



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

July 27, 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: 876402
Sprint Site ID: CT54XC726
175 Stafford Street, Stafford, CT 06419
Latitude: 41° 59' 13.38"/ Longitude: -72° 15' 40.78"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 150-foot level of the existing 150-foot monopole tower at 175 Stafford Street, Stafford, CT. The tower is owned by Crown Castle. The property is owned by Harry & Nancy Pragl, Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 150-foot level of the tower. Sprint also intends to install twelve (12) RRH's and four (4) hybrid cables.

This facility was approved by the Connecticut Siting Council, Docket NO 212 on June 3, 2002. This approval was given without conditions.

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-Selectwomen Mary Mitta, Town of Stafford Springs, property owners Harry & Nancy Pragl of Staffordville, CT, 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.

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: First-Selectwomen Mary Mitta
Town of Stafford Springs
1 Main Street
Stafford Springs, CT 06076

Harry & Nancy Pragl
175 Stafford St Box 154
Staffordville, CT 06077

175 STAFFORD ST

Location 175 STAFFORD ST

Mblu 30 / 12 / /

Acct# 00142200

Owner PRAGL HARRY J+NANCY C

Assessment \$182,420

Appraisal \$260,600

PID 1596

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$198,700	\$61,900	\$260,600
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$139,090	\$43,330	\$182,420

Owner of Record

Owner PRAGL HARRY J+NANCY C

Sale Price \$0

Co-Owner

Certificate 1

Address 175 STAFFORD ST BOX 154
STAFFORDVILLE, CT 06077

Book & Page 340/ 409

Sale Date 09/03/1998

Instrument

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
PRAGL HARRY J+NANCY C	\$0	1	340/ 409		09/03/1998

Building Information

Building 1 : Section 1

Year Built: 1972

Living Area: 2,295

Replacement Cost: \$221,292

Building Percent Good: 83

Replacement Cost

Less Depreciation: \$183,700

Building Attributes	
Field	Description

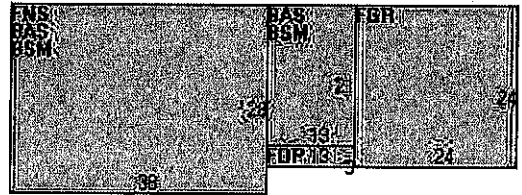
Style	Colonial
Model	Residential
Grade:	C+
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	Brick
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4
Full Bthrms:	1
Half Baths:	1
Extra Fixtures	0
Total Rooms:	8
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	1
Fireplaces	1
Extra Openings	
Prefab Fpl(s)	
Attic Type	None
Bsmt Type	Full
Bsmt Garage(s)	0
Fin Bsmt	0
Fn. Bmt. Qual.	
Unfin Area	0

Building Photo



(<http://images.vgsi.com/photos2/StaffordCTPhotos//\00\00\94\8>)

Building Layout



(<http://images.vgsi.com/photos2/StaffordCTPhotos//Sketches/15>)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,337	1,337
FNS	Finished 90% Story	1,064	958
BSM	Basement	1,337	0
FGR	Garage	576	0
FOP	Open Porch	39	0
		4,353	2,295

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 101
Description Res Dwelling
Zone AA
Neighborhood 240
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 3.98
Frontage
Depth
Assessed Value \$43,330
Appraised Value \$61,900

Outbuildings

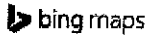
Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN6	2S Barn w/ Bsmt			748 S.F.	\$15,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$198,700	\$61,900	\$260,600
2016	\$198,700	\$61,900	\$260,600
2014	\$186,900	\$61,900	\$248,800

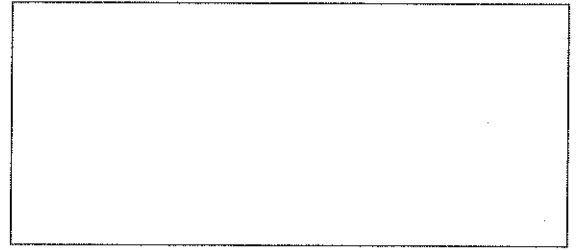
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$139,090	\$43,330	\$182,420
2016	\$139,090	\$43,330	\$182,420
2014	\$130,830	\$43,330	\$174,160

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175 Stafford St, Stafford Springs, CT 06076

Address: 175 Stafford St, Stafford, Stafford Springs, CT 06076



Data from: Zillow · Realtor · GreatSchools



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051


Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

June 5, 2002

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director 

RE: **DOCKET NO. 212** - Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a wireless telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut.

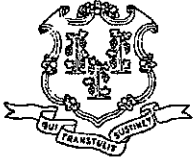
By its Decision and Order dated June 3, 2002, the Connecticut Siting Council granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a wireless telecommunications facility at the alternate D (deer stand) site at 159 Stafford Street, Stafford, Connecticut.

Enclosed are the Council's Findings of Fact, Opinion, and Decision and Order.

SDP/FOC/rgg

Enclosures (4)

c: Albert Palko, State Documents Librarian
Council Members



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Phone: (860) 827-2935 Fax: (860) 827-2950

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Web Site: www.state.ct.us/csc/index.htm

June 5, 2002

Thomas J. Regan, Esquire
Brown, Rudnick, Freed & Gesmer, P.C.
CityPlace 1, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

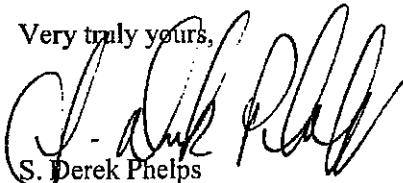
RE: **DOCKET NO. 212** - Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a wireless telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut.

Dear Attorney Regan:

By its Decision and Order dated June 3, 2002, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a wireless telecommunications facility at the alternate D (deer stand) site at 159 Stafford Street, Stafford, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/FOC/grg

Enclosures (4)



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CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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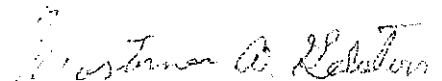
E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

**CERTIFICATE
OF
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DOCKET NO. 212**

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum, L.P. d/b/a Sprint PCS application for the construction, maintenance, and operation of a wireless telecommunications facility at the alternate D (deer stand) site at 159 Stafford Street, Stafford, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on June 3, 2002.

By order of the Council,


Mortimer A. Gelston, Chairman

June 3, 2002

DOCKET NO. 212 - Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut.	} } }	Connecticut Siting Council June 3, 2002
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Findings of Fact

Introduction

1. Sprint Spectrum L.P., d/b/a Sprint PCS (Sprint) in accordance with provisions of General Statutes §§ 16-50g through 16-50aa applied to the Connecticut Siting Council (Council) on September 28, 2001, for the construction, operation, and maintenance of a wireless telecommunications facility located off Stafford Street in Stafford, Connecticut. (Sprint 1, p. 1)
2. Sprint, a wholly owned subsidiary of WirelessCo L.P., is licensed by the Federal Communications Commission (FCC) to provide wireless personal communication service (PCS) in 32 major trading areas within the United States, including Connecticut. (Sprint 1, pp. 1-2)
3. The parties in this proceeding are the applicant and the Town of Stafford. The intervenor in this proceeding is Citizens for Neighborhood Preservation. (Transcript, December 12, 2001, 2:00 p.m. (Tr. 1), Transcript, December 12, 2001, 7:00 p.m. (Tr. 2), Transcript, April 10, 2002, 3:45 p.m. (Tr. 3) Transcript, April 10, 2002, 7:00 p.m. (Tr. 4)
4. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on December 12, 2001, beginning at 2:00 p.m. and continuing at 7:00 p.m. in the Veterans Room of the Warren Memorial Town Hall, 1 Main Street, Stafford Springs, Connecticut. The Council also held a hearing on April 10, 2002, beginning at 3:45 p.m. and continued at 7:00 p.m. in the Stafford Town Library, 10 Levinthal Run, Stafford. (Tr. 1, p. 3; Tr. 3, p. 3)
5. The Council and its staff made inspections of the proposed prime and alternate sites on December 12, 2001. The proposed prime site is located approximately 350 feet west of Stafford Street on the Sevcik property and the proposed alternate sites are located between 900 feet and 1,500 feet east of Stafford Street on the Pragl property. During the field inspection, the applicant flew a balloon at the proposed prime and alternate sites. On April 10, 2002, the Council and its staff made inspections of the proposed prime site access road, proposed alternate site A, and the deer stand site. The applicant flew balloons to simulate the heights of the towers proposed at these locations. (Tr. 1, pp. 44-45; Tr. 3 p. 17)
6. Pursuant to CGS § 16-50l(e), Sprint provided technical materials to John Julian, First Selectman and Wendell Avery, Zoning Enforcement Officer for the Town of Stafford via a letter dated June 29, 2001. On July 23, 2001, Sprint met with Mr. Avery to discuss plans and proposed locations for telecommunications facilities in the Town of Stafford. The Town held a public informational meeting on August 14, 2001. Town of Stafford Planning and Zoning Commission's letter to the Council dated August 17, 2001, recommends the Pragl property (alternate site) because the Sevcik property (prime site) is too close to residential homes and Stafford Street, the tower radius would be closer to residences than the Pragl property, and the proposed tower would be more visible at the Sevcik property. The Planning and Zoning Commission requests that the Council consider requiring utilities to be placed underground, and that in the event the tower is not used for a period of three months the tower should be removed at the owner's expense. (Sprint 1, pp. 21-22, Tabs 14 and 15; Tr. 1, pp. 21-22)

7. Subsequent to the Council's December 12, 2001 hearing, Gordon Frassinelli, First Selectman of the Town of Stafford, Dino Pelligrini representing the Citizens for Neighborhood Preservation, Harry Pragl property owner of the proposed alternate site, and Sprint collectively agreed to pursue a site located approximately 500 north of the proposed alternate site A identified as the alternate D (deer stand) site. (Tr. 3, p. 8)

PCS Service Design

8. Sprint operates a digital personal communications service (PCS) network using a 1900-megahertz (MHz) frequency signal allocated by the FCC. The frequency of this signal is at least twice that of traditional cellular service in the 800 MHz range and degrades quickly in areas of hilly terrain and dense foliage. This system design provides for frequency reuse and handoff between other cell sites, and is capable of orderly expansion. (Sprint 1, p. 10, Tab 14; Sprint 3, Anthony Wells Testimony; Sprint 6, Q. 7)
9. Adjacent Sprint facilities that would hand off traffic with the proposed facility are as follows:

Location	Distance and Direction from proposed facility	Status
290 South Road, Stafford Springs	2.10 mi./southeast	Operating
Furnace Avenue, Stafford Springs	2.50 mi./southwest	Operating
Stony Lane, Stafford Springs	3.00 mi./northwest	Proposed facility in Council Docket No. 213
South Wales, Massachusetts	3.75 mi./north	Approved via court settlement, expected construction to start February 2002.

(Sprint 1, Tab 9 and Tab 13; Sprint 2, Q. 18)

Need and Coverage

10. In 1996, the United States Congress recognized a nationwide need for high quality wireless telecommunications services, including cellular telephone service. The Federal Telecommunications Act of 1996 seeks to promote competition, encourage technical innovations, and foster lower prices for telecommunications services. Furthermore, the Federal government has preempted the determination of public need for wireless service by the states, and has established design standards to ensure technical integrity and nationwide compatibility among all systems. (Telecommunications Act of 1996, Definition of Act, Sections 256, and 704)
11. Sprint identified the minimum signal level threshold for an area in Stafford to be -94 dbm. Presently, a gap in coverage exists along Route 19 in Staffordville and surrounding areas. The primary purpose of this facility is to provide service to these gaps in coverage and provide hand-off capability to adjacent sites. (Sprint 1, Tab 5 and Tab 9; Sprint 3, Anthony Wells Testimony)

12. Coverage from existing and proposed facilities located at 290 South Road, Stafford Springs; Furnace Avenue, Stafford Springs; Stony Lane, Stafford Springs; South Wales, Massachusetts within a two-mile radius of the Route 19 and Stafford Road intersection indicates the following coverage gaps. Gaps are defined as areas receiving less than -94 dbm coverage.

Existing Coverage
 (See Appendix A)

<u>Route</u>	<u>Gaps (miles)</u> <u>< -94 dbm</u>	<u>Total Road</u> <u>Miles</u>
19	2.0	4.6

(Sprint 4, Q. 17, coverage models)

13. Existing and proposed coverage combined with Sprint antennas on the proposed prime site tower at 150 feet above ground level (AGL) would have no coverage gaps within a two-mile radius of the Route 19 and Stafford Road intersection as follows:

Proposed Prime Site Tower at a height of 150 feet AGL
 (See Appendix B)

<u>Route</u>	<u>Gaps (miles)</u> <u>< -94 dbm</u>	<u>Total Road</u> <u>Miles</u>
19	0.0	4.6

As usage increases in the Route 19 area in Stafford, the coverage area would shrink at the fringe of each cell site. A tower less than 150 feet in height would create coverage gaps and makes handoff to adjacent sites more difficult.

(Sprint 4, Q. 17, coverage models; Tr. 1, pp. 40-44; Tr. 2, p. 33; Tr. 3, pp. 55-57)

14. Existing and proposed coverage combined with Sprint antennas on the proposed alternate site tower at 150 feet AGL would have a 500-foot gap in coverage within a two-mile radius of the Route 19 and Stafford Road intersection as follows:

Proposed Alternate Site A Tower at a height of 150 feet AGL
 (See Appendix B)

<u>Route</u>	<u>Gaps (feet)</u> <u>< -94 dbm</u>	<u>Total Road</u> <u>Miles</u>
19	500 feet	4.6

A 165-foot tower could provide continuous coverage to Route 19. As usage increases the coverage area would shrink at the fringe of each cell site. A tower less than 150 feet in height would increase gaps to coverage and make handoff to adjacent sites more difficult.

(Sprint 4, Q. 17, coverage models; Tr. 1, pp. 40-44; Tr. 2, P. 33; Tr. 3, pp. 55-57)

15. Coverage from the proposed alternate D (deer stand) site would be equivalent to that from the proposed alternate site A. (Sprint 9, Q. 22)

Site Search

16. The search area is an approximate 0.5-mile long by 0.4-mile wide polygon with the center located approximately 1-mile north-northeast of the intersection of Stafford Street and Hydeville Road. No existing structures are located within or near this search area. (Sprint 1, Tab 16; Sprint 3, Timothy Keator Testimony)
17. Sprint identified and investigated 20 potential sites, including the proposed prime and alternate sites in Stafford. Ten town-owned properties were identified, but initially not given consideration because the Town indicated that they did not want a tower on their properties. Except for the proposed prime and alternate sites, the remaining sites were rejected due to topography, low ground elevation, unacceptable coverage, and/or the landowner reluctance to sell or lease property. (Sprint 1, p. 24 and Tab 17; Sprint 3, Timothy Keator Testimony; Sprint 7)
18. Due to a change in Town administration, the Town is now willing to consider having a tower on town-owned property; however, Sprint rejected the ten town-owned properties because they are located between 0.5 mile and 1.9 miles from the center of the search area, have low ground elevation, or are in or near historic districts or archaeological sites. (Sprint 1, Tabs 12, 16, 21 and 22; Sprint 2, Q. 15; Sprint 7; Tr. 1, pp. 122-123)

Proposed Prime and Alternate Site

19. The proposed prime site, owned by William J. and Viola F. Sevcik, would be located on a 9.7-acre parcel west of Stafford Road. The parcel is wooded and undeveloped. The owner's residence is located on an adjacent parcel. Land uses in the area include undeveloped wooded land to the west and north, and residential development south and east along Stafford Street and Fox Run Drive. The property slopes gently down to the north from an elevation of 900 feet above main sea level (amsl) at Stafford Street, to approximately 870 feet amsl at the north property boundary. The elevation of the proposed tower base is 894 feet amsl. (Sprint 1, p. 4, Tab; Department of Environmental Protection (DEP) Comments dated December 7 and 13, 2001)
20. The proposed alternate site, owned by Harry Pragl, would be located on a 31-acre parcel east of Stafford Road. The parcel is wooded and undeveloped. Land uses in the area include undeveloped wooded land to the east and north, and residential development south and west along Stafford Street and Fox Run Drive. The property slopes gently up to the east and north from an elevation of 900 feet amsl at Stafford Street, to approximately 960 feet amsl at the east property boundary. The elevation of the proposed tower base is 950 feet amsl. The landowner has no plans to develop the property other than a home along Stafford Street. (Sprint 1, p. 4, 5, Sections 3 and 4, p. 6; Sprint 4, Q. 4; DEP Comments dated January 19, 2001; Tr. 1, p.10)
21. Four variations of the alternate site are as follows:
 - Site A is the proposed location in the application located approximately 1,500 feet east of Stafford Street;
 - Site B would be located approximately 175 feet south-southeast of Site A. Site B has a ground elevation of 950 feet amsl, and would be greater than 100 feet from wetland two (vernal pool) and wetland one;
 - Site C would be located approximately 600 west-southwest of Site A. Site C has a ground elevation of 930 feet amsl, would have no impact to inland wetlands and intermittent water courses, and would result in a shorter access road; and

- Site D (deer stand) would be located 500 feet north of site A. The alternate D (deer stand) site has a ground elevation of 955 feet amsl, and would be farther away from residences located to the south on Fox Run Drive.

(Sprint 1, Tab 8; Sprint 4, Qs. 5 and 6; Sprint 9, Q. 19)

22. The number of homes within 1,000 feet of the proposed sites are as follows:

<u>Site</u>	<u>No. of homes within 1,000 feet</u>	<u>Nearest home in distance and direction</u>
Prime	10	230 feet east
alternate A	14	380 feet south
alternate B	15	205 feet south
alternate C	27	250 feet south
alternate D (deer stand)	8	640 feet west

The nearest home to the prime site belongs to Richard and Wendy Tambirini. The nearest home to the alternate sites A, B, and C are located on Fox Run Drive. The nearest home to the alternate D (deer stand) site belongs to the lessor. (Sprint 1, p. 15, and Tab 7 and Tab 8, Sprint 9, Qs. 19 and 20)

23. At the proposed prime site, a twelve-foot wide by 340-foot long gravel access drive would be constructed along an existing woods road from Stafford Street. The proposed access road would be located approximately 25 feet north of the nearest property boundary. Sprint could also construct a new 440-foot long by 12-foot wide access road closer to the lessor's driveway and 410 feet north of the Tambirini property boundary. Electric and telephone utilities would be installed underground within the access easement from an existing utility pole on Stafford Street to the proposed compound. (Sprint 1, p. 9; Sprint 9, Q. 25)
24. Sprint proposes to construct a 12-foot wide gravel access road from Stafford Street to the proposed alternate site compound as follows:

<u>Alternate Site</u>	<u>Access road</u>
A	1,500 feet long
B	1,300 feet long
C	900 feet long
D (deer stand)	2,000 feet long

Electric and telephone utilities would be installed above ground within the access easement from an existing utility pole on Stafford Street to the proposed compound. Underground utilities could be installed but would cost twice as much as overhead utilities. (Sprint 1, p. 9 and Tab 8)

25. The proposed prime and alternate sites are zoned single-family district (AA). According to the Town's Zoning Regulations, public and private telecommunications facilities, communications towers, antenna and accessory equipment are a permitted use in all zones except open space districts, by Special Use Permit. The towers are limited to 180 feet in height, with a setback equal to the proposed structure height. (Sprint 1, p. 18.)
26. The proposed facility compound would consist of a 100-foot by 100-foot leased parcel. On the proposed prime site, a 90-foot by 60-foot facility compound would be developed. On the proposed alternate site, a 70-foot by 70-foot facility compound would be developed. Either facility compound would be enclosed by a 7-foot high security fence and gate. A crushed stone surface would be established within the facility compound. A 8.5-foot by 20-foot concrete pad would be constructed to

- support Sprint's telecommunications equipment cabinets. Sprint could reduce the dimension of the facility compound. (Sprint 1, pp. 4,5, and 8, Tab 7; Tr. 1, p. 32)
27. Sprint would construct a 150-foot monopole at the proposed prime or alternate site in accordance with Electronic Industries Association Standard EIA/TIA 222-E, Structural Standards for Steel Antenna Towers and Support Structures. (Sprint 1, p. 8)
28. Sprint would attach as many as 12 panel antennas, configured in a three-sector array on a triangular platform, to the monopole at approximately 150 feet AGL. Two antennas per sector would be installed initially with additional antennas to be installed as demand for service grows. A global positioning system (GPS) antenna would be attached at approximately 75 feet AGL. (Sprint 1c, Tr. 1, p. 33)
29. No other wireless telecommunications carriers have notified Sprint of their intention to share the proposed tower. The Town of Stafford's Fire Department has expressed an interest to use the proposed tower, but has not identified the height needed for its antennas. Sprint would provide space for the Town's antennas at no expense. (Sprint 1, pp. 6 and 7; Tr. 1, pp. 31 and 36)
30. In the event of a power outage Sprint would rely on a dry-cell battery system for back-up power. This battery system is designed to provide up to two to three hours of service. Sprint could use a portable generator at the facility if additional power were needed beyond the battery's capability. (Sprint 1, pp. 14 and 15, Tr. 1, pp. 33 and 34)
31. The tower radius at either the proposed prime or alternate site would not extend beyond the property boundaries. No structures other than the telecommunications equipment would be located within the tower radius. (Sprint 1 Tab 7; Sprint 9, Q. 19 and 25)
32. The approximate costs of construction to Sprint for the proposed prime and alternate facilities are estimated as follows:

	<u>Prime site</u>	<u>Alternate A site</u>	<u>Alternate D (deer stand) site</u>
Radio equipment	\$ 113,500	\$ 113,500	\$ 113,500
Tower, cabling, and antennas	49,500	49,500	49,500
Utility installation	10,000	23,000	23,000
Site and road installation	<u>148,000</u>	<u>220,000</u>	<u>225,000</u>
Total Costs	\$321,000	\$406,000	\$411,000

(Sprint 8; Sprint 9, Q. 21)

Environmental Considerations

33. Neither the proposed prime or alternate site contains known existing populations of Federal or State Endangered, Threatened or Special Concern Species. However, a reported location of whip-poor-wills (*Caprimulgus vociferus*), a State Species of Special Concern is approximately 2,000 feet south-southwest of the proposed prime and alternate sites. The DEP recommends that no construction take place during the months of May June and July to avoid disruption of whip-poor-wills forage activities. (Sprint 1, pp. 26-27; Tab 21 and Tab 22; Sprint 6, Q. 8; DEP letters dated December 7 and 13, 2001)

34. No inland wetlands or watercourses were identified in proximity of the proposed prime access drive(s) or site. However, the alternative access drive for the proposed prime site, located north of the lessor's driveway, crosses a drainage swale. (Sprint 1, p. 12; Tr. 3, p. 18)
35. Four inland wetlands are located proximate to the proposed alternate site(s) and access road.
- Wetland one is located approximately 250 feet south of site A and would be within 20 feet of the proposed access road at elevation 948 feet. This wetland is small in size and may be a vernal pool because of its depressional formation, no permanent outlet, and the presence of Wood frogs;
 - Wetland two is a vernal pool located approximately 55 feet west of site A and ten feet north of the proposed access road at elevation 940 feet;
 - Wetland three is approximately 50 feet south of the access road at elevation 900 feet;
 - Wetland four is similar to wetland 2, is located approximately 300 west of the proposed alternate D (deer stand) site, and has characteristics that may consider wetland four as a vernal pool.

