



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

September 20, 2018

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

RE: Notice of Exempt Modification for Sprint DO Macro: 876390
Sprint Site ID: CT33XC567
116 Grant Hill Rd., Brooklyn, Connecticut 06234
Latitude: 41° 47' 29.64"/ Longitude: 72° 0' 54.04"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 151-foot level of the existing 150-foot monopole tower at 116 Grant Hill Rd. Brooklyn, CT. The tower is owned by Crown Castle. The property is owned by Jean Paul Bernier. Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 151-foot level of the tower. Sprint also intends to install twelve (12) RRHs, equipment inside and existing cabinet, and swap six (6) existing coax cables with four (4) fiber cables.

The facility was approved by the Town Of Brooklyn in December 1999 and an email was sent to the town zoning and building department on 09/20/2018 to ascertain the original zoning approval documents.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to First Selectman Richard Ives, Town of Brooklyn, Jana Roberson, town planner, Town of Brooklyn, as well as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

The Foundation for a Wireless World.
CrownCastle.com

Melanie A. Bachman

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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 modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

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

cc: The Honorable Richard Ives
Town Hall, 4 Wolf Den Rd.
P.O. Box 356
Brooklyn, Connecticut 06234

Jana Roberson, AICP, Town Planner
Town Hall, 4 Wolf Den Rd.
P.O. Box 356
Brooklyn, Connecticut 06234

Jean Paul Bernier
116 Grant Hill Rd.
Brooklyn, CT 06234

116 GRANT HILL RD

Location 116 GRANT HILL RD

Mblu 4 / 5 / /

Acct# 00024900

Owner BERNIER JEAN PAUL &
DAWNA G

Assessment \$335,730

Appraisal \$594,700

PID 255

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$147,300	\$447,400	\$594,700
Assessment			
Valuation Year	Improvements	Land	Total
2016	\$103,200	\$232,530	\$335,730

Owner of Record

Owner BERNIER JEAN PAUL & DAWNA G
Co-Owner
Care Of
Address 116 GRANT HILL RD
 BROOKLYN, CT 06234

Sale Price \$0
Certificate
Book & Page 462/ 288
Sale Date 09/17/2009
Instrument 29
Qualified U

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
BERNIER JEAN PAUL & DAWNA G	\$0		462/ 288	29	09/17/2009
BERNIER ROBERT E	\$0		462/ 287	29	09/17/2009
BERNIER ROBERT E+AGNES P	\$500		45/ 291		06/19/1968
BERNIER ROBERT E & AGNES P	\$0		32/ 549		11/28/1955

Building Information

Building 1 : Section 1

Year Built: 1956
Living Area: 1,595
Replacement Cost: \$201,770
Building Percent 70
Good:

Building Photo

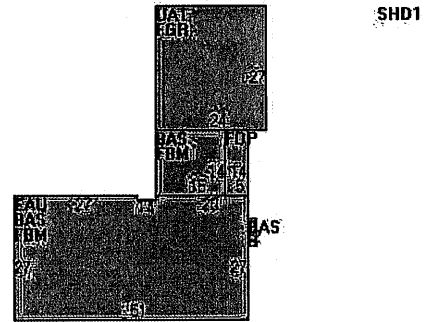
Replacement Cost
Less Depreciation: \$141,200

Building Attributes	
Field	Description
Style	Conventional
Model	Residential
Grade:	C
Stories:	1
Occupancy	2
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	2 Bedrooms
Total Bthrms:	3
Total Half Baths:	
Total Xtra Fixtrs:	1
Total Rooms:	6
Bath Style:	Average
Kitchen Style:	Modern



(<http://images.vgsi.com/photos/BrooklynCTPhotos/\00\00\02\13.JPG>)

Building Layout



(<http://images.vgsi.com/photos/BrooklynCTPhotos//Sketches/251>)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	1,595	1,595
EAU	Attic, Expansion, Unfinished	1,373	0
FBM	Basement, Finished	1,583	0
FGR	Garage	648	0
FOP	Porch, Open	70	0
UAT	Attic, Unfinished	648	0
		5,917	1,595



Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
FPL1	FIREPLACE 1 ST	1 UNITS	\$1,500	1
FPO	EXTRA FPL OPEN	2 UNITS	\$1,100	1
KIT1	EXTRA KITCHEN	1 UNITS	\$3,500	1

Land

Land Use

Use Code 1010
Description Single Fam MDL-01
Zone RA
Neighborhood 0050
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 105.00
Frontage
Depth
Assessed Value \$232,530
Appraised Value \$447,400

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

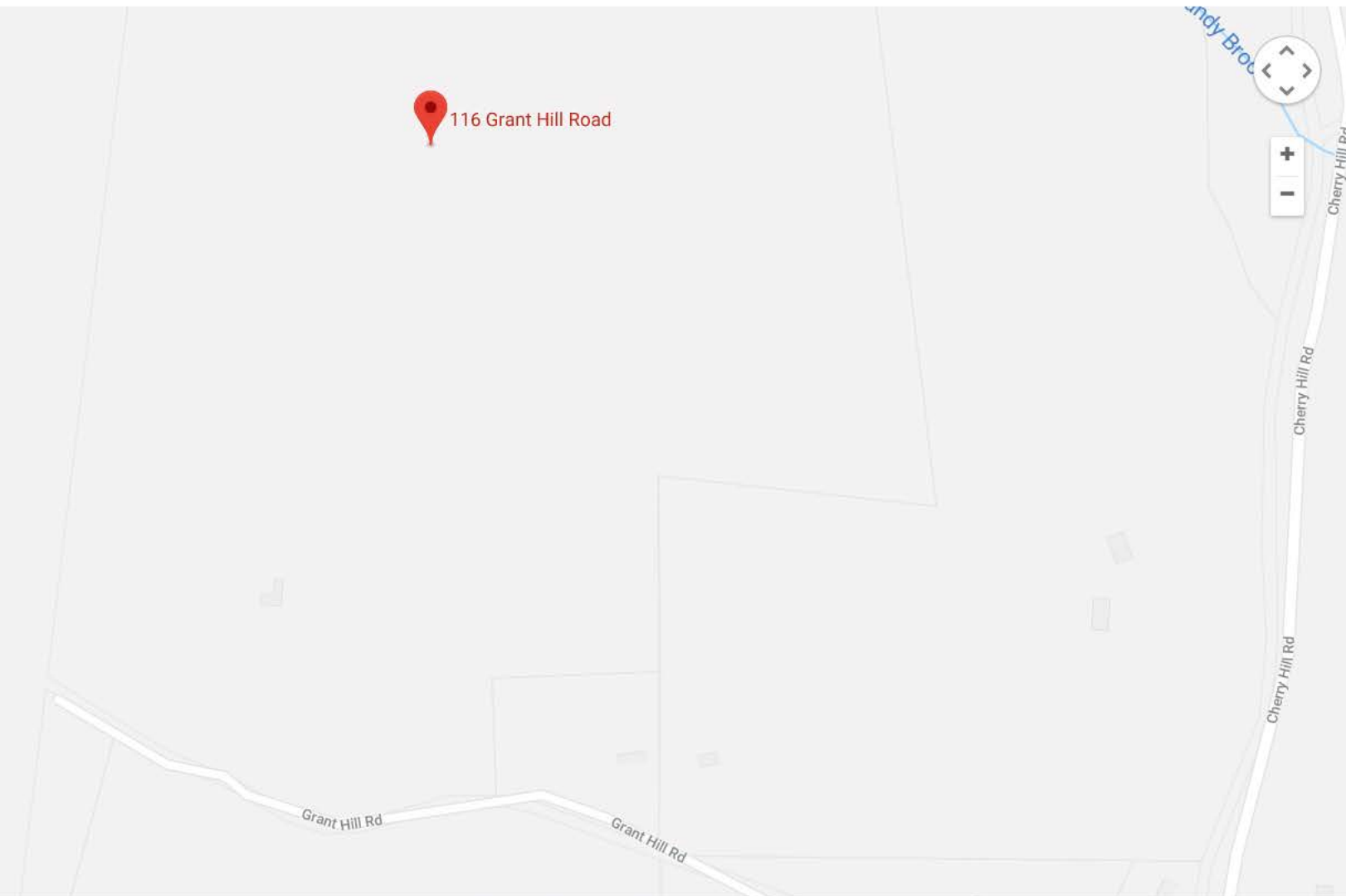
Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$147,300	\$447,400	\$594,700
2016	\$147,300	\$447,400	\$594,700
2015	\$147,300	\$447,400	\$594,700

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$103,200	\$232,530	\$335,730
2016	\$103,200	\$232,530	\$335,730
2015	\$103,200	\$232,530	\$335,730

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116 Grant Hill Road



Sprint



CROWN CASTLE

PROJECT: DO MACRO UPGRADE
 SITE NAME: HAMPTON / BERNIER
 SITE CASCADE: CT33XC567
 SITE NUMBER: 876390
 SITE ADDRESS: 116 GRANT HILL ROAD
 BROOKLYN, CT 06234
 SITE TYPE: MONOPOLE TOWER
 MARKET: N. ENGLAND

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

SITE INFORMATION

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

LATITUDE (NAD83):
41° 47' 29.64" N
-72° 01' 49.56" W

LONGITUDE (NAD83):
-72° 01' 49.56" W

COUNTY:
WINDHAM

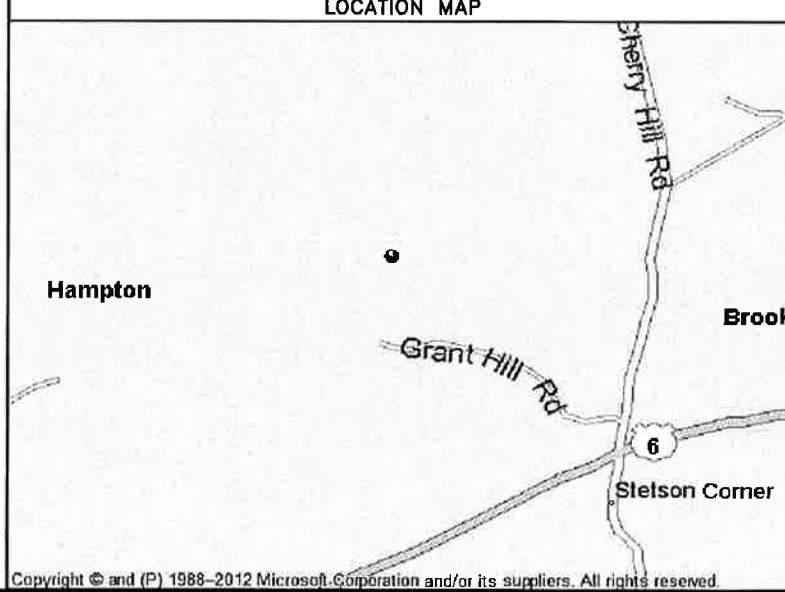
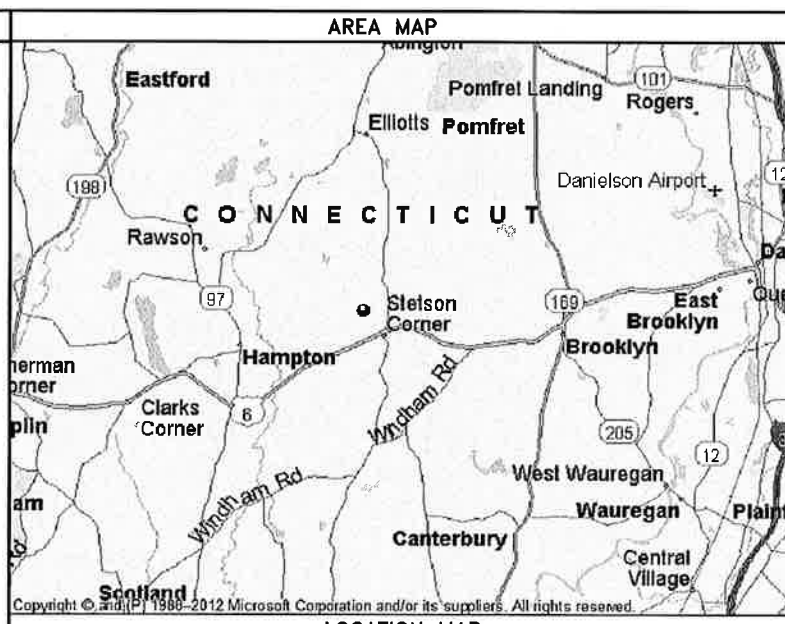
ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

