----------------------|---|-----|--------------------------|---|-----|-------------------|---|-----|----------------------|---|-----|------------------------|---|-----|-----------------------------|---|-----|--------------------|---|--|-----|------|-------------|---|----------|------------------|---|----------|----------|
| <p><b>SITE ADDRESS:</b><br/>630 JAMES FARM ROAD<br/>STRATFORD, CT 06614</p> <p><b>PROPERTY OWNER:</b><br/>PETRO &amp; WILMA FEDORKO<br/>630 JAMES FARM RD<br/>STRATFORD, CT 06614</p> <p><b>ZONING JURISDICTION:</b><br/>FAIRFIELD</p> <p><b>ZONING DISTRICT:</b><br/>-</p> <p><b>POWER COMPANY:</b><br/>NORTHEAST UTILITIES<br/>(800) 286-2000</p> <p><b>COUNTY:</b><br/>FAIRFIELD</p> <p><b>GEOGRAPHIC COORDINATES (NAD83):</b><br/>LAT: 41° 14' 42.3"N (41.245361°)<br/>LONG: 73° 02' 2.774"W (-73.034104°)</p> <p><b>SPRINT CONSTRUCTION MANAGER:</b><br/>NAME:<br/>PHONE:<br/>EMAIL:</p>                 |                             | <ul style="list-style-type: none"> <li>(1) EXISTING CW EQUIPMENT CABINET, (1) EXISTING SPRINT GPS UNIT &amp; (1) EXISTING WORK LIGHT TO BE REMOVED</li> <li>(1) EXISTING 2'-0" &amp; (2) EXISTING 1'-0" SPRINT DISH ANTENNAS TO REMAIN</li> <li>REMOVE (3) EXISTING CW ANTENNAS</li> <li>REMOVE (3) EXISTING CW RRHS</li> <li>INSTALL NEW (3) KMW ANTENNAS</li> <li>INSTALL (6) NEW 800 MHz RRHS</li> <li>INSTALL (3) NEW 1900 MHz RRHS</li> <li>INSTALL (3) NEW 2500 MHz RRHS</li> <li>INSTALL (1) NEW 1-1/2" HYBRIFLEX CABLE</li> <li>INSTALL (3) NEW 1-1/4" HYBRID CABLES</li> <li>INSTALL (48) NEW 1/2" ANTENNA/RRH JUMPERS</li> <li>INSTALL (1) NEW ELTEK E-CAB CABINET</li> <li>INSTALL (1) NEW ELTEK I-CAB CABINET</li> <li>INSTALL (1) NEW SPRINT SPRINT GPS UNIT</li> <li>INSTALL (1) NEW SPRINT 200A PPC CABINET</li> </ul> | <table border="1"> <thead> <tr> <th>SHEET NO:</th> <th>SHEET TITLE</th> <th>REV</th> </tr> </thead> <tbody> <tr><td>T-1</td><td>TITLE SHEET</td><td>1</td></tr> <tr><td>SP-1</td><td>SPRINT SPECIFICATIONS</td><td>1</td></tr> <tr><td>SP-2</td><td>SPRINT SPECIFICATIONS</td><td>1</td></tr> <tr><td>SP-3</td><td>SPRINT SPECIFICATIONS</td><td>1</td></tr> <tr><td>A-1</td><td>OVERALL SITE PLAN</td><td>1</td></tr> <tr><td>A-2</td><td>EQUIPMENT LAYOUT</td><td>1</td></tr> <tr><td>A-3</td><td>TOWER ELEVATION</td><td>1</td></tr> <tr><td>A-4</td><td>ANTENNA LAYOUT</td><td>1</td></tr> <tr><td>A-5</td><td>FIBER WIRING DIAGRAMS</td><td>1</td></tr> <tr><td>A-6</td><td>CABLE &amp; PLUMBING DIAGRAM</td><td>1</td></tr> <tr><td>A-7</td><td>EQUIPMENT DETAILS</td><td>1</td></tr> <tr><td>A-8</td><td>CONSTRUCTION DETAILS</td><td>1</td></tr> <tr><td>E-1</td><td>GROUNDING PLAN &amp; NOTES</td><td>1</td></tr> <tr><td>E-2</td><td>GROUNDING RISER AND DETAILS</td><td>1</td></tr> <tr><td>E-3</td><td>ELECTRICAL DETAILS</td><td>1</td></tr> </tbody> </table> | SHEET NO: | SHEET TITLE | REV | T-1 | TITLE SHEET | 1 | SP-1 | SPRINT SPECIFICATIONS | 1 | SP-2 | SPRINT SPECIFICATIONS | 1 | SP-3 | SPRINT SPECIFICATIONS | 1 | A-1 | OVERALL SITE PLAN | 1 | A-2 | EQUIPMENT LAYOUT | 1 | A-3 | TOWER ELEVATION | 1 | A-4 | ANTENNA LAYOUT | 1 | A-5 | FIBER WIRING DIAGRAMS | 1 | A-6 | CABLE & PLUMBING DIAGRAM | 1 | A-7 | EQUIPMENT DETAILS | 1 | A-8 | CONSTRUCTION DETAILS | 1 | E-1 | GROUNDING PLAN & NOTES | 1 | E-2 | GROUNDING RISER AND DETAILS | 1 | E-3 | ELECTRICAL DETAILS | 1 | <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td>1</td><td>02.06.18</td><td>REVISED FINAL CD</td></tr> <tr><td>0</td><td>11.16.17</td><td>FINAL CD</td></tr> </tbody> </table> <p>NO. DATE DESCRIPTION</p> <p>DRAWN BY: SH</p> <p>CHECKED BY: JMB</p> <p>JOB NUMBER: CT52XC083-A</p> <p>ARCHITECT: JOHN BANKS</p> <p>SEAL</p> <p>SITE NAME</p> <p>ORONOQUE</p> <p>SITE NUMBER</p> <p>CT52XC083-A</p> <p>SITE LOCATION</p> <p>630 JAMES FARM ROAD<br/>STRATFORD, CT 06614<br/>NEW HAVEN COUNTY</p> <p>SHEET TITLE</p> <p>TITLE SHEET</p> <p>SHEET NUMBER</p> <p>T-1</p> | NO. | DATE | DESCRIPTION | 1 | 02.06.18 | REVISED FINAL CD | 0 | 11.16.17 | FINAL CD |
| SHEET NO:   | SHEET TITLE                 | REV   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| T-1   | TITLE SHEET                 | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| SP-1  | SPRINT SPECIFICATIONS       | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| SP-2  | SPRINT SPECIFICATIONS       | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| SP-3  | SPRINT SPECIFICATIONS       | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-1   | OVERALL SITE PLAN           | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-2   | EQUIPMENT LAYOUT            | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-3   | TOWER ELEVATION             | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-4   | ANTENNA LAYOUT              | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-5   | FIBER WIRING DIAGRAMS       | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-6   | CABLE & PLUMBING DIAGRAM    | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-7   | EQUIPMENT DETAILS           | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| A-8   | CONSTRUCTION DETAILS        | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| E-1   | GROUNDING PLAN & NOTES      | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| E-2   | GROUNDING RISER AND DETAILS | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| E-3   | ELECTRICAL DETAILS          | 1   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| NO.   | DATE                        | DESCRIPTION   |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| 1   | 02.06.18                    | REVISED FINAL CD  |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| 0   | 11.16.17                    | FINAL CD  |  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |
| <p><b>APPLICABLE CODES</b></p> <p>SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT OF THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.</p> <ul style="list-style-type: none"> <li>2015 INTERNATIONAL BUILDING CODE AS ADOPTED BY THE STATE OF CONNECTICUT</li> <li>NEC 2014, AS ADOPTED BY THE STATE OF CONNECTICUT</li> <li>NFPA 780 - LIGHTNING PROTECTION CODE</li> <li>ANSI/TIA-222G TELECOM STRUCTURAL STANDARD</li> </ul> | <p><b>LOCATION MAP</b></p>  | <p><b>DIG SAFE</b></p> <p>TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG</p> <p>TOLL FREE: 1-800-922-4455 OR <a href="http://www.cbyd.com">www.cbyd.com</a></p> <p>CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE</p> <p>Know what's below.<br/>Call before you dig.</p>   | <p><b>PROFESSIONAL LICENSE</b></p> <p>STATE OF CONNECTICUT</p> <p>EXPIRES: 07-31-18</p> <p>SIGNED: 2/9/18</p>  |           |             |     |     |             |   |      |                       |   |      |                       |   |      |                       |   |     |                   |   |     |                  |   |     |                 |   |     |                |   |     |                       |   |     |                          |   |     |                   |   |     |                      |   |     |                        |   |     |                             |   |     |                    |   |  |     |      |             |   |          |                  |   |          |          |



**SECTION 01 100 - SCOPE OF WORK**

**THE WORK:**

THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND 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, 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-200-(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)

**NATIONALLY RECOGNIZED CODES AND STANDARDS:**

- THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS, INCLUDED
- 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-"NEW") 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 (PCA)
  - M. BRICK INDUSTRY ASSOCIATION (BIA)
  - N. AMERICAN WELDING SOCIETY (AWS)
  - P. SGEET 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 INTERNATIONAL BUILDING CODE.

**DEFINITIONS:**

- A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN CONTRACT DOCUMENTS
- B. COMPANY: "SPRINT"; SPRINT CORPORATION AND IT'S OPERATING ENTITIES
- C. ARCHITECT: SYNONYMOUS WITH ARCHITECT&ENGINEER AND "A&E", THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT
- D. CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, VENDOR; INDIVIDUAL OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE CO. A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO B UT NOT INCLUDED IN THE WORK
- F. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FOLW 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.

**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.

**DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:**

THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

**USE OF JOB SITE:**

CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING 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 OF 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 PM 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 CONTRACTORS STAFF AND OFFICE THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS.

**TEMPORARY UTILITIES AND FACILITIES:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMP UTILITIES AND FACILITIES NECESSARY EXCEPT OTHERWISE INDICATED IN CONSTRUCTION DOCUMENTS. TEMP UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSABLE FALSITIES, TELECOM SERVICES, PROVIDE TEMP UTILITIES AND FACILITIES ACCORDANCE WITH OSHA AND AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE CO. 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 CONTRACT DOCUMENTS.

**ACCESS TO WORK:**

THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE A&E DURING ALL PHASED OF WORK.

**DIMENSIONS:**

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

**EXISTING CONDITIONS:**

NOTIFY SPRINT CM 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 RFDS IN THE CONSTRUCTION DOCUMENTS.

**RECEIPT OF MATERIAL AND EQUIPMENT:**

- A. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON PRECEPT SHALL:
  - 1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT
  - 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES
  - 3. TAKE RESPONSIBILITIES FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT
- B. RECORD ANY DEFECTS OR DAMAGES AND WITHIN 24 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 RECEIPT DOCUMENTATION IN ACCORDANCE W/COMPANY PRACTICE
- B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE W/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.
- C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITIONS
  - 1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITIONS 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 EXPOSE TO INDIVIDUALS.
- 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 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, PADS & 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. INSTALLED FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS
- 17. INSTALL ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EX. TOWER AS REQUIRED
- 18. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT
- 19. CONDUCT ALL REQUIRED TESTS AND INSPECTIONS
- 20. PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
- 21. 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 ACTIVATIONS PER APPLICABLE MOPS

**DELIVERABLES:**

- A. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BU NOT LIMITED TO THE FOLLOWING
  - 1. PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION REQUESTED BY SPRINT
  - 2. ACTUALIZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINES 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 & 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 &/OR UPLOADED INTO SMS
  - 1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
  - 2. PROJECT PROGRESS REPORTS.
  - 3. PRE-CONSTRUCTION MEETING NOTES.

**SECTION -1 400-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 FOLLOWING TO SITERRA AS APPLICABLE 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 COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS FOR 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:**

- 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 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-3-2-201
  - 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. SITE RESISTANCE TO EARTH TEST
  - 6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES &/OR AS A RESULT OF TESTING



1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223



1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

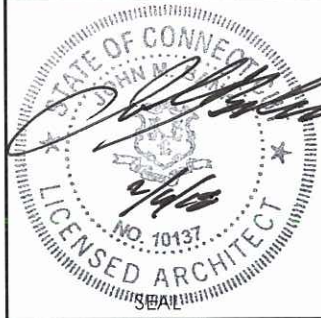


604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS**  
**ARCHITECT**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



|  |
|--|
| SITE NAME  |
| ORONOQUE   |
| SITE NUMBER  |
| CT52XC083-A  |
| SITE LOCATION  |
| 630 JAMES FARM ROAD<br>STRATFORD, CT 06614<br>NEW HAVEN COUNTY |
| SHEET TITLE  |
| SPRINT<br>SPECIFICATIONS                                       |
| SHEET NUMBER   |
| SP-1   |



C. REQUIRED 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
  5. POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HERewith IN 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 COMMENCEMENT.
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 COAX/CABLE 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 YORK. THE FOLLOWING LIST REPRESENTS MIN. REQUIREMENTS AND MIN 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 BHE 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 II 700-ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION SUMMARY:

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRUS, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRUS:

THE NUMBER AND TYPE OF ANTENNAS AND RRUS TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:

HYBRID CABLE WILL DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER CONSTRUCTION DRAWINGS AND APPLICABLE MANUFACTURER'S REQUIREMENT.

JUMPERS AND CONNECTORS:

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

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:

INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHOW, 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 SPECS FOR BENDING RADI
- 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 & DC CABLES ABOVE BREAKOUT ENCLOSURE, WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES

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 & DC CABLES ABOVE BREAKOUT ENCLOSURE, WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES
  - 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 LIENS 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
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-EN2012-001, 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 OR 2" ELEC 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 ELEC TAPE EXTENDING 2" BEYOND SELF-AMALGAMATING TAPE.
  3. 3M SLIM LOCK CLOSURE 7 16: SUBSTITUTIONS WILL NOT BE ALLOWED.
  4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800-INSTALLATION OF MULTIMODAL BASE STATIONS AND RELATED EQUIPMENT:

SUMMARY:

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO RECTIFIERS, POWER DIST 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 MISC MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND 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 OR 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 SOLID MASONRY.
  6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRINT-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.



1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223



1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324



604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

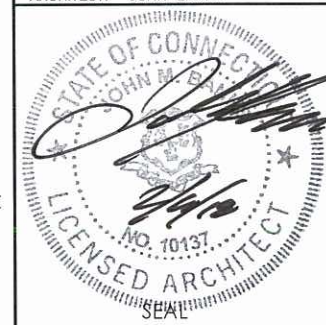
JOHN M. BANKS ARCHITECT

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 02.06.18 | REVISED FINAL CD |
| 0   | 11.16.17 | FINAL CD         |

DRAWN BY: SH  
CHECKED BY: JMB  
JOB NUMBER: CT52XC083-A  
ARCHITECT: JOHN BANKS



|  |
|--|
| SITE NAME  |
| ORONOQUE   |
| SITE NUMBER  |
| CT52XC083-A  |
| SITE LOCATION  |
| 630 JAMES FARM ROAD<br>STRATFORD, CT 06614<br>NEW HAVEN COUNTY |
| SHEET TITLE  |
| SPRINT<br>SPECIFICATIONS                                       |
| SHEET NUMBER   |
| SP-2   |



**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 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 UNDERWRITER'S 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 MAYBE 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 THE 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 (21 MM)

**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, WEATHERPROOFED, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS FORM 8 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, 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.
- 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 RODS.

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

**Sprint**  
 1 INTERNATIONAL BLVD., SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (201) 684-4000  
 FAX: (201) 684-4223

**Cherundolo Consulting**  
 1280 ROUTE 46 WEST  
 PARSIPPANY, NJ 07054  
 TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX : 847-277-0080  
 AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX : 847-277-0080

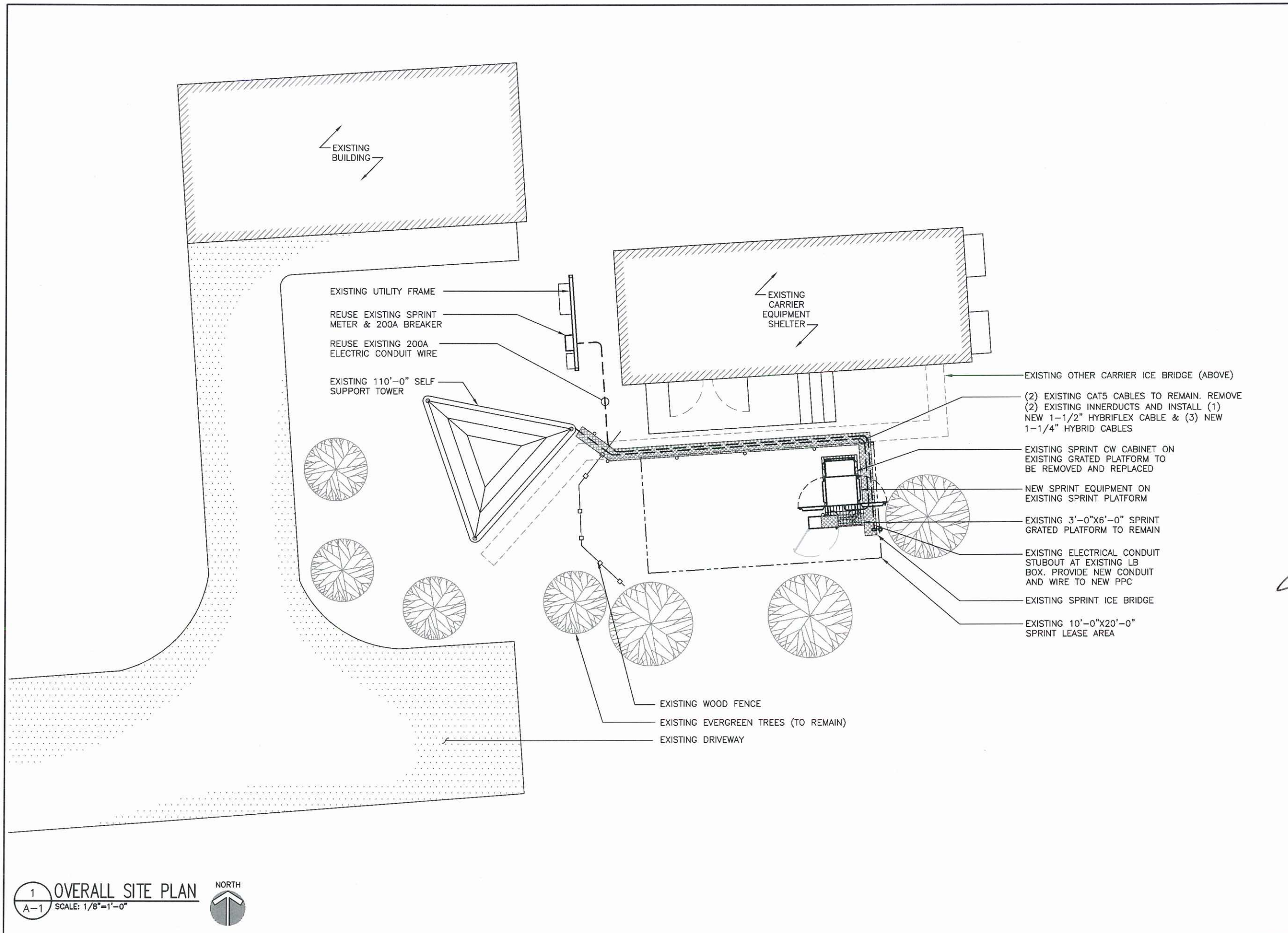
THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



|  |
|--|
| SITE NAME  |
| ORONOQUE   |
| SITE NUMBER  |
| CT52XC083-A  |
| SITE LOCATION  |
| 630 JAMES FARM ROAD<br>STRATFORD, CT 06614<br>NEW HAVEN COUNTY |
| SHEET TITLE  |
| SPRINT SPECIFICATIONS  |
| SHEET NUMBER   |
| SP-3   |





**Sprint**  
 1 INTERNATIONAL BLVD., SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (201) 684-4000  
 FAX: (201) 684-4223

**Cherundolo Consulting**  
 1280 ROUTE 46 WEST  
 PARSIPPANY, NJ 07054  
 TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080  
 AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



SEAL  
 SITE NAME  
**ORONOQUE**

SITE NUMBER  
**CT52XC083-A**

SITE LOCATION  
 630 JAMES FARM ROAD  
 STRATFORD, CT 06614  
 NEW HAVEN COUNTY

SHEET TITLE  
**OVERALL SITE PLAN**

SHEET NUMBER  
**A-1**



**Sprint**  
 1 INTERNATIONAL BLVD., SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (201) 684-4000  
 FAX: (201) 684-4223

**Cherundolo Consulting**

1280 ROUTE 46 WEST  
 PARSIPPANY, NJ 07054  
 TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**

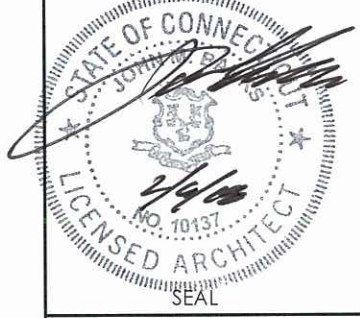
604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080  
 AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**