The proposed access road to the alternate sites would cross two intermittent watercourses at elevation 936 feet and 900 feet. (Sprint 1, pp. 13 and 14, Tab 8; Sprint 9, Q. 19)

36. Wetland two is classified as a forested groundwater/surface water depressional wetland (vernal pool) and is dominated by red maple, highbush blueberry, and winterberry. Several obligate species, including egg masses and adult Wood frogs, Spotted salamander egg masses, and Fairy shrimp were observed in this vernal pool on April 22, 2000. Dean Gustafson, a professional soil scientist, recommends a minimum 100-foot buffer to wetland two and two lines of erosion and sediment control structures be added for the protection of wetland two. (Sprint 1, pp. 13-14; Tab 22)
37. The State Historic Preservation Office (SHPO) has determined that construction of the proposed prime or alternate facility would have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places. Furthermore, the proposed facilities would have no effect upon properties of traditional cultural importance to Connecticut's Native American community. (Sprint 1, p. 26, and Tabs 21 and 22)
38. Clearing of trees and grading would be necessary for the construction of the access road and facility compound. The following table identifies the number of trees, having a diameters of six inches or greater at breast height, that would need to be removed.

Site	Approximate number of trees to be removed		
	Access road	Site compound	Total
<u>Prime</u>			
with proposed access road	5	12	17
with alternate access road	28	12	40
<u>Alternate site</u>			
A	21	10	31
B	21	5	26
C	9	15	24
D (deer stand)	25	20	45

(Sprint 5; Sprint 9, Qs. 19 and 25)

39. Sprint would install erosion and sediment control structures prior to commencement of construction in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control. Culverts

would be installed at the intermittent watercourses or drainage swale. After construction all disturbed areas would be graded, seeded and mulched. (Sprint 1, p. 12; Sprint 2, Q. 7; Sprint 9, Q. 19; Tr. 3, pp. 39-42)

40. Neither the prime or alternate tower would require Federal Aviation Administration marking or lighting. (Tr. 1, p. 35)
41. The electromagnetic radiofrequency power density, calculated using the FCC Office of Engineering and Technology Bulletin 65, August 1997, using conservative worst-case approximation of radiofrequency power density levels at the base of the proposed prime or alternate tower, with all Sprint antennas transmitting simultaneously on all channels at full power would be 5.2 percent of the American National Standards Institute (ANSI) Standard. (Sprint 1, p. 25; Tab 18; Sprint 2, Q. 4)

Visibility

42. The visibility analysis within a two-mile radius of the proposed prime site assumed trees were a uniform height of 75 feet and the forest cover would be 78 percent of the 8,042-acre study area. A 150-foot monopole tower would be visible from approximately 225 acres or three percent of the study area. Sprint conducted a balloon test at various locations with the following results.

Visibility of Proposed 150-foot Prime Tower

<u>Location</u>	<u>Visible</u>	<u>Distance and Direction to Tower</u>
Route 19 adjacent to Staffordville Reservoir	yes	1.4 miles south
Dunay Road	yes	1.6 miles south-southeast
Hydeville Road south of Upper Road	no	0.8 miles southeast
Upper Road	yes	1.0 mile southeast
Upper Road north of Leonard Road	yes	1.1 miles east
Sunset Ridge Road west of Monson Road	yes	1.5 miles east
Leonard Road adjacent to Riverside Pond	no	1.4 miles east
Stafford Street and Hydeville Road	no	1.0 mile northeast
Fox Run Drive	yes	0.2 mile northwest
Stafford Street south of Staffordville	yes	0.5 mile south-southwest
New City Road east of Route 19	no	1.0 mile southwest

(Sprint 1, Tab 11)

43. The visibility analysis within a two-mile radius of the proposed alternate site assumed trees were a uniform height of 75 feet and the forest cover would be 79 percent of the 8,042-acre study area. A 150-foot monopole tower would be visible from approximately 140 acres or 1.7 percent of the study area. Sprint conducted a balloon test at various locations with the following results.

Visibility of Proposed Alternate site "A" 150-foot Tower

<u>Location</u>	<u>Visible</u>	<u>Distance and Direction to Tower</u>
Route 19 adjacent to Staffordville Reservoir	yes	1.4 miles south
Dunay Road	yes	1.7 miles south-southeast
Hydeville Road south of Upper Road	no	1.0 miles southeast
Upper Road	no	1.3 mile southeast
Upper Road north of Leonard Road	no	1.4 miles east
Sunset Ridge Road west of Monson Road	yes	1.5 miles east
Colburn Road north of Staffordville	yes	0.7 miles southeast
Stafford Street and Hydeville Road	no	1.0 mile northeast
Fox Run Drive	yes	0.2 mile northwest
Stafford Street south of Staffordville	yes	0.5 mile south-southwest
Route 19 north of New City Road	no	0.8 mile southwest
RFD Road	Partially obscured	0.2 miles east

(Sprint 1, Tab 12)

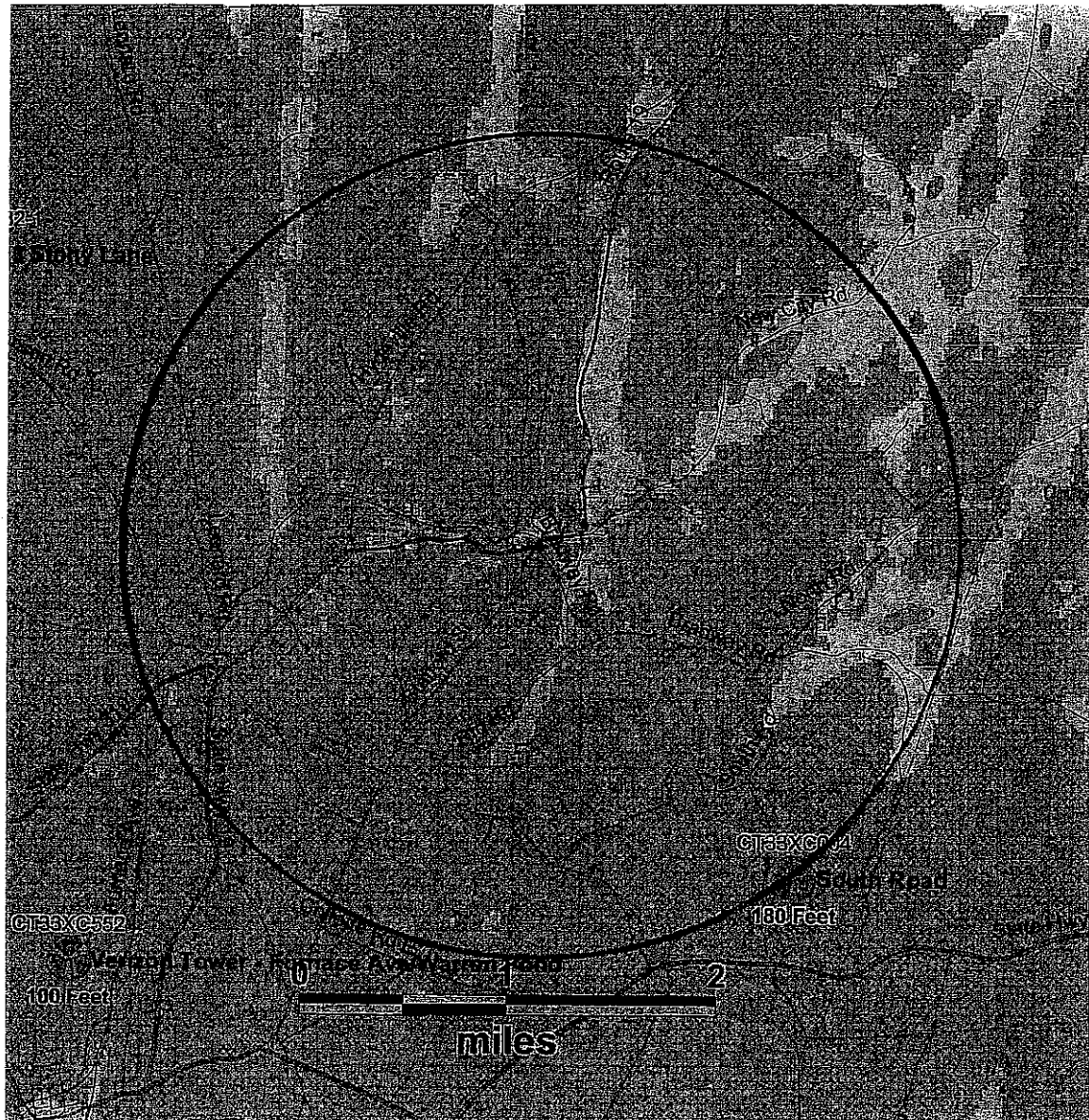
44. The visibility analysis within a two-mile radius of the proposed alternate site assumed trees were a uniform height of 75 feet and the forest cover represents 79 percent of the 8,042-acre study area. A 150-foot monopole tower would be visible from approximately 278 acres or 3.4 percent of the study area. Sprint conducted a balloon test at various locations with the following results.

Visibility of Proposed Alternate D (deer stand) 150-foot Tower

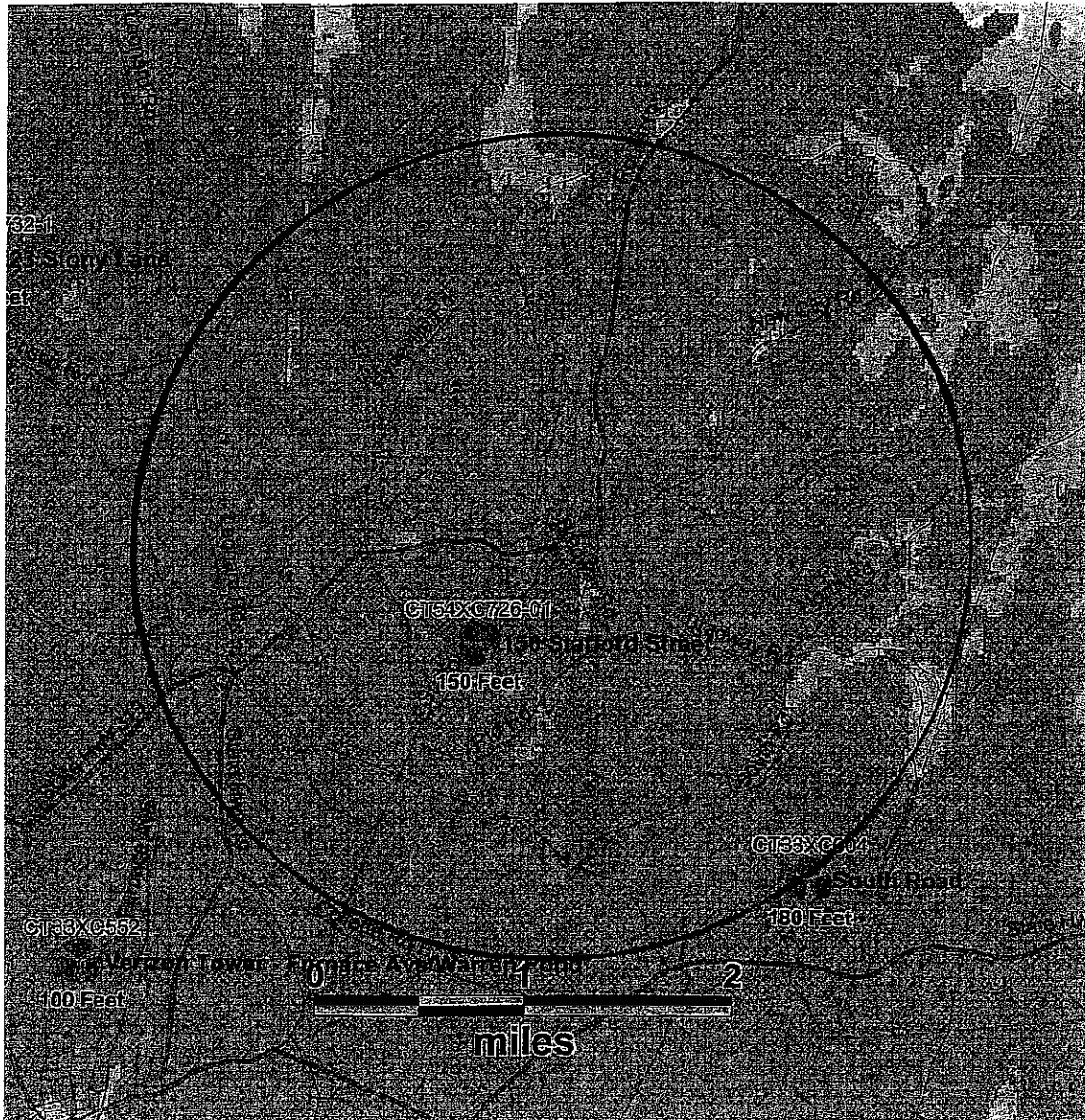
<u>Location</u>	<u>Visible</u>	<u>Distance and Direction to Tower</u>
Route 19 adjacent to Staffordville Reservoir	yes	1.4 miles south
Dunay Road	yes	1.7 miles south-southeast
Hydeville Road south of Upper Road	yes	1.0 miles southeast
Upper Road	yes	1.1 mile southeast
Upper Road north of Leonard Road	yes	1.4 miles east
Sunset Ridge Road west of Monson Road	yes	1.5 miles east
Colburn Road north of Staffordville	yes	0.7 miles southeast
Stafford Street and Hydeville Road	no	1.0 mile northeast
Fox Run Drive	yes	0.2 mile northwest
Stafford Street south of Staffordville	no	0.5 mile south-southwest
Route 19 north of New City Road	yes	0.8 mile southwest
RFD Road	Partially obscured	0.2 miles east

(Sprint 9, Q. 24)

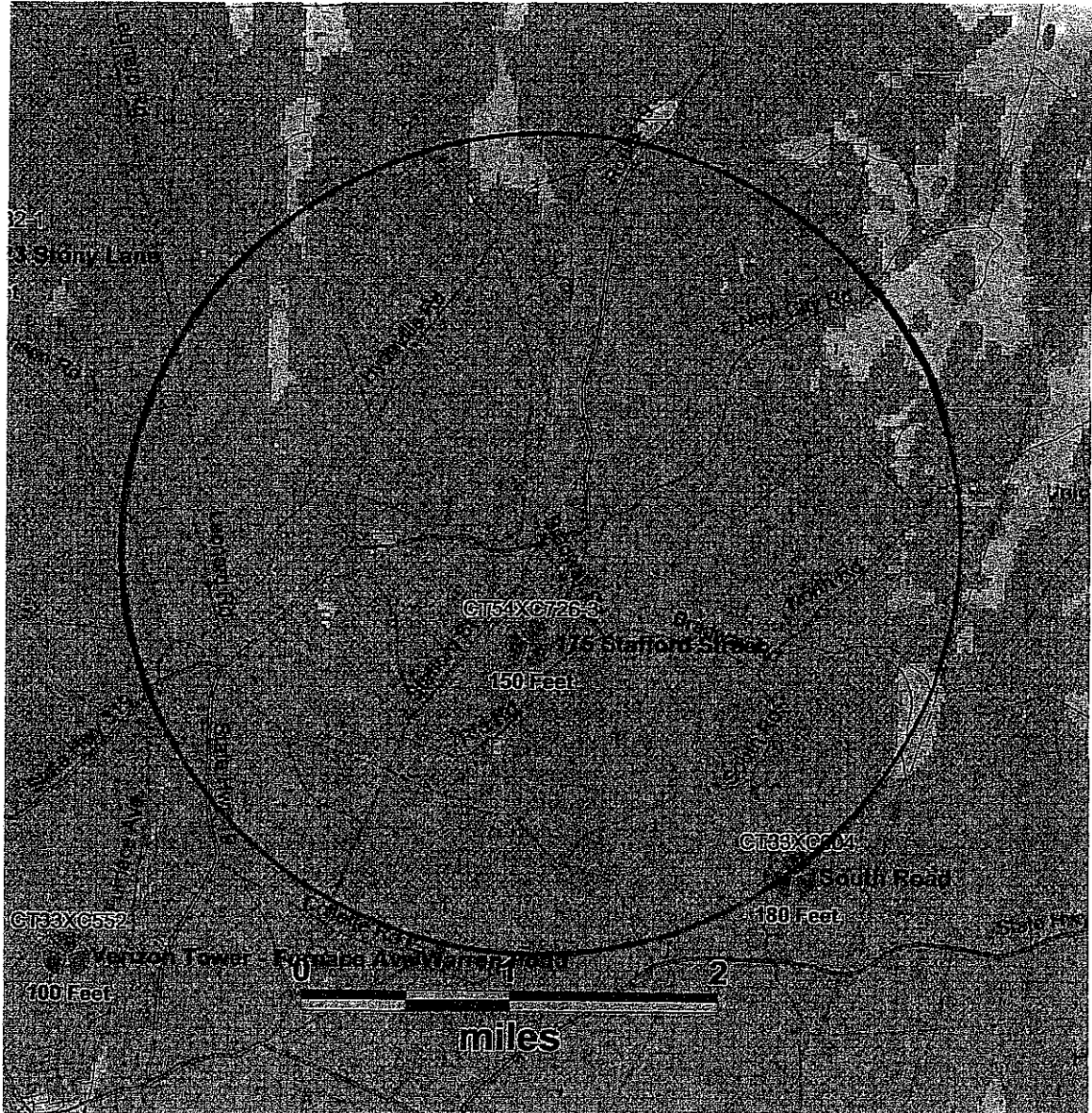
Appendix A
(Sprint existing coverage)



Appendix B
(Sprint existing coverage with prime tower coverage at 150 feet AGL – 1,044 feet amsl)



Appendix C
(Sprint existing coverage with alternate tower coverage at 150 feet AGL – 1,200 feet amsl)



DOCKET NO. 212 - Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut. }

Connecticut

Siting

Council

June 3, 2002

Opinion

On September 28, 2001, Sprint Spectrum L.P., d/b/a Sprint PCS (Sprint) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, operation, and maintenance of a wireless telecommunications facility off Stafford Street in Stafford, Connecticut. The applicant, Citizens for Neighborhood Preservation, and Town of Stafford are parties and intervenors in this proceeding.

The primary purpose of the proposed facility is to provide wireless telecommunications coverage to existing gaps in the area, and additional call handling capacity along Route 19 and local roads in the northeast Stafford area.

The Council has carefully analyzed the record in this proceeding including a proposed site located off Stony Lane in the Town of Stafford (Council Docket No. 213) and a future site to be developed in South Wales, Massachusetts located less than four miles north of the proposed Stafford Road site. While the Stony Lane or South Wales, Massachusetts sites would not provide coverage to Route 19 in the north Stafford area they will provide call handoff capability with the proposed Stafford Road site. Therefore, the proposed Stafford Road facility would be an integral component of Sprint's network to provide seamless wireless coverage to those portions of Route 19 that would not otherwise be served by existing and proposed facilities in the area. Consequently, based on a detailed analysis of propagation, capacity, signal strength, and no existing structures the Council finds a technical need for a new tower. Because the proposed alternate tower base elevation is about 60 feet higher than the proposed prime site tower base elevation the Council has explored the opportunity to lower the height of the proposed alternate tower; however given the significant tree cover in the area wireless coverage would be diminished at a lower height.

The applicant seeks to develop a 150-foot tower on either the proposed prime or alternate sites. The purpose of a 150-foot tower would be to accommodate Sprint, two future carriers and public safety entities. The Town of Stafford Fire Department expressed an interest to share the proposed facility. Furthermore, the tower radius for both sites would remain on the lessor's property, and neither site would require air navigation lighting or marking.

The proposed sites are on separate properties bisected by Stafford Street and are approximately 1,800 feet apart. The proposed prime site is located on a 10 acre parcel, is over three hundred feet west of Stafford Street, and proximate to the lessor's house and an adjacent neighbor's home. The proposed alternate site is located on a 31 acre parcel which the Council investigated four sites located between 900 feet and 1,500 east of Stafford Street and vary in distance to adjacent neighbors on Fox Run Drive. Alternate sites B and C would be near the lessor's south property boundary and would be as close as three hundred feet to homes on Fox Run Drive. The alternate A site, and the alternate D (deer stand) site located 500 feet north of the proposed alternate A site would be further from homes on Fox Run Drive. Both the proposed prime and alternate sites are in a wooded residential area. Based on location, the alternate D (deer stand) site is more remote and distant to adjacent residential land uses.

Sprint proposed access roads along existing woods roads, which minimizes tree clearing and grading. Development of the proposed prime site would require clearing of approximately 17 to 40 trees with diameters of 6-inches or greater at breast height for construction of the access road and site compound. At the proposed prime site the existing woods road was on the lessor's south property boundary adjacent to a neighbor. During the proceeding another access road was proposed north of the lessor's driveway and away from the neighbor. This access road would approach the proposed prime site from Stafford Street a distance of 440 feet and would require 40 trees to be removed. Clearing of trees to construct the access road and site compound at the proposed alternate sites range from 31 to 45 trees with diameters of 6-inches or greater at breast height. The proposed alternate access road would also be from Stafford Street requiring clearing of up to 45 trees and grading of an existing woods road of up to 2,000 feet. Comparison of tree clearing and use of existing woods roads, development of the alternate D (deer stand) site would be further from inland wetlands and residences than the proposed prime site or alternate A, B or C sites.

Sprint proposes to construct an approximate 5,000 square foot facility compound to accommodate Sprint and two other carriers; however, since Sprint is the only carrier to use the tower, we believe that the compound could be reduced to minimize tree clearing. Electric and telephone utilities would be installed underground at the proposed prime site and overhead at the proposed alternate site. The Town recommends that the utilities be installed underground.

The access road to the alternate sites would cross two intermittent watercourses and would be proximate to four inland wetlands. Two of these inland wetlands are east of the alternate A and alternate D (deer stand) sites and have been identified as vernal pool habitats. While the access road comes as close as 10 feet to inland wetlands and the alternate A site lease area would be 55 feet from inland wetlands, the Council will order that Sprint maintain a 25 foot buffer to all inland wetlands and install erosion and sediment controls to protect these resources prior to construction consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, prior to construction.

The Council is concerned with the visibility of the tower and must balance the need for the tower and the environmental effects of the tower on its adjacent land uses. In this case the proposed prime site is close to residents and would be more visible than the proposed alternate site and offers no substantial savings in tree clearing. The alternate A site would be further removed from adjacent residences but not nearly so as the proposed alternate D (deer stand) site. Although the alternate D (deer stand) site has the highest elevation of the proposed sites and its visibility would be slightly greater, it would be reduced by distance. Moreover the alternate D (deer stand) site compound would be farther away from inland wetlands than the proposed alternate A site. Therefore, we will direct the applicant to construct a tower at the proposed alternate D (deer stand) site.

Neither the proposed prime or alternate sites contain known extant populations of Federal or State Endangered, Threatened or Special Concern Species; however a State species of special concern, the whip-poor-will, has been identified within 2,000 feet of the proposed prime and alternate sites. To protect the foraging activities of this species, the Council will order the Certificate holder to not construct during the months of May, June and July. Furthermore, there are no sites listed on the National Register of Historic Places or any National Historic districts in the vicinity of the proposed prime or alternate site nor would the proposed construction of either site affect the state's archaeological heritage.

