



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: 806355**  
**Sprint Site ID: CT52XC084**  
**281 Wood House Road, Fairfield, CT 06432**  
**Latitude: 41° 11' 45.3"/ Longitude: -73° 16' 52.9"**

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas and one (1) microwave dish (to be removed) at the 128-foot level of the existing 171-foot monopole tower at 281 Woodhouse Road in Fairfield, CT. The tower is owned by Crown Castle. The property is owned by Ranjan and Moitrayee Ghosh. Sprint now intends to replace three (3) antennas with three (3) new antennas, add three (3) antennas. These antennas would be installed at the 128-foot level of the tower. Sprint also intends to install twelve (12) RRH's, three (3) coaxial cables, one (1) Hybrid.

This facility was approved by the Connecticut Siting Council in Docket No. 86 on February 17, 1988. 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-Selectman Michael C. Tetreau, Town of Fairfield, Planning Director Mr. Jim Wendt Town of Fairfield as well as the property owner, and Crown Castle is the tower owner.

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

Melanie A. Bachman

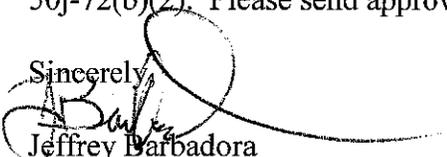
July 27, 2018

Page 2

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](mailto: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-Selectman Michael C. Tetreau  
Town of Fairfield  
725 Old Post Road  
Fairfield, CT 06824

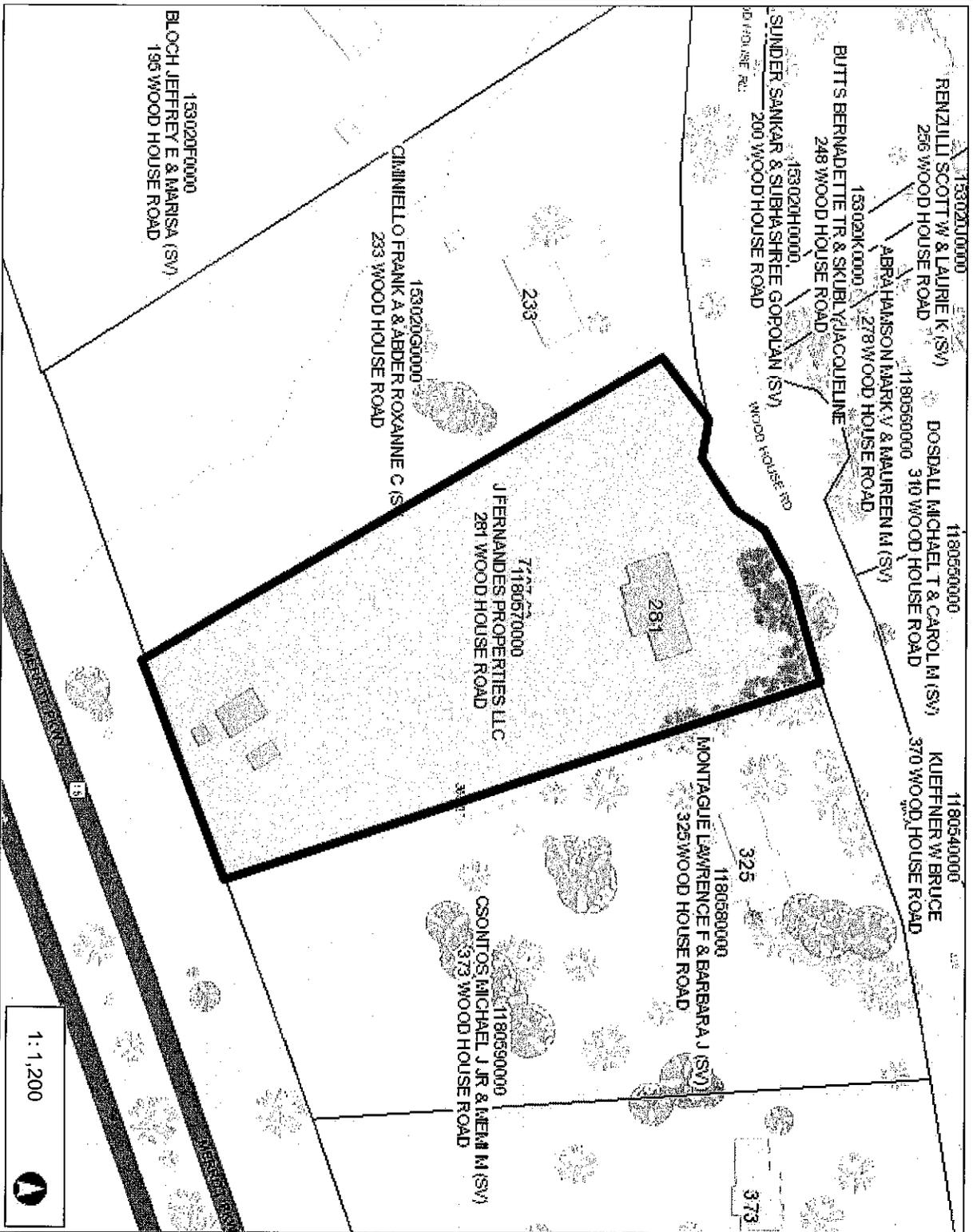
Ranjan & Moitrayee Ghosh  
11 Peterson Road  
Palmer, MA 01069

Town Plan & Zoning Department Mr. Jim Wendt  
Town of Fairfield  
725 Old Post Road  
Fairfield, CT 06824



# Town of Fairfield

# Title



WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
 Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

1 : 1,200



- Legend**
- Parcels
  - Local Basin Boundary
    - Major
    - Regional
    - Subregional
    - Local
  - Local Basin Area



# 281 WOOD HOUSE ROAD

**Location** 281 WOOD HOUSE ROAD

**Mblu** 118/ 57/ / /

**Acct#** 06700

**Owner** J FERNANDES PROPERTIES  
LLC

**Assessment** \$529,200

**Appraisal** \$756,000

**PID** 8854

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$387,400	\$368,600	\$756,000

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$271,180	\$258,020	\$529,200

## Owner of Record

**Owner** J FERNANDES PROPERTIES LLC  
**Co-Owner**  
**Address** 281 WOOD HOUSE ROAD  
FAIRFIELD, CT 06824-1823

**Sale Price** \$0  
**Certificate**  
**Book & Page** 5620/ 132  
**Sale Date** 12/08/2017  
**Instrument** 02

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
J FERNANDES PROPERTIES LLC	\$0		5620/ 132	02	12/08/2017
J FERNANDES HOME IMPROVEMENT	\$450,000		5592/ 251	25	09/20/2017
GHOSH MOITRAYEE & RANJAN	\$172,000		706/ 293		06/13/1983

## Building Information

### Building 1 : Section 1

**Year Built:** 1968  
**Living Area:** 2,426  
**Replacement Cost:** \$444,461  
**Building Percent** 69  
**Good:**

**Replacement Cost**

**Less Depreciation:** \$306,700

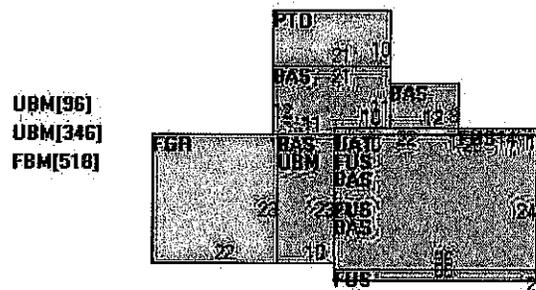
Building Attributes	
Field	Description
Style	Colonial
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Average
Kitchen Style:	Average
FCPZ	

**Building Photo**



(<http://images.vgsi.com/photos2/FairfieldCTPhotos//\02\04\39\1>)

**Building Layout**



(<http://images.vgsi.com/photos2/FairfieldCTPhotos//Sketches/88>)

Building Sub-Areas (sq ft)			
Code	Description	Gross Area	Living Area
BAS	First Floor	1,454	1,454
FUS	Upper Story, Finished	972	972
FBM	Basement, Finished	518	0
FGR	Garage	506	0
PTO	Patio	210	0
UAT	Attic, Unfinished	864	0
UBM	Basement, Unfinished	672	0
		5,196	2,426

**Extra Features**

Extra Features				
Code	Description	Size	Value	Bldg #
FPL3	2.0 STORY FIREPLACE	1 UNITS	\$5,200	1

FPL1	1.0 STORY FIREPLACE	1 UNITS	\$3,500	1
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**Land**

**Land Use**

**Use Code** 1010  
**Description** Single Fam MDL-01  
**Zone** AAA  
**Neighborhood** 0057  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 2.00  
**Depth** 0  
**Assessed Value** \$258,020  
**Appraised Value** \$368,600

**Outbuildings**

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
	UTIL BLD			1	\$31,000	1
	UTIL BLD			1	\$31,000	1
	EQUIP SHED			1	\$10,000	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$387,400	\$368,600	\$756,000
2016	\$387,400	\$368,600	\$756,000
2015	\$387,400	\$368,600	\$756,000

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$271,180	\$258,020	\$529,200
2016	\$271,180	\$258,020	\$529,200
2015	\$271,180	\$258,020	\$529,200

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# STATE OF CONNECTICUT

BK

## CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401  
New Britain, Connecticut 06051  
Phone: 827-7682

### CERTIFICATE

OF

### ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

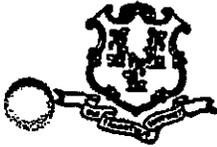
Pursuant to section 16-50k of the General Statutes of Connecticut, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need in Docket No. 86 to Metro Mobile CTS of Fairfield County Inc., for tower sites in Greenwich and Fairfield, Connecticut. 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 February 17, 1988.

By order of the Council,

*Gloria Dibble Pond*  
Gloria Dibble Pond, Chairperson

February 17, 1988

1009E



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401  
New Britain, Connecticut 06051-4225  
Phone: 827-7682

August 6, 1992

David S. Malko  
Manager, Engineering and  
Regulatory Services  
Bell Atlantic Metro Mobile  
20 Alexander Drive  
Wallingford, CT 06492

RE: Metro Mobile CTS of Fairfield County, Inc., notice of intent to allow Springwich Cellular Limited Partnership to install cellular telecommunications antennas and associated equipment on an existing facility site located off Wood House Road, Fairfield, Connecticut.

Dear Mr. Malko:

At a meeting held August 4, 1992, the Connecticut Siting Council acknowledged your notice of an exempt modification for an existing tower site on Wood House Road in Fairfield, Connecticut.

As proposed in your notice dated July 21, 1992, the modification is in compliance with the exception criteria specified in Regulations of State Agencies 16-50j-72 for changes to an existing facility site that would not increase the tower height, extend the boundary of the tower site, increase noise levels at the tower site boundary by 6 decibels, and add radio frequency transmitting capability which increases the total power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Section 22a-162 of the Connecticut General Statutes.

The Council is pleased to acknowledge this first shared use of existing cellular towers by two cellular carriers which meets the Council's long-time goal and the public interest of sharing facilities to avoid the proliferation of additional tower structures.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Mortimer A. Gelston".

Mortimer A. Gelston  
Chairman

MAG/TEF/cp

cc: Peter Van Wilgan

5766E-3

Bell Atlantic Metro Mobile  
20 Alexander Drive  
P.O. Box 5029  
Wallingford, CT 06492  
203 269-8858

July 21, 1992

Connecticut Siting Council  
136 Main Street  
Suite 401  
New Britain, Connecticut 06051

Attention: Joel M. Rinebold, Executive Director

Re: Metro Mobile CTS of Fairfield County, Inc. - Fairfield Cell

Dear Mr. Rinebold:

Metro Mobile CTS of Fairfield County, Inc. ("Metro Mobile" or the "Company") plans to allow Springwich Cellular Limited Partnership to install cellular antennas and related equipment at the existing tower facility owned by Metro Mobile in Fairfield, Connecticut. Please accept this letter as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b).

The existing facility is a 160' self supporting monopole tower located on a 70' by 70' parcel off of Wood House Road in Fairfield. Metro Mobile plans to add a 15' by 21' addition to the existing equipment building while Springwich Cellular Limited Partnership plans to install 9 antennas to the existing tower and cellular equipment to the building addition.

The addition of Springwich Cellular's antennas and equipment and Metro Mobile's building addition to the tower site does not constitute a modification as defined in C.G.S. Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, Metro Mobile's and Springwich Cellular's planned use of the facility falls squarely within those activities which explicitly do not constitute a modification to an existing tower, as set forth in R.C.S.A. Section 16-50j-72(b).

First, the height of the existing facility will be unaffected. Nine panel type transmit/receive antennas, Model DB-834-RF, will be face mounted on the lower platform at 144' AGL. The antennas will extend upward approximately 3 1/2' from the 144' level points. Thus, Springwich Cellular's antennas will extend no higher than the 148' level of the 173' tower including existing Metro Mobile appurtenances.

Second, the proposed addition will not expand the site (See attached site plan). Metro Mobile's equipment building addition to accommodate Springwich Cellular's equipment will extend 15' from the existing building and will be within the leased parcel. No strengthening of the tower is necessary in order for the tower to support the additional loading.

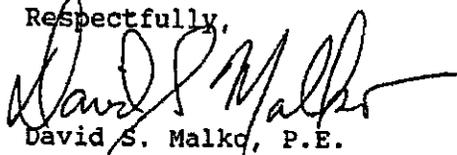
Third, the proposed addition will not increase the noise levels at the existing facility by six decibels or more. Except during construction, the only noise associate with Springwrich Cellular's equipment will be from air conditioning, when in use.

Fourth, Springwrich Cellular's additional antennas will not increase the total radio frequency electromagnetic radiation power density measured at the tower site boundary to a level at or above the State Department of Environmental Protection standard. A worst case calculation at the base of the tower indicates that Springwrich Cellular's antennas combined with Metro Mobile's operation would result in a power density level of 0.15964 mW/cm<sup>2</sup>. This power density level is 18.3% of the standard for cellular frequencies of 2.92mW/cm<sup>2</sup>.

For the foregoing reasons, Metro Mobile respectfully submits that the planned addition of Springwrich Cellular's antennas and equipment, and Metro Mobile's building addition to the existing facility, constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b).

By copy of this letter, the chief elected official of the Town of Fairfield is receiving written notice of the intent to construct an exempt modification to the Metro Mobile facility in Fairfield, as required by R.C.S.A. Section 16-50j-73.