604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



SITE NAME

ORONOQUE

SITE NUMBER

CT52XC083-A

SITE LOCATION

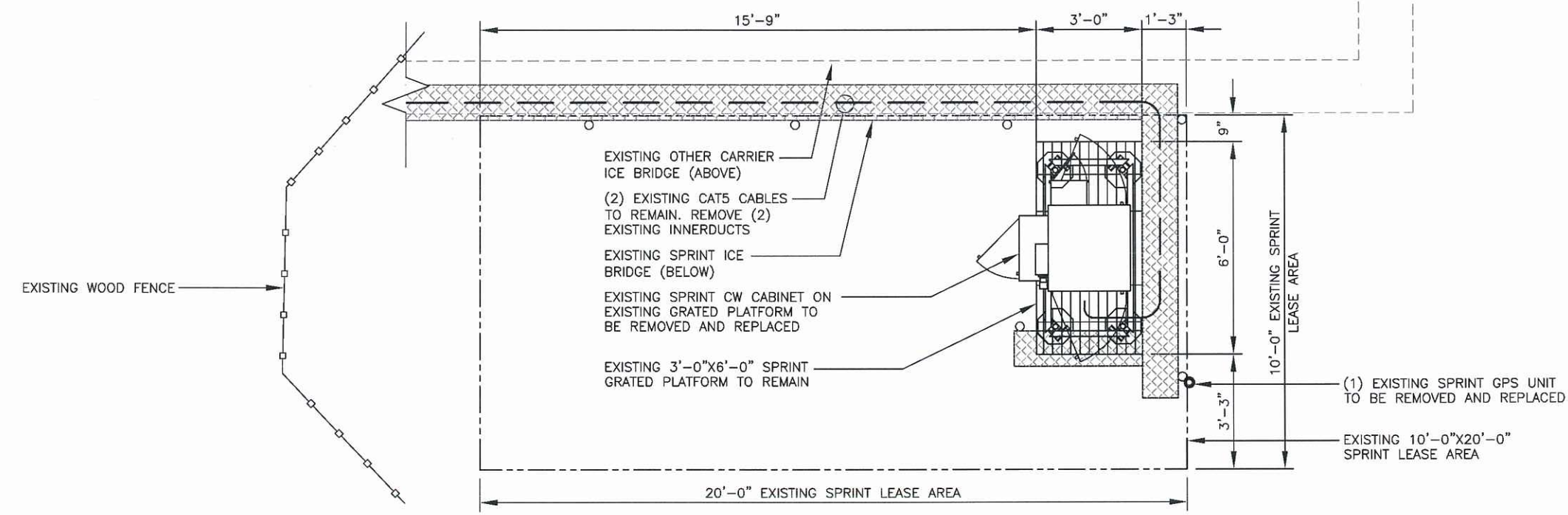
630 JAMES FARM ROAD  
 STRATFORD, CT 06614  
 NEW HAVEN COUNTY

SHEET TITLE

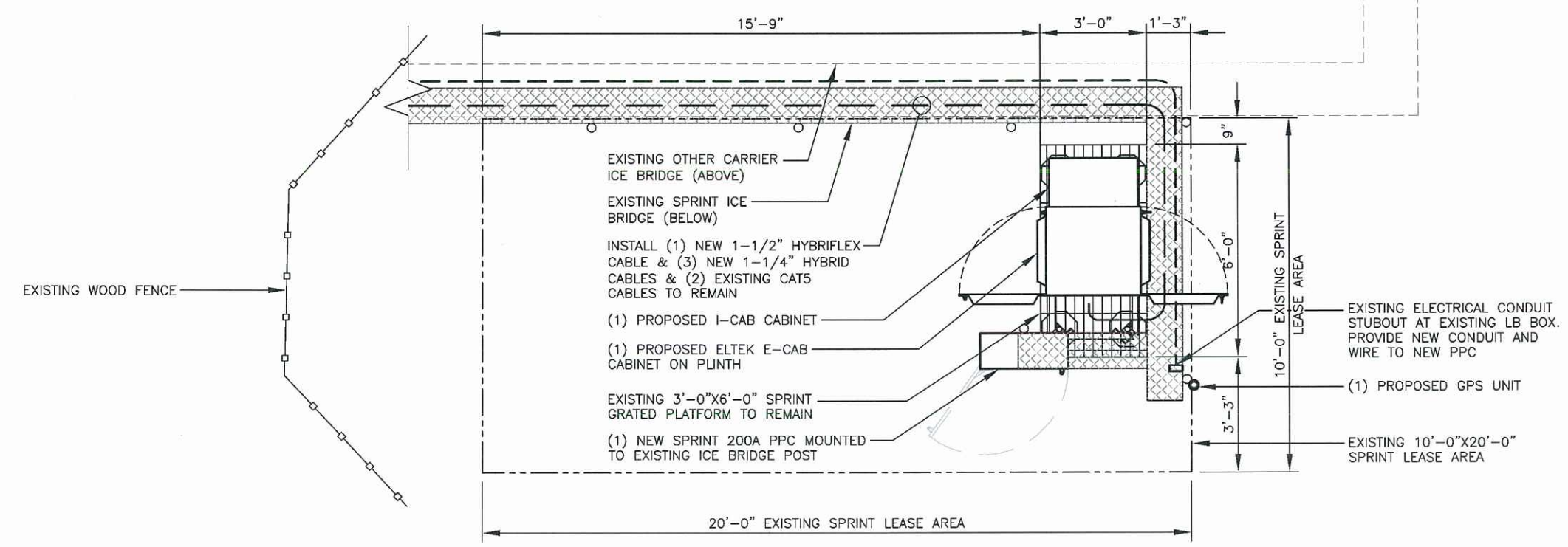
EQUIPMENT LAYOUT

SHEET NUMBER

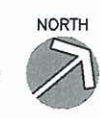
A-2



1 EXISTING EQUIPMENT PLATFORM  
 A-2 SCALE: 1/4"=1'-0"



2 PROPOSED EQUIPMENT PLATFORM  
 A-2 SCALE: 1/4"=1'-0"





**Sprint**  
 1 INTERNATIONAL BLVD., SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (201) 684-4000  
 FAX: (201) 684-4223

**Cherundolo Consulting**  
 1280 ROUTE 46 WEST  
 PARSIPPANY, NJ 07054  
 TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080  
 AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847-277-0070  
 FAX: 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



SITE NAME

ORONOQUE

SITE NUMBER

CT52XC083-A

SITE LOCATION

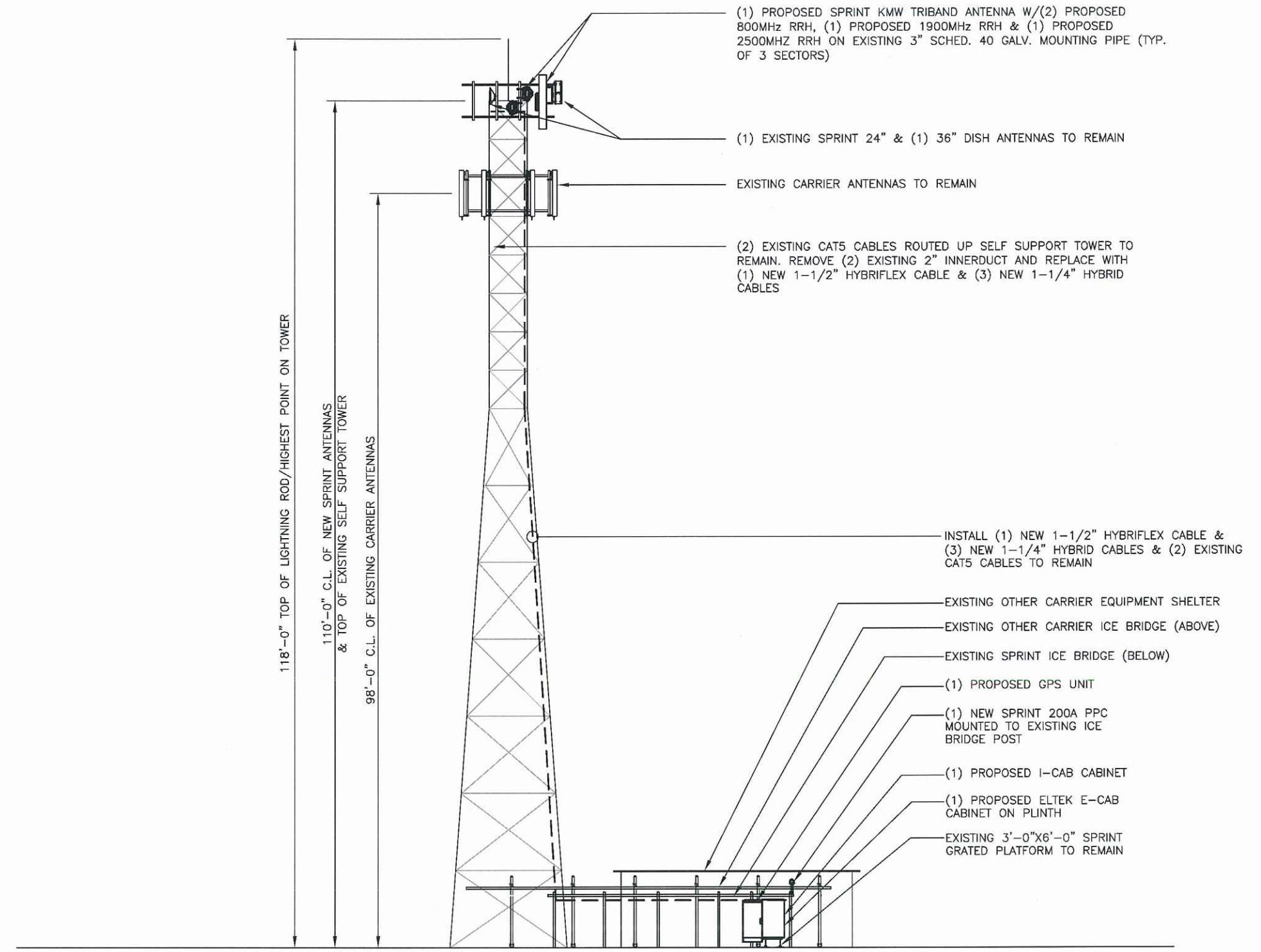
630 JAMES FARM ROAD  
 STRATFORD, CT 06614  
 NEW HAVEN COUNTY

SHEET TITLE

TOWER ELEVATION

SHEET NUMBER

A-3



1 SELF SUPPORT TOWER ELEVATION (NORTH)  
 A-3 SCALE: 1/16"=1'-0"



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

| 1   | 02.06.18 | REVISED FINAL CD |
|-----|----------|------------------|
| 0   | 11.16.17 | FINAL CD         |
| NO. | DATE     | DESCRIPTION      |