ZONING DISTRICT:
RESIDENTIAL

POWER COMPANY:
CONNECTICUT LINE & POWER
(800) 286-2000

SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 236-9228



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET
- REMOVE (6) EXISTING PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS (3 800/1900, 3 2500)
- INSTALL (12) RRR'S TO TOWER (6 800, 3 1900, 3 2500)
- INSTALL (4) FIBER CABLE
- REMOVE (6) EXISTING COAX CABLE

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

APPLICABLE CODES

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

- INTERNATIONAL BUILDING CODE (2015 IBC)
- TIA-222-G OR LATEST EDITION
- NFPA 780 - LIGHTNING PROTECTION CODE
- 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
- ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

DRAWING INDEX

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A-5	CIVIL DETAILS	2
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DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	08/06/18	JOB	2
MEMO REDESIGN	08/06/18	JOB	1
ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/10/17	ETC	A

SITE NAME:
HAMPTON / BERNIER

SITE CASCADE:
CT33XC567

SITE ADDRESS:
116 GRANT HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1



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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- 1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.
- 1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:
 - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
 - 1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
 - 5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 - 3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
 - 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
 - 5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
 - 6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
 - 7. AMERICAN CONCRETE INSTITUTE (ACI)
 - 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 - 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 - 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 - 11. PORTLAND CEMENT ASSOCIATION (PCA)
 - 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 - 13. BRICK INDUSTRY ASSOCIATION (BIA)
 - 14. AMERICAN WELDING SOCIETY (AWS)
 - 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 - 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 - 17. DOOR AND HARDWARE INSTITUTE (DHI)
 - 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 - 19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

- A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
- B. COMPANY: SPRINT CORPORATION
- C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
- D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
- E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
- G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

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

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193
- 1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

- 3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.
- 3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.
- 3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.
- 3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
 - 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- PART 2 – PRODUCTS (NOT USED)**
- PART 3 – EXECUTION**
- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
 - A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.
 - B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
 - 1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
 - 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
 - 3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
 - 4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
 - 5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
 - 6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

- A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
- B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.
- C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

PLANS PREPARED FOR:



PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:



DRAWING NOTICE:

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	08/06/18	JDB	2
MIMO REDESIGN	08/06/18	JDB	1
ISSUED FOR CONSTRUCTION	01/04/18	WRL	0
ISSUED FOR REVIEW	11/10/17	ETC	A

SITE NAME:

HAMPTON / BERNIER

SITE CASCADE:

CT33XC567

SITE ADDRESS:

116 GRANT HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNA AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
 1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION
- E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

- A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER
- B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
 1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
 2. PROJECT PROGRESS REPORTS.
 3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

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

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 SUBMITTALS:
 - A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
 - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
 1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
 2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
 3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
 4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
 5. CHEMICAL GROUNDING DESIGN
 - D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. COAX SWEEPS AND FIBER TESTS PER CURRENT VERSION OF SPRINT'S TS-0200 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. AZIMUTH, DOWNTILT, AZIMUTH, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
 2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 3. ALL AVAILABLE JURISDICTIONAL INFORMATION
 4. PDF SCAN OF REDLINES PRODUCED IN FIELD

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

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

- A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
 2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
 3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
 4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
 5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
 6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
 7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
 8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
 9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

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

PLANS PREPARED FOR:



6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



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SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

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SP-2

CONTINUE FROM SP-2

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

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

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

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

PLANS PREPARED FOR:



PLANS PREPARED BY:



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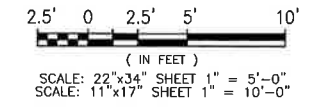
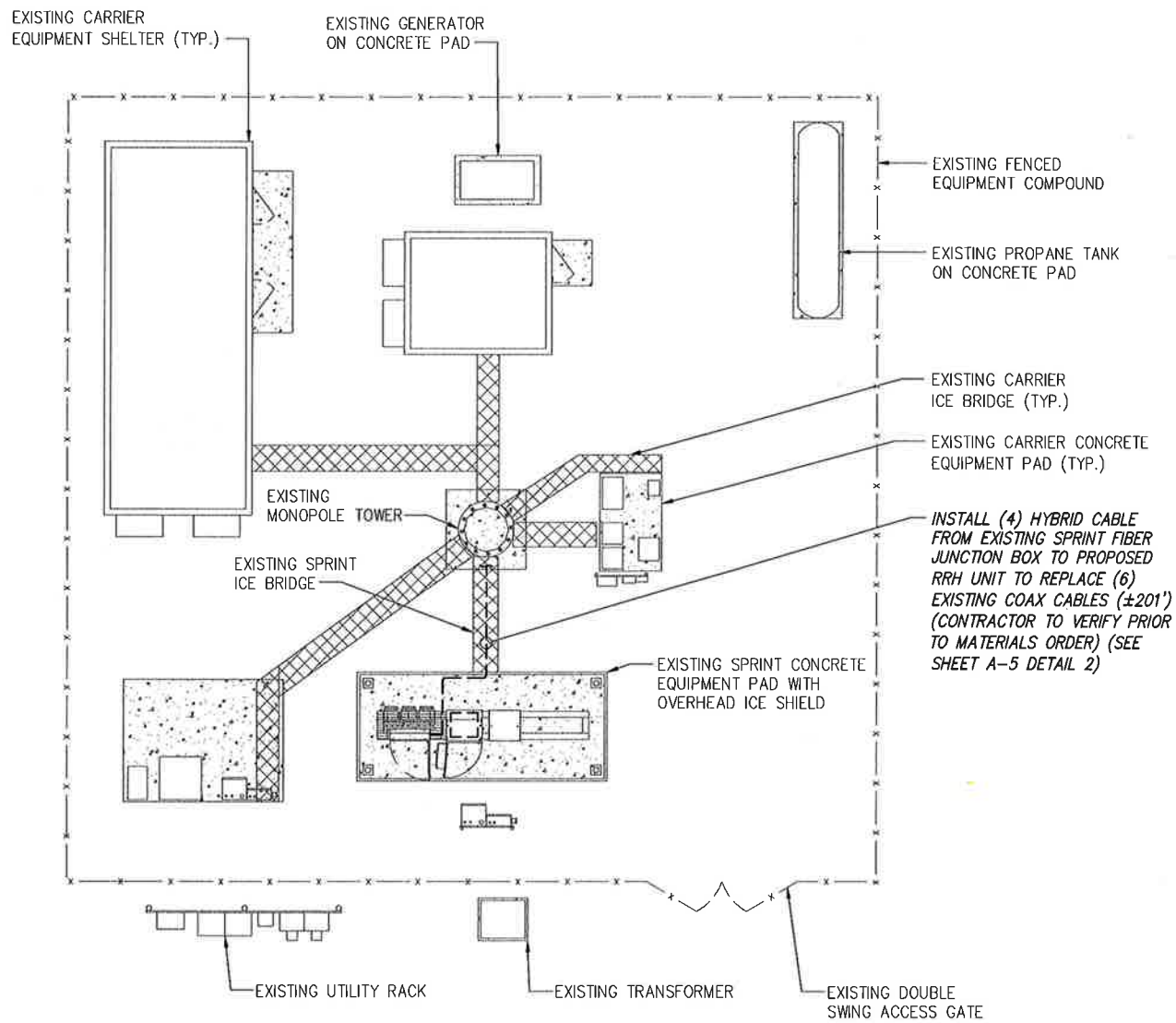
**116 GRANT HILL ROAD
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SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



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

OVERALL SITE PLAN

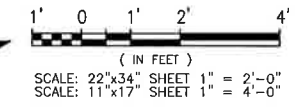
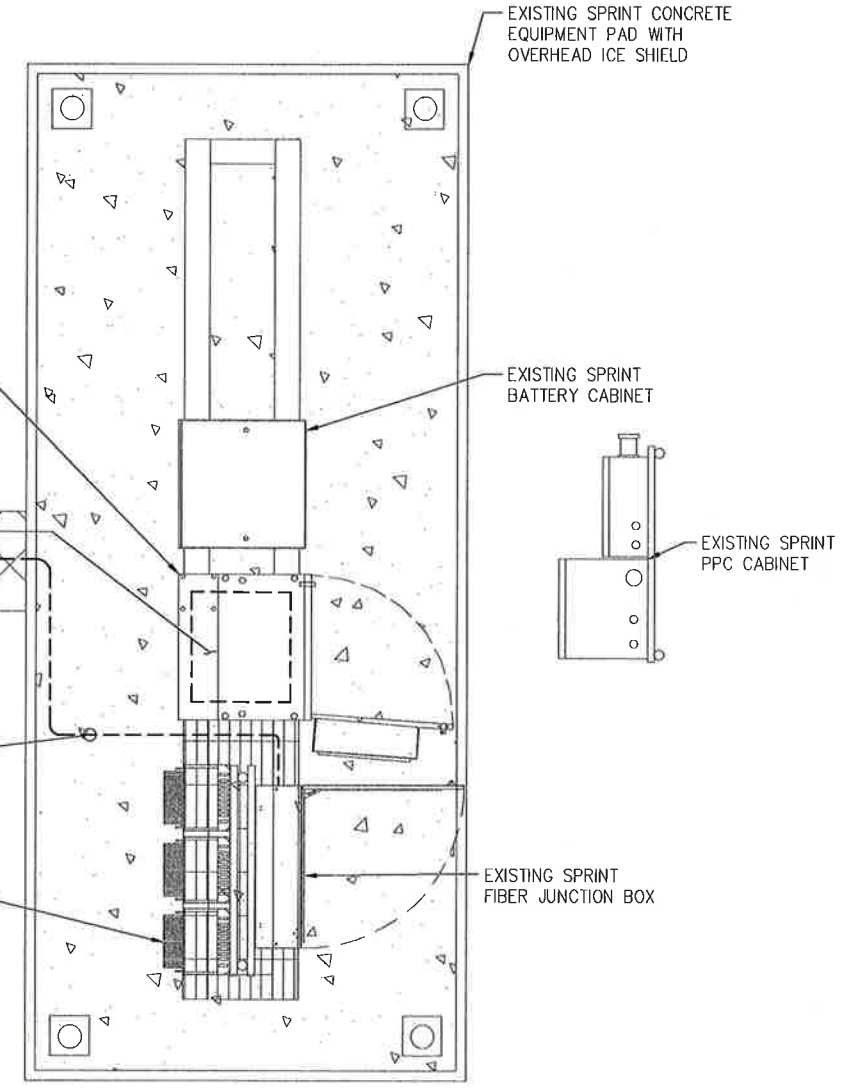
SCALE: AS NOTED 1

EXISTING SPRINT MM BTS CABINET

INSTALL (3) NEW RECTIFIERS AND EQUIPMENT IN EXISTING CABINET INCLUDING BUT NOT LIMITED TO BASE BAND UNIT, CELL SITE ROUTER, SURGE ARRESTERS AND CONNECT POWER AND FIBER UNIT INSIDE EXISTING N.V. MMBS (SEE SHEET A-5 DETAIL 3)

INSTALL (4) HYBRID CABLE FROM EXISTING SPRINT FIBER JUNCTION BOX TO PROPOSED RRH UNIT TO REPLACE (6) EXISTING COAX CABLES (±201') (CONTRACTOR TO VERIFY PRIOR TO MATERIALS ORDER) (SEE SHEET A-5 DETAIL 2)

EXISTING (1) 1900 MHz RRH TO BE RELOCATED BEHIND EXISTING PANEL ANTENNA EACH SECTOR



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER SP-2 SECTION 26 200 ITEM E.