Electromagnetic radio frequency power density levels are a concern of the Council. However, the radio frequency power density at the base of the proposed tower would be well below federal and State standards for the frequency used by Sprint. If new carriers are added or federal or state standards change, we will require that all carriers comply with such standards.

We appreciate the Town of Stafford's First Selectman, Mr. Gordon Frassinelli, Jr., Citizens for Neighborhood Preservation, the owners' of the site parcels, and Sprint in working on a consensus for a site. In this case, the alternate A, B, and C sites were located along a property boundary and appeared to infringe on an adjacent neighborhood. Subsequent to the Council's December 2001 hearing the parties and intervenors proposed the alternate D (deer stand) site. Following a Council hearing in April 2002 and based on the agreement of the parties and intervenors in this proceeding the Council will approve the alternate site known as the alternate D (deer stand) site. The Council will approve the alternate D (deer stand) site, order that the utilities be installed underground, that no construction will take place during the months of May, June and July, maintain a 25-foot buffer to inland wetlands, and if the tower ceases to provide wireless services the applicant shall dismantle the tower and remove the associated equipment within sixty days or reapply for any continued or new use to the Council.

Based on the record in this proceeding, we find that the effects associated with the construction, operation, and maintenance of the telecommunications facility at the proposed alternate site, 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 policies of the State concerning such effects, and are not sufficient reason to deny this application. Therefore, we will issue a Certificate for the construction, operation, and maintenance of a telecommunications facility at the proposed alternate D (deer stand) site located at 159 Stafford Street, Connecticut. The Council will deny the proposed prime site and alternate sites A, B, and C.

Our decision will be conditioned upon the Certificate Holder submitting a Development and Management Plan for approval by the Council prior to commencement of any construction at the facility site.

DOCKET NO. 212 - Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut.	} } } }	Connecticut Siting Council June 3, 2002
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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 facility at the proposed alternate D (deer stand) site located at 159 Stafford Street, in Stafford, 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 Sprint Spectrum d/b/a Sprint PCS for the construction, maintenance, and operation of a wireless telecommunications facility at the proposed alternate D (deer stand) site located at 159 Stafford Street Stafford, Connecticut. We deny certification of the proposed prime site and alternate A, B, and C sites located off Stafford Street, Stafford, Connecticut.

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 for Sprint PCS, and other telecommunications entities, both public and private, but such tower shall not exceed a height of 150 feet above ground level including all appurtenances.
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: a final site plan(s) for development of the proposed alternate site including a compound reduced in size, the location and specifications for the tower foundation, antennas, equipment and foundation for equipment, security fence, access road to be no closer than 25 feet to any inland wetlands, and utility line that shall be underground; 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; landscaping; and provisions for the prevention and containment of spills and/or other discharge into adjacent inland wetlands.
3. The Certificate Holder shall not construct during the months of May, June, and July for the protection of a State species of special concern, the whip-poor-wills (*Caprimulgus vociferus*).
4. 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.
5. The Certificate Holder shall provide electromagnetic radio frequency power density measurements within sixty days following commencement of commercial operation.
6. The Certificate Holder shall provide the Council with 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.

7. 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.
8. Following completion of construction, if the facility does not initially provide or permanently ceases to provide wireless services this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment within sixty days, or reapply for any continued or new use to the Council before any such use is made.
9. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year 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, Stafford Reminder and the Journal Inquirer.

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

Sprint Spectrum, d/b/a Sprint PCS

Thomas J. Regan, Esq.
Brown, Rudnick, Freed & Gesmer, P.C.
CityPlace 1, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

Intervenor

Citizens for Neighborhood Preservation

Glen E. Coe, Esq.
Lewis B. Rome, Esq.
Rome McGuigan Sabanosh, P.C.
Attorneys At Law
One State Street
Hartford, CT 06103-3101

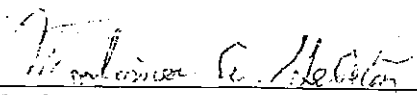
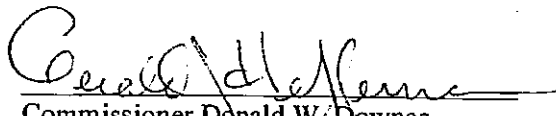
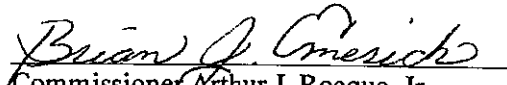
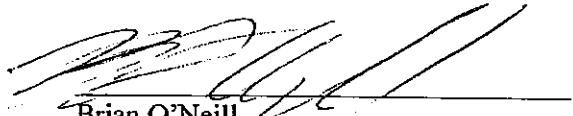
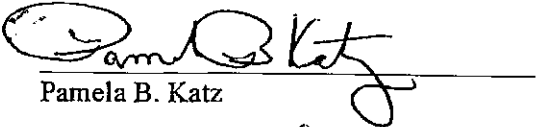
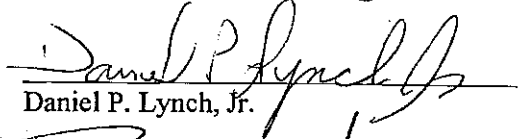
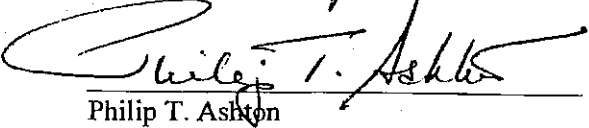
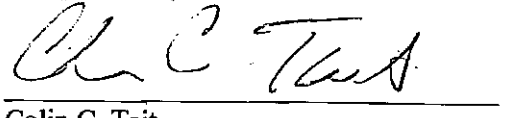
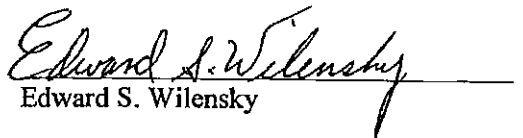
Party

Town of Stafford

Gordon J. Frassinelli, Jr.
First Selectman
Town of Stafford
Warren Memorial Town
1 Main Street, P.O. Box 11
Stafford Springs, CT 06076

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. 212 – Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a wireless telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut, and voted as follows to approve the alternate D (deer stand) site at 159 Stafford Street, and deny the prime site (156 Stafford Street), and alternate sites A, B and C:

<u>Council Members</u>	<u>Vote Cast</u>
 Mortimer A. Gelston, Chairman	Yes
 Commissioner Donald W. Downes Designee: Gerald J. Heffernan	Yes
 Commissioner Arthur J. Rocque, Jr. Designee: Brian J. Emerick	Yes
 Brian O'Neill	Yes
 Pamela B. Katz	Yes
 Daniel P. Lynch, Jr.	Yes
 Philip T. Ashton	Yes
 Colin C. Tait	Yes
 Edward S. Wilensky	Yes

Dated at New Britain, Connecticut, June 3, 2002.

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.

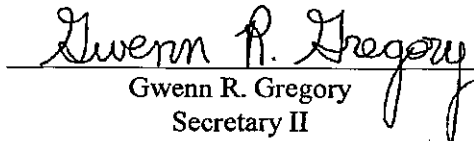
ATTEST:



S. Derek Phelps
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 212 has been forwarded by Certified First Class Return Receipt Requested mail on June 5, 2002, to all parties and intervenors of record as listed on the attached service list, dated January 18, 2002.

ATTEST:



Gwenn R. Gregory
Secretary II
Connecticut Siting Council

**LIST OF PARTIES AND INTERVENORS
SERVICE LIST**

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	Sprint Spectrum, L.P. d/b/a Sprint PCS	Thomas J. Regan, Esquire Brown, Rudnick, Freed & Gesmer, P.C. CityPlace 1, 38 th Floor 185 Asylum Street Hartford, CT 06103-3402 w: - (860) 509-6500 f: - (860) 509-6501
Intervenor	Citizens for Neighborhood Preservation	Glen E. Coe, Esq. Lewis B. Rome Rome McGuigan Sabanosh, P.C. Attorneys At Law One State Street Hartford, CT 06103-3101 w: - (860) 549-1000 f: - (860) 724-3921
Party	Town of Stafford	Gordon J. Frassinelli, Jr. First Selectman Town of Stafford Warren Memorial Town 1 Main Street, P.O. Box 11 Stafford Springs, CT 06076 w: (860) 684-2532 f: (860) 684-9845



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

Docket No. 212

Sprint Spectrum L.P.

Stafford, CT

Development and Management Plan

October 23, 2002

On March 21, 2002, the Connecticut Siting Council approved the construction, operation, and maintenance of a telecommunications facility by Sprint Spectrum L.P. d/b/a Sprint PCS at 159 Stafford Road, Stafford, Connecticut. As required in the Council's Decision and Order, Sprint submitted a Development and Management (D&M) Plan for this tower on September 12, 2002 and a revision on October 18, 2002.

Sprint would construct a ~~150-foot monopole at this site~~. Access to the site compound would be via a ~~2,000-foot long by 12-foot wide access road~~ extending from Stafford Road. The proposed access road would cross two intermittent watercourses and be in proximity to four inland wetlands. Sprint would install culverts to cross the intermittent watercourses and be no closer than 30 feet to any inland wetland consistent with the Council's order to be no closer than 25 feet to any inland wetland. Silt fence would be installed down-gradient of all disturbed areas prior to commencement of construction.

In compliance with the Council's Decision and Order to provide a spill containment and countermeasure plan, Sprint proposes to install ~~two vehicle/equipment fueling stations, one at the entrance of Stafford Road and the other at the site compound~~. Two double walled storage tanks surrounded by earth berms would be installed to contain spills and to protect adjacent wetland resources. The contractor is required to report all spills to Sprint within 24 hours.

Sprint originally proposed a 75-foot by 75-foot fenced compound inconsistent with the Council's Decision and Order, but has amended its site plan to construct a ~~50-foot by 50-foot compound~~ and install a ~~six-foot high chainlink fence with security wire around the site compound~~.

Electrical and telecommunication lines were originally proposed overhead; however, Sprint will install ~~utilities underground within the 25-foot wide access easement~~ consistent with the Council's decision and order. No landscaping is proposed since the site is located in a wooded area and not near any residence or road.

Sprint would mount antennas at 150 feet above ground level (AGL) and future antennas could be installed at 140 feet AGL and 130 feet AGL. A global positioning system (GPS) will be attached at 75 feet AGL. Also, Sprint will place its telecommunications equipment on a ~~10-foot by 20-foot concrete pad~~ at the base of the tower within the fenced compound.

Sprint has not provided details for the tower foundation as specified in the Council's Decision and Order. Therefore, Council staff recommends approval of the D&M plan with the conditions that the Council be provided notice of any spills associated with the vehicle/equipment fueling stations and that the tower foundation specifications be provided to the Council prior to constructing the foundation.



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

October 28, 2002

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402

RE: **DOCKET NO. 212** - Sprint Spectrum, L.P. d/b/a Sprint PCS Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility adjacent to 156 Stafford Street or 159 Stafford Street, Stafford, Connecticut.

Dear Attorney Regan:

At a public meeting of the Connecticut Siting Council held on October 23, 2002, the Connecticut Siting Council (Council) considered and approved with conditions the Development and Management (D&M) Plan submitted for this project on October 18, 2002.

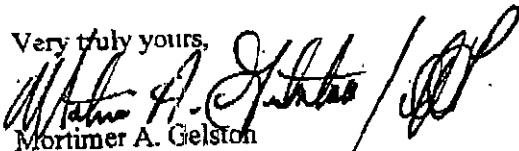
This approval applies only to the D&M Plan submitted on October 18, 2002 with conditions that the Council be provided notice of any spills associated with the vehicle/equipment fueling stations and that the tower foundation specifications be provided to the Council prior to constructing the foundation. Any changes to the D&M Plan require advance Council notification and approval.

Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Enclosed is a copy of the staff report on this D&M Plan, dated October 23, 2002.

Thank you for your attention and cooperation.

Very truly yours,


Mortimer A. Gelston
Chairman

MAG/FOC/laf

Enclosure: Staff Report, dated October 23, 2002

c: Parties and Intervenors

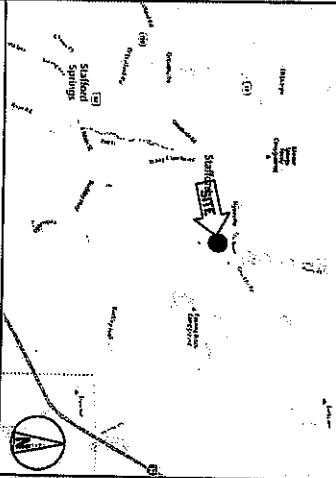


PROJECT: DO MACRO UPGRADE
SITE NAME: STAFFORD/PFRAGYL/SSUSA
SITE CASCADE: CT54XC726
SITE NUMBER: 876402
SITE ADDRESS: 175 STAFFORD STREET
 STAFFORD, CT 06077
SITE TYPE: MONOPOLE
MARKET: NEW ENGLAND/UPSTATE NY

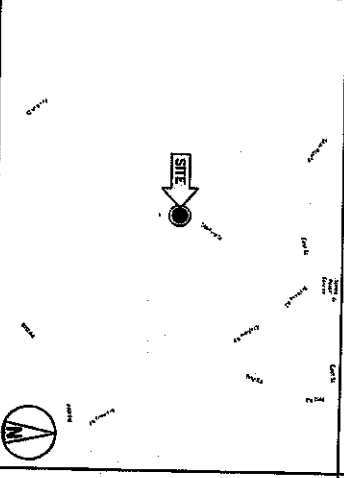
SITE INFORMATION

TOWER OWNER: CROWN ATLANTIC COMPANY LLC
 2000 CORPORATE DRIVE
 CONROSBORO, PA 15017
 (717) 465-8530
LATITUDE (NAD83):
 41.8735° N
LONGITUDE (NAD83):
 -72.16° 40.7' W
 -72.281328
COUNTY:
 TOLLAND COUNTY
ZONING JURISDICTION:
 TOWN OF STAFFORD
ZONING DISTRICT:
 ST. M
POWER COMPANY:
 EVERSOURCE
 (800) 288-2000
SPRINT CONSTRUCTION:
 TBD
GROUND PLAN:
 2011 258-2528
 (201) 258-2528

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

- SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.
- INSTALL 2.5 EQUIPMENT RISES EXISTING N.W. LIMB CORNER
- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS (1 800/100, 3 2500)
- INSTALL (12) ROVS TO TOWER (9 800, 3 1000, 3 2500)
- INSTALL (4) HIRSD CABLES
- REMOVE (8) COAX CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE ACQUISITION OF AN EXISTING TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN CONFORMANCE WITH THE LOCAL GOVERNING AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNING AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNING AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNING AUTHORITIES.

APPLICABLE CODES

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. IRC-2009 OR LATEST EDITION
3. IFC-2009 OR LATEST EDITION
4. ANY OTHER APPLICABLE CODES
5. LOCAL BUILDING CODE
6. LOCAL ELECTRICAL CODE
7. CITY/COUNTY ORDINANCES



DRAWING INDEX

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A-3	EQUIPMENT & MOUNTING DETAILS	1
A-4	ELECTRICAL & GROUNDING DETAILS	1
A-5	ELECTRICAL & GROUNDING DETAILS	1
E-1	ELECTRICAL & GROUNDING DETAILS	1
E-2	ELECTRICAL & GROUNDING DETAILS	1

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 Overland Park, Kansas 66201

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CROWN CASTLE



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REVISION	DESCRIPTION	DATE	BY	APP'D
1	ISSUE FOR CONSTRUCTION	02/02/11	BS	2
2	ISSUE FOR CONSTRUCTION	02/02/11	BS	1
3	ISSUE FOR CONSTRUCTION	02/02/11	BS	0
4	ISSUE FOR CONSTRUCTION	02/02/11	BS	1

SITE NAME: STAFFORD/PFRAGYL/SSUSA
SITE CASCADE: CT54XC726
SITE ADDRESS: 175 STAFFORD STREET STAFFORD, CT 06077

SHEET NUMBER: T-1
SHEET TITLE: TITLE SHEET & PROJECT DATA

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 - SCORE OF WORK

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH 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 HEREIN.
- C. SPECIFICATIONS FOR WIRELESS SITES INCLUDE THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES INCLUDING THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS, AND THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES.

1.4 MANUALLY RECORDED CODES AND STANDARDS:

- 1. 06-03-CODE NEBS REQUIREMENTS: PHYSICAL PROTECTION
- 2. 06-08-CODE CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY
- 3. 06-1098-CODE CORE 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 ELECTRICAL AND ELECTRONICAL ENGINEERS (IEEE)
- 7. AMERICAN CONCRETE INSTITUTE (ACI)
- 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
- 9. CONCRETE REINFORCEMENT STEEL INSTITUTE (CRSI)
- 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (ASHTO)
- 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 NATIONAL BUILDING CODE, STATE BUILDING CODE, BOOK, AND THE INTERNATIONAL BUILDING CODE.

1.5 REFERENCES:

- A. WORK THE SIGN OF WORKS AND RESPONSIBILITIES DERIVED IN THE CONTRACT DOCUMENTS.
- B. COMPANY SPRINT CORPORATION.
- C. ENGINEER, ARCHITECT & ENGINEER AND ARCHITECT, THE DESIGN PROFESSIONAL, DESIGN 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 EMPLOYED SEPARATELY FROM THE CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SERVICES THAT ARE NOT TO BE PERFORMED BY THE CONTRACTOR.
- F. OTHER DESIGN DRAWINGS - ALL PROJECTS RELATED CONSULTATION TO DRAW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

1.4.9 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS WITH ALL CONTRACT DOCUMENTS WHICH THE CONTRACTOR HAS BEEN ADVISED TO BE MAINTAINED BY THE CONTRACTOR. ANY INFORMATION SHOULD BE REPORTED TO THE CONTRACTOR IMMEDIATELY AND CORRECTED IMMEDIATELY TO MAINTAIN THE CONTRACTOR'S KNOWLEDGE OF FIELD CONDITIONS.

PART 2 - PRODUCTS (NOT USED)

- 1.16 USE OF JOB SITE: THE CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE AT CONSTRUCTION AND EQUIPMENT, PARKING, TELEPHONE FACILITIES, AND WASTE STORAGE TO THE FLOOR LEVEL UNLESS OTHERWISE PRESENTED BY THE CONTRACT DOCUMENTS.
- 1.17 UTILITIES SERVICES: WHERE NECESSARY FOR CUT EXISTING PIPES, ELECTRICAL WIRES, OR CABLES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PIPES OR CABLES. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY OWNER.
- 1.18 UTILITY PROVIDER FOR NEW SERVICE TO CONSTRUCTION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING PIPES, ELECTRICAL WIRES, OR CABLES. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY OWNER.
- 1.19 CONSTRUCTION SHALL TAKE ALL MEASURES AND PROVIDE ALL NECESSARY PROTECTION FOR EXISTING UTILITIES AND PROPERTY.
- 1.20 PERSONNEL WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING WORK:

PART 3 - EXECUTION

- 3.1 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND PROPERTY AND THE PROTECTION OF THE CONTRACTOR'S EQUIPMENT AND MATERIALS FROM ALL OPERATIONS AT THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND PROPERTY AND THE PROTECTION OF THE CONTRACTOR'S EQUIPMENT AND MATERIALS FROM ALL OPERATIONS AT THE JOB SITE.
- 3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR ALL OPERATIONS AND MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND PROPERTY AND THE PROTECTION OF THE CONTRACTOR'S EQUIPMENT AND MATERIALS FROM ALL OPERATIONS AT THE JOB SITE.
- 3.3 TESTING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND PROPERTY AND THE PROTECTION OF THE CONTRACTOR'S EQUIPMENT AND MATERIALS FROM ALL OPERATIONS AT THE JOB SITE.
- 3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR DELIVERY OF MATERIALS, DO NOT SCALE DRAWINGS.

3.3 EXISTING CONDITIONS: VERIFY THE SPRINT CONSTRUCTION DRAWINGS OF EXISTING CONDITIONS BEING REFERRED TO FROM THESE DRAWINGS. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS UNLESS SHOWN FROM 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 HEREIN.

PART 2 - PRODUCTS (NOT USED)

- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
- A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE PR 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 NOTIFY THIRD-PARTY SUPPLIER WITHIN SEVEN (7) DAYS OF DELIVERY AND TAKE APPROPRIATE ACTION TO CORRECT.

- C. PROTECT SECURE AND NECESSARY WEATHER PROTECTED WEARSHEDS.
- D. COORDINATE SAFETY AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND GET-LOADING FROM CONSTRUCTION'S WAREHOUSE TO SITE.

PART 3 - EXECUTION

- 3.2 DELIVERABLES:
 - A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
 - B. A COMPLETE LIST/FINAL/FURNISHED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE AND AS PROVIDED BY COMPANY.
- 3.3 DELIVERABLES:
 - A. UPON DOCUMENTATION INTO SPRINT SITE WAREHOUSE SYSTEM (SAS) AND/OR PROVIDED (HARD COPY DOCUMENTATION AS REQUESTED).

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REVISION:	DATE	BY	REVISION:
0001	08/28/12	JE	ISSUED FOR CONSTRUCTION
0002	07/16/12	JE	ISSUED FOR CONSTRUCTION
0003	07/16/12	JE	ISSUED FOR CONSTRUCTION
0004	07/16/12	JE	ISSUED FOR CONSTRUCTION
0005	07/16/12	JE	ISSUED FOR CONSTRUCTION
0006	07/16/12	JE	ISSUED FOR CONSTRUCTION
0007	07/16/12	JE	ISSUED FOR CONSTRUCTION

PROJECT NAME: STAFFORD/PRAGYL/SSUSA
 SITE ADDRESS: CT54XC726
 PROJECT NUMBER: 175 STARFORD STREET, STAFFORD, CT 06077

SPRINT SPECIFICATIONS
 SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MONITORING.
2. PREPARE GROUND TESTS, PROTECT RE-GRASSING AND BROWN AND FINAL GRASSING, AND CONDUCT SURFACE TREATMENTS.
3. MAINTAIN AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TOWER BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEMS.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HANG INSTALLATIONS AND ADJUSTMENTS.
7. INSTALL 11-KV/25-KV CABINETS AND SHELTERS AS REQUIRED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS REQUIRED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPANION FENCING, SIGN SHEETING, 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 ROAD GRASSING SEEDS AND OTHER STRONGER POWER SOLUTIONS.
16. INSTALL TOWER, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING FOUNDATION AS REQUIRED.
17. INSTALL CAST SITE PILES, MORTAR/COR, CONCRETE WALLING, ANTENNAS, TOWER, TOWER TOWER FOR ANTENNAS, LOW NOISE ADAPTERS AND RELATED EQUIPMENT.
18. PERFORM CONDUIT AND RACE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY CONTRACTOR, AGENCIES AND NEIGHBORHOODS.
19. PERFORM ANTENNA AND COAX SWEEP TESTING AND HAVE ANY AND ALL NECESSARY CORRECTIONS.
20. PERFORM ON SITE LOGGED PHOTOGRAPHIC HAND-OFF AND INTERVIEW TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR".

21. GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION
 - A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, EXCESSIVE EROSION, AND EXCESSIVE SOIL EXPOSURE. CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBER, WOODEN, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
 - B. EQUIPMENT ROUNDS SHALL AT ALL TIMES BE MAINTAINED PROUD CLEAR AND CLEAN OF DEBRIS.
 - C. CONTRACTOR SHALL TAKE ALL RESPONSIBLE PRECAUTIONS TO DESIGNER AND LOCATE ANY HAZARDOUS CONDITIONS.
 - D. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN DETECTED OR OTHERWISE REPORTED, CONTRACTOR AND ALL SUBS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY BY WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 - E. 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 DANGER PRODUCTS TO BE RELEASED.
22. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD WORKS EXCEED THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY NOTIFY THEM TO OWNER. CONTRACTOR SHALL CONDUCT TESTING AS REQUIRED HEREIN.
 1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
 2. PROGRESS REPORTS.
 3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
23. DELIVERABLES:
 - A. CONTRACTOR SHALL REVIEW, APPROVE, AND SIGNIFY TO START SHOP DRAWINGS, PRODUCE DRAWING, SHEETS, AND SHALL SUBMITTALS AS REQUIRED HEREINAFTER.
 - B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
 1. PRODUCTION DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED IN THIS PROJECT.
 2. PRODUCTION DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED IN THIS PROJECT.
 3. ALL AVAILABLE ENVIRONMENTAL MONITORING.
 4. PER SOON OF RESULTS PRODUCED IN FIELD.

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 6. POWER INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 7. TOWER REPORT DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 8. PER (FOR SHEETING) INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 11. SIS AND ROAD EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 12. NETWORK OPERATIONS HANDBOOK CHECKLIST (HOW MANY) COMPLETE (UNLOAD AND FORWARD NOTIFICATION).
 13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 14. SITE CONSTRUCTION PROCESS PHOTOS UNLOADED INTO SIS.
- SECTION 01 400 - SUBMITTALS & TESTS**
- PART 1 - GENERAL**
- 1.1 THE WORK THESE SPECIFICATIONS DESCRIBES IS COMMENSURATE WITH 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. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - 1.3 SUBMITTALS:
 - A. THE WORK IN ALL SECTIONS SHALL COMPLY WITH THE CONSTRUCTION DOCUMENTS AND THESE SPECIFICATIONS.
 - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL:
 1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PILES, AND CONCRETE PILING.
 2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
 3. SPECIAL FINISHES FOR WINDOW SPACES, IF ANY.
 4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DOCUMENTS.
 5. SPECIAL GROUNDING DESIGN.
 - C. ATTENDANCES AT THE COMPANY'S REQUEST, ANY ATTENDANCES TO THE MATERIALS ON LOCATIONS SPECIFIED SHALL BE SCHEDULED TO OCCUR AT THE COMPANY'S CONVENIENCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAVEL AND MEALS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAVEL AND MEALS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAVEL AND MEALS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAVEL AND MEALS.

1.5 QUALITY CONTROL

- 1.1 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND QUALITY CONTROL.
- 1.2 CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. COAX SWEEPS AND OTHER TESTS PER CURRENT VERSION OF SPINETS 15-1000 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. ALL ANTENNA AND DOWNLINE USING ELECTRONIC CALIBRATION.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK DEEMED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- 1.3 REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. AZIMUTH, DOWNSHIFT, AND - LINE-OF-SIGHT REPORT FROM ANTENNA ALIGNMENT TOOL.
 2. SITE DATA SHEETS, INSTALLED ANTENNA, DOWNLINE, AND COAX LAST COPY TO THE SITE DATA SHEETS, SWEEP AND FEED TESTS.
 3. SWEEP AND FEED TESTS.
 4. PERFORMED EQUIPMENT.
 5. ALL AVAILABLE ENVIRONMENTAL MONITORING.
 6. PER SOON OF RESULTS PRODUCED IN FIELD.

1.6 INTERVIEW PERFORM ALL INTERVIEW ACTIVITIES AS REQUIRED BY APPLICABLE CODES.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 REQUIREMENTS FOR TESTING:
 - A. THIRD PARTY TESTING AGENCY:
 1. VERIFY THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST BE LICENSED BY THE STATE FOR A TESTING AGENCY IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE THE NECESSARY EQUIPMENT AND PERSONNEL TO CONDUCT ALL TESTING.
 2. THE THIRD PARTY TESTING AGENCY IS TO BE EQUIPPED WITH THE APPLICABLE TESTING EQUIPMENT AND PERSONNEL TO CONDUCT ALL TESTING.
 3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, ASBESTOS, AND ASPHALT TESTING USING SPT, ACIDITY, AND OTHER METHODS IS NEEDED.
 4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, ASBESTOS, AND ASPHALT TESTING USING SPT, ACIDITY, AND OTHER METHODS IS NEEDED.
- 3.2 REQUIRED TESTS:
 - A. CONCRETE:
 1. CONCRETE CUBES FROM TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION FORWARDED CONCRETE PILING.
 2. ASPHALT TESTING COMPLETED THROUGHOUT SURFACE SMOOTHNESS, AND CONCRETE BREAK TESTING AS SPECIFIED IN SECTION FOR NOT FOR ASPHALT TESTING.
 - B. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION FORWARDED CONCRETE PILING.
 - C. TESTING REQUIRED UNDER STRUCTURE ASBESTOS BASE FOR ACCESS ROADS, TOWER AND ANCHOR FOUNDATIONS.
 - D. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION, SITE RESISTANCE TO EARTH TESTING PER ENGLISH CELL SITE GROUNDING TESTS.
 - E. ANTENNA AND COAX SWEEP TESTS PER ENGLISH ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
 - F. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS.
 - G. 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 CONDUCTANCE OR START REPRESENTATIVE.
 2. TESTING FOR CORROSION AND DEBRIS PLACEMENT PRIOR TO POURING OR START REPRESENTATIVE.
 3. COMPARISON OF BENTONITE MATERIALS, ASBESTOS, BASE FOR ROADS, PILES AND ANCHORS, ASPHALT FINISHES AND SWEEP TESTS.
 4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
 5. TOWER SECTION SECTION STANDING AND PLATFORM ATTACHMENT DOCUMENTED BY SERIAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
 6. ANTENNA AZIMUTH, DOWN, TILT AND PER SWEEPING TOOL SENSORS INSTRUMENTS - ANTENNA ALIGNMENT TOOL (AAT).

3.4 DOCUMENTATION

THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND UNLAWFULLY DISSEMINATED OR REPRODUCED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

DATE: 04/20/18

PROJECT: STAFFORD/PRAGYTL/SSUSA

FILE NUMBER: SP-2

SP-2

175 STAFFORD STREET
STAFFORD, CT 06077

SPRINT SPECIFICATIONS

SP-2

175 STAFFORD STREET
STAFFORD, CT 06077

SPRINT SPECIFICATIONS

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY AEC SITE DEPARTMENT REP. OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDEOFF WALK (HW) SIGNED FROM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SCS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SWS FOR RF APPROVAL.
10. SQUA-ABLE BRIDGE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT.
11. ALL AVAILABLE AIRBORNE/TERRESTRIAL INSPECTION.
12. PER SCAN OF RESULTS PRODUCED IN FIELD.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ADMIN/OP AS A RESULT OF TESTING.
14. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH VISUAL REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS OF CONSTRUCTION PHOTOGRAPHS MUST CLEARLY IDENTIFY THE AREA OF THE DEFECT AND BE LABELED WITH THE SITE CHECKLIST NUMBER, SITE NAME, DESCRIPTION AND UNIT.
15. DEFECTS TEST AND INSPECTION REPORTS AND CLOSED-OUT DOCUMENTATION SHALL REMAIN AT THE SITE AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE FOLLOWING:
 - 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 BURN TEST.
 4. ANTENNA ZEPHYRUS AND DOWN NET VERIFICATION.
 5. TOWER EXTERIOR INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS THEREIN.
 6. COAX CABLE SWEEP TESTS PER COMPANY'S WIRELESS LINE ACCEPTANCE STANDARDS.
 - B. REQUIRED CLOSED-OUT DOCUMENTATION INCLUDES THE FOLLOWING:
 1. TEST WELDS AND TENSILES: PHOTOGRAPHS OF ALL TEST WELDS PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TEST LOGS FROM TO INDICATIVE DEPTH.
 2. CONCRETE CURING AND CURE/HEALING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONCRETE AND CONCRETE PROGRESSIVE CURING TYPICAL TYPICAL BODY BOUNDS OF INSTALLED GROUND WIRE AND GROUND ROD SPACING.
 3. EQUIPMENT/SHELTER AND FOUNDATIONS - PHOTOGRAPHS SHOWING ALL SHOWN CONCRETE POINT OF SHELTER SLAB/FOUND. PHOTOGRAPHS AND GUY ANCHORS WITH VARIATOR IN USE, PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
 4. TOWER, ANTENNAS AND LANTLITE: INSPECTION AND PHOTOGRAPHS OF SECTION SIZING, INSPECTION AND PHOTOGRAPHS OF PATTERNS CONCEPT OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL INSPECTION AND PHOTOGRAPHS OF OPERATIONAL TOWER LIGHTING AND GROUNDING POINTS FOR TOWERS, GUYED TOWERS, STRUCTURAL STEEL, ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND WIRELESS GROUND BAR PHOTOS OF PER ANTENNA/ST. PHOTOS OF EACH SECTION OF ANTENNAS. PHOTOGRAPHS OF COAX GROUNDING - TOP AND BOTTOM PHOTOS OF THE REQUESTED COVERAGE AREA. PHOTOS OF COAX WELDING/SPlicing THE SHELTER PHOTOS OF PATTERNS MECHANICAL CONNECTIONS TO TOWER/ANTENNA/TOWER/ANTENNA.
 5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AS REQUIRED BY THE CONTRACTOR, ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED PHOTOGRAPHS OF DOWNPOUT/CABLE OR FIBER RUN AND/OR BE BRIDGE.
 6. SITE LIGHT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM (IF ALL FOUR CORNERS).
 7. TRASHED WIRELESS CABLE-UP PHOTOGRAPHS OF THE POC BREAKER PANEL, CLOSE-UP PHOTOGRAPHS OF THE POWER METER AND PHOTOGRAPHS OF POWER AND TIE/DOWN ENTRANCE TO COMPANY ENCLOSURE PHOTOGRAPHS AT FIBER BOX AND/OR FACILITY DESIGNATION PANEL.
 8. REQUIRED WIRELESS CABLE-UP PHOTOGRAPHS OF THE POWER METER AND PHOTOGRAPHS OF THE POWER METER AND PHOTOGRAPHS OF THE POWER AND TIE/DOWN ENTRANCE TO COMPANY ENCLOSURE PHOTOGRAPHS AT FIBER BOX AND/OR FACILITY DESIGNATION PANEL.
 9. ANY AND ALL SUBMITTALS BY THE ASSURANCE OF COMPANY.

SECTION 01.400 - SUBMITTALS & TESTS

- PART 1 - GENERAL**
- 1.1 THE WORK SHALL BE CONSTRUCTION INSPECTIONS AND CONFORMANCE WITH WIRELESS LINE ACCEPTANCE STANDARDS AND ALL SECTIONS DESCRIBE THE REQUIREMENTS OF THE CONSTRUCTION.
 - 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 WELDED JOINTS:
 - A. CONTRACTOR SHALL PROVIDE SPRINT WITH VISUAL REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN THE ID NUMBER, THE MEASUREMENTS FOR EACH JOINT, THE DATE OF THE MEASUREMENT, THE ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.
 - B. REPORT APPROVAL WILL BE TURNED OVER TO SPRINT VIA ELECTRONIC MEANS AS AND PROVIDED.
 - C. REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.
 - 3.2 PRODUCT COMPLIANCE CALLS:
 - A. SPRINT WILL HOLD WEEKLY PRODUCT COMPLIANCE CALLS. CONTRACTOR WILL BE REQUIRED TO PARTICIPATE IN THESE CALLS. CONTRACTOR SHALL BE RESPONSIBLE FOR NECESSARY PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
 - 3.3 PRODUCT TRACKING IN SWS:
 - A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SWS SCHEDULE ON A WEEKLY BASIS.
 - 3.4 ADDITIONAL REPORTING:
 - A. REPORTS OF ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DEEMED TO BE NECESSARY BY SPRINT.
 - B. REPORTS SHALL INCLUDE 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 VIBRATION IN USE (EACH ANCHOR ON GUYED TOWERS).
 4. TOWER STEEL AS BEAMS INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
 5. PHOTOS OF TOWER SECTION STACKING.
 6. CONCRETE TESTING / SWAPERS.
 7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
 8. BUILDING/WATER TANK FROM ROAD PER TOWER IMPROVEMENTS OR COMMENTS.
 9. SHELTER FOUNDATION - FORMS AND STEEL BEFORE POURING.
 10. SHELTER FOUNDATION POUR WITH VIBRATION IN USE.
 11. COAX CABLE ENTRY INTO SHELTER.
 12. PATTERNS MECHANICAL CONNECTIONS TO TOWER/ANTENNA/TOWER/ANTENNA.
 13. ROOF TOP 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 APPROXIMATE COMPANY OR RESIDENTARY SERVICE.
 16. PHOTOS OF EQUIPMENT BOLT DOWN WEDGE SHELTERS.
 17. POWER AND TIE/DOWN ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TIE/DOWN ENTRANCE TO COMPANY ENCLOSURE (WETTER/DISCONNECT).
 18. ELECTRICAL TRUNKING(S) WITH ELECTRONIC / CONDUIT BEFORE BACKFILL.
 19. ELECTRICAL TRUNKING(S) WITH POC-BACKED TYPE BEFORE FURTHER BACKFILL.
 20. TIE/DOWN TRUNKING WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
 21. TIE/DOWN TRUNKING WITH POC-BACKED TYPE BEFORE FURTHER BACKFILL.
 22. SHELTER GROUND-RING TRUNKING WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CABLE WELDS AND BOND POINT).
 23. TOWER GROUND-RING TRUNKING WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CABLE WELDS AND BOND POINT).

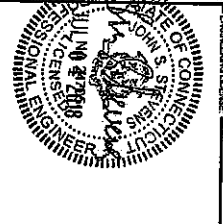
SECTION 01.400 - SUBMITTALS & TESTS

24. FENCE GROUND-RING TRUNKING WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CABLE WELDS AND BOND POINT).
 25. ALL BBS GROUND CONNECTIONS.
 26. ALL GROUND TEST WELLS.
 27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
 28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 300'.
 29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
 30. PFC ANTENNAS.
 31. CABLE TRAY AND/OR WAREHOUSE BRIDGE.
 32. DOWNPOUT/CABLE DIRT FROM ROOF.
 33. EACH SECTION OF ANTENNAS ONE PHOTOGRAPH LOCATED AT THE SECTION AND ONE FROM BEHIND SHOWING THE PROTECTED COVERAGE AREA.
 34. WIRELESS BUS BAR.
 35. TIE/DOWN BOARD AND NET.
 36. ELECTRICAL DISTRIBUTION WALL.
 37. CABLE ENTRY WITH STONE 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 WIRE CONNECTIONS.
 42. LABS/SPACE - WHERE APPLICABLE.
- 3.5 FINAL PRODUCT ACCEPTANCE: CONTRACTOR SHALL PROVIDE VISUAL REPORTS PER SPRINT AND PHOTOGRAPHS OF ALL REQUIRED REPORTING ITEMS PER SPRINT STANDARDS FOR WIRELESS SITES AND WELDS AND SHELTERS.

FINANCIAL SERVICES
Sprint
 650 Sprint Parkway
 Overland Park, Kansas 66201

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 Westborough, MA 01581
 Tel: 508.853.1700
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 www.infinigy.com

DESIGNED BY:
CROWN CASTLE

DESIGNED BY:


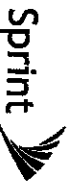
DATE: 02/19/2018

DESCRIPTION: STAFFORD/PRAGY/SSUSA

REVISION	DATE	BY	FOR
1	02/19/2018	WSP	ISSUE FOR PERMIT
2	02/27/2018	WSP	ISSUE FOR PERMIT
3	02/27/2018	WSP	ISSUE FOR PERMIT
4	02/27/2018	WSP	ISSUE FOR PERMIT

175 STAFFORD STREET
 STAFFORD, CT 06077

SP-3



6890 South Parkway
Overland Park, Kansas 66251

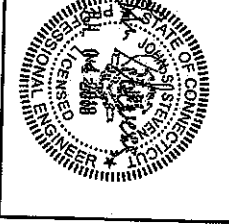
Plan revision:
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REVISION	DESCRIPTION	DATE	BY	APP
1	DESIGN FOR CONSTRUCTION	04/27/04	JKS	2
2	REVISED FOR CONSTRUCTION	04/27/04	JKS	1
3	REVISED FOR CONSTRUCTION	02/27/04	JKS	0
4	REVISED FOR CONSTRUCTION	02/27/04	JKS	1
5	REVISED FOR CONSTRUCTION	02/27/04	JKS	1

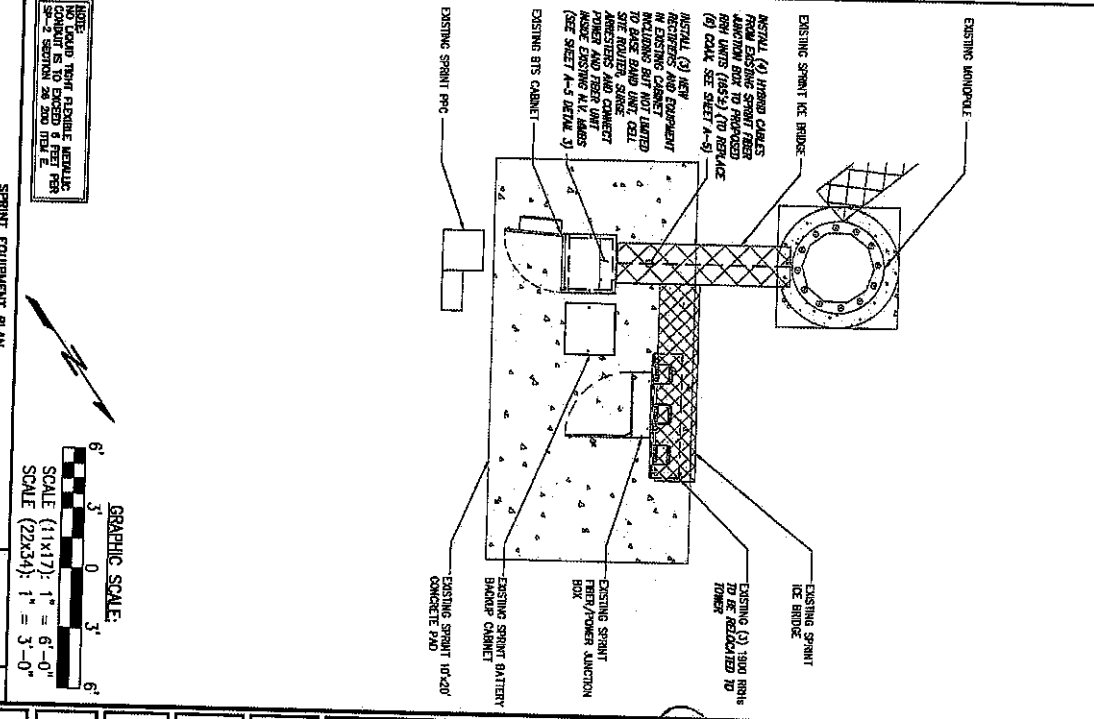
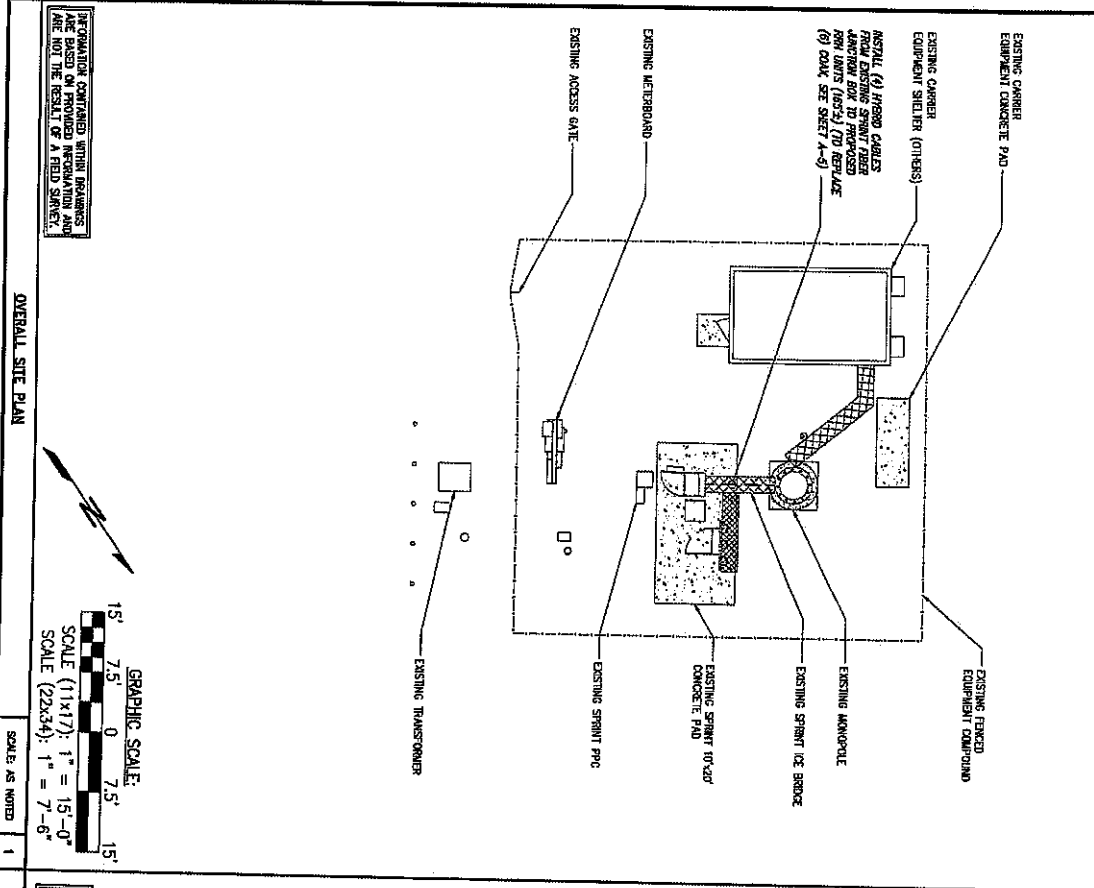
SITE NAME:
STAFFORD/PRAGYT/
SSUSA

SITE LOCATION:
CT54XC726

RFZ ADDRESS:
175 STAFFORD STREET
STAFFORD, CT 06077

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1



OVERALL SITE PLAN

SPRINT EQUIPMENT PLAN

PERMITTED CONTRACTED SPRINT INSTALLATIONS ARE NOT THE RESULT OF A BIDDING PROCESS.

NOTE: SPRINT CONTRACTORS SHALL CONDUCT AS TO EXCEED 6 FEET PER SP-2 SECTION AS 200 FROM E.

