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

September 18, 2017

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

RE: **Notice of Exempt Modification for Sprint/ Crown Site BU: 806953**
Sprint PCS Site ID: CT03XC344
69 Guinea Road (Camp Rocky Craig), Stamford, CT 06903
Latitude: 41° 6' 6.35"/ Longitude: -73° 35' 41.45"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 158-foot level of the existing 160-foot monopole tower at 69 Guinea Road (Camp Rocky Craig) in Stamford, Connecticut. The tower is owned by Crown Castle. The property is owned by the Girl Scouts of Connecticut Inc. Sprint intends to install (6) antennas and (3) RRUs, a junction box, and (3) mini-macro radios.

This facility was approved by the Connecticut Siting Council on April 2, 1998, Docket No. 180. This approval included the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services and not exceed a height of 160 ft.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 of the Regulations of CT State Agencies.

3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

4. The Certificate Holder shall provide the council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

This modification complies with the aforementioned condition(s).

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 The Honorable David Martin, Mayor of the City of Stamford, the City Principal Planner David W. Woods PhD, AICP , and to the land owner the Girl Scouts of Connecticut Inc. 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.

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

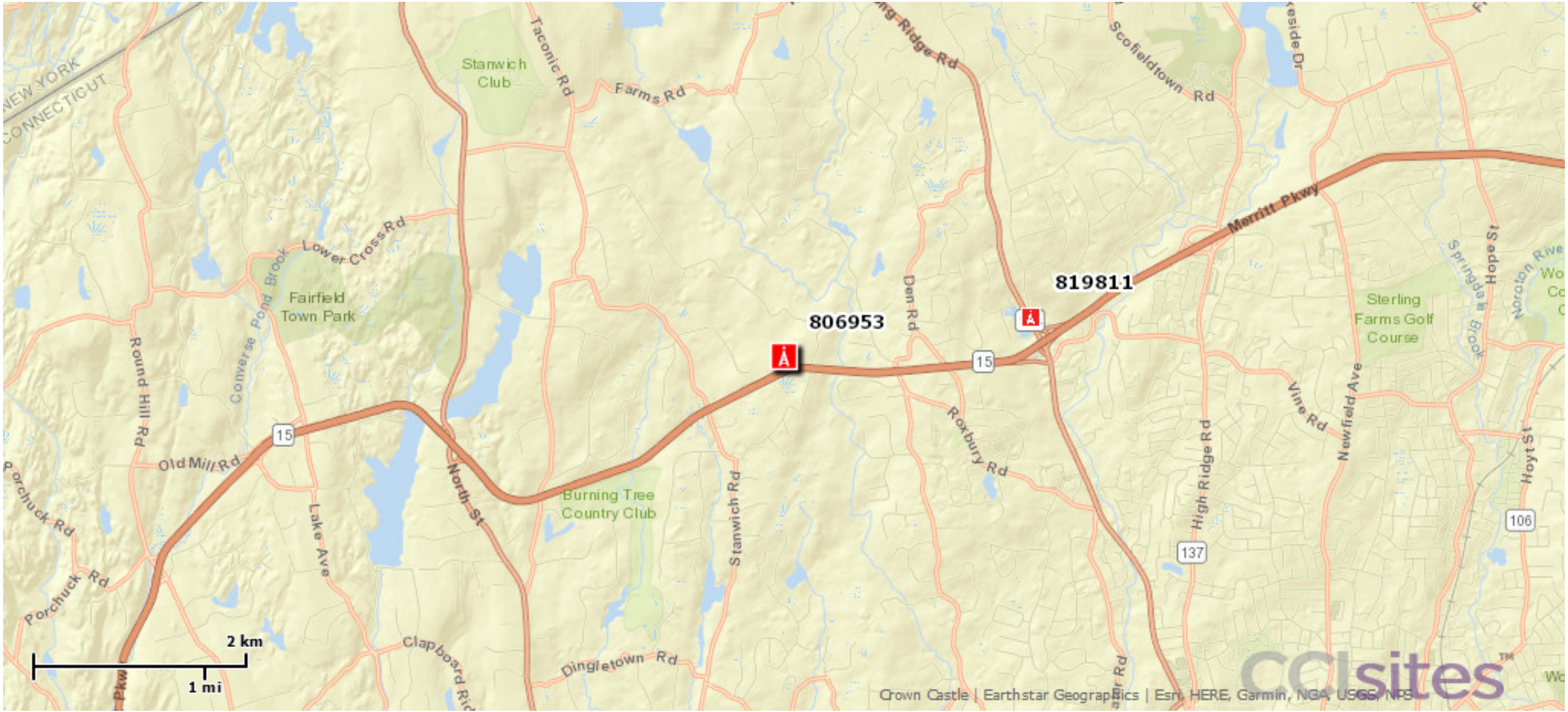
Attachments:

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 David Martin, Mayor for the City of Stamford
Stamford Government Center
888 Washington Boulevard
Stamford, CT 06901

David W. Woods, PhD, AICP, Principal Planner
Stamford Government Center
888 Washington Boulevard
7th Floor
Stamford, CT 06901

Girl Scouts of Connecticut Inc.
340 Washington Street
Hartford, CT 06106


806953
819811
Stanwich Club
Taconic Rd
Farms Rd
Ridge Rd
Scofieldtown Rd
Merritt Pkwy
Fairfield Town Park
Lower Cross Rd
Converse Pond Brook
Round Hill Rd
Old Mill Rd
15
Lake Ave
North St
Burning Tree Country Club
Stanwich Rd
Den Rd
Roxbury Rd
Sterling Farms Golf Course
Springdale Brook
Hope St
Vine Rd
Newfield Ave
High Ridge Rd
137
106
Hoyt St
Porchuck Rd
Clapboard Ridge Rd
Dingletown Rd
2 km
1 mi
Crown Castle | Earthstar Geographics | Esri, HERE, Garmin, NGA, USGS, NPS
CCIsites


Legend
Crown Internal Sites Layer
Tower
DAS NODE
DAS HUB
DAS SYSTEM
Land Under
Alternative Crown Sites
Alternative Crown Sites

69 GUINEA ROAD

Location	69 GUINEA ROAD	**Mblu**	002/ 6848/ / /
Acct#	002-6848	**Owner**	GIRL SCOUTS OF CONNECTICUT INC
Assessment	$1,003,970	**Appraisal**	$1,434,230
PID	24323	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$438,650	$995,580	$1,434,230
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$307,060	$696,910	$1,003,970

Owner of Record

Owner	GIRL SCOUTS OF CONNECTICUT INC	**Sale Price**	$0
Co-Owner		**Book & Page**	9322/ 308
Address	340 WASHINGTON STREET HARTFORD, CT 06106-3317	**Sale Date**	04/16/2008
		Instrument	25

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
GIRL SCOUTS OF CONNECTICUT INC	$0	9322/ 308	25	04/16/2008
GIRL SCOUT COUNCIL SW CT INC	$0	4405/ 321		05/12/1995
SOUTHWESTERN CT GIRL SCT	$0	1035/ 131	25	12/29/1964

Building Information

Building 1 : Section 1

Year Built: 1963
Living Area: 1,960

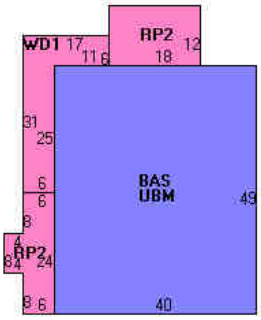
Building Attributes	
Field	**Description**
Style	Ranch
Stories:	1 Story
Occupancy	1

Building Photo

Exterior Wall 1	Cement fiberbd
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Electr Basebrd
AC Type:	Central
Total Bedrooms:	00
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	3
Total Rooms:	4
Fireplace Msnry.	
Fpl. Gas/Prefab	1
Fpl. Outdoor	
Fpl. Addnl. Open	
Bsmt. Garage	

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\94/79.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,960	1,960
RP2	Porch Covered	392	0
UBM	Basement, Unfinished	1,960	0
WD1	Deck, Wood	252	0
		4,564	1,960

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
RP2	Porch Coverd	1056 S.F	$26,290	1
RP2	Porch Coverd	756 S.F	$18,820	1
RP2	Porch Coverd	672 S.F	$16,730	1
RP2	Porch Coverd	216 S.F	$5,380	1
RP2	Porch Coverd	176 S.F	$4,380	1

Land

Land Use

Land Line Valuation

Use Code	901	**Size (Acres)**	16.86
Description	Exmpt Res MDL-01	**Depth**	
Zone	RA3	**Assessed Value**	$696,910
Neighborhood	1100	**Appraised Value**	$995,580
Alt Land Appr	No		
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FC1	Shed Wood			240 S.F.	$2,700	1
MS1	Misc Structure			528 S.F.	$3,050	1
WD1	Wood Deck			252 S.F.	$5,290	1
CEL1	Cell Tower			1 SITES	$139,880	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$438,650	$995,580	$1,434,230
2015	$438,650	$995,580	$1,434,230
2014	$438,650	$995,580	$1,434,230

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$307,060	$696,910	$1,003,970
2015	$307,060	$696,910	$1,003,970
2014	$307,060	$696,910	$1,003,970

DOCKET NO. 180 - Cellco Partnership d/b/a Bell Atlantic Mobile application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications tower and associated equipment located immediately north of the Merritt Parkway off Guinea Road (prime and alternate one sites), or 141 Den Road (alternate two site) in Stamford, Connecticut.	}	Connecticut Siting Council April 2, 1998

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications tower and equipment buildings at the proposed prime site in Stamford, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Bell Atlantic Mobile (BAM) for the construction, operation, and maintenance of a telecommunications tower, associated equipment, and buildings at the proposed prime site, located within a 28-acre parcel at Guinea Road, Stamford, Connecticut. We find the effects on scenic resources and adjacent land uses of the first alternate site and second alternate site to be significant, and therefore deny certification of these sites.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of BAM, Springwich Cellular Limited Partnership (Springwich), Sprint PCS (Sprint), and Nextel Communications of the Mid-Atlantic, Inc. (Nextel); and such tower shall not exceed a height of 160 feet above ground level (AGL).