SPRINT EQUIPMENT PLAN

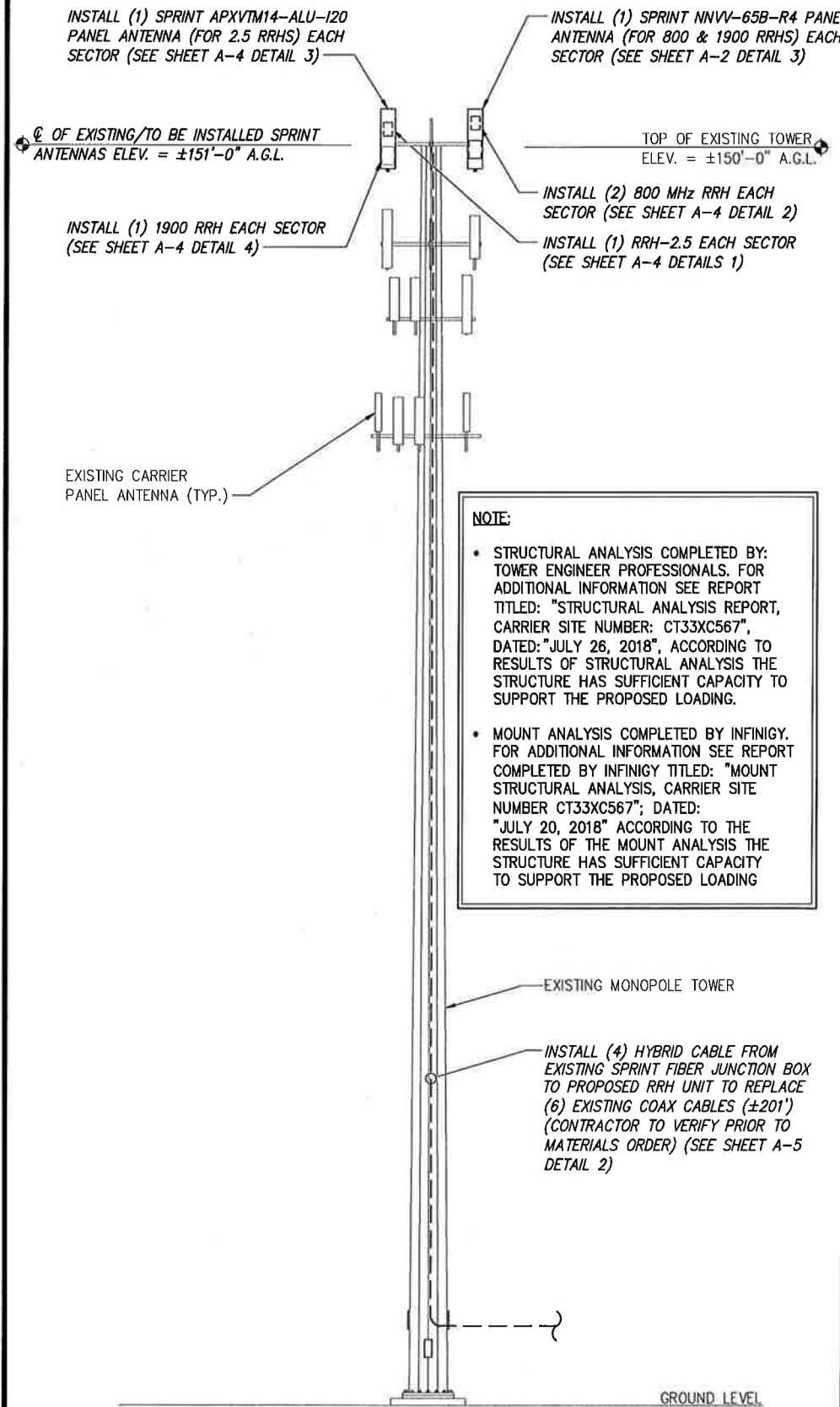
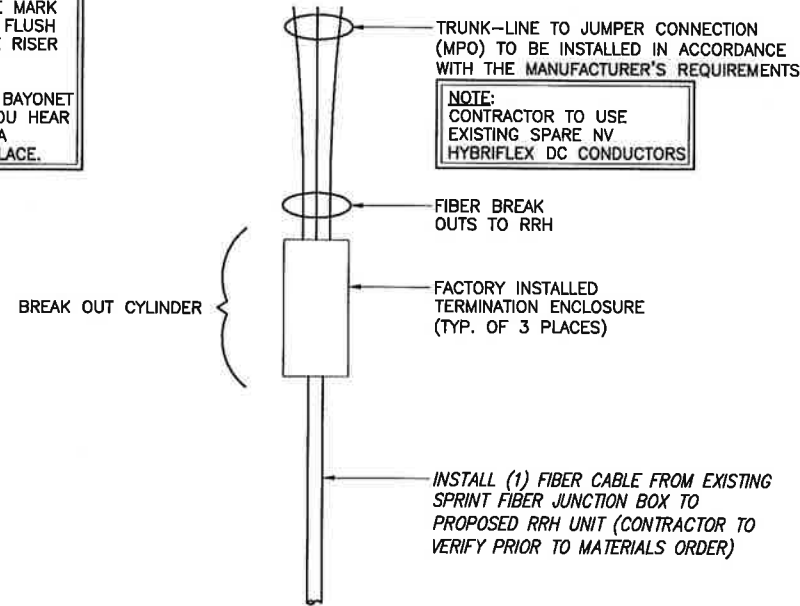
SCALE: AS NOTED 2

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

NOTE:
CONTRACTOR TO LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.

CONTRACTOR TO ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND TO ENSURE A PROPER CONNECTION IS IN PLACE.

NOTE:
CONTRACTOR TO USE EXISTING SPARE NV HYBRIFLEX DC CONDUCTORS

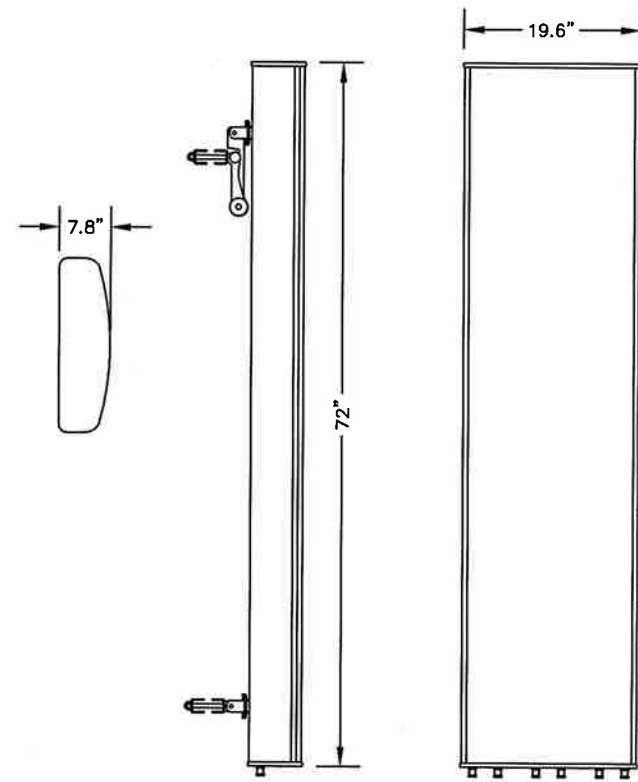


NOTE:

- STRUCTURAL ANALYSIS COMPLETED BY: TOWER ENGINEER PROFESSIONALS. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT33XC567", DATED: "JULY 26, 2018", ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY INFINIGY TITLED: "MOUNT STRUCTURAL ANALYSIS, CARRIER SITE NUMBER CT33XC567"; DATED: "JULY 20, 2018" ACCORDING TO THE RESULTS OF THE MOUNT ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING

HYBRID BREAKOUT DETAIL

NO SCALE 2



ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL: FIBERGLASS
 RADOME COLOR: LIGHT GREY
 DIMENSIONS, HxWxD.in(mim): 72"x19.6"x7.8"
 WEIGHT: 77.4 lbs
 CONNECTORS: (8) 4.3-10 DIN FEMALE

TOWER ELEVATION

NO SCALE 1

800/1900 ANTENNA

NO SCALE 3

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PLANS PREPARED BY:

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ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/10/17	ETC	A

SITE NAME:
HAMPTON / BERNIER

SITE CASCADE:
CT33XC567

SITE ADDRESS:
**116 GRANT HILL ROAD
BROOKLYN, CT 06234**

SHEET DESCRIPTION:
**TOWER ELEVATION
& CABLE PLAN**

SHEET NUMBER:
A-2



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SITE NAME:
HAMPTON / BERNIER

SITE CASCADE:
CT33XC567

SITE ADDRESS:
**116 GRANT HILL ROAD
BROOKLYN, CT 06234**

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

SHEET NUMBER:
A-3

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

NOTE:
CONTRACTOR TO PROVIDE NEW ANTENNAS PIPE MOUNTS.