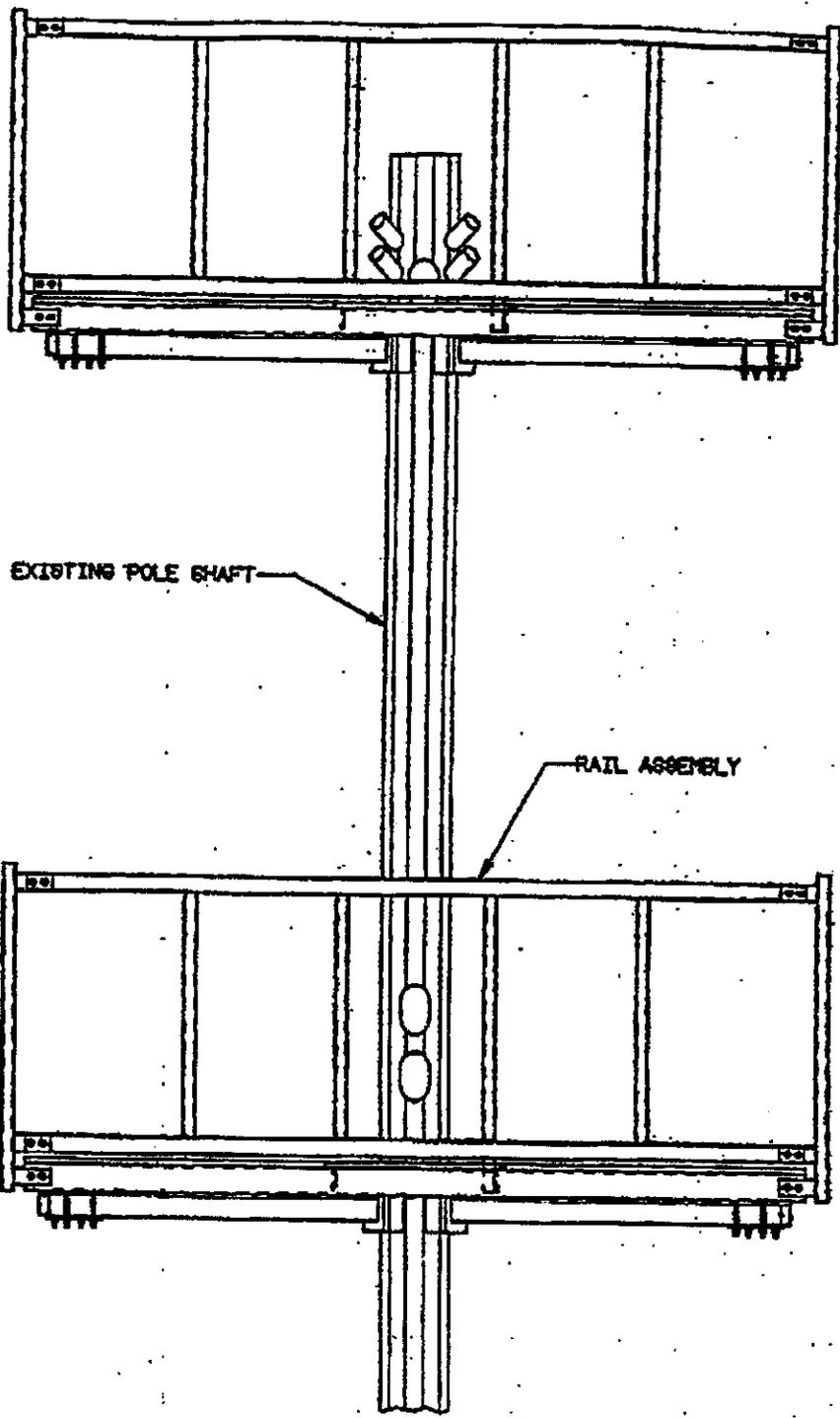
Respectfully,



David S. Malko, P.E.  
Manager, Engineering and Regulatory Services

Attachments

cc: Jacquelyn C. Durrell, 1st Selectman



EXISTING POLE SHAFT

RAIL ASSEMBLY

METROMOBILE - CT  
 PROPOSED PLATFORM MODIFICATION  
 FOR THE EXISTING FAIRFIELD SITE

SCALE	FROM	SCALE
10750-68	1/4" = 1'	NONE
160 FT		[04-01-92]



**VERMONT**  
 VALLEY DESIGNER, INC.  
 1607 BRIDGE ST.  
 WASHINGTON, VT 05691

Bell Atlantic Metro Mobile  
20 Alexander Drive  
P.O. Box 5029  
Wallingford, CT 06492  
203 269-8858

July 31, 1992

Mr. Joel M. Rinebold, Executive Director  
Connecticut Siting Council  
136 Main Street  
New Britain, Connecticut 06051

Re: Fairfield Exempt Modification

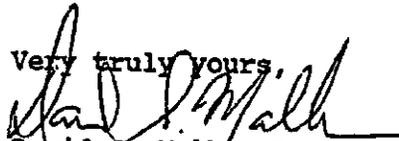
Dear Joel:

This is to provide you additional information in response to the recent memorandum from the Town of Fairfield. As indicated in the original filing, Metro Mobile plans to expand its existing building to accommodate a Springwich cell site. This building expansion will be accomplished by adding two new sections, identical in all respect, to the two sections currently in place. These sections will house the Springwich Cellular equipment which, like ours, requires heating, air-conditioning and ventilation. Enclosed are a copy of the manufacture's engineered drawings and our electrical, mechanical, structural and grounding plans for your information and/or review. Also enclosed are the Valmont drawings for the platform reworking necessary to accommodate Springwich's antennas.

Our procedure would be to provide these plans and drawings to the town's building department in order to secure the necessary building permits after receipt of the Council's acknowledgement of our exempt modification filing.

I trust this information will answer any outstanding questions raised by either the town or your staff such that a favorable ruling can be issued at your upcoming August 4, 1992 meeting. As always, Metro Mobile remains committed to our common goal of shared tower use as a means of minimizing the proliferation of towers wherever possible.

Very truly yours,

  
David S. Malko, P.E.  
Manager, Engineering &  
Regulatory Services

Enclosures

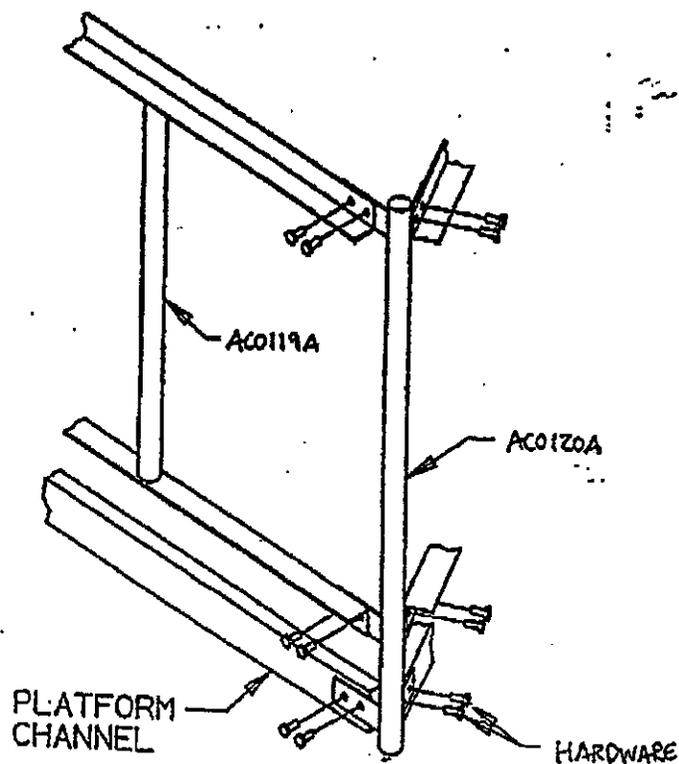
cc: Joseph E. Devonshuk, Director of TPZ

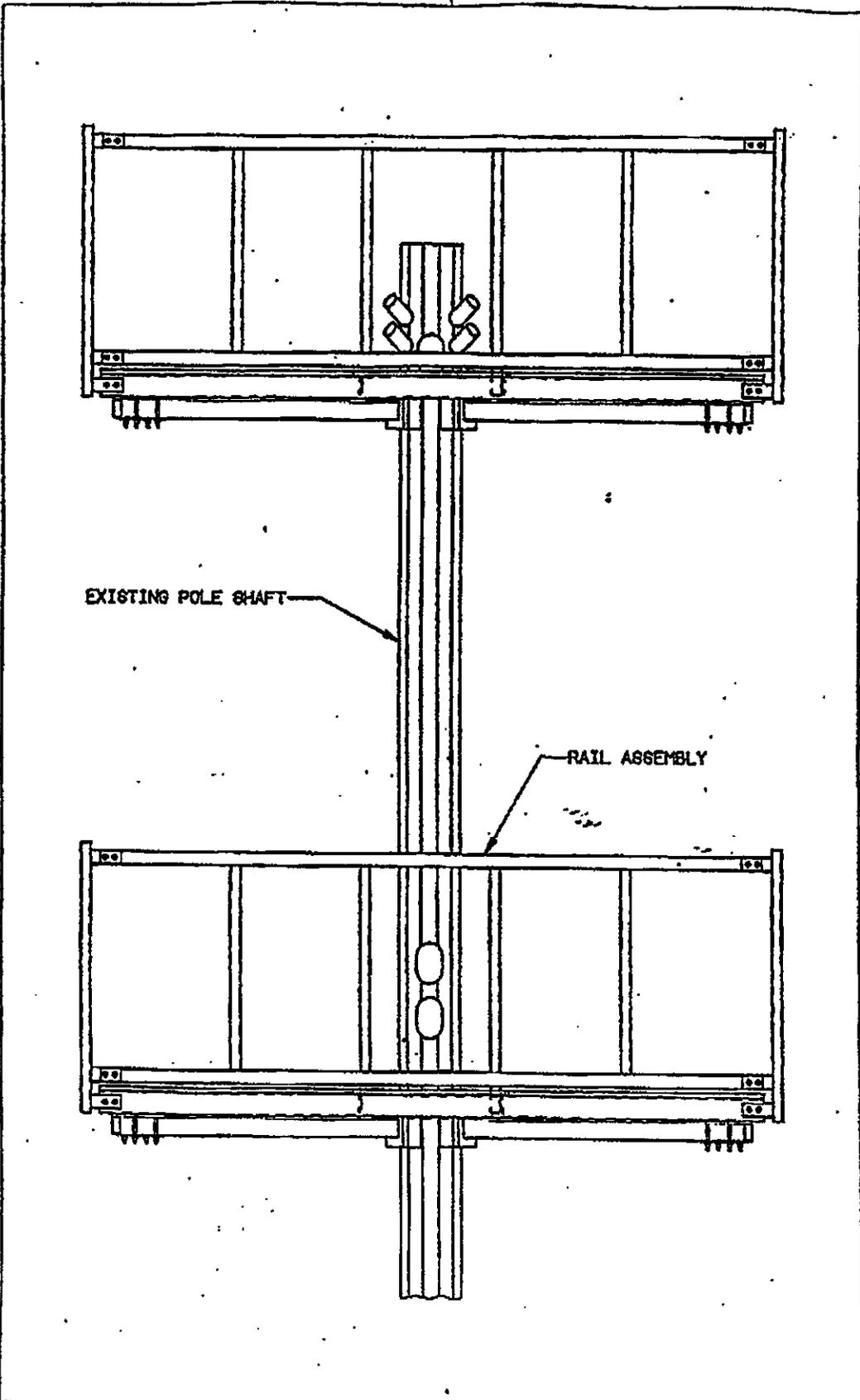
JUNE 24, 1992

ADDITIONAL PARTS FOR ADDING RAILS TO TWO (2) PLATFORMS:

PART NO	DESCRIPTION	WEIGHT	QTY
AC0119A	PLATFORM RAIL ASSEMBLY angle - 3 x 3 x 1/4 x 12'-10" lg pipe - 2" schedule 40 x 3'-8.25" lg	183# 2ea 4ea	6
AC0120A	CORNER POST ASSEMBLY pipe - 2" schedule 40 x 4'-11" lg tabs - 1/2 x 3 x 0'-7 1/4"	28# 1ea 6ea	6
161147	5/8" dia x 1 1/2" lg bolt - A325		76
333014	5/8" dia lock nut - A563		76

Total price for both rail kits and hardware: \$1,750.00





031001  
 METROMOBILE - CT  
 PROPOSED PLATFORM MODIFICATION  
 FOR THE EXISTING FAIRFIELD SITE

PROJECT	DATE	SCALE
10730-66	MAL	NONE
160 FT	DATE	04-01-92



**VALMONT**  
 VALMONT INDUSTRIES, INC.  
 VALLEY SPRING, MISSOURI, U.S.A.

TOWN OF FAIRFIELD

INTER-OFFICE CORRESPONDENCE

TO: Sam D. Koutas, Executive Assistant to First Selectman  
FROM: Joseph E. Devonshuk, Director of TPZ.   
SUBJECT: Bell Atlantic Metro Mobile  
DATE: July 29, 1992

This memo is in response to the letters from the Bell Atlantic Metro Mobile concerning expansion of their existing tower facility.

Please be advised that based on the information submitted, the Town Plan and Zoning department feels that the addition of Springwich Cellular's antennas and equipment and Metro Mobiles building addition to the tower site does constitute a modification and does significantly change and alter the physical characteristics of this facility.

This department, therefore, requests additional information including engineered building plans for the 15' by 21' addition to the existing equipment building and for the installation of the nine (9) antennas. A more specific explanation of the use of this facility is, also, required including an explanation for the need of air-conditioning equipment. Section 5.1.4. of the Fairfield Zoning Regulations states that public utility substations are subject to the securing of a special exception from the Town Plan and Zoning Commission.

This requested information is essential to determine if a special exception is required. If you have any questions or need any further comment please do not hesitate to contact me.

cc: David S. Malko, P.E., Bell Atlantic Metro Mobile  
Joel M. Rinebond, Executive Director, CT. Siting Council



**Town of Fairfield**  
FAIRFIELD, CONNECTICUT 06430

tel # 256-3000

Jacquelyn C. Durrell  
First Selectman

July 29, 1992

Mr. David S. Malko, P.E.  
Manager, Engineering and Regulatory Services  
Bell Atlantic Metro Mobile  
20 Alexander Drive  
P.O. Box 5029  
Wallingford, CT 06492

Dear Mr. Malkos:

Please be advised that based on the information submitted, the Fairfield Town Plan and Zoning Department feels that the addition of Springwich Cellular's antennas and equipment and Metro Mobile's building addition to the tower site does constitute a modification and does significantly change and alter the physical characteristics of this facility.

Town Plan and Zoning, therefore, requests additional information including engineered building plans for the 15' by 21' addition to the existing equipment building and for the installation of the nine (9) antennas. A more specific explanation of the use of this facility is, also, required including an explanation for the need of air-conditioning equipment. Section 5.1.4. of the Fairfield Zoning Regulations states that public utility substations are subject to the securing of a special exception from the Town Plan and Zoning Commission.

This requested information is essential to determine if a special exception is required. If you have any questions or need any further comment please do not hesitate to contact Mr. Joe Devonshuk, Planning Director, or me.

Sincerely,

  
Sam D. Koutas  
Executive Assistant

Sublease  
 7/30/92 (in 1st option)

Telecom Information Management System (TIMS) v1.0B CTS/M  
 Lease Abstract Module (revision 4.4)

**Property Information**

Site Number: \_\_\_\_\_  
 Property Type: \_\_\_\_\_  
 Height (ft): 0  
 Alternate Name: \_\_\_\_\_

Name: **PERFORMANCE CELLULAR LTD**  
 Address 1: **555 LONG WHARF**  
 Address 2: **9TH FLOOR**  
 City/State: **NEW HAVEN CT 06511**

Ownership:  Leasehold  Fee Simple

**Owner Information**      Owner ID: 0

**Lease Information**

Name: **METRO MOBILE CTS OF FAIRFIELD CTY.**  
 St. Address: **180 WASHINGTON VALLEY RD.**  
 City/State: **RED BANK NJ 07921**

**Lease Information**

Counter #: **200**      Master Lease?   
 Base Rent: **1,000 (m)**      Purchase?   
 Annual Base Amount: **\$0.00**      Option?   
 Renewal: **0**

Lease Term: **\*option to renew same as overlease, if sublease still in effect, w/ 90 days notice.**

**Lease Critical Dates**

Date Type	Schedule Date	Notify Date	Action Date	Action Amount	Note
				\$0.00	*
				\$0.00	*
				\$0.00	*

**Lease Increments**

Increase Type	Start	Notify Date	Action Date	Period (months)	Increase Amount	Note

Standard Lease?       Additional Insurance Required?   
 Can Sublease?       Certificate Required?

**Standard Lease Notes:** **\*SUBLEASE**

**Insurance Notes:**

**Sublease Language:**  
 sublease to expire one (1) day prior to term of overlease.  
 \*sublessor to furnish/install a 290

**Title Notes:**  
 NO consents req'd from overland local to this sublease.

Parcel: 4,773 A  
 nine (9) transmit cellular receive antennas mounted on existing 160 FT tower  
 \*in addition to existing shelter/all antennas cables and loose cables to sublessor's equipment bldg. sublessor to provide cable rack support

Bell Atlantic Metro Mobile  
20 Alexander Drive  
P.O. Box 5029  
Wallingford, CT 06492  
203 269-8858

July 21, 1992

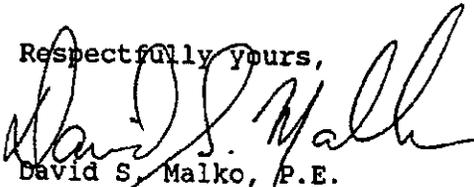
The Honorable Jacquelyn C. Durrell  
Office of the First Selectman  
725 Old Post Road  
Fairfield, Connecticut 06430

Dear Ms. Durrell:

Metro Mobile CTS of Fairfield County, Inc. and Springwich Cellular Limited Partnership plan to install cellular antennas and related equipment at an existing tower site owned by Metro Mobile CTS of Fairfield County, Inc. in Fairfield, Connecticut. As required by Section 16-50j-73 of the Regulations of Connecticut State Agencies (R.C.S.A.), please accept this letter and the attached letter to the Connecticut Siting Council dated May 27, 1992, as notice of intent of our exempt modification to an existing tower pursuant to R.C.S.A. Section 16-50j-72(b).