DRAWN BY: SH  
 CHECKED BY: JMB  
 JOB NUMBER: CT52XC083-A  
 ARCHITECT: JOHN BANKS



SITE NAME

ORONOQUE

SITE NUMBER

CT52XC083-A

SITE LOCATION

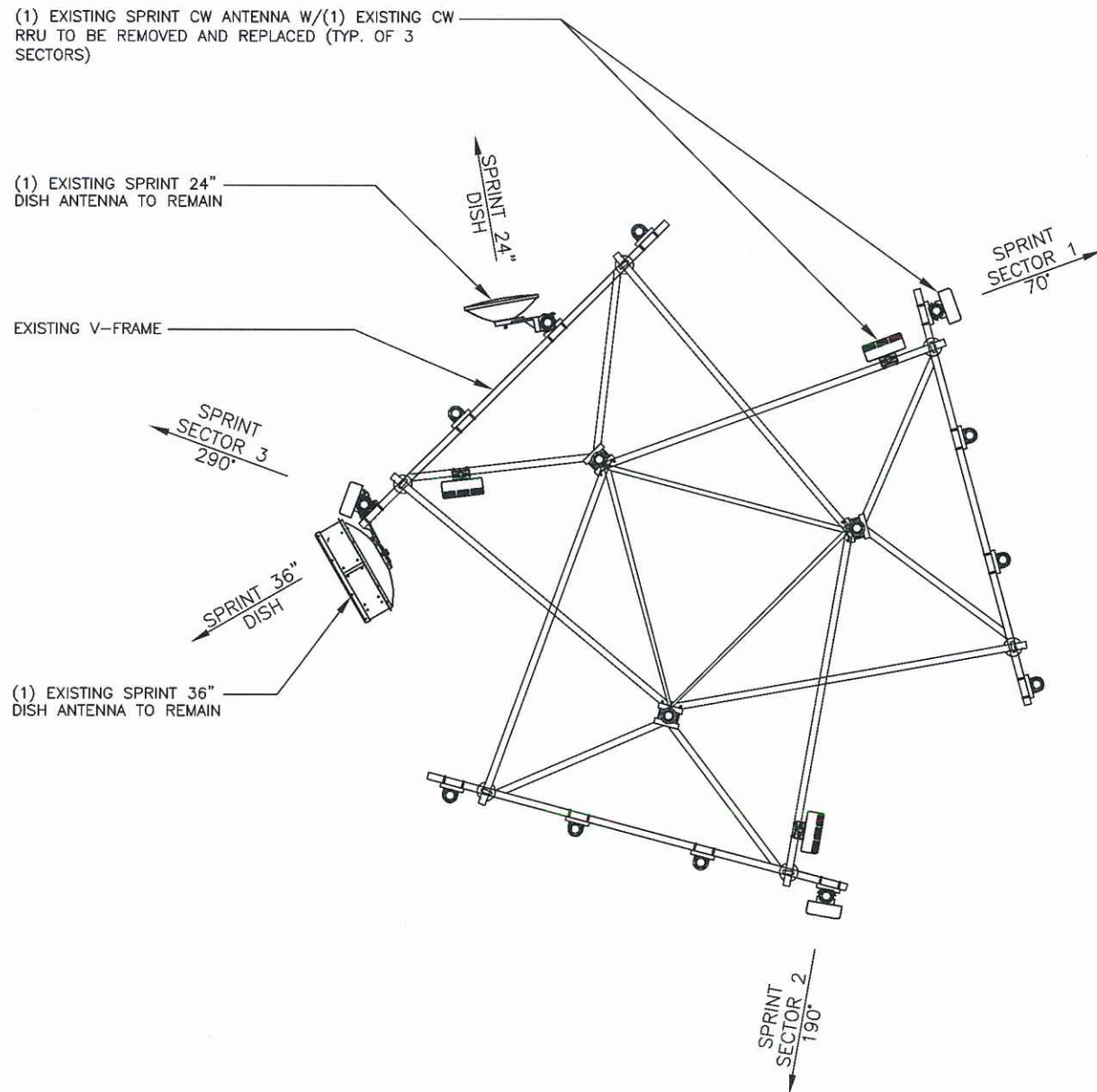
630 JAMES FARM ROAD  
 STRATFORD, CT 06614  
 NEW HAVEN COUNTY

SHEET TITLE

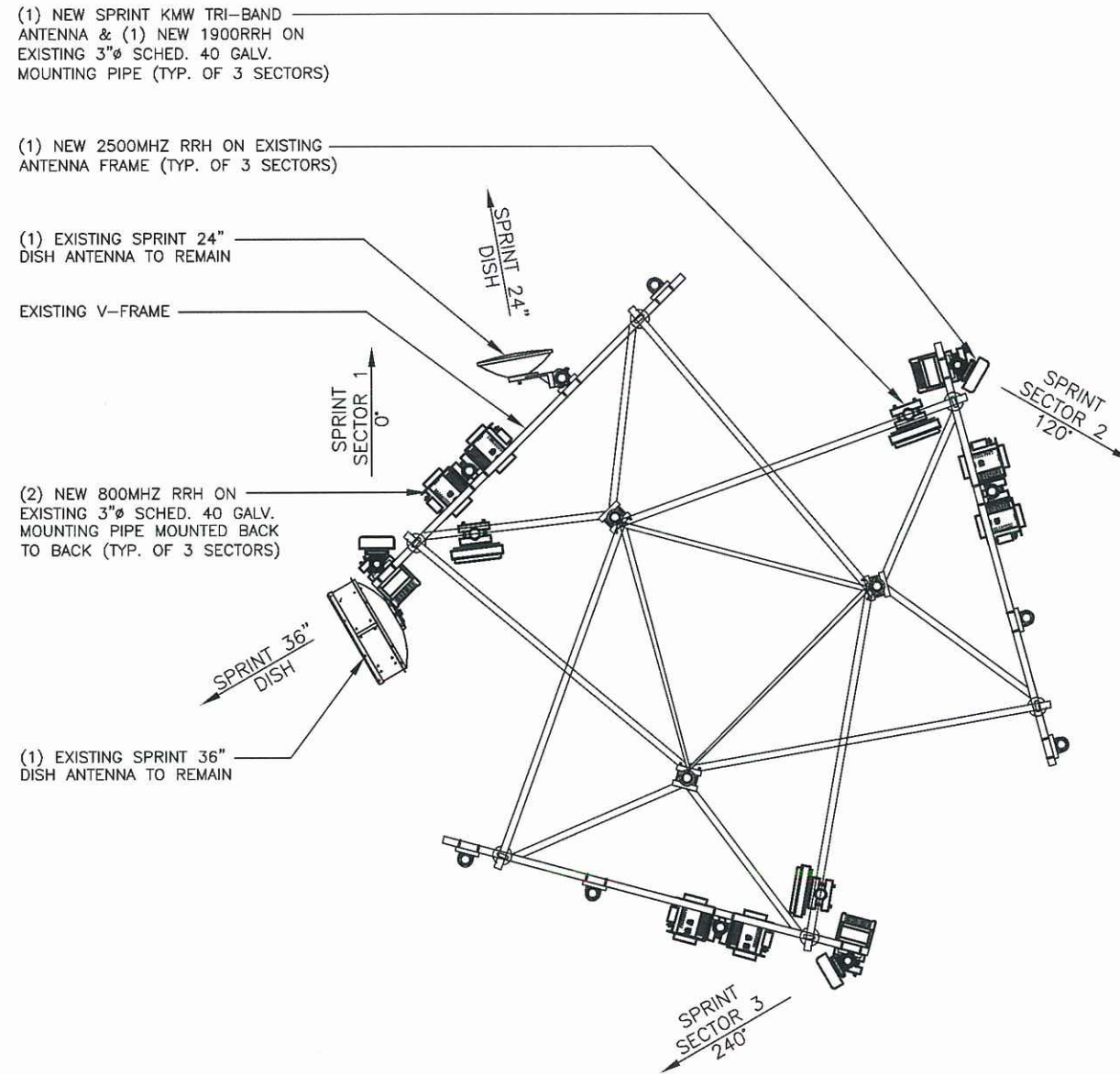
ANTENNA LAYOUT

SHEET NUMBER

A-4



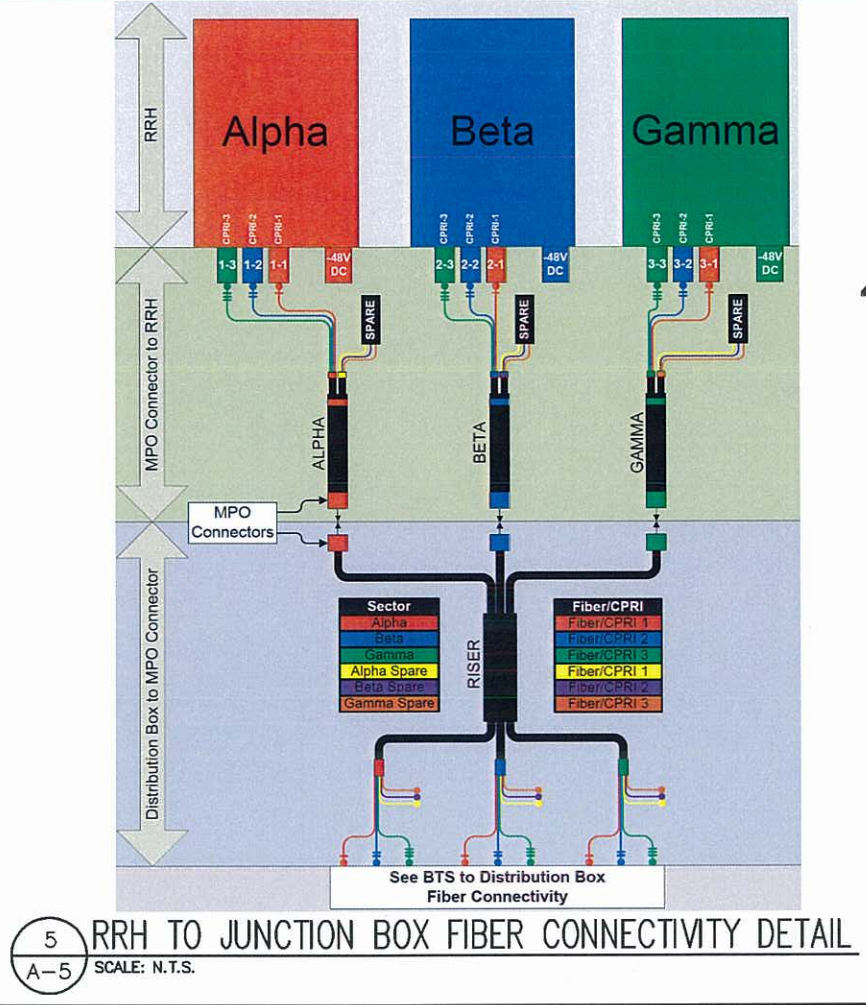
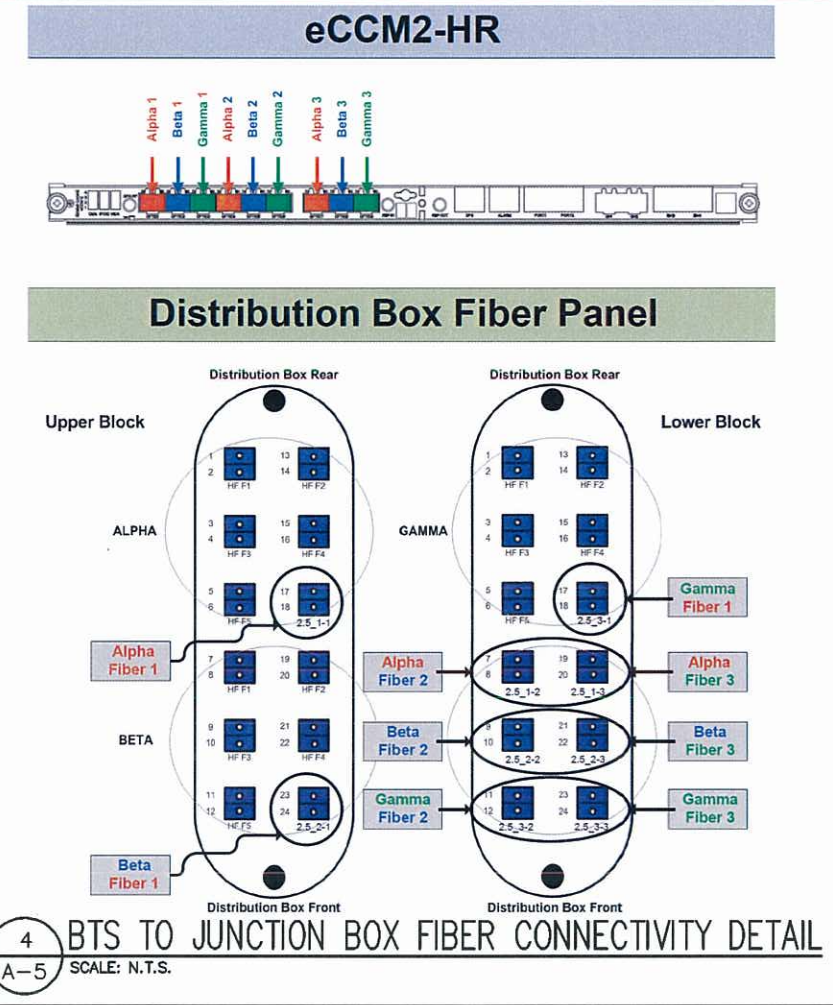
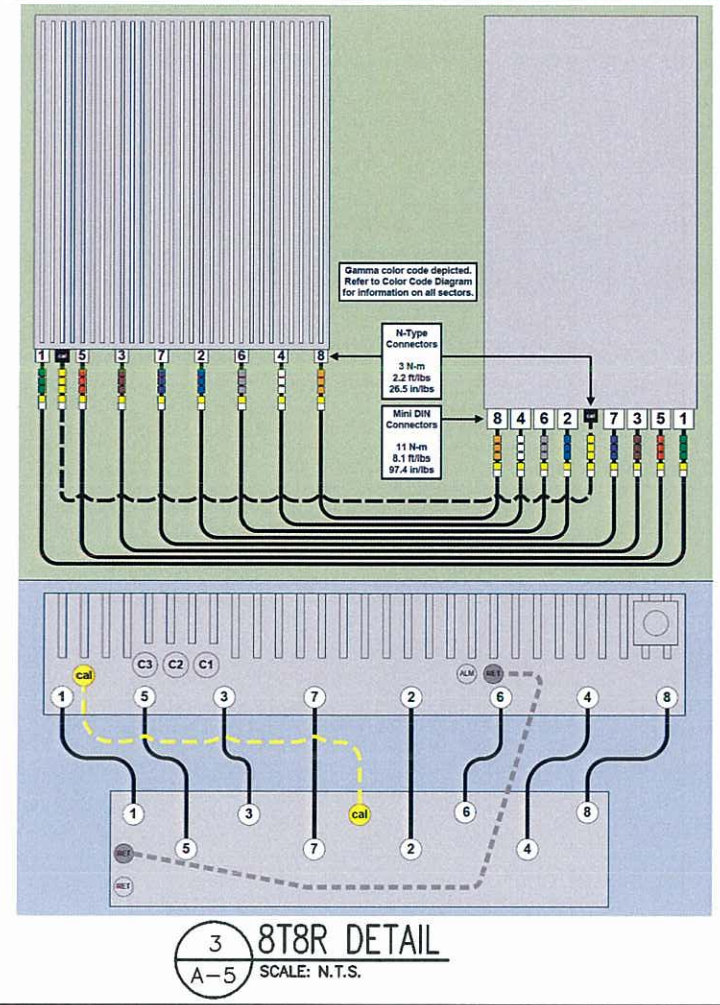
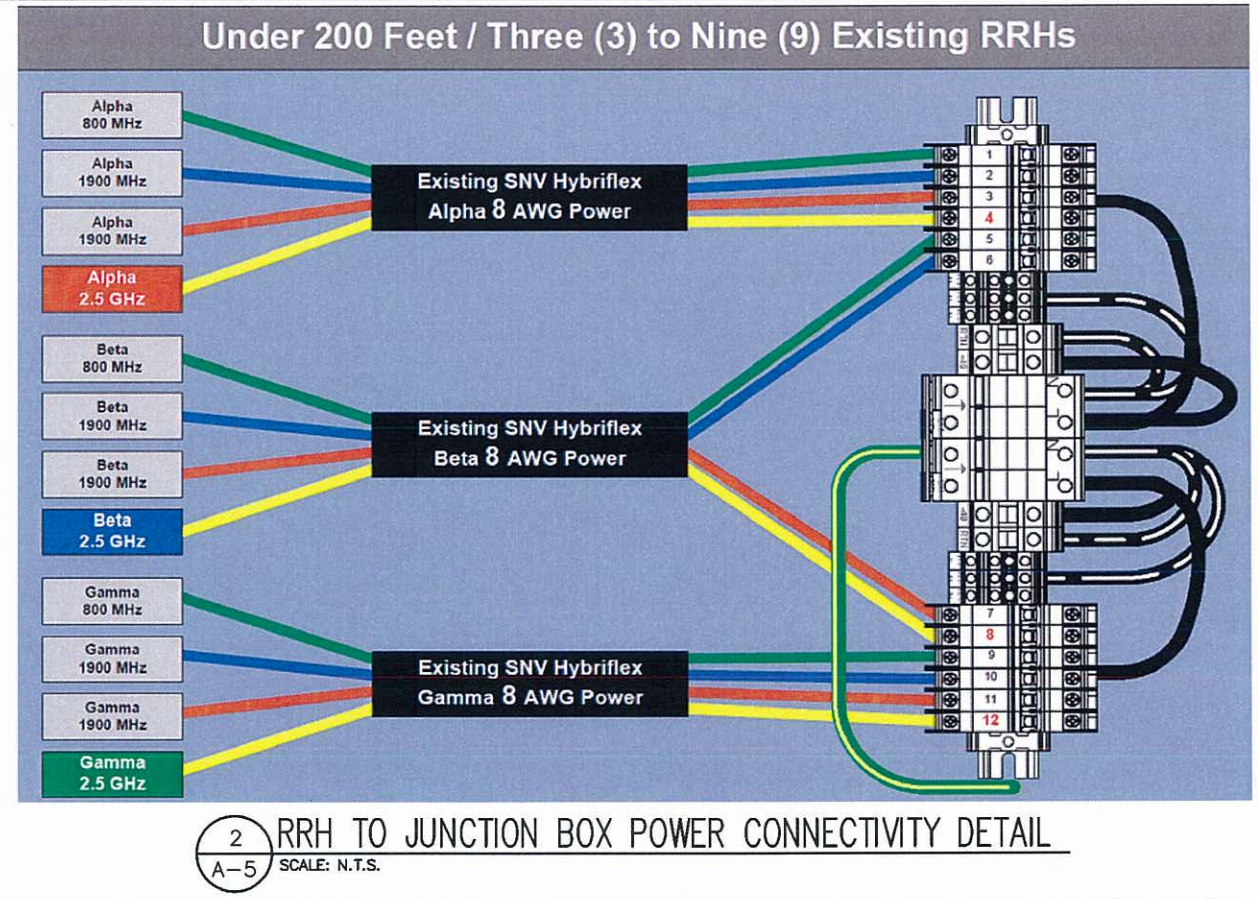
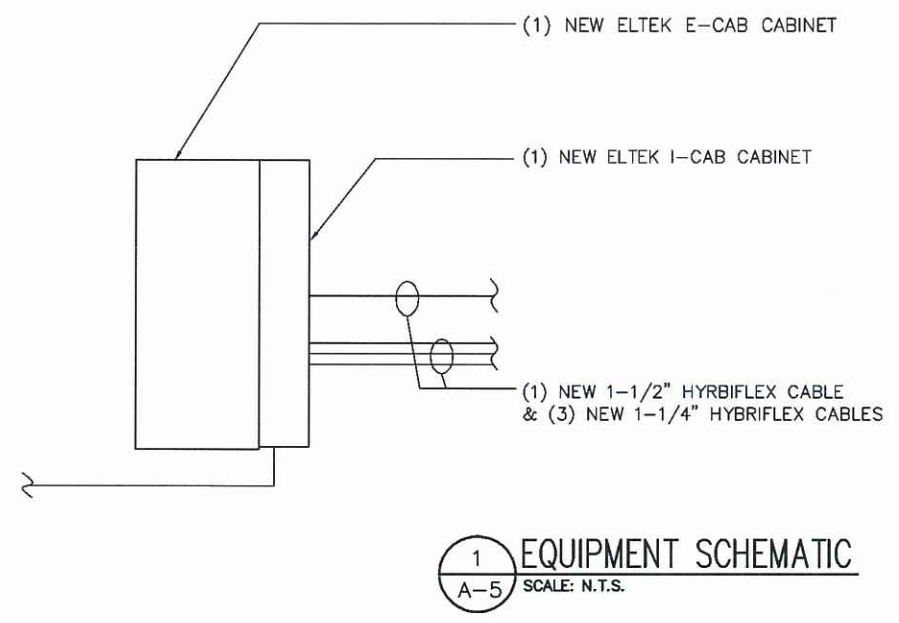
1 EXISTING ANTENNA PLAN  
 A-4 SCALE: 1"=5'-0"



2 PROPOSED ANTENNA PLAN  
 A-4 SCALE: 1"=5'-0"







**Sprint**  
1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**  
1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |

STATE OF CONNECTICUT  
LICENSED ARCHITECT  
NO. 10137

SITE NAME  
**ORONOQUE**

SITE NUMBER  
**CT52XC083-A**

SITE LOCATION  
630 JAMES FARM ROAD  
STRATFORD, CT 06614  
NEW HAVEN COUNTY

SHEET TITLE  
**FIBER WIRING DIAGRAM**

SHEET NUMBER  
**A-5**

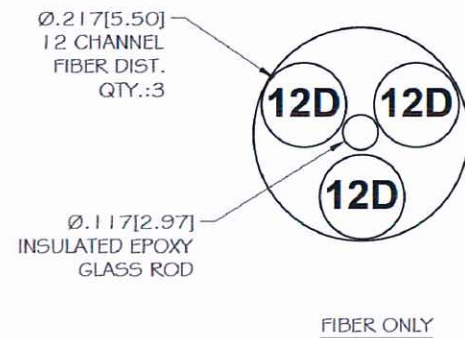
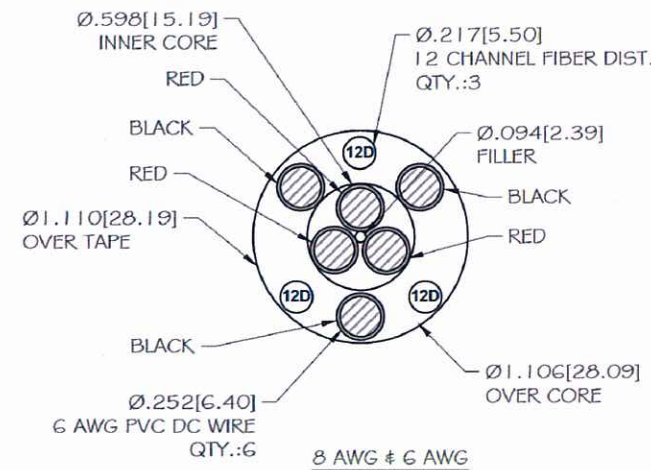
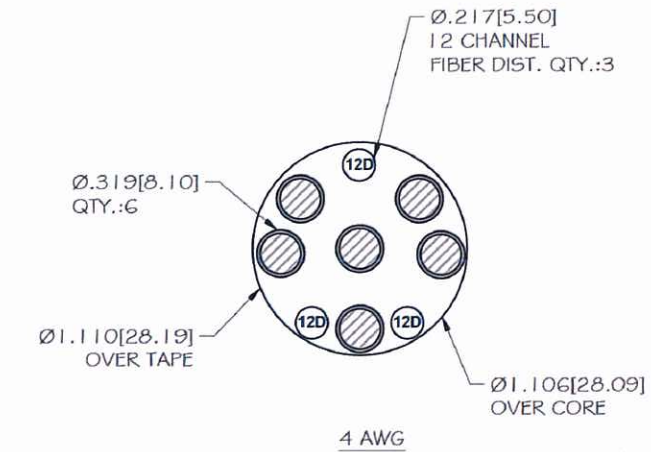


RFS HYBRIFLEX RISER CABLE SCHEDULE

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

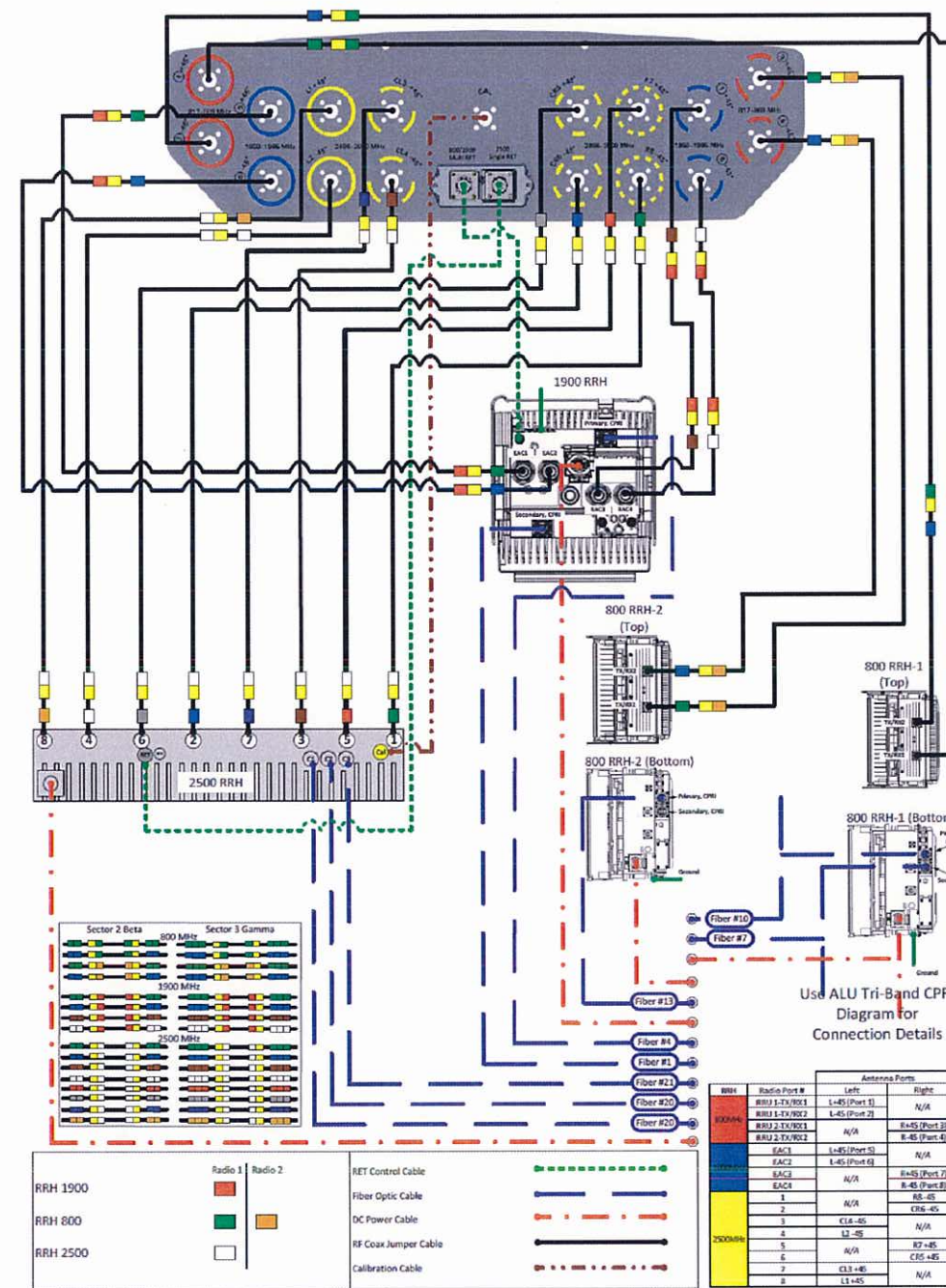
HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE  
MANUF:RFS

| CABLE      | LENGTH   | DC CONDUCTOR     | CABLE DIAMETER |
|------------|----------|------------------|----------------|
| Fiber Only | Varies   | Use NV Hybriflex | 5/8"           |
| Hybriflex  | <200'    | 8 AWG            | 1-1/4"         |
| Hybriflex  | 225-300' | 6 AWG            | 1-1/4"         |
| Hybriflex  | 325-375' | 4 AWG            | 1-1/4"         |



2.5 CABLE CROSS SECTION & DATA  
SCALE: N.T.S.

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



2 PLUMBING DIAGRAM  
SCALE: N.T.S.

CABLE LENGTHS

| SECTOR    | DESCRIPTION            | QTY | DIMENSIONS | PART/MODEL#            |
|-----------|------------------------|-----|------------|------------------------|
| SECTOR 1  | 1-1/4" HYBRIFLEX CABLE | 1   | 150'-0"    | RFS HB114-08U3M12-175F |
| SECTOR 2  | 1-1/4" HYBRIFLEX CABLE | 1   | 150'-0"    | RFS HB114-08U3M12-175F |
| SECTOR 3  | 1-1/4" HYBRIFLEX CABLE | 1   | 150'-0"    | RFS HB114-08U3M12-175F |
| 2.5 CABLE | 1-1/2" HYBRIFLEX CABLE | 1   | 150'-0"    | RFS HB112-XXXXX-XXXF   |

3 CABLE LENGTHS  
SCALE: N.T.S.



1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223



1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324



604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080  
AE@westchesterservices.com



604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080

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

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 02.06.18 | REVISED FINAL CD |
| 0   | 11.16.17 | FINAL CD         |

DRAWN BY: SH  
CHECKED BY: JMB  
JOB NUMBER: CT52XC083-A  
ARCHITECT: JOHN BANKS



SITE NAME

ORONOQUE

SITE NUMBER

CT52XC083-A

SITE LOCATION

630 JAMES FARM ROAD  
STRATFORD, CT 06614  
NEW HAVEN COUNTY

SHEET TITLE

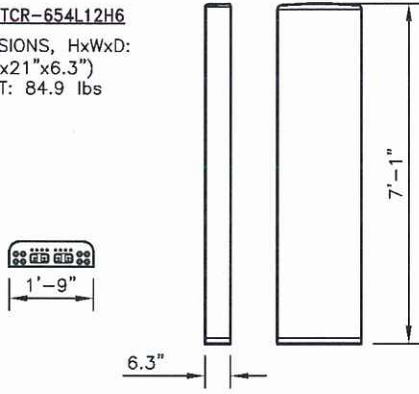
CABLE  
COLOR CODING

SHEET NUMBER

A-6

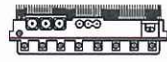


KMW ETRC-654L12H6  
DIMENSIONS, HxWxD:  
(84.9"x21"x6.3")  
WEIGHT: 84.9 lbs



**800/1900/2500 MHz  
PROPOSED ANTENNA SPECIFICATIONS**

1  
A-7 SCALE: 1/4"=1'-0"

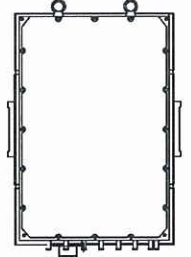


TYPE: 2.5 GHz RRH  
MODEL #: TD-RRH8X20-25  
HEIGHT: 25.0"  
WIDTH: 17"  
DEPTH: 5.7"  
WEIGHT: ±70 LBS.

PLAN



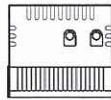
SIDE



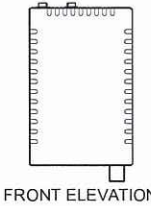
FRONT ELEVATION

2  
A-7 SCALE: 2500 MHz RRH DETAIL

TYPE: 800 MHz 2x50W  
MODEL #: FD-RRH-2x50-800  
HEIGHT: 16"  
WIDTH: 12.9"  
DEPTH: 10.7"  
WEIGHT: ±60 LBS



PLAN

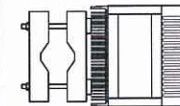


FRONT ELEVATION



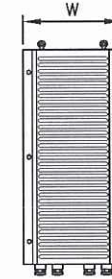
SIDE

3  
A-7 SCALE: 800 MHz RRH DETAIL

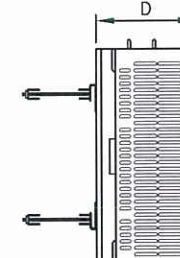


TYPE: 1900 MHz 4x45W  
MODEL #: RRH 1900 4X45 65MHz  
HEIGHT: 25.0"  
WIDTH: 10.7"  
DEPTH: 11.1"  
WEIGHT: ±68 LBS.

