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

October 4, 2017

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

RE: **Notice of Exempt Modification for Sprint 2.5 Rework Crown Site BU: 842872**
AT&T Site ID: CT43XC847
52 New Britain Avenue, Rocky Hill, CT 06067
Latitude: 41° 39' 36.89"/ Longitude: -72° 40' 50.58"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 140-foot level of the existing 182-foot monopole tower at 52 New Britain Avenue in Rocky Hill, CT. The tower is owned by Crown Castle. The property is owned by the Town of Rocky Hill. Sprint now intends to add three (3) new antennas. These antennas would be installed at the 140-foot level of the tower. Sprint also intends to install three (3) RRHs, and one (1) hybrid line.

The Town of Rocky Hill could not confirm the original date and conditions of zoning.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Claudia Baio, Mayor, Town of Rocky Hill, Planning and Zoning - 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.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

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

Attachments:

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

cc: The Honorable Claudia Baio, Mayor,
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067

Planning and Zoning
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067

Property Location: 52 NEW BRITAIN AVENUE | **MAP ID:** 08/ / 354/ / | **Bldg Name:** CO 2 FIREHOUSE | **State Use:** 907

Vision ID: 6855 | **Account #** 007392 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 06/22/2016 19:03

CURRENT OWNER

ROCKY HILL TOWN OF
CO 2 FIREHOUSE
761 OLD MAIN STREET

ROCKY HILL, CT 06067-1517
Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION
1 Level	1 All Public	1 Paved	
	4 Gas		

SUPPLEMENTAL DATA

Other ID:	18-04-005	Clerks Map	
Census Tract	4903.02		
Total Land	0.57		
Zone	4		
Old MBL	18-04-005	Generator	
Dev Lot			
GIS ID:	08-354	*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
EXEMPT	BAAX	675,100	472,570
EXEMPT	BAAX	314,000	219,800
EXEMPT	BAAX	20,400	14,280
	Total	1,009,500	706,650

6119
ROCKY HILL, CT

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
ROCKY HILL TOWN OF	057/ 353	12/15/1957	U	V		29

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2014	BAAX	472,570	2013	BAAX	472,570	2012	BAAX	400,120
2014	BAAX	219,800	2013	BAAX	219,800	2012	BAAX	261,030
2014	BAAX	14,280	2013	BAAX	14,280	2012	BAAX	17,850
	Total:	706,650	*Total:*		706,650	*Total:*		679,000

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	675,100
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	20,400
Appraised Land Value (Bldg)	314,000
Special Land Value	0
Total Appraised Parcel Value	1,009,500
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	1,009,500

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

NOTES

CO 2 FIREHOUSE

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
2016-135	10/28/2015	EL	Electric	28,000		0		RETROFIT LIGHTS IN
	2015-457	06/18/2015	SN	Sign	44,000		0	
H 52 NEW BRI		2015-278	01/30/2015	CM	Commercial	15,000		100
	NA PANELS V	2015-253	01/06/2015	CM	Commercial	15,000		100
	OUT 3 ANTE	2015-65	08/11/2014	MS	Miscellaneous	48,192		100
	NSTALLATIC	2014-0210	11/15/2013	MS	Miscellaneous	52,300		100
	NT WORK OI	2014-0126	10/02/2013	CM	Commercial	15,000		0

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
10/04/2012			ST	01	Measured + 1Visit

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Value
1	907	Fire Vol	C				0.57	AC	400,000.00	1.3772	S		1.00		0.00				1.00		314,000

Total Card Land Units: 0.57 AC | **Parcel Total Land Area:** 0.57 AC | **Total Land Value:** 314,000

Property Location: 52 NEW BRITAIN AVENUE | **MAP ID:** 08/ / 354/ / | **Bldg Name:** CO 2 FIREHOUSE | **State Use:** 907

Vision ID: 6855 | **Account #** 007392 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 06/22/2016 19:03

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	59		Fire Station
Model	94		Comm/Ind
Grade	18		B
Stories	2		
Occupancy	1		
Exterior Wall A	20		Brick/Masonry
Exterior Wall B			
Roof Structure	01		Flat
Roof Cover	04		Tar + Gravel
Interior Wall A	05		Drywall/Sheetr
Interior Wall B			
Interior Floor A	14		Carpet
Interior Floor B			
Heating Fuel	03		Gas
Heating Type	04		Forced Air-Duc
AC Type	03		Central
Bldg Use	200		Commercial
Bsmt Garages	0		
Full Baths	1		
Half Baths	1		
Sprinkler %	0		None
Foundation	06		Slab
Heat/AC	01		Heat/AC Packag
Frame Type	03		Masonry
Baths/Plumbing	02		Average
Ceiling/Wall	06		Ceiling & Wall
Rooms/Prtns	02		Average
Wall Height	12		
% Comn Wall	0		

CONSTRUCTION DETAIL (CONTINUED)

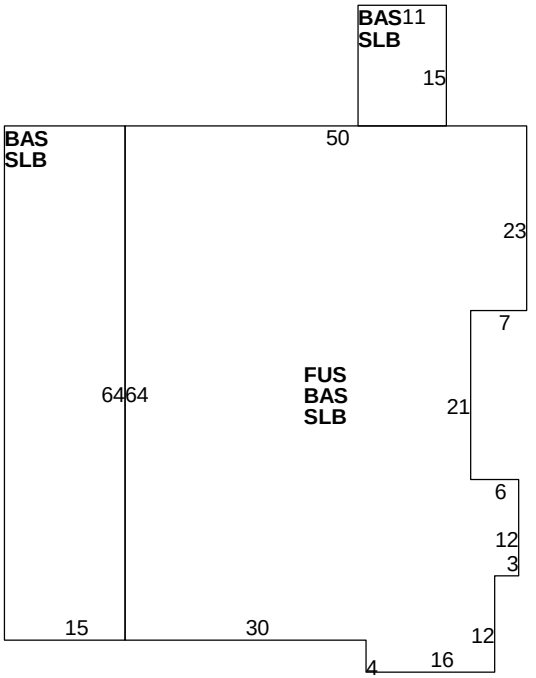
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
907	Fire Vol	100

COST/MARKET VALUATION

Adj. Base Rate:	183.64
	1,335,596
Net Other Adj:	14,546.00
Replace Cost	1,350,142
AYB	1958
EYB	1987
Dep Code	VG
Remodel Rating	
Year Remodeled	
Dep %	50
Functional Obslnc	
External Obslnc	
Cost Trend Factor	1
Condition	
% Complete	
Overall % Cond	50
Apprais Val	675,100
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



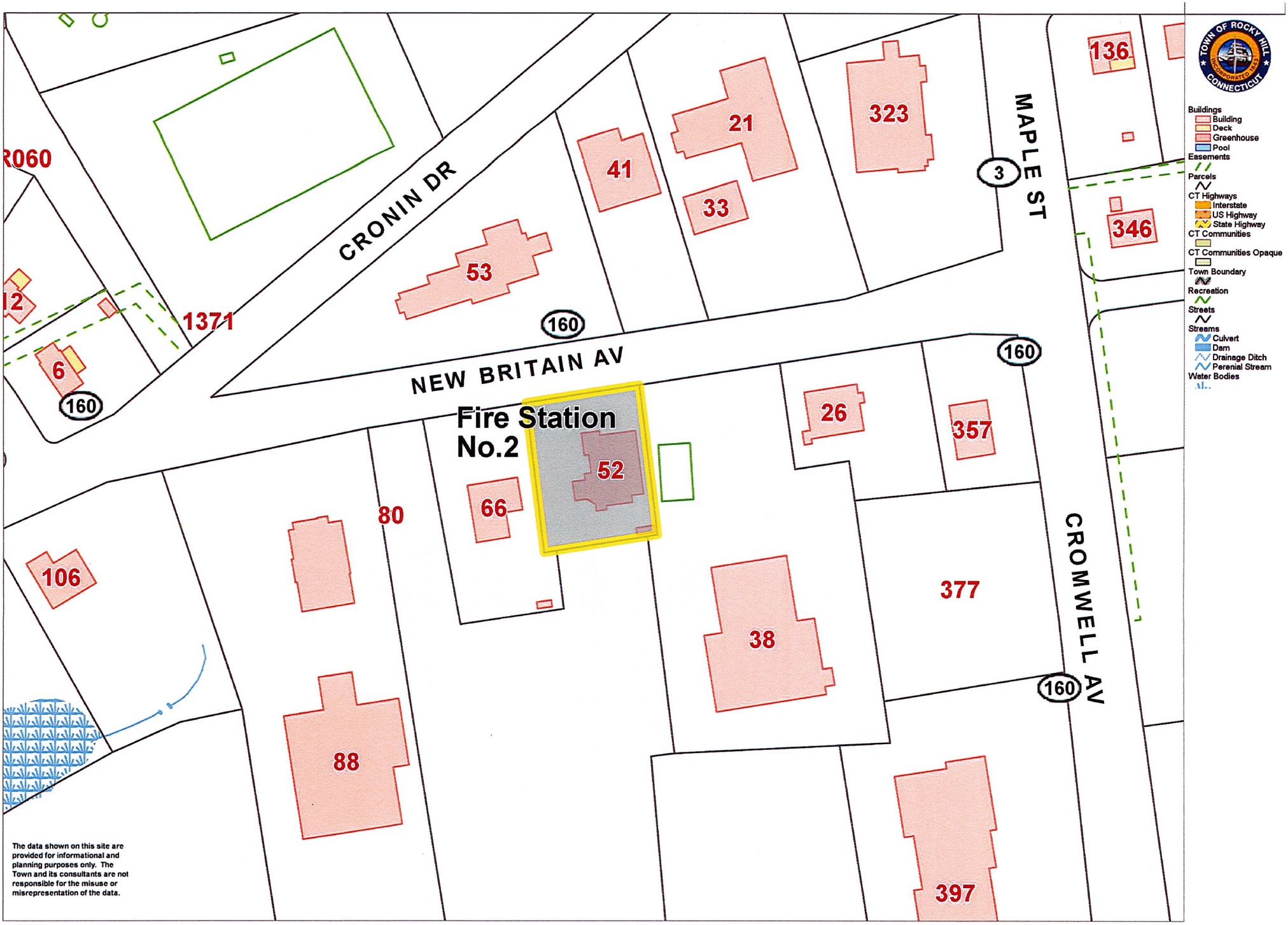
OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
PAV1	Paving Asphalt			L	17,000	2.40	1958		0		50	20,400

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	4,199	4,199		183.64	771,094
FUS	Finished Upper Story	3,074	3,074		183.64	564,502
SLB	Slab	0	4,199		0.00	0
	Ttl. Gross Liv/Lease Area:	7,273	11,472			1,350,142

08-354-001 12/09/2012


CRONIN DR
NEW BRITAIN AV
MAPLE ST
CROMWELL AV
Fire Station
No.2
160
3
R060
1371
12
6
41
21
33
323
53
136
346
26
357
52
66
80
106
88
38
377
397
Buildings
Building
Deck
Greenhouse
Pool
Easements
Parcels
CT Highways
Interstate
US Highway
State Highway
CT Communities
CT Communities Opaque
Town Boundary
Recreation
Streets
Streams
Culvert
Dam
Drainage Ditch
Perenial Stream
Water Bodies
The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.
0
200
400 ft
Printed on 09/06/2016 at 11:19 AM
MapsOnline by PeopleGIS

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	ROCKY HILL FD
SITE CASCADE:	CT43XC847
SITE NUMBER:	842872
SITE ADDRESS:	52 NEW BRITAIN AVE ROCKY HILL, CT 06067
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 39' 36.9" N
41.66025°

LONGITUDE (NAD83):
72° 40' 50.42" W
-72.680672°

COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

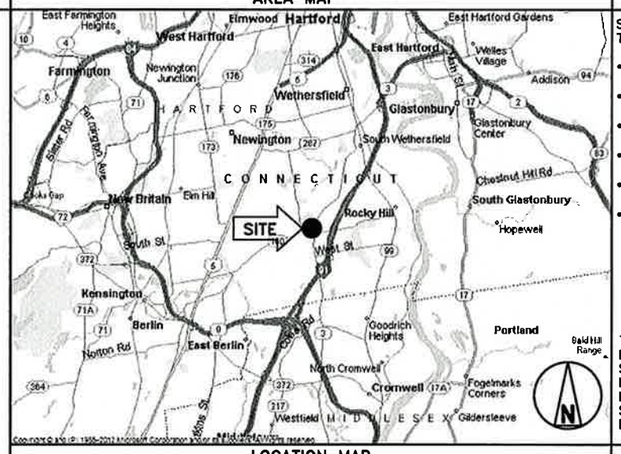
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
(800) 286-4000