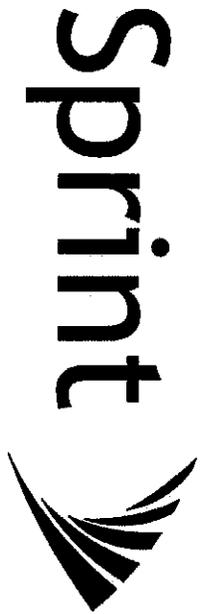
The attached letter fully sets forth Metro Mobile's proposal. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please contact the undersigned at 294-7403, or Mr. Joel M. Rinebold, Executive Director, Connecticut Siting Council at 827-7682.

Respectfully yours,



David S. Malko, P.E.  
Manager, Engineering and Regulatory Services

Attachments

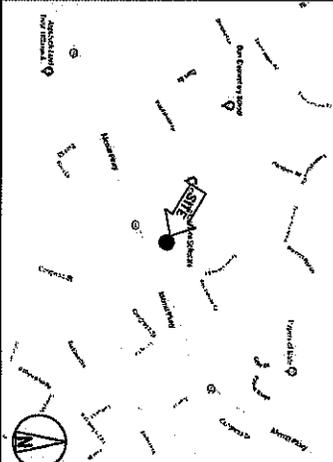


**PROJECT:** DO, MACRO UPGRADE  
**SITE NAME:** BRG 126 943086  
**SITE CASCADE:** CT52XC084  
**SITE NUMBER:** 806355  
**SITE ADDRESS:** 281 WOOD HOUSE ROAD  
 FAIRFIELD, CT 06824  
**SITE TYPE:** MONOPOLE  
**MARKET:** NEW ENGLAND

**SITE INFORMATION**

**TOWER OWNER:** SPRINT  
 2000 WASHINGTON DRIVE  
 WASHINGTON, PA 15371  
 (703) 405-8005  
**LATITUDE (NAD83):**  
 41° 11' 45.3" N  
**LONGITUDE (NAD83):**  
 -72° 58' 1.84" W  
**COUNTY:**  
 FAIRFIELD  
**ZONING JURISDICTION:**  
 CITY OF FAIRFIELD  
**ZONING DISTRICT:**  
 CO-1  
**OWNER/COMPANY:**  
 UNITED LUMINATING COMPANY  
 (800) 722-6384  
**SERIAL CONSTRUCTION:**  
 1B0  
**CROWN P/N:**  
 SCOT WARDEN  
 (207) 238-9228

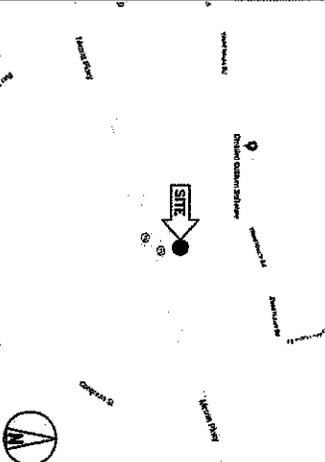
**AREA MAP**



**PROJECT DESCRIPTION**

- SPRINT PROPOSES TO MODIFY AN EXISTING UNARMED TELECOMMUNICATIONS FACILITY.
- INSTALL 2.5 EQUIPMENT RACKS EXISTING N.W. MANS CABINET
- REMOVE (2) ANTENNAS AND (1) MIDDLEWATER DISK
- REMOVE (2) PANEL ANTENNAS, (2) 800/800MHZ, (2) 2.5GHZ
- INSTALL (12) PRRS, (2) 1900MHZ, (6) 800MHZ, (2) 2.5GHZ
- INSTALL (4) HUBS/ CABLES
- REMOVE (6) COAX CABLES
- REMOVE (2) STAYDOWN AWGS
- REMOVE (1) AMERICAN PLATFORM (RUPP-406-140)
- RELOCATE (1) NW DASH TO NEW PLATFORM

**LOCATION MAP**



**APPLICABLE CODES**

1. ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE LOCAL ORDINANCES AND REGULATIONS NOTING IN THESE PLANS IS TO BE CONSIDERED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
2. INTERNATIONAL BUILDING CODE (2015 IBC)
3. IRC-2012 OR LATEST EDITION
4. 2011 NATIONAL ELECTRICAL CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES.
6. LOCAL BUILDING CODE
7. CITY/COUNTY ORDINANCES



**DRAWING INDEX**

SHEET NO.	TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
SP-4	SPRINT SPECIFICATIONS	0
SP-5	SPRINT SPECIFICATIONS	0
SP-6	SPRINT SPECIFICATIONS	0
SP-7	SPRINT SPECIFICATIONS	0
SP-8	SPRINT SPECIFICATIONS	0
SP-9	SPRINT SPECIFICATIONS	0
SP-10	SPRINT SPECIFICATIONS	0
SP-11	SPRINT SPECIFICATIONS	0
SP-12	SPRINT SPECIFICATIONS	0
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SP-14	SPRINT SPECIFICATIONS	0
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SP-19	SPRINT SPECIFICATIONS	0
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SP-99	SPRINT SPECIFICATIONS	0
SP-100	SPRINT SPECIFICATIONS	0

**PROFESSIONAL ENGINEER**  
 STATE OF CONNECTICUT  
 LICENSE NO. 10188  
 JOHN W. BROWN  
 REGISTERED PROFESSIONAL ENGINEER  
 10188

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REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR PERMIT	04/20/16	RSB	0
2	ISSUED FOR REVIEW	05/27/16	RSB	1

**SITE NAME:** BRG 126 943086  
**SITE CASCADE:** CT52XC084  
**SITE ADDRESS:** 281 WOOD HOUSE ROAD  
 FAIRFIELD, CT 06824

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

**SPRINT**  
 8500 Signal Parkway  
 Overland Park, Kansas 66207

**INFINIGY**  
 FROM ZERO TO INFINIGY  
 This solution can enhance  
 1032 Westport Lane, Suite 411, Albany, NY 12206  
 Phone: 518-486-0729 | Fax: 518-486-0729  
 Web: www.infigny.com  
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**CROWN CASTLE**

**STATE OF CONNECTICUT**  
 REGISTERED PROFESSIONAL ENGINEER  
 LICENSE NO. 10188  
 JOHN W. BROWN



**CONTINUE FROM SP-1**

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND STABILIZATION, FOUNDATION, AND ROOF AND FLOOR STRENGTHENING AND CHAIR-ROD REPAIR TREATMENTS.
3. MAINTAIN AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF GROUND ANCHORS AND EMBEDDED AND TIE-ROD BACKFILL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEMS.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW RIGID INSULATIONS AND MORTARWORKS.
7. INSTALL "H-FRAMERS", CORNERS AND SHELDERS AS INDICATED.
8. INSTALL ROOFS, ACCESS WAYS, CURBS AND DOWNS AS INDICATED.
9. ACCORDINGLY REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURES AND PLATFORMS.
11. PROVIDE SLOES AND EQUIPMENT PLATFORMS.
12. INSTALL COMPACTED FILLING, SOFT 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 FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWER, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RACKS, APPROXIMATE, GPS, COAXIAL, WIRING, ANTENNAS, CABLES, AND OTHER EQUIPMENT.
18. PERFORM DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL LOGS, AND RECORDS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDOWNERS.
19. REPAIR ANTENNA AND COAX SWEEP TESTING AND MAKE AIR AND ALL OTHER NECESSARY CORRECTIONS.
20. RESUME ON SITE UNHURLED THROUGHOUT HAND-OFF AND INTERSECTION TO PLACED "ON AIR".

**1.2 GENERAL REQUIREMENTS FOR ONL CONSTRUCTION:**

- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL UTILITIES, TRENCHES, TOWER FOUNDATIONS, AND SURPLUS MATERIALS.
- B. EQUIPMENT RIGS SHALL AT ALL TIMES BE MAINTAINED "BROAD CLEAR" AND CLEAR OF DEBRIS.
- C. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT AND LOCATE ANY NEARBY EXISTING UTILITIES.
1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ADVISED OR OTHERWISE LIMITED, CONTRACTOR AND ALL OTHER PERSONS INVOLVED IN THE WORK SHALL STOP WORK IMMEDIATELY AND ALL OTHER PERSONS INVOLVED SHALL STOP WORK IMMEDIATELY. CONTRACTOR SHALL NOT BE REQUIRED TO PROCEED WITH THE WORK UNLESS THE HAZARDOUS CONDITION IS RESOLVED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS EXPOSE INDIVIDUALS TO THE HAZARD.

**SECTION 31.400 - SUBMITTALS & TESTS**

**PART 1 - GENERAL**

- 1.1 THE WORK THESE STANDARD CONSTRUCTION SPECIFICATIONS IN COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT SHALL 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.

**1.3 SUBMITTALS**

- A. THE WORK IN ALL SECTIONS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
- B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL:

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PILES, AND CONCRETE PAVEMENT.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL REMEDIES FOR INTERIOR SPACES, F.A.M.T.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN.

6. ATTEMPTS, AT THE CONTRACTOR'S REQUEST, ANY ATTEMPTS TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SPECIFIED TO SITE. SPRINT WILL REVIEW AND BE RESPONSIBLE FOR THE RESULTS OF APPROVAL. SPRINT SHALL NOT BE RESPONSIBLE FOR THE RESULTS OF APPROVAL. SPRINT SHALL NOT BE RESPONSIBLE FOR THE RESULTS OF APPROVAL. SPRINT SHALL NOT BE RESPONSIBLE FOR THE RESULTS OF APPROVAL.

**1.4 TESTS AND INSPECTIONS:**

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROBLEM RESOLUTIONS.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEP AND PILE TESTS PER CURRENT VERSION OF SPRINT'S ANTENNA LINE ACCEPTANCE STANDARDS.
2. ALL ANTENNA AND DOWNSHAFT USING ELECTRONIC COAXIAL.
3. MAKE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
5. REQUIRED CLASSIFICATION DOCUMENTATION INCLUDING, BUT IS NOT LIMITED TO THE FOLLOWING:
  1. AZIMUTH, DOWNSHAFT, AND UPLINK REPORT FROM ANTENNA ALIGNMENT TOOL.
  2. SPRINT'S AS-BUILT ANTENNA ALIGNMENT, DOWNSHAFT, AND UPLINK REPORT TO THE PROJECT SHEETS, SHEETS AND TESTS.
  3. REQUIRED CLASSIFICATION DOCUMENTATION INCLUDING, BUT IS NOT LIMITED TO THE FOLLOWING:
    1. ALL AVAILABLE LABORATIONAL INFORMATION
    2. SPRINT'S AS-BUILT ANTENNA ALIGNMENT TOOL (UPLINK)

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 REQUIREMENTS FOR TESTING:**

- A. THIRD PARTY TESTING AGENCY:
  1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE CONTRACTOR SHALL SELECT AND HIRE A TESTING AGENCY OR A REGULATORY ENGINEERING FIRM IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL APPLICABLE LAWS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
  2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE. EQUIPMENT TO BE USED, AND EXPERIENCE IN SOIL, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING SENS, PENET, AND OTHER METHODS IS REQUIRED.
  3. EXPERIENCE IN SOIL, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING SENS, PENET, AND OTHER METHODS IS REQUIRED.
  4. TESTING USING SENS, PENET, AND OTHER METHODS IS REQUIRED.

**3.2 REQUIRED TESTS:**

- A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  1. CONCRETE COMPRESSIVE BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION FOUNDATION AND CONCRETE FRAME.
  2. ASPHALT ROADWAY COMPACTED THROUGHOUT SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT AIR ASPHALT PAVED DRIVEWAYS.
  3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVEMENT.
  4. TESTING REQUIRED UNDER SECTION AGREEMENT BASE FOR ACCESS ROWS, PAVES AND ANCHOR LOCATIONS.
  5. STRUCTURAL LOADS/LOAD COMBINATIONS TESTS FOR THE TOWER FOUNDATION.
  6. SITE RESISTANCE TO EARTH TESTING PER DESIGN: CELL SITE GROUNDING SYSTEM DESIGN.
  7. ANTENNA AND COAX SWEEP TESTS PER SPRINT ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
  8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS.
  9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

**3.3 REQUIRED INSPECTIONS:**

- A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.
- B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONVECTUALITY DOCUMENTATION WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY IAC OR SPRINT REPRESENTATIVE.
  2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR OF CONCRETE.
  3. COORDINATION OF ALL MATERIALS, AGGREGATE SIZE PER ROWS, PAVES AND ANCHOR LOCATIONS, AND ALL OTHER MATERIALS PER COMPANY AND SPRINT REPRESENTATIVE.
  4. EARTH AND PRE-CONSTRUCTION ROOFING AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
  5. THIRD PARTY TESTING REPORTING AND PLACEMENT DOCUMENTATION BY THIRD PARTY TESTING AGENCY.
  6. ANTENNA AZIMUTH, DOWN TILT AND PER DOWN TILT TOOL, SENS/SENS REPORTS - ANTENNA ALIGNMENT TOOL (UPLINK)

PLAN REVIEWED BY:  
  
 1800 5th Parkway  
 Overland Park, Kansas 66151

PLAN REVIEWED BY:  
  
 FROM ZERO TO INFINGY  
 The address on another  
 101 West Street, 1st Floor, New York, NY 10038  
 Phone: 212-555-0123 | Fax: 212-555-0123  
 40 West 50th St

PLAN REVIEWED BY:  
  
 CROWN CASTLE

DESIGNED BY:  
  
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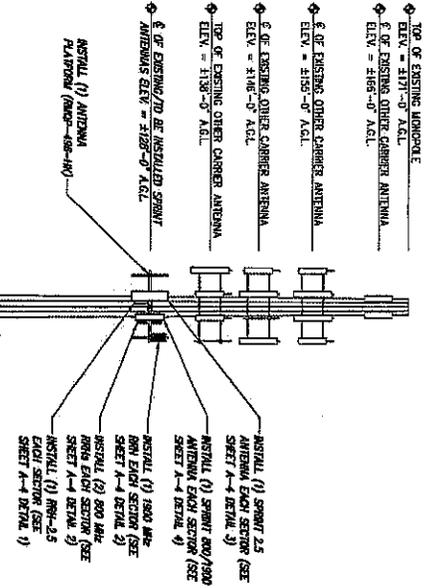
DATE	BY	REVISION

DATE: 12/6/2016  
 TIME: 12:45 PM  
 PROJECT: 281 WOOD HOUSE ROAD FAIRFIELD, CT 06424  
 SHEET DESCRIPTION: SPRINT SPECIFICATIONS  
 SHEET NUMBER: SP-2

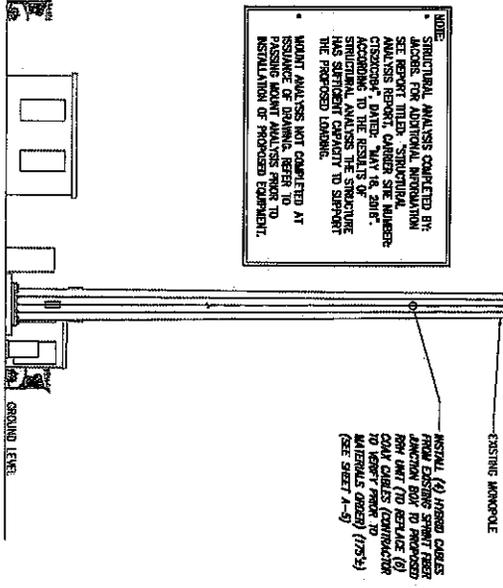




NOTE:  
SEE SHEET 2 ON A-3  
FOR ANTENNA LAYOUT

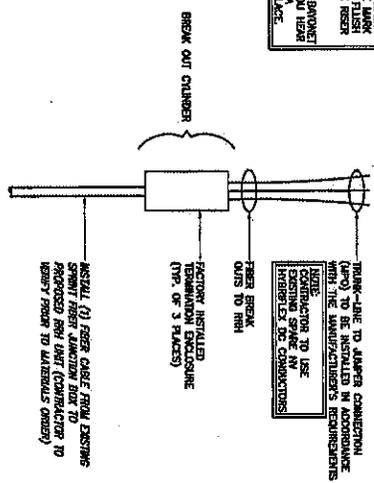


NOTE:  
STRUCTURAL ANALYSIS COMPLETED BY:  
CHECKER FOR ADDITIONAL INFORMATION  
ANALYSIS REPORT CARRIED SHEET NUMBER  
"CORRECTION" DATED MAY 18, 2017.  
ACCORDING TO THE RESULTS OF  
STRUCTURAL ANALYSIS THE STRUCTURE  
IS DEEMED ADEQUATE TO SUPPORT  
THE PROPOSED LOADS.  
MOUNT ANALYSIS NOT COMPLETED AT  
REASON OF DESIGNAL DEFICIENCY TO  
INSTALLATION OF PROPOSED EQUIPMENT.