PLAN



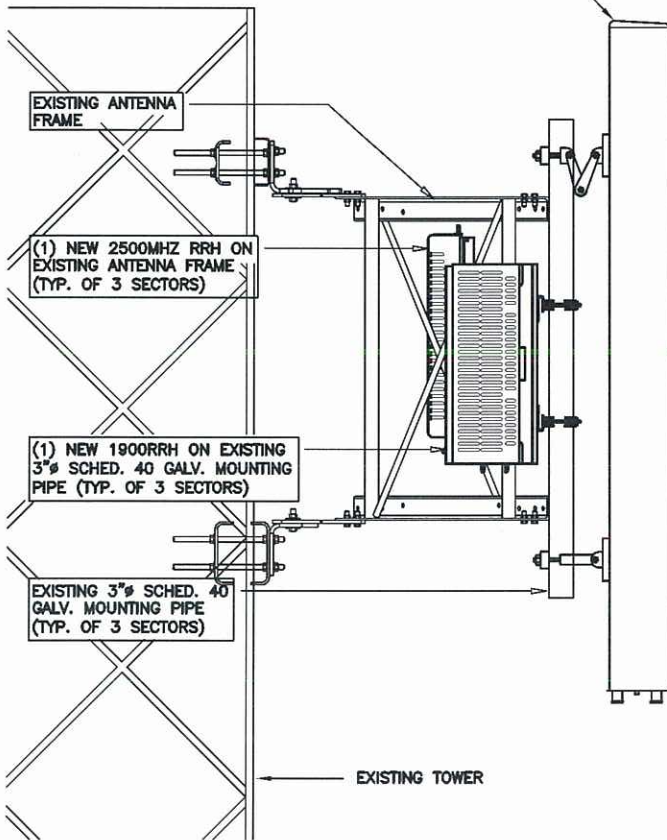
FRONT ELEVATION



SIDE

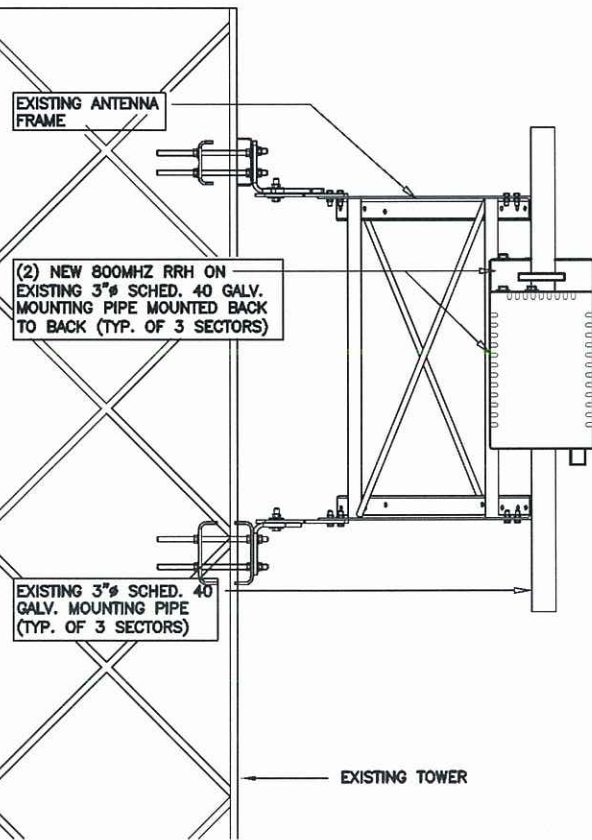
4  
A-7 SCALE: 1900 MHz RRH DETAIL

(1) NEW SPRINT KMW TRI-BAND ANTENNA ON EXISTING 3" SCHED. 40 GALV. MOUNTING PIPE (TYP. OF 3 SECTORS)



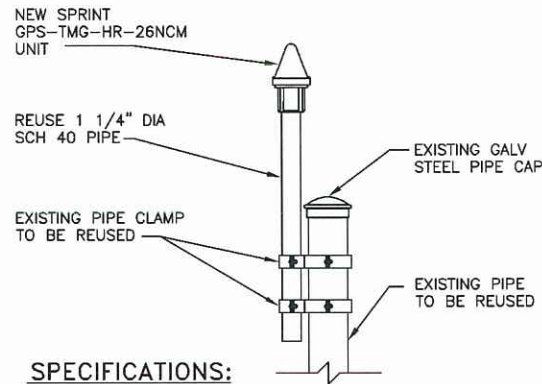
5  
A-8 SCALE: 1/2"=1'-0" TYPICAL ANTENNA MOUNTING

(1) NEW 2500MHZ RRH ON EXISTING ANTENNA FRAME (TYP. OF 3 SECTORS)



5  
A-8 SCALE: 1/2"=1'-0" TYPICAL RRH MOUNTING

(2) NEW 800MHZ RRH ON EXISTING 3" SCHED. 40 GALV. MOUNTING PIPE MOUNTED BACK TO BACK (TYP. OF 3 SECTORS)

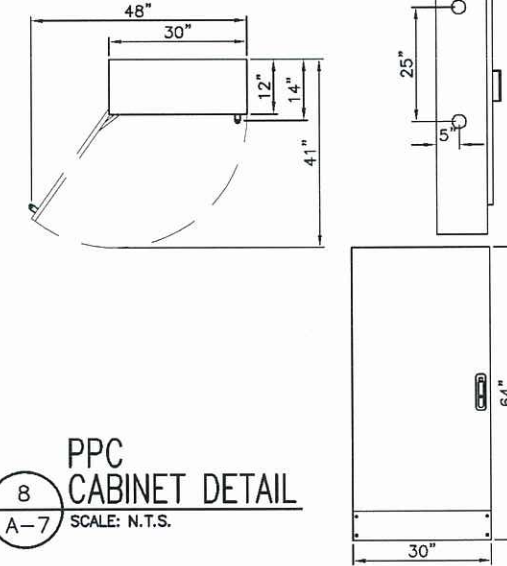


SPECIFICATIONS:

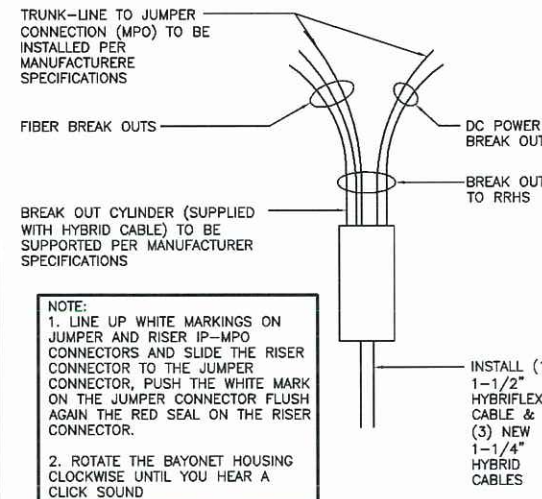
HEIGHT: 5"  
DIAMETER: 3.2"  
WEIGHT: 0.6 LBS.

7  
A-7 SCALE: N.T.S. GPS UNIT DETAIL

POWER PROTECTION CABINET- POWER CABINET  
WEIGHT 175 LBS



8  
A-7 SCALE: N.T.S. PPC CABINET DETAIL



6  
A-7 SCALE: N.T.S. FIBER-ONLY BREAKOUT

**Sprint**  
1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**

1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



SITE NAME  
**ORONOQUE**

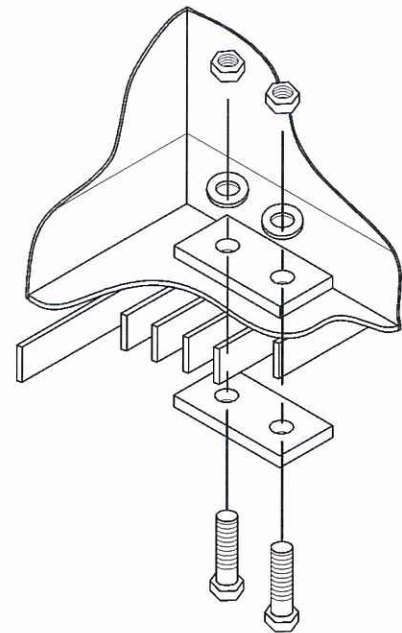
SITE NUMBER  
**CT52XC083-A**

SITE LOCATION  
630 JAMES FARM ROAD  
STRATFORD, CT 06614  
NEW HAVEN COUNTY

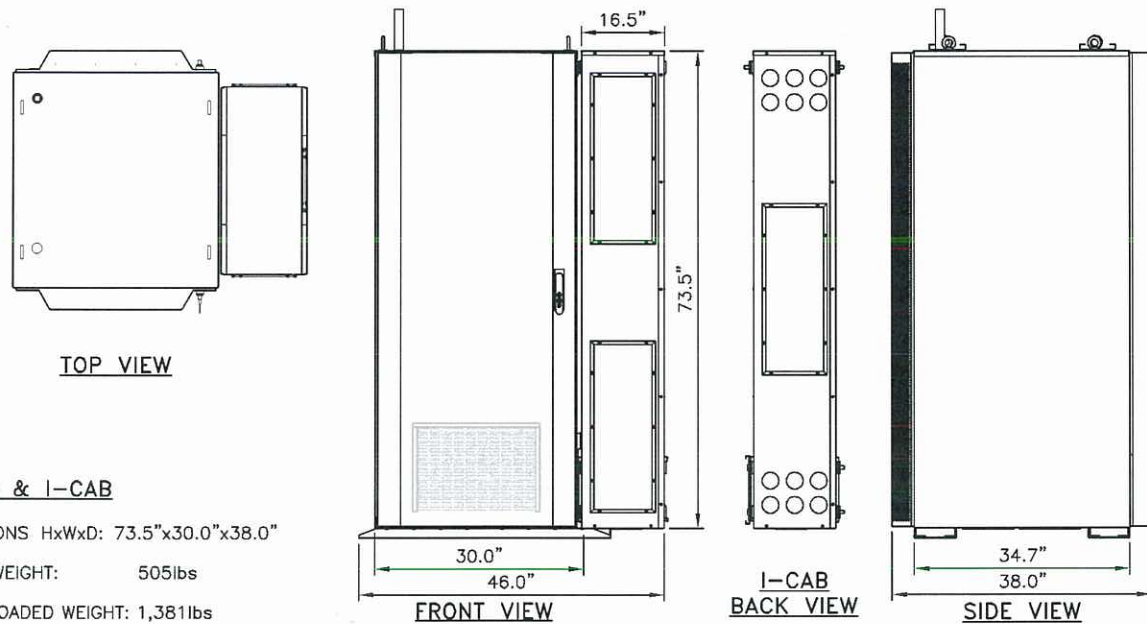
SHEET TITLE  
**EQUIPMENT DETAILS**

SHEET NUMBER  
**A-7**





1  
A-7  
**CABINET MOUNT DETAIL**  
SCALE: N.T.S.



**E-CAB & I-CAB**  
DIMENSIONS HxWxD: 73.5"x30.0"x38.0"  
EMPTY WEIGHT: 505lbs  
FULLY LOADED WEIGHT: 1,381lbs

2  
A-8  
**ELTEK E-CAB & I-CAB DETAIL**  
SCALE: N.T.S.

**Sprint**  
1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**

1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

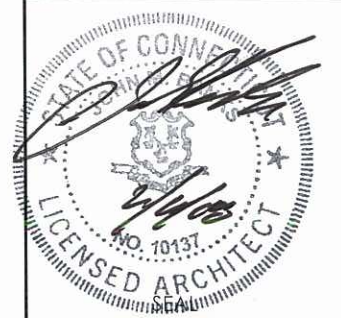
**JOHN M. BANKS ARCHITECT**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 02.06.18 | REVISED FINAL CD |
| 0   | 11.16.17 | FINAL CD         |

DRAWN BY: SH  
CHECKED BY: JMB  
JOB NUMBER: CT52XC083-A  
ARCHITECT: JOHN BANKS



SITE NAME

ORONOQUE

SITE NUMBER

CT52XC083-A

SITE LOCATION

630 JAMES FARM ROAD  
STRATFORD, CT 06614  
NEW HAVEN COUNTY

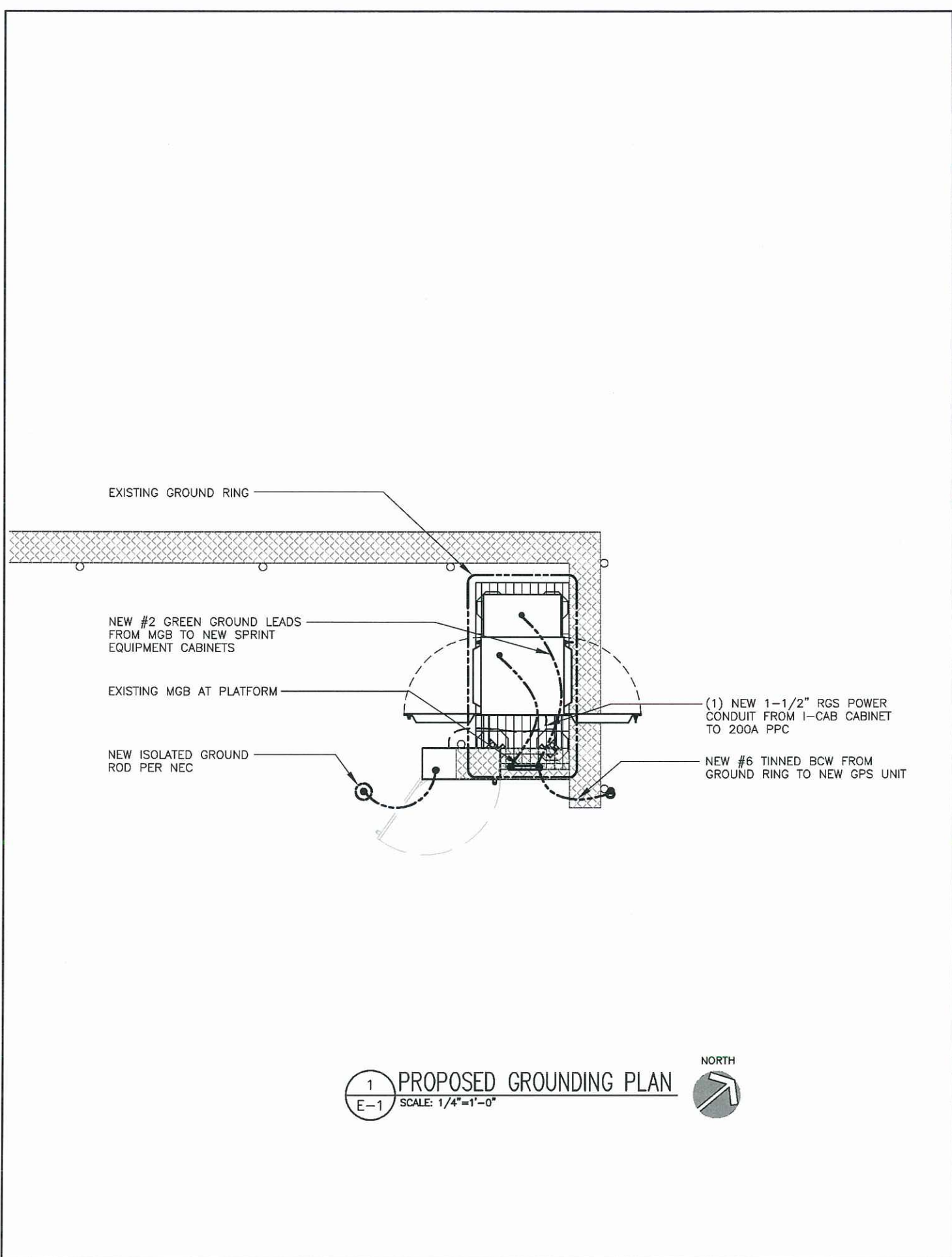
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

A-8





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

**GROUNDING NOTES:**

- 1 ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.
- 2 IF THE AC PANEL IN THE POWER CABINET IS WIRED AS SERVICE ENTRANCE, THE AC SERVICE GROUND CONDUCTOR SHALL BE CONNECTED TO GROUND ELECTRODE SYSTEM. WHEN THE AC PANEL IN THE POWER CABINET IS CONSIDERED A SUB-PANEL, THE GROUND WIRE SHALL BE INSTALLED IN THE AC POWER CONDUIT. THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70).
- 3 EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL. OTHERWISE, THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP CLAMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH ANTIOXIDANT (COPPER SHIELD) BEFORE MAKING THE CONNECTIONS. THE MANUFACTURER'S TORQUE RECOMMENDATIONS ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS SHALL BE FOLLOWED.
- 4 THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUSS AT THE LOWER MOST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE CELL CABINET. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.
- 5 ALL GROUNDING CONDUCTORS INSIDE THE BUILDING SHALL BE RUN IN CONDUIT RACEWAY SYSTEM, AND SHALL BE INSTALLED AS STRAIGHT AS PRACTICAL WITH MINOR BENDS TO AVOID OBSTRUCTIONS. THE BENDING RADIUS OF ANY #2 GROUNDING CONDUCTOR IS 8". PVC RACEWAY MAY BE FLEXIBLE OR RIGID PER THE FIELD CONDITIONS. GROUNDING CONDUCTORS SHALL NOT MAKE CONTACT WITH ANY METALLIC CONDUITS, SURFACES OR EQUIPMENT.
- 6 PROVIDE PVC SLEEVES WHERE GROUNDING CONDUCTORS PASS THROUGH THE BUILDING WALLS AND /OR CEILINGS.
- 7 INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUSS IN THE PANEL BOARD.
- 8 GROUND ANTENNA BASES, FRAMES, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH #2 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
- 9 GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES. GROUND FIELD TEST PROCEDURE:  
A. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE NEW SUPPLEMENTAL GROUND FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT. THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENT. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUND SYSTEM RESISTANCE TO EARTH GROUND SHALL NOT EXCEED FIVE (5) OHMS. IF THE GROUND TEST EXCEEDS THE MAXIMUM OF 5 OHMS

**GROUNDING LEGEND (ITEMS IN THIS LEGEND ONLY APPLY AS DETAILED IN GROUNDING PLAN):**

- (A) GROUNDING RING. #2 AWG SOLID BARE TINNED COPPER WIRE
- (B) GROUND ROD
- (C) INSPECTION WELL
- (D) STEEL EQUIPMENT PLATFORM GROUNDING
- (E) STEEL EQUIPMENT GROUNDING
- (F) ICE BRIDGE GROUNDING AT EACH POST.
- (G) NEW GROUND RING BONDED TO EXISTING GROUND RING,
- (H) EXISTING GROUND RING. FIELD DETERMINE EXACT LOCATION.
- (J) SPRINT EQUIPMENT CABINET GROUNDING, TYP OF 3

**GROUNDING LEGEND**

- GROUND RING
- ⊗ GROUND ROD
- ⊗ INSPECTION WELL
- CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION

| CADWELD CONNECTIONS<br>OR APPROVED EQUAL  |  | BURNDY CONNECTIONS<br>OR APPROVED EQUAL                                  |  |
|---|--|--|--|
| <br>PARALLEL HORIZONTAL CONDUCTORS<br>PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES<br>TYPE PT | <br>HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE<br>TYPE HS                 | <br>BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED<br>TYPE 2-YA-2 |  |
| <br>THROUGH CABLE TO GROUND ROD<br>THROUGH CABLE TO TOP OF GROUND ROD<br>TYPE GT                  | <br>VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE<br>TYPE VS | <br>COPPER LUGS TWO HOLE - LONG BARREL LENGTH<br>TYPE YA-2               |  |
| <br>VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES<br>TYPE VS                         | <b>TYPICAL CADWELD TYPE CONNECTIONS</b><br>NO SCALE  |  |  |

**Sprint**  
1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**  
1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

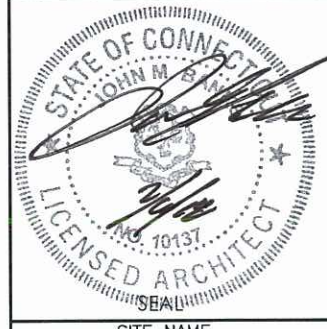
**WESTCHESTER SERVICES LLC**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX : 847-277-0080

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

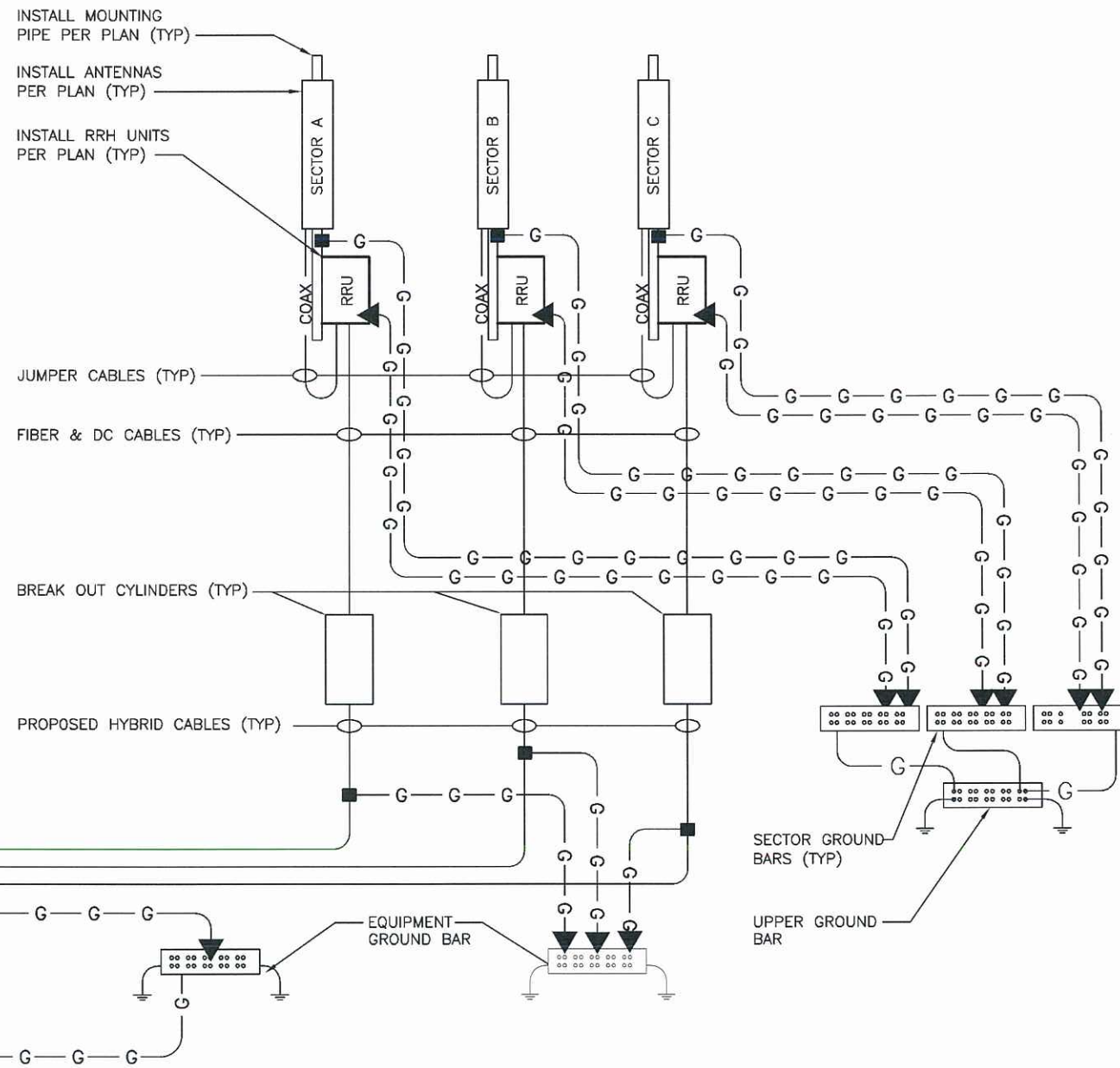
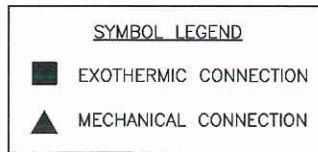
| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 02.06.18 | REVISED FINAL CD |
| 0   | 11.16.17 | FINAL CD         |