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: adjustment of the tower location within the leased parcel to protect a nearby stream and minimize grade; a final site plan(s) for site development to include the location and specifications for the tower foundation, antennas, equipment buildings, emergency generator and fuel tank, security fence, access road, and utility line; construction plans for site clearing, tree trimming, water drainage, and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; provisions for the tower finish that may include painting; and provisions for the prevention and containment of spills and/or other discharge into surface water and ground water bodies.

3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and Stamford Advocate.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Bell Atlantic Mobile	Kenneth C. Baldwin, Esq. Brian C. S. Freeman, Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 Mr. David S. Malko, P.E. Jennifer Young Gaudet Bell Atlantic Mobile 20 Alexander Drive Wallingford, CT 06492

INTERVENORS	ITS REPRESENTATIVE
Sprint Spectrum, L.P. d/b/a Sprint PCS	Elias A. Alexiades John W. Knuff Harris, Beach & Wilcox, LLP 147 North Broad Street Milford, CT 06460
Nextel Communications of the Mid-Atlantic, Inc. d/b/a Nextel Communications	Christopher B. Fisher, Esq. Cuddy, Feder & Worby, Esq. 90 Maple Avenue White Plains, NY 10601
Springwich Cellular Limited Partnership	Peter J. Tyrrell, Esq. General Counsel 500 Enterprise Drive Rocky Hill, CT 06067-3900

PARTIES	ITS REPRESENTATIVE
Charles H. Nobs, Maurice Lucas, and Ben and Myrna Raphan	Jeffrey J. Mirman, Esq. Levy & Droney, P.C. P.O. Box 887 Farmington, CT 06034

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in Docket No. 180 - an application of Cellco Partnership d/b/a Bell Atlantic Mobile for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications tower and associated equipment located immediately north of the Merritt Parkway off Guinea Road (prime and alternate one sites) or 141 Den Road (alternate two site) in Stamford, Connecticut, and voted as follows to approve the proposed prime site and deny the first and second alternate sites:

Council Members	Vote Cast
Mortimer A. Gelston, Chairman	Yes
Commissioner Donald W. Downes Designee: Gerald J. Heffernan	Yes
Commissioner Arthur J. Rocque, Jr. Designee: Brian J. Emerick	Yes
Albert E. Gary	Absent
Pamela B. Katz	No
Daniel P. Lynch, Jr.	Yes
William H. Smith	Yes
Colin C. Tait	Abstain
Edward S. Wilensky	Absent

Dated at New Britain, Connecticut April 2, 1998.

STATE OF CONNECTICUT)

ss. New Britain, Connecticut :

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Joel M. Rinebold
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 180 have been forwarded by Certified First Class Return Receipt Requested mail on April 6, 1998, to all parties and intervenors of record as listed on the attached service list, dated December 10, 1997.

ATTEST:

Sharon L. Gdovin
Secretary II
Connecticut Siting Council

Sprint

CROWN CASTLE

PROJECT:	2.5 MM OVERLAY ON NETWORK VISION
SITE NAME:	MERRIT 4 - ROXBURY (CROWN)
SITE CASCADE:	CT03XC344
CROWN BUN:	806953
SITE ADDRESS:	69 GUINEA ROAD STAMFORD, CT 06903
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

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

PROJECT MANAGER:
TRICIA PELON
(781) 970-0067

LATITUDE (NAD83):
41° 6' 6.48" N

LONGITUDE (NAD83):
73° 35' 39.84" W

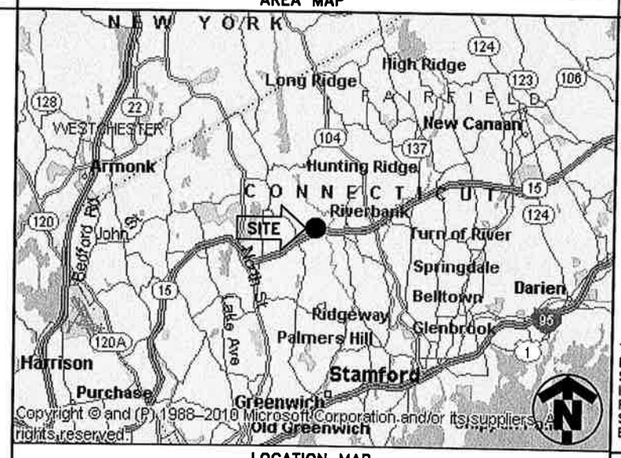
COUNTY:
FAIRFIELD

ZONING DISTRICT:
PC

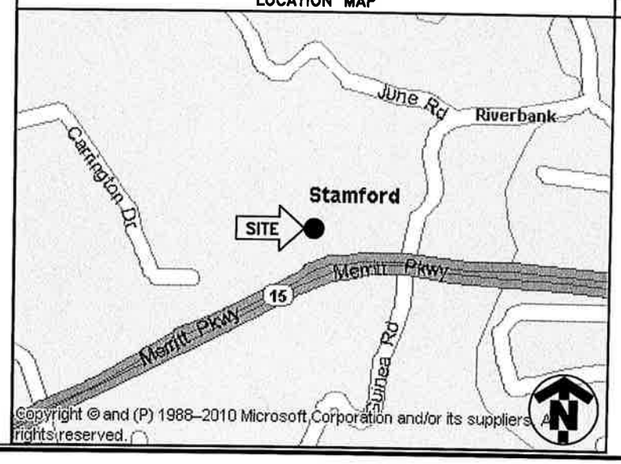
POWER COMPANY:
EVERSOURCE
(800) 286-2000

SPRINT CM:
NICHOLAS WLEKLINSKI

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 2.5 GHz RRH
- INSTALL (1) 10"x8"x6" POLY-CARBONATE JUNCTION BOXES
- INSTALL (3) MINI-MACRO RADIOS

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

APPLICABLE CODES

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

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

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

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET	0
SP-1	SPRINT SPECIFICATIONS	0
A-1	OVERALL COMPOUND SITE PLAN	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA AND EQUIPMEMT PLAN	0
A-4	EQUIPMENT DETAILS	0
A-5	EQUIPMENT DETAILS	0
A-6	EQUIPMENT DETAILS	0
A-7	EQUIPMENT DETAILS	0

PLANS PREPARED FOR:
Sprint
3 Enterprise Drive
Albany, New York 12204

MLA PARTNER:
CROWN CASTLE

PLANS PREPARED BY:
INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 353-000

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	9/1/17	JJM	0

SITE NAME:
MERIT 4 - ROXBURY (CROWN)

SITE CASCADE:
CT03XC344

SITE ADDRESS:
69 GUINEA ROAD
STAMFORD, CT 06903

SHEET DESCRIPTION:
TITLE SHEET

SHEET NUMBER:
T1

SPRINT CONSTRUCTION SPECIFICATIONS
MINI–MACRO CELL SITES
REV. 0 7/25/16

1) BASIC REQUIREMENTS

a) MEET ALL REQUIREMENTS OF JURISDICTIONS.

b) IF EQUIPMENT FURNISHED BY COMPANY DOES NOT MATCH THE EQUIPMENT LISTED ON THE RFDS AND SHOWN ON THE PERMITTING DRAWINGS, RESOLVE DISCREPANCY THROUGH INSTALLER'S CONSTRUCTION MANAGER AND COMPANY'S POINT OF CONTACT.

c) CABLE INSTALLATIONS

I) ALL CABLES MUST BE OUTDOOR RATED AND HAVE UV RESISTANT OUTER JACKETS.

II) CABLE BENDS MUST NOT EXCEED MANUFACTURER'S ALLOWABLE CABLE BEND RADII.

III) AT RADIOS INSTALL SERVICE LOOPS FOR POWER, FIBER AND ETHERNET SECURED AT LEAST TWICE AT 180 TO THE STRUCTURE.