NO SCALE 1

NOTE:  
CONTRACTOR TO LINE UP WIRE  
HANGING ON LINES AND RISE  
IN-30 CONNECTIONS AND SLACK THE  
RHS CONNECTION TO THE JUMPER  
ON THE JUMPER CONNECTION FLUSH  
AGAIN THE RHS SEAL ON THE RESER  
CONNECTION.  
CONTRACTOR TO REMOVE THE BANDNET  
A CABLE SOUND TO EXISTING A RESER  
CONNECTION IS IN PLACE.



NO SCALE 2

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RHD CENTER	AZIMUTH	REGULATED ANTENNA
1	RFS	APV17M41ALD	187'-0"	0°	(1) 1800MHz/280MHz
2	RFS	APV17M41ALD	187'-0"	120°	(1) 1800MHz/280MHz
3	RFS	APV17M41ALD	187'-0"	240°	(1) 1800MHz/280MHz

SECTOR	COMMSCOPE	RFS	MANUFACTURER	MODEL	LENGTH	QTY
1	COMMSCOPE	RFS	APV17M41ALD	187'-0"	340'	(1) 1800MHz/280MHz
2	COMMSCOPE	RFS	APV17M41ALD	187'-0"	340'	(1) 1800MHz/280MHz
3	COMMSCOPE	RFS	APV17M41ALD	187'-0"	340'	(1) 1800MHz/280MHz

FEEDER CABLES

NOTE:  
CONTRACTOR TO VERIFY PROPOSED ANTENNA REQUIREMENTS IS THE BEST CARRIER DATA AT TIME OF  
CONSTRUCTION.  
CONTRACTOR TO VERIFY PROPOSED ANTENNA REQUIREMENTS IS THE BEST CARRIER DATA AT TIME OF  
CONSTRUCTION.

NO SCALE 3

PLAN PROVIDED BY:  
**Sprint**  
8500 South Parkway  
Owensboro, Kentucky 40361

PLAN PROVIDED BY:  
**INFINIGYO**  
FROM ZERO TO INFINIGYO  
has additional cell antennas  
111 West Street, Suite 101, Middletown, CT 06457  
Phone: 860-336-4477 | Fax: 860-336-4478  
201000 30-10

PLAN NUMBER:  
**CROWN CASTLE**

PROFESSIONAL LICENSE:  
**PROFESSIONAL ENGINEER**  
STATE OF CONNECTICUT  
JULIAN M. BROWN  
LICENSE NO. 10188

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DATE: 10/1/17  
BY: JMB  
CHECKED: JMB  
DATE: 10/1/17  
BY: JMB

SHEET NUMBER:  
SITE NAME:  
BRG 126 943086

SITE CALL NUMBER:  
CTS2XC084

PROJECT ADDRESS:  
281 WOOD HOUSE ROAD  
FAIRFIELD, CT 06424

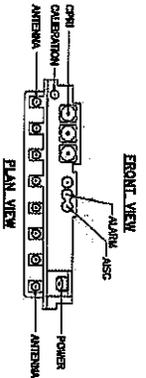
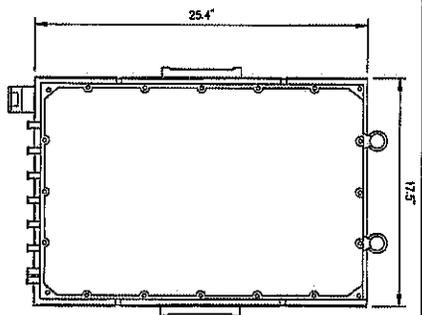
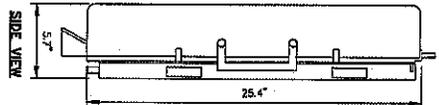
SHEET DISCUSSION:  
TOWER ELEVATION  
& CABLE PLAN

SHEET NUMBER:  
A-2



RRH: ALCATEL LUCCENT TD-RRH8X20

COLOR: LIGHT GREY  
WEIGHT: 70 LBS.



NOTES  
CONTACT WITH MANUFACTURERS INSTRUCTIONS TO ENSURE  
PROPER INSTALLATION AND MAINTENANCE. ALL  
DIMENSIONS ARE ESTIMATED. POWER WITHIN 2%  
OF THE ESTIMATED VALUE. PACKAGES DO NOT OPEN RRH  
PACKAGES DO NOT OPEN RRH PACKAGES IN THE RAIN.

2.5. RRHS

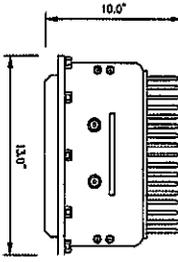
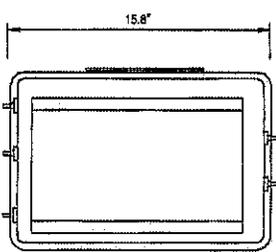
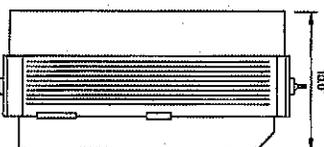
NO SCALE

800 MHz RRH

NO SCALE

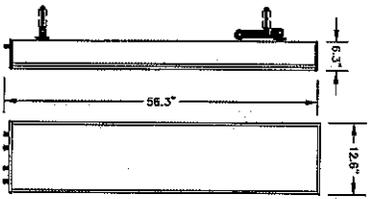
RRH: ALCATEL LUCCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY  
WEIGHT: 55 LBS.

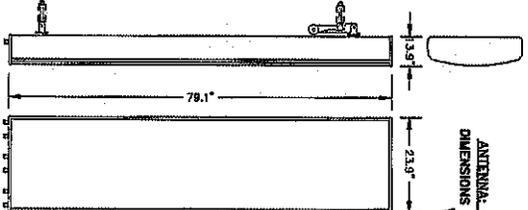


NOTES  
CONTACT WITH MANUFACTURERS INSTRUCTIONS TO ENSURE  
PROPER INSTALLATION AND MAINTENANCE. ALL  
DIMENSIONS ARE ESTIMATED. POWER WITHIN 2%  
OF THE ESTIMATED VALUE. PACKAGES DO NOT OPEN RRH  
PACKAGES DO NOT OPEN RRH PACKAGES IN THE RAIN.

ANTENNA: RES. APPROXIMATE-ALL-120  
DIMENSIONS (HAWK): 56.3" x 12.6" x 6.5"  
WEIGHT: 56.2 LBS.



ANTENNA: COMPASS ANOVA-658-84  
DIMENSIONS (HAWK): 79.1" x 23.9" x 13.9"  
WEIGHT: 188 LBS.



2.5. ANTENNA

NO SCALE

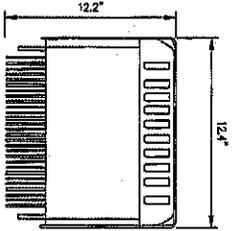
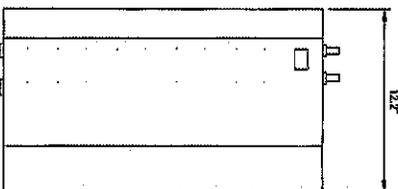
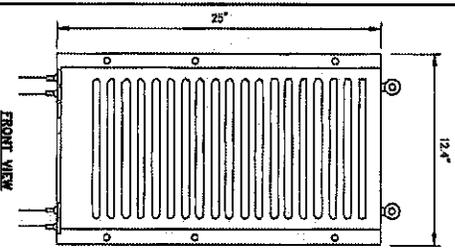
1800/800 ANTENNA

NO SCALE

1800 MHz RRH

NO SCALE

RRH: ALCATEL LUCCENT 1800 MHz  
COLOR: LIGHT GREY  
WEIGHT: 70 LBS.  
(INCLUDING OPTIONAL SOLAR SHIELD)



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REVISION	DATE	BY	REASON
1	07/20/18	MC	ISSUE FOR PERMIT
2	07/20/18	MC	ISSUE FOR PERMIT
3	07/20/18	MC	ISSUE FOR PERMIT

PROJECT NUMBER: BRG 126 943086  
SHEET NUMBER: CT52XC084

SITE ADDRESS:  
281 WOOD HOUSE ROAD  
FAIRFIELD, CT 06824

EQUIPMENT & MOUNTING DETAILS  
SHEET NUMBER: A-4

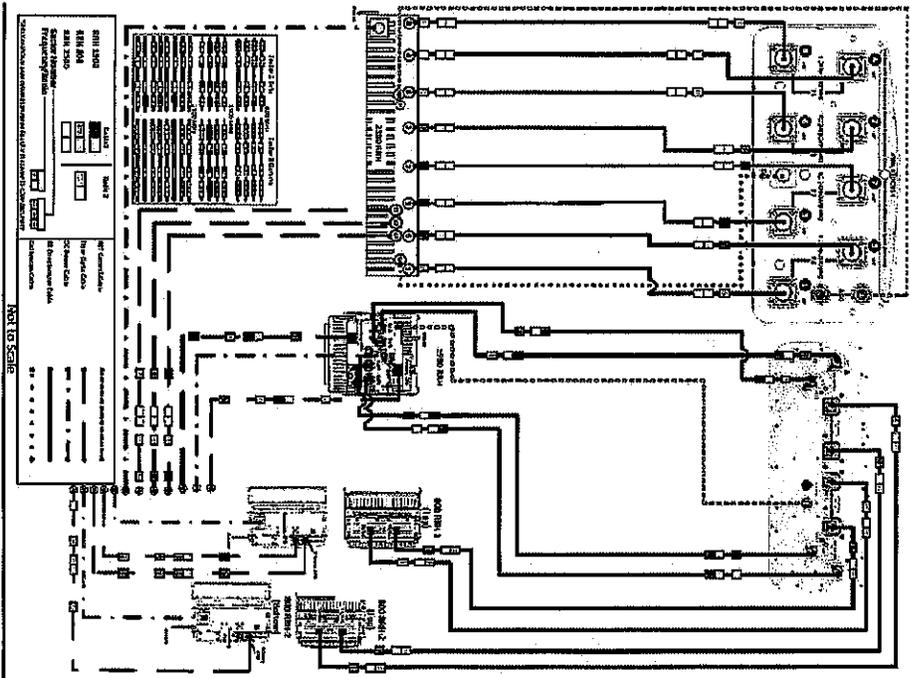
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PLUMBING DIAGRAM

NO SCALE

1

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REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CONNECTICUT  
 JUNE 2018  
 NO. 28705  
 LICENSED PROFESSIONAL ENGINEER

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REVISIONS	DATE	BY	NEW
DATE COMPLETED	08/27/18	BRG	0
ISSUED FOR REVIEW	08/27/18	BRG	1

SHEET NUMBER: BRG 126 943086  
 SITE ADDRESS: CT52XC0084

SITE ADDRESS:  
 281 WOOD HOUSE ROAD  
 FAIRFIELD, CT 06824  
 SHEET DESCRIPTION:  
 PLUMBING DIAGRAM

DRAWING NUMBER:  
**A-6**

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REVISION	DESCRIPTION	DATE	BY	APP
1	ISSUED FOR PERMIT	07/21/11	J.S.	
2	ISSUED FOR CONSTRUCTION	07/21/11	J.S.	

SITE NUMBER:  
BRG 126 943086

SITE ADDRESS:  
CT152XC084

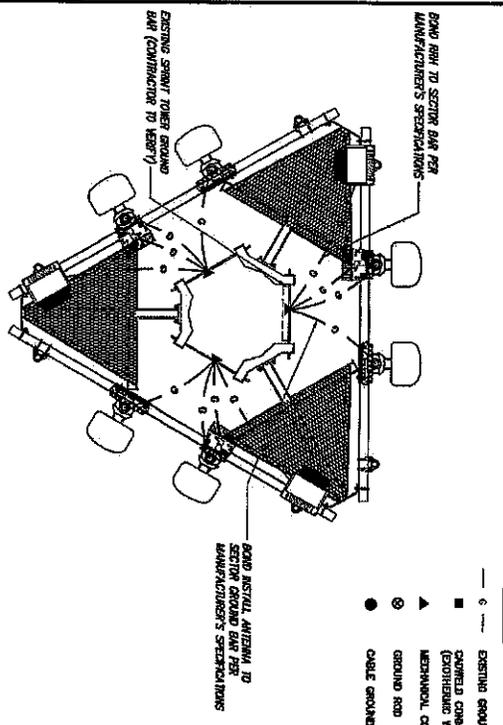
SITE ADDRESS:  
281 WOOD HOUSE ROAD  
PAIRFIELD, CT 06424

PROJECT DESCRIPTION:  
ELECTRICAL &  
GROUNDING DETAILS

SHEET NUMBER:  
E-1

PLAN NOT USED

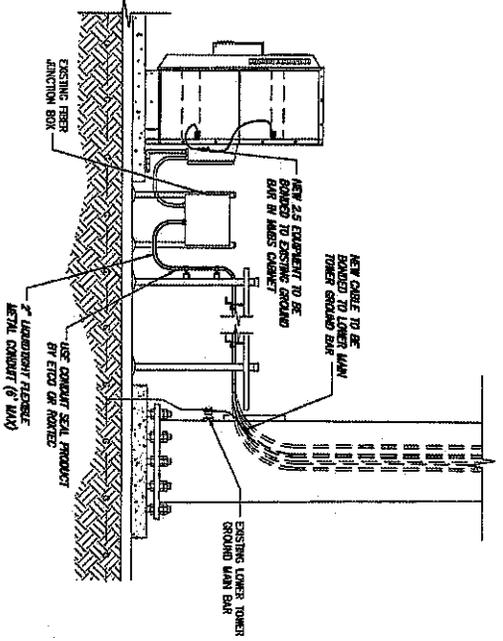
NO SCALE



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2



TYPICAL EQUIPMENT GROUNDING PLAN ELEVATION

NO SCALE

3



Date: **May 18, 2018**

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

**JACOBS**<sup>®</sup>  
Jacobs Engineering Group, Inc.  
5449 Bells Ferry Road  
Acworth, GA 30102  
770-701-2500

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **Clearwire Corp Co-Locate**  
**Carrier Site Number:** CT52XC084  
**Carrier Site Name:** CT52XC084

**Crown Castle Designation:** **Crown Castle BU Number:** 806355  
**Crown Castle Site Name:** BRG 126 943086  
**Crown Castle JDE Job Number:** 499045  
**Crown Castle Work Order Number:** 1572257  
**Crown Castle Application Number:** 436919 Rev. 2

**Engineering Firm Designation:** **Jacobs Engineering Group, Inc. Project Number:** 1572257

**Site Data:** **281 WOOD HOUSE ROAD, FAIRFIELD, Fairfield County, CT**  
**Latitude 41° 11' 45.3", Longitude -73° 16' 52.9"**  
**170.5 Foot - Monopole Tower**

Dear Denice Nicholson,

Jacobs Engineering Group, Inc. 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 1189699, in accordance with application 436919, revision 2.