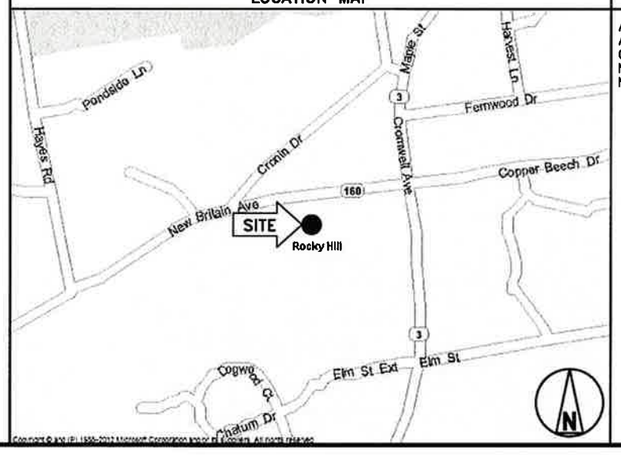
SPRINT CM:
PETER CULBERT
(603) 203-6446
(603) 969-0686
peter.culbert@sprint.com

CROWN CM:
JASON D'AMICO
(860) 209-0104
JASON.D'AMICO@CROWNCASTLE.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS CABINET
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) FIBER CABLE
- INSTALL (4) BATTERIES IN EXISTING BBU CABINET

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

APPLICABLE CODES

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

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

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

DRAWING INDEX

SHEET NO:	SHEET TITLE	REV
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

APPROVED
By Jeff Barbadora at 10:05 am, Jul 11, 2014

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

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

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR PERMIT	7/8/14	MPS	0

SITE NAME:
ROCKY HILL FD

SITE CASCADE:
CT43XC847

SITE ADDRESS:
52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR PERMIT	7/8/14	MPS	0

SITE NAME:

ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR PERMIT	7/8/14	MPS	0

SITE NAME:

ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.

8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.

9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.

10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.

6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.

2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;

3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.

4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING––TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;

6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.

7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.

9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.

2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).

3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).

4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.

9. SHELTER FOUNDATION––FORMS AND STEEL BEFORE POURING.

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.

14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.

18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.

19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING–TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR PERMIT	7/8/14	MPS	0

SITE NAME:

ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

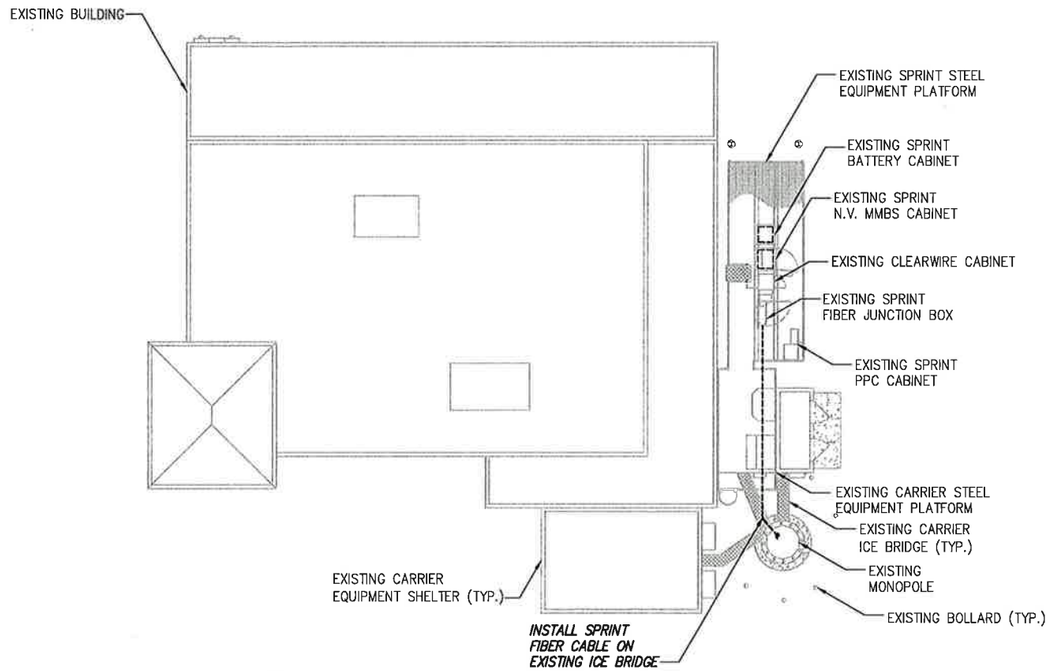
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

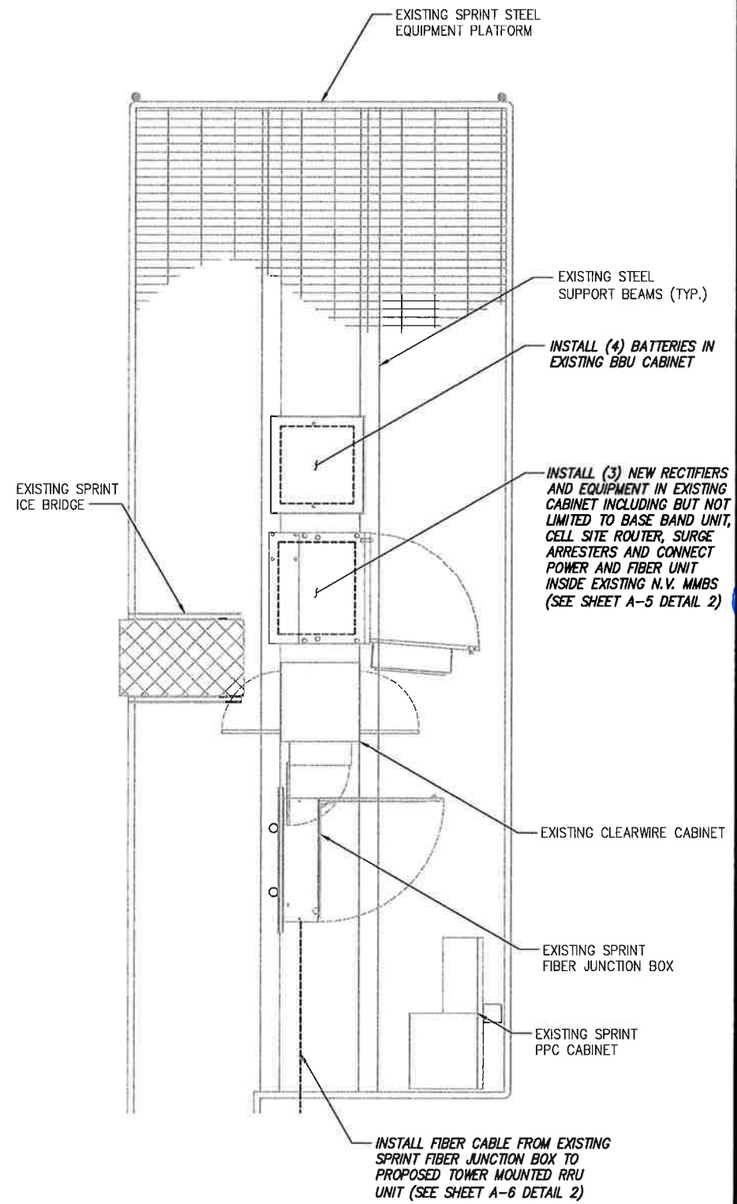
SP-3

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



5' 0 5' 10' 20'
(IN FEET)
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



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

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

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SITE ADDRESS:

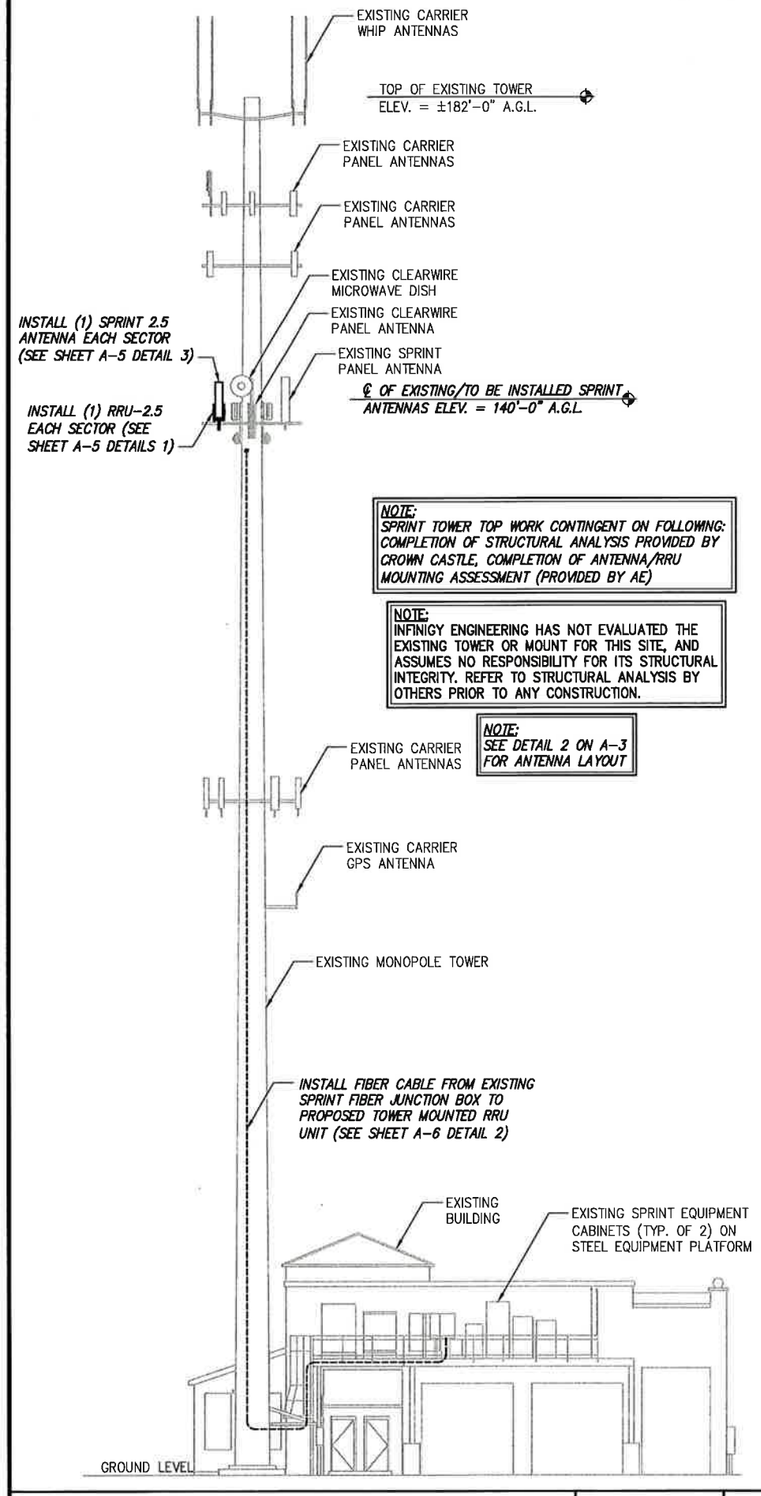
52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



NOTE:
SPRINT TOWER TOP WORK CONTINGENT ON FOLLOWING: COMPLETION OF STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, COMPLETION OF ANTENNA/RRU MOUNTING ASSESSMENT (PROVIDED BY AE)

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

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

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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SITE CASCADE:

CT43XC847

SITE ADDRESS:

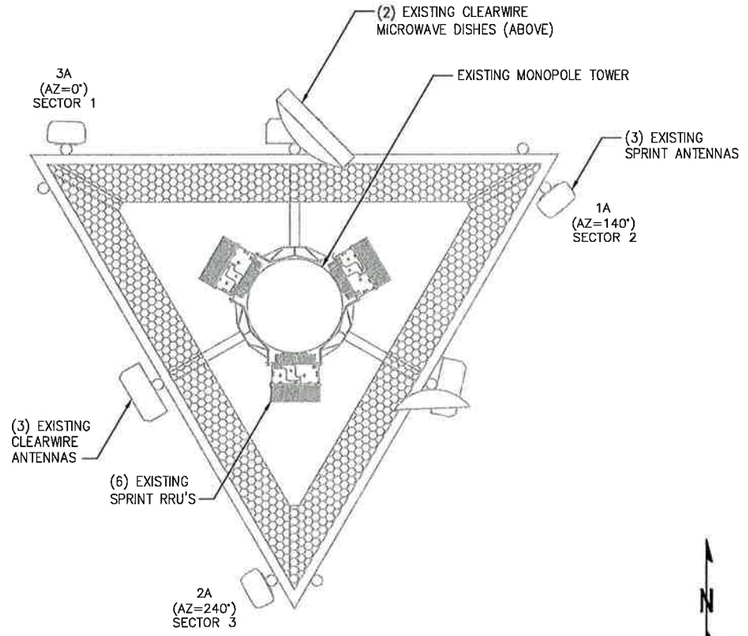
52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:

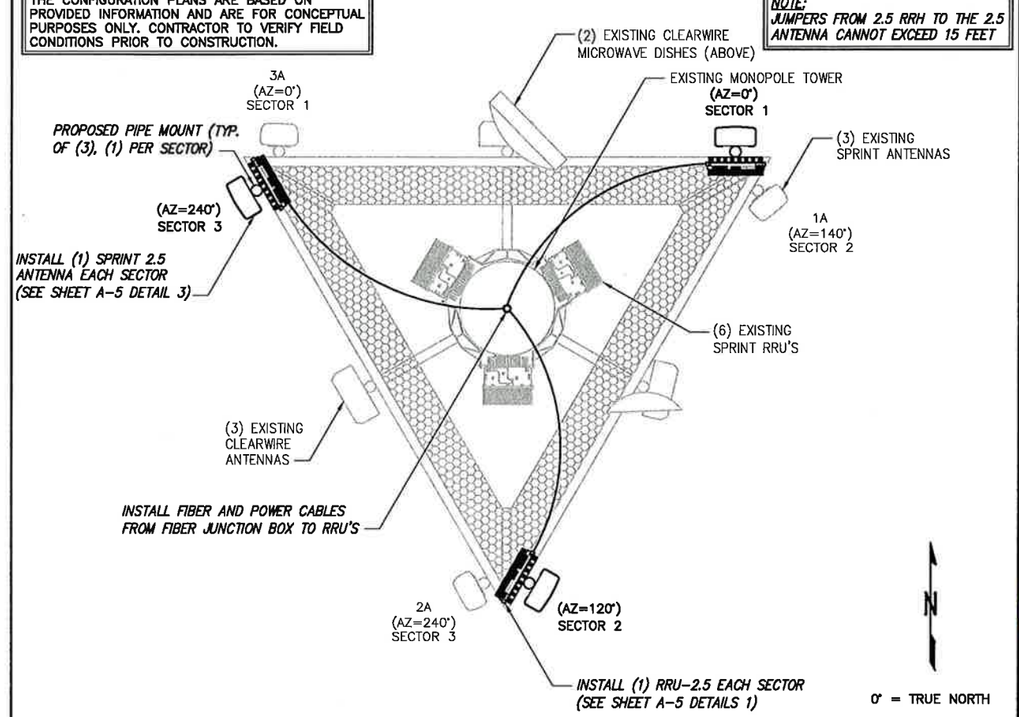
A-2



EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

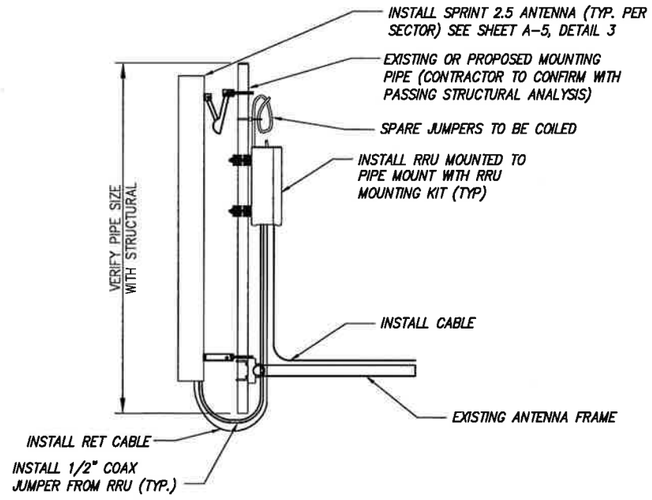
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

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



FINAL ANTENNA LAYOUT | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRU.
3. DO NO EXCEED BEND RADIUS.

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

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

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

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

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LICENSED PROFESSIONAL ENGINEER

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ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

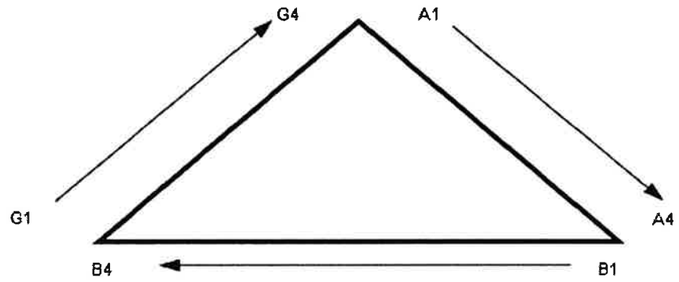
A-3

NV CABLES				
BAND	INDICATOR		PORT	COLOR
800-1	YEL	GRN	NV-1	GRN
1900-1	YEL	RED	NV-2	BLU
1900-2	YEL	BRN	NV-3	BRN
1900-3	YEL	BLU	NV-4	WHT
1900-4	YEL	SLT	NV-5	RED
800-2	YEL	ORG	NV-6	SLT
SPARE	YEL	WHT	NV-7	PPL
2500	YEL	PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.

3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.

5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.

6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.

7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1

Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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MLA PARTNER:
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JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

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SITE NAME:
ROCKY HILL FD

SITE CASCADE:
CT43XC847

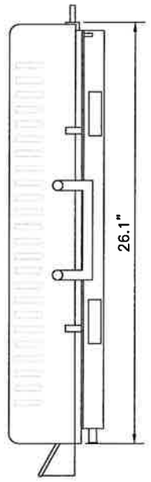
SITE ADDRESS:
52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:
COLOR CODING AND NOTES

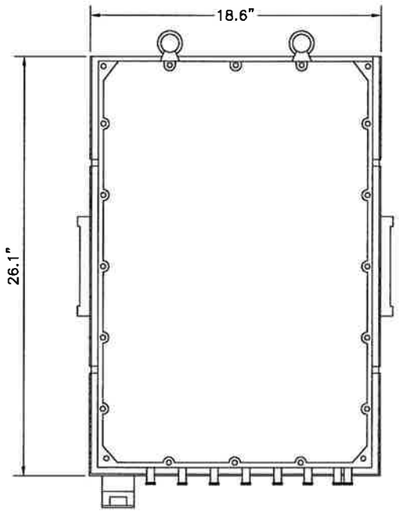
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

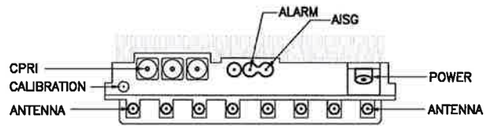
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

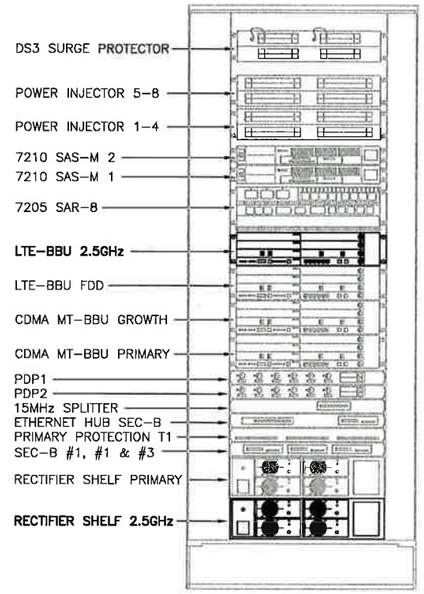


PLAN VIEW

NOTES

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

2.5 RRU	NO SCALE	1

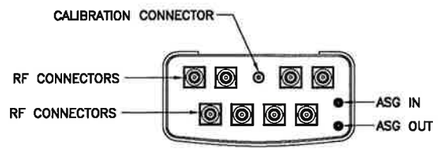


FRONT VIEW

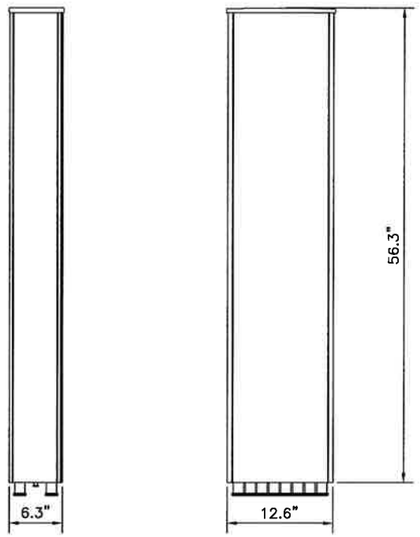
NEW EQUIPMENT IN EXISTING CABINET	NO SCALE	2

ANTENNA: RFS APXVTM14-C-I20

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



PLAN VIEW



2.5 ANTENNA	NO SCALE	3

DETAIL NOT USED	NO SCALE	4

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SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

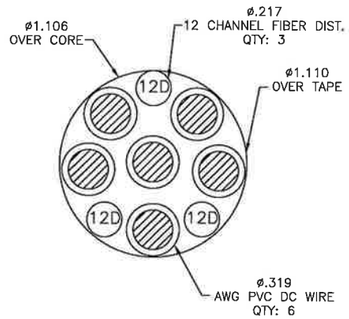
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

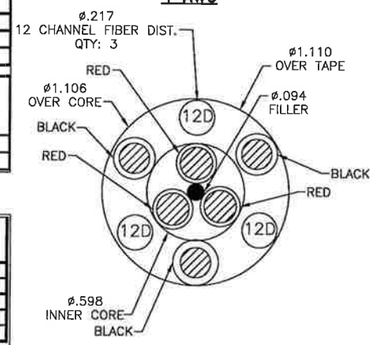
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

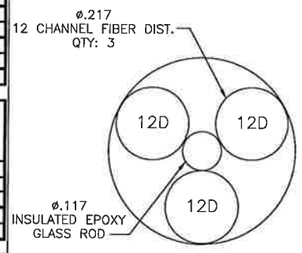
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



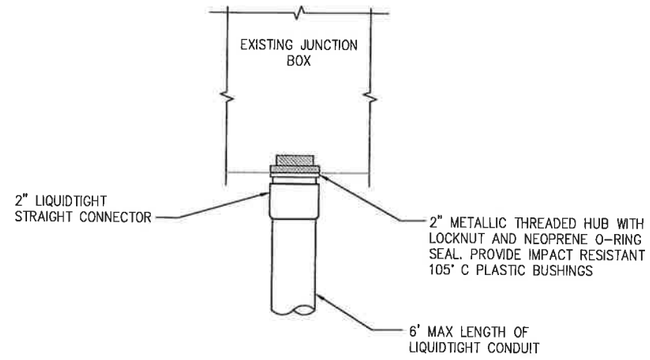
8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA

NO SCALE | 1



FIBER JUNCTION BOX PENETRATION

NO SCALE | 2

DETAIL NOT USED

NO SCALE | 3

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR PERMIT	7/8/14	MPS	0

SITE NAME:

ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

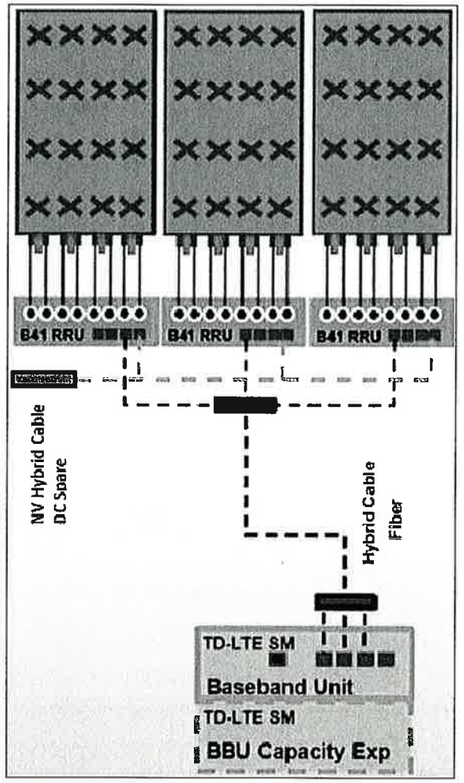
52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

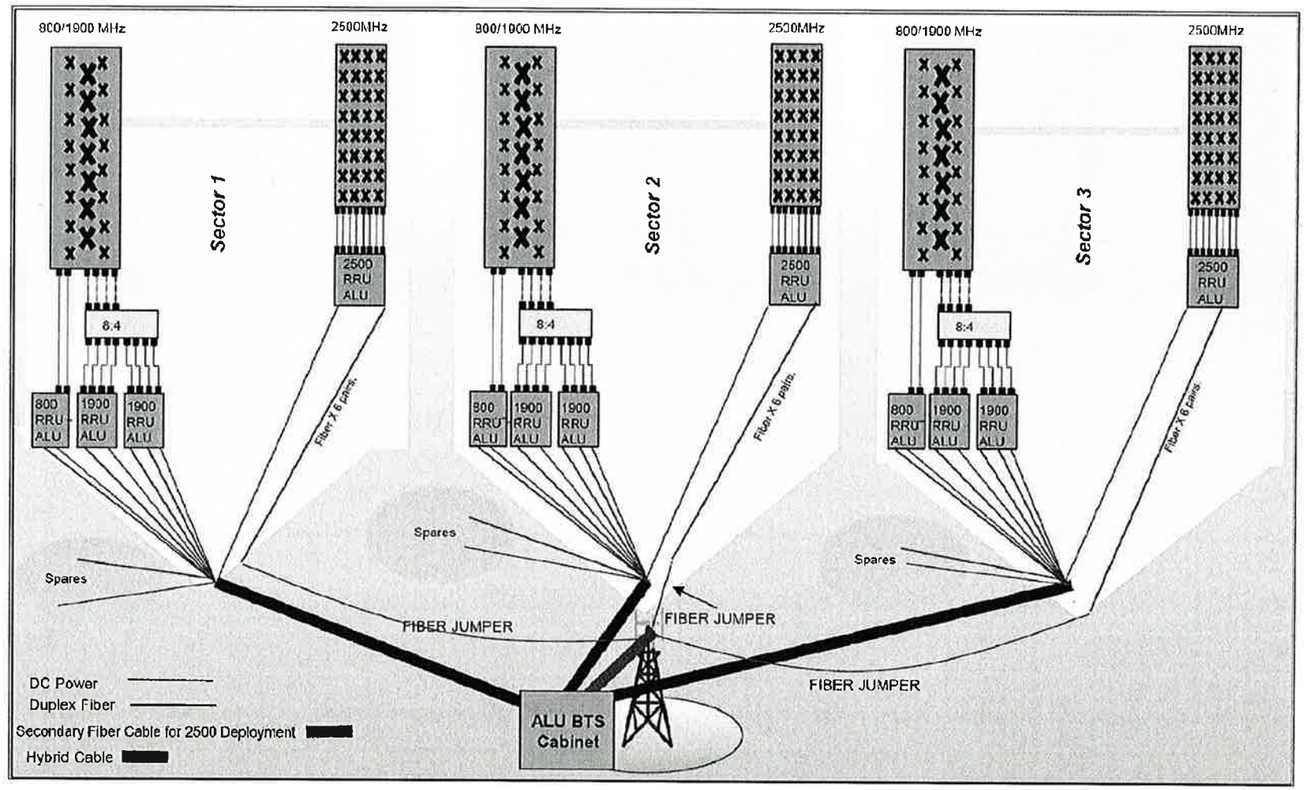
CIVIL DETAILS

SHEET NUMBER:

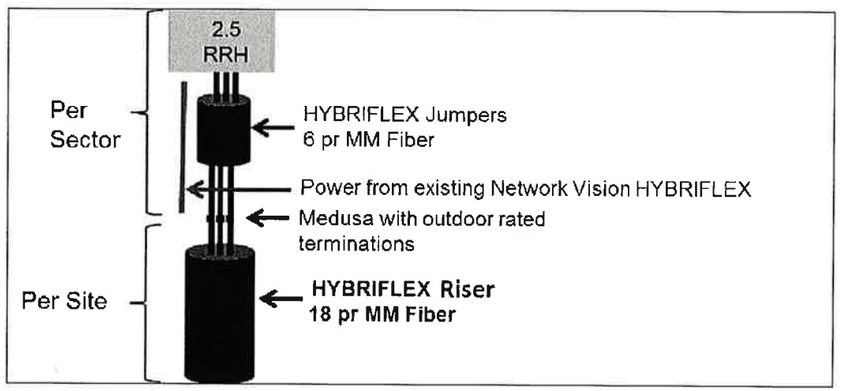
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM

NO SCALE

1

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

PLUMBING DIAGRAM

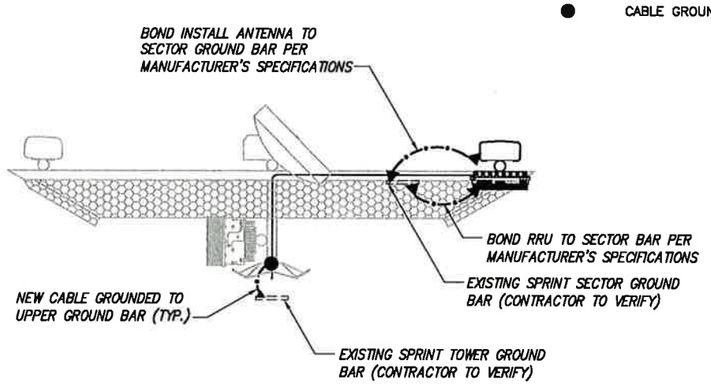
SHEET NUMBER:

A-7

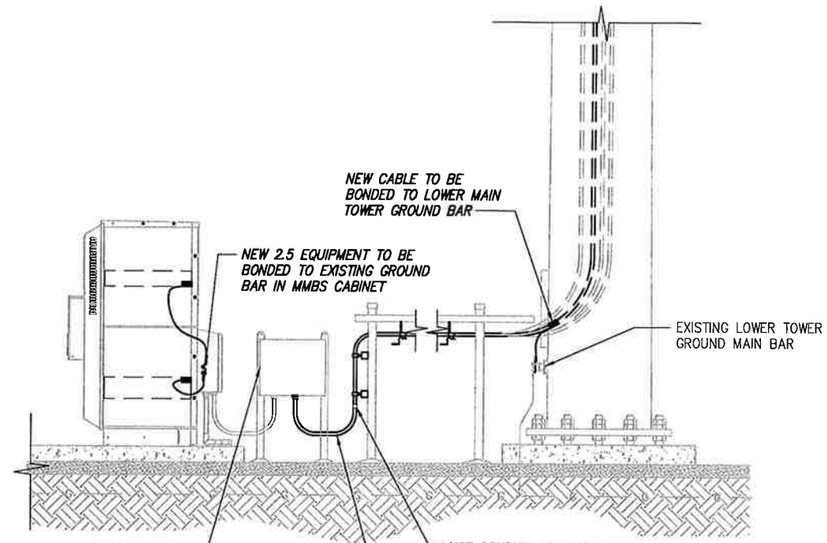
PLAN NOT USED | NO SCALE | 1

LEGEND:

—— G ——	EXISTING GROUND RING
■	CADWELD CONNECTION (EXOTHERMIC WELD)
▲	MECHANICAL CONNECTION
⊗	GROUND ROD
●	CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



NOTE:
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

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Sprint

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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DESCRIPTION	DATE	BY	REV
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SITE NAME:

ROCKY HILL FD

SITE CASCADE:

CT43XC847

SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

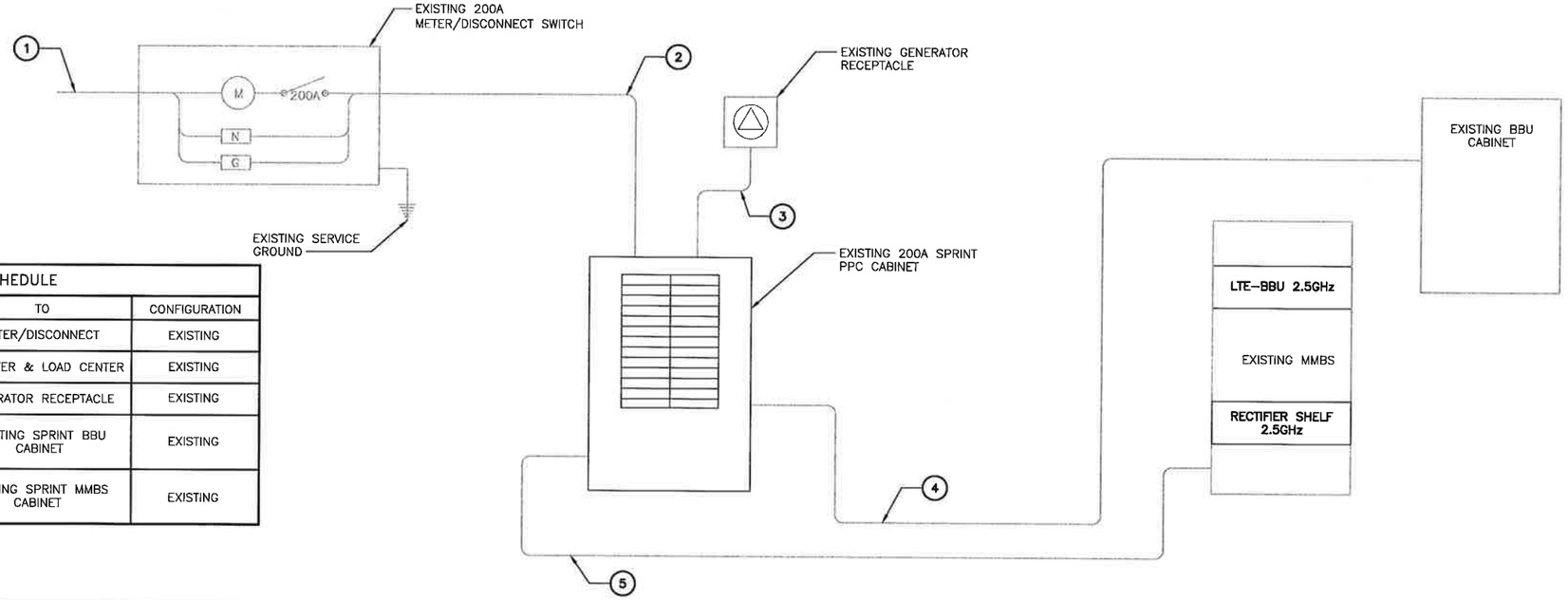
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

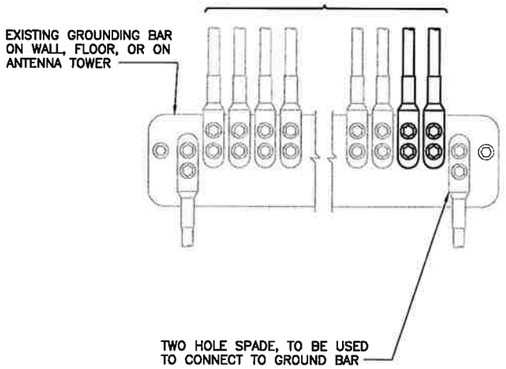
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE

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

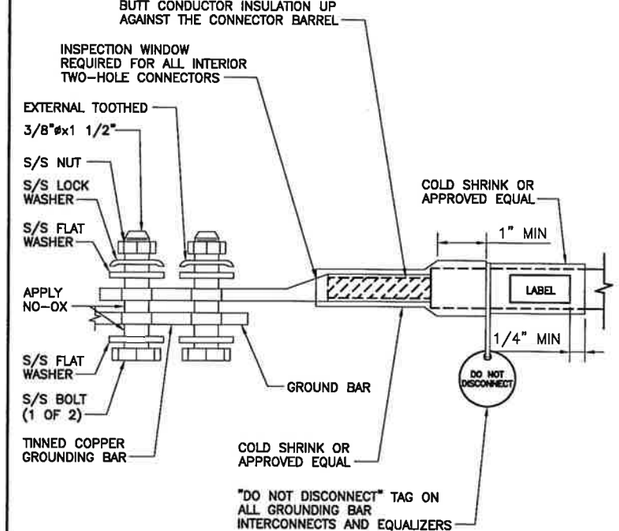
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



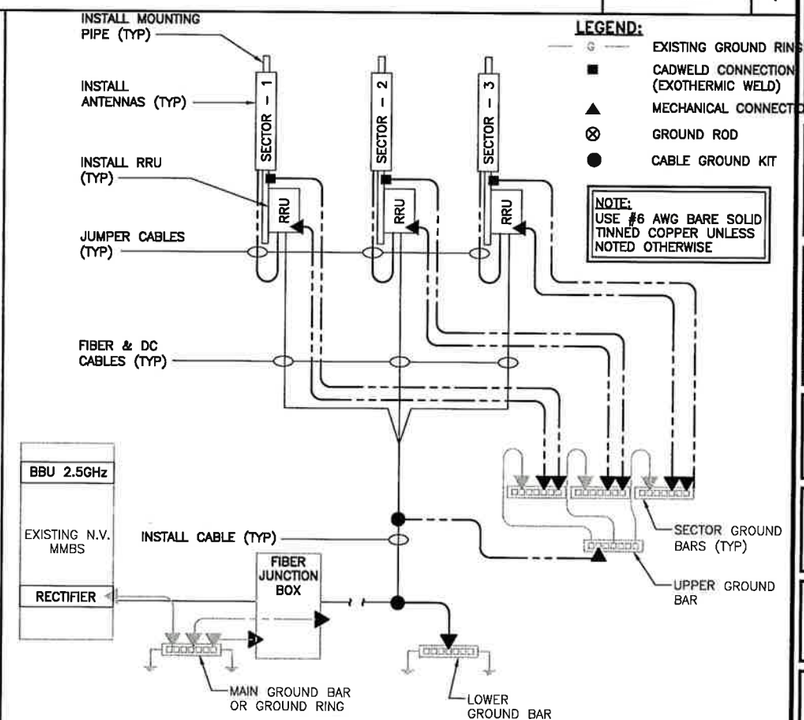
NOTES

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

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR — NO SCALE — 2



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

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Sprint

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SITE NAME:

ROCKY HILL FD

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SITE ADDRESS:

52 NEW BRITAIN AVE
ROCKY HILL, CT 06067

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **August 23, 2017**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-8145

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT43XC847
	Carrier Site Name:	CT43XC847
Crown Castle Designation:	**Crown Castle BU Number:**	842872
	Crown Castle Site Name:	ROCKY HILL
	Crown Castle JDE Job Number:	450834
	Crown Castle Work Order Number:	1436486
	Crown Castle Application Number:	399476 Rev. 1
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	194393
Site Data:	**52 New Britain Avenue, Rocky Hill, Hartford County, CT** **Latitude *41° 39' 36.89"*, Longitude *-72° 40' 50.58"*** **181.853 Foot - Monopole Tower**	

Dear Charles McGuirt,

Black & Veatch Corp. 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 1068239, in accordance with application 399476, revision 1.

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 C and Risk Category II were used in this analysis. Seismic forces have been evaluated based on Site Class D with spectral response factors S_S of 0.181g and S_1 of 0.063g.

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

Structural analysis prepared by: Suttinee Somchana / Gunjan Shetye

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 181.853 ft Monopole tower designed by Engineered Endeavors, Inc. in August of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by B+T Group, in June of 2012. Reinforcement consists of addition of stiffener plates on base plate. Refer to the post modification inspection report by GPD Group in December of 2015.

The tower was later reinforced per modification drawings prepared by B+T Group, in May of 2013. Reinforcement consists of addition of installation of reinforcement plates at 47' - 87' and addition of (4) more rebars to caisson foundation. Refer to Modification Inspection Report by B+T Group, in February of 2014.

The tower was later reinforced per modification drawings prepared by B+T Group, in October of 2016. Reinforcement consists of repair of existing shaft to base plate weld, removal of existing welds and install new weld to existing base plate stiffeners. The base plate stiffeners were considered effective as per Modification Inspection Report by Tower Engineering Professionals, in January of 2017.

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 1 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet. Seismic forces have been evaluated based on Site Class D with spectral response factors S_S of 0.181g and S_1 of 0.063g.

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
140.0	140.0	3	alcatel lucent	TD-RRH8x20-25	1	1-1/4	1
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

Notes:
1) See Appendix B for proposed coax configuration

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
178.0	191.0	1	austin antenna company	APC-1362	9	7/8	1
		1	austin antenna company	APC-2163			
		1	austin antenna company	APC-301			
		1	austin antenna company	APC-4065			
	190.0	2	dbspectra	DS4C06F36D-D	3	7/8	2

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
	178.0	1	cci tower mounts	Side Arm Mount [SO 702-3]	-	-	1
		2	radiowaves	HPD2-4.7			
	175.0	1	telewave	ANT450D6-9			
170.0	170.0	1	cci tower mounts	Platform Mount [LP 601-1]	-	-	1
	168.0	3	powerwave technologies	7770.00 w/ Mount Pipe	2 4 12	3/8 3/4 1-5/8	
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	ericsson	RRUS 11			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		3	quintel technology	QS66512-2 w/ Mount Pipe	-	-	2
		6	cci antennas	TPX-070821			
		3	ericsson	RRUS 32 B2			
		3	ericsson	WCS RRUS-32-B30			
		1	raycap	DC6-48-60-18-8F			
157.0	158.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2 12	1-1/4 1-5/8	1
		3	ericsson	Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
		3	rfs celwave	ATMAA1412D-1A20			
	157.0	1	cci tower mounts	Platform Mount [LP 305-1]			
140.0	144.0	2	andrew	VHLP2.5-10W	4 2	1/2 2-1/4	1
		2	dragonwave	Horizon Compact			
	140.0	3	kathrein	840 10054 w/ Mount Pipe			
		3	samsung telecommunications	URAS-FLEXIBLE			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	3	1-1/4	1
		3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		1	cci tower mounts	Platform Mount [LP 712-1]			
90.0	93.0	1	gps	GPS_A	-	-	1
	92.0	3	alcatel lucent	RRH2X60-AWS	1 13	1/2 1-5/8	
		3	alcatel lucent	RRH2X60-PCS			
		6	andrew	HBXX-6517DS-A2M w/ Mount Pipe			
		1	andrew	LNX-6514DS-T6M w/ Mount Pipe			
90.0	92.0	2	antel	BXA-70063-6CF-EDIN-4	-	-	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
				w/ Mount Pipe			
		3	antel	BXA-70080-4BF-EDIN-0 w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
		6	rfs celwave	FD9R6004/2C-3L			
	90.0	1	cci tower mounts	Platform Mount [LP 712-1]	-	-	
73.0	73.0	1	cci tower mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	gps	GPS_A			

Notes:
1) Existing Equipment
2) Reserved Equipment

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)
180	180	6	cellwave	omni	-	-
170	170	12	allgon	7184.15	-	-
160	160	12	allgon	7184.15	-	-
150	150	12	allgon	7184.15	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	4844402	CCISITES
4-GEOTECHNICAL REPORTS	Tower Engineering Professionals	4713251	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Tower Engineering Professionals (Mapped)	4713252	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4740398	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4904956	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	6525881	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	4904967	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Engineering and Architecture Professional Corporation	6040534	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	6647989	CCISITES

Document	Remarks	Reference	Source
4-TOWER STRUCTURAL ANALYSIS REPORTS	B+T Group	6560872	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. The existing/proposed loading on the structure is based on CAD level drawings and carrier applications provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

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

4) ANALYSIS RESULTS

4.1) Wind Results

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.7%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	11.1%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	17.7%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	27.4%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	35.9%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	45.3%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	52.9%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	59.2%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	67.1%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	67.4%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	52.6%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	56.9%	Pass

126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	60.4%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	63.4%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	66.0%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	68.1%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	69.9%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	71.4%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	72.5%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	78.4%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	78.9%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	79.0%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	80.8%	Pass
79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	82.5%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	77.7%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	78.1%	Pass
74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	85.2%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	87.1%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	88.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	90.4%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	91.9%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	93.1%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	91.0%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	78.6%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	79.3%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	80.0%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	80.7%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	81.3%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	81.8%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	82.3%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	82.8%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	83.2%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	83.3%	Pass
				Summary	
			Pole	93.1%	Pass
			Reinforcement	78.1%	Pass
			Overall	93.1%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	91.2	Pass
	Base Plate		71.3	Pass
	Plate Stiffeners		99.3	Pass
	Pole Punching Shear		4.3	Pass
1	Base Foundation	0	87.8	Pass
	Base Foundation Soil Interaction		13.8	Pass

4.2) Seismic Results

Tower and foundation have been analyzed based on the seismic criteria outlined in section 2 of this report. Based on the analysis, seismic loading is not governing the tower and foundation stress. Wind loading is governing the tower and foundation stress.