Iv) SPARE FIBERS MUST BE ENCASED IN A LOW PROFILE WEATHERTIGHT ASSEMBLY

d) FIBERS MUST BE FIELD–TERMINATED WITH LC–TYPE CONNECTORS.

e) CONDUITS IN EARTH: PROVIDE PVC. CONDUITS EXPOSED AND IN FACILITIES: PROVIDE RGS. HAND DIG TRENCHES IN COMPOUNDS.

f) SECURE AND SUPPORT CONDUITS AND CABLES ON NO MORE THAN 48" INTERVALS.

g) ON TOWER SITES RGS CONDUITS MAY BE SURFACE MOUNTED AWAY FROM WALKWAYS AND ACCESS/EGRESS PATHS. IF INSTALLATIONS IN WALKWAYS AND ACCESS/EGRESS PATHS CANNOT BE AVOIDED, IDENTIFY THE CONDUIT ENVELOPE / TRIP HAZARD BY ALTERNATING YELLOW AND BLACK STRIPES PAINTED ON CONCRETE AND CONDUIT.

2) SPRINT–FURNISHED EQUIPMENT

a) INSTALL THE FOLLOWING EQUIPMENT AT LOCATIONS AND AZIMUTHS SHOWN ON THE CONSTRUCTION DRAWINGS.

I) PANEL ANTENNAS

II) RADIOS

III) GPS ANTENNAS

Iv) FILTERS

v) 120 VOLT DIN–RAIL CIRCUIT BREAKER ASSEMBLY

3) TOWER INSTALLATIONS

a) MEET ALL REQUIREMENTS OF THE TOWER OWNER.

b) INSTALL CORRUGATED FLEXIBLE CONDUIT UP THE TOWER TO COMPANY'S RAD CENTER.

c) PROVIDE HANGING GRIPS OR CONDUIT CLAMPS AND ENSURE CONDUITS AS WELL AS INNER CABLES ARE SUPPORTED.

d) CONDUIT RISERS: AT TOP OF TOWER TURN CONDUIT DOWN AND PROVIDE CABLE TERMINATION FITTINGS. EXTEND CABLES TO RADIOS EXPOSED AND SECURED TO STRUCTURE. AT CONDUIT EXIT FROM TOWER, PROVIDE DRIP LOOPS AND WEEP HOLES.

e) AT ICE BRIDGE RUN CABLES IN RGS CONDUIT. UTILIZE CONDULETS TO MAKE COMPACT 90 DEGREE TURNS.

4) AC POWER TIE–IN

a) INSTALL SPRINT'S 120 VOLT DIN–RAIL CIRCUIT BREAKER ASSEMBLY IN THE EXISTING POWER PROTECTION CABINET TELCO SECTION.

b) INSTALL A 20 AMPERE MOLDED CASE CIRCUIT BREAKER IN AVAILABLE SPACE IN THE ADJACENT PPC POWER SECTION LOAD CENTER.

5) GROUNDING

a) 120 VOLT CIRCUITS: POWER CABLES MUST BE 3–WIRE WITH EQUIPMENT GROUNDING CONDUCTOR.

b) SUPPLEMENTAL GROUNDING: ALL GROUNDING HARDWARE MUST BE UL STAMPED AS SUITABLE FOR GROUNDING HARDWARE.

c) RADIOS: BOND RADIO TO THE TOWER TOP OR SECTOR GROUND BAR WITH #8 BARE TINNED COPPER WIRE (GREEN INSULATED ON ROOFTOPS).

d) DIN–RAIL CIRCUIT BREAKER ASSEMBLY: BOND SURGE ARRESTOR TO PPC TELCO BOARD GROUND BAR.

6) MINOR MATERIALS

a) CONDUIT

i) RIGID GALVANIZED STEEL CONDUIT (RGS): UL LISTED, COMPLIANT WITH ANSI STANDARD C80, HOT–DIP GALVANIZED, WITH THREADED FITTINGS. MANUFACTURERS: ALLIED, REPUBLIC, WHEATLAND, OR EQUAL.

ii) CORRUGATED FLEXIBLE CONDUIT: DURALINE OR EQUAL.

iii) LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LFMC): UL LABELED, UV RESISTANT, FLAME RETARDANT PVC JACKET, HOT–DIP GALVANIZED, GREY. MANUFACTURERS: AFC, ANACONDA, SOUTHWIRE OR EQUAL.

Iv) PVC CONDUIT: SCHEDULE 40. CARLON OR EQUAL.

v) CABINET HUBS AND CABLE TERMINATION FITTINGS: OZ GEDNEY OR ROXTEC

b) COAXIAL CABLE JUMPERS: ½" LDF–4. MANUFACTURERS: COMMSCOPE, RFS OR FCT.

c) FASTENERS AND HARDWARE

I) TO SECURE RACEWAYS, UTILIZE NON CORRODING NON–MAGNETIC METALLIC FASTENERS AND HARDWARE SUITABLE FOR THE PURPOSE.

d) POWER CABLES – 3/C #12 SOOW BY SOUTHWIRE OR EQUAL.

e) ETHERNET CABLES AND CONNECTORS: OUTDOOR RATED, CAT 5E, BELDEN OR EQUAL.

f) FIBER CABLES: CORNING "FREEDOM FAN OUT" OUTDOOR RISER CABLE, 4F, SINGLE MODE, OR EQUAL.

g) RF TRANSPARENT PAINT FOR ANTENNA CONCEALMENT: SELECT NO/LOW CARBON PAINTS, WITH NO/LOW TITANIUM DIOXIDE, AND WITHOUT SUSPENDED METAL PARTICLES (ALUMINUM, ZINC, COPPER, ETC.)

7) COLOR CODING

a) COLOR CODE CABLES AND CONDUITS AS REQUIRED BY SPRINT STANDARD TS–0200.

8) TESTING AND CONSTRUCTION COMPLETE

a) SWEEP ALL COAXIAL CABLES ACCORDING TO SPRINT STANDARD TS–0200.

b) PANEL ANTENNA ALIGNMENT – USING ELECTRONIC ALIGNMENT TOOL. AZIMUTH/DOWNTILT +/– 1 DEGREE.

c) LEAVE EQUIPMENT DE–ENERGIZED UNTIL INSTRUCTED BY THE COMMISSIONING AND INTEGRATION TEAM TO ENERGIZE.

d) OTHER REQUIREMENTS AND DELIVERABLES MAY BE REQUIRED BEFORE THE CONSTRUCTION COMPLETE MILESTONE CAN BE ACTUALIZED IN SITERRA (SPRINT'S DATABASE–OF–RECORD).

PLANS PREPARED FOR:

Sprint
3 Enterprise Drive
Albany, New York 12204

MLA PARTNER:

CROWN CASTLE

PLANS PREPARED BY:

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353–000

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	9/1/17	JLM	0

SITE NAME:

MERIT 4 - ROXBURY (CROWN)

SITE CASCADE:

CT03XC344

SITE ADDRESS:

69 GUINEA ROAD
STAMFORD, CT 06903

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

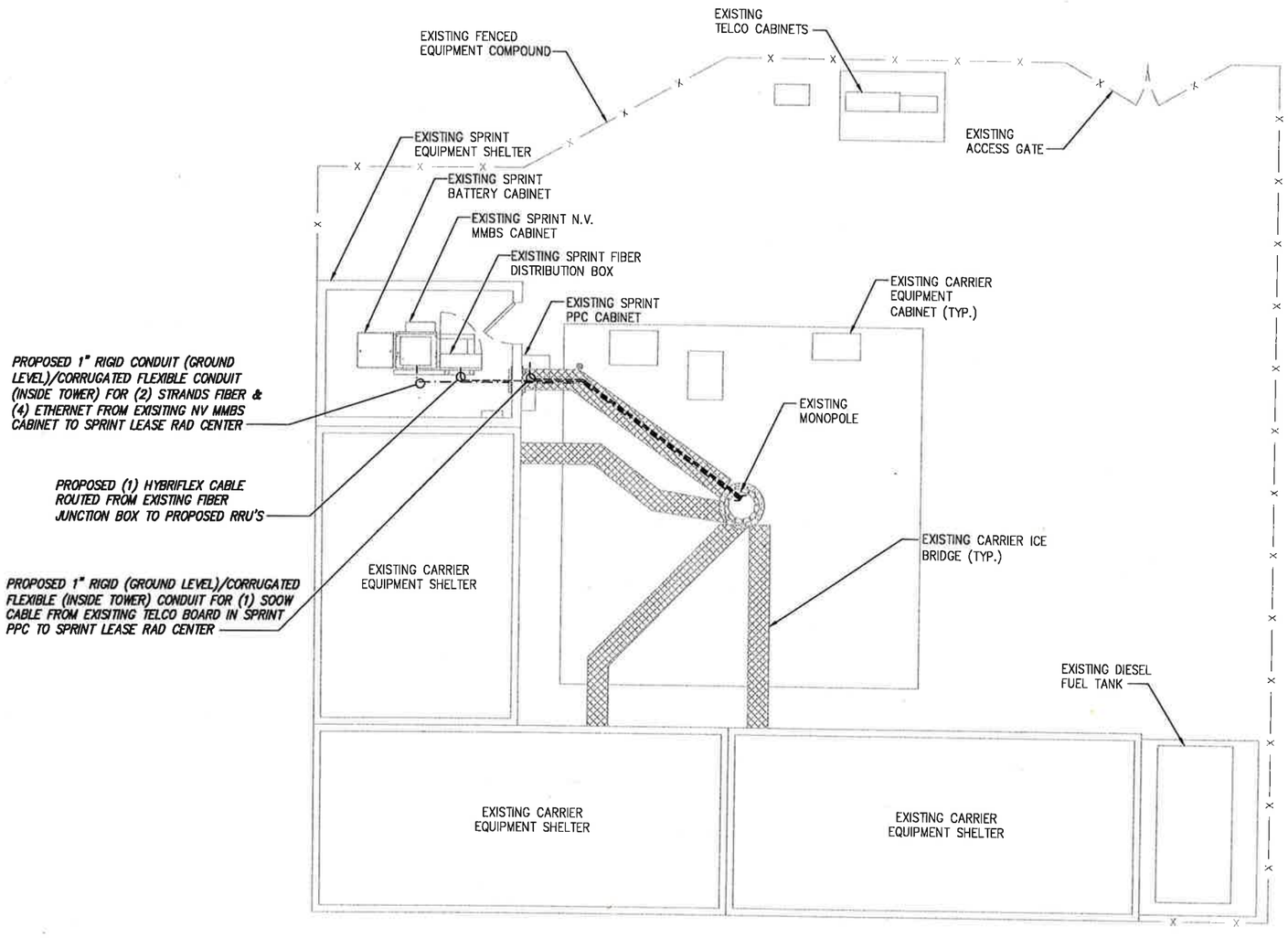
SHEET NUMBER:

SP-1

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

LEGEND:

- 1" RGS (GROUND)/CORRUGATED (TOWER)
- 1" CORRUGATED PVC CONDUIT
- P SOOW CABLE



N

GRAPHIC SCALE:

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

OVERALL SITE PLAN

SCALE: AS NOTED | 1

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SITE ADDRESS:

69 GUINEA ROAD
STAMFORD, CT 06903

SHEET DESCRIPTION:

OVERLL COMPOUND SITE PLAN

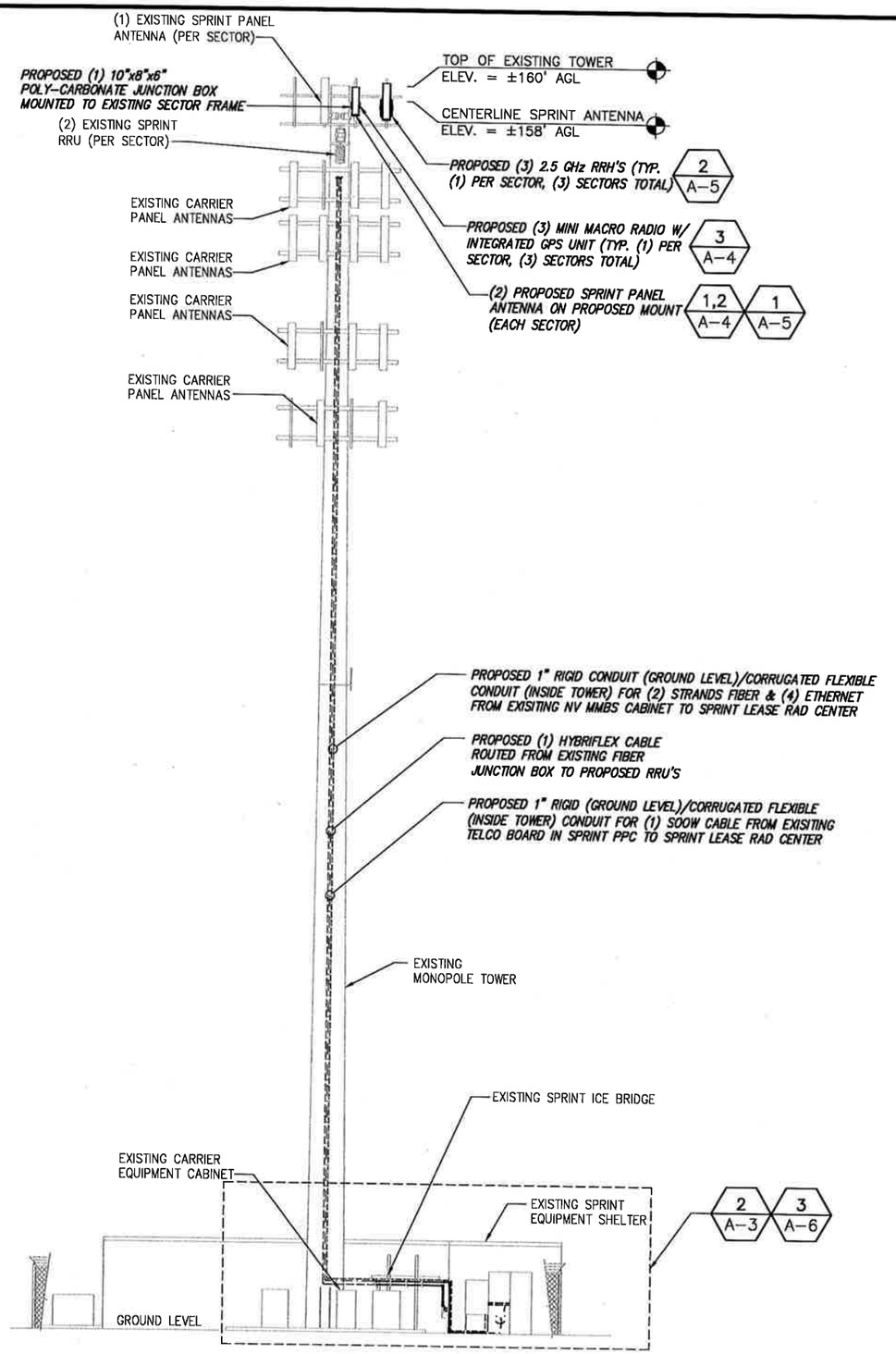
SHEET NUMBER:

A-1

NOTE:
EMERGENCY CONTACT INFORMATION TO BE DISPLAYED ON FACE OF SPRINT BTS CABINET

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

NOTE:
- FOR ADDITIONAL STRUCTURAL INFORMATION SEE STRUCTURAL ANALYSIS COMPLETED BY PAUL J. FORD & COMPANY FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT", DATED: "JULY 11, 2017", PAUL J. FORD & COMPANY PROJECT NUMBER: "37517-0206.002.7805" ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT 2.5 PROJECT ANTENNA AND RRH SUPPORT EVALULATION, CT03XC344", DATED: "JULY 5, 2017". ACCORDING TO RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS ARE ADEQUATE TO SUPPORT THE PROPOSED LOADING WITH THE INSTALLATION OF L3"x3"x1/4" THIRD POINT BRACING CONNECTING HANDRAIL TO HANDRAIL WITH 1/2" A325 HARDWARE. BRACING SHOULD BE ATTACHED TO HANDRAIL ANGLES AT THIRD POINT ALONG THEIR LENGTH.



SITE ELEVATION | SCALE: NTS | 1

LEGEND:
- 1" RGS (GROUND)/CORRUGATED (TOWER)
- 1" CORRUGATED PVC CONDUIT
- P — SOOW CABLE

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SITE CASCADE:
CT03XC344

SITE ADDRESS:
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STAMFORD, CT 06903

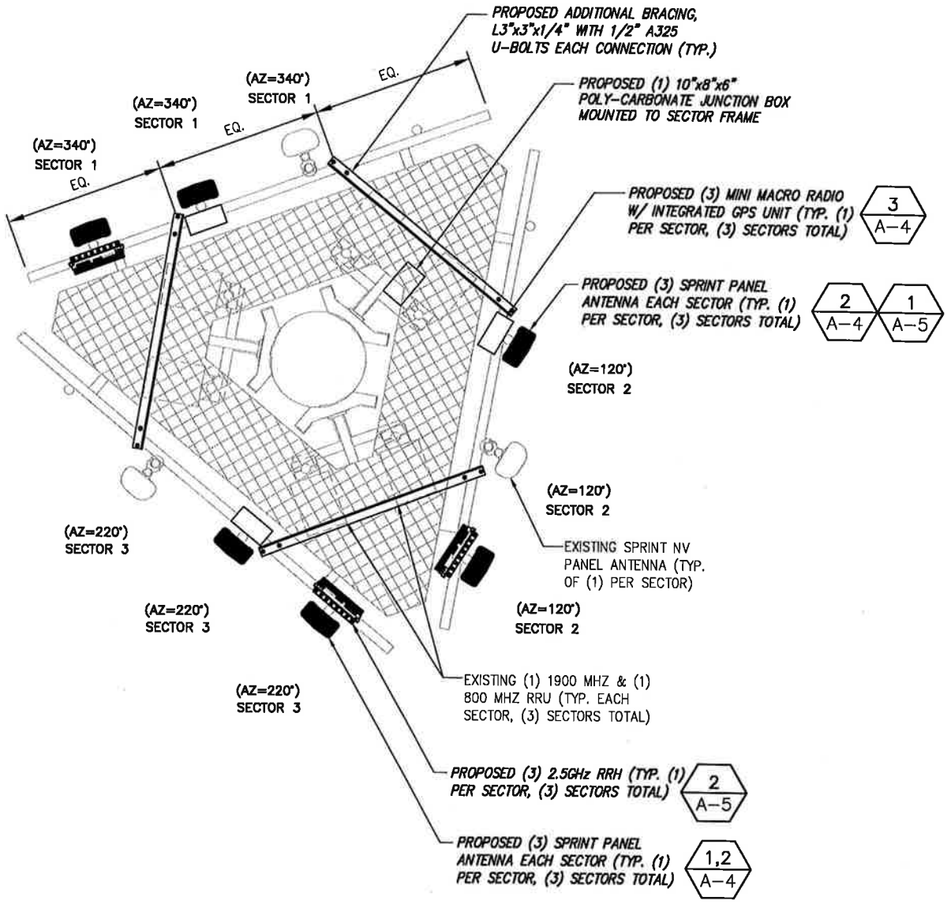
SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2