NOTE:
INSTALL 2 ON A-2
SEE ANTENNA LAYOUT

Ø OF EXISTING/
TOP OF EXISTING TOWER
ELEV = 4152'-0" AGL
ELEV = 4150'-0" AGL

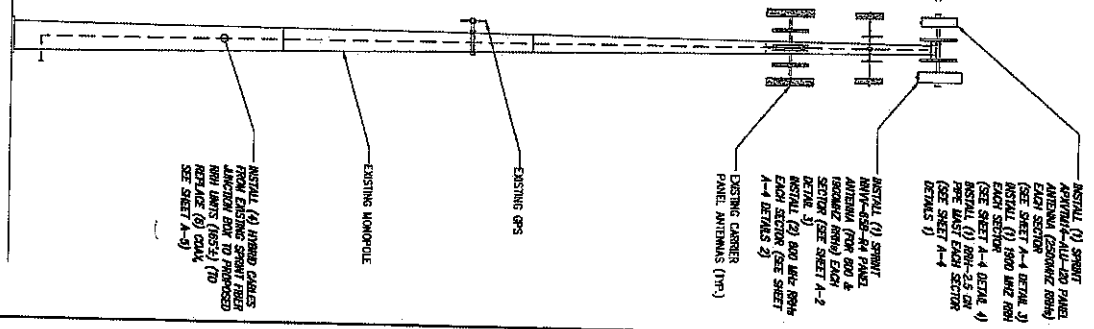
INSTALL (1) SPRAY
APPLY-ALL-40 PANEL
ANTENNA (EASTWARD RSH)
EACH SECTOR
(SEE SHEET A-4 DETAIL 1)
EACH SECTOR (SEE SHEET A-4
EACH SECTOR) 800 MHZ RSH
(SEE SHEET A-4 DETAIL 1)
INSTALL (1) 800-25 OH
PER LAST EACH SECTOR
(SEE SHEET A-4
DETAILS 1)

INSTALL (1) SPRAY
APPLY-ALL-40 PANEL
ANTENNA (EASTWARD RSH)
EACH SECTOR
(SEE SHEET A-4 DETAIL 1)
EACH SECTOR (SEE SHEET A-4
EACH SECTOR) 800 MHZ RSH
(SEE SHEET A-4 DETAIL 1)
INSTALL (2) 800 MHZ RSH
EACH SECTOR (SEE SHEET
A-4 DETAILS 2)

EXISTING CARRIER
PANEL ANTENNAS (TOP)

NOTE:
STRUCTURAL ANALYSIS COMPLETED BY:
PAUL J. FORD AND COMPANY FOR
ADDITIONAL INFORMATION SEE REPORT
NUMBER: STRUCTURAL ANALYSIS REPORT,
DATED: MAY 24, 2006. PAUL J. FORD
AND COMPANY PROJECT NUMBER:
"27918-1433.002.7005". ACCORDING TO
RESULTS OF STRUCTURAL ANALYSIS THE
STRUCTURE HAS SUFFICIENT CAPACITY TO
SUPPORT THE PROPOSED LOADING.

ADDITIONAL ANALYSIS COMPLETED BY: HENRY
PER ADDITIONAL INFORMATION SEE REPORT
NUMBER: STRUCTURAL ANALYSIS REPORT,
DATED: MAY 24, 2006. PAUL J. FORD
AND COMPANY PROJECT NUMBER:
"27918-1433.002.7005". ACCORDING TO
RESULTS OF STRUCTURAL ANALYSIS THE
STRUCTURE HAS SUFFICIENT CAPACITY TO
SUPPORT THE PROPOSED LOADING.

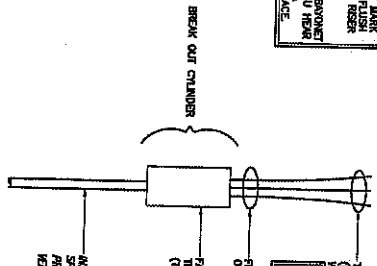


TOWER ELEVATION

NO SCALE 1

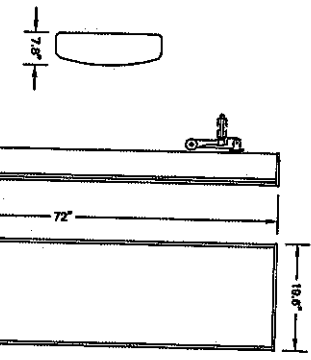
NOTE:
DRAWINGS TO BE UP WRITTEN
MARKINGS ON ALL JOINTS AND
P-REIN CONNECTIONS AND STATE THE
CROSS CONNECTION TO THE JAMPER
ON THE JAMPER CONNECTION ALTHOUGH
ON THE RED SEAL ON THE RISER
CONNECTION.

CONTRACTOR TO REMOVE THE BROWN
MARKINGS FROM THE RISER AND
A CLEAR SCAND SEAL SHALL YOU BEAR
A CLEAR CONNECTION IS IN PLACE.



HYBRID BREAKOUT DETAIL

NO SCALE 2



ANTENNA COMPOSITE NAW-688-R4

RADIATOR MATERIAL: FIBERGLASS
RADIATOR COLOR: LIGHT GREY
DIMENSIONS: Height: 72"x18.6"x7.8"
WIDTH: 7.8" lbs
CONNECTORS: (9) 4.3-10 DIN FEMALE

800/1900 ANTENNA

NO SCALE 3

Paul J. Ford and Company
6801 Sprit Parkway
Oxford Park, Kansas 66205

Paul J. Ford and Company
6801 Sprit Parkway
Oxford Park, Kansas 66205

CROWN CASTLE

Professional Engineer
State of Connecticut
License No. 10000
Paul J. Ford

REVISIONS:

NO.	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR PERMITS	06/27/07	PF	1
2	ISSUED FOR CONSTRUCTION	07/11/07	PF	2
3	ISSUED FOR CONSTRUCTION	07/11/07	PF	3
4	ISSUED FOR CONSTRUCTION	07/11/07	PF	4
5	ISSUED FOR CONSTRUCTION	07/11/07	PF	5

PROJECT: STAFFORD/PRAGYL/SSUSA

SITE NAME: STAFFORD/PRAGYL/SSUSA

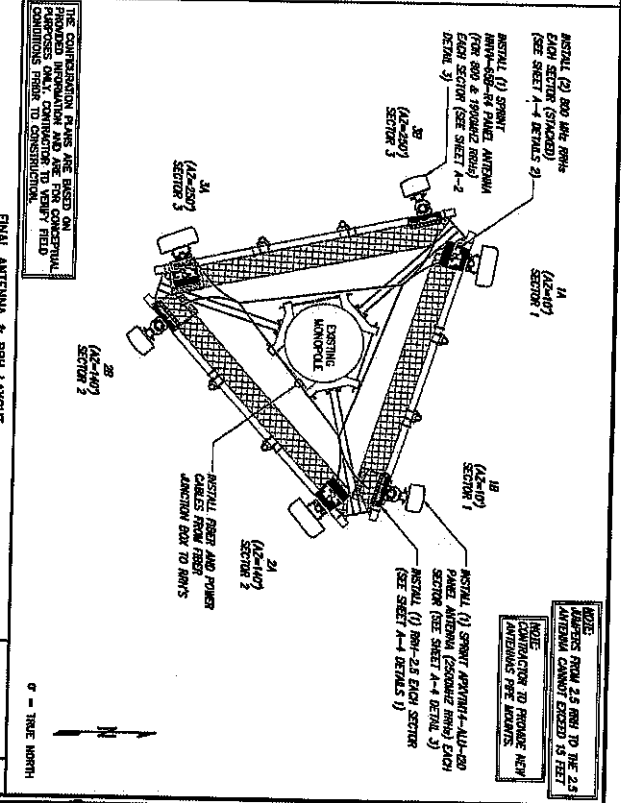
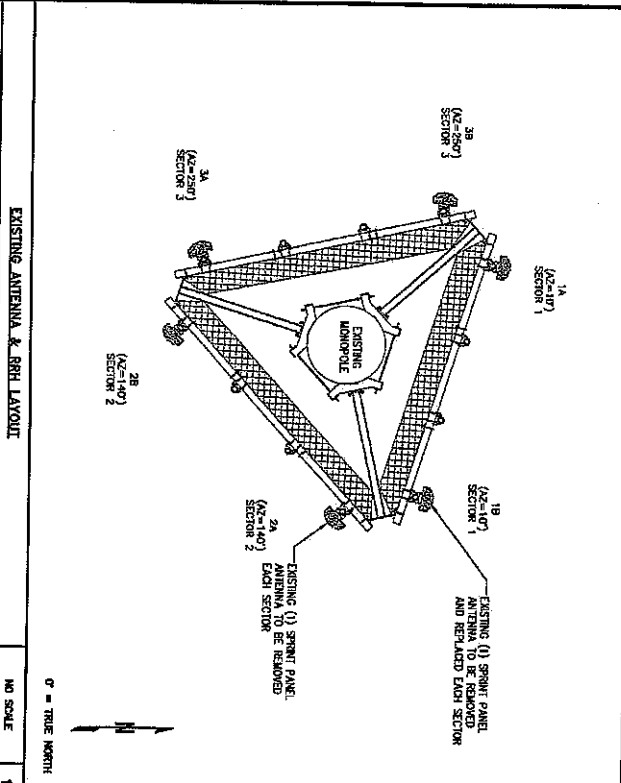
SITE ADDRESS: 175 STAFFORD STREET STAFFORD, CT 06077

DATE: 07/11/07

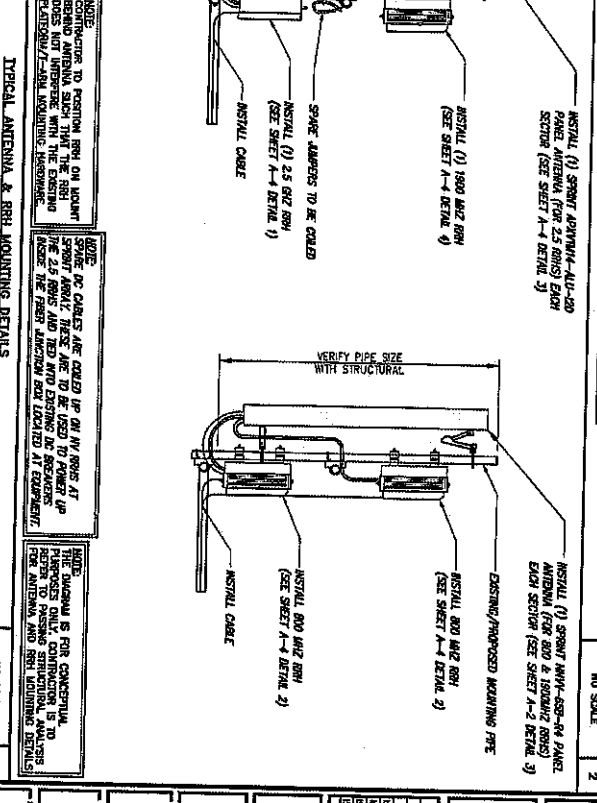
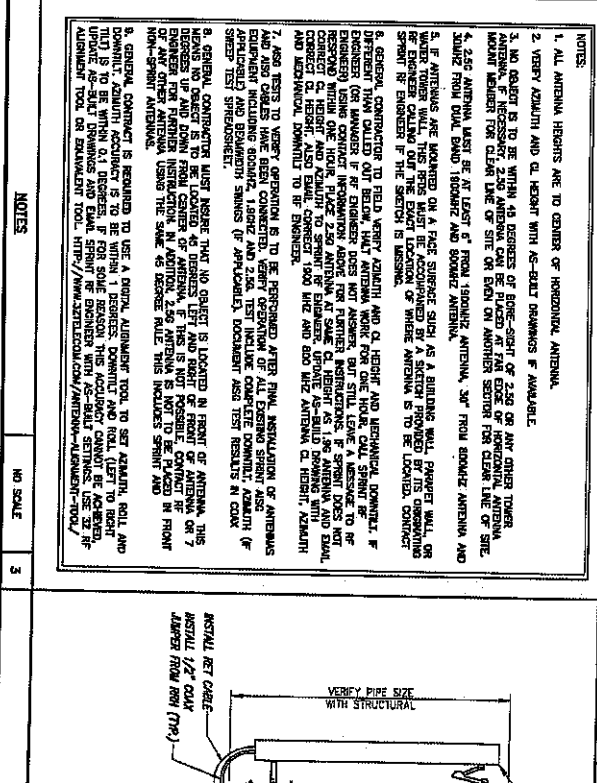
PROJECT NO: CT154XC726

TOWER ELEVATION & CABLE PLAN

SHEET NUMBER: A-2



NOTES: 1. ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA. 2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE. 3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER. 4. 2.5G ANTENNA MUST BE AT LEAST 6' FROM VERTICAL ANTENNA. 5. 3G ANTENNA MUST BE AT LEAST 6' FROM 2.5G ANTENNA. 6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNLIFT. 7. DOWNLIFT MUST BE PROVIDED FOR EACH SECTOR. 8. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR. 9. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR. 10. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR.



NOTES: 1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA. 2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE. 3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER. 4. 2.5G ANTENNA MUST BE AT LEAST 6' FROM VERTICAL ANTENNA. 5. 3G ANTENNA MUST BE AT LEAST 6' FROM 2.5G ANTENNA. 6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNLIFT. 7. DOWNLIFT MUST BE PROVIDED FOR EACH SECTOR. 8. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR. 9. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR. 10. GENERAL CONTRACTOR TO PROVIDE ALL NECESSARY MATERIALS AND LABOR.

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INFINIGY FROM ZERO TO INFINIGY

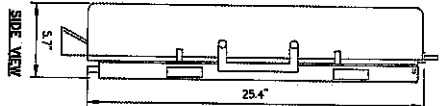
ENGINEERING LICENSE: CROWN CASTLE

STAFFORD/P/PRAGYL/SSUSA

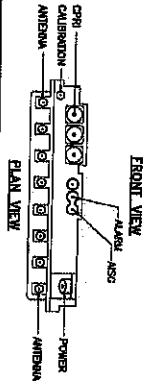
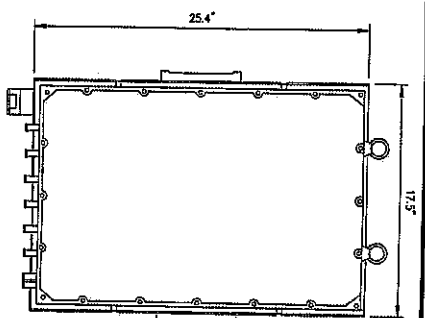
175 STARFORD STREET, STARFORD, CT 06477

A-3

RRH: ALCATEL LUCENT TD-RRH020
 COLOR: LIGHT GREY
 WEIGHT: 70 LBS.



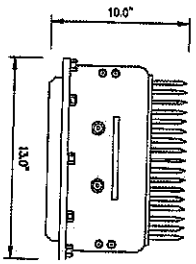
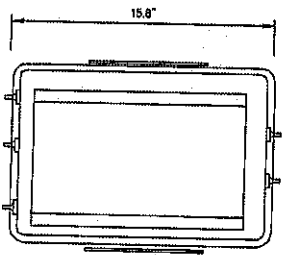
NOTES
 CONSULT WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE ROW.



2.5. RRH'S

NO SCALE 1

RRH: ALCATEL LUCENT RRH 800 MHz 2450W
 COLOR: LIGHT GREY
 WEIGHT: 53 LBS.



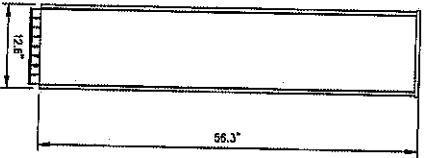
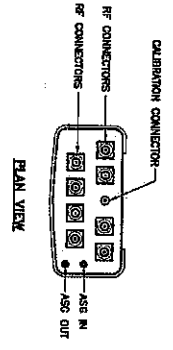
NOTES
 CONSULT WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE ROW.

800 MHz RRH

NO SCALE 2

ANTENNA: RFS APXYM14-ALU-120

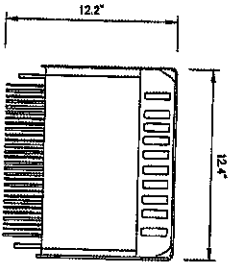
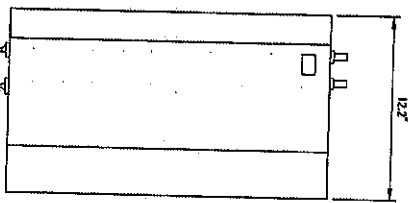
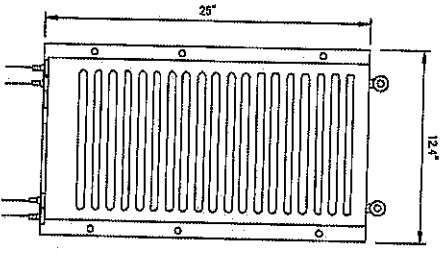
ROD/POLE MATERIAL: ALU
 ROD/POLE COLOR: LIGHT GREY
 DIMENSIONS: (Height/Width) 56.3" x 12.6" (4.30m/0.96m)
 WEIGHT: 36.2 lbs
 CONNECTIONS:
 (0) 4.17/8.5 MM FEMALE
 (1) HP - CALIBRATION CONNECTOR



2.5. ANTENNA

NO SCALE 3

RRH: ALCATEL LUCENT 1900 MHz
 COLOR: LIGHT GREY
 WEIGHT: 70 LBS.
 (INCLUDING OPTIONAL SOLAR SHIELD)



1900 MHz RRH

NO SCALE 4

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 Overland Park, Kansas 66251

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DESIGNED BY:
CROWN CASTLE

STATE OF CONNECTICUT
 PROFESSIONAL ENGINEER
 JOHN S. STANFORD
 LICENSE NO. 79018
 EXPIRES 06/30/18

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REVISION	DATE	BY	REASON
1	02/25/08	NSG	1
2	02/27/08	NSG	2
3	03/07/08	NSG	3
4	03/07/08	NSG	4
5	03/07/08	NSG	5

DRAWING TITLE:
STARFORD/PRAGYL/SSUSA

RRH NUMBER:
CT54XC726

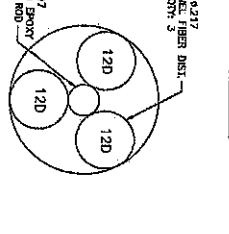
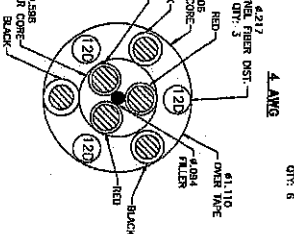
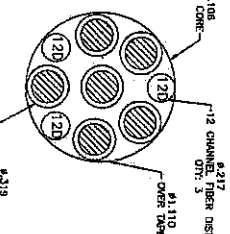
RRH ADDRESS:
**175 STARFORD STREET
 STARFORD, CT 06077**

EQUIPMENT & MOUNTING DETAILS

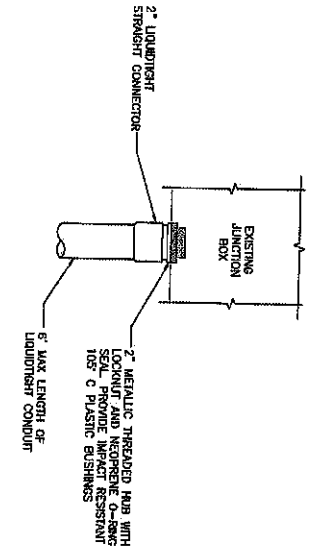
DRAWING NUMBER:
A-4

RES. HYBRILEX RISER CABLE SCHEDULE

Product Code	Description	Notes
4 AWG Power	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 1/2" cable.	5/4
6 AWG Power	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 3/4" cable.	5/6
8 AWG Power	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 1" cable.	5/8
Fiber Only (Bidding DC Power)	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 1/2" cable.	5/4
	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 3/4" cable.	5/6
	Hybrid riser cable, 34 multi-mode fiber pairs, 24 multi-mode fiber pairs, outdoor & IC connections, 1" cable.	5/8

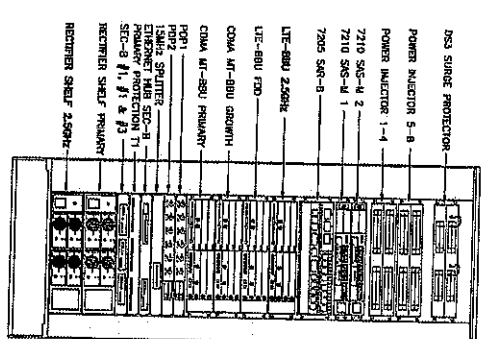


NOTE: SPENT OR TO CONFORM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUNCTION BOX MODEL NUMBERS F (HYBRID) CABLES ARE REMOVED BEFORE PREPARING BOX.