Structure Rating (max from all components) =	99.3%

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

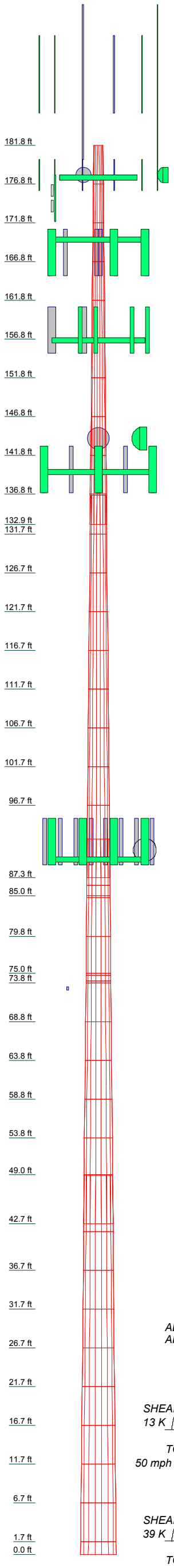
4.3) Recommendations

The tower and its foundations have sufficient capacity to carry the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.2500		14.5000	15.6778		0.2
2	5.00	18	0.2500		15.6778	16.8556		0.2
3	5.00	18	0.2500		16.8556	18.0334		0.2
4	5.00	18	0.2500		18.0334	19.2112		0.2
5	5.00	18	0.2500		19.2112	20.3890		0.3
6	5.00	18	0.2500		20.3890	21.5668		0.3
7	5.00	18	0.2500		21.5668	22.7446		0.3
8	5.00	18	0.2500		22.7446	23.9224		0.3
9	5.00	18	0.2500		23.9224	25.1001		0.3
10	5.02	18	0.2500	3.75	25.1001	26.3779		0.3
11	5.00	18	0.3750		26.3779	27.6557		0.5
12	5.00	18	0.3750		27.6557	28.9335		0.5
13	5.00	18	0.3750		28.9335	30.2113		0.6
14	5.00	18	0.3750		30.2113	31.4891		0.6
15	5.00	18	0.3750		31.4891	32.7669		0.6
16	5.00	18	0.3750		32.7669	34.0447		0.6
17	5.00	18	0.3750		34.0447	35.3225		0.6
18	5.00	18	0.3750		35.3225	36.6003		0.7
19	9.37	18	0.3750	5.02	36.6003	38.5628	A572-65	1.3
20	6.02	18	0.3750		38.5628	39.8406		0.8
21	2.20	18	0.3750		39.8406	40.1691		0.2
22	0.30	18	0.3750		40.1691	40.2762		0.0
23	5.00	18	0.3750		40.2762	41.5540		0.7
24	4.75	18	0.3750		41.5540	42.7218		0.7
25	0.25	18	0.3750		42.7218	42.7826		0.0
26	0.25	18	0.3750		42.7826	42.8435		0.0
27	0.25	18	0.3750		42.8435	42.9043		0.0
28	5.00	18	0.3750		42.9043	44.1821		0.8
29	5.00	18	0.3750		44.1821	45.4599		0.8
30	5.00	18	0.3750		45.4599	46.7377		0.8
31	5.00	18	0.3750		46.7377	48.0155		0.9
32	4.75	18	0.3750		48.0155	49.2833		0.8
33	7.30	18	0.3750	6.23	49.2833	51.1511		1.1
34	1.50	18	0.4375		51.1511	51.5346		0.3
35	5.00	18	0.4375		51.5346	52.8124		1.1
36	5.00	18	0.4375		52.8124	54.0902		1.1
37	5.00	18	0.4375		54.0902	55.3680		1.1
38	5.00	18	0.4375		55.3680	56.6458		1.2
39	5.00	18	0.4375		56.6458	57.9236		1.2
40	5.00	18	0.4375		57.9236	59.2014		1.2
41	5.00	18	0.4375		59.2014	60.4792		1.2
42	5.00	18	0.4375		60.4792	61.7570		1.3
43	1.70	18	0.4375		61.7570	62.0000		0.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Side Arm Mount [SO 702-3]	178	ATMAA1412D-1A20	157
6' x 2" Mount Pipe	178	Platform Mount [LP 305-1]	157
6' x 2" Mount Pipe	178	6' x 2" Mount Pipe	157
6' x 2" Mount Pipe	178	APXVSPP18-C-A20 w/ Mount Pipe	140
6' x 2" Mount Pipe	178	APXVSPP18-C-A20 w/ Mount Pipe	140
6' x 2" Mount Pipe	178	APXVTM14-C-120 w/ Mount Pipe	140
6' x 2" Mount Pipe	178	APXVTM14-C-120 w/ Mount Pipe	140
DS4C06F36D-D	178	APXVTM14-C-120 w/ Mount Pipe	140
DS4C06F36D-D	178	800MHZ RRH	140
APC-2163	178	800MHZ RRH	140
APC-1362	178	800MHZ RRH	140
APC-301	178	800 EXTERNAL NOTCH FILTER	140
ANT450D6-9	178	800 EXTERNAL NOTCH FILTER	140
APC-4065	178	800 EXTERNAL NOTCH FILTER	140
HPD2-4.7	178	1900MHz RRH (65MHz)	140
HPD2-4.7	178	1900MHz RRH (65MHz)	140
QS66512-2 w/ Mount Pipe	170	1900MHz RRH (65MHz)	140
QS66512-2 w/ Mount Pipe	170	TD-RRH8x20-25	140
QS66512-2 w/ Mount Pipe	170	TD-RRH8x20-25	140
7770.00 w/ Mount Pipe	170	TD-RRH8x20-25	140
7770.00 w/ Mount Pipe	170	840 10054 w/ Mount Pipe	140
7770.00 w/ Mount Pipe	170	840 10054 w/ Mount Pipe	140
AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	840 10054 w/ Mount Pipe	140
AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	URAS-FLEXIBLE	140
AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	URAS-FLEXIBLE	140
RRUS 32 B2	170	URAS-FLEXIBLE	140
RRUS 32 B2	170	Horizon Compact	140
RRUS 32 B2	170	Horizon Compact	140
WCS RRUS-32-B30	170	Platform Mount [LP 712-1]	140
WCS RRUS-32-B30	170	APXVSPP18-C-A20 w/ Mount Pipe	140
WCS RRUS-32-B30	170	VHLP2.5-10W	140
(2) TPX-070821	170	VHLP2.5-10W	140
(2) TPX-070821	170	HBXX-6517DS-A2M w/ Mount Pipe	90
(2) TPX-070821	170	HBXX-6517DS-A2M w/ Mount Pipe	90
DC6-48-60-18-8F	170	HBXX-6517DS-A2M w/ Mount Pipe	90
LGP21401	170	HBXX-6517DS-A2M w/ Mount Pipe	90
LGP21401	170	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	90
LGP21401	170	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	90
LGP21401	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
LGP21401	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
LGP21401	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
RRUS 11	170	LNX-6514DS-T6M w/ Mount Pipe	90
RRUS 11	170	(2) RRH2X60-AWS	90
RRUS 11	170	RRH2X60-AWS	90
DC6-48-60-18-8F	170	RRH2X60-AWS	90
Platform Mount [LP 601-1]	170	RRH2X60-PCS	90
Transition Ladder	170	RRH2X60-PCS	90
6' x 2" Mount Pipe	157	RRH2X60-PCS	90
6' x 2" Mount Pipe	157	(2) FD9R6004/2C-3L	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	(2) FD9R6004/2C-3L	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	(2) FD9R6004/2C-3L	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	DB-T1-6Z-8AB-0Z	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	DB-T1-6Z-8AB-0Z	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	Platform Mount [LP 712-1]	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	GPS_A	90
RRUS 11 B12	157	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 11 B12	157	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 11 B12	157	Side Arm Mount [SO 701-1]	73
ATMAA1412D-1A20	157	GPS_A	73
ATMAA1412D-1A20	157		

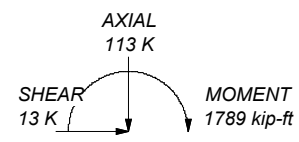
MATERIAL STRENGTH

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

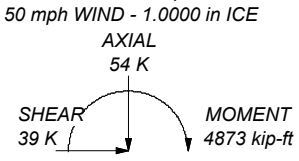
TOWER DESIGN NOTES

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

ALL REACTIONS ARE FACTORED



TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 2 kip-ft
REACTIONS - 97 mph WIND

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Job: ***ROCKY HILL (BU#842872)***			
Project: ***194393 (842872.1436486)***			
Client: Crown Castle	Drawn by: Suttinee Somchana		App'd:
Code: TIA-222-G	Date: 08/23/17		Scale: NTS
Path: C:\Users\v\68982\Desktop\842872.1436486 (TARP)\842872.1436486 Structural Analysis - Modified.eri			Dwg No. E-1

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 Hartford County, Connecticut.
2) Basic wind speed of 97 mph.
3) Structure Class II.
4) Exposure Category C.
5) Topographic Category 1.
6) Crest Height 0.00 ft.
7) Nominal ice thickness of 1.0000 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	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		

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	181.83-176.83	5.00	0.00	18	14.5000	15.6778	0.2500	1.0000	A572-65 (65 ksi)
L2	176.83-171.83	5.00	0.00	18	15.6778	16.8556	0.2500	1.0000	A572-65 (65 ksi)
L3	171.83-166.83	5.00	0.00	18	16.8556	18.0334	0.2500	1.0000	A572-65 (65 ksi)
L4	166.83-161.83	5.00	0.00	18	18.0334	19.2112	0.2500	1.0000	A572-65 (65 ksi)
L5	161.83-156.83	5.00	0.00	18	19.2112	20.3890	0.2500	1.0000	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	156.83-151.83	5.00	0.00	18	20.3890	21.5668	0.2500	1.0000	A572-65 (65 ksi)
L7	151.83-146.83	5.00	0.00	18	21.5668	22.7446	0.2500	1.0000	A572-65 (65 ksi)
L8	146.83-141.83	5.00	0.00	18	22.7446	23.9224	0.2500	1.0000	A572-65 (65 ksi)
L9	141.83-136.83	5.00	0.00	18	23.9224	25.1001	0.2500	1.0000	A572-65 (65 ksi)
L10	136.83-132.91	3.92	3.75	18	25.1001	26.0233	0.2500	1.0000	A572-65 (65 ksi)
L11	132.91-131.67	5.00	0.00	18	24.6392	25.8062	0.3750	1.5000	A572-65 (65 ksi)
L12	131.67-126.67	5.00	0.00	18	25.8062	26.9732	0.3750	1.5000	A572-65 (65 ksi)
L13	126.67-121.67	5.00	0.00	18	26.9732	28.1401	0.3750	1.5000	A572-65 (65 ksi)
L14	121.67-116.67	5.00	0.00	18	28.1401	29.3071	0.3750	1.5000	A572-65 (65 ksi)
L15	116.67-111.67	5.00	0.00	18	29.3071	30.4740	0.3750	1.5000	A572-65 (65 ksi)
L16	111.67-106.67	5.00	0.00	18	30.4740	31.6410	0.3750	1.5000	A572-65 (65 ksi)
L17	106.67-101.67	5.00	0.00	18	31.6410	32.8079	0.3750	1.5000	A572-65 (65 ksi)
L18	101.67-96.67	5.00	0.00	18	32.8079	33.9749	0.3750	1.5000	A572-65 (65 ksi)
L19	96.67-87.30	9.37	5.02	18	33.9749	36.1606	0.3750	1.5000	A572-65 (65 ksi)
L20	87.30-86.30	6.02	0.00	18	34.2387	35.6420	0.3750	1.5000	A572-65 (65 ksi)
L21	86.30-85.00	1.30	0.00	18	35.6420	35.9455	0.3750	1.5000	A572-65 (65 ksi)
L22	85.00-84.75	0.25	0.00	18	35.9455	36.0038	0.3750	1.5000	A572-65 (65 ksi)
L23	84.75-79.75	5.00	0.00	18	36.0038	37.1691	0.3750	1.5000	A572-65 (65 ksi)
L24	79.75-75.00	4.75	0.00	18	37.1691	38.2762	0.3750	1.5000	A572-65 (65 ksi)
L25	75.00-74.75	0.25	0.00	18	38.2762	38.3344	0.3750	1.5000	A572-65 (65 ksi)
L26	74.75-74.00	0.75	0.00	18	38.3344	38.5092	0.3750	1.5000	A572-65 (65 ksi)
L27	74.00-73.75	0.25	0.00	18	38.5092	38.5675	0.3750	1.5000	A572-65 (65 ksi)
L28	73.75-68.75	5.00	0.00	18	38.5675	39.7328	0.3750	1.5000	A572-65 (65 ksi)
L29	68.75-63.75	5.00	0.00	18	39.7328	40.8982	0.3750	1.5000	A572-65 (65 ksi)
L30	63.75-58.75	5.00	0.00	18	40.8982	42.0635	0.3750	1.5000	A572-65 (65 ksi)
L31	58.75-53.75	5.00	0.00	18	42.0635	43.2288	0.3750	1.5000	A572-65 (65 ksi)
L32	53.75-49.00	4.75	0.00	18	43.2288	44.3359	0.3750	1.5000	A572-65 (65 ksi)
L33	49.00-42.70	6.30	6.23	18	44.3359	45.8047	0.3750	1.5000	A572-65 (65 ksi)
L34	42.70-41.70	7.23	0.00	18	43.6034	45.2869	0.4375	1.7500	A572-65 (65 ksi)
L35	41.70-36.70	5.00	0.00	18	45.2869	46.4516	0.4375	1.7500	A572-65 (65 ksi)
L36	36.70-31.70	5.00	0.00	18	46.4516	47.6163	0.4375	1.7500	A572-65 (65 ksi)
L37	31.70-26.70	5.00	0.00	18	47.6163	48.7810	0.4375	1.7500	A572-65 (65 ksi)
L38	26.70-21.70	5.00	0.00	18	48.7810	49.9457	0.4375	1.7500	A572-65 (65 ksi)
L39	21.70-16.70	5.00	0.00	18	49.9457	51.1104	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
L40	16.70-11.70	5.00	0.00	18	51.1104	52.2751	0.4375	1.7500	A572-65 (65 ksi)
L41	11.70-6.70	5.00	0.00	18	52.2751	53.4398	0.4375	1.7500	A572-65 (65 ksi)
L42	6.70-1.70	5.00	0.00	18	53.4398	54.6045	0.4375	1.7500	A572-65 (65 ksi)
L43	1.70-0.00	1.70		18	54.6045	55.0000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	14.7237	11.3074	290.0875	5.0587	7.3660	39.3820	580.5566	5.6548	2.1120	8.448
	15.9196	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
L2	15.9196	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
	17.1156	13.1765	459.0364	5.8950	8.5626	53.6092	918.6769	6.5895	2.5266	10.106
L3	17.1156	13.1765	459.0364	5.8950	8.5626	53.6092	918.6769	6.5895	2.5266	10.106
	18.3116	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3481	7.0569	2.7339	10.936
L4	18.3116	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3481	7.0569	2.7339	10.936
	19.5075	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7157	7.5243	2.9412	11.765
L5	19.5075	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7157	7.5243	2.9412	11.765
	20.7035	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7465	7.9917	3.1485	12.594
L6	20.7035	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7465	7.9917	3.1485	12.594
	21.8995	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4071	8.4590	3.3558	13.423
L7	21.8995	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4071	8.4590	3.3558	13.423
	23.0954	17.8494	1141.0816	7.9856	11.5542	98.7587	2283.6647	8.9264	3.5630	14.252
L8	23.0954	17.8494	1141.0816	7.9856	11.5542	98.7587	2283.6647	8.9264	3.5630	14.252
	24.2914	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4860	9.3938	3.7703	15.081
L9	24.2914	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4860	9.3938	3.7703	15.081
	25.4874	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
L10	25.4874	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
	26.4248	20.4511	1716.3050	9.1495	13.2198	129.8280	3434.8684	10.2275	4.1401	16.56
L11	25.9088	28.8805	2148.2071	8.6138	12.5167	171.6268	4299.2409	14.4430	3.6765	9.804
	26.2043	30.2695	2473.2975	9.0281	13.1096	188.6638	4949.8494	15.1376	3.8819	10.352
L12	26.2043	30.2695	2473.2975	9.0281	13.1096	188.6638	4949.8494	15.1376	3.8819	10.352
	27.3893	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
L13	27.3893	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
	28.5742	33.0474	3218.6523	9.8566	14.2952	225.1565	6441.5399	16.5269	4.2927	11.447
L14	28.5742	33.0474	3218.6523	9.8566	14.2952	225.1565	6441.5399	16.5269	4.2927	11.447
	29.7592	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3596	17.2215	4.4980	11.995
L15	29.7592	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3596	17.2215	4.4980	11.995
	30.9441	35.8254	4100.4637	10.6852	15.4808	264.8741	8206.3228	17.9161	4.7034	12.542
L16	30.9441	35.8254	4100.4637	10.6852	15.4808	264.8741	8206.3228	17.9161	4.7034	12.542
	32.1291	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2974	18.6107	4.9088	13.09
L17	32.1291	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2974	18.6107	4.9088	13.09
	33.3141	38.6033	5130.2021	11.5137	16.6664	307.8165	10267.1547	19.3053	5.1142	13.638
L18	33.3141	38.6033	5130.2021	11.5137	16.6664	307.8165	10267.1547	19.3053	5.1142	13.638
	34.4990	39.9923	5704.1283	11.9280	17.2592	330.4970	11415.7622	19.9999	5.3196	14.186
L19	34.4990	39.9923	5704.1283	11.9280	17.2592	330.4970	11415.7622	19.9999	5.3196	14.186
	36.7184	42.5938	6891.2904	12.7039	18.3696	375.1468	13791.6485	21.3010	5.7043	15.211
L20	35.9552	40.3063	5839.5653	12.0216	17.3933	335.7368	11686.8144	20.1570	5.3660	14.309
	36.1919	41.9766	6596.0307	12.5198	18.1062	364.2977	13200.7407	20.9923	5.6130	14.968
L21	36.1919	41.9766	6596.0307	12.5198	18.1062	364.2977	13200.7407	20.9923	5.6130	14.968
	36.5000	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.4371	21.1729	5.6664	15.11