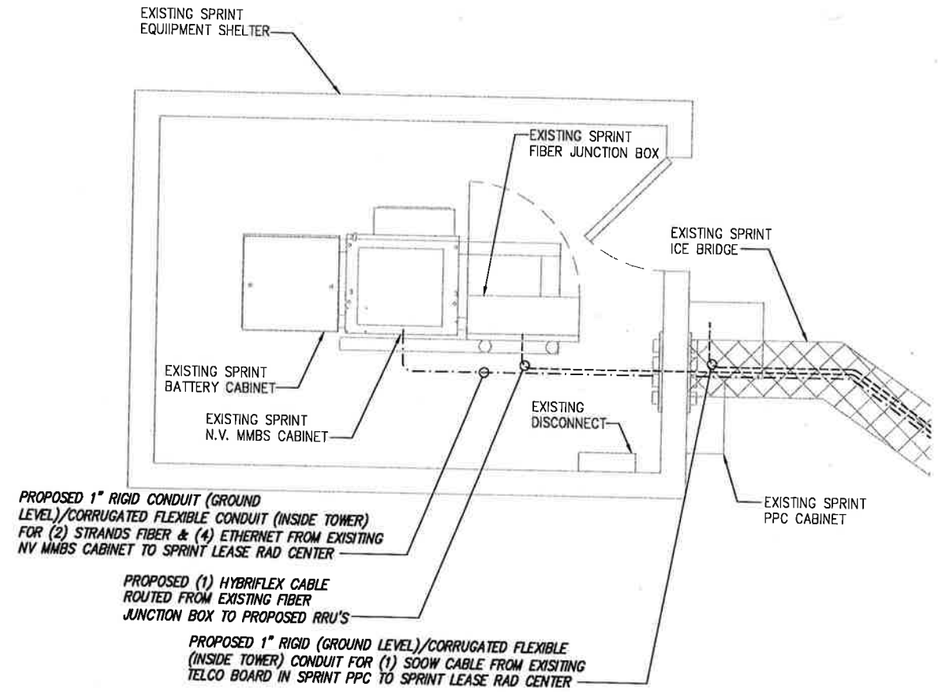
NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING TOWER FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.

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

NOTE:
REQUIRED PIPE MOUNTS TO BE SUPPLIED BY CONTRACTOR.



ANTENNA LAYOUT | SCALE: NTS | 1



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

EQUIPMENT SITE PLAN (FINAL/PERMANENT) | SCALE: AS NOTED | 2

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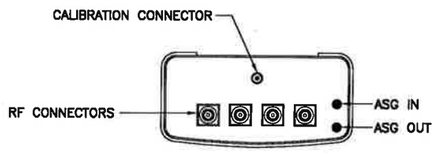
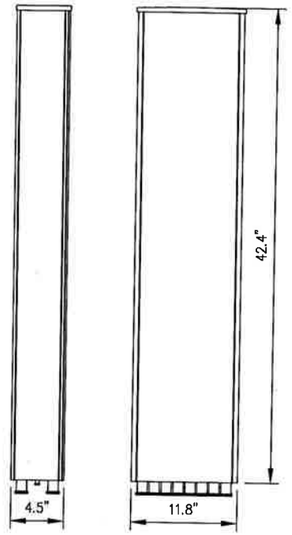
SHEET DESCRIPTION:
ANTENNA & EQUIPMENT PLAN

SHEET NUMBER:
A-3

COMMSCOPE/ARGUS: LLPX310R-V1	
RADOME MATERIAL:	POLYESTER FIBERGLASS PULTRUSION
DIMENSIONS, HxWxD.:	42.4"x11.8"x4.5"
WEIGHT:	27.6 lbs
CONNECTORS:	(8) 7-16 DIN FEMALE



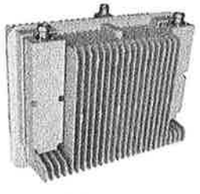
PLAN VIEW



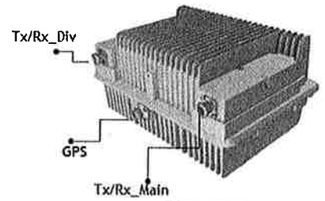
SIDE VIEW FRONT VIEW

PROPOSED ANTENNA DETAIL — NO SCALE — 1

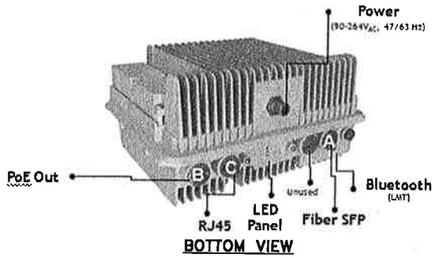
NOKIA: FWHR 2500 MHz 2 x 20W Micro BTS	
OPERATING AC VOLTAGE:	90-264 VAC
DIMENSION (H x W x D):	9.72"x12.87"x9.30"
WEIGHT:	24.7 LBS.



FRONT VIEW

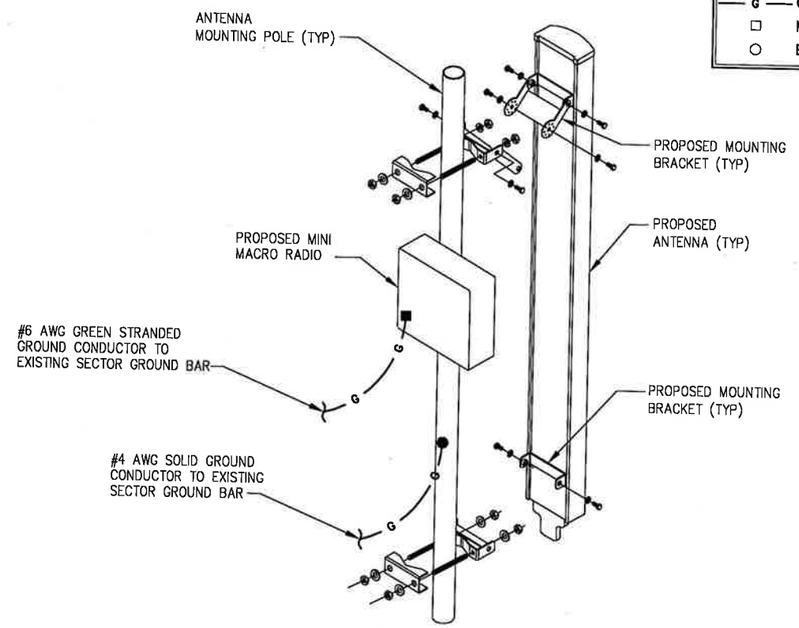


TOP VIEW



BOTTOM VIEW

MINI MACRO RADIO DETAIL — NO SCALE — 3



LEGEND:
- G — GROUND CONDUCTOR
- □ MECHANICAL CONNECTION
- ○ EXOTHERMIC CONNECTION

ANTENNA & MMBTS MOUNTING DETAIL — NO SCALE — 2

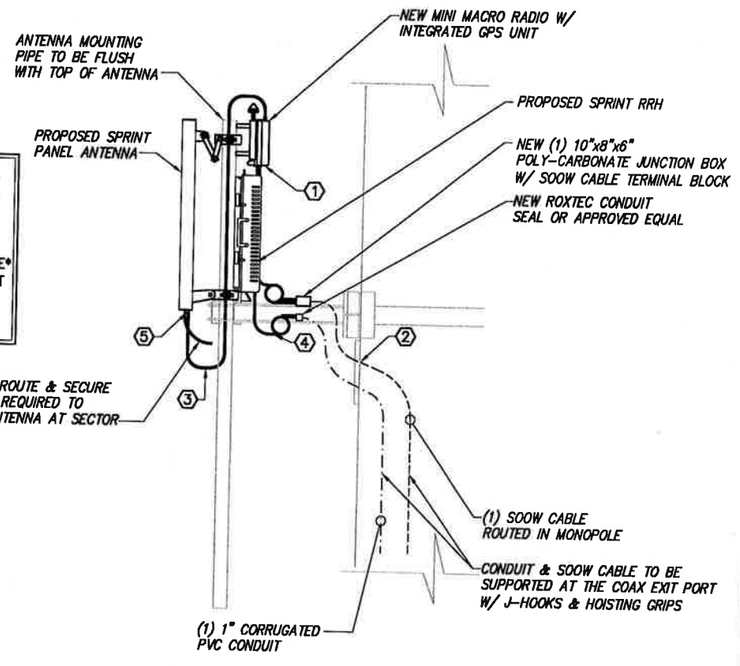
LEGEND:
1. OEM PROPRIETARY POWER CABLE
2. SOOW CABLE
3. 1/2" RF JUMPERS
4. ETHERNET/FIBER CABLES
5. RET CABLE