INSTALL (1) RRH-2.5 EACH SECTOR (SEE SHEET A-4 DETAILS 1)

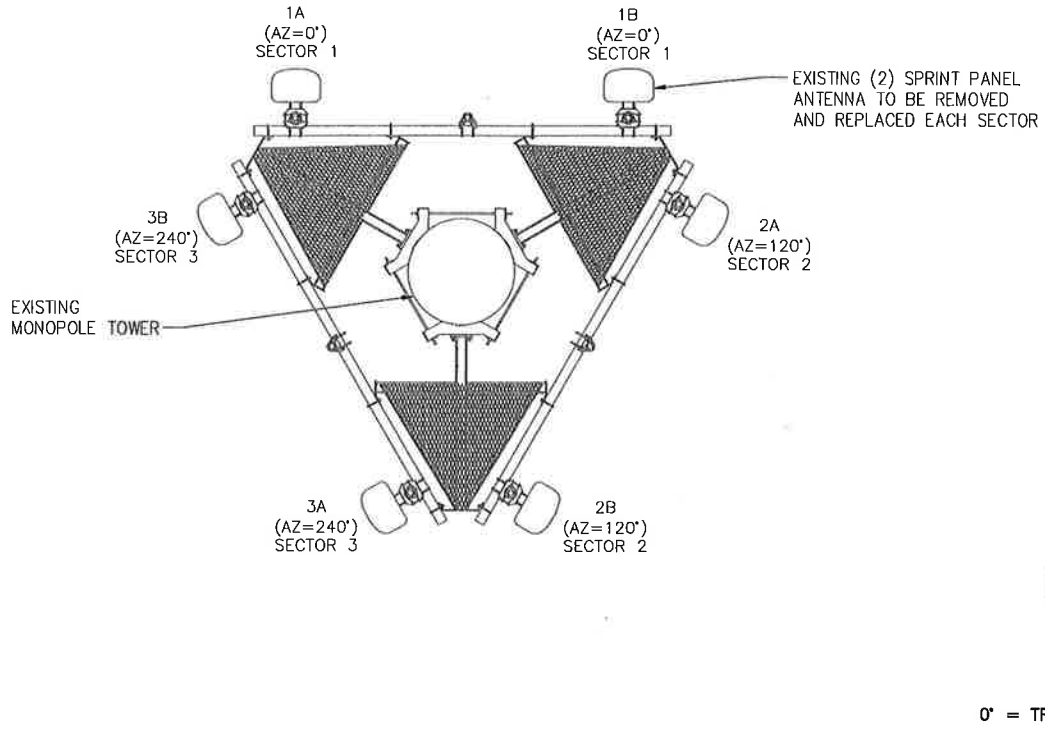
INSTALL (1) SPRINT NNVV-65B-R4 PANEL ANTENNA (FOR 800 & 1900 RRHS) EACH SECTOR (SEE SHEET A-2 DETAIL 3)

INSTALL (2) 800 MHZ RRH EACH SECTOR (SEE SHEET A-4 DETAIL 2)

INSTALL (1) SPRINT APXVTM14-ALU-120 PANEL ANTENNA (FOR 2.5 RRHS) EACH SECTOR (SEE SHEET A-4 DETAIL 3)

INSTALL (1) 1900 RRH EACH SECTOR (SEE SHEET A-4 DETAIL 4)

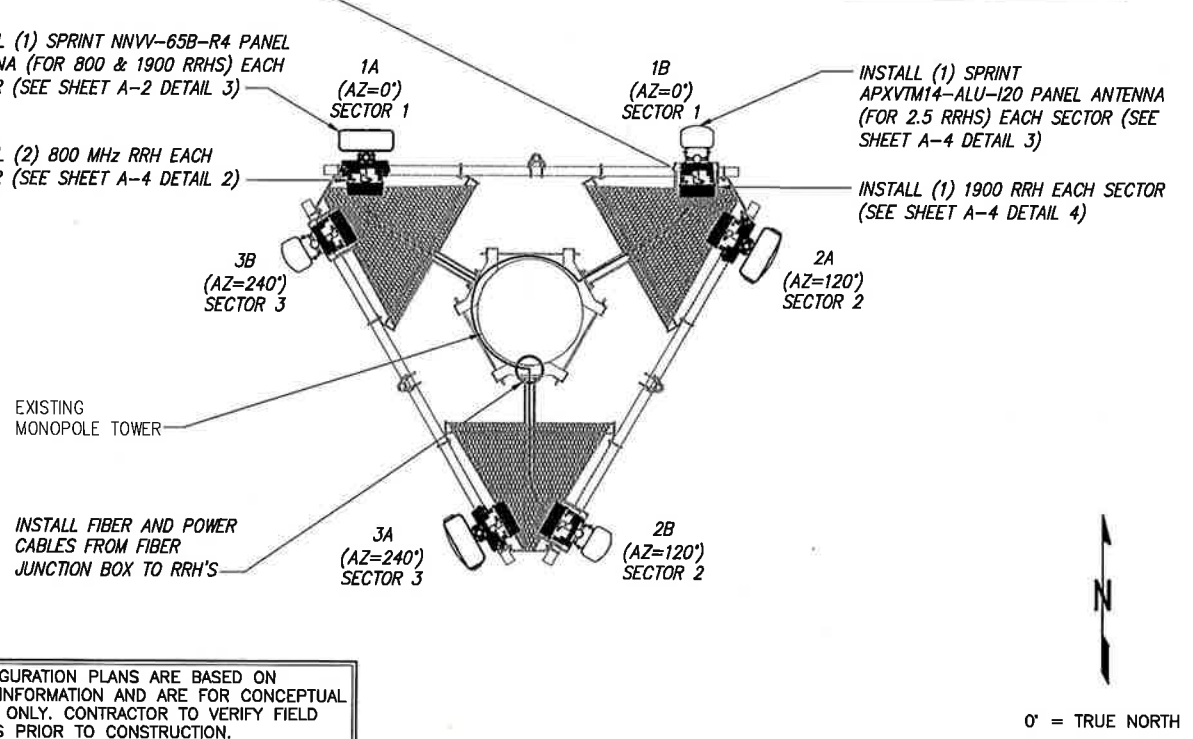
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



EXISTING ANTENNA LAYOUT

NO SCALE

1



FINAL ANTENNA & RRH LAYOUT

NO SCALE

2

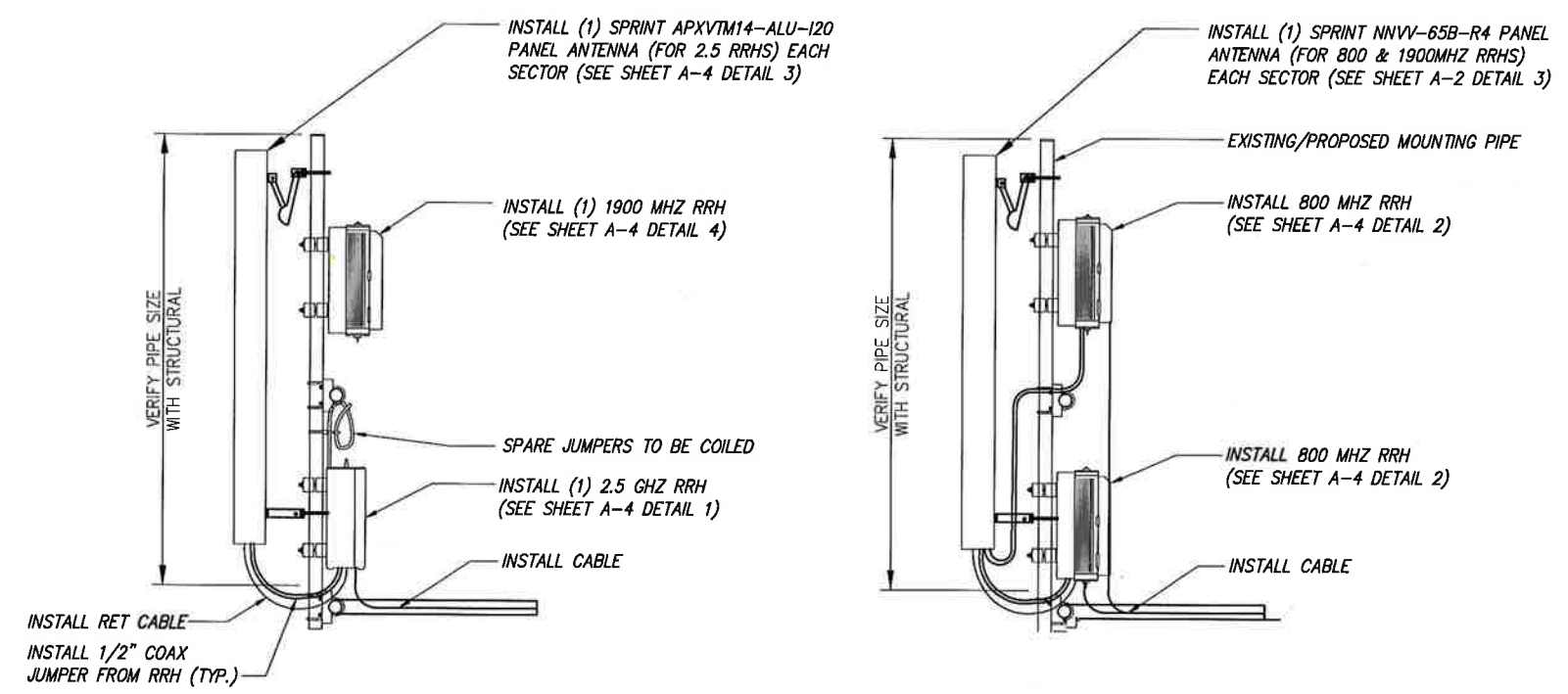
NOTES:

- ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.
- VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.
- NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.
- 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.
- IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.
- GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILT DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
- AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
- GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
- GENERAL CONTRACTOR IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. [HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/](http://www.3ztelecom.com/antenna-alignment-tool/)

NOTES

NO SCALE

3



NOTES:

- CUT DC CONDUCTORS TO LENGTH.
- COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
- DO NOT EXCEED BEND RADIUS.

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

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

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

TYPICAL ANTENNA & RRH MOUNTING DETAILS

NO SCALE

4

RFS HYBRIFLEX RISER CABLE SCHEDULE

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

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

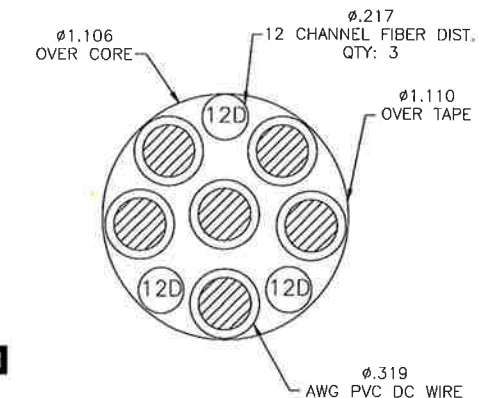
Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1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

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

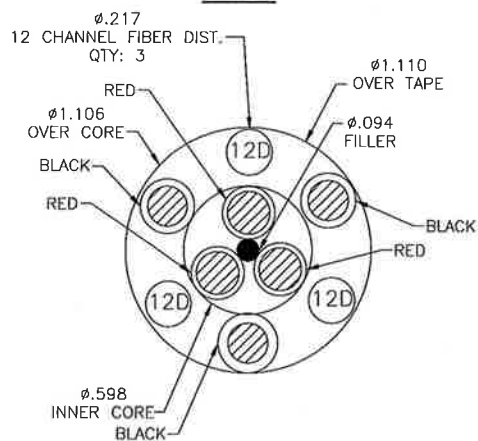
2.5 CABLE CROSS SECTION DATA

NO SCALE

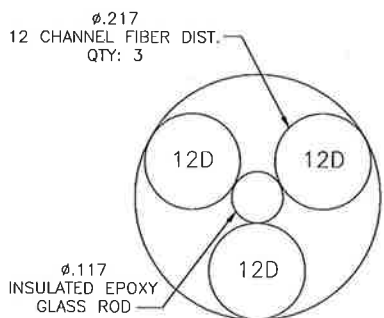
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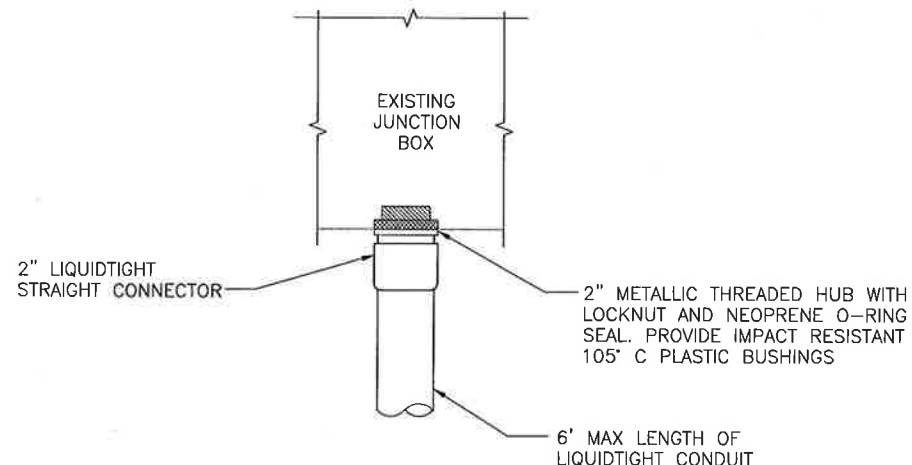
4 AWG