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L22	36.5000	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.4371	21.1729	5.6664	15.11
	36.5592	42.4071	6801.0787	12.6482	18.2899	371.8487	13611.1064	21.2076	5.6767	15.138
L23	36.5592	42.4071	6801.0787	12.6482	18.2899	371.8487	13611.1064	21.2076	5.6767	15.138
	37.7425	43.7942	7490.4870	13.0619	18.8819	396.7020	14990.8301	21.9012	5.8818	15.685
L24	37.7425	43.7942	7490.4870	13.0619	18.8819	396.7020	14990.8301	21.9012	5.8818	15.685
	38.8666	45.1119	8187.1608	13.4549	19.4443	421.0573	16385.0944	22.5602	6.0766	16.204
L25	38.8666	45.1119	8187.1608	13.4549	19.4443	421.0573	16385.0944	22.5602	6.0766	16.204
	38.9258	45.1812	8224.9782	13.4756	19.4739	422.3593	16460.7791	22.5949	6.0869	16.232
L26	38.9258	45.1812	8224.9782	13.4756	19.4739	422.3593	16460.7791	22.5949	6.0869	16.232
	39.1033	45.3893	8339.1283	13.5377	19.5627	426.2772	16689.2294	22.6989	6.1176	16.314
L27	39.1033	45.3893	8339.1283	13.5377	19.5627	426.2772	16689.2294	22.6989	6.1176	16.314
	39.1625	45.4586	8377.4119	13.5583	19.5923	427.5872	16765.8470	22.7336	6.1279	16.341
L28	39.1625	45.4586	8377.4119	13.5583	19.5923	427.5872	16765.8470	22.7336	6.1279	16.341
	40.3458	46.8457	9167.8868	13.9720	20.1843	454.2093	18347.8370	23.4273	6.3330	16.888
L29	40.3458	46.8457	9167.8868	13.9720	20.1843	454.2093	18347.8370	23.4273	6.3330	16.888
	41.5291	48.2327	10006.5854	14.3857	20.7763	481.6353	20026.3378	24.1209	6.5381	17.435
L30	41.5291	48.2327	10006.5854	14.3857	20.7763	481.6353	20026.3378	24.1209	6.5381	17.435
	42.7124	49.6197	10894.9348	14.7994	21.3683	509.8653	21804.2054	24.8146	6.7432	17.982
L31	42.7124	49.6197	10894.9348	14.7994	21.3683	509.8653	21804.2054	24.8146	6.7432	17.982
	43.8957	51.0068	11834.3643	15.2131	21.9603	538.8993	23684.3005	25.5082	6.9483	18.529
L32	43.8957	51.0068	11834.3643	15.2131	21.9603	538.8993	23684.3005	25.5082	6.9483	18.529
	45.0199	52.3245	12775.4348	15.6061	22.5226	567.2263	25567.6799	26.1672	7.1431	19.048
L33	45.0199	52.3245	12775.4348	15.6061	22.5226	567.2263	25567.6799	26.1672	7.1431	19.048
	46.5113	54.0727	14099.2252	16.1275	23.2688	605.9287	28217.0025	27.0415	7.4016	19.738
L34	45.7489	59.9412	14110.5701	15.3239	22.1505	637.0310	28239.7072	29.9763	6.9042	15.781
	45.9855	62.2789	15826.7200	15.9215	23.0057	687.9472	31674.2652	31.1454	7.2005	16.458
L35	45.9855	62.2789	15826.7200	15.9215	23.0057	687.9472	31674.2652	31.1454	7.2005	16.458
	47.1681	63.8963	17092.0398	16.3350	23.5974	724.3191	34206.5697	31.9542	7.4055	16.927
L36	47.1681	63.8963	17092.0398	16.3350	23.5974	724.3191	34206.5697	31.9542	7.4055	16.927
	48.3508	65.5136	18423.0639	16.7485	24.1891	761.6280	36870.3693	32.7630	7.6105	17.395
L37	48.3508	65.5136	18423.0639	16.7485	24.1891	761.6280	36870.3693	32.7630	7.6105	17.395
	49.5335	67.1309	19821.4554	17.1619	24.7807	799.8739	39668.9924	33.5718	7.8154	17.864
L38	49.5335	67.1309	19821.4554	17.1619	24.7807	799.8739	39668.9924	33.5718	7.8154	17.864
	50.7162	68.7483	21288.8774	17.5754	25.3724	839.0567	42605.7673	34.3807	8.0204	18.332
L39	50.7162	68.7483	21288.877	17.5754	25.3724	839.0567	42605.767	34.3807	8.0204	18.332

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	51.8988	70.3656	22826.9934	17.9889	25.9641	879.1764	45684.0223	35.1895	8.2254	18.801
L40	51.8988	70.3656	22826.9930	17.9889	25.9641	879.1764	45684.0224	35.1895	8.2254	18.801
	53.0815	71.9829	24437.4653	18.4023	26.5557	920.2332	48907.0861	35.9983	8.4304	19.27
L41	53.0815	71.9829	24437.4653	18.4023	26.5557	920.2332	48907.0861	35.9983	8.4304	19.27
	54.2642	73.6003	26121.9574	18.8158	27.1474	962.2268	52278.2868	36.8071	8.6354	19.738
L42	54.2642	73.6003	26121.9574	18.8158	27.1474	962.2268	52278.2868	36.8071	8.6354	19.738
	55.4468	75.2176	27882.1324	19.2293	27.7391	1005.1575	55800.9529	37.6159	8.8404	20.207
L43	55.4468	75.2176	27882.1324	19.2293	27.7391	1005.1575	55800.9529	37.6159	8.8404	20.207
	55.8485	75.7669	28497.3983	19.3697	27.9400	1019.9498	57032.2943	37.8906	8.9100	20.366

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 181.83-176.83				1	1	1			
L2 176.83-171.83				1	1	1			
L3 171.83-166.83				1	1	1			
L4 166.83-161.83				1	1	1			
L5 161.83-156.83				1	1	1			
L6 156.83-151.83				1	1	1			
L7 151.83-146.83				1	1	1			
L8 146.83-141.83				1	1	1			
L9 141.83-136.83				1	1	1			
L10 136.83-132.91				1	1	1			
L11 132.91-131.67				1	1	1			
L12 131.67-126.67				1	1	1			
L13 126.67-121.67				1	1	1			
L14 121.67-116.67				1	1	1			
L15 116.67-111.67				1	1	1			
L16 111.67-106.67				1	1	1			
L17 106.67-101.67				1	1	1			
L18 101.67-96.67				1	1	1			
L19 96.67-87.30				1	1	1			
L20 87.30-86.30				1	1	1			
L21 86.30-85.00				1	1	1			
L22 85.00-				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
84.75									
L23 84.75-79.75				1	1	1			
L24 79.75-75.00				1	1	1			
L25 75.00-74.75				1	1	1			
L26 74.75-74.00				1	1	1			
L27 74.00-73.75				1	1	1			
L28 73.75-68.75				1	1	1			
L29 68.75-63.75				1	1	1			
L30 63.75-58.75				1	1	1			
L31 58.75-53.75				1	1	1			
L32 53.75-49.00				1	1	1			
L33 49.00-42.70				1	1	1			
L34 42.70-41.70				1	1	1			
L35 41.70-36.70				1	1	1			
L36 36.70-31.70				1	1	1			
L37 31.70-26.70				1	1	1			
L38 26.70-21.70				1	1	1			
L39 21.70-16.70				1	1	1			
L40 16.70-11.70				1	1	1			
L41 11.70-6.70				1	1	1			
L42 6.70-1.70				1	1	1			
L43 1.70-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	Surface Ar (CaAa)	181.83 - 10.00	1	1	0.000 0.010	0.3750		0.22
***									
LDF4-50A(1/2)	A	Surface Ar (CaAa)	140.00 - 12.00	4	1	0.200 0.220	0.6250		0.15
HB114-1-0813U4-M5F(1-1/4)	A	Surface Ar (CaAa)	140.00 - 12.00	3	3	0.350 0.460	1.5400		1.20
HB114-21U3M12-XXXF(1-1/4)	A	Surface Ar (CaAa)	140.00 - 12.00	1	1	0.310 0.350	1.5400		1.22
HB158-1-08U8-S8J18(1-5/8)	A	Surface Ar (CaAa)	90.00 - 12.00	1	1	-0.400 -0.360	1.9800		1.30
***									
LDF4-50A(1/2)	A	Surface Ar (CaAa)	73.00 - 0.00	1	1	-0.030 -0.017	0.6250		0.15