NOTE:
1. SECURE CONDUITS TO EXISTING EQUIPMENT PAD WITH CONDUIT CLAMPS AS REQUIRED. CONTRACTOR SHALL INSTALL CONDUITS IN A MANNER TO REDUCE TRIPPING HAZARDS. PAINT ROUTED COMMON ACCESS PATHS YELLOW & BLACK AS REQUIRED.
2. CONDUIT FILL: (1) - 9/C #10 OR #12 AWG SOOW CABLE* (2) - (2) FIBER CABLES & (4) ETHERNET

* USE #12 AWG FOR RUNS LESS THAN 200 CABLE FEET; USE #10 AWG FOR RUNS GREATER THAN 200 CABLE FEET.

NOTE:
RF JUMPERS FOR 2.5 DEPLOYMENT ARE NOT TO EXCEED 8' IN OVERALL LENGTH

LEGEND:
- 1" RGS CONDUIT
- 1" CORRUGATED PVC CONDUIT
- P SOOW CABLE



ANTENNA MOUNTING ELEVATION — NO SCALE — 4

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SITE CASCADE:
CT03XC344

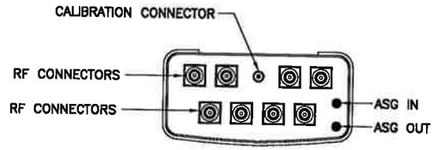
SITE ADDRESS:
69 GUINEA ROAD
STAMFORD, CT 06903

SHEET DESCRIPTION:
EQUIPMENT DETAILS

SHEET NUMBER:
A-4

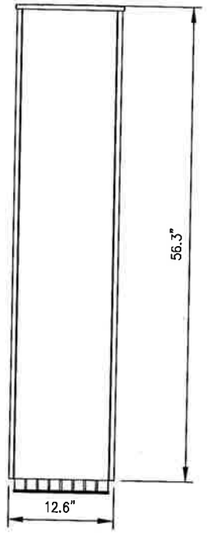
ANTENNA RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	52.9 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW

SIDE VIEW



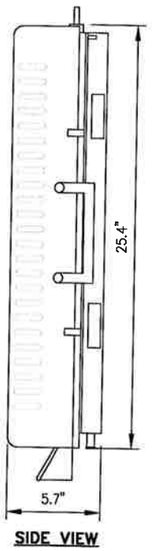
FRONT VIEW

2.5 ANTENNA

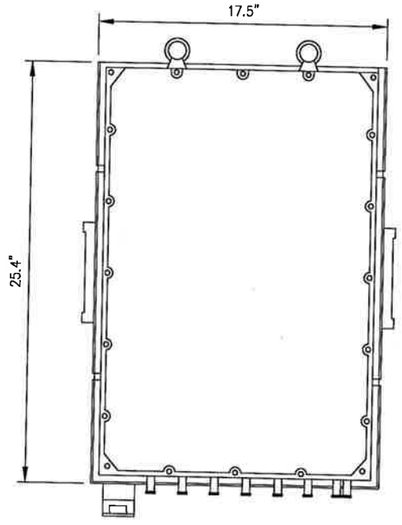
NO SCALE | 1

RRU: ALCATEL LUCENT TD-RRH8X20

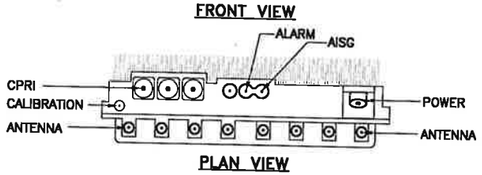
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

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

2.5 RRU'S

NO SCALE | 2

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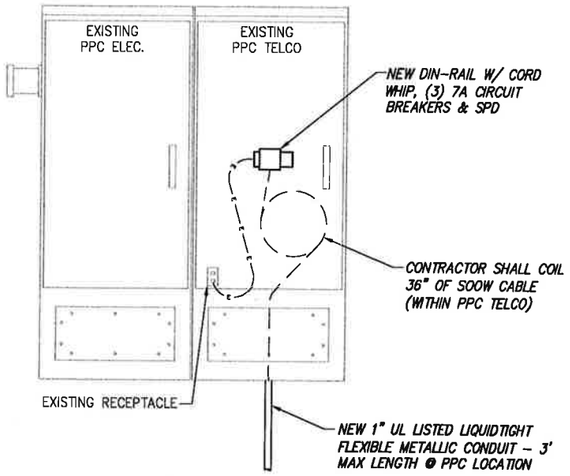
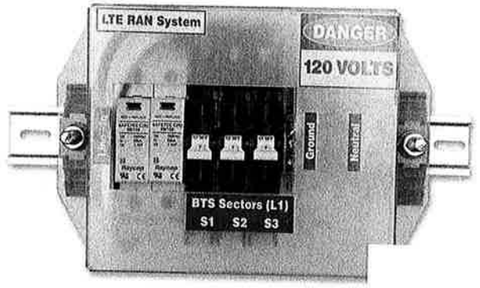
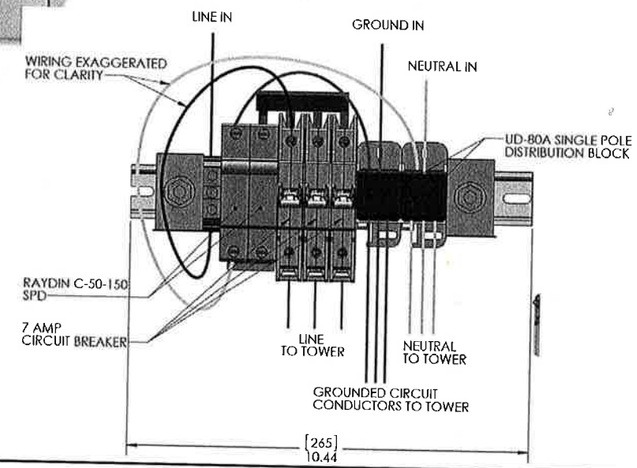
A-5



POWER DETAIL | NO SCALE | 1



RAYCAP: RSTAC-4569-P-120	
OPERATING AC VOLTAGE:	120 1 PHASE 2 W+G
LOAD CENTER:	3 POSITION
OPERATING TEMPERATURE:	(°C) –40° C TO +75° C
DIMENSION (H×W×D):	10.44"x5.18"x2.71"
WEIGHT:	2.5 LBS.