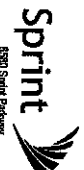
FIBER JUNCTION BOX PENETRATION

NO SCALE



CABINET LAYOUT

NO SCALE



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STATE OF CONNECTICUT
Professional Engineer
No. 24705
John S. Steiner

REVISIONS:

NO.	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR PERMIT	12/20/11	JS	1
2	ISSUED FOR CONSTRUCTION	02/20/12	JS	2

DATE: 02/20/12
PROJECT: STAFFORD/PRAAGYL/SSUSA
SITE ADDRESS: 175 STAFFORD STREET STAFFORD, CT 06007
SHEET NUMBER: CIVIL DETAILS

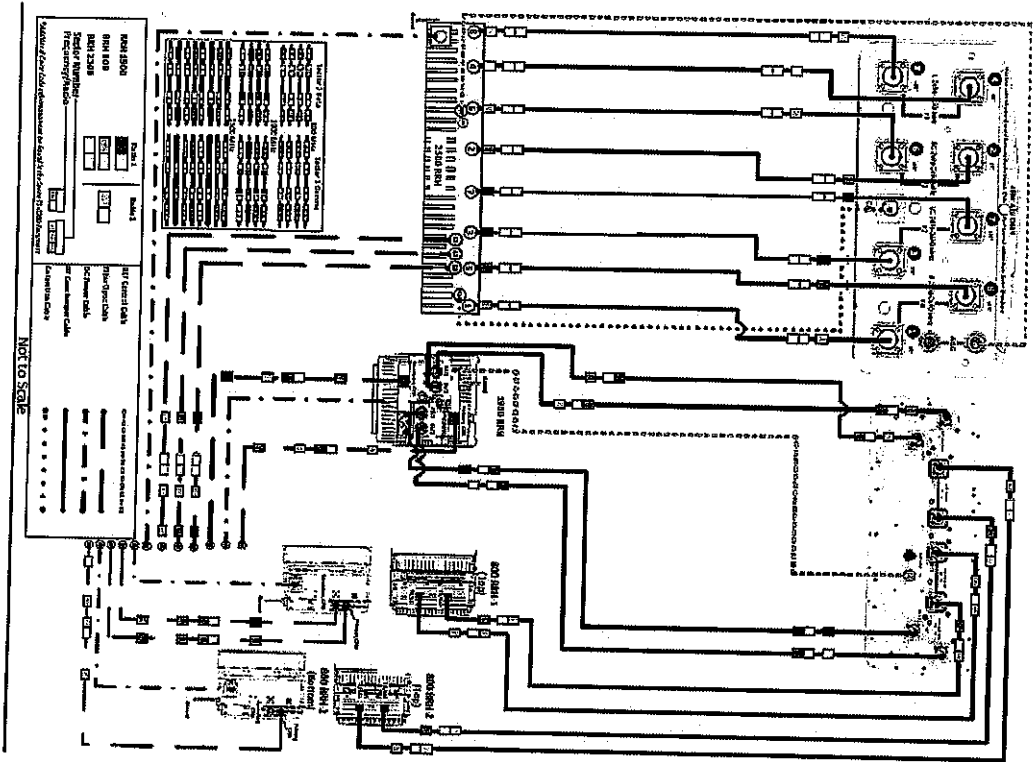
A-5

2.5 CABLE CROSS SECTION DATA

NO SCALE

NO SCALE

ALU 211 APVXTM14-ALU-120 & NNVY-658-R4 w/o Filters



NOT TO SCALE

NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10	NO. 11	NO. 12	NO. 13	NO. 14	NO. 15	NO. 16	NO. 17	NO. 18	NO. 19	NO. 20	NO. 21	NO. 22	NO. 23	NO. 24	NO. 25	NO. 26	NO. 27	NO. 28	NO. 29	NO. 30	NO. 31	NO. 32	NO. 33	NO. 34	NO. 35	NO. 36	NO. 37	NO. 38	NO. 39	NO. 40	NO. 41	NO. 42	NO. 43	NO. 44	NO. 45	NO. 46	NO. 47	NO. 48	NO. 49	NO. 50	NO. 51	NO. 52	NO. 53	NO. 54	NO. 55	NO. 56	NO. 57	NO. 58	NO. 59	NO. 60	NO. 61	NO. 62	NO. 63	NO. 64	NO. 65	NO. 66	NO. 67	NO. 68	NO. 69	NO. 70	NO. 71	NO. 72	NO. 73	NO. 74	NO. 75	NO. 76	NO. 77	NO. 78	NO. 79	NO. 80	NO. 81	NO. 82	NO. 83	NO. 84	NO. 85	NO. 86	NO. 87	NO. 88	NO. 89	NO. 90	NO. 91	NO. 92	NO. 93	NO. 94	NO. 95	NO. 96	NO. 97	NO. 98	NO. 99	NO. 100
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PLUMBING DIAGRAM

NO SCALE 1

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ISSUED FOR CONSTRUCTION	10/26/18	JSS	1
ISSUED FOR PERMITS	11/02/18	JSS	2
ISSUED FOR BIDDING	11/02/18	JSS	1
ISSUED FOR AS-BUILT	11/02/18	JSS	1

SITE NAME: STARFORD/PRAAGYL/SSUSA

PART PACKAGE: C154XC726

SITE ADDRESS: 175 STARFORD STREET STAFFORD, CT 06097

SHEET DESCRIPTION: PLUMBING DIAGRAM

SHEET NUMBER: A-6



6300 Spaul Parkway
Overland Park, Kansas 66251

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REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUE FOR PERMIT	02/27/10	SS	1
2	ISSUE FOR PERMIT	02/27/10	SS	2
3	ISSUE FOR PERMIT	02/27/10	SS	3
4	ISSUE FOR PERMIT	02/27/10	SS	4
5	ISSUE FOR PERMIT	02/27/10	SS	5

DATE: 02/27/10
SITE ADDRESS:
STAFFORD/PRAGYL/SSUSA

DATE: 02/27/10
SITE ADDRESS:
**175 STAFFORD STREET
STAFFORD, CT 06077**

PROJECT DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS
SHEET NUMBER:
E-1

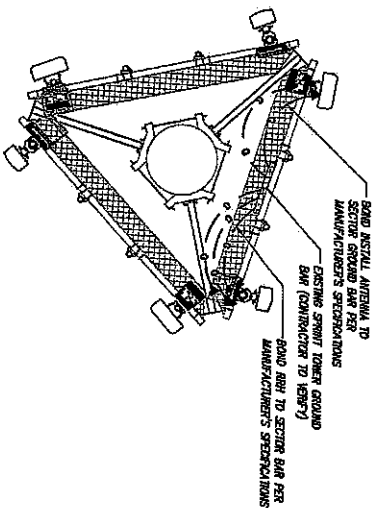
FINAL EQUIPMENT CONFIGURATION				
SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAU CENTER	HEIGHT AND MODEL
1	COMSCAPE	ANNV45B-N	15'	(1) AU11255002Z 2500-000 (2) AU11255002Z 2500-000
2	COMSCAPE	ANNV45B-N	15'	(1) AU11255002Z 2500-000 (2) AU11255002Z 2500-000
3	COMSCAPE	ANNV45B-N	15'	(1) AU11255002Z 2500-000 (2) AU11255002Z 2500-000

FEEDER CABLES				
MANUFACTURER	MODEL	LENGTH	QTY	
RFI	RFI14-2000002-15F	15'	60	
RFI	RFI14-2000002-15F	15'	60	

NOTES:
1. CONNECTION TO EXISTING ANTENNA WIRING IS THE MOST CONVENIENT POINT AT THE 15' FEEDER CABLE LENGTH TO CONNECT FEEDER CABLE FROM TO CONSTRUCTION.

ANTENNA/CABLE SCHEDULE

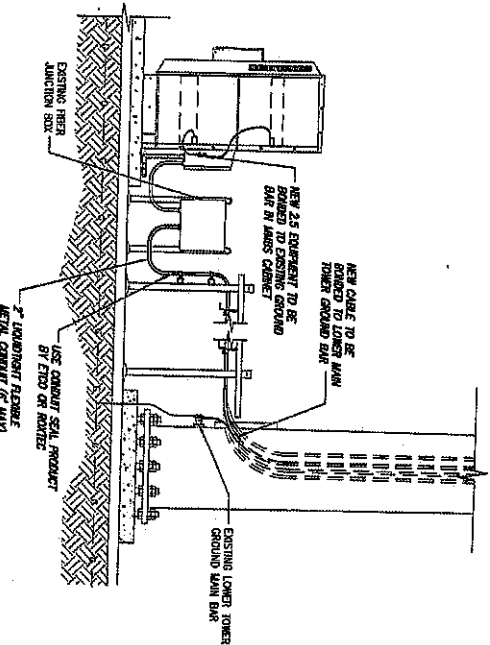
NO SCALE



- LEGEND:
- Existing ground ring
 - Ground connection (EXISTING OR NEW)
 - ▲ Mechanical connection
 - ⊕ Ground rod
 - Cable ground kit

TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

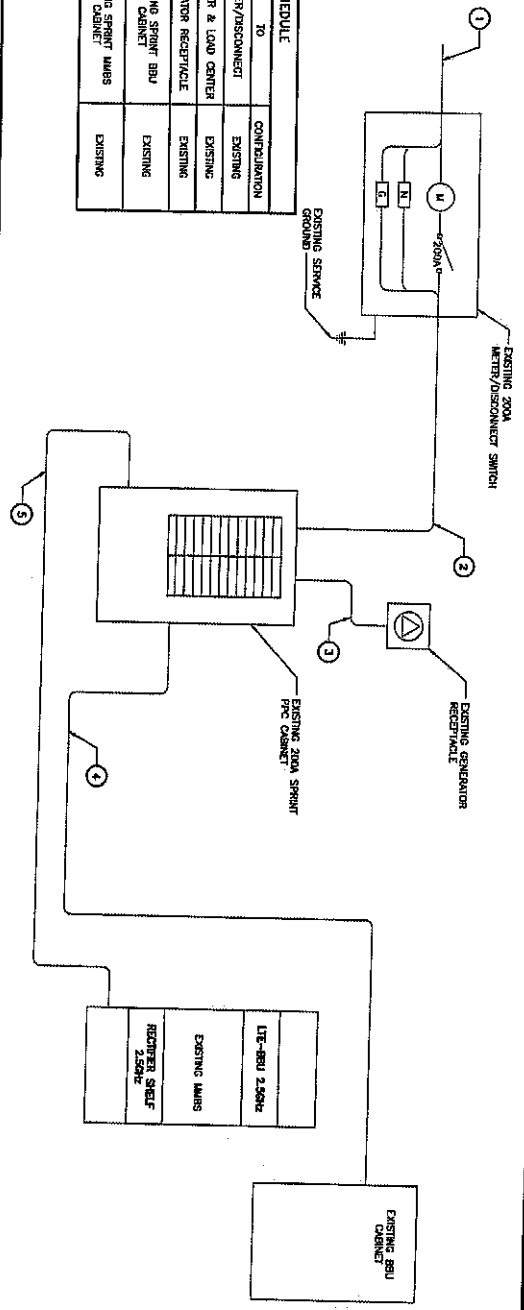


TYPICAL EQUIPMENT GROUNDING PLAN (EXCAVATION)

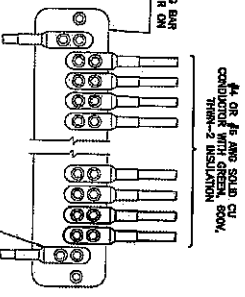
NO SCALE

NOTES
 1. REFER TO SPEC FOR
 CONNECTIONS TO POWER SUPPLY
 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 WABS	EXISTING



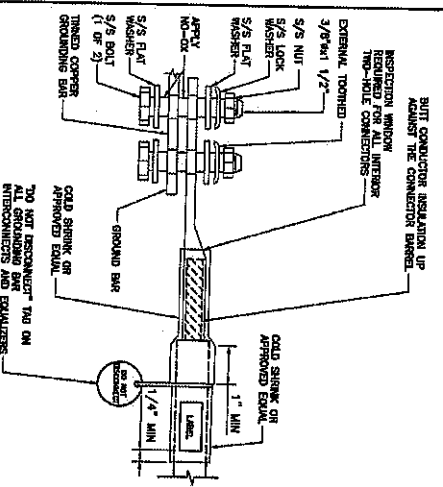
ELECTRICAL ONE-LINE DIAGRAM



THIS HOLE SPACE TO BE USED TO CONNECT TO GROUND BAR

- NOTES
1. APPLY NO-DRX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INSIDE LUG.
 2. IF STRIPED GROUND BARS ARE REQUIRED, CONTACT SPRINT OR FOR REPLACEMENT THROUGH BBU KIT.

INSTALLATION OF GROUNDING CONNECTION TO GROUNDING BAR

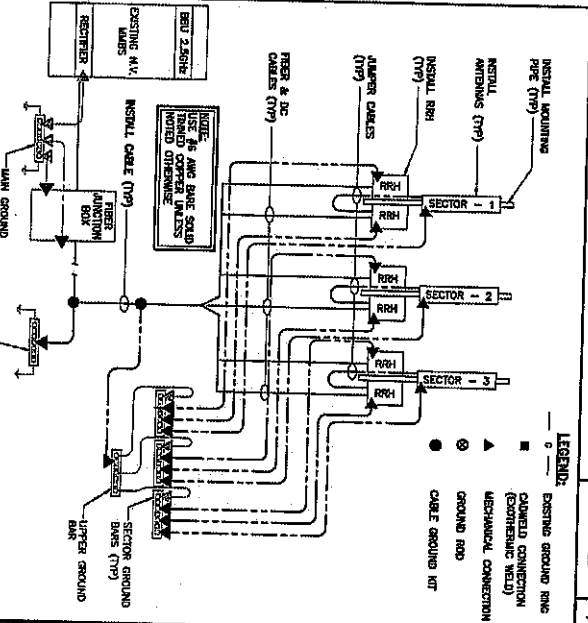


TWO HOLE LUG

NO SCALE

GROUNDING RISER DIAGRAM

NO SCALE



- LEGEND:
- EXISTING GROUND RING
 - DAMAGED CONNECTION (ELECTRIC WELD)
 - ▲ MECHANICAL CONNECTION
 - GROUND ROD
 - CABLE GROUND KIT

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CROWN CASTLE

PROFESSIONAL ENGINEER
 LICENSE NO. 2010-0010
 STATE OF MISSOURI
 JUNE 2010

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REVISION	DESCRIPTION	DATE	BY	CHK
01	ISSUED FOR CONSTRUCTION	07/25/13	SS/3	SS/3
02	ISSUED FOR CONSTRUCTION	08/27/13	SS/1	SS/1
03	ISSUED FOR CONSTRUCTION	09/17/13	SS/1	SS/1
04	ISSUED FOR CONSTRUCTION	10/17/13	SS/1	SS/1
05	ISSUED FOR CONSTRUCTION	11/17/13	SS/1	SS/1

THE NAME:
STARFORD/PRAGYL/SSUSA

THE ADDRESS:
**175 STARFORD STREET
 STARFORD, CT 06077**

THE PHONE:
CT 354XCT26

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-2



Date: **May 24, 2018**

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

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: Structural Analysis Report

Carrier Designation: **Sprint PCS Co-Locate**
Carrier Site Number: CT54XC726
Carrier Site Name: CT54XC726

Crown Castle Designation: **Crown Castle BU Number:** 876402
Crown Castle Site Name: stafford/pragyl/ssusa
Crown Castle JDE Job Number: 501753
Crown Castle Work Order Number: 1571238
Crown Castle Order Number: 438426 Rev. 0

Engineering Firm Designation: **Paul J. Ford and Company Project Number:** 37518-1433.002.7805

Site Data: **175 Stafford Street, STAFFORD, Tolland County, CT**
Latitude 41° 59' 13.38", Longitude -72° 15' 40.78"
150 Foot - Monopole Tower

Dear Marianne Dunst,

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 1192917, in accordance with Order 438426, 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:

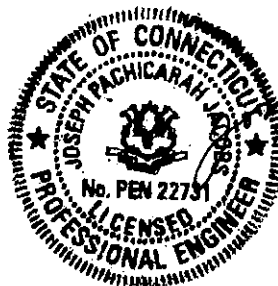
LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 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 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:

J. A. P.
Jaime Acuna
Structural Designer
jacuna@pauljford.com



for jacuna
MAY 29 2018

Date: May 24, 2018

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

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: Structural Analysis Report

Carrier Designation:

Sprint PCS Co-Locate
Carrier Site Number: CT54XC726
Carrier Site Name: CT54XC726

Crown Castle Designation:

Crown Castle BU Number: 876402
Crown Castle Site Name: stafford/pragyl/ssusa
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LC7: Existing + Reserved + Proposed Equipment

Sufficient Capacity

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

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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:

Jaime Acuna
Structural Designer
jacuna@pauljford.com

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Additional Calculations

1) INTRODUCTION

This tower is a 150 ft Monopole tower mapped by TEP in December of 2007. The original wind speed and design code are unknown.

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 125 mph converted to a nominal 3-second gust wind speed of 97 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 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
150.0	152.0	6	alcatel lucent	800MHZ 2X50W RRH	1 3	7/8 1-1/4	-
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	alcatel lucent	TD-RRH8X20-25			
		3	commscope	NNVV-65B-R4 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			

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
150.0	152.0	6	decibel	980F90T2E-M w/ Mount Pipe	6	1-5/8	3
	150.0	1	tower mounts	Platform Mount [LP 1201-1]	-	-	1
136.0	138.0	3	ericsson	RRUS-11	12 1 2	1-5/8 3/8 3/4	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21903			
		1	raycap	DC6-48-60-18-8F			
	137.0	1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		2	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
136.0	1	tower mounts	T-Arm Mount [TA 602-3]				

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
127.0	127.0	3	alcatel lucent	B13 RRH 4X30	2	1-5/8	2
		3	alcatel lucent	B66A RRH4X45			
		6	commscope	SBNHH-1D65B w/ Mount Pipe			
		2	raycap	RXXDC-3315-PF-48			
		1	tower mounts	Miscellaneous [NA 507-1]			
		1	tower mounts	Platform Mount [LP 303-1]			
75.0	75.0	1	lucent	KS24019-L112A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) Equipment To Be Removed

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	TEP, 131001.876402.01G, 04/12/2013	2194187	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	TEP, 072309, 02/22/2008	2208777	CCISITES
4-TOWER MANUFACTURER DRAWINGS	TEP, 072309, 12/02/2007	2175539	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 145336, 09/10/2014	5639214	CCISITES

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) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures 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 the referenced drawings.
- 4) Monopole was modified in conformance with the referenced modification drawings.
- 5) The monopole manufacturer drawings are not available at the time of this analysis. Therefore, we have assumed pole shaft and base plate steel yield strength(s) (Fy) as shown in the attached calculations. Anchor rods are assumed to be ASTM A615 #18J, 2.25" diam, (Fu = 100 ksi, Fy = 75 ksi).

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	150 - 123	Pole	TP22.69x17x0.25	1	-9.39	1288.74	33.4	Pass
L2	123 - 85	Pole	TP28.36x21.6105x0.375	2	-14.97	2423.44	53.7	Pass
L3	85 - 44	Pole	TP36.86x27.0303x0.4063	3	-23.36	3397.00	56.7	Pass
L4	44 - 0	Pole	TP42.53x35.0535x0.4375	4	-36.44	4342.59	61.8	Pass
							Summary	
						Pole (L4)	61.8	Pass
						Rating =	61.8	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	71.4	Pass
1	Base Plate	0	81.0	Pass
1	Base Foundation Structural Steel	0	69.7	Pass
1	Base Foundation Soil Interaction	0	42.6	Pass

Structure Rating (max from all components) =	81.0%
---	--------------

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.

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

There is a pole section.

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

The following design criteria apply:

- 4) Tower is located in Tolland County, Connecticut.
- 5) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- 6) Basic wind speed of 97 mph.
- 7) Structure Class II.
- 8) Exposure Category B.
- 9) Topographic Category 1.
- 10) Crest Height 0.00 ft.
- 11) Nominal ice thickness of 1.0000 in.
- 12) Ice thickness is considered to increase with height.
- 13) Ice density of 56 pcf.
- 14) A wind speed of 50 mph is used in combination with ice.
- 15) Temperature drop of 50 °F.
- 16) Deflections calculated using a wind speed of 60 mph.
- 17) A non-linear (P-delta) analysis was used.
- 18) Pressures are calculated at each section.
- 19) Stress ratio used in pole design is 1.
- 20) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption Poles ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-123.00	27.00	2.75	18	17.0000	22.6900	0.2500	1.0000	A572-65 (65 ksi)
L2	123.00-85.00	40.75	3.50	18	21.6105	28.3600	0.3750	1.5000	A572-65 (65 ksi)
L3	85.00-44.00	44.50	4.50	18	27.0303	36.8600	0.4063	1.6250	A572-65 (65 ksi)
L4	44.00-0.00	48.50		18	35.0535	42.5300	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	17.2623	13.2911	471.1170	5.9463	8.6360	54.5527	942.8540	6.6468	2.5520	10.208
L2	23.0400	17.8061	1132.7992	7.9662	11.5265	98.2776	2267.0890	8.9048	3.5534	14.214
	28.7975	33.3091	3295.7296	9.9347	14.4069	228.7608	6595.7958	16.6577	4.3314	11.55
L3	28.2323	34.3300	3074.3930	9.4515	13.7314	223.8953	6152.8313	17.1683	4.0423	9.95
	37.4286	47.0048	7891.5876	12.9411	18.7249	421.4493	15793.559	23.5069	5.7724	14.209
L4	36.2986	48.0686	7277.0016	12.2887	17.8072	408.6557	14563.578	24.0389	5.3994	12.342
	43.1861	58.4507	13083.881	14.9428	21.6052	605.5883	26184.978	29.2309	6.7153	15.349

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 150.00-123.00				1	1	1			
L2 123.00-85.00				1	1	1			
L3 85.00-44.00				1	1	1			
L4 44.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter r	Weight
				ft			in	in	in	plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	C _A A _A	Weight
				ft		ft ² /ft	plf

HB114-08U3M12-XXXF(7/8)	C	No	Inside Pole	150.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.68 0.68 0.68
HB114-1-08U4-M5F(1-1/4)	C	No	Inside Pole	150.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	1.08 1.08 1.08

FXL 1873 PE(1-5/8)	C	No	Inside Pole	136.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.67 0.67 0.67
FB-L98B-002-75000(3/8)	C	No	Inside Pole	136.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	136.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.58 0.58 0.58
2" (Nominal) Conduit	C	No	Inside Pole	136.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.72 0.72 0.72

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf

HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	127.00 - 0.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30

LDF4-50A(1/2)	C	No	Inside Pole	75.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	150.00-123.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.25
L2	123.00-85.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.63
L3	85.00-44.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.68
L4	44.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.73

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	150.00-123.00	A	2.304	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.25
L2	123.00-85.00	A	2.242	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.63
L3	85.00-44.00	A	2.137	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.68
L4	44.00-0.00	A	1.916	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.73

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	150.00-123.00	0.0000	0.0000	0.0000	0.0000
L2	123.00-85.00	0.0000	0.0000	0.0000	0.0000
L3	85.00-44.00	0.0000	0.0000	0.0000	0.0000
L4	44.00-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _s No Ice	K _s Ice
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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _d A _A Front	C _d A _A Side	Weight
			Horz Lateral	Vert					
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			2.00			Ice	13.67	9.50	0.29
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			2.00			Ice	13.67	9.50	0.29
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			2.00			Ice	13.67	9.50	0.29
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			2.00			Ice	7.47	6.47	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			2.00			Ice	7.47	6.47	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			2.00			Ice	7.47	6.47	0.19
(2) 800MHZ 2X50W RRH	A	From Leg	4.00	0.0000	150.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
(2) 800MHZ 2X50W RRH	B	From Leg	4.00	0.0000	150.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
(2) 800MHZ 2X50W RRH	C	From Leg	4.00	0.0000	150.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			2.00			Ice	2.51	2.13	0.10
TD-RRH8X20-25	A	From Leg	4.00	0.0000	150.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
TD-RRH8X20-25	B	From Leg	4.00	0.0000	150.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
TD-RRH8X20-25	C	From Leg	4.00	0.0000	150.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			2.00			Ice	4.56	1.90	0.13
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00	0.0000	150.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			2.00			Ice	2.74	2.65	0.11
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00	0.00	0.0000	150.00	No Ice	2.32	2.24	0.06
			0.00	2.00			1/2"	2.53	2.44	0.08
							Ice	2.74	2.65	0.11
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00	0.00	0.0000	150.00	1" Ice	2.32	2.24	0.06
			0.00	2.00			1/2"	2.53	2.44	0.08
							Ice	2.74	2.65	0.11
Platform Mount [LP 1201-1]	C	None			0.0000	150.00	No Ice	23.10	23.10	2.10
							1/2"	26.80	26.80	2.50
							Ice	30.50	30.50	2.90
(2) 2.375" OD x 5' Mount Pipe	A	From Leg	4.00	0.00	0.0000	150.00	No Ice	1.19	1.19	0.02
			0.00	0.00			1/2"	1.50	1.50	0.03
							Ice	1.81	1.81	0.04
(2) 2.375" OD x 5' Mount Pipe	B	From Leg	4.00	0.00	0.0000	150.00	1" Ice	1.19	1.19	0.02
			0.00	0.00			1/2"	1.50	1.50	0.03
							Ice	1.81	1.81	0.04
(2) 2.375" OD x 5' Mount Pipe	C	From Leg	4.00	0.00	0.0000	150.00	No Ice	1.19	1.19	0.02
			0.00	0.00			1/2"	1.50	1.50	0.03
							Ice	1.81	1.81	0.04
***						1" Ice				
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	136.00	No Ice	5.75	4.25	0.06
			0.00	2.00			1/2"	6.18	5.01	0.10
							Ice	6.61	5.71	0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	136.00	1" Ice	5.75	4.25	0.06
			0.00	2.00			1/2"	6.18	5.01	0.10
							Ice	6.61	5.71	0.16
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	136.00	No Ice	5.75	4.25	0.06
			0.00	2.00			1/2"	6.18	5.01	0.10
							Ice	6.61	5.71	0.16
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	136.00	1" Ice	11.82	9.06	0.09
			0.00	1.00			1/2"	12.59	10.62	0.18
							Ice	13.38	12.21	0.28
P65-17-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	136.00	No Ice	11.82	9.06	0.09
			0.00	1.00			1/2"	12.59	10.62	0.18
							Ice	13.38	12.21	0.28
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	136.00	1" Ice	8.26	6.30	0.07
			0.00	1.00			1/2"	8.82	7.48	0.14
							Ice	9.35	8.37	0.21
(2) LGP21401	A	From Leg	4.00	0.00	0.0000	136.00	No Ice	1.10	0.35	0.01
			0.00	2.00			1/2"	1.24	0.44	0.02
							Ice	1.38	0.54	0.03
(2) LGP21401	B	From Leg	4.00	0.00	0.0000	136.00	1" Ice	1.10	0.35	0.01
			0.00	2.00			1/2"	1.24	0.44	0.02
							Ice	1.38	0.54	0.03
(2) LGP21401	C	From Leg	4.00	0.00	0.0000	136.00	No Ice	1.10	0.35	0.01
			0.00	2.00			1/2"	1.24	0.44	0.02
							Ice	1.38	0.54	0.03
RRUS-11	A	From Leg	4.00	0.00	0.0000	136.00	1" Ice	2.79	1.19	0.05
			0.00	2.00			1/2"	3.00	1.34	0.07
							Ice	3.21	1.50	0.09
						1" Ice				