8 & 6 AWG



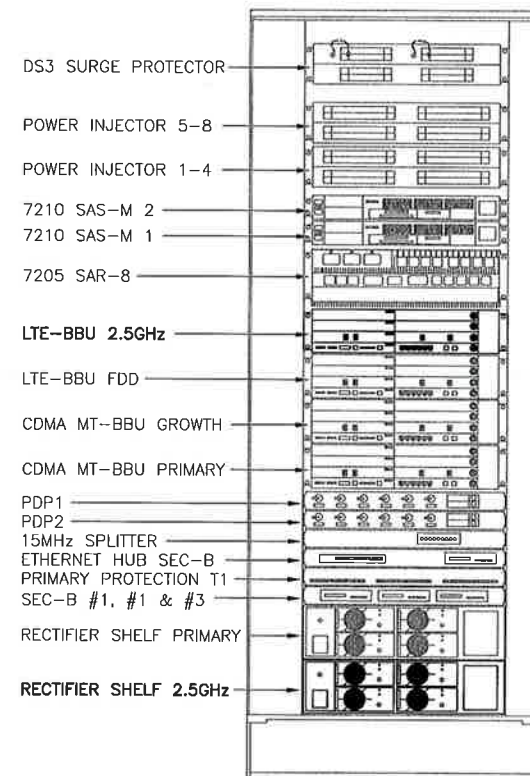
FIBER ONLY



FIBER JUNCTION BOX PENETRATION

NO SCALE

2



CABINET LAYOUT

NO SCALE

3

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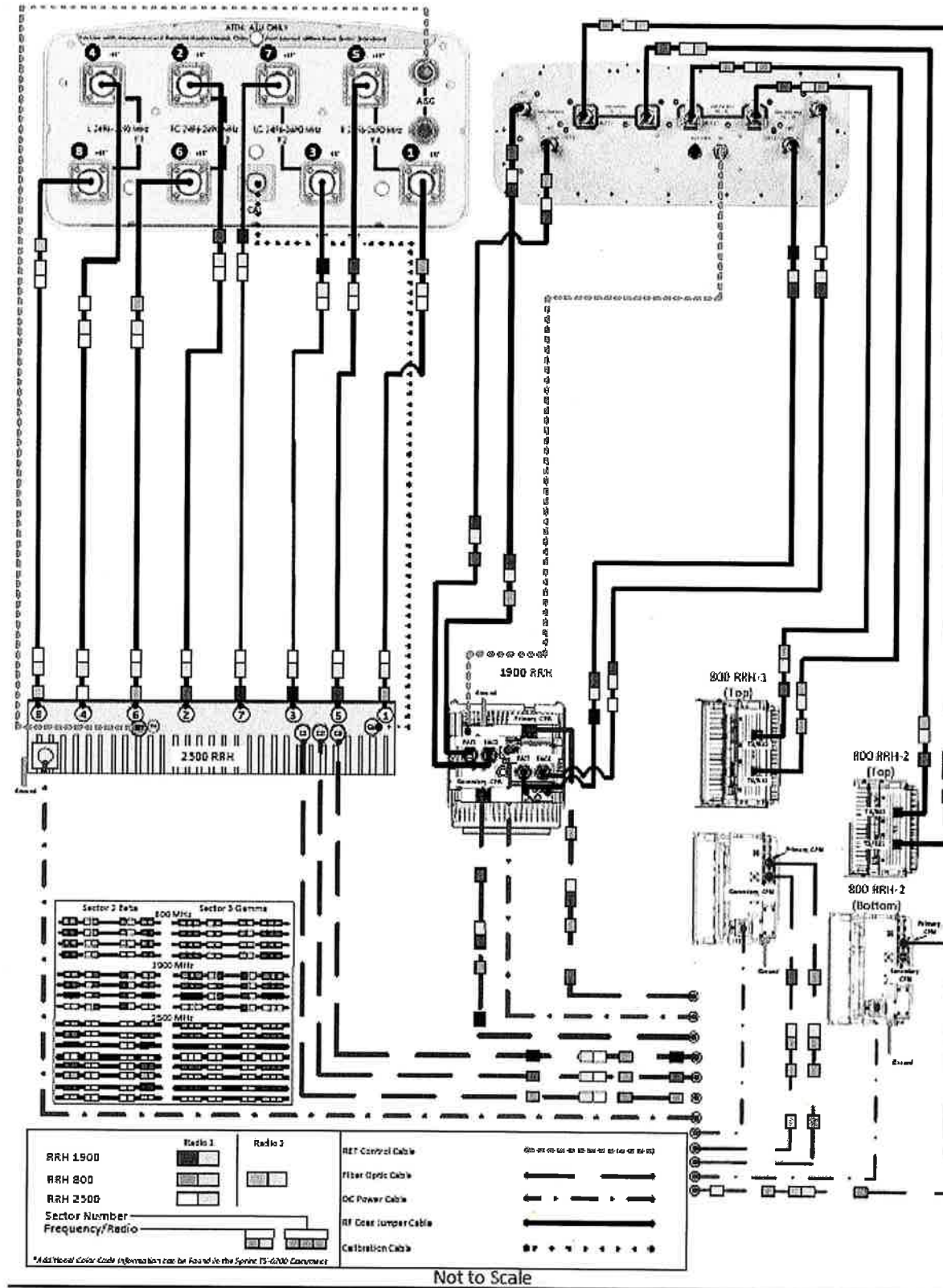
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SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



PLUMBING DIAGRAM

NO SCALE

1

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SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION					
SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/ODU MAKE AND MODEL
1	COMMSCOPE	NNVV-65B-R4	151'	0°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	151'	0°	(1) ALU 2.5GHZ RRH8X20-25
2	COMMSCOPE	NNVV-65B-R4	151'	120°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	151'	120°	(1) ALU 2.5GHZ RRH8X20-25
3	COMMSCOPE	NNVV-65B-R4	151'	240°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	151'	240°	(1) ALU 2.5GHZ RRH8X20-25

FEEDER CABLES				
MANUFACTURER	MODEL	LENGTH	QTY	
RFS/CELWAVE	HB114-1-0813U4-M5J	201±	(3)	
RFS/CELWAVE	HB114-13U3M12-200F	201±	(1)	

LEGEND
EXISTING
PROPOSED

NOTES:
 1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT DATA AT TIME OF CONSTRUCTION.
 2. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.

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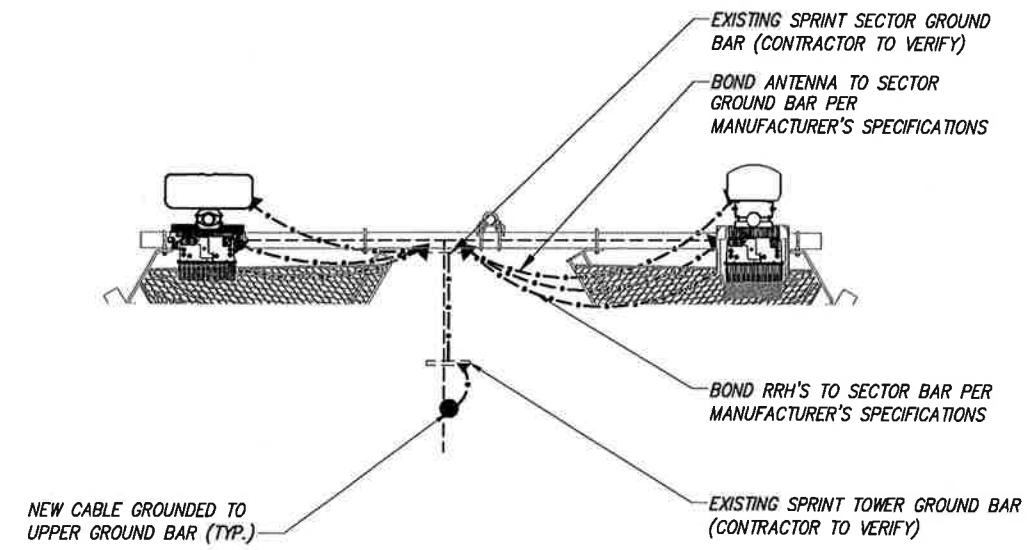
CROWN CASTLE

ENGINEERING LICENSE:


PLAN NOT USED

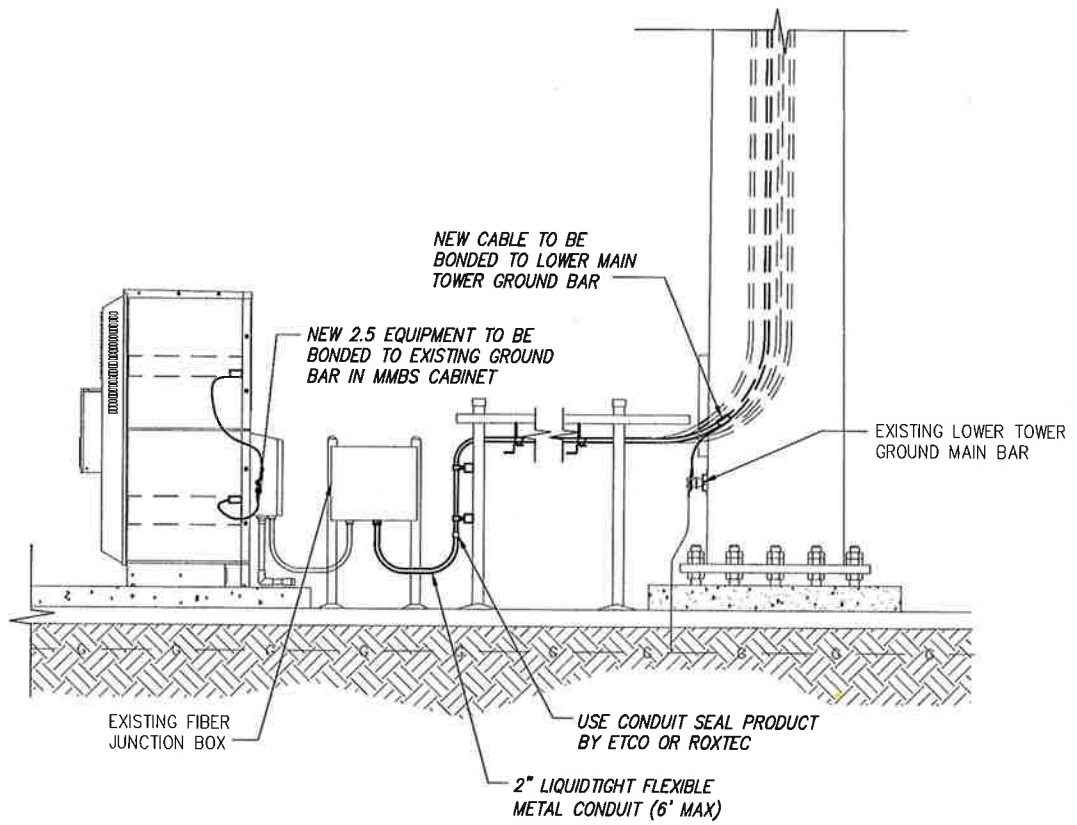
NO SCALE 1

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)