DRAWN BY: SH  
CHECKED BY: JMB  
JOB NUMBER: CT52XC083-A  
ARCHITECT: JOHN BANKS

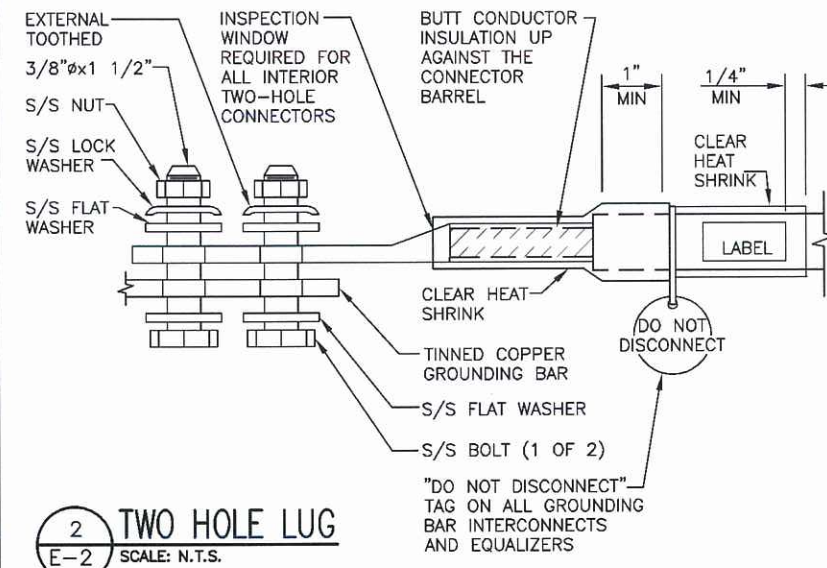


|               |  |
|---------------|--|
| SITE NAME     | ORONOQUE   |
| SITE NUMBER   | CT52XC083-A  |
| SITE LOCATION | 630 JAMES FARM ROAD<br>STRATFORD, CT 06614<br>NEW HAVEN COUNTY |
| SHEET TITLE   | GROUNDING PLAN & NOTES   |
| SHEET NUMBER  | E-1  |

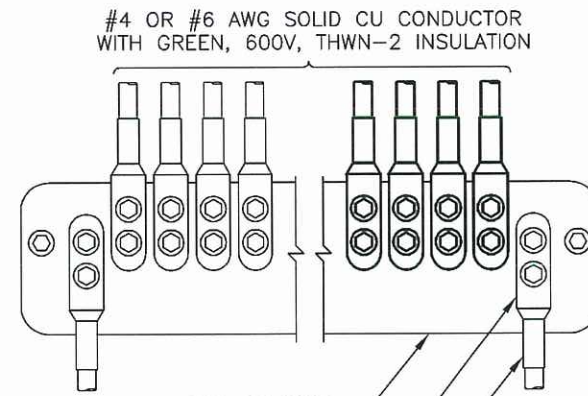




**1**  
E-2  
PLUMBING DIAGRAM  
GROUNDING RISER DIAGRAM  
SCALE: N.T.S.



**2**  
E-2  
TWO HOLE LUG  
SCALE: N.T.S.



EXISTING GROUNDING BAR ON WALL, FLOOR, OR ON ANTENNA TOWER

TWO HOLE SPADE, TO BE USED TO CONNECT TO GROUND BAR

GROUNDING SHALL BE ELIMINATED WHEN GROUND BAR IS ELECTRICALLY BONDED TO METAL TOWER

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

**3**  
E-2  
GROUND CONDUCTOR INSTALLATION  
SCALE: N.T.S.

**Sprint**

1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**

1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080

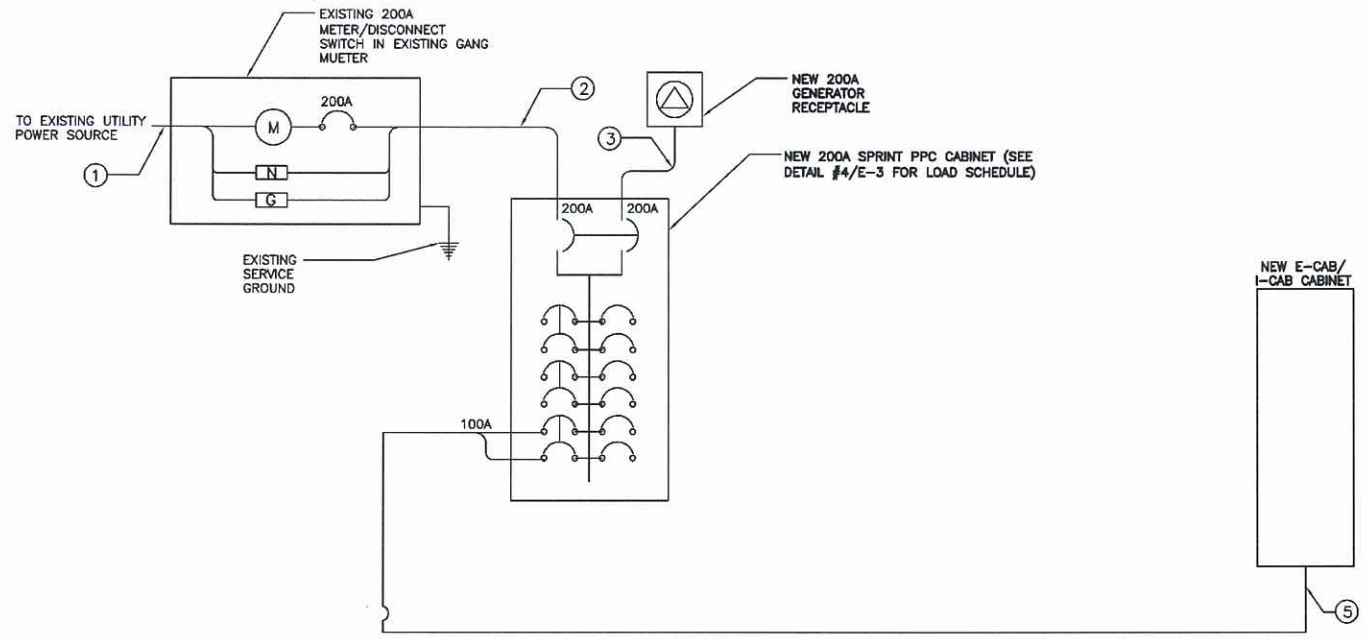
THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

| 1                       | 02.06.18 | REVISED FINAL CD |
|-------------------------|----------|------------------|
| 0                       | 11.16.17 | FINAL CD         |
| NO.                     | DATE     | DESCRIPTION      |
| DRAWN BY: SH            |          |                  |
| CHECKED BY: JMB         |          |                  |
| JOB NUMBER: CT52XC083-A |          |                  |
| ARCHITECT: JOHN BANKS   |          |                  |



|               |  |
|---------------|--|
| SITE NAME     | ORONOQUE   |
| SITE NUMBER   | CT52XC083-A  |
| SITE LOCATION | 630 JAMES FARM ROAD<br>STRATFORD, CT 06614<br>NEW HAVEN COUNTY |
| SHEET TITLE   | GROUND RISER AND DETAILS                                       |
| SHEET NUMBER  | E-2  |

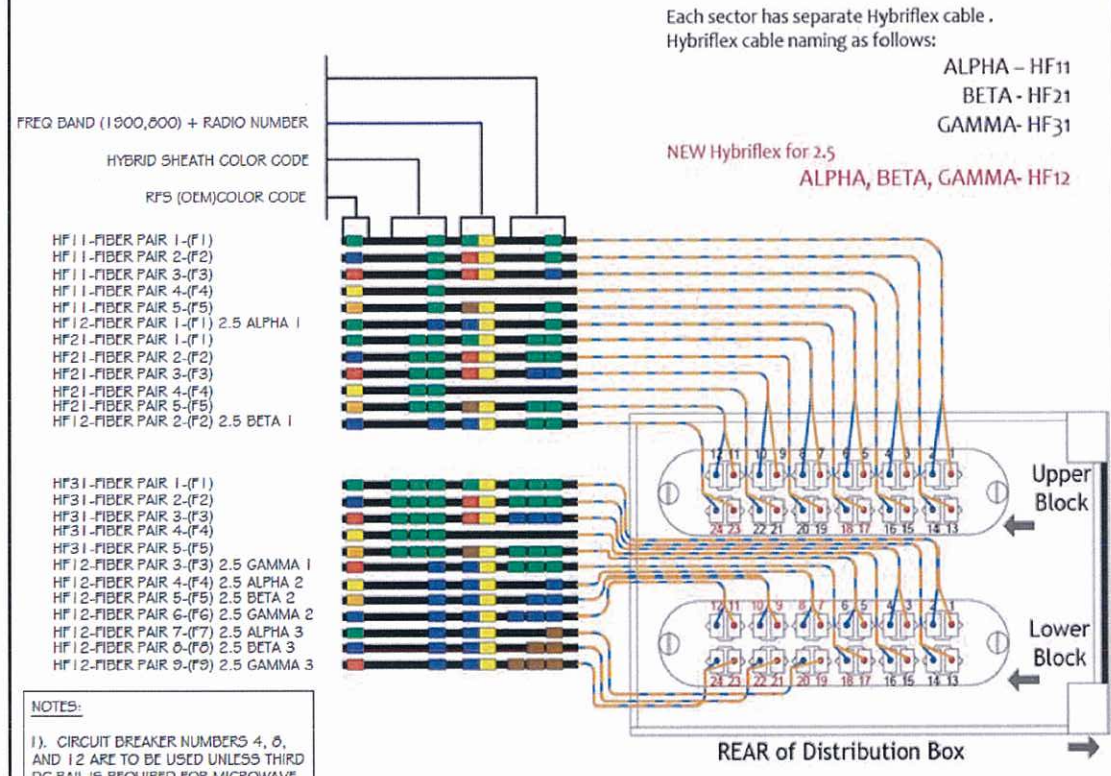




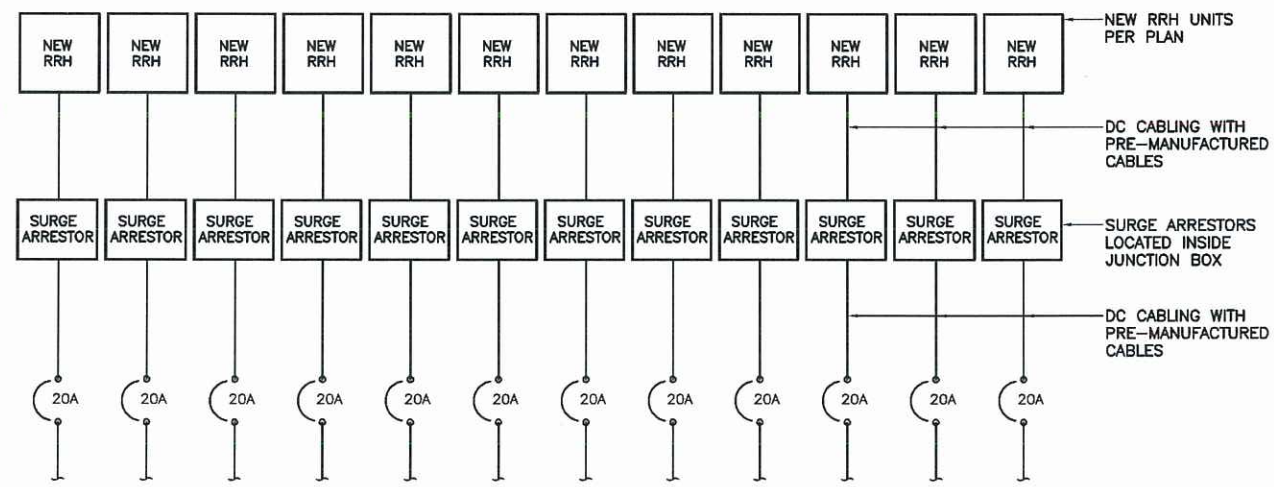
1 ELECTRICAL ONE-LINE DIAGRAM  
E-3 SCALE: N.T.S.

| CIRCUIT SCHEDULE |                      |                               |  |
|------------------|----------------------|-------------------------------|--|
| NO               | FROM                 | TO                            | CONFIGURATION                            |
| ①                | UTILITY SOURCE       | METER/DISCONNECT              | EXISTING                                 |
| ②                | METER/DISCONNECT     | TRANSFER & LOAD CENTER        | (2) #4/0 & (1) #2 IN 2" CONDUIT          |
| ③                | TRANSFER & LOAD CTR. | GENERATOR RECEPTACLE          | (2) #4/0 & (1) #2 IN 2" CONDUIT          |
| ④                | TRANSFER & LOAD CTR. | NEW SPRINT B-CAB CABINET      | N/A                                      |
| ⑤                | TRANSFER & LOAD CTR. | NEW SPRINT E-CAB CABINET      | (3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT |
| ⑥                | TRANSFER & LOAD CTR. | NEW SPRINT 2.5 GROWTH CABINET | (3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT |

NOTE: CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



2 TYPICAL DC POWER DISTRIBUTION  
E-3 SCALE: N.T.S.



3 DC ONE-LINE DIAGRAM  
E-3 SCALE: N.T.S.

| EXISTING A/C PANEL SCHEDULE |          |                   |          |
|-----------------------------|----------|-------------------|----------|
| VOLTAGE:                    | 240V/120 | VOLTAGE:          | EXISTING |
| MAIN BREAKER:               | ##       | MODEL NUMBER:     | TBD      |
| MOUNT:                      | GROUND   | PHASE:            | 1        |
| MOUNT:                      | NEMA 3R  | BUSS RATING:      | 200 AMP  |
|                             |          | NEUTRAL BAR:      | YES      |
|                             |          | N TO GROUND BOND: | YES      |
|                             |          | INTERNAL TVSS:    | YES      |
|                             |          | WIRE:             | 3        |
|                             |          | GROUND 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   | MM BTS         | 100          | 2             | ON             |            |            | ON             | 2             | 60           | SURGE PROTECTION | 7   |
| 2   | BLANK (UNUSED) | -            | -             | -              |            |            |                |               |              |                  | 8   |
| 3   | BLANK (UNUSED) | -            | -             | -              |            |            |                |               |              |                  | 9   |
| 4   | BLANK (UNUSED) | -            | -             | -              |            |            |                |               |              |                  | 10  |
| 5   | BLANK (UNUSED) | -            | -             | -              |            |            | ON             | 1             | 20           | TELCO GFCI       | 11  |
| 6   | FAN            | -            | -             | -              |            |            |                |               |              | BLANK (UNUSED)   | 12  |

4 AC PANEL SCHEDULE  
E-3 SCALE: N.T.S.

**Sprint**  
1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
TEL: (201) 684-4000  
FAX: (201) 684-4223

**Cherundolo Consulting**

1280 ROUTE 46 WEST  
PARSIPPANY, NJ 07054  
TELEPHONE: 646-544-5324

**WESTCHESTER SERVICES LLC**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080  
AE@westchesterservices.com

**JOHN M. BANKS ARCHITECT**  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847-277-0070  
FAX: 847-277-0080

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

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 02.06.18 | REVISED FINAL CD |
| 0   | 11.16.17 | FINAL CD         |

DRAWN BY: SH  
CHECKED BY: JMB  
JOB NUMBER: CT52XC083-A  
ARCHITECT: JOHN BANKS



SITE NAME  
**ORONOQUE**

SITE NUMBER  
**CT52XC083-A**

SITE LOCATION  
630 JAMES FARM ROAD  
STRATFORD, CT 06614  
NEW HAVEN COUNTY

SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E-3**



Date: **November 15, 2017**

Tom Jupin  
Charles Cherundolo Consulting, Inc.  
1280 Rt. 46 West  
Parsippany, NY 07054

**ARCHITECTURE & ENGINEERING DIVISION**  
604 FOX GLEN . BARRINGTON, IL 60010  
847/277-0070 . FAX: 847/277-0080  
AE@westchesterservices.com / www.westchesterservices.com

**Subject: Structural Analysis Report**

**Sprint Co-Locate**

**Site Number:** CT52XC083

**Site Name:** Oronoque

**Engineering Firm Designation:** Westchester Services, LLC

**Site Data:** 630 James Farm Rd., Stratford, CT 06614  
Fairfield County – 110' Self-Support Tower

Tom Jupin,

Westchester Services, LLC is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the structure stress level. Based on our analysis we have determined the stress levels for the tower to be:

**Existing and Proposed Equipment**

Note: See Table 2-1 for the existing and proposed loading.

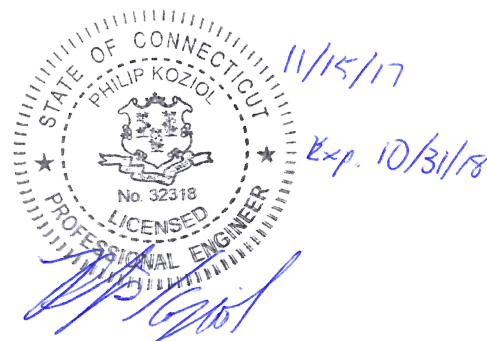
**Sufficient Capacity**

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 124 mph converted to a nominal 3-second gust wind speed of 96 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1., Exposure Category B with topographic category 1, Risk Category II, and crest height of 0 feet were used in this analysis.

We at Westchester Services, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

I certify that this report was prepared by me or under my direct supervision and that I am a licensed Structural Engineer under the laws of the State of Connecticut.

Philip Koziol, PE  
Professional Engineer





## **TABLE OF CONTENTS**

### **1) INTRODUCTION**

### **2) ANALYSIS CRITERIA**

Table 2-1 – Proposed Final Antenna Configuration

### **3) ANALYSIS PROCEDURE**

Table 3-1 – Documents Provided

3.1 Analysis Method

### **4) ANALYSIS RESULTS**

Table 4-1 – Critical Section Capacity (Summary)

4.1 Recommendations

### **5) ASSUMPTIONS**

### **6) APPENDIX A**

Calculations



## 1) INTRODUCTION

This structure is a 110' self-support tower is located in Fairfield County, CT. The proposed antennas will be mounted on the existing antenna mounts.

## 2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 124 mph converted to a nominal 3-second gust wind speed of 96 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1., Exposure Category B with topographic category 1, Risk Category II, and crest height of 0 feet were used in this analysis.

**Table 2-1 – Proposed Final Antenna Configuration**  
(New antennas in **bold**)

| Center Line Elevation (ft) | Sector | Pos. | Antenna                                      | Radio(s)   | Note |
|----------------------------|--------|------|--|--|------|
| 110                        | Alpha  | 1    | <b>(1) KMW ETCR-654L12H6</b><br>(1) 36" Dish | <b>(1) 1900MHz RRH</b><br><b>(1) 2500MHZ RRH</b> |      |
|                            |        | 2    |  | <b>(2) 800MHZ RRH</b>                            |      |
|                            |        | 3    | (1) 24" Dish                                 |  |      |
|                            |        | 4    |  |  |      |
| 110                        | Beta   | 1    | <b>(1) KMW ETCR-654L12H6</b>                 | <b>(1) 1900MHz RRH</b><br><b>(1) 2500MHZ RRH</b> |      |
|                            |        | 2    |  | <b>(2) 800MHZ RRH</b>                            |      |
|                            |        | 3    |  |  |      |
|                            |        | 4    |  |  |      |
| 110                        | Gamma  | 1    | <b>(1) KMW ETCR-654L12H6</b>                 | <b>(1) 1900MHz RRH</b><br><b>(1) 2500MHZ RRH</b> |      |
|                            |        | 2    |  | <b>(2) 800MHZ RRH</b>                            |      |
|                            |        | 3    |  |  |      |
|                            |        | 4    |  |  |      |

See attached tnxTower calculations for complete tower antenna loading.



### 3) ANALYSIS PROCEDURE

**Table 3-1 – Documents Provided**

| Document              | Remarks | Reference | Date       | Source |
|-----------------------|---------|-----------|------------|--------|
| Construction Drawings | -       | WSLLC     | 10/05/2017 | WSLLC  |
| Field Mapping         | -       | WSLLC     | 08/31/2017 | WSLLC  |
| Structural Analysis   | -       | CHA       | 03/01/2010 | AT&T   |

#### 3.1) Analysis Method

tnxTower (version 7.0.8.5) is a finite element analysis software program was used for modeling and analyzing this tower. The output from the analysis can be found in Appendix A.

### 4) ANALYSIS RESULTS

**Table 4-1 – Critical Section Capacity (Summary)**

| Member Type | Elevation (ft) | % Capacity | Pass/Fail |
|-------------|----------------|------------|-----------|
| Leg         | 40 – 20        | 84.7       | Pass      |
| Diagonal    | 40 – 20        | 31.4       | Pass      |
| Top Girt    | 110 - 100      | 3.4        | Pass      |
| Overall     | 40 – 20        | 84.7       | Pass      |

#### 4.1) Recommendations

The existing structure has sufficient capacity to carry the existing and proposed loads.