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
RRUS-11	B	From Leg	4.00	0.0000	136.00	No Ice	2.79	1.19	0.05
			0.00			1/2"	3.00	1.34	0.07
			2.00			Ice	3.21	1.50	0.09
RRUS-11	C	From Leg	4.00	0.0000	136.00	1" Ice	2.79	1.19	0.05
			0.00			No Ice	3.00	1.34	0.07
			2.00			1/2"	3.21	1.50	0.09
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	136.00	Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			2.00			Ice	1.64	1.64	0.06
(2) LGP21903	A	From Leg	4.00	0.0000	136.00	1" Ice	0.23	0.16	0.01
			0.00			No Ice	0.29	0.21	0.01
			2.00			1/2"	0.36	0.28	0.02
(2) LGP21903	B	From Leg	4.00	0.0000	136.00	Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			2.00			Ice	0.36	0.28	0.02
(2) LGP21903	C	From Leg	4.00	0.0000	136.00	1" Ice	0.23	0.16	0.01
			0.00			No Ice	0.29	0.21	0.01
			2.00			1/2"	0.36	0.28	0.02
T-Arm Mount [TA 602-3]	C	None		0.0000	136.00	1" Ice	11.59	11.59	0.77
						No Ice	15.44	15.44	0.99
						1/2"	19.29	19.29	1.21
						Ice			
*** (2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	127.00	1" Ice	8.40	7.07	0.07
			0.00			No Ice	8.96	8.26	0.14
			0.00			Ice	9.49	9.18	0.21
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	127.00	1" Ice	8.40	7.07	0.07
			0.00			No Ice	8.96	8.26	0.14
			0.00			Ice	9.49	9.18	0.21
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	127.00	1" Ice	8.40	7.07	0.07
			0.00			No Ice	8.96	8.26	0.14
			0.00			Ice	9.49	9.18	0.21
B13 RRH 4X30	A	From Leg	4.00	0.0000	127.00	1" Ice	2.06	1.32	0.06
			0.00			No Ice	2.24	1.48	0.07
			0.00			Ice	2.43	1.64	0.09
B13 RRH 4X30	B	From Leg	4.00	0.0000	127.00	1" Ice	2.06	1.32	0.06
			0.00			No Ice	2.24	1.48	0.07
			0.00			Ice	2.43	1.64	0.09
B13 RRH 4X30	C	From Leg	4.00	0.0000	127.00	1" Ice	2.06	1.32	0.06
			0.00			No Ice	2.24	1.48	0.07
			0.00			Ice	2.43	1.64	0.09
B66A RRH4X45	A	From Leg	4.00	0.0000	127.00	1" Ice	2.58	1.63	0.07
			0.00			No Ice	2.79	1.81	0.09
			0.00			Ice	3.01	2.00	0.11
B66A RRH4X45	B	From Leg	4.00	0.0000	127.00	1" Ice	2.58	1.63	0.07
			0.00			No Ice	2.79	1.81	0.09
			0.00			Ice	3.01	2.00	0.11
B66A RRH4X45	C	From Leg	4.00	0.0000	127.00	1" Ice	2.58	1.63	0.07
			0.00			No Ice	2.79	1.81	0.09
			0.00			Ice	3.01	2.00	0.11

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
RXXDC-3315-PF-48	B	From Leg	4.00	0.0000	127.00	No Ice	3.01	1.96	0.02
			0.00			1/2"	3.23	2.15	0.05
			0.00			Ice	3.46	2.35	0.08
RXXDC-3315-PF-48	C	From Leg	4.00	0.0000	127.00	1" Ice	3.01	1.96	0.02
			0.00			No Ice	3.23	2.15	0.05
			0.00			1/2"	3.46	2.35	0.08
Platform Mount [LP 303-1]	C	None		0.0000	127.00	Ice	14.66	14.66	1.25
						1/2"	18.87	18.87	1.48
						1" Ice	23.08	23.08	1.71
Miscellaneous [NA 507-1]	C	None		0.0000	127.00	No Ice	4.80	4.80	0.25
						1/2"	6.70	6.70	0.29
						Ice	8.60	8.60	0.34
(2) 2.375" OD x 5' Mount Pipe	A	From Leg	4.00	0.0000	127.00	1" Ice	1.19	1.19	0.02
			0.00			No Ice	1.50	1.50	0.03
			0.00			1/2"	1.81	1.81	0.04
(2) 2.375" OD x 5' Mount Pipe	B	From Leg	4.00	0.0000	127.00	Ice	1.19	1.19	0.02
			0.00			1/2"	1.50	1.50	0.03
			0.00			Ice	1.81	1.81	0.04
(2) 2.375" OD x 5' Mount Pipe	C	From Leg	4.00	0.0000	127.00	1" Ice	1.19	1.19	0.02
			0.00			No Ice	1.50	1.50	0.03
			0.00			1/2"	1.81	1.81	0.04
***** KS24019-L112A	C	From Leg	4.00	0.0000	75.00	1" Ice	0.14	0.14	0.01
			0.00			No Ice	0.20	0.20	0.01
			0.00			Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	C	None		0.0000	75.00	1" Ice	0.85	1.67	0.07
						No Ice	1.14	2.34	0.08
						Ice	1.43	3.01	0.09
*****						1" Ice			

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation	z	K _Z	q _Z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 150.00-123.00	135.85	1.079	24.68	45.340	A	0.000	45.340	45.340	100.00	0.000	0.000
					B	0.000	45.340	100.00	0.000	0.000	
					C	0.000	45.340	100.00	0.000	0.000	
L2 123.00-85.00	103.46	0.998	22.80	81.073	A	0.000	81.073	81.073	100.00	0.000	0.000
					B	0.000	81.073	100.00	0.000	0.000	
					C	0.000	81.073	100.00	0.000	0.000	
L3 85.00-44.00	64.01	0.87	19.81	112.17	A	0.000	112.171	112.171	100.00	0.000	0.000
					B	0.000	112.171	100.00	0.000	0.000	
					C	0.000	112.171	100.00	0.000	0.000	
L4 44.00-0.00	21.51	0.7	16.22	145.72	A	0.000	145.722	145.722	100.00	0.000	0.000
					B	0.000	145.722	100.00	0.000	0.000	
					C	0.000	145.722	100.00	0.000	0.000	

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
L1 150.00-123.00	135.85	1.079	6.56	2.3040	55.708	A	0.000	55.708	55.708	100.00	0.000	0.000
						B	0.000	55.708	100.00	0.000	0.000	
						C	0.000	55.708	100.00	0.000	0.000	
L2 123.00-85.00	103.46	0.998	6.06	2.2421	95.665	A	0.000	95.665	95.665	100.00	0.000	0.000
						B	0.000	95.665	100.00	0.000	0.000	
						C	0.000	95.665	100.00	0.000	0.000	
L3 85.00-44.00	64.01	0.87	5.26	2.1370	127.492	A	0.000	127.492	127.492	100.00	0.000	0.000
						B	0.000	127.492	100.00	0.000	0.000	
						C	0.000	127.492	100.00	0.000	0.000	
L4 44.00-0.00	21.51	0.7	4.31	1.9162	161.393	A	0.000	161.393	161.393	100.00	0.000	0.000
						B	0.000	161.393	100.00	0.000	0.000	
						C	0.000	161.393	100.00	0.000	0.000	

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
L1 150.00-123.00	135.85	1.079	8.45	45.340	A	0.000	45.340	45.340	100.00	0.000	0.000
					B	0.000	45.340	100.00	0.000	0.000	
					C	0.000	45.340	100.00	0.000	0.000	
L2 123.00-85.00	103.46	0.998	7.80	81.073	A	0.000	81.073	81.073	100.00	0.000	0.000
					B	0.000	81.073	100.00	0.000	0.000	
					C	0.000	81.073	100.00	0.000	0.000	
L3 85.00-44.00	64.01	0.87	6.78	112.17 1	A	0.000	112.171	112.171	100.00	0.000	0.000
					B	0.000	112.171	100.00	0.000	0.000	
					C	0.000	112.171	100.00	0.000	0.000	
L4 44.00-0.00	21.51	0.7	5.55	145.72 2	A	0.000	145.722	145.722	100.00	0.000	0.000
					B	0.000	145.722	100.00	0.000	0.000	
					C	0.000	145.722	100.00	0.000	0.000	

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice

Comb. No.	Description
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 123	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.16	0.66	0.12
			Max. Mx	20	-9.39	188.40	-0.10
			Max. My	2	-9.40	-0.08	188.45
			Max. Vy	20	-13.20	188.40	-0.10
			Max. Vx	2	-13.18	-0.08	188.45
			Max. Torque	4			0.56
L2	123 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.48	0.65	0.12
			Max. Mx	20	-14.98	720.70	-0.59
			Max. My	2	-14.98	-0.55	719.89
			Max. Vy	20	-15.35	720.70	-0.59
			Max. Vx	2	-15.32	-0.55	719.89
			Max. Torque	14			-0.41
L3	85 - 44	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.35	0.73	0.05
			Max. Mx	20	-23.36	1380.53	-1.13
			Max. My	2	-23.36	-1.04	1378.75
			Max. Vy	20	-17.59	1380.53	-1.13
			Max. Vx	2	-17.56	-1.04	1378.75
			Max. Torque	14			-0.43
L4	44 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.83	0.70	0.04
			Max. Mx	20	-36.44	2285.58	-1.74
			Max. My	2	-36.44	-1.66	2282.72
			Max. Vy	20	-19.60	2285.58	-1.74

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-19.58	-1.66	2282.72
			Max. Torque	14			-0.42

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	66.83	-0.00	-0.00
	Max. H _x	20	36.46	19.57	-0.01
	Max. H _z	3	27.35	-0.01	19.55
	Max. M _x	2	2282.72	-0.01	19.55
	Max. M _z	8	2285.30	-19.57	0.01
	Max. Torsion	2	0.42	-0.01	19.55
	Min. Vert	21	27.35	19.57	-0.01
	Min. H _x	8	36.46	-19.57	0.01
	Min. H _z	15	27.35	0.01	-19.55
	Min. M _x	14	-2282.63	0.01	-19.55
	Min. M _z	20	-2285.58	19.57	-0.01
	Min. Torsion	14	-0.42	0.01	-19.55

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	30.39	-0.00	0.00	-0.03	0.11	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	36.46	0.01	-19.55	-2282.72	-1.66	-0.42
0.9 Dead+1.6 Wind 0 deg - No Ice	27.35	0.01	-19.55	-2243.72	-1.66	-0.42
1.2 Dead+1.6 Wind 30 deg - No Ice	36.46	9.80	-16.94	-1978.23	-1144.40	-0.39
0.9 Dead+1.6 Wind 30 deg - No Ice	27.35	9.80	-16.94	-1944.27	-1124.79	-0.39
1.2 Dead+1.6 Wind 60 deg - No Ice	36.46	16.96	-9.79	-1143.18	-1980.45	-0.26
0.9 Dead+1.6 Wind 60 deg - No Ice	27.35	16.95	-9.79	-1123.55	-1946.50	-0.25
1.2 Dead+1.6 Wind 90 deg - No Ice	36.46	19.57	-0.01	-1.84	-2285.30	-0.05
0.9 Dead+1.6 Wind 90 deg - No Ice	27.35	19.57	-0.01	-1.79	-2246.03	-0.05
1.2 Dead+1.6 Wind 120 deg - No Ice	36.46	16.94	9.76	1140.00	-1978.68	0.17
0.9 Dead+1.6 Wind 120 deg - No Ice	27.35	16.94	9.76	1120.44	-1944.75	0.17
1.2 Dead+1.6 Wind 150 deg - No Ice	36.46	9.77	16.92	1976.37	-1141.30	0.34
0.9 Dead+1.6 Wind 150 deg - No Ice	27.35	9.77	16.92	1942.45	-1121.75	0.34
1.2 Dead+1.6 Wind 180 deg - No Ice	36.46	-0.01	19.55	2282.63	1.93	0.42
0.9 Dead+1.6 Wind 180 deg - No Ice	27.35	-0.01	19.55	2243.65	1.86	0.42
1.2 Dead+1.6 Wind 210 deg - No Ice	36.46	-9.80	16.94	1978.15	1144.67	0.39
0.9 Dead+1.6 Wind 210 deg - No Ice	27.35	-9.80	16.94	1944.20	1124.99	0.39
1.2 Dead+1.6 Wind 240 deg - No Ice	36.46	-16.96	9.79	1143.10	1980.73	0.25

Load Combination	Vertical	Shear _x	Shear _z	Overtuning Moment, M _x	Overtuning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 240 deg - No Ice	27.35	-16.95	9.79	1123.49	1946.70	0.25
1.2 Dead+1.6 Wind 270 deg - No Ice	36.46	-19.57	0.01	1.74	2285.58	0.05
0.9 Dead+1.6 Wind 270 deg - No Ice	27.35	-19.57	0.01	1.72	2246.23	0.05
1.2 Dead+1.6 Wind 300 deg - No Ice	36.46	-16.94	-9.76	-1140.10	1978.96	-0.17
0.9 Dead+1.6 Wind 300 deg - No Ice	27.35	-16.94	-9.76	-1120.51	1944.95	-0.17
1.2 Dead+1.6 Wind 330 deg - No Ice	36.46	-9.77	-16.92	-1976.46	1141.58	-0.34
0.9 Dead+1.6 Wind 330 deg - No Ice	27.35	-9.77	-16.92	-1942.53	1121.95	-0.34
1.2 Dead+1.0 Ice+1.0 Temp	66.83	0.00	0.00	-0.04	0.70	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	66.83	-0.00	-6.09	-757.70	1.05	-0.15
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	66.83	3.05	-5.27	-656.16	-378.31	-0.15
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	66.83	5.28	-3.04	-378.83	-656.05	-0.11
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	66.83	6.10	0.00	-0.01	-757.73	-0.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	66.83	5.28	3.05	378.78	-656.12	0.04
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	66.83	3.05	5.27	656.05	-378.45	0.11
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	66.83	0.00	6.09	757.51	0.89	0.15
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	66.83	-3.05	5.27	655.97	380.26	0.15
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	66.83	-5.28	3.04	378.64	657.99	0.11
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	66.83	-6.10	-0.00	-0.17	759.68	0.04
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	66.83	-5.28	-3.05	-378.96	658.07	-0.04
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	66.83	-3.05	-5.27	-656.24	380.39	-0.10
Dead+Wind 0 deg - Service	30.39	0.00	-4.18	-484.00	-0.26	-0.09
Dead+Wind 30 deg - Service	30.39	2.10	-3.62	-419.35	-242.49	-0.08
Dead+Wind 60 deg - Service	30.39	3.63	-2.09	-242.35	-419.70	-0.06
Dead+Wind 90 deg - Service	30.39	4.19	-0.00	-0.42	-484.43	-0.01
Dead+Wind 120 deg - Service	30.39	3.62	2.09	241.61	-419.32	0.04
Dead+Wind 150 deg - Service	30.39	2.09	3.62	418.89	-241.83	0.07
Dead+Wind 180 deg - Service	30.39	-0.00	4.18	483.92	0.50	0.09
Dead+Wind 210 deg - Service	30.39	-2.10	3.62	419.27	242.72	0.08
Dead+Wind 240 deg - Service	30.39	-3.63	2.09	242.27	419.94	0.06
Dead+Wind 270 deg - Service	30.39	-4.19	0.00	0.34	484.66	0.01
Dead+Wind 300 deg - Service	30.39	-3.62	-2.09	-241.69	419.56	-0.04
Dead+Wind 330 deg - Service	30.39	-2.09	-3.62	-418.97	242.06	-0.07

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-30.39	0.00	0.00	30.39	0.00	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
2	0.01	-36.46	-19.55	-0.01	36.46	19.55	0.010%
3	0.01	-27.35	-19.55	-0.01	27.35	19.55	0.008%
4	9.80	-36.46	-16.94	-9.80	36.46	16.94	0.000%
5	9.80	-27.35	-16.94	-9.80	27.35	16.94	0.000%
6	16.96	-36.46	-9.79	-16.96	36.46	9.79	0.000%
7	16.96	-27.35	-9.79	-16.95	27.35	9.79	0.000%
8	19.57	-36.46	-0.01	-19.57	36.46	0.01	0.010%
9	19.57	-27.35	-0.01	-19.57	27.35	0.01	0.014%
10	16.94	-36.46	9.76	-16.94	36.46	-9.76	0.000%
11	16.94	-27.35	9.76	-16.94	27.35	-9.76	0.000%
12	9.77	-36.46	16.92	-9.77	36.46	-16.92	0.000%
13	9.77	-27.35	16.92	-9.77	27.35	-16.92	0.000%
14	-0.01	-36.46	19.55	0.01	36.46	-19.55	0.010%
15	-0.01	-27.35	19.55	0.01	27.35	-19.55	0.008%
16	-9.80	-36.46	16.94	9.80	36.46	-16.94	0.000%
17	-9.80	-27.35	16.94	9.80	27.35	-16.94	0.000%
18	-16.96	-36.46	9.79	16.96	36.46	-9.79	0.000%
19	-16.96	-27.35	9.79	16.95	27.35	-9.79	0.000%
20	-19.57	-36.46	0.01	19.57	36.46	-0.01	0.010%
21	-19.57	-27.35	0.01	19.57	27.35	-0.01	0.014%
22	-16.94	-36.46	-9.76	16.94	36.46	9.76	0.000%
23	-16.94	-27.35	-9.76	16.94	27.35	9.76	0.000%
24	-9.77	-36.46	-16.92	9.77	36.46	16.92	0.000%
25	-9.77	-27.35	-16.92	9.77	27.35	16.92	0.000%
26	0.00	-66.83	0.00	-0.00	66.83	-0.00	0.001%
27	-0.00	-66.83	-6.09	0.00	66.83	6.09	0.002%
28	3.05	-66.83	-5.28	-3.05	66.83	5.27	0.002%
29	5.28	-66.83	-3.05	-5.28	66.83	3.04	0.002%
30	6.10	-66.83	0.00	-6.10	66.83	-0.00	0.002%
31	5.28	-66.83	3.05	-5.28	66.83	-3.05	0.002%
32	3.05	-66.83	5.28	-3.05	66.83	-5.27	0.002%
33	0.00	-66.83	6.09	-0.00	66.83	-6.09	0.002%
34	-3.05	-66.83	5.28	3.05	66.83	-5.27	0.002%
35	-5.28	-66.83	3.05	5.28	66.83	-3.04	0.002%
36	-6.10	-66.83	-0.00	6.10	66.83	0.00	0.002%
37	-5.28	-66.83	-3.05	5.28	66.83	3.05	0.002%
38	-3.05	-66.83	-5.28	3.05	66.83	5.27	0.002%
39	0.00	-30.39	-4.18	-0.00	30.39	4.18	0.002%
40	2.10	-30.39	-3.62	-2.10	30.39	3.62	0.002%
41	3.63	-30.39	-2.09	-3.63	30.39	2.09	0.002%
42	4.19	-30.39	-0.00	-4.19	30.39	0.00	0.002%
43	3.63	-30.39	2.09	-3.62	30.39	-2.09	0.002%
44	2.09	-30.39	3.62	-2.09	30.39	-3.62	0.002%
45	-0.00	-30.39	4.18	0.00	30.39	-4.18	0.002%
46	-2.10	-30.39	3.62	2.10	30.39	-3.62	0.002%
47	-3.63	-30.39	2.09	3.63	30.39	-2.09	0.002%
48	-4.19	-30.39	0.00	4.19	30.39	-0.00	0.002%
49	-3.63	-30.39	-2.09	3.62	30.39	2.09	0.002%
50	-2.09	-30.39	-3.62	2.09	30.39	3.62	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	18	0.00010406	0.00011052
3	Yes	18	0.00006715	0.00008779
4	Yes	24	0.00000001	0.00009469
5	Yes	23	0.00000001	0.00011930
6	Yes	24	0.00000001	0.00009593
7	Yes	23	0.00000001	0.00012092
8	Yes	18	0.00010404	0.00010495
9	Yes	17	0.00012185	0.00014955
10	Yes	24	0.00000001	0.00009518
11	Yes	23	0.00000001	0.00011999
12	Yes	24	0.00000001	0.00009440
13	Yes	23	0.00000001	0.00011898
14	Yes	18	0.00010406	0.00011557
15	Yes	18	0.00006715	0.00009158
16	Yes	24	0.00000001	0.00009614
17	Yes	23	0.00000001	0.00012120
18	Yes	24	0.00000001	0.00009493
19	Yes	23	0.00000001	0.00011960
20	Yes	18	0.00010404	0.00010364
21	Yes	17	0.00012185	0.00014794
22	Yes	24	0.00000001	0.00009483
23	Yes	23	0.00000001	0.00011950
24	Yes	24	0.00000001	0.00009558
25	Yes	23	0.00000001	0.00012050
26	Yes	6	0.00000001	0.00000439
27	Yes	21	0.00013070	0.00003435
28	Yes	21	0.00013034	0.00010047
29	Yes	21	0.00013032	0.00010267
30	Yes	21	0.00013066	0.00003416
31	Yes	21	0.00013030	0.00010166
32	Yes	21	0.00013031	0.00010072
33	Yes	21	0.00013068	0.00003431
34	Yes	21	0.00013033	0.00010362
35	Yes	21	0.00013035	0.00010148
36	Yes	21	0.00013071	0.00003433
37	Yes	21	0.00013036	0.00010257
38	Yes	21	0.00013036	0.00010345
39	Yes	18	0.00008513	0.00002626
40	Yes	18	0.00008501	0.00003193
41	Yes	18	0.00008500	0.00003421
42	Yes	18	0.00008512	0.00002617
43	Yes	18	0.00008500	0.00003346
44	Yes	18	0.00008500	0.00003203
45	Yes	18	0.00008512	0.00002626
46	Yes	18	0.00008500	0.00003462
47	Yes	18	0.00008500	0.00003233
48	Yes	18	0.00008512	0.00002619
49	Yes	18	0.00008501	0.00003276
50	Yes	18	0.00008501	0.00003418