NO SCALE 3

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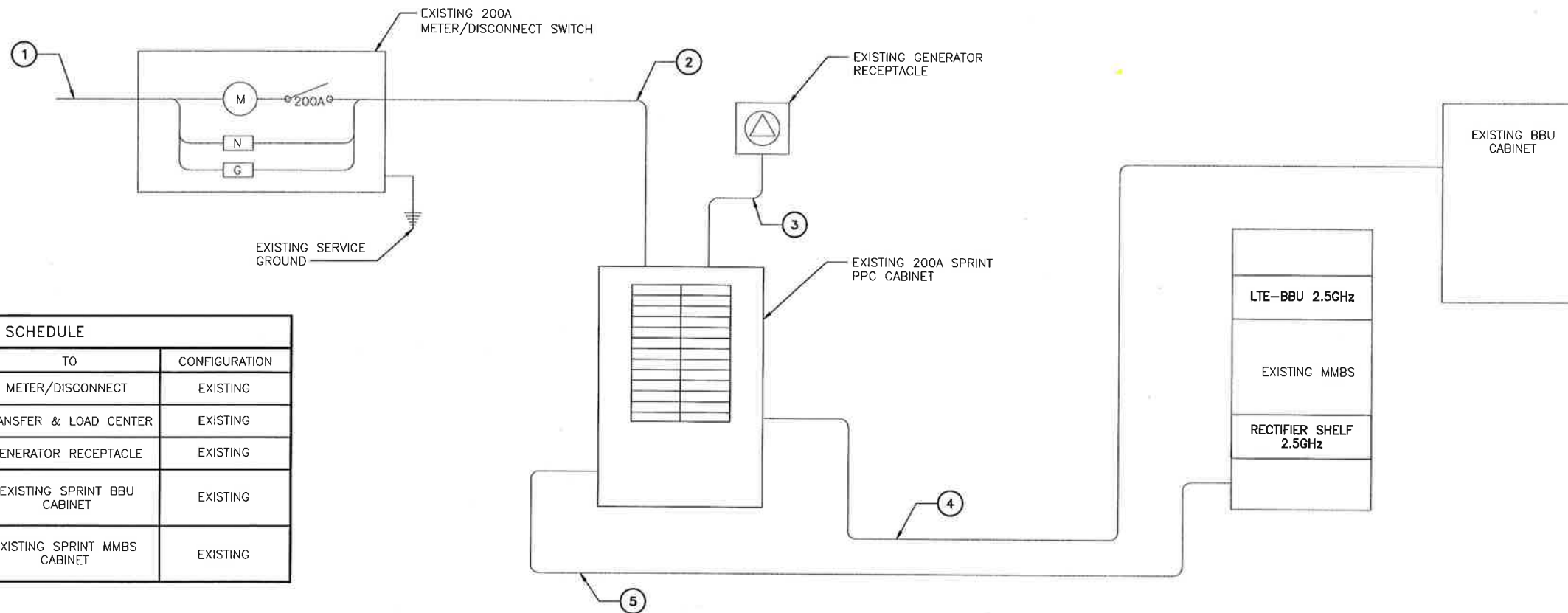
SITE CASCADE:
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SITE ADDRESS:
 116 GRANT HILL ROAD
 BROOKLYN, CT 06234

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

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



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
①	UTILITY SOURCE	METER/DISCONNECT	EXISTING
②	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
③	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
④	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
⑤	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

ELECTRICAL ONE-LINE DIAGRAM

NO SCALE 1

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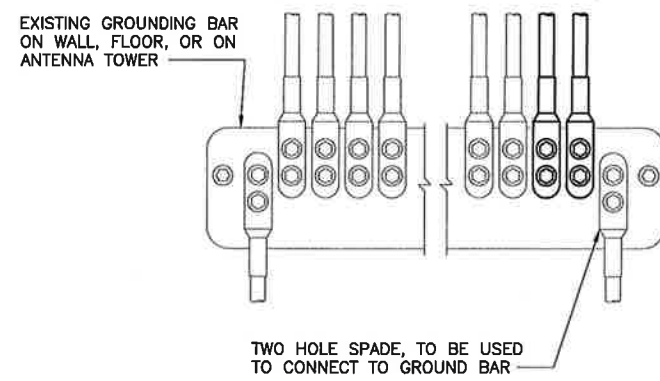
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CT33XC567

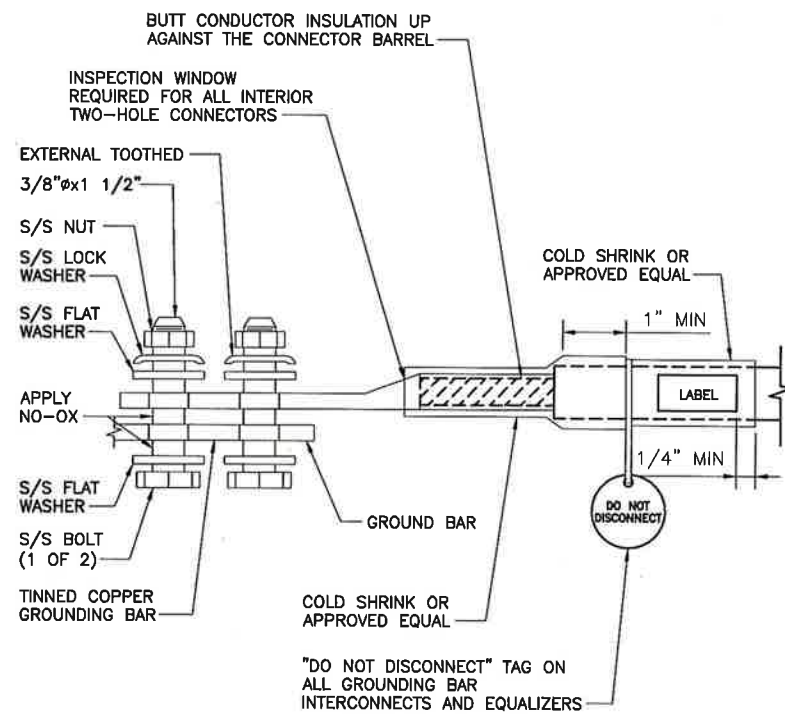
SITE ADDRESS:
 116 GRANT HILL ROAD
 BROOKLYN, CT 06234

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-2

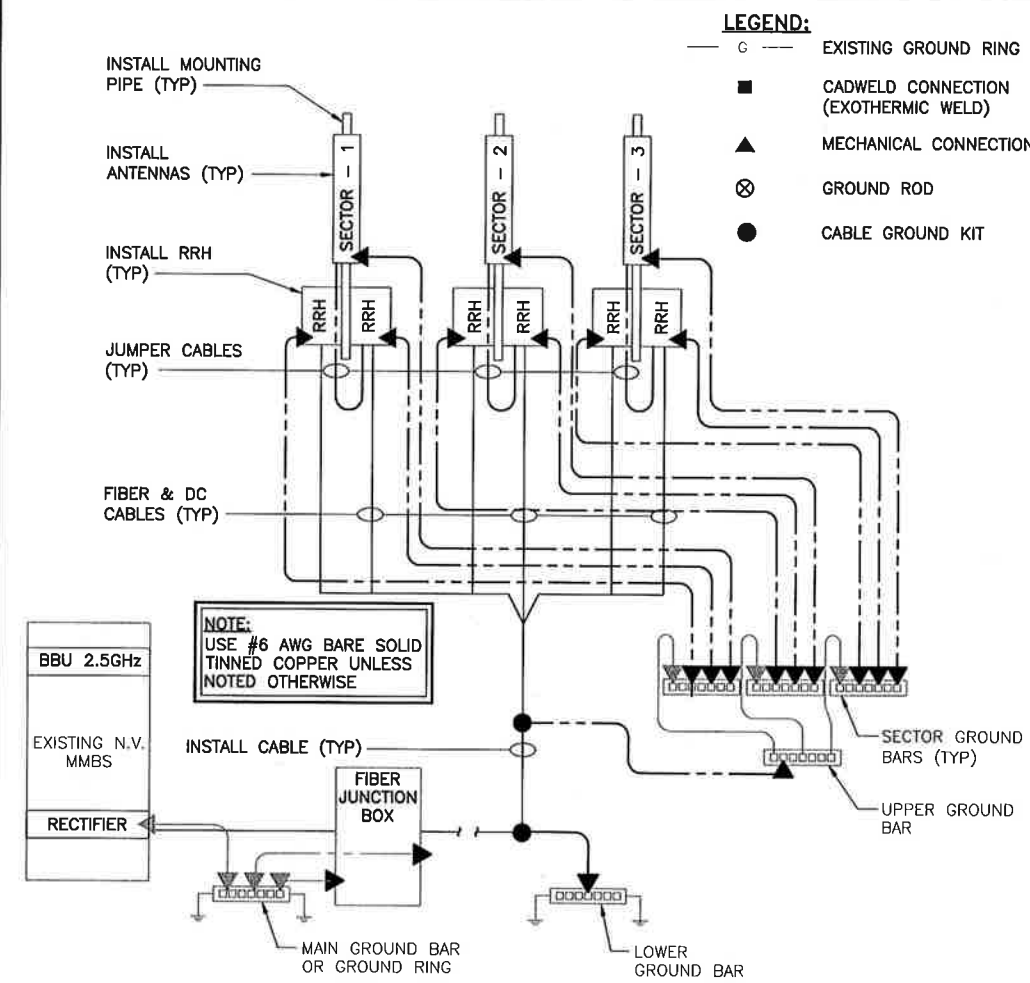


NOTES
 1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
 2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.



TWO HOLE LUG

NO SCALE 3



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

GROUNDING RISER DIAGRAM

NO SCALE 4

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE 2

PLANNING AND ZONING COMMISSION

TOWN OF BROOKLYN

CONNECTICUT 06234

RECEIVED
TOWN CLERK'S OFFICE

00 FEB -2 PM 2:33

RECORDED VOL. PAGE

Gene A. Mainville

TOWN CLERK, BROOKLYN, CT

MINUTES

Planning & Zoning Commission Date/Time: Wednesday, January 5, 2000
Public Hearing and Regular Meeting 7:30 p.m. at The Community Center

Present: Chairman Bruce Parsons, Commission Members, John Wilcox, Steve Sondak, Eugene Koslow, Hans Koehl. Also Zoning Enforcement Officer, Chuck Dobrowski. Not Present: Tom Hogarty, Austin Tanner, Ron Wood and James Montstream.