## 5) ASSUMPTIONS

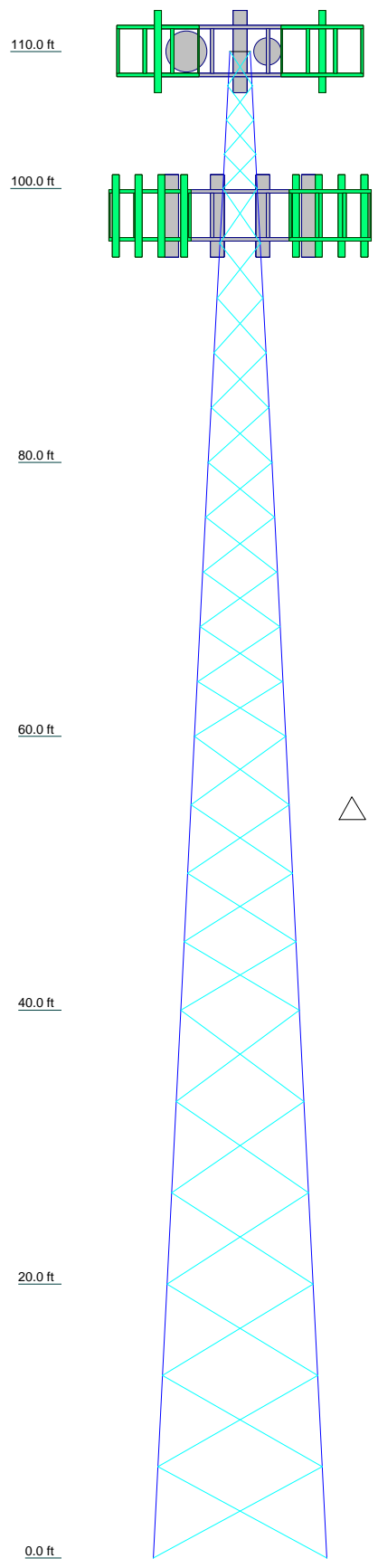
- The analysis performed is to the theoretical capacity of the members and connections. No accommodations are taken for any damaged, rusted, deteriorated, or otherwise compromised member conditions. To this, the tower or structure is assumed to be properly maintained and monitored and this analysis cannot be considered to be a condition assessment of the structure.
- The analysis is performed to the minimum design wind, ice, and other environmental loading prescribed by the governing building codes and standards. Any higher loading conditions required by the local jurisdiction or structure owner should be made known to Westchester immediately for analysis. No lesser conditions will be accommodated.
- Member sizes are assumed to be of standard AISC or manufacturer designations unless explicitly specified otherwise. The geometry of the tower or structure is assumed as schematic. Steel grade and concrete strength are assumed to be conservative standard and fully developed unless otherwise specified.
- The information provided to Westchester for analysis is assumed accurate and up to date as supplied. No independent efforts were taken by Westchester to verify the validity of the information supplied. If any additional information is presented at any time that contradicts what is referenced in the analysis, the analysis is invalid and must be performed again with the new information.
- Any reinforcement or modifications are assumed to be fully installed and functional.
- All welds are assumed to have been performed to current welding standards and are assumed to develop their full capacity and to be in good condition. In addition, all bolts and bolt-like anchors are assumed to be fully tightened, fastened, or bonded to the manufacturers' specifications and are assumed to have full capacity.
- Numerous connection details of large-scale structures are unobtainable and are omitted from the structural analysis. This includes, but is not limited to: bolts, welds, flanges, and plates. These connections are considered adequate and are therefore neglected from the analysis. In addition, in the absence of building plans, many wall, floor, and ceiling constructions can only be determined from observable field data and are supplemented by best judgment and experience.
- Antennas, dishes, feedlines, and any other such appurtenances are assumed adequate through manufacturer testing. No analysis is provided for the structural strength or stability of these items unless otherwise specified.
- Equipment mounting systems are assumed structurally sound unless specifically called for in the analysis.
- Soil conditions and foundations are not considered unless specified in the analysis and have no deterioration or defects. For sites located on a building, only local effects of the equipment is considered unless otherwise specified. The overall structure of the building and its foundation are assumed to be unaffected by the telecom equipment.
- Any changes or differences to the site or site plans at any time prior to installation must be brought to the attention of Westchester immediately.



**APPENDIX A**  
**CALCULATIONS**



|                 |                           |                       |          |                  |        |                   |
|-----------------|---------------------------|-----------------------|----------|------------------|--------|-------------------|
| Section         | T6                        | T5                    | T4       | T3               | T2     | T1                |
| Legs            | P3.5XSk.318 w P5XXS strip | P3XSx.3 w P3.SS strip |          |                  | P3x.3  |                   |
| Leg Grade       |                           |                       | A572-50  |                  |        |                   |
| Diagonals       | L2 1/2x2 1/2x1/8          | L1 3/4x1 3/4x1/8      | L2x2x1/8 | L1 1/2x1 1/2x1/8 |        | L1 1/2x1 1/2x3/16 |
| Diagonal Grade  |                           |                       | A36      |                  |        |                   |
| Top Girts       |                           |                       | N.A.     |                  |        | L1 1/2x1 1/2x3/16 |
| Face Width (ft) | 12.635                    | 10.635                | 8.604    | 6.604            | 4.604  | 2.583             |
| # Panels @ (ft) |                           | 6 @ 6.66667           |          | 4 @ 5            | 10 @ 4 | 4 @ 2.5           |
| Weight (K)      | 6.5                       | 1.8                   | 1.4      | 0.9              | 0.8    | 0.5               |



### DESIGNED APPURTENANCE LOADING

| TYPE                               | ELEVATION | TYPE                               | ELEVATION |
|------------------------------------|-----------|------------------------------------|-----------|
| ETCR-654L12H6 w/ pipe              | 110       | RRH 1900 4X45 1900 MHz             | 110       |
| TD-RRH8X20-25 2.5GHz RRH           | 110       | FD-RRH-2x50-800 800MHz             | 110       |
| RRH 1900 4X45 1900 MHz             | 110       | Pirod 15' T-Frame Sector Mount (1) | 110       |
| FD-RRH-2x50-800 800MHz             | 110       | 3' Dish                            | 110       |
| Pirod 15' T-Frame Sector Mount (1) | 110       | 2' Dish                            | 110       |
| ETCR-654L12H6 w/ pipe              | 110       | Pirod 15' T-Frame Sector Mount (1) | 98        |
| TD-RRH8X20-25 2.5GHz RRH           | 110       | (4) ALP-E-9011 w/Pipe Mount        | 98        |
| RRH 1900 4X45 1900 MHz             | 110       | Pirod 15' T-Frame Sector Mount (1) | 98        |
| FD-RRH-2x50-800 800MHz             | 110       | (4) ALP-E-9011 w/Pipe Mount        | 98        |
| Pirod 15' T-Frame Sector Mount (1) | 110       | Pirod 15' T-Frame Sector Mount (1) | 98        |
| ETCR-654L12H6 w/ pipe              | 110       | (4) ALP-E-9011 w/Pipe Mount        | 98        |
| TD-RRH8X20-25 2.5GHz RRH           | 110       |                                    |           |

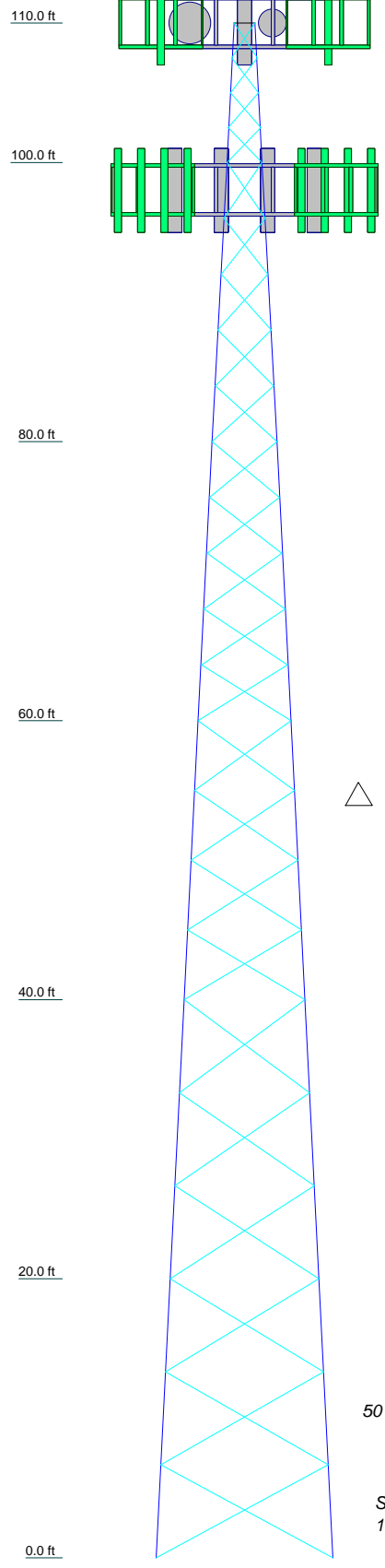
### MATERIAL STRENGTH

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

|  |  |                |             |
|--|--|----------------|-------------|
| <b>Westchester Services</b><br>604 Fox Glen Ct.<br>Barrington, IL 60010<br>Phone: 847-277-0070<br>FAX: | <b>Job: CT52XC083-A Oronoque</b>   |                |             |
|  | Project: <b>110' Self-Support Tower</b>                                      |                |             |
|  | Client: Sprint   | Drawn by: PK   | App'd:      |
|  | Code: TIA-222-G  | Date: 11/15/17 | Scale: NTS  |
|  | Path: P:\Cherundolo-Sprint\Connecticut\CT52XC083-A\Structural\m\CT52XC083.en |                | Dwg No. E-1 |



|                 |                       |             |       |        |         |         |
|-----------------|-----------------------|-------------|-------|--------|---------|---------|
| Section         | T1                    | T2          | T3    | T4     | T5      | T6      |
| Legs            | P3XSx.3 w P3.5S strip |             |       |        |         |         |
| Leg Grade       | A572-50               |             |       |        |         |         |
| Diagonals       | L1 1/2x1 1/2x3/16     |             |       |        |         |         |
| Diagonal Grade  | A36                   |             |       |        |         |         |
| Top Girts       | N.A.                  |             |       |        |         |         |
| Face Width (ft) | 12.635                | 10.635      | 8.604 | 6.604  | 4.604   | 2.583   |
| # Panels @ (ft) | 6 @ 6.66667           | 6 @ 6.66667 | 4 @ 5 | 10 @ 4 | 4 @ 2.5 | 4 @ 2.5 |
| Weight (K)      | 6.5                   | 1.8         | 1.4   | 1.1    | 0.9     | 0.5     |



**MATERIAL STRENGTH**

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

**TOWER DESIGN NOTES**

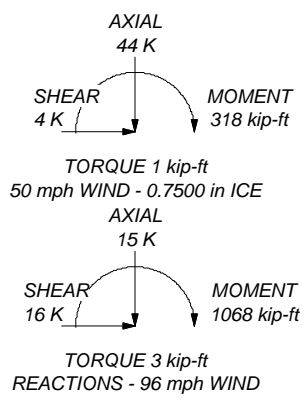
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 96 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 84.7%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 103 K  
SHEAR: 10 K

UPLIFT: -91 K  
SHEAR: 9 K



|   |  |             |  |
|---|--|-------------|--|
| Job: <b>CT52XC083-A Oronoque</b>        |  |             |  |
| Project: <b>110' Self-Support Tower</b> |  |             |  |
| Client: Sprint                          | Drawn by:  | App'd:      |  |
| Code: TIA-222-G                         | Date: 11/15/17   | Scale: NTS  |  |
| Phone:                                  | Path:  | Dwg No. E-1 |  |
| FAX:                                    | h:\A-Structural_Work\Westchester\Jobs\CT52XC083\TDX\CT52XC083.en |             |  |



|  |   |                                  |
|--|---|----------------------------------|
| <b><i>tnxTower</i></b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>1 of 10           |
|  | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|  | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 110.00 ft above the ground line.

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

The face width of the tower is 1.55 ft at the top and 12.64 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 96 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

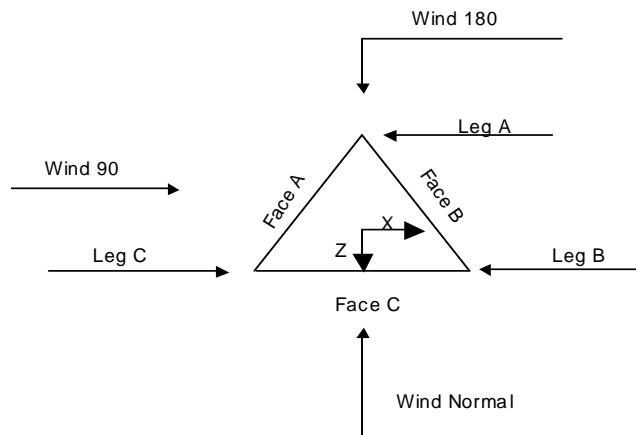
Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

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



**Triangular Tower**







|  |                |                         |             |                    |                   |
|--|----------------|-------------------------|-------------|--------------------|-------------------|
| <b><i>tnxTower</i></b><br><br>Phone:<br>FAX: | <b>Job</b>     | CT52XC083-A Oronoque    | <b>Page</b> | 3 of 10            |                   |
|  | <b>Project</b> | 110' Self-Support Tower |             | <b>Date</b>        | 09:42:31 11/15/17 |
|  | <b>Client</b>  | Sprint                  |             | <b>Designed by</b> |                   |

| Tower Elevation<br>ft | Top Girt Type | Top Girt Size     | Top Girt Grade  | Bottom Girt Type | Bottom Girt Size | Bottom Girt Grade |
|-----------------------|---------------|-------------------|-----------------|------------------|------------------|-------------------|
| T1 110.00-100.00      | Single Angle  | L1 1/2x1 1/2x3/16 | A36<br>(36 ksi) | Solid Round      |                  | A36<br>(36 ksi)   |

### Tower Section Geometry (cont'd)

| Tower Elevation<br>ft | Gusset Area<br>(per face)<br>ft <sup>2</sup> | Gusset Thickness<br>in | Gusset Grade    | Adjust. Factor<br>A <sub>f</sub> | Adjust. Factor<br>A <sub>r</sub> | Weight Mult. | Double Angle<br>Stitch Bolt<br>Spacing<br>Diagonals<br>in | Double Angle<br>Stitch Bolt<br>Spacing<br>Horizontals<br>in |
|-----------------------|--|------------------------|-----------------|----------------------------------|----------------------------------|--------------|---|---|
| T1 110.00-100.00      | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.05         | 36.0000   | 36.0000   |
| T2 100.00-80.00       | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.05         | 36.0000   | 36.0000   |
| T3 80.00-60.00        | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.05         | 36.0000   | 36.0000   |
| T4 60.00-40.00        | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.05         | 36.0000   | 36.0000   |
| T5 40.00-20.00        | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.35         | 36.0000   | 36.0000   |
| T6 20.00-0.00         | 0.00   | 0.0000                 | A36<br>(36 ksi) | 1                                | 1                                | 1.05         | 36.0000   | 36.0000   |

### Tower Section Geometry (cont'd)

| Tower Elevation<br>ft | Calc K<br>Single<br>Angles | Calc K<br>Solid<br>Rounds | Legs | K Factors <sup>1</sup> |                     |                 |       |        |                |                |        |
|-----------------------|----------------------------|---------------------------|------|------------------------|---------------------|-----------------|-------|--------|----------------|----------------|--------|
|                       |                            |                           |      | X<br>Brace<br>Diags    | K<br>Brace<br>Diags | Single<br>Diags | Girts | Horiz. | Sec.<br>Horiz. | Inner<br>Brace |        |
|                       |                            |                           |      |                        |                     |                 |       |        |                |                | X<br>Y |
| T1 110.00-100.00      | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |
| T2 100.00-80.00       | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |
| T3 80.00-60.00        | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |
| T4 60.00-40.00        | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |
| T5 40.00-20.00        | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |
| T6 20.00-0.00         | No                         | No                        | 1    | 0.5                    | 1                   | 1               | 1     | 1      | 1              | 1              | 1      |

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

### Tower Section Geometry (cont'd)

|                                       |   |                                  |
|---------------------------------------|---|----------------------------------|
| <b>tnxTower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>4 of 10           |
|                                       | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|                                       | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

| Tower Elevation<br>ft | Leg                       |   | Diagonal                  |      | Top Girt                  |      | Bottom Girt                  |      | Mid Girt                     |      | Long Horizontal              |      | Short Horizontal             |      |
|-----------------------|---------------------------|---|---------------------------|------|---------------------------|------|------------------------------|------|------------------------------|------|------------------------------|------|------------------------------|------|
|                       | Net Width<br>Deduct<br>in | U | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    | Net<br>Width<br>Deduct<br>in | U    |
| T1<br>110.00-100.00   | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T2<br>100.00-80.00    | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T3<br>80.00-60.00     | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T4<br>60.00-40.00     | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T5<br>40.00-20.00     | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |
| T6<br>20.00-0.00      | 0.0000                    | 1 | 0.0000                    | 0.75 | 0.0000                    | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 | 0.0000                       | 0.75 |

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

| Description              | Face<br>or<br>Leg | Allow<br>Shield | Component<br>Type | Placement<br>ft | Face<br>Offset<br>in | Lateral<br>Offset<br>(Frac FW) | #<br>Per<br>Row | #<br>Row | Clear<br>Spacing<br>in | Width or<br>Diameter<br>in | Perimeter<br>in | Weight<br>plf |
|--------------------------|-------------------|-----------------|-------------------|-----------------|----------------------|--------------------------------|-----------------|----------|------------------------|----------------------------|-----------------|---------------|
| LDF7-50A<br>(1-5/8 FOAM) | B                 | No              | Ar (CaAa)         | 98.00 - 10.00   | 0.0000               | 0.35                           | 12              | 6        | 1.9800                 | 1.9800                     |                 | 0.82          |
| LDF4P-50A<br>(1/2 FOAM)  | A                 | No              | Ar (CaAa)         | 60.00 - 10.00   | 0.0000               | 0.5                            | 1               | 1        | 0.6300                 | 0.6300                     |                 | 0.15          |
| LDF4-50A<br>(1/2 FOAM)   | A                 | No              | Ar (CaAa)         | 110.00 - 10.00  | 0.0000               | 0.4                            | 2               | 1        | 0.6300                 | 0.6300                     |                 | 0.15          |
| 1 1/2<br>Hybriflex       | A                 | No              | Ar (CaAa)         | 110.00 - 10.00  | 0.0000               | 0.45                           | 3               | 3        | 1.9800                 | 1.9800                     |                 | 1.04          |
| 1 1/4 Hybrid             | A                 | No              | Ar (CaAa)         | 110.00 - 10.00  | 0.0000               | 0.4                            | 3               | 3        | 1.5500                 | 1.5500                     |                 | 0.66          |

### Feed Line/Linear Appurtenances Section Areas

| Tower<br>Section | Tower<br>Elevation<br>ft | Face | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>In Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>K |
|------------------|--------------------------|------|-----------------------------------|-----------------------------------|---|--|-------------|
| T1               | 110.00-100.00            | A    | 0.000                             | 0.000                             | 11.850  | 0.000  | 0.05        |
|                  |                          | B    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T2               | 100.00-80.00             | A    | 0.000                             | 0.000                             | 23.700  | 0.000  | 0.11        |
|                  |                          | B    | 0.000                             | 0.000                             | 42.768  | 0.000  | 0.18        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T3               | 80.00-60.00              | A    | 0.000                             | 0.000                             | 23.700  | 0.000  | 0.11        |
|                  |                          | B    | 0.000                             | 0.000                             | 47.520  | 0.000  | 0.20        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T4               | 60.00-40.00              | A    | 0.000                             | 0.000                             | 24.960  | 0.000  | 0.11        |
|                  |                          | B    | 0.000                             | 0.000                             | 47.520  | 0.000  | 0.20        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T5               | 40.00-20.00              | A    | 0.000                             | 0.000                             | 24.960  | 0.000  | 0.11        |
|                  |                          | B    | 0.000                             | 0.000                             | 47.520  | 0.000  | 0.20        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T6               | 20.00-0.00               | A    | 0.000                             | 0.000                             | 12.480  | 0.000  | 0.06        |
|                  |                          | B    | 0.000                             | 0.000                             | 23.760  | 0.000  | 0.10        |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |



|                                       |   |                                  |
|---------------------------------------|---|----------------------------------|
| <b>tnxTower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>5 of 10           |
|                                       | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|                                       | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

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

| Tower Section | Tower Elevation<br>ft | Face or Leg | Ice Thickness<br>in | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>AA</sub><br>In Face<br>ft <sup>2</sup> | C <sub>AA</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>K |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|---|--|-------------|
| T1            | 110.00-100.00         | A           | 1.684               | 0.000                             | 0.000                             | 41.335  | 0.000  | 0.54        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T2            | 100.00-80.00          | A           | 1.658               | 0.000                             | 0.000                             | 82.153  | 0.000  | 1.05        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 60.186  | 0.000  | 1.50        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T3            | 80.00-60.00           | A           | 1.617               | 0.000                             | 0.000                             | 81.326  | 0.000  | 1.03        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 66.609  | 0.000  | 1.65        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T4            | 60.00-40.00           | A           | 1.564               | 0.000                             | 0.000                             | 87.767  | 0.000  | 1.08        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 66.266  | 0.000  | 1.62        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T5            | 40.00-20.00           | A           | 1.486               | 0.000                             | 0.000                             | 85.896  | 0.000  | 1.02        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 65.767  | 0.000  | 1.58        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |
| T6            | 20.00-0.00            | A           | 1.331               | 0.000                             | 0.000                             | 41.096  | 0.000  | 0.46        |
|               |                       | B           |                     | 0.000                             | 0.000                             | 32.390  | 0.000  | 0.75        |
|               |                       | C           |                     | 0.000                             | 0.000                             | 0.000   | 0.000  | 0.00        |

### Feed Line Center of Pressure

| Section | Elevation<br>ft | CP <sub>x</sub><br>in | CP <sub>z</sub><br>in | CP <sub>x</sub><br>Ice<br>in | CP <sub>z</sub><br>Ice<br>in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| T1      | 110.00-100.00   | -0.2217               | -1.7059               | -0.0937                      | -0.6895                      |
| T2      | 100.00-80.00    | 2.4182                | -0.8356               | 1.0834                       | -1.0542                      |
| T3      | 80.00-60.00     | 3.6501                | -1.0168               | 1.7850                       | -1.5273                      |
| T4      | 60.00-40.00     | 4.5154                | -1.3738               | 2.2838                       | -2.4158                      |
| T5      | 40.00-20.00     | 5.7656                | -1.7215               | 2.9516                       | -3.0638                      |
| T6      | 20.00-0.00      | 4.2383                | -1.2531               | 2.4089                       | -2.4067                      |