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 TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

Jacobs Engineering Group, Inc. appreciates the opportunity to provide continuing professional services to you and *Crown Castle*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by:



Vhenniell Jhon Paul Co  
Structural Engineer



Engineer of Record:  
2018-05-18  
T10:06:50-04:00

Paul L. Mucci P.E.  
Senior Project Engineer

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**1) INTRODUCTION**

This tower is a 170.5 ft Monopole tower designed by Engineered Endeavors, Inc. in May of 1998. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E.

**2) ANALYSIS CRITERIA**

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B.

**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
128.0	128.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ	4	1-1/4	-
		6	alcatel lucent	RRH2X50-800			
		3	alcatel lucent	TD-RRH8X20-25			
		3	commscope	NNVV-65B-R4 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			
		1	site pro 1	HRK12 (Handrail Kit)			
		1	site pro 1	RMQP-3XX (Mount)			

**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
166.0	167.0	3	ems wireless	DR90-14-00DPL2 w/ Mount Pipe	6	1-5/8	4
	166.0	1	tower mounts	Side Arm Mount [SO 104-3]			
155.0	160.0	1	gps	GPS_A	13 1	1-5/8 1/2	1
	158.0	3	alcatel lucent	B66A RRH4X45			
		6	commscope	SBNHH-1D85B w/ Mount Pipe			
		6	decibel	DB844G65ZAXY w/ Mount Pipe			
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe			
	155.0	6	rfs celwave	FD9R6004/2C-3L			
		1	tower mounts	Platform Mount [LP 713-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
146.0	148.0	1	raycap	DC6-48-60-18-8F	2 4	3/8 3/4	2
		3	ericsson	RRUS 32 B66			
		3	kathrein	782 10253			
		3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe			
		3	ericsson	RRUS 32	12	1-5/8	1
		3	ericsson	RRUS 32 B2			
		12	powerwave technologies	7020.00			
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		12	powerwave technologies	LGP2140X			
	3	quintel technology	QS66512-2 w/ Mount Pipe				
	1	raycap	DC6-48-60-18-8F	13	1-5/8	1	
	3	ericsson	RRUS-11				
1	tower mounts	Platform Mount [LP 713-1]					
138.0	140.0	3	commscope	LNx-6515DS-VTM w/ Mount Pipe	13	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
	138.0	3	ericsson	KRY 112 144/1			
		1	tower mounts	Platform Mount [LP 713-1]			
128.0	128.0	1	andrew	VHLP800-11	1	1/2	1
		3	kathrein	840 10054 w/ Mount Pipe	3	1/4	3
		1	tower mounts	Side Arm Mount [SO 101-3]	3	5/16	

- Notes:  
 1) Existing Equipment  
 2) Reserved Equipment  
 3) Equipment to be Removed; Not Considered in this Analysis  
 4) Abandoned Equipment; Considered in this Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	160.0	12	allgon	ALP 9212	-	-
148.0	148.0	12	allgon	ALP 11011	-	-
138.0	138.0	6	celwave	APN 199015	-	-
128.0	128.0	12	allgon	ALP 9212	-	-
118.0	118.0	12	allgon	ALP 9212	-	-

### 3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	653293	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	1098364	CCISITES
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	1099974	CCISITES
MOUNT SPECIFICATIONS	Site Pro 1	DWG No. RMQP-3XX	CROWN CASTLE EMAIL
MOUNT SPECIFICATIONS	Site Pro 1	DWG No. HRK12	CROWN CASTLE EMAIL

#### 3.1) Analysis Method

tnxTower (version 7.0.7.0), 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) Material grade was not provided at the time of analysis. The following was assumed in this analysis:

Component	Grade
Flange Plate	fy = 65 ksi; fu = 75 ksi

This analysis may be affected if any assumptions are not valid or have been made in error. Jacobs Engineering Group, Inc. 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	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-1.12	375.11	9.9	Pass	
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-1.12	375.11	9.9	Pass	
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-11.08	980.62	47.6	Pass	
L4	132.67 - 87.0867	Pole	TP34.63x23.5836x0.375	4	-23.36	2933.29	61.5	Pass	
L5	87.0867 - 43	Pole	TP43.75x32.7959x0.4375	5	-36.51	4329.85	63.2	Pass	
L6	43 - 0	Pole	TP52.5x41.5315x0.5	6	-44.96	5354.61	58.4	Pass	
							Summary		
							Pole (L5)	63.2	Pass
							Rating =	63.2	Pass

**Table 6 - Tower Component Stresses vs. Capacity – LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	58.5	Pass
1	Base Plate	0	66.8	Pass
1	Base Foundation Structural	0	66.5	Pass
1	Base Foundation Soil Interaction	0	51.0	Pass
1	Flange Bolts	156.0	2.2	Pass
1	Flange Plate		14.7	Pass

<b>Structure Rating (max from all components) =</b>	<b>66.8%</b>
---	--------------

Notes:

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

**Table 7 - Maximum Antenna Rotations at Service Wind Speed**

Dish	Centerline Elevation (ft)	Tilt (deg)	Twist (deg)
VHLP800-11	128.0	1.2989	0.0014

#### 4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load 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:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Basic wind speed of 97 mph.
- 3) Structure Class II.
- 4) Exposure Category B.
- 5) Topographic Category 1.
- 6) Crest Height 0.00 ft.
- 7) Nominal ice thickness of 0.7500 in.
- 8) Ice thickness is considered to increase with height.
- 9) Ice density of 56 pcf.
- 10) A wind speed of 50 mph is used in combination with ice.
- 11) Temperature drop of 50 °F.
- 12) Deflections calculated using a wind speed of 60 mph.
- 13) A non-linear (P-delta) analysis was used.
- 14) Pressures are calculated at each section.
- 15) Stress ratio used in pole design is 1.
- 16) 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 <b>Poles</b> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	--	--

## 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	170.50-156.50	14.00	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L2	156.50-156.00	0.50	0.00	Round	10.7500	19.5000	0.3650		A53-B-35 (35 ksi)
L3	156.00-132.67	23.33	3.67	18	19.5000	24.7900	0.1875	0.7500	A572-65 (65 ksi)
L4	132.67-87.09	49.25	4.83	18	23.5836	34.6300	0.3750	1.5000	A572-65 (65 ksi)
L5	87.09-43.00	48.92	6.00	18	32.7959	43.7500	0.4375	1.7500	A572-65 (65 ksi)

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
L6	43.00-0.00	49.00		18	41.5315	52.5000	0.5000	2.0000	A572-65 (65 ksi)

**Tapered Pole Properties**

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L2	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L3	19.8008	11.4934	541.5782	6.8559	9.9060	54.6717	1083.8689	5.7478	3.1020	16.544
L4	25.1724	14.6416	1119.6528	8.7339	12.5933	88.9085	2240.7788	7.3222	4.0330	21.51
L5	34.4008	44.9337	5944.0760	11.4872	16.6603	356.7803	11895.973	22.4711	5.0021	11.433
L6	43.5360	65.1170	13850.526	14.5662	21.0980	656.4853	27719.277	32.5647	6.4295	12.859

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 170.50- 156.50				1	1	1			
L2 156.50- 156.00				1	1	1			
L3 156.00- 132.67				1	1	1			
L4 132.67- 87.09				1	1	1			
L5 87.09- 43.00				1	1	1			
L6 43.00-0.00				1	1	1			

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

Description	Section	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimete r in	Weight plf
Safety Line 3/8	C	Surface Ar (CaAa)	170.50 - 0.00	1	1	0.000 0.000	0.3750		0.22
CR 50 1873(1-5/8")	A	Surface Ar (CaAa)	155.00 - 0.00	2	2	-0.010 0.010	1.9800		0.83
LCF158-50JA-A0(1 5/8")	C	Surface Ar (CaAa)	138.00 - 0.00	6	6	0.250 0.420	1.9800		0.72

**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
<b>**Level 166**</b>								
LDF7-50A(1-5/8")	B	No	Inside Pole	166.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
<b>**Level 155**</b>								
561(1-5/8")	A	No	Inside Pole	155.00 - 0.00	11	No Ice	0.00	1.35
						1/2" Ice	0.00	1.35
						1" Ice	0.00	1.35
LDF4-50A(1/2")	A	No	Inside Pole	155.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
<b>**Level 146**</b>								
CR 50 1873(1-5/8")	A	No	Inside Pole	146.00 - 0.00	12	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
						1" Ice	0.00	0.83
FB-L98B-034-XXX(3/8")	A	No	Inside Pole	146.00 - 0.00	2	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4")	A	No	Inside Pole	146.00 - 0.00	4	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
<b>**Level 138**</b>								
LCF158-50JA-A0(1 5/8")	C	No	Inside Pole	138.00 - 0.00	7	No Ice	0.00	0.72
						1/2" Ice	0.00	0.72
						1" Ice	0.00	0.72
<b>**Level 128**</b>								
7983A(1/2")	B	No	Inside Pole	128.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
HB114-1-0813U4-M5J(1-1/4)	B	No	Inside Pole	128.00 - 0.00	4	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
****								

### Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	170.50-156.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.525	0.000	0.00
L2	156.50-156.00	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	0.019	0.000	0.00
L3	156.00-132.67	A	0.000	0.000	8.843	0.000	0.54
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	7.207	0.000	0.06
L4	132.67-87.09	A	0.000	0.000	18.051	0.000	1.33
		B	0.000	0.000	0.000	0.000	0.42
		C	0.000	0.000	55.862	0.000	0.44
L5	87.09-43.00	A	0.000	0.000	17.458	0.000	1.28
		B	0.000	0.000	0.000	0.000	0.43
		C	0.000	0.000	54.028	0.000	0.42
L6	43.00-0.00	A	0.000	0.000	17.028	0.000	1.25
		B	0.000	0.000	0.000	0.000	0.42
		C	0.000	0.000	52.697	0.000	0.41

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

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	170.50-156.50	A	1.760	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	5.454	0.000	0.07
L2	156.50-156.00	A	1.752	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	0.194	0.000	0.00
L3	156.00-132.67	A	1.738	0.000	0.000	20.755	0.000	0.78
		B		0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	19.215	0.000	0.28
L4	132.67-87.09	A	1.690	0.000	0.000	42.369	0.000	1.82
		B		0.000	0.000	0.000	0.000	0.42
		C		0.000	0.000	105.050	0.000	1.69
L5	87.09-43.00	A	1.604	0.000	0.000	40.452	0.000	1.74
		B		0.000	0.000	0.000	0.000	0.43
		C		0.000	0.000	100.654	0.000	1.59
L6	43.00-0.00	A	1.433	0.000	0.000	38.532	0.000	1.67
		B		0.000	0.000	0.000	0.000	0.42
		C		0.000	0.000	96.511	0.000	1.48

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
L1	170.50-156.50	0.0000	0.0559	0.0000	0.3431
L2	156.50-156.00	0.0000	0.0560	0.0000	0.3874
L3	156.00-132.67	-0.6119	0.0817	-0.6958	0.1775
L4	132.67-87.09	-1.0607	0.7121	-1.0896	0.7287
L5	87.09-43.00	-1.1535	0.7748	-1.2743	0.8548
L6	43.00-0.00	-1.2180	0.8184	-1.4160	0.9513

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	1	Safety Line 3/8	156.50 - 170.50	1.0000	1.0000
L2	1	Safety Line 3/8	156.00 - 156.50	1.0000	1.0000
L3	1	Safety Line 3/8	132.67 - 156.00	1.0000	1.0000
L3	6	CR 50 1873(1-5/8")	132.67 - 155.00	1.0000	1.0000
L3	14	LCF158-50JA-A0(1 5/8")	132.67 - 138.00	1.0000	1.0000
L4	1	Safety Line 3/8	87.09 - 132.67	1.0000	1.0000
L4	6	CR 50 1873(1-5/8")	87.09 - 132.67	1.0000	1.0000
L4	14	LCF158-50JA-A0(1 5/8")	87.09 - 132.67	1.0000	1.0000
L5	1	Safety Line 3/8	43.00 - 87.09	1.0000	1.0000
L5	6	CR 50 1873(1-5/8")	43.00 - 87.09	1.0000	1.0000
L5	14	LCF158-50JA-A0(1 5/8")	43.00 - 87.09	1.0000	1.0000