Chairman Bruce Parsons called the Regular Meeting to order at 7:31 p.m. for the nomination of officers. John Wilcox asked Bruce Parsons to Chair the Commission. John Wilcox nominated Bruce Parsons as Chairman, Steve Sondak second motion, all in favor, motion carried. Bruce Parsons nominated John Wilcox as Vice-Chairman, Hans Koehl second motion, all in favor, motion carried. John Wilcox nominated Ron Wood as secretary, Steve Sondak second, all in favor, motion carried. The Regular Meeting was recessed.

Chairman Bruce Parsons opened the Public Hearing at 7:34 p.m. and read the legal notice for the record.

1. SPR99-20 Sprint PCS Communications, Site Collection, Inc., proposal of telecommunications tower 116 Grant Hill Road.

Attorney Tom Reagan presented certified receipts and outlined letter to Commission. Attorney Reagan spoke about Sprint's acquiring licenses for wireless communications. There are no tall structures existing in this area for wireless communications. Sprint looked for a large wooded property which would be unobtrusive to the public. The Grant Hill property is ideal because of its access from Route 6 and the large wooded property, which is approximately 105 acres. Attorney Reagan and Don Duthaler presented graphics of wireless coverage in the Windham area, the gap of coverage, and the placement of the communications tower. The proposed plan would include a 400' gravel access road from Route 6 to the location of the tower, a 75' x 75' - 6' chained link fence will be placed area around the tower, the tower is a 150' mono-poll with a triangular structure at the top 72" wide, 2" high, the base of the tower is 3' to 18" diameter at the top. Mr. Duthaler presented the visibility study done with a balloon. Attorney Reagan commented that the application complies with all regulations, they will not require FA markings, no lights or illumination will be needed, and there will be no advertising signs. Attorney Reagan asked if the board had any questions. Chairman Bruce Parson opened the hearing to the public.

Attorney Reagan presented the power density study for the record. Power used is very low, the maximum is 4.4%. It is a very low wattage facility, far below the FCC regulations. Bill Macnamara asked if it was going to help analog and digital communications. Pete Rukstella, Christian Hill Road, wanted to know what type of power it used. Carl Sentore said it used 200 amp service, draws 60 amps, low draw electricity is wise. Underground facilities, no backup generators, battery backup in self contained cabinets, and serviced monthly by Sprint. Joe Kovalck, 41 Cherry Hill Road, asked was .0447 milli-watt meant, and was concerned the tower would be an eyesore to his property. Mr. Chaturredi of LLC International-Sprint PCS stated the maximum exposure was 1 milli-watt per FCC, they use .0447 milli-watt. The Commission looked at

maps and noted that Mr. Kovalck's property is about 2000' N.E. of his property line. Mr. Kovalck wanted to know if it was possible to have the balloon put up again. Chairman Bruce Parson said you cannot ask them to put it up again. Mr. Kovalck asked why does it need to be 15 stories high? Attorney Reagan said it needs to be over trees for maximum coverage. They go by what they are governed by. Mr. asked if there was a possibility it may be camouflaged. Attorney Reagan said the reason they use the monopoll is that it is the least obtrusive and preferred design. Eugene Koslow asked is there was an alternate site. Attorney Reagan said they looked at two alternative sites, but this site was the best for maximum coverage and the least obtrusive to the public. Chairman Bruce Parsons asked if there was any other questions.

At 8:05 p.m., with no further public comment, Chairman Bruce Parsons closed the Public Hearing.

Chairman Bruce Parsons called the Regular Meeting to Order at 8:05 p.m. Chairman Bruce Parsons appointed Bill Macnamara as an Alternate.

John Wilcox moved to approve the previous Minutes of the December 1, 1999 Public Hearing and Regular Meeting. Steve Sondak seconded the motion, all in favor, motion passed.

Old Business:

1. SPR99-20 Sprint PCS Communications - John Wilcox moved to approve the application as submitted and presented, Hans Koehl seconded. All in favor, motion passed.

New Business:

1. GB99-03 Jolley Sand & Gravel, gravel bank renewal, Wauregan Road, ZEO Chuck Dobrowski said there have been no problems, it is a renewal. John Wilcox asked about bond - bond continued. Hans Koehl made motion to approve, Eugene Koslow second motion, all in favor, motion carried.

2. GB99-04 Ken Niemann, gravel bank renewal, Allen Hill Road, ZEO Chuck Dobrowski said it was the same. John Wilcox made motion to approve, Steve Sondak second, all in favor, motion carried.

3. GB99-05 Richard Regis, gravel bank renewal, Allen Hill Road, ZEO Chuck Dobrowski said it was the same. Hans Koehl made motion to approve, Eugene Koslow second, all in favor, motion carried.

4. ZC99-04 Open Bible Baptist Church, request for change of zone from Restricted Business to Residential Agricultural, Grange property, Prince Hill Road. John Wilcox made motion to go to a Public Hearing at the next regularly scheduled meeting on February 2, 2000. Eugene Koslow second motion, all in favor, motion carried.

5. David Fuss - grinding of stumps and compost facility, Allen Hill Road. Mr. Fuss said he walked the property with DEP. The facility would be for grinding of stumps and brush - all clean wood waste. ZEO Chuck Dobrowski said when Mr. Fuss initially came in he thought it was something besides agricultural use. Chairman Bruce Parsons stated that DEP would watch a use as this, and it is definitely an agricultural use. David Fuss commented that the materials would be up to 2500 yards of unprocessed and 500 yards of processed. John Lombardi from Economic Development spoke and said he found Mr. Fuss' idea of a grinding and compost facility a conforming use and a good way to keep agriculture in town. Chairman Bruce Parsons asked if anyone had questions for Mr. Fuss. Hans Koehl asked if Mr. Fuss would be accepting leaves. Mr. Fuss said yes to clean brush. John Wilcox stated this is a conforming use for the record. Chairman Bruce Parsons asked if it is the consensus of the board that it is a conforming use. All members said yes.

Other Business:

a. A map was presented about the realignment of the Route 169 and Route 205 intersection. ZEO Chuck Dobrowski stated it fell within the Village Center District (VCD) and the DOT approached the Town about realignment. John Lombardi of Economic Development commented the consensus was it is a concern that this may be changed. Chairman Bruce Parsons commented that the Stop sign should be on Route 205, not Route 169 as it is presently, because Route 169 is the main thoroughfare. John Lombardi said the DOT did not consider the VCD, but it gives the Town the opportunity to reconfigure the intersection. First Selectman Maury Bowen said the this may be a proposal to bring before a Public Hearing. This was the end of the discussion regarding this issue.

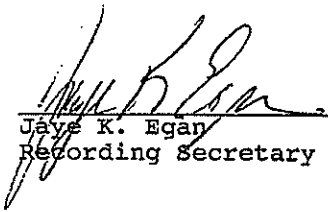
b. John Wilcox moved to bring Bill Macnamara from an Alternate to a regular member of the Commission. Eugene Koslow second. All in favor, motion carried. Chairman Bruce Parsons asked if anyone was interested in becoming a member. David Fuss said he would be interested.

c. ZEO Chuck Dobrowski said Kenyon Oil wanted to add a vacuum station to the existing plan. John Wilcox asked if the Commission had not just approved the site plan, would it be required to bring it before the Commission? Chairman Bruce Parsons said there would be no change in parking and it was a permitted use. ZEO Chuck Dobrowski said that Kenyon is just being overly cautious. Hans Koehl asked if it was a decision the Commission usually makes, ZEO Chuck Dobrowski said yes.

d. ZEO Chuck Dobrowski distributed a report of zoning activity for the month of December.

e. Citizen Participation

At 8:55 p.m. Hans Koehl made motion to Adjourn meeting, John Wilcox seconded, all in favor, motion passed.



Jaye K. Egan
Recording Secretary

PLANNING & ZONING COMMISSION TOWN OF BROOKLYN

ZONING PERMIT

On the plot plan (see building application, back page), supply the following information:

1. Location and size of existing and proposed buildings, structures and driveways*.
2. Property lines and dimensions of lot.
3. Well and septic system location
4. Wetlands and watercourses. **

* New Residential and/or Commercial Construction must obtain a driveway permit prior to the issuance of a Zoning Permit.

** If a permit is required from the Conservation, Inland Wetland Commission, it must be obtained prior to issuance of a Zoning Permit.

I hereby attest that the above information is true and correct to the best of my knowledge. I understand that 1) I am responsible for ensuring that all structures are built in conformance with the Zoning Regulations in effect on the date this permit issued; 2) I may be required to remove any structure(s) for which this permit is issued if it (they) are found to be in violation of those Zoning Regulations; 3) that this is not a Building Permit and that such must be obtained from the Building Official before this construction can begin; and 4) that any new construction based on this permit must commence within 12 months of the date this permit was approved.

Donald E. Dunahy
Applicant's Signature
Acting as agent for
Spectrum, LP

THIS BOX FOR OFFICE USE ONLY

Permit #21# _____ Date Received _____

Street Name and Number _____

Wetlands _____

Driveway Permit if Applicable _____

ESC Measures _____ NDD11 Approval _____

Conforming _____ Non-Conforming _____

Fee \$ 35 Cash Check # 0588

Certificate of Zoning Compliance

I certify that the proposed structure(s) permitted by the above Zoning Permit appears to be in compliance with the Zoning Regulations of the Town of Brooklyn, in effect on the date of issuance of the above permit.

Zoning Enforcement Officer

TOWN OF BROOKLYN ZONING PERMIT REQUIREMENTS

Prior to issuance of a Zoning Permit the following will be in place for all new construction on residential lots when required:

1. Permanent boundary markers (ie. monumentation and iron pins) at property limits. String run from marker to marker along the lot line to facilitate measuring setbacks.
2. Foundation corners staked out so Zoning Enforcement Officer can determine if house location complies with application.

Note: If the Zoning Enforcement Officer is unable to reasonably make the necessary measurements, the owner will be required to provide an as-built sketch stamped with the seal of a certified land surveyor or professional engineer, registered in the State of Connecticut.

3. Erosion and sedimentation measures (installed properly) as per approved ESC plan.

The Zoning Enforcement Officer will inspect the site and forward the Zoning Permit to the Building Official if all requirements are met.

Connecticut State Law (PA 84-174) requires that before a Certificate of Occupancy can be issued, a Zoning Certificate of Compliance must be obtained from the "official charged with the enforcement of zoning regulations". This requires a final inspection to ensure conditions of the application and initial inspection were complied with.