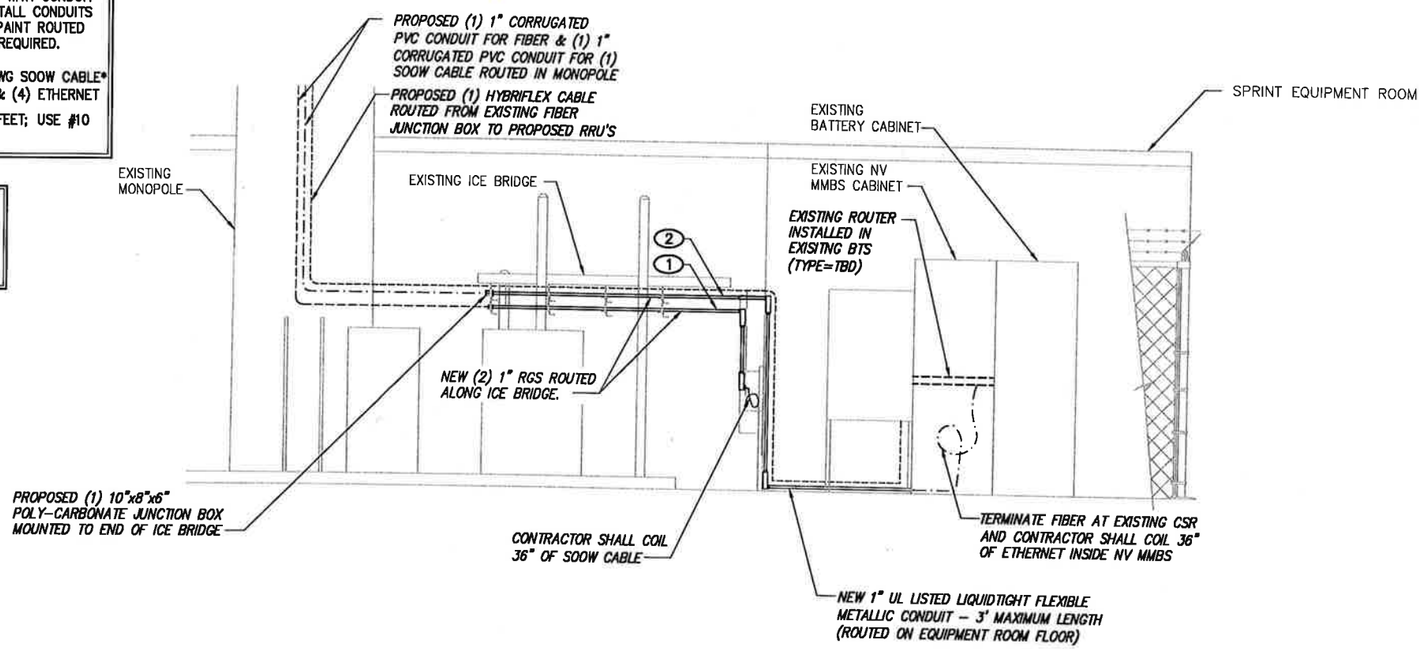


DIN-RAIL W/ CORD WHIP & SPD DETAIL | NO SCALE | 2

NOTE:
1. SECURE CONDUITS TO EXISTING EQUIPMENT PAD WITH CONDUIT CLAMPS AS REQUIRED. CONTRACTOR SHALL INSTALL CONDUITS IN A MANNER TO REDUCE TRIPPING HAZARDS. PAINT ROUTED COMMON ACCESS PATHS YELLOW & BLACK AS REQUIRED.
2. CONDUIT FILL: (1) – 9/C #10 OR #12 AWG SOOW CABLE* (2) – (2) FIBER CABLES & (4) ETHERNET

* USE #12 AWG FOR RUNS LESS THAN 200 CABLE FEET; USE #10 AWG FOR RUNS GREATER THAN 200 CABLE FEET.

LEGEND:
- 1" RGS CONDUIT
- 1" CORRUGATED PVC CONDUIT
- P SOOW CABLE



EQUIPMENT ELEVATION DETAIL | NO SCALE | 3

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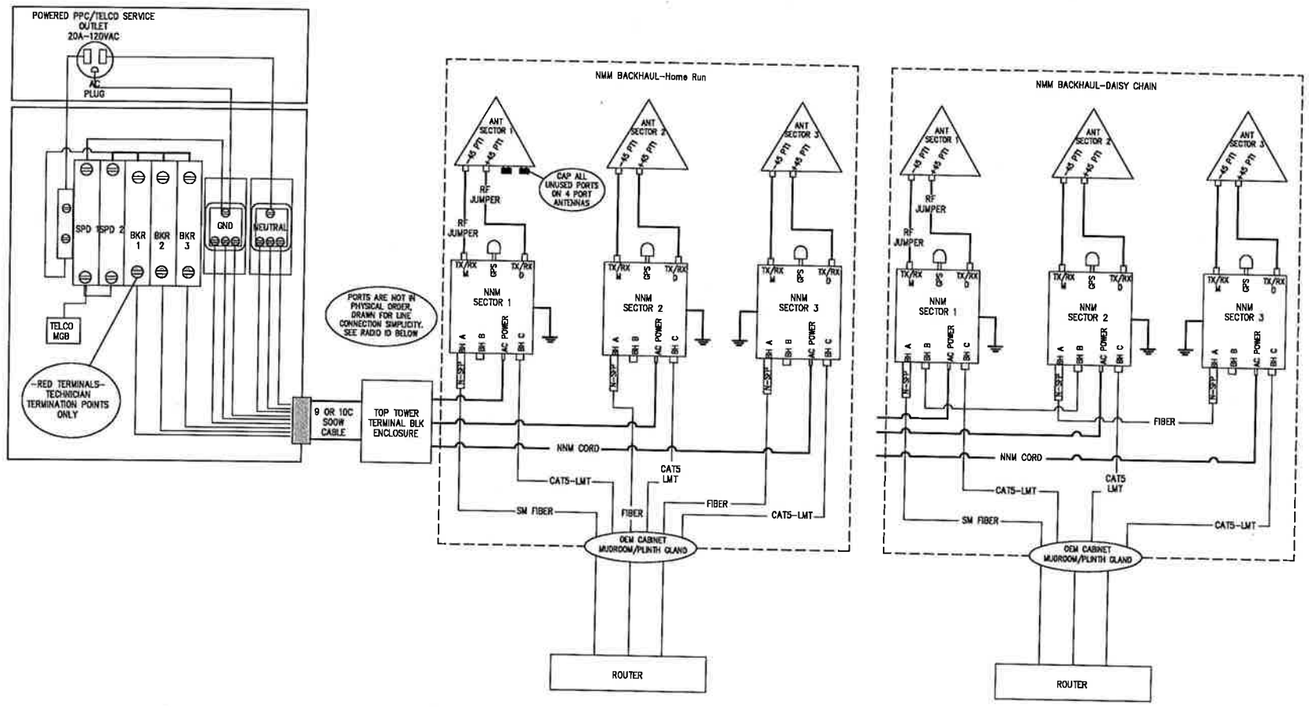
A-6

AC POWER GROUND LEVEL:
POWER CIRCUITS/CABLES MUST BE 3 WIRE EQUIPMENT GROUNDING CONDUCTOR. SUPPLEMENTAL GROUNDING HARDWARE MUST BE UL STAMPED AS SUITABLE FOR GROUNDING HARDWARE.

1. THE PREFERRED AC POWER CONNECTION TO THE DIN RAIL ASSEMBLY IS HARD WIRED FROM A DEDICATED 20A PANEL BREAKER TO THE DIN RAIL (DIN RAIL MUST BE IN AN ENCLOSURE) HOWEVER IF THE PROVIDED POWER CORD IS CHOSEN THE DIN RAIL ASSEMBLY RECEPTACLE MUST NOT BE GFCI AS THEY WILL TRIP, REPLACE WITH STANDARD RECEPTACLE AS REQUIRED. WHEN USING THE SUPPLIED POWER PLUG, THE CORD AND OUTLET MUST BE LABELED "DO NOT DISCONNECT" AND "DO NOT UNPLUG"
2. IF PPC TELCO SECTION IS LESS THAN 50' FROM TOWER AND THE CONDUIT RUN IS 100% ABOVEGROUND INSTALL 9 OR 10/C SOOW IN 1.5" RGS (EXPOSED) ON ICE BRIDGE, SOOW EXPOSED UP THROUGH TOWER TO TERMINAL BOX AT THE RAD CENTER.
3. IF PPC TELCO SECTION IS MORE THAN 50' FROM TOWER, OR THE CONDUIT RUN AT ANY POINT IS UNDERGROUND ROUTE 1.5" RGS (EXPOSED) OR PVC (UNDERGROUND) WITH 9 EA. THHN/THWN CONDUCTORS. INSTALL A TERMINAL BOX WITH TERMINAL BLOCK ON ICE BRIDGE NEAREST TOWER AND TRANISTION TO SOOW. AT TELCO SECTION INDIVIDUAL CONDUCTORS ROUTE ACROSS PLYWOOD BACKBOARD TO THE DIN RAIL CIRCUIT BREAKER ASSEMBLY. SOME JURISDICTIONS MAY NOT ALLOW INDIVIDUAL CONDUCTORS TO ROUTE ACROSS BACKBOARD THEREFORE INSTALL ANOTHER TERMINAL BOX INSIDE OR OUTSIDE AND TRANSITION BACK TO SOOW.



NOTE:
1. AC POWER GROUND LEVEL NOTES AND NOKIA MM SYSTEM WIRING DIAGRAM REFERENCED FROM DOCUMENT ENTITLED "MINI-MACRO ON NV MACRO SITE INSTALLATION MOP" DATED NOVEMBER 2, 2016, PAGES 11-12 AND 14, RESPECTIVELY.

NOKIA MM SYSTEM WIRING DIAGRAM | NO SCALE | 1

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EQUIPMENT DETAILS

SHEET NUMBER:
A-7

PJF PAUL J. FORD & COMPANY

Date: **July 11, 2017**

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

Paul J. Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
mscroggy@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC344
	Carrier Site Name:	CT03XC344
Crown Castle Designation:	**Crown Castle BU Number:**	806953
	Crown Castle Site Name:	BRG 2044 (A) 943097
	Crown Castle JDE Job Number:	443988
	Crown Castle Work Order Number:	1418980
	Crown Castle Application Number:	394844 Rev. 3
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37517-0206.002.7805
Site Data:	**69 Guinea RD(Camp Rocky Craig), Stamford, Fairfield County, CT** **Latitude *41° 6' 6.35"*, Longitude *-73° 35' 41.45"*** **160 Foot - Monopole Tower**	

Dear Cheryl Schultz,

Paul J. Ford and Company 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 1047734, in accordance with application 394844, revision 3.