**Discrete Tower Loads**

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CAAA Front ft <sup>2</sup>	CAAA Side ft <sup>2</sup>	Weight K	
Lightning Rod 3/4"x4'	C	From Leg	0.00	0.0000	170.50	No Ice	0.30	0.30	0.02
			0.00			1/2"	0.71	0.71	0.02
			2.00			Ice	1.00	1.00	0.03
						1" Ice			
**Level 166**									
DR90-14-00DPL2 w/ Mount Pipe	A	From Face	1.00	0.0000	166.00	No Ice	4.59	3.32	0.04
			0.00			1/2"	5.02	4.09	0.08
			1.00			Ice	5.44	4.78	0.12
						1" Ice			
DR90-14-00DPL2 w/ Mount Pipe	B	From Face	1.00	0.0000	166.00	No Ice	4.59	3.32	0.04
			0.00			1/2"	5.02	4.09	0.08
			1.00			Ice	5.44	4.78	0.12
						1" Ice			
DR90-14-00DPL2 w/ Mount Pipe	C	From Face	1.00	0.0000	166.00	No Ice	4.59	3.32	0.04
			0.00			1/2"	5.02	4.09	0.08
			1.00			Ice	5.44	4.78	0.12
						1" Ice			
Side Arm Mount [ISO 104-3]	C	None		0.0000	166.00	No Ice	3.30	3.30	0.29
						1/2"	4.13	4.13	0.32
						Ice	4.96	4.96	0.35
						1" Ice			
**Level 155**									
(2) DB844G65ZAXY w/ Mount Pipe	A	From Face	4.00	0.0000	155.00	No Ice	4.58	4.80	0.03
			0.00			1/2"	4.96	5.42	0.08
			3.00			Ice	5.34	6.04	0.13
						1" Ice			
(2) DB844G65ZAXY w/ Mount Pipe	B	From Face	4.00	0.0000	155.00	No Ice	4.58	4.80	0.03
			0.00			1/2"	4.96	5.42	0.08
			3.00			Ice	5.34	6.04	0.13
						1" Ice			
(2) DB844G65ZAXY w/ Mount Pipe	C	From Face	4.00	0.0000	155.00	No Ice	4.58	4.80	0.03
			0.00			1/2"	4.96	5.42	0.08
			3.00			Ice	5.34	6.04	0.13
						1" Ice			
(2) SBNHH-1D85B w/ Mount Pipe	A	From Face	4.00	0.0000	155.00	No Ice	8.32	7.00	0.07
			0.00			1/2"	8.88	8.19	0.14
			3.00			Ice	9.40	9.08	0.21
						1" Ice			
(2) SBNHH-1D85B w/ Mount Pipe	B	From Face	4.00	0.0000	155.00	No Ice	8.32	7.00	0.07
			0.00			1/2"	8.88	8.19	0.14
			3.00			Ice	9.40	9.08	0.21
						1" Ice			
(2) SBNHH-1D85B w/ Mount Pipe	C	From Face	4.00	0.0000	155.00	No Ice	8.32	7.00	0.07
			0.00			1/2"	8.88	8.19	0.14
			3.00			Ice	9.40	9.08	0.21
						1" Ice			
MG D3-800TV w/ Mount Pipe	A	From Face	4.00	0.0000	155.00	No Ice	3.57	3.42	0.04
			0.00			1/2"	3.98	4.12	0.07
			3.00			Ice	4.39	4.78	0.11
						1" Ice			
MG D3-800TV w/ Mount Pipe	B	From Face	4.00	0.0000	155.00	No Ice	3.57	3.42	0.04
			0.00			1/2"	3.98	4.12	0.07
			3.00			Ice	4.39	4.78	0.11
						1" Ice			
MG D3-800TV w/ Mount Pipe	C	From Face	4.00	0.0000	155.00	No Ice	3.57	3.42	0.04
			0.00			1/2"	3.98	4.12	0.07
			3.00			Ice	4.39	4.78	0.11
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
GPS_A	B	From Face	4.00	0.0000	155.00	1" Ice			
			0.00			No Ice	0.26	0.26	0.00
			5.00			1/2"	0.32	0.32	0.00
(2) FD9R6004/2C-3L	A	From Face	4.00	0.0000	155.00	Ice	0.39	0.39	0.01
			0.00			1" Ice			
			0.00			No Ice	0.31	0.08	0.00
(2) FD9R6004/2C-3L	A	From Face	4.00	0.0000	155.00	1/2"	0.39	0.12	0.01
			0.00			Ice	0.47	0.17	0.01
			0.00			1" Ice			
(2) FD9R6004/2C-3L	B	From Face	4.00	0.0000	155.00	No Ice	0.31	0.08	0.00
			0.00			1/2"	0.39	0.12	0.01
			0.00			Ice	0.47	0.17	0.01
(2) FD9R6004/2C-3L	C	From Face	4.00	0.0000	155.00	1" Ice			
			0.00			No Ice	0.31	0.08	0.00
			0.00			1/2"	0.39	0.12	0.01
B66A RRH4X45	A	From Face	4.00	0.0000	155.00	Ice	0.47	0.17	0.01
			0.00			1" Ice			
			3.00			No Ice	2.58	1.63	0.07
B66A RRH4X45	C	From Face	4.00	0.0000	155.00	1/2"	2.79	1.81	0.09
			0.00			Ice	3.01	2.00	0.11
			3.00			1" Ice			
B66A RRH4X45	C	From Face	4.00	0.0000	155.00	No Ice	2.58	1.63	0.07
			0.00			1/2"	2.79	1.81	0.09
			3.00			Ice	3.01	2.00	0.11
B66A RRH4X45	B	From Face	4.00	0.0000	155.00	1" Ice			
			0.00			No Ice	2.58	1.63	0.07
			3.00			1/2"	2.79	1.81	0.09
Platform Mount [LP 713-1]	C	None		0.0000	155.00	Ice	3.01	2.00	0.11
						1" Ice			
						No Ice	31.27	31.27	1.51
**Level 146**	A	From Leg	4.00	0.0000	146.00	1/2"	39.68	39.68	1.93
			0.00			Ice	48.09	48.09	2.35
			2.00			1" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	No Ice	8.37	8.46	0.14
			0.00			1/2"	8.93	9.66	0.21
			2.00			Ice	9.46	10.55	0.30
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	8.37	8.46	0.14
			2.00			1/2"	8.93	9.66	0.21
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	146.00	Ice	9.46	10.55	0.30
			0.00			1" Ice			
			2.00			No Ice	8.37	8.46	0.14
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	146.00	1/2"	8.93	9.66	0.21
			0.00			Ice	9.46	10.55	0.30
			2.00			1" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	5.75	4.25	0.06
			2.00			1/2"	6.18	5.01	0.10
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	146.00	Ice	6.61	5.71	0.16
			0.00			1" Ice			
			2.00			No Ice	5.75	4.25	0.06
RRUS-11	A	From Leg	4.00	0.0000	146.00	1/2"	6.18	5.01	0.10
			0.00			Ice	6.61	5.71	0.16
			0.00			1" Ice			
RRUS-11	A	From Leg	4.00	0.0000	146.00	No Ice	2.52	1.07	0.06
			0.00			1/2"	2.72	1.21	0.07
			0.00			Ice	2.92	1.36	0.10
RRUS-11	B	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	2.52	1.07	0.06
			0.00			1/2"	2.72	1.21	0.07
			0.00			Ice	2.92	1.36	0.10

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
							ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS-11	C	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	2.52	1.07	0.06
			0.00			1/2"	2.72	1.21	0.07
(4) 7020.00	A	From Leg	4.00	0.0000	146.00	Ice	2.92	1.36	0.10
			0.00			1" Ice			
			2.00			No Ice	0.10	0.17	0.00
(4) 7020.00	B	From Leg	4.00	0.0000	146.00	1/2"	0.15	0.24	0.01
			0.00			Ice	0.20	0.31	0.01
			2.00			1" Ice			
(4) 7020.00	C	From Leg	4.00	0.0000	146.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			2.00			Ice	0.20	0.31	0.01
RRUS 32	A	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	2.86	1.78	0.06
			2.00			1/2"	3.08	1.97	0.08
RRUS 32	B	From Leg	4.00	0.0000	146.00	Ice	3.32	2.17	0.10
			0.00			1" Ice			
			2.00			No Ice	2.86	1.78	0.06
RRUS 32	C	From Leg	4.00	0.0000	146.00	1/2"	3.08	1.97	0.08
			0.00			Ice	3.32	2.17	0.10
			2.00			1" Ice			
(4) LGP2140X	A	From Leg	4.00	0.0000	146.00	No Ice	1.08	0.36	0.01
			0.00			1/2"	1.21	0.45	0.02
			2.00			Ice	1.35	0.56	0.03
(4) LGP2140X	B	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	1.08	0.36	0.01
			2.00			1/2"	1.21	0.45	0.02
(4) LGP2140X	C	From Leg	4.00	0.0000	146.00	Ice	1.35	0.56	0.03
			0.00			1" Ice			
			2.00			No Ice	1.08	0.36	0.01
RRUS 32 B2	A	From Leg	4.00	0.0000	146.00	1/2"	1.21	0.45	0.02
			0.00			Ice	1.35	0.56	0.03
			2.00			1" Ice			
RRUS 32 B2	B	From Leg	4.00	0.0000	146.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			2.00			Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.0000	146.00	1" Ice			
			0.00			No Ice	2.73	1.67	0.05
			2.00			1/2"	2.95	1.86	0.07
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	146.00	Ice	3.18	2.05	0.10
			0.00			1" Ice			
			2.00			No Ice	0.92	0.92	0.03
Platform Mount [LP 713-1]	C	None	4.00	0.0000	146.00	1/2"	1.46	1.46	0.05
			0.00			Ice	1.64	1.64	0.07
			2.00			1" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	146.00	No Ice	31.27	31.27	1.51
			0.00			1/2"	39.68	39.68	1.93
			2.00			Ice	48.09	48.09	2.35
						1" Ice			
						No Ice	9.90	8.11	0.08
						1/2"	10.47	9.30	0.16
						Ice	11.01	10.21	0.25
						1" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	No Ice	9.90	8.11	0.08
			0.00			1/2"	10.47	9.30	0.16
			2.00			Ice	11.01	10.21	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	146.00	1" Ice	9.90	8.11	0.08
			0.00			1/2"	10.47	9.30	0.16
			2.00			Ice	11.01	10.21	0.25
RRUS 32 B66	A	From Leg	4.00	0.0000	146.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
RRUS 32 B66	B	From Leg	4.00	0.0000	146.00	1" Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
RRUS 32 B66	C	From Leg	4.00	0.0000	146.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
782 10253	A	From Leg	4.00	0.0000	146.00	No Ice	0.11	0.06	0.00
			0.00			1/2"	0.15	0.10	0.00
			2.00			Ice	0.20	0.14	0.01
782 10253	B	From Leg	4.00	0.0000	146.00	1" Ice	0.11	0.06	0.00
			0.00			1/2"	0.15	0.10	0.00
			2.00			Ice	0.20	0.14	0.01
782 10253	C	From Leg	4.00	0.0000	146.00	No Ice	0.11	0.06	0.00
			0.00			1/2"	0.15	0.10	0.00
			2.00			Ice	0.20	0.14	0.01
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	146.00	No Ice	0.92	0.92	0.03
			0.00			1/2"	1.46	1.46	0.05
			2.00			Ice	1.64	1.64	0.07
**Level 138** ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	1" Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	1" Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	1" Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	6.33	5.64	0.11
			0.00			1/2"	6.78	6.43	0.17
			2.00			Ice	7.21	7.13	0.23
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	11.68	9.84	0.08
			0.00			1/2"	12.40	11.37	0.17
			2.00			Ice	13.14	12.91	0.27
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub>		Weight
			Horz	Lateral			Front	Side	
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	11.68	9.84	0.08
			0.00			1/2"	12.40	11.37	0.17
			2.00			Ice	13.14	12.91	0.27
						1" Ice			
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	11.68	9.84	0.08
			0.00			1/2"	12.40	11.37	0.17
			2.00			Ice	13.14	12.91	0.27
						1" Ice			
KRY 112 144/1	A	From Leg	4.00	0.0000	138.00	No Ice	0.35	0.16	0.01
			0.00			1/2"	0.43	0.22	0.01
			0.00			Ice	0.51	0.28	0.02
						1" Ice			
KRY 112 144/1	B	From Leg	4.00	0.0000	138.00	No Ice	0.35	0.16	0.01
			0.00			1/2"	0.43	0.22	0.01
			0.00			Ice	0.51	0.28	0.02
						1" Ice			
KRY 112 144/1	C	From Leg	4.00	0.0000	138.00	No Ice	0.35	0.16	0.01
			0.00			1/2"	0.43	0.22	0.01
			0.00			Ice	0.51	0.28	0.02
						1" Ice			
RRUS 11 B12	A	From Leg	4.00	0.0000	138.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			2.00			Ice	3.26	1.48	0.10
						1" Ice			
RRUS 11 B12	B	From Leg	4.00	0.0000	138.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			2.00			Ice	3.26	1.48	0.10
						1" Ice			
RRUS 11 B12	C	From Leg	4.00	0.0000	138.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			2.00			Ice	3.26	1.48	0.10
						1" Ice			
Platform Mount [LP 713-1]	C	None		0.0000	138.00	No Ice	31.27	31.27	1.51
						1/2"	39.68	39.68	1.93
						Ice	48.09	48.09	2.35
						1" Ice			
**Level 128** APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			0.00			Ice	7.47	6.47	0.19
						1" Ice			
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			0.00			Ice	7.47	6.47	0.19
						1" Ice			
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	6.58	4.96	0.08
			0.00			1/2"	7.03	5.75	0.13
			0.00			Ice	7.47	6.47	0.19
						1" Ice			
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			0.00			Ice	13.67	9.50	0.29
						1" Ice			
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			0.00			Ice	13.67	9.50	0.29
						1" Ice			
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	12.51	7.41	0.10
			0.00			1/2"	13.11	8.60	0.19
			0.00			Ice	13.67	9.50	0.29
						1" Ice			
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00	0.0000	128.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			0.00			Ice	2.74	2.65	0.11
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
(2) PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00	0.0000	128.00	No Ice	2.32	2.24	0.06
			0.00	0.00		1/2"	2.53	2.44	0.08
			0.00	0.00		Ice	2.74	2.65	0.11
(3) RRH2X50-800	A	From Leg	4.00	0.0000	128.00	No Ice	2.13	1.79	0.05
			0.00	0.00		1/2"	2.32	1.96	0.07
			0.00	0.00		Ice	2.51	2.14	0.10
(3) RRH2X50-800	C	From Leg	4.00	0.0000	128.00	No Ice	2.13	1.79	0.05
			0.00	0.00		1/2"	2.32	1.96	0.07
			0.00	0.00		Ice	2.51	2.14	0.10
(2) TD-RRH8X20-25	B	From Leg	4.00	0.0000	128.00	No Ice	4.05	1.53	0.07
			0.00	0.00		1/2"	4.30	1.71	0.10
			0.00	0.00		Ice	4.56	1.90	0.13
TD-RRH8X20-25	C	From Leg	4.00	0.0000	128.00	No Ice	4.05	1.53	0.07
			0.00	0.00		1/2"	4.30	1.71	0.10
			0.00	0.00		Ice	4.56	1.90	0.13
Platform Mount [LP 303-1]	C	None		0.0000	128.00	No Ice	14.66	14.66	1.25
						1/2"	18.87	18.87	1.48
						Ice	23.08	23.08	1.71
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2"	1.92	1.92	0.03
			0.00	0.00		Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2"	1.92	1.92	0.03
			0.00	0.00		Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2"	1.92	1.92	0.03
			0.00	0.00		Ice	2.29	2.29	0.05
Miscellaneous [NA 507-1]	C	None		0.0000	128.00	No Ice	4.80	4.80	0.25
						1/2"	6.70	6.70	0.29
						Ice	8.60	8.60	0.34
***									

**Dishes**

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral	Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				ft	ft	°	°	ft	ft	ft <sup>2</sup>	K	
**Level 128**	B	Paraboloid w/Shroud (HP)	From Leg	4.00	-36.0000	128.00	2.92	128.00	2.92	No Ice	6.68	0.02
				0.00	0.00					1/2" Ice	7.07	0.06
				0.00	0.00					1" Ice	7.46	0.09
*****												

**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
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	170.5 - 156.5	Pole	Max Tension	21	0.00	-0.00	0.00
			Max. Compression	26	-2.31	0.02	-0.04
			Max. Mx	20	-1.12	9.89	-0.01
			Max. My	14	-1.13	0.01	-9.88
			Max. Vy	20	-1.10	9.89	-0.01
			Max. Vx	2	-1.10	0.01	9.87
			Max. Torque	24			0.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2.37	0.02	-0.04
			L2	156.5 - 156	Pole	Max Tension	1
			Max. Compression	26	-2.37	0.02	-0.04

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	156 - 132.67	Pole	Max. Mx	20	-1.16	10.45	-0.01
			Max. My	14	-1.16	0.01	-10.43
			Max. Vy	20	-1.12	10.45	-0.01
			Max. Vx	2	-1.12	0.01	10.42
			Max. Torque	24			0.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.61	0.27	1.03
			Max. Mx	20	-11.06	222.02	0.30
			Max. My	2	-11.08	0.02	222.18
			Max. Vy	20	-17.27	222.02	0.30
L4	132.67 - 87.0867	Pole	Max. Vx	2	-17.26	0.02	222.18
			Max. Torque	9			0.33
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.59	1.07	-0.92
			Max. Mx	20	-23.36	1210.71	0.07
			Max. My	2	-23.40	-1.05	1199.33
			Max. Vy	20	-24.52	1210.71	0.07
			Max. Vx	2	-24.21	-1.05	1199.33
			Max. Torque	16			1.18
			Max Tension	1	0.00	0.00	0.00
L5	87.0867 - 43	Pole	Max. Compression	26	-69.27	3.19	-2.34
			Max. Mx	20	-36.51	2323.22	-0.03
			Max. My	14	-36.53	-0.27	-2298.12
			Max. Vy	20	-27.19	2323.22	-0.03
			Max. Vx	2	-26.89	-1.98	2298.08
			Max. Torque	16			1.18
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.79	5.89	-4.15
			Max. Mx	20	-56.49	3718.67	-0.18
			Max. My	14	-56.49	-0.16	-3678.42
L6	43 - 0	Pole	Max. Vy	20	-29.62	3718.67	-0.18
			Max. Vx	2	-29.33	-2.90	3678.10
			Max. Torque	16			1.17
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.79	5.89	-4.15
			Max. Mx	20	-56.49	3718.67	-0.18
			Max. My	14	-56.49	-0.16	-3678.42
			Max. Vy	20	-29.62	3718.67	-0.18
			Max. Vx	2	-29.33	-2.90	3678.10
			Max. Torque	16			1.17

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	94.79	8.49	0.00
	Max. H <sub>x</sub>	21	42.38	29.58	0.00
	Max. H <sub>z</sub>	2	56.51	-0.03	29.29
	Max. M <sub>x</sub>	2	3678.10	-0.03	29.29
	Max. M <sub>z</sub>	8	3707.01	-29.51	-0.01
	Max. Torsion	16	1.17	14.87	-25.32
	Min. Vert	25	42.38	14.87	25.32
	Min. H <sub>x</sub>	9	42.38	-29.51	-0.01
	Min. H <sub>z</sub>	14	56.51	-0.01	-29.28
	Min. M <sub>x</sub>	14	-3678.42	-0.01	-29.28
	Min. M <sub>z</sub>	20	-3718.67	29.58	0.00
	Min. Torsion	2	-1.15	-0.03	29.29