### Shielding Factor Ka

| Tower Section | Feed Line Record No. | Description           | Feed Line Segment Elev. | K <sub>a</sub><br>No Ice | K <sub>a</sub><br>Ice |
|---------------|----------------------|-----------------------|-------------------------|--------------------------|-----------------------|
| T1            | 4                    | LDF4-50A (1/2 FOAM)   | 100.00 - 110.00         | 0.6000                   | 0.2032                |
| T1            | 13                   | 1 1/2 Hybriflex       | 100.00 - 110.00         | 0.6000                   | 0.2032                |
| T1            | 14                   | 1 1/4 Hybrid          | 100.00 - 110.00         | 0.6000                   | 0.2032                |
| T2            | 1                    | LDF7-50A (1-5/8 FOAM) | 80.00 - 98.00           | 0.6000                   | 0.4879                |
| T2            | 4                    | LDF4-50A (1/2 FOAM)   | 80.00 - 100.00          | 0.6000                   | 0.4879                |
| T2            | 13                   | 1 1/2 Hybriflex       | 80.00 - 100.00          | 0.6000                   | 0.4879                |
| T2            | 14                   | 1 1/4 Hybrid          | 80.00 - 100.00          | 0.6000                   | 0.4879                |
| T3            | 1                    | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00           | 0.6000                   | 0.6000                |
| T3            | 4                    | LDF4-50A (1/2 FOAM)   | 60.00 - 80.00           | 0.6000                   | 0.6000                |

|  |   |                                  |
|--|---|----------------------------------|
| <b><i>tnxTower</i></b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>6 of 10           |
|  | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|  | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

| Tower Section | Feed Line Record No. | Description           | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---------------|----------------------|-----------------------|-------------------------|--------------|-----------|
| T3            | 13                   | 1 1/2 Hybriflex       | 60.00 - 80.00           | 0.6000       | 0.6000    |
| T3            | 14                   | 1 1/4 Hybrid          | 60.00 - 80.00           | 0.6000       | 0.6000    |
| T4            | 1                    | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00           | 0.6000       | 0.6000    |
| T4            | 3                    | LDF4P-50A (1/2 FOAM)  | 40.00 - 60.00           | 0.6000       | 0.6000    |
| T4            | 4                    | LDF4-50A (1/2 FOAM)   | 40.00 - 60.00           | 0.6000       | 0.6000    |
| T4            | 13                   | 1 1/2 Hybriflex       | 40.00 - 60.00           | 0.6000       | 0.6000    |
| T4            | 14                   | 1 1/4 Hybrid          | 40.00 - 60.00           | 0.6000       | 0.6000    |
| T5            | 1                    | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00           | 0.6000       | 0.6000    |
| T5            | 3                    | LDF4P-50A (1/2 FOAM)  | 20.00 - 40.00           | 0.6000       | 0.6000    |
| T5            | 4                    | LDF4-50A (1/2 FOAM)   | 20.00 - 40.00           | 0.6000       | 0.6000    |
| T5            | 13                   | 1 1/2 Hybriflex       | 20.00 - 40.00           | 0.6000       | 0.6000    |
| T5            | 14                   | 1 1/4 Hybrid          | 20.00 - 40.00           | 0.6000       | 0.6000    |
| T6            | 1                    | LDF7-50A (1-5/8 FOAM) | 10.00 - 20.00           | 0.6000       | 0.6000    |
| T6            | 3                    | LDF4P-50A (1/2 FOAM)  | 10.00 - 20.00           | 0.6000       | 0.6000    |
| T6            | 4                    | LDF4-50A (1/2 FOAM)   | 10.00 - 20.00           | 0.6000       | 0.6000    |
| T6            | 13                   | 1 1/2 Hybriflex       | 10.00 - 20.00           | 0.6000       | 0.6000    |
| T6            | 14                   | 1 1/4 Hybrid          | 10.00 - 20.00           | 0.6000       | 0.6000    |

### Discrete Tower Loads

| Description                        | Face or Leg | Offset Type | Offsets: |              | Azimuth Adjustment | Placement | $C_{AA}$ Front  | $C_{AA}$ Side   | Weight |
|------------------------------------|-------------|-------------|----------|--------------|--------------------|-----------|-----------------|-----------------|--------|
|                                    |             |             | Horz     | Lateral Vert |                    |           |                 |                 |        |
|                                    |             |             | ft       | ft           | °                  | ft        | ft <sup>2</sup> | ft <sup>2</sup> | K      |
| (4) ALP-E-9011 w/Pipe Mount        | A           | From Leg    | 4.00     | 0.0000       | 98.00              | No Ice    | 3.29            | 4.77            | 0.04   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 3.82            | 5.60            | 0.08   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 4.30            | 6.32            | 0.13   |
| Pirod 15' T-Frame Sector Mount (1) | A           | From Leg    | 2.00     | 0.0000       | 98.00              | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |
| (4) ALP-E-9011 w/Pipe Mount        | B           | From Leg    | 4.00     | 0.0000       | 98.00              | No Ice    | 3.29            | 4.77            | 0.04   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 3.82            | 5.60            | 0.08   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 4.30            | 6.32            | 0.13   |
| Pirod 15' T-Frame Sector Mount (1) | B           | From Leg    | 2.00     | 0.0000       | 98.00              | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |
| (4) ALP-E-9011 w/Pipe Mount        | C           | From Leg    | 4.00     | 0.0000       | 98.00              | No Ice    | 3.29            | 4.77            | 0.04   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 3.82            | 5.60            | 0.08   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 4.30            | 6.32            | 0.13   |
| Pirod 15' T-Frame Sector Mount (1) | C           | From Leg    | 2.00     | 0.0000       | 98.00              | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |
| *****                              |             |             |          |              |                    |           |                 |                 |        |
| ETCR-654L12H6 w/ pipe              | A           | From Leg    | 4.00     | 0.0000       | 110.00             | No Ice    | 17.55           | 7.90            | 0.11   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 18.34           | 9.25            | 0.22   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 19.12           | 10.46           | 0.33   |
| TD-RRH8X20-25 2.5GHz RRH           | A           | From Leg    | 4.00     | 0.0000       | 110.00             | No Ice    | 4.13            | 1.39            | 0.07   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 4.41            | 1.59            | 0.09   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 4.69            | 1.80            | 0.12   |
| RRH 1900 4X45 1900 MHz             | A           | From Leg    | 4.00     | 0.0000       | 110.00             | No Ice    | 2.60            | 2.70            | 0.07   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1/2" Ice  | 2.84            | 2.94            | 0.09   |
|                                    |             |             | 0.00     | 0.0000       |                    | 1" Ice    | 3.08            | 3.18            | 0.12   |



|                                       |                      |  |  |  |  |                    |             |  |  |
|---------------------------------------|----------------------|--|--|--|--|--------------------|-------------|--|--|
| <b>tnxTower</b><br><br>Phone:<br>FAX: | <b>Job</b>           |  |  |  |  |                    | <b>Page</b> |  |  |
|                                       | CT52XC083-A Oronoque |  |  |  |  |                    | 7 of 10     |  |  |
|                                       | <b>Project</b>       |  |  |  |  |                    | <b>Date</b> |  |  |
| 110' Self-Support Tower               |                      |  |  |  |  | 09:42:31 11/15/17  |             |  |  |
| <b>Client</b>                         |                      |  |  |  |  | <b>Designed by</b> |             |  |  |
| Sprint                                |                      |  |  |  |  |                    |             |  |  |

| Description                        | Face or Leg | Offset Type | Offsets: |         | Azimuth Adjustment | Placement | C <sub>AA</sub> |                 | Weight |
|------------------------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------|-----------------|--------|
|                                    |             |             | Horz     | Lateral |                    |           | Front           | Side            |        |
|                                    |             |             | ft       | ft      | °                  | ft        | ft <sup>2</sup> | ft <sup>2</sup> | K      |
| FD-RRH-2x50-800 800MHz             | A           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 2.43            | 2.02            | 0.06   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 2.65            | 2.22            | 0.08   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 2.87            | 2.43            | 0.10   |
| Pirod 15' T-Frame Sector Mount (1) | A           | From Leg    | 2.00     | 0.0000  | 110.00             | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |
| ETCR-654L12H6 w/ pipe              | B           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 17.55           | 7.90            | 0.11   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 18.34           | 9.25            | 0.22   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 19.12           | 10.46           | 0.33   |
| TD-RRH8X20-25 2.5GHz RRH           | B           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 4.13            | 1.39            | 0.07   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 4.41            | 1.59            | 0.09   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 4.69            | 1.80            | 0.12   |
| RRH 1900 4X45 1900 MHz             | B           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 2.60            | 2.70            | 0.07   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 2.84            | 2.94            | 0.09   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 3.08            | 3.18            | 0.12   |
| FD-RRH-2x50-800 800MHz             | B           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 2.43            | 2.02            | 0.06   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 2.65            | 2.22            | 0.08   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 2.87            | 2.43            | 0.10   |
| Pirod 15' T-Frame Sector Mount (1) | B           | From Leg    | 2.00     | 0.0000  | 110.00             | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |
| ETCR-654L12H6 w/ pipe              | C           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 17.55           | 7.90            | 0.11   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 18.34           | 9.25            | 0.22   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 19.12           | 10.46           | 0.33   |
| TD-RRH8X20-25 2.5GHz RRH           | C           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 4.13            | 1.39            | 0.07   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 4.41            | 1.59            | 0.09   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 4.69            | 1.80            | 0.12   |
| RRH 1900 4X45 1900 MHz             | C           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 2.60            | 2.70            | 0.07   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 2.84            | 2.94            | 0.09   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 3.08            | 3.18            | 0.12   |
| FD-RRH-2x50-800 800MHz             | C           | From Leg    | 4.00     | 0.0000  | 110.00             | No Ice    | 2.43            | 2.02            | 0.06   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 2.65            | 2.22            | 0.08   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 2.87            | 2.43            | 0.10   |
| Pirod 15' T-Frame Sector Mount (1) | C           | From Leg    | 2.00     | 0.0000  | 110.00             | No Ice    | 15.00           | 15.00           | 0.50   |
|                                    |             |             | 0.00     |         |                    | 1/2" Ice  | 20.60           | 20.60           | 0.65   |
|                                    |             |             | 0.00     |         |                    | 1" Ice    | 26.20           | 26.20           | 0.80   |

## Dishes

| Description | Face or Leg | Dish Type             | Offset Type | Offsets: |         | Azimuth Adjustment | 3 dB Beam Width | Elevation | Outside Diameter | Aperture Area | Weight |
|-------------|-------------|-----------------------|-------------|----------|---------|--------------------|-----------------|-----------|------------------|---------------|--------|
|             |             |                       |             | Horz     | Lateral |                    |                 |           |                  |               |        |
|             |             |                       | ft          | ft       | °       | °                  | ft              | ft        | ft <sup>2</sup>  | K             |        |
| 3' Dish     | A           | Paraboloid w/o Radome | From Leg    | 4.00     | 0.0000  | 110.00             |                 | 3.00      | No Ice           | 7.07          | 0.04   |
|             |             |                       |             | -4.00    |         |                    |                 |           | 1/2" Ice         | 7.47          | 0.08   |
|             |             |                       |             | 0.00     |         |                    |                 |           | 1" Ice           | 7.86          | 0.12   |
| 2' Dish     | A           | Paraboloid w/o Radome | From Leg    | 4.00     | 0.0000  | 110.00             |                 | 2.00      | No Ice           | 3.14          | 0.03   |
|             |             |                       |             | 2.00     |         |                    |                 |           | 1/2" Ice         | 3.41          | 0.05   |
|             |             |                       |             | 0.00     |         |                    |                 |           | 1" Ice           | 3.68          | 0.07   |

|                                       |   |                                  |
|---------------------------------------|---|----------------------------------|
| <b>tnxTower</b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>8 of 10           |
|                                       | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|                                       | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

## Compression Checks

### Leg Design Data (Compression)

| Section No. | Elevation<br>ft | Size                      | L<br>ft | L <sub>u</sub><br>ft | Kl/r           | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|---------------------------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 110 - 100       | P3x.3                     | 10.02   | 2.50                 | 26.4<br>K=1.00 | 3.0159               | -13.73              | 128.95               | 0.106 <sup>1</sup><br>✓         |
| T2          | 100 - 80        | P3x.3                     | 20.03   | 4.01                 | 42.3<br>K=1.00 | 3.0159               | -38.64              | 119.06               | 0.325 <sup>1</sup><br>✓         |
| T3          | 80 - 60         | P3x.3                     | 20.03   | 4.01                 | 42.3<br>K=1.00 | 3.0159               | -56.61              | 119.07               | 0.475 <sup>1</sup><br>✓         |
| T4          | 60 - 40         | P3XSx.3 w P3.5S strip     | 20.03   | 5.01                 | 57.2<br>K=1.00 | 3.4474               | -71.66              | 122.11               | 0.587 <sup>1</sup><br>✓         |
| T5          | 40 - 20         | P3XSx.3 w P3.5S strip     | 20.03   | 6.68                 | 76.3<br>K=1.00 | 3.4474               | -85.86              | 101.38               | 0.847 <sup>1</sup><br>✓         |
| T6          | 20 - 0          | P3.5XSx.318 w P5XXS strip | 20.03   | 6.68                 | 76.2<br>K=1.00 | 6.0241               | -100.29             | 177.40               | 0.565 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 110 - 100       | L1 1/2x1 1/2x3/16 | 3.01    | 1.41                 | 28.9<br>K=0.50  | 0.5273               | -2.01               | 16.35                | 0.123 <sup>1</sup><br>✓         |
| T2          | 100 - 80        | L1 1/2x1 1/2x1/8  | 5.12    | 2.52                 | 51.1<br>K=0.50  | 0.3594               | -2.16               | 10.15                | 0.213 <sup>1</sup><br>✓         |
| T3          | 80 - 60         | L1 1/2x1 1/2x1/8  | 7.55    | 3.72                 | 75.4<br>K=0.50  | 0.3594               | -1.54               | 8.63                 | 0.179 <sup>1</sup><br>✓         |
| T4          | 60 - 40         | L2x2x1/8          | 9.76    | 4.86                 | 73.3<br>K=0.50  | 0.4844               | -1.86               | 11.53                | 0.161 <sup>1</sup><br>✓         |
| T5          | 40 - 20         | L1 3/4x1 3/4x1/8  | 12.27   | 6.16                 | 106.6<br>K=0.50 | 0.4219               | -2.36               | 7.52                 | 0.314 <sup>1</sup><br>✓         |
| T6          | 20 - 0          | L2 1/2x2 1/2x1/8  | 13.99   | 7.00                 | 84.1<br>K=0.50  | 0.6094               | -2.73               | 11.34                | 0.240 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)



|                                       |                |                         |                    |                   |
|---------------------------------------|----------------|-------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br>Phone:<br>FAX: | <b>Job</b>     | CT52XC083-A Oronoque    | <b>Page</b>        | 9 of 10           |
|                                       | <b>Project</b> | 110' Self-Support Tower | <b>Date</b>        | 09:42:31 11/15/17 |
|                                       | <b>Client</b>  | Sprint                  | <b>Designed by</b> |                   |

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r           | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 110 - 100       | L1 1/2x1 1/2x3/16 | 1.55    | 1.26                 | 51.4<br>K=1.00 | 0.5273               | -0.51               | 14.87                | 0.034 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Tension Checks

### Leg Design Data (Tension)

| Section No. | Elevation<br>ft | Size                       | L<br>ft | L <sub>u</sub><br>ft | Kl/r | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------------------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 110 - 100       | P3x.3                      | 10.02   | 2.50                 | 26.4 | 3.0159               | 11.73               | 135.72               | 0.086 <sup>1</sup><br>✓         |
| T2          | 100 - 80        | P3x.3                      | 20.03   | 4.01                 | 42.3 | 3.0159               | 34.74               | 135.72               | 0.256 <sup>1</sup><br>✓         |
| T3          | 80 - 60         | P3x.3                      | 20.03   | 4.01                 | 42.3 | 3.0159               | 51.58               | 135.72               | 0.380 <sup>1</sup><br>✓         |
| T4          | 60 - 40         | P3XSx.3 w P3.5S strip      | 20.03   | 5.01                 | 57.2 | 3.4474               | 65.02               | 155.13               | 0.419 <sup>1</sup><br>✓         |
| T5          | 40 - 20         | P3XSx.3 w P3.5S strip      | 20.03   | 6.68                 | 76.3 | 3.4474               | 77.19               | 155.13               | 0.498 <sup>1</sup><br>✓         |
| T6          | 20 - 0          | P3.5XSx.318 w P5XXXS strip | 20.03   | 6.68                 | 76.2 | 6.0241               | 89.01               | 271.08               | 0.328 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r  | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|-------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 110 - 100       | L1 1/2x1 1/2x3/16 | 3.01    | 1.41                 | 37.1  | 0.5273               | 2.00                | 17.09                | 0.117 <sup>1</sup><br>✓         |
| T2          | 100 - 80        | L1 1/2x1 1/2x1/8  | 5.12    | 2.52                 | 65.1  | 0.3594               | 2.26                | 11.64                | 0.194 <sup>1</sup><br>✓         |
| T3          | 80 - 60         | L1 1/2x1 1/2x1/8  | 6.25    | 3.08                 | 79.6  | 0.3594               | 1.57                | 11.64                | 0.135 <sup>1</sup><br>✓         |
| T4          | 60 - 40         | L2x2x1/8          | 9.76    | 4.86                 | 93.1  | 0.4844               | 1.86                | 15.69                | 0.118 <sup>1</sup><br>✓         |
| T5          | 40 - 20         | L1 3/4x1 3/4x1/8  | 11.72   | 5.89                 | 129.5 | 0.4219               | 2.18                | 13.67                | 0.159 <sup>1</sup><br>✓         |
| T6          | 20 - 0          | L2 1/2x2 1/2x1/8  | 13.99   | 7.00                 | 106.6 | 0.6094               | 2.44                | 19.74                | 0.124 <sup>1</sup><br>✓         |

|  |   |                                  |
|--|---|----------------------------------|
| <b><i>tnxTower</i></b><br><br>Phone:<br>FAX: | <b>Job</b><br>CT52XC083-A Oronoque        | <b>Page</b><br>10 of 10          |
|  | <b>Project</b><br>110' Self-Support Tower | <b>Date</b><br>09:42:31 11/15/17 |
|  | <b>Client</b><br>Sprint                   | <b>Designed by</b>               |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Top Girt Design Data (Tension)

| Section No. | Elevation<br>ft | Size              | L<br>ft | $L_u$<br>ft | $Kl/r$ | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$                            |
|-------------|-----------------|-------------------|---------|-------------|--------|-------------|------------|-----------------|--|
| T1          | 110 - 100       | L1 1/2x1 1/2x3/16 | 1.55    | 1.26        | 33.0   | 0.5273      | 0.47       | 17.09           | 0.028 <sup>1</sup><br><span style="color: green;">✓</span> |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Section Capacity Table

| Section No.     | Elevation<br>ft | Component<br>Type | Size                      | Critical<br>Element | P<br>K  | $\phi P_{allow}$<br>K | %<br>Capacity | Pass<br>Fail |
|-----------------|-----------------|-------------------|---------------------------|---------------------|---------|-----------------------|---------------|--------------|
| T1              | 110 - 100       | Leg               | P3x.3                     | 3                   | -13.73  | 128.95                | 10.6          | Pass         |
|                 |                 | Diagonal          | L1 1/2x1 1/2x3/16         | 30                  | -2.01   | 16.35                 | 12.3          | Pass         |
|                 |                 | Top Girt          | L1 1/2x1 1/2x3/16         | 4                   | -0.51   | 14.87                 | 3.4           | Pass         |
| T2              | 100 - 80        | Leg               | P3x.3                     | 33                  | -38.64  | 119.06                | 32.5          | Pass         |
|                 |                 | Diagonal          | L1 1/2x1 1/2x1/8          | 56                  | -2.16   | 10.15                 | 21.3          | Pass         |
| T3              | 80 - 60         | Leg               | P3x.3                     | 66                  | -56.61  | 119.07                | 47.5          | Pass         |
|                 |                 | Diagonal          | L1 1/2x1 1/2x1/8          | 68                  | -1.54   | 8.63                  | 17.9          | Pass         |
| T4              | 60 - 40         | Leg               | P3XSx.3 w P3.5S strip     | 99                  | -71.66  | 122.11                | 58.7          | Pass         |
|                 |                 | Diagonal          | L2x2x1/8                  | 101                 | -1.86   | 11.53                 | 16.1          | Pass         |
| T5              | 40 - 20         | Leg               | P3XSx.3 w P3.5S strip     | 126                 | -85.86  | 101.38                | 84.7          | Pass         |
|                 |                 | Diagonal          | L1 3/4x1 3/4x1/8          | 130                 | -2.36   | 7.52                  | 31.4          | Pass         |
| T6              | 20 - 0          | Leg               | P3.5XSx.318 w P5XXS strip | 147                 | -100.29 | 177.40                | 56.5          | Pass         |
|                 |                 | Diagonal          | L2 1/2x2 1/2x1/8          | 151                 | -2.73   | 11.34                 | 24.0          | Pass         |
| Summary         |                 |                   |                           |                     |         |                       |               |              |
| Leg (T5)        |                 |                   |                           |                     |         |                       | 84.7          | Pass         |
| Diagonal (T5)   |                 |                   |                           |                     |         |                       | 31.4          | Pass         |
| Top Girt (T1)   |                 |                   |                           |                     |         |                       | 3.4           | Pass         |
| <b>RATING =</b> |                 |                   |                           |                     |         |                       | <b>84.7</b>   | <b>Pass</b>  |





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

SPRINT Existing Facility

Site ID: CT52XC083

Oronoque  
630 James Farm Road  
Stratford, CT 06614

**November 22, 2017**

**EBC Project Number: 6217005285**

| Site Compliance Summary   |                  |
|---|------------------|
| Compliance Status:  | <b>COMPLIANT</b> |
| Site total MPE% of<br>FCC general<br>population<br>allowable limit: | <b>10.28 %</b>   |

November 22, 2017

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

Emissions Analysis for Site: **CT52XC083 – Oronoque**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **630 James Farm Road, Stratford, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed SPRINT Wireless antenna facility located at **630 James Farm Road, Stratford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the smoke stack. For this report the sample point is the top of a 6-foot person standing at the base of the smoke stack.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the smoke stack. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **KMW ETCR-654L12H6** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **110 feet** above ground level (AGL) for **Sector A**, **110 feet** above ground level (AGL) for **Sector B** and **110 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general population threshold limits.