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:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category B and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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

Respectfully submitted by:

Morgan Scroggy, P.E.
Project Engineer JCM

STATE OF CONNECTICUT
JOSEPH PADRICAIN JACOBS
No. PEN 22731
LICENSED PROFESSIONAL ENGINEER

JUL 12 2017

PAUL J. FORD & COMPANY

Date: **July 11, 2017**

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

Paul J. Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
mscroggy@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC344
	Carrier Site Name:	CT03XC344
Crown Castle Designation:	**Crown Castle BU Number:**	806953
	Crown Castle Site Name:	BRG 2044 (A) 943097
	Crown Castle JDE Job Number:	443988
	Crown Castle Work Order Number:	1418980
	Crown Castle Application Number:	394844 Rev. 3
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37517-0206.002.7805
Site Data:	**69 Guinea RD(Camp Rocky Craig), Stamford, Fairfield County, CT** **Latitude *41° 6' 6.35"*, Longitude *-73° 35' 41.45"*** **160 Foot - Monopole Tower**	

Dear Cheryl Schultz,

Paul J. Ford and Company 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 1047734, in accordance with application 394844, revision 3.

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Respectfully submitted by:

Morgan Scroggy, P.E.
Project Engineer JCM

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by VALMONT in August of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, “Structural Standard for Antenna Supporting Structures and Antennas”, with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category B and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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
157.0	158.0	3	alcatel lucent	TD-RRH8x20-25	1 4 1 1	1/8 17/64 5/8 7/8	-
		3	argus technologies	LLPX310R-V1 w/ Mount Pipe			
		1	box enclosures and assembly	BEN-92P			
		3	nokia	FWHR			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Pipe			
	157.0	1	-	L3”x3”x1/4” Bracing			
40.0	40.0	-	-	-	1	1/2	-

Table 2 - Existing and Reserved 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
157.0	158.0	3	rfs celwave	APXVSPP18-C-A20 w/ Pipe	3	1-1/4	1
	157.0	9	rfs celwave	ACU-A20-N			
		1	tower mounts	Platform Mount [LP 602-1]			
154.0	155.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-	1
		3	alcatel lucent	800MHZ RRH			
	153.0	3	alcatel lucent	1900MHz RRH (65MHz)			
	154.0	2	tower mounts	Pipe Mount [PM 601-3]			
149.0	151.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	2
		3	ericsson	RRUS 12 B2/RRUS A2			
		3	powerwave technologies	1001983			
		6		7770.00 w/ Mount Pipe	1 2 12	3/8 5/8 1-5/8	1
		6		LGP21401			
		6		LGP21901			
		3	ericsson	RRUS-11			
		1	raycap	DC6-48-60-18-8F			
	149.0	1	tower mounts	Platform Mount [LP 602-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
139.0	142.0	3	alcatel lucent	RRH2X40-AWS	1 1 12	1/2 1-1/4 1-5/8	1
		6	andrew	DB846F65ZAXY w/ Mount Pipe			
		3	powerwave technologies	P65.16.XL.2 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		6	rfs celwave	FD9R6004/2C-3L			
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe			
		3	rymsa wireless	MG D3-800Tx w/ Mount Pipe			
	139.0	1	tower mounts	Platform Mount [LP 602-1]			
116.0	118.0	3	commscope	LNX-6515DS-VTM w/ Mount Pipe	1 12	1-1/4 1-5/8	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
		3	ericsson	RRUS 11 B12			
	116.0	1	tower mounts	Platform Mount [LP 713-1]			
84.0	84.0	1	gps	GPS_A	-	-	1
		1	tower mounts	Side Arm Mount [SO 701-1]			
45.0	45.0	1	tower mounts	Pipe Mount [PM 601-1]	-	-	1
		1	trimble	BULLET III			
40.0	40.0	1	andrew	GPS-QBW-20N	-	-	1
		1	tower mounts	Pipe Mount [PM 601-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed, Not Considered in this SA

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)
-	-	-	-	-	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 15BRBK1600, 6/15/2015	5749621	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Towerkraft, 2622, 7/30/98	1104113	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont, 18917-69, 8/5/99	823122	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 1210025, 8/10/2013	4015064	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 140526, 8/13/2014	5577141	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 41705-162, 8/30/2009	1251715	CCISITES
Mount Analysis	Infinigy, 7/5/2017	-	Crown Castle

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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) Monopole was fabricated and installed in accordance with the manufacturer's specifications.
2) Monopole has been properly maintained in accordance with manufacturer's specifications.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Monopole was modified in conformance with the referenced modification drawings.
5) The existing monopole shaft has been reinforced using a Crown-approved system in accordance with the above referenced documents. However, in this analysis we found that the existing pole shaft without modifications has adequate capacity according to TIA-222-G-2 (addendum 2) and therefore, we did not consider the existing reinforcing elements in the strength calculations.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	160 - 111.33	Pole	TP31.29x19.6x0.25	1	-12.51	1568.58	64.5	Pass
L2	111.33 - 73.25	Pole	TP39.912x29.6683x0.3438	2	-23.42	2848.48	71.0	Pass
L3	73.25 - 36.33	Pole	TP48.088x37.8467x0.4063	3	-34.66	4024.95	70.2	Pass
L4	36.33 - 0	Pole	TP56x45.6746x0.4375	4	-51.53	4947.02	73.8	Pass
							Summary	
						Pole (L4)	73.8	Pass
						RATING =	**73.8**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	60.7	Pass
1	Base Plate	0	53.2	Pass
1	Base Foundation – Steel	0	59.0	Pass
1	Base Foundation Soil Interaction	0	66.0	Pass

Structure Rating (max from all components) =	**73.8%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

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

SPRINT Existing Facility

Site ID: CT03XC344

Merrit 4 - Roxbury (Crown)
69 Guinea Road
Stamford, CT 06903

August 21, 2017

EBI Project Number: 6217003717

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	10.82 %

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

EBI Consulting
environmental | engineering | due diligence

August 21, 2017

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

Emissions Analysis for Site: **CT03XC344 – Merrit 4 - Roxbury (Crown)**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **69 Guinea Road, Stamford, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **69 Guinea Road, Stamford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the 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 20 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20, RFS APXVTM14-C-I20 and Argus LLPX310R-V1** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **158 feet** above ground level (AGL) for **Sector A**, **158 feet** above ground level (AGL) for **Sector B** and **158 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:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**158 feet**	Height (AGL):	**158 feet**	Height (AGL):	**158 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**1.33 %**	Antenna B1 MPE%	**1.33 %**	Antenna C1 MPE%	**1.33 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**158 feet**	Height (AGL):	**158 feet**	Height (AGL):	**158 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	80 Watts	Total TX Power(W):	80 Watts	Total TX Power(W):	80 Watts
ERP (W):	3,112.36	ERP (W):	3,112.36	ERP (W):	3,112.36
Antenna A2 MPE%	**0.48 %**	Antenna B2 MPE%	**0.48 %**	Antenna C2 MPE%	**0.48 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Argus LLPX310R-V1	Make / Model:	Argus LLPX310R-V1	Make / Model:	Argus LLPX310R-V1
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	**158 feet**	Height (AGL):	**158 feet**	Height (AGL):	**158 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	80 Watts	Total TX Power(W):	80 Watts	Total TX Power(W):	80 Watts
ERP (W):	3,076.73	ERP (W):	3,076.73	ERP (W):	3,076.73
Antenna A3 MPE%	**0.48 %**	Antenna B3 MPE%	**0.48 %**	Antenna C3 MPE%	**0.48 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.29 %**
T-Mobile	3.21 %
AT&T	2.11 %
Verizon Wireless	3.02 %
Metricom	0.00 %
Nextel	0.19 %
Site Total MPE %:	**10.82 %**

SPRINT Sector A Total:	2.29 %
SPRINT Sector B Total:	2.29 %
SPRINT Sector C Total:	2.29 %
Site Total:	10.82 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density (μW/cm²)**	**Frequency (MHz)**	**Allowable MPE (μW/cm²)**	**Calculated % MPE**
Sprint 850 MHz CDMA	1	437.55	158	0.68	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	437.55	158	1.36	850 MHz	567	0.24%
Sprint 1900 MHz (PCS) CDMA	5	622.47	158	4.84	1900 MHz (PCS)	1000	0.48%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	158	4.84	1900 MHz (PCS)	1000	0.48%
Sprint 2500 MHz (BRS) LTE (ANT2)	4	778.09	158	4.84	2500 MHz (BRS)	1000	0.48%
Sprint 2500 MHz (BRS) LTE (ANT3)	4	769.18	158	4.79	2500 MHz (BRS)	1000	0.48%
						Total*:	**2.29%**

*NOTE: Totals may vary by 0.01% due to summing of remainders

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:	2.29 %
Sector B:	2.29 %
Sector C:	2.29 %
SPRINT Maximum Total (per sector):	2.29 %
Site Total:	10.82 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.82 %** 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.