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturing Moment, M <sub>x</sub> kip-ft	Overturing Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	47.09	0.00	0.00	0.52	0.74	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	56.51	0.03	-29.29	-3678.10	-2.90	1.15

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overtuning Moment, M <sub>x</sub> kip-ft	Overtuning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
0.9 Dead+1.6 Wind 0 deg - No Ice	42.38	0.03	-29.29	-3623.76	-3.08	1.14
1.2 Dead+1.6 Wind 30 deg - No Ice	56.51	14.80	-25.32	-3179.56	-1860.08	1.10
0.9 Dead+1.6 Wind 30 deg - No Ice	42.38	14.80	-25.32	-3132.59	-1832.75	1.10
1.2 Dead+1.6 Wind 60 deg - No Ice	56.51	25.56	-14.61	-1833.64	-3211.50	0.78
0.9 Dead+1.6 Wind 60 deg - No Ice	42.38	25.56	-14.61	-1806.62	-3164.15	0.77
1.2 Dead+1.6 Wind 90 deg - No Ice	56.51	29.51	0.01	2.13	-3707.01	0.39
0.9 Dead+1.6 Wind 90 deg - No Ice	42.38	29.51	0.01	1.95	-3652.31	0.38
1.2 Dead+1.6 Wind 120 deg - No Ice	56.51	25.59	14.61	1834.81	-3215.36	0.10
0.9 Dead+1.6 Wind 120 deg - No Ice	42.38	25.59	14.61	1807.46	-3167.96	0.10
1.2 Dead+1.6 Wind 150 deg - No Ice	56.51	14.82	25.34	3183.48	-1861.86	-0.46
0.9 Dead+1.6 Wind 150 deg - No Ice	42.38	14.82	25.34	3136.15	-1834.51	-0.46
1.2 Dead+1.6 Wind 180 deg - No Ice	56.51	0.01	29.28	3678.42	-0.16	-1.00
0.9 Dead+1.6 Wind 180 deg - No Ice	42.38	0.01	29.28	3623.76	-0.39	-1.00
1.2 Dead+1.6 Wind 210 deg - No Ice	56.51	-14.87	25.32	3180.48	1870.86	-1.17
0.9 Dead+1.6 Wind 210 deg - No Ice	42.38	-14.87	25.32	3133.20	1842.93	-1.16
1.2 Dead+1.6 Wind 240 deg - No Ice	56.51	-25.64	14.63	1837.49	3223.40	-0.98
0.9 Dead+1.6 Wind 240 deg - No Ice	42.38	-25.64	14.63	1810.11	3175.45	-0.97
1.2 Dead+1.6 Wind 270 deg - No Ice	56.51	-29.58	-0.00	0.18	3718.67	-0.63
0.9 Dead+1.6 Wind 270 deg - No Ice	42.38	-29.58	-0.00	0.03	3663.37	-0.62
1.2 Dead+1.6 Wind 300 deg - No Ice	56.51	-25.66	-14.61	-1834.62	3226.38	-0.33
0.9 Dead+1.6 Wind 300 deg - No Ice	42.38	-25.66	-14.61	-1807.59	3178.38	-0.32
1.2 Dead+1.6 Wind 330 deg - No Ice	56.51	-14.87	-25.32	-3179.15	1870.09	0.17
0.9 Dead+1.6 Wind 330 deg - No Ice	42.38	-14.87	-25.32	-3132.19	1842.18	0.17
1.2 Dead+1.0 Ice+1.0 Temp	94.79	-0.00	0.00	4.15	5.89	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	94.79	0.01	-8.44	-1093.28	5.25	0.26
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	94.79	4.25	-7.30	-945.06	-547.20	0.23
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	94.79	7.34	-4.21	-543.47	-949.88	0.15
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	94.79	8.48	0.00	4.56	-1097.43	0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	94.79	7.35	4.21	551.95	-950.63	-0.01
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	94.79	4.25	7.30	954.18	-547.46	-0.13
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	94.79	0.00	8.43	1101.70	5.96	-0.23
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	94.79	-4.26	7.30	953.61	561.34	-0.24
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	94.79	-7.36	4.21	552.64	964.27	-0.19
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	94.79	-8.49	-0.00	4.28	1111.77	-0.10
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	94.79	-7.36	-4.21	-543.57	964.84	-0.03

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	94.79	-4.26	-7.30	-944.91	561.07	0.07
Dead+Wind 0 deg - Service	47.09	0.01	-6.28	-781.82	-0.06	0.25
Dead+Wind 30 deg - Service	47.09	3.17	-5.43	-675.80	-395.01	0.24
Dead+Wind 60 deg - Service	47.09	5.48	-3.13	-389.57	-682.43	0.17
Dead+Wind 90 deg - Service	47.09	6.32	0.00	0.85	-787.81	0.08
Dead+Wind 120 deg - Service	47.09	5.48	3.13	390.61	-683.25	0.02
Dead+Wind 150 deg - Service	47.09	3.17	5.43	677.43	-395.39	-0.10
Dead+Wind 180 deg - Service	47.09	0.00	6.27	782.68	0.53	-0.22
Dead+Wind 210 deg - Service	47.09	-3.19	5.43	676.80	398.43	-0.25
Dead+Wind 240 deg - Service	47.09	-5.49	3.13	391.19	686.09	-0.21
Dead+Wind 270 deg - Service	47.09	-6.34	-0.00	0.44	791.42	-0.14
Dead+Wind 300 deg - Service	47.09	-5.50	-3.13	-389.79	686.72	-0.07
Dead+Wind 330 deg - Service	47.09	-3.18	-5.43	-675.72	398.27	0.04

### 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	-47.09	0.00	0.00	47.09	0.00	0.000%
2	0.03	-56.51	-29.29	-0.03	56.51	29.29	0.000%
3	0.03	-42.38	-29.29	-0.03	42.38	29.29	0.000%
4	14.80	-56.51	-25.32	-14.80	56.51	25.32	0.000%
5	14.80	-42.38	-25.32	-14.80	42.38	25.32	0.000%
6	25.56	-56.51	-14.61	-25.56	56.51	14.61	0.000%
7	25.56	-42.38	-14.61	-25.56	42.38	14.61	0.000%
8	29.51	-56.51	0.01	-29.51	56.51	-0.01	0.000%
9	29.51	-42.38	0.01	-29.51	42.38	-0.01	0.000%
10	25.59	-56.51	14.61	-25.59	56.51	-14.61	0.000%
11	25.59	-42.38	14.61	-25.59	42.38	-14.61	0.000%
12	14.82	-56.51	25.34	-14.82	56.51	-25.34	0.000%
13	14.82	-42.38	25.34	-14.82	42.38	-25.34	0.000%
14	0.01	-56.51	29.28	-0.01	56.51	-29.28	0.000%
15	0.01	-42.38	29.28	-0.01	42.38	-29.28	0.000%
16	-14.87	-56.51	25.32	14.87	56.51	-25.32	0.000%
17	-14.87	-42.38	25.32	14.87	42.38	-25.32	0.000%
18	-25.64	-56.51	14.63	25.64	56.51	-14.63	0.000%
19	-25.64	-42.38	14.63	25.64	42.38	-14.63	0.000%
20	-29.58	-56.51	-0.00	29.58	56.51	0.00	0.000%
21	-29.58	-42.38	-0.00	29.58	42.38	0.00	0.000%
22	-25.66	-56.51	-14.61	25.66	56.51	14.61	0.000%
23	-25.66	-42.38	-14.61	25.66	42.38	14.61	0.000%
24	-14.87	-56.51	-25.32	14.87	56.51	25.32	0.000%
25	-14.87	-42.38	-25.32	14.87	42.38	25.32	0.000%
26	0.00	-94.79	0.00	0.00	94.79	-0.00	0.000%
27	0.01	-94.79	-8.44	-0.01	94.79	8.44	0.000%
28	4.25	-94.79	-7.30	-4.25	94.79	7.30	0.000%
29	7.34	-94.79	-4.21	-7.34	94.79	4.21	0.000%
30	8.48	-94.79	0.00	-8.48	94.79	-0.00	0.000%
31	7.35	-94.79	4.21	-7.35	94.79	-4.21	0.000%
32	4.25	-94.79	7.30	-4.25	94.79	-7.30	0.000%
33	0.00	-94.79	8.43	-0.00	94.79	-8.43	0.000%
34	-4.26	-94.79	7.30	4.26	94.79	-7.30	0.000%
35	-7.36	-94.79	4.21	7.36	94.79	-4.21	0.000%
36	-8.49	-94.79	-0.00	8.49	94.79	0.00	0.000%
37	-7.36	-94.79	-4.21	7.36	94.79	4.21	0.000%
38	-4.26	-94.79	-7.30	4.26	94.79	7.30	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
39	0.01	-47.09	-6.28	-0.01	47.09	6.28	0.000%
40	3.17	-47.09	-5.43	-3.17	47.09	5.43	0.000%
41	5.48	-47.09	-3.13	-5.48	47.09	3.13	0.000%
42	6.32	-47.09	0.00	-6.32	47.09	-0.00	0.000%
43	5.48	-47.09	3.13	-5.48	47.09	-3.13	0.000%
44	3.17	-47.09	5.43	-3.17	47.09	-5.43	0.000%
45	0.00	-47.09	6.27	-0.00	47.09	-6.27	0.000%
46	-3.19	-47.09	5.43	3.19	47.09	-5.43	0.000%
47	-5.49	-47.09	3.13	5.49	47.09	-3.13	0.000%
48	-6.34	-47.09	-0.00	6.34	47.09	0.00	0.000%
49	-5.50	-47.09	-3.13	5.50	47.09	3.13	0.000%
50	-3.18	-47.09	-5.43	3.18	47.09	5.43	0.000%

**Non-Linear Convergence Results**

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00020476
3	Yes	5	0.00000001	0.00009696
4	Yes	6	0.00000001	0.00053733
5	Yes	6	0.00000001	0.00016932
6	Yes	6	0.00000001	0.00052542
7	Yes	6	0.00000001	0.00016498
8	Yes	5	0.00000001	0.00004325
9	Yes	4	0.00000001	0.00066279
10	Yes	6	0.00000001	0.00052920
11	Yes	6	0.00000001	0.00016628
12	Yes	6	0.00000001	0.00053525
13	Yes	6	0.00000001	0.00016847
14	Yes	5	0.00000001	0.00016784
15	Yes	5	0.00000001	0.00007963
16	Yes	6	0.00000001	0.00052576
17	Yes	6	0.00000001	0.00016479
18	Yes	6	0.00000001	0.00053658
19	Yes	6	0.00000001	0.00016880
20	Yes	5	0.00000001	0.00006759
21	Yes	4	0.00000001	0.00083382
22	Yes	6	0.00000001	0.00053037
23	Yes	6	0.00000001	0.00016651
24	Yes	6	0.00000001	0.00053035
25	Yes	6	0.00000001	0.00016650
26	Yes	4	0.00000001	0.00003428
27	Yes	6	0.00000001	0.00019462
28	Yes	6	0.00000001	0.00044613
29	Yes	6	0.00000001	0.00044104
30	Yes	6	0.00000001	0.00019501
31	Yes	6	0.00000001	0.00044475
32	Yes	6	0.00000001	0.00044807
33	Yes	6	0.00000001	0.00019558
34	Yes	6	0.00000001	0.00044915
35	Yes	6	0.00000001	0.00045405
36	Yes	6	0.00000001	0.00019691
37	Yes	6	0.00000001	0.00044906
38	Yes	6	0.00000001	0.00044842
39	Yes	4	0.00000001	0.00017304
40	Yes	5	0.00000001	0.00010030
41	Yes	5	0.00000001	0.00009389
42	Yes	4	0.00000001	0.00009371
43	Yes	5	0.00000001	0.00009576
44	Yes	5	0.00000001	0.00009876
45	Yes	4	0.00000001	0.00015624
46	Yes	5	0.00000001	0.00009318
47	Yes	5	0.00000001	0.00009997
48	Yes	4	0.00000001	0.00010451
49	Yes	5	0.00000001	0.00009641
50	Yes	5	0.00000001	0.00009575

**Maximum Tower Deflections - Service Wind**

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	29.684	48	1.5499	0.0016
L2	156.5 - 156	25.154	48	1.5307	0.0016
L3	156 - 132.67	24.994	48	1.5304	0.0016
L4	136.337 - 87.0867	18.905	48	1.3890	0.0016
L5	91.92 - 43	8.071	48	0.8869	0.0006
L6	49 - 0	2.162	48	0.4133	0.0002

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	Lightning Rod 3/4"x4'	48	29.684	1.5499	0.0016	54217
166.00	DR90-14-00DPL2 w/ Mount Pipe	48	28.222	1.5421	0.0016	54217
155.00	(2) DB844G65ZAXY w/ Mount Pipe	48	24.674	1.5291	0.0016	17596
146.00	QS66512-2 w/ Mount Pipe	48	21.832	1.4826	0.0016	8809
138.00	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	48	19.396	1.4065	0.0016	6058
128.00	VHLP800-11	48	16.529	1.2989	0.0014	5464

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	139.448	20	7.2864	0.0074
L2	156.5 - 156	118.204	20	7.1984	0.0076
L3	156 - 132.67	117.452	20	7.1970	0.0076
L4	136.337 - 87.0867	88.874	20	6.5365	0.0072
L5	91.92 - 43	37.957	20	4.1746	0.0029
L6	49 - 0	10.166	20	1.9444	0.0010

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	Lightning Rod 3/4"x4'	20	139.448	7.2864	0.0074	12178
166.00	DR90-14-00DPL2 w/ Mount Pipe	20	132.593	7.2507	0.0075	12178
155.00	(2) DB844G65ZAXY w/ Mount Pipe	20	115.951	7.1912	0.0076	3920
146.00	QS66512-2 w/ Mount Pipe	20	102.616	6.9740	0.0075	1942
138.00	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	20	91.183	6.6188	0.0073	1330
128.00	VHLP800-11	20	77.717	6.1142	0.0068	1191

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	K/ℓr	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	14.00	0.00	0.0	11.908 3	-1.12	375.11	0.003
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	0.50	0.00	0.0	11.908 3	-1.12	375.11	0.003
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	23.33	0.00	0.0	14.146 8	-11.08	980.62	0.011

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	K/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	49.25	0.00	0.0	39.4817	-23.36	2933.29	0.008
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	48.92	0.00	0.0	58.2792	-36.51	4329.85	0.008
L6	43 - 0 (6)	TP52.5x41.5315x0.5	49.00	0.00	0.0	72.0723	-44.96	5354.61	0.008

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>nx</sub> kip-ft	Ratio M <sub>ux</sub> / φM <sub>nx</sub>	M <sub>uy</sub> kip-ft	φM <sub>ny</sub> kip-ft	Ratio M <sub>uy</sub> / φM <sub>ny</sub>
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	9.89	103.38	0.096	0.00	103.38	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	9.89	103.38	0.096	0.00	103.38	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	222.19	479.32	0.464	0.00	479.32	0.000
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	1210.71	1993.99	0.607	0.00	1993.99	0.000
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	2323.22	3727.27	0.623	0.00	3727.27	0.000
L6	43 - 0 (6)	TP52.5x41.5315x0.5	2867.37	4984.90	0.575	0.00	4984.90	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> K	φV <sub>n</sub> K	Ratio V <sub>u</sub> / φV <sub>n</sub>	Actual T <sub>u</sub> kip-ft	φT <sub>n</sub> kip-ft	Ratio T <sub>u</sub> / φT <sub>n</sub>
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	1.10	187.56	0.006	0.00	157.00	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	1.12	345.58	0.003	0.00	157.00	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	17.26	490.31	0.035	0.19	959.83	0.000
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	24.52	1466.65	0.017	0.64	3992.86	0.000
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	27.19	2164.93	0.013	0.63	7463.65	0.000
L6	43 - 0 (6)	TP52.5x41.5315x0.5	28.40	2707.17	0.010	0.63	9982.00	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio P <sub>u</sub> / φP <sub>n</sub>	Ratio M <sub>ux</sub> / φM <sub>nx</sub>	Ratio M <sub>uy</sub> / φM <sub>ny</sub>	Ratio V <sub>u</sub> / φV <sub>n</sub>	Ratio T <sub>u</sub> / φT <sub>n</sub>	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170.5 - 156.5 (1)	0.003	0.096	0.000	0.006	0.000	0.099	1.000	4.8.2 ✓
L2	156.5 - 156 (2)	0.003	0.096	0.000	0.003	0.000	0.099	1.000	4.8.2 ✓
L3	156 - 132.67 (3)	0.011	0.464	0.000	0.035	0.000	0.476	1.000	4.8.2 ✓
L4	132.67 - 87.0867 (4)	0.008	0.607	0.000	0.017	0.000	0.615	1.000	4.8.2 ✓