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123	26.433	47	1.5835	0.0014
L2	125.75 - 85	18.675	47	1.4331	0.0010
L3	88.5 - 44	9.014	47	0.9988	0.0004
L4	48.5 - 0	2.674	47	0.5103	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	NNVV-65B-R4 w/ Mount Pipe	47	26.433	1.5835	0.0014	27056
136.00	(2) 7770.00 w/ Mount Pipe	47	21.873	1.5071	0.0011	9662
127.00	(2) SBNHH-1D65B w/ Mount Pipe	47	19.055	1.4435	0.0010	5958
75.00	KS24019-L112A	47	6.380	0.8268	0.0003	4390

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123	124.645	20	7.4822	0.0065
L2	125.75 - 85	88.097	20	6.7725	0.0044
L3	88.5 - 44	42.540	18	4.7202	0.0019
L4	48.5 - 0	12.623	18	2.4104	0.0007

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	NNVV-65B-R4 w/ Mount Pipe	20	124.645	7.4822	0.0065	5916
136.00	(2) 7770.00 w/ Mount Pipe	20	103.165	7.1217	0.0052	2111
127.00	(2) SBNHH-1D65B w/ Mount Pipe	20	89.887	6.8212	0.0046	1299
75.00	KS24019-L112A	18	30.115	3.9067	0.0014	938

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 123 (1)	TP22.69x17x0.25	27.00	0.00	0.0	17.346 3	-9.39	1288.74	0.007
L2	123 - 85 (2)	TP28.36x21.6105x0.375	40.75	0.00	0.0	32.619 1	-14.97	2423.44	0.006
L3	85 - 44 (3)	TP36.86x27.0303x0.4063	44.50	0.00	0.0	45.723 1	-23.36	3397.00	0.007
L4	44 - 0 (4)	TP42.53x35.0535x0.4375	48.50	0.00	0.0	58.450 7	-36.44	4342.59	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 123 (1)	TP22.69x17x0.25	188.55	577.27	0.327	0.00	577.27	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L2	123 - 85 (2)	TP28.36x21.6105x0.375	721.18	1357.87	0.531	0.00	1357.87	0.000
L3	85 - 44 (3)	TP36.86x27.0303x0.4063	1381.39	2468.18	0.560	0.00	2468.18	0.000
L4	44 - 0 (4)	TP42.53x35.0535x0.4375	2286.92	3749.35	0.610	0.00	3749.35	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	150 - 123 (1)	TP22.69x17x0.25	13.21	644.37	0.021	0.55	1155.95	0.000
L2	123 - 85 (2)	TP28.36x21.6105x0.375	15.36	1211.72	0.013	0.26	2719.05	0.000
L3	85 - 44 (3)	TP36.86x27.0303x0.4063	17.60	1698.50	0.010	0.25	4942.39	0.000
L4	44 - 0 (4)	TP42.53x35.0535x0.4375	19.61	2171.30	0.009	0.25	7507.87	0.000

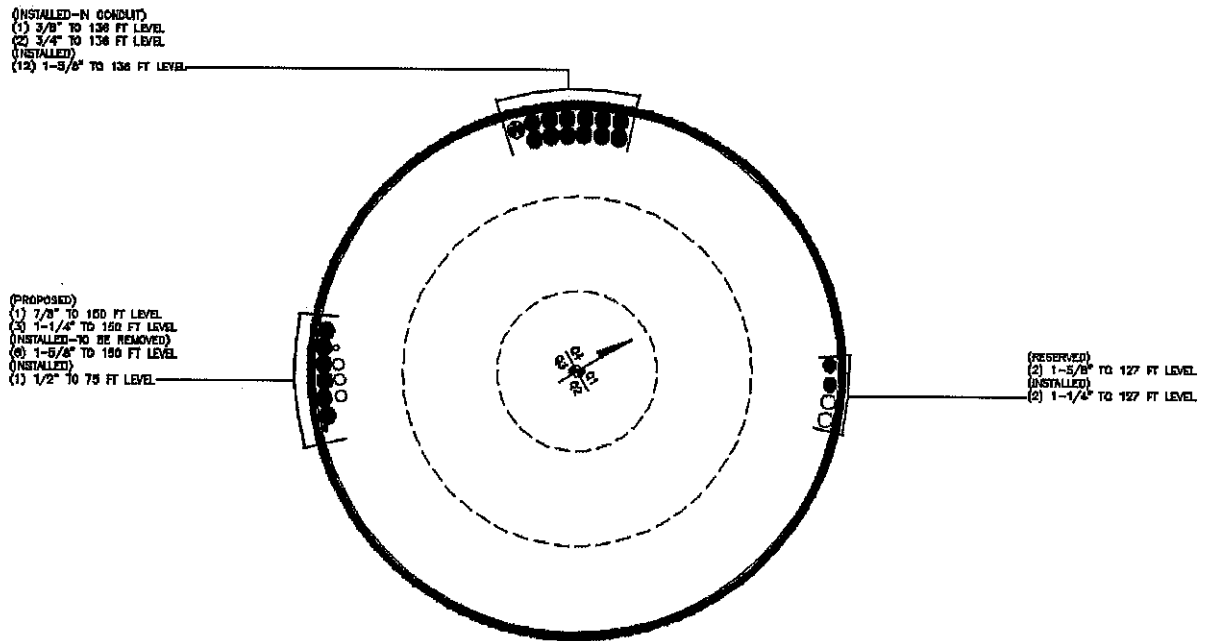
Pole Interaction Design Data

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$\frac{P_u}{\phi P_n}$	$\frac{M_{ux}}{\phi M_{nx}}$	$\frac{M_{uy}}{\phi M_{ny}}$	$\frac{V_u}{\phi V_n}$	$\frac{T_u}{\phi T_n}$			
L1	150 - 123 (1)	0.007	0.327	0.000	0.021	0.000	0.334	1.000	4.8.2
L2	123 - 85 (2)	0.006	0.531	0.000	0.013	0.000	0.537	1.000	4.8.2
L3	85 - 44 (3)	0.007	0.560	0.000	0.010	0.000	0.567	1.000	4.8.2
L4	44 - 0 (4)	0.008	0.610	0.000	0.009	0.000	0.618	1.000	4.8.2

Section Capacity Table

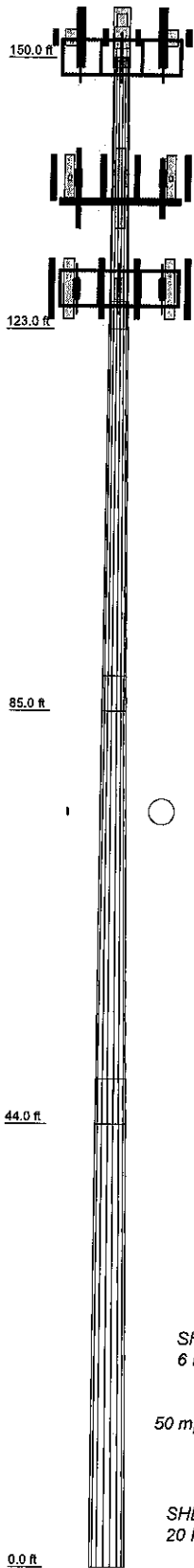
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 123	Pole	TP22.69x17x0.25	1	-9.39	1288.74	33.4	Pass
L2	123 - 85	Pole	TP28.36x21.6105x0.375	2	-14.97	2423.44	53.7	Pass
L3	85 - 44	Pole	TP36.86x27.0303x0.4063	3	-23.36	3397.00	56.7	Pass
L4	44 - 0	Pole	TP42.53x35.0535x0.4375	4	-36.44	4342.59	61.8	Pass
Summary								
Pole (L4)							61.8	Pass
RATING =							61.8	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Section	1	2	3	4	A572-65	1.4
Length (ft)	27.00	40.75	44.50	48.50		
Number of Slides	18	18	18	18		
Thickness (in)	0.2500	0.3750	0.4063	0.4375		
Socket Length (ft)	2.75	3.50	4.50	35.0535		
Top Dia (in)	17.0000	21.6105	27.0303	42.5300		
Bot Dia (in)	22.6900	28.3600	35.8600			
Grade						
Weight (K)		4.1	6.2	8.8		20.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
NNVV-65B-R4 w/ Mount Pipe	150	(2) LGP21401	136
NNVV-65B-R4 w/ Mount Pipe	150	RRUS-11	136
NNVV-65B-R4 w/ Mount Pipe	150	RRUS-11	136
APXVTM14-ALU-I20 w/ Mount Pipe	150	RRUS-11	136
APXVTM14-ALU-I20 w/ Mount Pipe	150	DC8-48-60-18-8F	136
(2) 800MHZ 2X50W RRH	150	(2) LGP21903	136
(2) 800MHZ 2X50W RRH	150	(2) LGP21903	136
(2) 800MHZ 2X50W RRH	150	T-Arm Mount [TA 602-3]	136
TD-RRH8X20-25	150	(2) SBNHH-1D65B w/ Mount Pipe	127
TD-RRH8X20-25	150	(2) SBNHH-1D65B w/ Mount Pipe	127
TD-RRH8X20-25	150	(2) SBNHH-1D65B w/ Mount Pipe	127
PCS 1900MHZ 4X45W-65MHZ	150	B13 RRH 4X30	127
PCS 1900MHZ 4X45W-65MHZ	160	B13 RRH 4X30	127
PCS 1900MHZ 4X45W-65MHZ	150	B13 RRH 4X30	127
Platform Mount [LP 1201-1]	150	B66A RRH4X45	127
(2) 2.375" OD x 5' Mount Pipe	150	B66A RRH4X45	127
(2) 2.375" OD x 5' Mount Pipe	150	B66A RRH4X45	127
(2) 2.375" OD x 5' Mount Pipe	150	RXXDC-3315-PF-48	127
(2) 7770.00 w/ Mount Pipe	136	RXXDC-3315-PF-48	127
(2) 7770.00 w/ Mount Pipe	136	Platform Mount [LP 303-1]	127
(2) 7770.00 w/ Mount Pipe	136	Miscellaneous [NA 507-1]	127
P65-17-XLH-RR w/ Mount Pipe	136	(2) 2.375" OD x 5' Mount Pipe	127
P65-17-XLH-RR w/ Mount Pipe	136	(2) 2.375" OD x 5' Mount Pipe	127
AM-X-CD-16-65-00T-RET w/ Mount Pipe	136	(2) 2.375" OD x 5' Mount Pipe	127
(2) LGP21401	136	KS24019-L112A	75
(2) LGP21401	136	Side Arm Mount [SO 701-1]	75

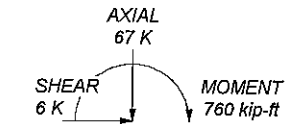
MATERIAL STRENGTH

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

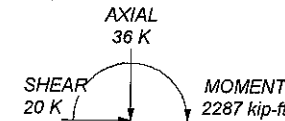
TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 61.8%

ALL REACTIONS
ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 0 kip-ft
REACTIONS - 97 mph WIND

 Paul J. Ford and Company 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:	Job: 150-Ft. Monopole / Stafford/Pragy/SSUSA Project: PJF# 37518-1433.002.7805 / BU# 876402	
	Client: Crown Castle Code: TIA-222-G Path:	Drawn by: jacuna Date: 05/24/18 Scale: NTS Dwg No. E-1
	<small>© 1998-2018 Paul J. Ford and Company, Inc. All rights reserved. 10/18/18 10:46:01 AM C:\Users\jacob.ford\Documents\37518-1433.002.7805-5A-18722431516-1431.002.7805.dwg</small>	

Stiffened or Unstiffened, UngROUTed, Circular Base Plate - Any Rod Material

TIA Rev G

Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 876402
Site Name: Stafford/Pragy/SSUSA
App #:
Pole Manufacturer: <i>Other</i>

Anchor Rod Data

Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	51.03	in

Plate Data

Diam:	57.53	in
Thick:	1.75	in
Grade:	50	ksi
Single-Rod B-eff:	11.25	in

Stiffener Data (Welding at both sides)

Config:	1	*
Weld Type:	Both	
Groove Depth:	0.49	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	6	in
Height:	18	in
Thick:	1	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	80	ksi

Pole Data

Diam:	42.53	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	2287	ft-kips
Axial, Pu:	36	kips
Shear, Vu:	20	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria: AISC LRFD ←-Only Applicable to Unstiffened Cases

Anchor Rod Results

Max Rod (Cu+ Vu/η): 185.6 Kips
 Allowable Axial, $\phi * Fu * Anet$: 260.0 Kips
 Anchor Rod Stress Ratio: 71.4% **Pass**

Stiffened
AISC LRFD
$\phi * Tn$

Base Plate Results

Base Plate Stress: 36.4 ksi
 Allowable Plate Stress: 45.0 ksi
 Base Plate Stress Ratio: 81.0% **Pass**

Flexural Check

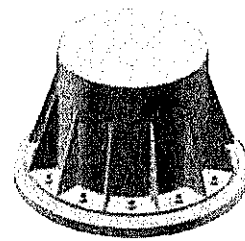
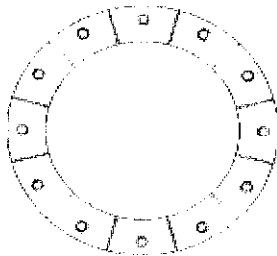
Stiffened
AISC LRFD
$\phi * Fy$
Y.L. Length:
N/A, Roark

Stiffener Results

Horizontal Weld : 59.4% **Pass**
 Vertical Weld: 38.5% **Pass**
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: 13.5% **Pass**
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: 52.1% **Pass**
 Plate Comp. (AISC Bracket): 52.4% **Pass**

Pole Results

Pole Punching Shear Check: 11.3% **Pass**



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Pier and Pad Foundation



BU #: 876402
 Site Name: Stafford/Pragy/SSU
 App. Number:

TIA-222 Revision: G
 Tower Type: Monopole

Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	36	kips
Base Shear, $V_{u, comp}$:	20	kips
Moment, M_u :	2287	ft-kips
Tower Height, H:	150	ft
BP Dist. Above Fdn, bp_{dist} :	0.5	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	353.53	20.00	5.7%	Pass
Bearing Pressure (ksf)	45.16	2.13	4.7%	Pass
Overtuning (kip*ft)	5718.49	2437.83	42.6%	Pass
Pier Flexure (Comp.) (kip*ft)	5163.92	2377.00	46.0%	Pass
Pier Compression (kip)	17184.96	65.16	0.4%	Pass
Pad Flexure (kip*ft)	1228.11	855.81	69.7%	Pass
Pad Shear - 1-way (kips)	674.44	143.97	21.3%	Pass
Pad Shear - 2-way (ksi)	0.16	0.03	17.9%	Pass

Soil Rating: 42.6%
 Structural Rating: 69.7%

Pier Properties		
Pier Shape:	Square	
Pier Diameter, d_{pier} :	6.0	ft
Ext. Above Grade, E:	0.5	ft
Pier Rebar Size, S_c :	11	
Pier Rebar Quantity, m_c :	26	
Pier Tie/Spiral Size, S_t :	4	
Pier Tie/Spiral Quantity, m_t :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D:	7.0	ft
Pad Width, W:	22.0	ft
Pad Thickness, T:	3.0	ft
Pad Rebar Size, S_p :	10	
Pad Rebar Quantity, m_p :	7	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60000	psi
Concrete Compressive Strength, F'_c :	3000	psi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	116	pcf
Ultimate Net Bearing, Q_{net} :	59.400	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	45	degrees
SPT Blow Count, N_{blows} :	100	
Base Friction, μ :	0.5	
Neglected Depth, N:	3.3	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw:	None	ft

← Toggle between Gross and Net



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

SPRINT Existing Facility

Site ID: CT54XC726

Stafford/Pragyl/SSUSA
175 Stafford Street
Stafford, CT 06077

July 26, 2018

EBI Project Number: 6218005225

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	7.04 %



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July 26, 2018

SPRINT

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

Emissions Analysis for Site: **CT54XC726 – Stafford/Pragyl/SSUSA**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **175 Stafford Street, Stafford, 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 **175 Stafford Street, Stafford, 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 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.



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- 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 **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, 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 **152 feet** above ground level (AGL) for **Sector A**, **152 feet** above ground level (AGL) for **Sector B** and **152 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.



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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):	152 feet	Height (AGL):	152 feet	Height (AGL):	152 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%:	1.54 %	Antenna B1 MPE%:	1.54 %	Antenna C1 MPE%:	1.54 %
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):	152 feet	Height (AGL):	152 feet	Height (AGL):	152 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%:	1.05 %	Antenna B2 MPE%:	1.05 %	Antenna C2 MPE%:	1.05 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.59 %
AT&T	1.91 %
Verizon Wireless	2.54 %
Site Total MPE %:	7.04 %

SPRINT Sector A Total:	2.59 %
SPRINT Sector B Total:	2.59 %
SPRINT Sector C Total:	2.59 %
Site Total:	7.04 %

SPRINT Frequency Band / Technology Max Power Values (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	152	0.64	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	152	3.18	850 MHz	567	0.56%
Sprint 1900 MHz (PCS) CDMA	5	511.82	152	4.32	1900 MHz (PCS)	1000	0.43%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	152	4.32	1900 MHz (PCS)	1000	0.43%
Sprint 2500 MHz (BRS) LTE	8	778.09	152	10.50	2500 MHz (BRS)	1000	1.05%
						Total:	2.59%



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:	2.59 %
Sector B:	2.59 %
Sector C:	2.59 %
SPRINT Maximum MPE % (per sector):	2.59 %
Site Total:	7.04 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **7.04 %** 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.

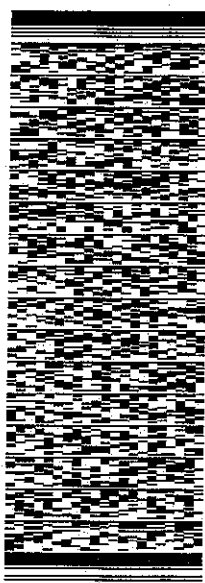
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100%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

ORIGIN ID:BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5800
WOODBURY MA 01804
UNITED STATES US

SHIP DATE: 27/JUL/18
ACTWGT: 0.50 LB
CAD: 104924191/MNET4040
BILL SENDER

TO HARRY & NANCY PRAGL
HARRY & NANCY PRAGL
175 STAFFORD STREET
BOX 154
STAFFORD SPRINGS CT 06076
REF: 17666930
DEPT:
PO:
INV: (889) 884-7190
DEPT:

552J2B532/DCA5



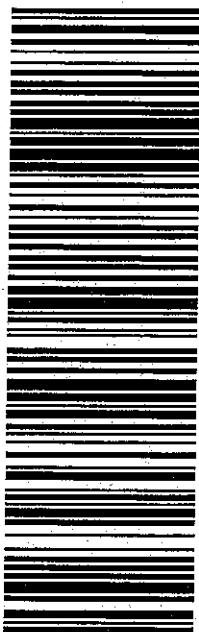
J182218372201ur

TRK# 7728 3856 4568
[0201]

MON - 30 JUL 10:30A
PRIORITY OVERNIGHT

SE QCWA

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CT-US BDL



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Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, July 30, 2018 9:29 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772838564568 Delivered

Your package has been delivered

Tracking # 772838564568

Ship date:
Fri, 7/27/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Mon, 7/30/2018 9:24
am

Harry & Nancy Pragl
Harry & Nancy Pragl
175 Stafford Street
Box 154
STAFFORD SPRINGS, CT
06076
US



Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number: 772838564568

Status: Delivered: 07/30/2018 09:24 AM
Signed for By: Signature not required

Reference: 1766.6680

Signed for by: Signature not required

Delivery location: STAFFORD SPRINGS, CT

Delivered to: Residence

Service type: FedEx Priority Overnight®

Packaging type: FedEx® Envelope

Number of pieces: 1

Weight: 1.00 lb.

Special handling/Services: Deliver Weekday
Residential Delivery

Standard transit: 7/30/2018 by 10:30 am

ORIGIN: D3BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5900
WOBURN, MA 01804
UNITED STATES US

SHIP DATE: 27 JUL 18
ACTWGT: 0.50 LB
CAD: 104924197/NET4040

BILL SENDER

TO FIRST SELECTWOMEN-MARY MITTA

TOWN OF STAFFORD SPRINGS

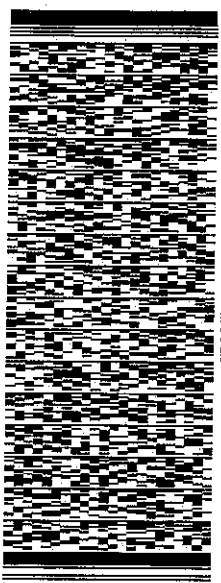
1 MAIN STREET

WARREN MEMORIAL TOWN HALL

STAFFORD SPRINGS CT 06076

(860) 884-1777 REF: 17665930
N.V. DEPT:
P.O.

552.026532/DCA5



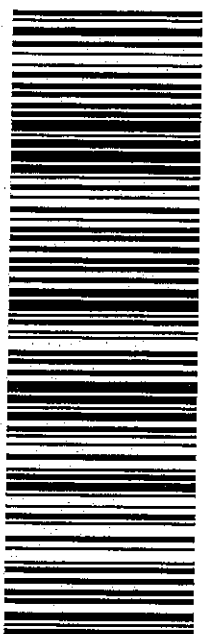
J182018072201uv

TRK# 7728 3851 7161
0201

MON - 30 JUL 10:30A
PRIORITY OVERNIGHT

SE QCWA

06076
CT-US BDL



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Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, July 30, 2018 8:56 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772838517161 Delivered

Your package has been delivered

Tracking # 772838517161

Ship date:
Fri, 7/27/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Mon, 7/30/2018 8:51
am

First Selectwomen-Mary Mitta
Town of Stafford Springs
1 Main Street
Warren Memorial Town Hall
STAFFORD SPRINGS, CT
06076
US



Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number: 772838517161

Status: Delivered: 07/30/2018 08:51 AM Signed for By: M.MITTA

Reference: 1766.6680

Signed for by: M.MITTA

Delivery location: STAFFORD SPRINGS, CT

Delivered to: Receptionist/Front Desk

Service type: FedEx Priority Overnight®

Packaging type: FedEx® Envelope

Number of pieces: 1

Weight: 1.00 lb.

Special handling/Services: Deliver Weekday

Standard transit: 7/30/2018 by 10:30 am

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