PERMIT NO. **No. 005802** APPLICATION FOR BUILDING PERMIT TOWN OF BROOKLYN CONNECTICUT
 (Application must be typed or printed)

LOCATION OF JOB (NO. & STREET) 116 Short Hill	CARD NO.	MAP 4	BLOCK	LOT 5
OWNER Robert Bernini	TEL	ADDRESS (NO., STREET, TOWN, STATE, ZIP) None		
APPLICANT Sprint Spectrum	TEL	ADDRESS (NO., STREET, TOWN, STATE, ZIP) 9 Barnes Ind. Rd Wallingford Ct 06492		
BUILDER	TEL	ADDRESS (NO., STREET, TOWN, STATE, ZIP)		
LICENSE #	NAME & TEL. # OF PERSON RESPONSIBLE			

All Permits Must Be Posted And Visible From The Street

SIZE OF BUILDING STORIES _____ NO. OF FAMILIES _____ HEIGHT _____ DEPTH _____ FRONT _____ TOTAL FLOOR AREA (NEW) _____ SQ.FT.	DISTANCES FROM LOT LINE (Circle Front Lot Line) EAST _____ WEST _____ NORTH _____ SOUTH _____ PROPOSED USE <input type="checkbox"/> NEW HOME (Single Family) <input type="checkbox"/> MULTI FAMILY _____ # OF BEDROOMS _____ WATER SUPPLY _____ <input type="checkbox"/> ADDITION _____ <input type="checkbox"/> GARAGE _____ <input type="checkbox"/> DECK/PORCH _____ <input type="checkbox"/> SHED _____ <input type="checkbox"/> POOL _____ <input type="checkbox"/> COMMERCIAL/PUBLIC _____ <input type="checkbox"/> OTHER _____	OTHER REQUIREMENTS ZONING PERMIT _____ REQ'D. _____ ATTACHED _____ PLOT PLAN _____ REQ'D. _____ ATTACHED _____ SEPTIC PERMIT _____ REQ'D. _____ ATTACHED _____ APPROVALS ZONING _____ FIRE MARSHAL _____ WETLAND _____ ENGINEER _____ SANITATION _____ STREET SUPT. _____ FEE COVERS <input checked="" type="checkbox"/> CONSTRUCTION 118,000 836 <input type="checkbox"/> PLUMBING _____ <input type="checkbox"/> HEATING _____ <input type="checkbox"/> ELECTRICAL _____ <input type="checkbox"/> SEPTIC _____ <input checked="" type="checkbox"/> ZONING _____ 35 <input type="checkbox"/> OTHER _____ TOTAL 871 CHECK # 0588 DATE PAID 4-6-00
TYPE OF WORK BEING DONE <input type="checkbox"/> ORIG. CONSTRUCTION <input type="checkbox"/> REPAIR <input type="checkbox"/> ALTERATION <input type="checkbox"/> DEMOLITION <input type="checkbox"/> ADDITION _____	TYPE OF HEAT <input type="checkbox"/> ELECTRIC <input type="checkbox"/> SOLAR <input type="checkbox"/> GAS <input type="checkbox"/> OTHER _____ <input type="checkbox"/> OIL _____	BUILDING PLANS _____ REQUIRED _____ ATTACHED _____ MATERIALS LIST _____ ON PLANS _____ ATTACHED _____

DESCRIPTION OF WORK / REMARKS:

150' ~~tower~~ telecommunication tower

All work covered by this application has been authorized by the (owner) or (agent) of this property and will be done according to state regulations. This permit shall lapse if work does not commence within 6 months.

4/17/00 Date	Robert Bernini Owner/Agent Signature	<input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED
4/17/00 Date	J.R. Building Official	

Date: **July 26, 2018**

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



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation: **Sprint PCS Co-Locate**
Carrier Site Number: CT33XC567
Carrier Site Name: N/A

Crown Castle Designation: **Crown Castle BU Number:** 876390
Crown Castle Site Name: HAMPTON / BERNIER
Crown Castle JDE Job Number: 501751
Crown Castle Work Order Number: 1571193
Crown Castle Order Number: 438440 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 25693.205658

Site Data: **116 Grant Hill Rd., Brooklyn, Windham County, CT 06234**
Latitude 41° 47' 29.64", Longitude -72° 0' 54.04"
150 Foot - Monopole Tower

Dear Marianne Dunst,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1192914, in accordance with order 438440, revision 0.

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

LC5: Existing + Proposed Equipment

Note: See Table I and Table II for the proposed and existing loading, respectively.

Sufficient Capacity

This analysis has been performed in accordance with the 2016 Connecticut State Building Code (2012 International Building Code) based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3.1 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum Topographic Factor, K_{zt} , of 1.512 and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Matthew Fry E.I.T. / PRS

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

07/26/2018

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Additional Calculations

1) INTRODUCTION

This tower is a 150-ft monopole tower designed by Engineered Endeavors, Inc. in February of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. The tower has been modified per reinforcement drawings prepared by Tower Engineering Professionals in May of 2008. TEP visited the site in January of 2009 to perform a post modification inspection. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a nominal 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness, and 60 mph under service loads with the following design criteria:

Type of Analysis: **Rigorous Structural Analysis**

Classification of Structure: **Class II**

Exposure Category: **Exposure B**

Topographic Category: **Category 5**

Structure is located on a ridge with the following topographic features in accordance with the SEAW RSM-03 SEAW's Handbook of Rapid-Solutions Methodology for Wind Design and the ASCE 7-10 Minimum Design Loads for Buildings and Other Structures: Crest Height = 110.0-ft, Slope Distance = 920-ft, Distance from Crest = 0-ft, Max $K_z = 1.512$.

Earthquake Category: **Not Considered**

Earthquake effects may be ignored per this standard for site locations where S_s does not exceed 1.0. (Windham County Max $S_s = 0.173$).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
149.0	151.0	3	Commscope	NNVV-65B-R4 w/ Mount Pipe	4	1-1/4	1
		3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe			
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
		6	Alcatel Lucent	RRH2X50-800			
	3	Alcatel Lucent	TD-RRH8x20-25				
	149.0	1	SitePro1	CAGE TOP			
1		SitePro1	HRK12-3HD				

Notes:

- 1) See "Appendix B - Base Level Drawing" for assumed feed line configuration.

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
149.0	151.0	6	Decibel	DB980H90E-M w/ Mount Pipe	6	1-5/8	2
	149.0	1	Tower Mounts	Platform Mount [LP 712-1]	-	-	1
137.0	138.0	3	Commscope	LNx-6515DS-VTM w/ Mount Pipe	12	1-5/8	1
		3	EMS Wireless	RR90-17-02DP w/ Mount Pipe			
		3	Commscope	ATBT-Bottom-24V			
	3	Ericsson	KRY 112 71/2				
	137.0	1	Tower Mounts	Platform Mount [LP 1201-1]			
129.0	129.0	1	Tower Mounts	Side Arm Mount [SO 102-3]	-	-	1
	127.0	3	Ericsson	TME-RRUS-11			
127.0	129.0	3	KMW Communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe	3 12	3/8 1-1/4	1
		6	Powerwave Technologies	7770.00 w/ Mount Pipe			
	127.0	6	Powerwave Technologies	LGP 17201			
		6	Powerwave Technologies	LGP13519			
		1	Raycap	DC6-48-60-18-8F			
		1	Tower Mounts	Side Arm Mount [SO 102-3]			
		1	Tower Mounts	T-Arm Mount [TA 601-3]			
117.0	119.0	3	Antel	BXA-171085-12CF-EDIN-2 w/ Mount Pipe	18	1-5/8	1
		3	Antel	BXA-70063-6CF-2 w/ Mount Pipe			
		6	Antel	LPA-80080/4CF w/ Mount Pipe			
	117.0	1	Tower Mounts	Platform Mount [LP 303-1]			
90.0	100.0	1	Dbspectra	DS9A09F36D-N	1 2	1/2 1-1/4	1
	90.0	1	Bird Technologies Group	TTA-429-94C-08179			
		1	Tower Mounts	Pipe Mount [PM 601-1]			
		1	Tower Mounts	Side Arm Mount [SO 307-1]			
76.0	77.0	1	Lucent	KS24019-L112A	1	1/2	1
	76.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing equipment
- 2) Existing equipment to be removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	150.0	9	Decibel	DB980-H90	-	-
140.0	140.0	12	DAPA	48000	-	-
130.0	130.0	12	DAPA	48000	-	-
120.0	120.0	12	DAPA	48000	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Criscuolo Shepard Associates	1615347	CCISites
Tower Foundation Drawings	EEI	1615410	CCISites
Tower Manufacturer Drawings	EEI	1533003	CCISites
Tower Reinforcement Drawings	Tower Engineering Professionals	2255030	CCISites
Post Modification Inspection	Tower Engineering Professionals	2383064	CCISites

3.1) Analysis Method

tnxTower (version 8.0.2.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built in accordance with the manufacturer's specifications.
- 2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not analyze antennas supporting mounts as part of this structural analysis report.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	ΦP_{allow} (K)	% Capacity	Pass / Fail
L1	150 - 123.29	Pole	TP22.9x17x0.188	1	-8.61	929.34	66.6	Pass
L2	123.29 - 88.88	Pole	TP30x21.77x0.313	2	-15.45	2119.57	88.0	Pass
L3	88.88 - 43.8	Pole	TP39.2x28.45x0.375	3	-26.72	3326.15	95.5	Pass
L4	43.8 - 0	Pole	TP48x37.269x0.438	4	-43.62	4800.46	90.1	Pass
							Summary	
						Pole (L3)	95.5	Pass
						RATING =	95.5	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	87.5	Pass
1	Base Plate	-	70.6	Pass
1	Base Foundation Soil Interaction	-	81.0	Pass
1	Base Foundation Structural	-	47.9	Pass

Structure Rating (max from all components) =	95.5%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.



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

SPRINT Existing Facility

Site ID: CT33XC567

Hampton / Bernier
116 Grant Hill Road
Brooklyn, CT 06234

September 18, 2018

EBI Project Number: 6218006147

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.82 %



September 18, 2018

SPRINT

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

Emissions Analysis for Site: **CT33XC567 – Hampton / Bernier**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **116 Grant Hill Road, Brooklyn, 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 tower that exposes persons in a nearby residential area.

General population 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 **116 Grant Hill Road, Brooklyn, 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 for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all 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 50 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 tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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 **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** 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 for directional panel antennas, 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 panel antennas are **151 feet** above ground level (AGL) for **Sector A**, **151 feet** above ground level (AGL) for **Sector B** and **151 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:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	151 feet	Height (AGL):	151 feet	Height (AGL):	151 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	1.56 %	Antenna B1 MPE%	1.56 %	Antenna C1 MPE%	1.56 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	151 feet	Height (AGL):	151 feet	Height (AGL):	151 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	1.06 %	Antenna B2 MPE%	1.06 %	Antenna C2 MPE%	1.06 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.62 %
AT&T	2.35 %
T-Mobile	1.75 %
Verizon Wireless	2.79 %
CL&P	0.31 %
Site Total MPE %:	9.82 %

SPRINT Sector A Total:	2.62 %
SPRINT Sector B Total:	2.62 %
SPRINT Sector C Total:	2.62 %
Site Total:	9.82 %

SPRINT _ Frequency Band / Technology (All Sectors)	# 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	376.73	151	0.64	850 MHz	567	0.11%
Sprint 850 MHz LTE	2	941.82	151	3.22	850 MHz	567	0.57%
Sprint 1900 MHz (PCS) CDMA	5	511.82	151	4.38	1900 MHz (PCS)	1000	0.44%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	151	4.38	1900 MHz (PCS)	1000	0.44%
Sprint 2500 MHz (BRS) LTE	8	778.09	151	10.64	2500 MHz (BRS)	1000	1.06%
						Total:	2.62%



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:	2.62 %
Sector B:	2.62 %
Sector C:	2.62 %
SPRINT Maximum MPE % (per sector):	2.62 %
Site Total:	9.82 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **9.82 %** 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.

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