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$P_u$	$M_{ux}$	$M_{uy}$	$V_u$	$T_u$			
L5	87.0867 - 43 (5)	0.008	0.623	0.000	0.013	0.000	0.632	1.000	4.8.2 ✓
L6	43 - 0 (6)	0.008	0.575	0.000	0.010	0.000	0.584	1.000	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-1.12	375.11	9.9	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-1.12	375.11	9.9	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-11.08	980.62	47.6	Pass
L4	132.67 - 87.0867	Pole	TP34.63x23.5836x0.375	4	-23.36	2933.29	61.5	Pass
L5	87.0867 - 43	Pole	TP43.75x32.7959x0.4375	5	-36.51	4329.85	63.2	Pass
L6	43 - 0	Pole	TP52.5x41.5315x0.5	6	-44.96	5354.61	58.4	Pass
Summary								
Pole (L5)							63.2	Pass
<b>RATING =</b>							<b>63.2</b>	<b>Pass</b>

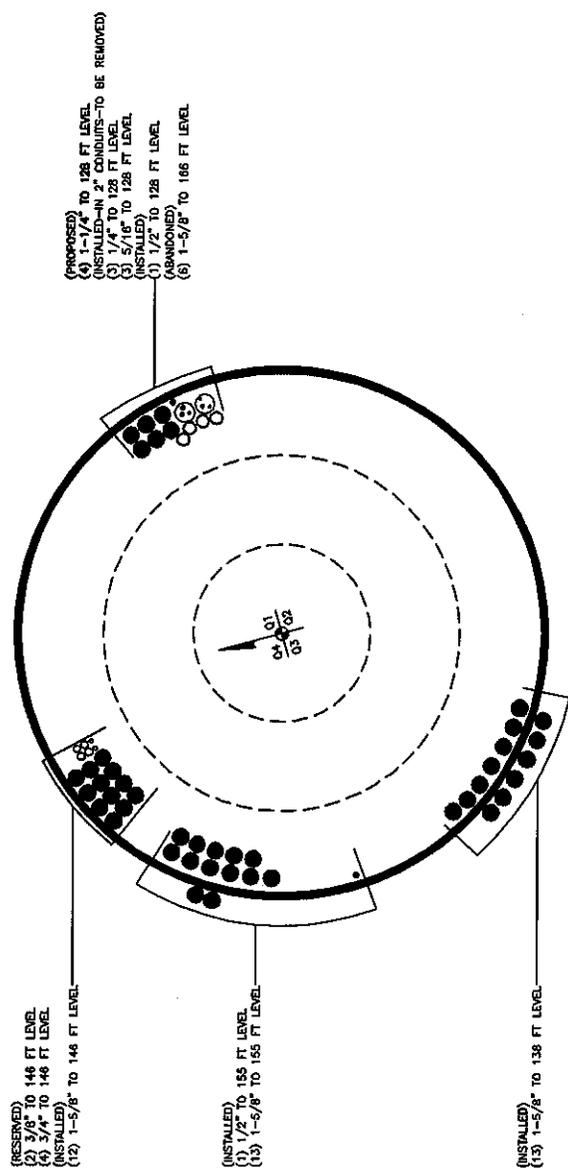
**APPENDIX B**  
**BASE LEVEL DRAWING**

CROWN REGION ADDRESS  
USA

18/07/18 AD-BALT INFORMATION ACORD PER WORK ORDER # 144820  
05/17/18 PROTECTED ACORD PER WORK ORDER # 144820  
11/13/17 UNPROT PER WORK ORDER # 144820  
12/29/16 UNPROT PER WORK ORDER # 144820  
20/12/16 UNPROT PER WORK ORDER # 144820  
07/11/17 UNPROT PER WORK ORDER # 144820  
20/07/18 UNPROT PER WORK ORDER # 144820  
20/07/18 UNPROT PER WORK ORDER # 144820  
27/07/18 UNPROT PER WORK ORDER # 144820

DRAWN BY: SAC  
CHECKED BY:  
DRAWING DATE: 2/07/06

SITE NUMBER:  
SITE NAME:  
BRG 125 84006  
BUSINESS UNIT NUMBER:  
BUSINESS UNIT NUMBER:  
SITE ADDRESS:  
281 WOODHOUSE ROAD  
FAIRFIELD, CT 06430  
USA  
SHEET TITLE:  
BASE LEVEL  
SHEET NUMBER



BASE LEVEL DRAWING 1

PLOT DATE: 02/22/06 FILE NAME: BUSINESS BASELEVEL.DWG

A1-0

**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

## Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data	
BU#:	806355
Site Name:	BRG 126 943086
App #:	436919 Rev. 2

Reactions		
Mu	10.45	ft-kips
Axial, Pu:	1.16	kips
Shear, Vu:	1.13	kips
Elevation:	156	feet

Bolt Threads:
X-Excluded
$\phi V_n = \phi(0.55 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
38.88

Pole Manufacturer:	Other
--------------------	-------

If No stiffeners, Criteria: **TIA G** <-Only Applicable to Unstiffened Cases

Bolt Data			
Qty:	15		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle (in.):	25.75		

Flange Bolt Results	
Bolt Tension Capacity, $\phi \cdot T_n, B1$ :	54.54 kips
Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$ ), B:	54.54 kips
Max Bolt directly applied Tu:	1.22 Kips
Min. PL "tc" for B cap. w/o Pry:	3.168 in
Min PL "treq" for actual T w/ Pry:	0.384 in
Min PL "t1" for actual T w/o Pry:	0.474 in
T allowable with Prying:	8.30 kips
Prying Force, q:	0.00 kips
Total Bolt Tension = Tu + q:	1.22 kips
Prying Bolt Stress Ratio = (Tu + q) / (B):	2.2% Pass

Non-Rigid
$\phi \cdot T_n$
$\phi T_n [1 - (V_u / \phi V_n)^2]^{0.5}$

Plate Data		
Diam:	28.5	in
Thick, t:	1	in
Grade (Fy):	60	ksi
Strength, Fu:	75	ksi
Single-Rod B-eff:	2.25	in

Exterior Flange Plate Results		Flexural Check
Compression Side Plate Stress:	5.6 ksi	
Allowable Plate Stress:	54.0 ksi	
Compression Plate Stress Ratio:	10.3% Pass	
<b>No Prying</b>		
Tension Side Stress Ratio, (treq/t) <sup>2</sup> :	14.7% Pass	

$\alpha > 1$  case

Non-Rigid
TIA G
$\phi \cdot F_y$
Comp. Y.L. Length:
23.40

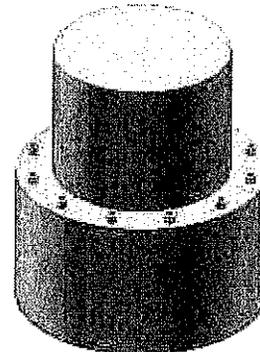
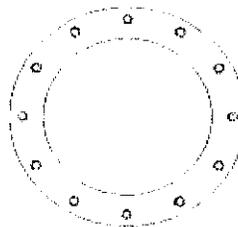
Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

**n/a**

Stiffener Results	
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$ :	n/a
Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$ :	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results	
Pole Punching Shear Check:	n/a

Pole Data		
Diam:	10.75	in
Thick:	0.365	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None



\* 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

## 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#:	806355
Site Name:	BRG 126 943086
App #:	436919 Rev. 2
Pole Manufacturer:	Other

Reactions		
Mu:	3719	ft-kips
Axial, Pu:	57	kips
Shear, Vu:	30	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	61	in

### Anchor Rod Results

Max Rod (Cu+ Vu/η): 152.1 Kips  
 Allowable Axial,  $\Phi * Fu * Anet$ : 260.0 Kips  
 Anchor Rod Stress Ratio: 58.5% Pass

Rigid
AISC LRFD
$\phi * T_n$

Plate Data		
Diam:	67	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.33	in

### Base Plate Results

Base Plate Stress: 36.0 ksi  
 Allowable Plate Stress: 54.0 ksi  
 Base Plate Stress Ratio: 66.8% Pass

Flexural Check

Rigid
AISC LRFD
$\phi * F_y$
Y.L. Length:
31.06

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

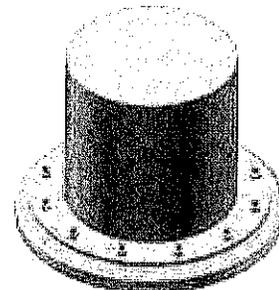
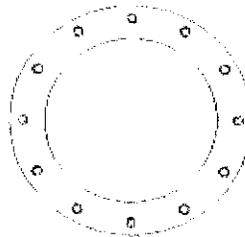
### Stiffener Results

Horizontal Weld : n/a  
 Vertical Weld: n/a  
 Plate Flex+Shear,  $f_b/F_b + (f_v/F_v)^2$ : n/a  
 Plate Tension+Shear,  $f_t/F_t + (f_v/F_v)^2$ : n/a  
 Plate Comp. (AISC Bracket): n/a

### Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	52.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



\* 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 #: 806355  
 Site Name: BRG 126 943086  
 App. Number: 436919 Rev. 2

TIA-222 Revision: G  
 Tower Type: Monopole

Block Foundation?:

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	57	kips
Base Shear, $V_{u\_comp}$ :	30	kips
Moment, $M_u$ :	3719	ft-kips
Tower Height, $H$ :	170.5	ft
BP Dist. Above Fdn, $b_{pdist}$ :	0	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	496.45	30.00	6.0%	Pass
<i>Bearing Pressure (ksf)</i>	18.00	3.24	18.0%	Pass
<i>Overturing (kip*ft)</i>	7881.64	4019.00	51.0%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	5911.36	3929.00	66.5%	Pass
<i>Pier Compression (kip)</i>	31187.52	118.74	0.4%	Pass
<i>Pad Flexure (kip*ft)</i>	3909.72	1405.59	36.0%	Pass
<i>Pad Shear - 1-way (kips)</i>	788.93	245.81	31.2%	Pass
<i>Pad Shear - 2-way (ksi)</i>	0.19	0.04	21.2%	Pass

Soil Rating: 51.0%  
 Structural Rating: 66.5%

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $d_{pier}$ :	7.0	ft
Ext. Above Grade, $E$ :	1.00	ft
Pier Rebar Size, $S_c$ :	8	
Pier Rebar Quantity, $m_c$ :	46	
Pier Tie/Spiral Size, $S_t$ :	4	
Pier Tie/Spiral Quantity, $m_t$ :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $c_{cpier}$ :	3	in

Pad Properties		
Depth, $D$ :	9.0	ft
Pad Width, $W$ :	22.0	ft
Pad Thickness, $T$ :	3.0	ft
Pad Rebar Size, $S_p$ :	8	
Pad Rebar Quantity, $m_p$ :	36	
Pad Clear Cover, $c_{cpad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60000	psi
Concrete Compressive Strength, $F'_c$ :	4000	psi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	135	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	24.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	36	degrees
SPT Blow Count, $N_{blows}$ :	50	
Base Friction, $\mu$ :	0.6	
Neglected Depth, $N$ :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	10	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: CT52XC084

BRG 126 943086  
281 Wood House Road  
Fairfield, CT 06824

**July 22, 2018**

**EBI Project Number: 6218005255**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>13.25 %</b>



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July 22, 2018

SPRINT

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

Emissions Analysis for Site: **CT52XC084 – BRG 126 943086**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **281 Wood House Road, Fairfield, 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 **281 Wood House Road, Fairfield, 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 **128 feet** above ground level (AGL) for **Sector A**, **128 feet** above ground level (AGL) for **Sector B** and **128 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)	128 feet	Height (AGL)	128 feet	Height (AGL)	128 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%	2.20 %	Antenna B1 MPE%	2.20 %	Antenna C1 MPE%	2.20 %
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)	128 feet	Height (AGL)	128 feet	Height (AGL)	128 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%	1.50 %	Antenna B2 MPE%	1.50 %	Antenna C2 MPE%	1.50 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	3.70 %
AT&T	3.47 %
Clearwire	0.12 %
PageNet	0.19 %
T-Mobile	2.24 %
Verizon Wireless	1.50 %
XM Satellite Radio	2.03 %
Metricom	0.00 %
<b>Site Total MPE %:</b>	<b>13.25 %</b>

SPRINT Sector A Total:	3.70 %
SPRINT Sector B Total:	3.70 %
SPRINT Sector C Total:	3.70 %
<b>Site Total:</b>	<b>13.25 %</b>

SPRINT – Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	128	0.91	850 MHz	567	0.16%
Sprint 850 MHz LTE	2	941.82	128	4.55	850 MHz	567	0.80%
Sprint 1900 MHz (PCS) CDMA	5	511.82	128	6.18	1900 MHz (PCS)	1000	0.62%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	128	6.18	1900 MHz (PCS)	1000	0.62%
Sprint 2500 MHz (BRS) LTE	8	778.09	128	15.04	2500 MHz (BRS)	1000	1.50%
						<b>Total:</b>	<b>3.70%</b>



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## 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:	3.70 %
Sector B:	3.70 %
Sector C:	3.70 %
SPRINT Maximum Total (per sector):	3.70 %
Site Total:	13.25 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **13.25 %** 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.

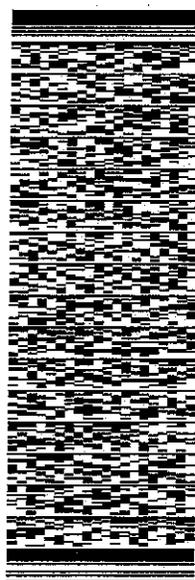
ORIGIN ID: BEDA (781) 970-0053  
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12 GILL STREET  
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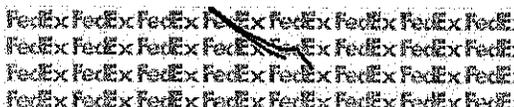
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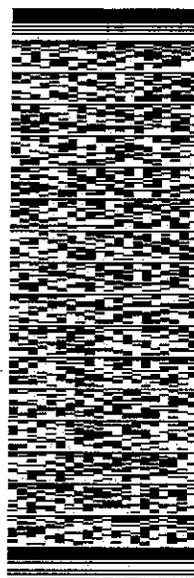
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**Ranjan & Moitrayee Ghosh**  
Ranjan & Moitrayee Ghosh  
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**Status:** Delivered: 07/30/2018 09:40 AM  
Signed for By: Signature not required

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**Signed for by:** Signature not required

**Delivery location:** PALMER, MA

**Delivered to:** Residence

**Service type:** FedEx Priority Overnight®

**Packaging type:** FedEx® Envelope

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**Weight:** 0.50 lb.

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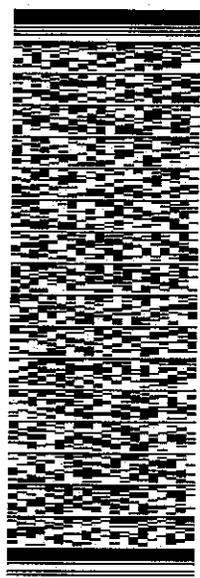
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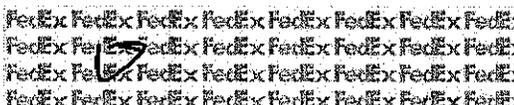
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Town Plan & Zone- Jim Wendt  
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