**SPRINT Site Inventory and Power Data by Antenna**

| Sector:            | A   | Sector:            | B   | Sector:            | C   |
|--------------------|---|--------------------|---|--------------------|---|
| Antenna #:         | 1   | Antenna #:         | 1   | Antenna #:         | 1   |
| Make / Model:      | KMW ETCR-654L12H6                         | Make / Model:      | KMW ETCR-654L12H6                         | Make / Model:      | KMW ETCR-654L12H6                         |
| Gain:              | 13.35 / 15.25 / 15.05 dBd                 | Gain:              | 13.35 / 15.25 / 15.05 dBd                 | Gain:              | 13.35 / 15.25 / 15.05 dBd                 |
| Height (AGL):      | 110 feet                                  | Height (AGL):      | 110 feet                                  | Height (AGL):      | 110 feet                                  |
| Frequency Bands    | 850 MHz / 1900 MHz (PCS) / 2500 MHz (BRS) | Frequency Bands    | 850 MHz / 1900 MHz (PCS) / 2500 MHz (BRS) | Frequency Bands    | 850 MHz / 1900 MHz (PCS) / 2500 MHz (BRS) |
| Channel Count      | 18  | Channel Count      | 18  | Channel Count      | 18  |
| Total TX Power(W): | 380 Watts                                 | Total TX Power(W): | 380 Watts                                 | Total TX Power(W): | 380 Watts                                 |
| ERP (W):           | 11,775.31                                 | ERP (W):           | 11,775.31                                 | ERP (W):           | 11,775.31                                 |
| Antenna A1 MPE%    | 4.24 %                                    | Antenna B1 MPE%    | 4.24 %                                    | Antenna C1 MPE%    | 4.24 %                                    |

| Site Composite MPE%      |                |
|--------------------------|----------------|
| Carrier                  | MPE%           |
| SPRINT – Max per sector  | 4.24 %         |
| Verizon Wireless         | 4.03 %         |
| Clearwire                | 0.17 %         |
| Nextel                   | 1.84 %         |
| <b>Site Total MPE %:</b> | <b>10.28 %</b> |

|                        |                |
|------------------------|----------------|
| SPRINT Sector A Total: | 4.24 %         |
| SPRINT Sector B Total: | 4.24 %         |
| SPRINT Sector C Total: | 4.24 %         |
| <b>Site Total:</b>     | <b>10.28 %</b> |

| SPRINT _ Max Values per Frequency Band / Technology Per Sector | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ( $\mu\text{W}/\text{cm}^2$ ) | Frequency (MHz) | Allowable MPE ( $\mu\text{W}/\text{cm}^2$ ) | Calculated % MPE |
|--|------------|-------------------------|---------------|---|-----------------|---|------------------|
| Sprint 850 MHz CDMA  | 1          | 432.54                  | 110           | 1.44  | 850 MHz         | 567   | 0.25%            |
| Sprint 850 MHz LTE   | 2          | 432.54                  | 110           | 2.88  | 850 MHz         | 567   | 0.51%            |
| Sprint 1900 MHz (PCS) CDMA                                     | 5          | 535.94                  | 110           | 8.91  | 1900 MHz (PCS)  | 1000  | 0.89%            |
| Sprint 1900 MHz (PCS) LTE                                      | 2          | 1,339.86                | 110           | 8.91  | 1900 MHz (PCS)  | 1000  | 0.89%            |
| Sprint 2500 MHz (BRS) LTE                                      | 8          | 639.78                  | 110           | 17.01   | 2500 MHz (BRS)  | 1000  | 1.70%            |
|  |            |                         |               |   |                 | <b>Total:</b>                               | <b>4.24%</b>     |

## Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| SPRINT Sector                      | Power Density Value (%) |
|------------------------------------|-------------------------|
| Sector A:                          | 4.24 %                  |
| Sector B:                          | 4.24 %                  |
| Sector C:                          | 4.24 %                  |
| SPRINT Maximum Total (per sector): | 4.24 %                  |
|                                    |                         |
| Site Total:                        | 10.28 %                 |
|                                    |                         |
| Site Compliance Status:            | <b>COMPLIANT</b>        |

The anticipated composite MPE value for this site assuming all carriers present is **10.28 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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





PERMIT 201000763

# TOWN OF STRATFORD

Bureau of Building Inspection

Office Hours 8:30-10:00 AM and 1:00 to 2:00 PM

Phone: (203) 385-4010

# BUILDING PERMIT

DATE ISSUED: 5/17/2010

Job Location: 630 JAMES FARM RD

Map/Block/Lot Number 0857800

Applicant: DOUG TALAMADGE  
147 AUSTIN RYER LANE  
BRANFORD CT 06405

Phone #:

Owner: FEDORKO PETRO EST & WILMA B  
630 JAMES FARM RD  
STRATFORD CT 06614-1043

**Notes:**

REPLACE 3 EXISTING ANTENNAS WITH 3 NEW ANTENNAS, ADD 2 MW DISHES AND 1 CABINET TO EXISTING SLAB, STRUCTURAL REINFORCEMENTS

Architect/Engineer's name:  
General Contractor's name:

Address:  
Phone:

Air Conditioning:   
Construction Type:  
Sanitary Sewer:   
Type: BUILDING ALTER

No. of Bedrooms: 0  
Use Group:  
Foundation Type:

Living Area: 0  
Class:  
City Water:

Flood Zone:

Elevation:

Use Type:

Applicant's Estimated Value

I estimate the value of this work will be \$20,000.00

**Permit Fees**

BUILDING \$210.00  
EDUCATION \$4.40

**Approved / Denied**

By: Brian Donora

Date: 5/17/2010



# TOWN OF STRATFORD

[Recent Sales in Neighborhood](#)
[Previous Parcel](#)
[Next Parcel](#)
[Field Definitions](#)
[Return to Main Search](#)
[Stratford Home](#)

### Owner and Parcel Information

|                                |   |                     |  |
|--------------------------------|---|---------------------|--|
| <b>Owner Name</b>              | SHOOP DARCY (50%) & SHOOP DANA (50%)        | <b>Today's Date</b> | June 19, 2018  |
| <b>Mailing Address</b>         | 67 ELM ST<br>HANOVER, MA 02339              | <b>Account #</b>    | 0857800  |
| <b>Location Address</b>        | 630 JAMES FARM RD                           | <b>Census Tract</b> | 0813   |
| <b>Map / Block / Lot</b>       | 50 /19 / 3 / 28/<br>Dev Lot: 11.8 ACRES E/S | <b>Acreage</b>      | 9.61   |
| <b>Use Class / Description</b> | 101 Single Family                           | <b>Parcel Map</b>   | <a href="#">Show Parcel Map</a> <a href="#">Owner List By Radius</a> |

### Current Appraised Value Information

| Building Value                                     | OB Value | Land Value | Special Land Value | Total Appraised Value | Net Appraised Value | Current Assessment |
|--|----------|------------|--------------------|-----------------------|---------------------|--------------------|
| No Appraisal Information available for this parcel |          |            |                    |                       |                     |                    |

### Assessment History

| Year | Building  | OB/Misc    | Land       | Total Assessment |
|------|-----------|------------|------------|------------------|
| 2017 | \$ 89,390 | \$ 182,910 | \$ 272,090 | \$ 544,390       |
| 2016 | \$ 89,390 | \$ 182,910 | \$ 272,090 | \$ 544,390       |

### Land Information

| Use           | Class | Zoning | Area    | Value      |
|---------------|-------|--------|---------|------------|
| Single Family | R     | RS-1   | 1 AC    | \$ 109,300 |
| Single Family | R     | RS-1   | 8.61 AC | \$ 108,900 |
| Cell Site     | I     | RS-1   | 1 SF    | \$ 170,500 |

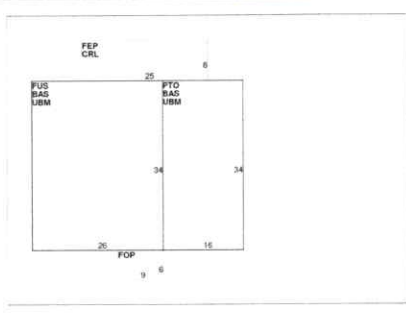
### Residential Building Information

| Style          | Year Built     | Living Area                      | Stories   | Grade     | Exterior Wall | Interior Wall                              | Fireplaces     |
|----------------|----------------|----------------------------------|-----------|-----------|---------------|--|----------------|
| Modern/Contemp | 1947           | 2,312                            | 2.00      | C+        | Stone         | Plastered and Plastered                    | 1              |
| Roof Cover     | Roof Structure | Floor Type                       | Heat Type | Heat Fuel | AC            | Bedrooms/Full Baths/Half Baths/Total Rooms | Basement Sq Ft |
| T&G/Rubber     | Flat           | Vinyl/Asphalt and Ceram Clay Til | Oil       | Radiant   | None          | 3 / 2 / 1 / 6                              | 1,428          |

### Building Sub Areas

| Code          | Description             | Living Area  | Gross Area   | Effective Area |
|---------------|-------------------------|--------------|--------------|----------------|
| BAS           | First Floor             | 1,428        | 1,428        |                |
| CRL           | Crawl Space             | 0            | 200          |                |
| FEP           | Finished Enclosed Porch | 0            | 200          |                |
| FOP           | Finished Open Porch     | 0            | 54           |                |
| FUS           | Finished Upper Story    | 884          | 884          |                |
| PTO           | Patio                   | 0            | 544          |                |
| UBM           | Unfinished Basement     | 0            | 1,428        |                |
| <b>Totals</b> |                         | <b>2,312</b> | <b>4,738</b> | <b>2,803</b>   |

### Building Sketch [Enlarge](#)



### Building Photo [Enlarge](#)



### Out Buildings / Extra Features

| Description             | Sub Description | Area       | Year Built | Value      |
|-------------------------|-----------------|------------|------------|------------|
| Garage                  | Frame           | 1,050 S.F. | 1947       | \$ 14,300  |
| Shed                    | Frame           | 240 S.F.   | 1953       | \$ 1,300   |
| Shed                    | Metal           | 60 S.F.    | 2000       | \$ 0       |
| Shed                    | Cell            | 360 S.F.   | 2006       | \$ 113,400 |
| Shed                    | Cell            | 420 S.F.   | 2008       | \$ 132,300 |
| ELEVATOR-NON FUNCTIONAL |                 | 1          |            | \$ 0       |

### Sale Information

| Sale Date  | Sale Price | Deed Book/Page | Sale Qualification | Reason        | Vacant or Improved | Owner   |
|------------|------------|----------------|--------------------|---------------|--------------------|---|
| 07/19/2012 |            | 3594/0229      | Unqualified        | Judicial Sale | Improved           | SHOOP DARCY (50%) & SHOOP DANA (50%)                        |
| 10/27/2011 |            | 3517/0310      | Unqualified        | Judicial Sale | Improved           | FEDORKO WILHELMINA EST & SHOOP RANDY CO- SHOOP WILHELMINA J |
| 02/24/2005 |            | 2587/ 348      | Unqualified        | Other         | Improved           | FEDORKO WILHELMINA & SHOOP RANDY CO-TRUSTEES                |
| 06/27/2003 |            | 2181/0244      | Unqualified        | NT            |                    | FEDORKO PETRO EST & WILMA B                                 |
| 05/11/1945 |            | 0208/0309      | Unqualified        |               | Improved           | FEDORKO PETRO & WILMA B                                     |

### Permit Information

| Permit ID | Issue Date | Type | Description    | Amount    | Inspection Date | % Complete | Date Complete | Comments                      |
|-----------|------------|------|----------------|-----------|-----------------|------------|---------------|-------------------------------|
| 23305     | 12/20/2016 | BP   | Building Permi | \$ 15,000 | 08/04/2017      | 100        |               | REPLACE ANTENNA TOWERS        |
| 21237     | 03/06/2014 | BP   | Building Permi | \$ 9,000  |                 | 100        |               | ADD 3 ANTENNAS; BELL ATLANTIC |
| 18415     | 06/04/2010 | EL   | Electrical Per | \$ 1,500  | 08/09/2010      | 100        |               | WIRE NEW CABINET              |
| 18583     | 05/17/2010 | BP   | Building Permi | \$ 20,000 | 07/13/2010      | 100        |               | REPL ANTENNAS/DISHES & CAB.   |
| 18375     | 02/16/2010 | BP   | Building Permi | \$ 39,000 | 05/24/2010      | 100        |               | REPL ANTENNAE                 |



|       |            |    |                |            |            |     |  |                         |
|-------|------------|----|----------------|------------|------------|-----|--|-------------------------|
| 11668 | 09/29/2005 | EL | Electrical Per | \$ 14,000  | 06/27/2006 | 100 |  | WIRE CELL SITE          |
| 14848 | 06/20/2005 | BP | Building Permi | \$ 100,000 | 06/27/2006 | 100 |  | TELE/COM ANTENNA        |
| 11207 | 06/16/2000 |    |                |            |            | 100 |  | COMMUNICATION FACILITY; |

|   |                                 |                             |                                   |  |                                |
|---|---------------------------------|-----------------------------|-----------------------------------|--|--------------------------------|
| <a href="#">Recent Sales in Neighborhood</a>  | <a href="#">Previous Parcel</a> | <a href="#">Next Parcel</a> | <a href="#">Field Definitions</a> | <a href="#">Return to Main Search Page</a> | <a href="#">Stratford Home</a> |
| <p>The Town of Stratford Assessor's Office makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. Website Updated: June 17, 2018</p> |                                 |                             |                                   |  |                                |

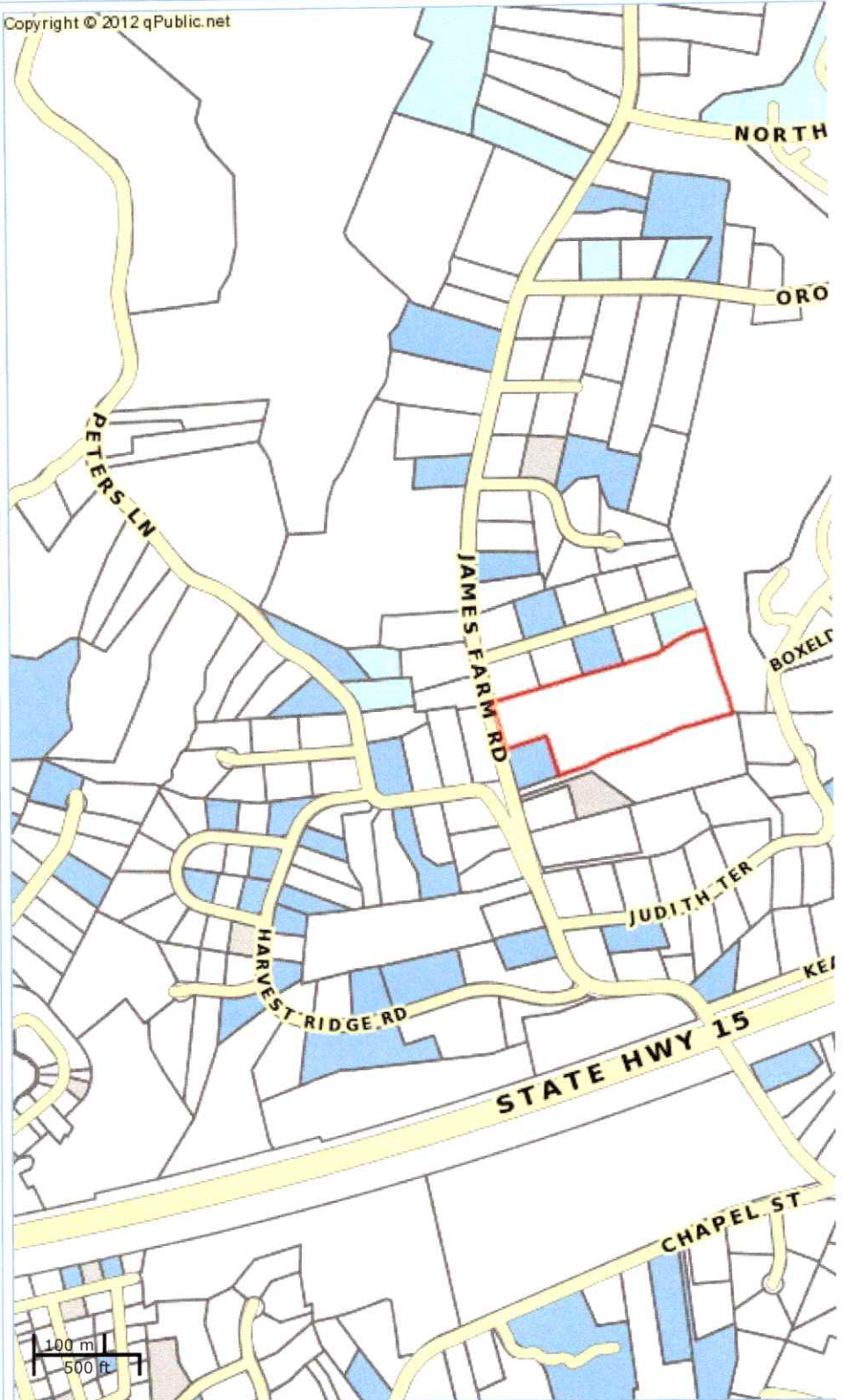
**Controls**

- Available Layers
- Parcels
  - Account No.
  - Address Numbers
  - Yearly Sales
  - Roads
  - Railroads
  - Lakes & Rivers
  - Aerial Photos



[Show Scale](#)

Copyright © 2012 qPublic.net



The Town of Stratford makes every effort to produce the most accurate information possible. No warranties, expressed or implied, a certified taxroll. All data is subject to change before the next certified taxroll.

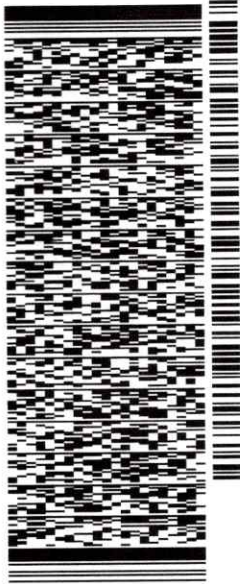


ORIGIN: DSKKA (917) 841-0247  
PAUL SAGRISTANO  
CHARLES CHERUNDOLLO CONSULTING  
4 DAVIS ROAD WEST  
SUITE 5  
OLD LYME, CT 06371  
UNITED STATES US

SHIP DATE: 03MAY18  
ACTWGT: 1.00 LB  
CAD: 111040781INET3980  
BILL SENDER

TO  
**MS. MELANIE BACHMAN, EXEC. DIR.**  
**CT SITING COUNCIL**  
**TEN FRANKLIN SQUARE**

**NEW BRITAIN CT 06051**  
(860) 827-2935 REF: CT52X0082 CSC SUBMISSION  
INV. DEPT.



J181118012601uv

552.027782B/DCA5

TRK# 7721 4530 4467  
0201

TUE - 08 MAY 4:30P

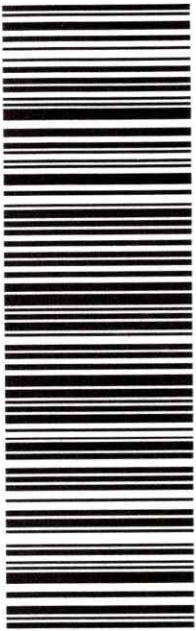
EXPRESS SAVER

DSR

06051

CT-US BDL

**00 MPEA**



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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.

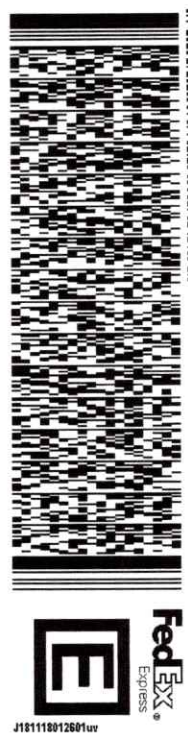
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless 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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID: CBZA (973) 477-8032  
STEVE SOFMAN  
CHARLES CHERUNDOLLO CONSULTING  
1280 ROUTE 40 WEST  
SUITE 9  
PARLISPPANY, NJ 07054  
UNITED STATES US

SHIP DATE: 03MAY18  
ACTWGT: 1.00 LB  
CAD: 11040787INET3980  
BILL SENDER

TO **DANA RAVANIS**  
**67 ELM ST**

**HANOVER MA 02339**  
REF: (860) 721-8807  
DEPT: INV



TRK# 7721 4538 2910  
0201  
MON - 07 MAY 4:30P  
\*\* 2DAY \*\*

**SEXP UA**  
MA-US **BOS**  
02339



552J2782B/DCA5

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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.

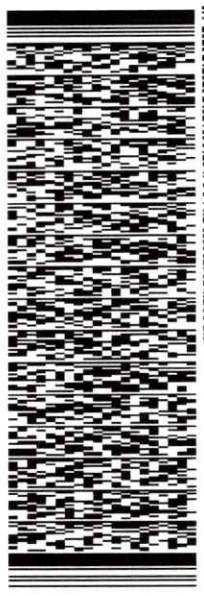


ORIGIN ID:CBZA (973) 477-8032  
STEVE SOFMAN  
CHARLES CHERUNDOLLO CONSULTING  
1280 ROUTE 46 WEST  
SUITE 9  
PARISIPANY, NJ 07054  
UNITED STATES US

SHIP DATE: 03MAY18  
ACTWGT: 1.00 LB  
CAD: 11040781INNET3980  
BILL SENDER

TO MAYOR LAURA HOYDICK  
TOWN OF STRATFORD  
2725 MAIN ST

STRATFORD CT 06615  
REF: (203) 385-4001  
INV: PO: DEPT:



TRK# 7721 4541 0362  
0201  
MON - 07 MAY 4:30P  
\*\* 2DAY \*\*

SE CIVA  
06615  
CT-US BDL

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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.

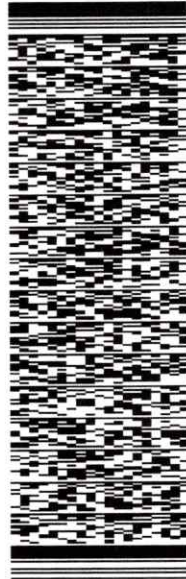
ORIGIN ID: CBZA (973) 477-8032  
STEVE SOFMAN  
CHARLES CHERUNDOLLO CONSULTING  
1280 ROUTE 46 WEST  
SUITE 0  
PARLISPANY, NJ 07054  
UNITED STATES US

SHIP DATE: 03MAY18  
ACTWGT: 1.00 LB  
CAD: 111040781INMET3980  
BILL SENDER

TO TOWN PLANNER  
TOWN OF STRATFORD  
2725 MAIN ST

STRATFORD CT 06615

REF: (203) 385-4001  
DEPT: NV PO



J181110012601uv

552.12782B/DCA5

TRK# 7721 4543 2481  
0201

MON - 07 MAY 4:30P  
\*\* 2DAY \*\*

SE CIVA

06615  
CT-US BDL



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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](http://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.