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***									
PL1x5.75 Reinforcement - Wind Area	A	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	B	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	C	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	A	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	B	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	C	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
***									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
LDF5-50A(7/8)	B	No	Inside Pole	178.00 - 6.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
AVA5-50FX(7/8)	B	No	Inside Pole	178.00 - 6.00	2	No Ice	0.00	0.29
						1/2" Ice	0.00	0.29
						1" Ice	0.00	0.29
LDF5-50A(7/8)	B	No	Inside Pole	178.00 - 6.00	7	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
AVA5-50FX(7/8)	B	No	Inside Pole	178.00 - 6.00	2	No Ice	0.00	0.29
						1/2" Ice	0.00	0.29
						1" Ice	0.00	0.29
***								
2 1/2" Rigid Conduit	B	No	Inside Pole	170.00 - 7.67	1	No Ice	0.00	3.00
						1/2" Ice	0.00	3.00
						1" Ice	0.00	3.00
FB-L98B-034-XXX(3/8)	B	No	Inside Pole	170.00 - 7.67	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)	B	No	Inside Pole	170.00 - 7.67	4	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
LDF7-50A(1-5/8)	B	No	Inside Pole	170.00 - 7.67	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	A	No	Inside Pole	157.00 - 5.00	2	No Ice	0.00	0.68
						1/2" Ice	0.00	0.68
						1" Ice	0.00	0.68
LDF7-50A(1-5/8)	A	No	Inside Pole	157.00 - 5.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
LDF4-50A(1/2)	A	No	Inside Pole	90.00 - 12.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
HJ7-50A(1-5/8)	A	No	Inside Pole	90.00 - 12.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	181.83-176.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L3	171.83-166.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.00
L4	166.83-161.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L5	161.83-156.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L6	156.83-151.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L7	151.83-146.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L8	146.83-141.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L9	141.83-136.83	A	0.000	0.000	2.149	0.000	0.07
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L10	136.83-132.91	A	0.000	0.000	2.659	0.000	0.07
		B	0.000	0.000	0.147	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00
L11	132.91-131.67	A	0.000	0.000	0.846	0.000	0.02
		B	0.000	0.000	0.047	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L12	131.67-126.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L13	126.67-121.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L14	121.67-116.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L15	116.67-111.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L16	111.67-106.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L17	106.67-101.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L18	101.67-96.67	A	0.000	0.000	3.393	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L19	96.67-87.30	A	0.000	0.000	6.888	0.000	0.19
		B	0.000	0.000	0.351	0.000	0.18
		C	0.000	0.000	0.000	0.000	0.00
L20	87.30-86.30	A	0.000	0.000	1.545	0.000	0.03
		B	0.000	0.000	0.706	0.000	0.02
		C	0.000	0.000	0.669	0.000	0.00
L21	86.30-85.00	A	0.000	0.000	2.389	0.000	0.04
		B	0.000	0.000	1.297	0.000	0.03
		C	0.000	0.000	1.248	0.000	0.00
L22	85.00-84.75	A	0.000	0.000	0.459	0.000	0.01
		B	0.000	0.000	0.249	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.240	0.000	0.00
L23	84.75-79.75	A	0.000	0.000	9.174	0.000	0.15
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L24	79.75-75.00	A	0.000	0.000	10.632	0.000	0.15
		B	0.000	0.000	6.647	0.000	0.09
		C	0.000	0.000	6.469	0.000	0.00
L25	75.00-74.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L26	74.75-74.00	A	0.000	0.000	2.095	0.000	0.02
		B	0.000	0.000	1.466	0.000	0.01
		C	0.000	0.000	1.438	0.000	0.00
L27	74.00-73.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L28	73.75-68.75	A	0.000	0.000	11.117	0.000	0.15
		B	0.000	0.000	6.656	0.000	0.10
		C	0.000	0.000	6.469	0.000	0.00
L29	68.75-63.75	A	0.000	0.000	9.487	0.000	0.15
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L30	63.75-58.75	A	0.000	0.000	9.487	0.000	0.15
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L31	58.75-53.75	A	0.000	0.000	9.487	0.000	0.15
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L32	53.75-49.00	A	0.000	0.000	9.012	0.000	0.15
		B	0.000	0.000	4.730	0.000	0.09
		C	0.000	0.000	4.552	0.000	0.00
L33	49.00-42.70	A	0.000	0.000	7.834	0.000	0.19
		B	0.000	0.000	2.153	0.000	0.12
		C	0.000	0.000	1.917	0.000	0.00
L34	42.70-41.70	A	0.000	0.000	0.939	0.000	0.03
		B	0.000	0.000	0.037	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L35	41.70-36.70	A	0.000	0.000	4.695	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L36	36.70-31.70	A	0.000	0.000	4.695	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L37	31.70-26.70	A	0.000	0.000	4.695	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L38	26.70-21.70	A	0.000	0.000	4.695	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L39	21.70-16.70	A	0.000	0.000	4.695	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L40	16.70-11.70	A	0.000	0.000	4.430	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L41	11.70-6.70	A	0.000	0.000	0.313	0.000	0.06
		B	0.000	0.000	0.064	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00
L42	6.70-1.70	A	0.000	0.000	0.313	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L43	1.70-0.00	A	0.000	0.000	0.106	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	181.83-176.83	A	2.369	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.556	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	2.362	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.550	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.00
L3	171.83-166.83	A	2.355	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.543	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L4	166.83-161.83	A	2.348	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.536	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L5	161.83-156.83	A	2.341	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.529	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L6	156.83-151.83	A	2.334	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.521	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L7	151.83-146.83	A	2.326	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.513	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L8	146.83-141.83	A	2.318	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.505	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L9	141.83-136.83	A	2.310	0.000	0.000	7.269	0.000	0.27
		B		0.000	0.000	2.497	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L10	136.83-132.91	A	2.302	0.000	0.000	8.977	0.000	0.30
		B		0.000	0.000	1.952	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L11	132.91-131.67	A	2.298	0.000	0.000	2.856	0.000	0.10
		B		0.000	0.000	0.621	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.00
L12	131.67-126.67	A	2.292	0.000	0.000	11.420	0.000	0.38
		B		0.000	0.000	2.480	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L13	126.67-121.67	A	2.283	0.000	0.000	11.391	0.000	0.38
		B		0.000	0.000	2.471	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L14	121.67-116.67	A	2.274	0.000	0.000	11.360	0.000	0.38
		B		0.000	0.000	2.461	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L15	116.67-111.67	A	2.264	0.000	0.000	11.329	0.000	0.38
		B		0.000	0.000	2.452	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L16	111.67-106.67	A	2.254	0.000	0.000	11.296	0.000	0.38
		B		0.000	0.000	2.442	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L17	106.67-101.67	A	2.244	0.000	0.000	11.262	0.000	0.37
		B		0.000	0.000	2.431	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L18	101.67-96.67	A	2.233	0.000	0.000	11.226	0.000	0.37
		B		0.000	0.000	2.420	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L19	96.67-87.30	A	2.216	0.000	0.000	22.654	0.000	0.76
		B		0.000	0.000	4.501	0.000	0.25
		C		0.000	0.000	0.000	0.000	0.00
L20	87.30-86.30	A	2.203	0.000	0.000	3.771	0.000	0.11
		B		0.000	0.000	1.376	0.000	0.04
		C		0.000	0.000	0.895	0.000	0.01
L21	86.30-85.00	A	2.200	0.000	0.000	5.393	0.000	0.15
		B		0.000	0.000	2.288	0.000	0.06
		C		0.000	0.000	1.666	0.000	0.02
L22	85.00-84.75	A	2.198	0.000	0.000	1.035	0.000	0.03
		B		0.000	0.000	0.439	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.320	0.000	0.00
L23	84.75-79.75	A	2.191	0.000	0.000	20.668	0.000	0.58
		B		0.000	0.000	8.774	0.000	0.22
		C		0.000	0.000	6.395	0.000	0.09
L24	79.75-75.00	A	2.178	0.000	0.000	22.362	0.000	0.58
		B		0.000	0.000	11.104	0.000	0.25
		C		0.000	0.000	8.857	0.000	0.12
L25	75.00-74.75	A	2.171	0.000	0.000	1.377	0.000	0.03
		B		0.000	0.000	0.785	0.000	0.02
		C		0.000	0.000	0.667	0.000	0.01
L26	74.75-74.00	A	2.169	0.000	0.000	4.129	0.000	0.10
		B		0.000	0.000	2.355	0.000	0.05
		C		0.000	0.000	2.002	0.000	0.03
L27	74.00-73.75	A	2.168	0.000	0.000	1.376	0.000	0.03
		B		0.000	0.000	0.785	0.000	0.02
		C		0.000	0.000	0.667	0.000	0.01
L28	73.75-68.75	A	2.160	0.000	0.000	25.426	0.000	0.63
		B		0.000	0.000	11.532	0.000	0.25
		C		0.000	0.000	9.185	0.000	0.12
L29	68.75-63.75	A	2.144	0.000	0.000	23.466	0.000	0.60
		B		0.000	0.000	9.268	0.000	0.22
		C		0.000	0.000	6.936	0.000	0.09
L30	63.75-58.75	A	2.128	0.000	0.000	23.361	0.000	0.60
		B		0.000	0.000	9.234	0.000	0.22
		C		0.000	0.000	6.919	0.000	0.09
L31	58.75-53.75	A	2.110	0.000	0.000	23.249	0.000	0.59
		B		0.000	0.000	9.198	0.000	0.22
		C		0.000	0.000	6.901	0.000	0.09
L32	53.75-49.00	A	2.090	0.000	0.000	21.973	0.000	0.56
		B		0.000	0.000	8.702	0.000	0.20
		C		0.000	0.000	6.538	0.000	0.08
L33	49.00-42.70	A	2.067	0.000	0.000	23.065	0.000	0.65
		B		0.000	0.000	5.585	0.000	0.19
		C		0.000	0.000	2.743	0.000	0.03
L34	42.70-41.70	A	2.050	0.000	0.000	3.225	0.000	0.10
		B		0.000	0.000	0.451	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.00
L35	41.70-36.70	A	2.035	0.000	0.000	15.954	0.000	0.48
		B		0.000	0.000	2.222	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L36	36.70-31.70	A	2.007	0.000	0.000	15.810	0.000	0.48
		B		0.000	0.000	2.195	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L37	31.70-26.70	A	1.976	0.000	0.000	15.644	0.000	0.47
		B		0.000	0.000	2.163	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L38	26.70-21.70	A	1.939	0.000	0.000	15.451	0.000	0.46
		B		0.000	0.000	2.126	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L39	21.70-16.70	A	1.894	0.000	0.000	15.218	0.000	0.45
		B		0.000	0.000	2.082	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L40	16.70-11.70	A	1.838	0.000	0.000	14.151	0.000	0.41
		B		0.000	0.000	2.026	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L41	11.70-6.70	A	1.760	0.000	0.000	2.072	0.000	0.08
		B		0.000	0.000	0.661	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.00
L42	6.70-1.70	A	1.627	0.000	0.000	1.940	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L43	1.70-0.00	A	1.387	0.000	0.000	0.577	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	181.83-176.83	0.0480	-0.0271	0.3944	-0.2223
L2	176.83-171.83	0.0481	-0.0271	0.4053	-0.2284
L3	171.83-166.83	0.0481	-0.0271	0.4151	-0.2339
L4	166.83-161.83	0.0481	-0.0271	0.4240	-0.2389
L5	161.83-156.83	0.0481	-0.0271	0.4321	-0.2435
L6	156.83-151.83	0.0481	-0.0271	0.4394	-0.2476
L7	151.83-146.83	0.0481	-0.0271	0.4461	-0.2513
L8	146.83-141.83	0.0481	-0.0271	0.4521	-0.2547
L9	141.83-136.83	-0.1089	-0.5548	-0.0435	-1.0707
L10	136.83-132.91	-0.1773	-0.7860	-0.1865	-1.3237
L11	132.91-131.67	-0.1774	-0.7866	-0.1868	-1.3267
L12	131.67-126.67	-0.1783	-0.7907	-0.1895	-1.3475
L13	126.67-121.67	-0.1796	-0.7970	-0.1936	-1.3804
L14	121.67-116.67	-0.1808	-0.8030	-0.1976	-1.4120
L15	116.67-111.67	-0.1820	-0.8085	-0.2015	-1.4425
L16	111.67-106.67	-0.1830	-0.8137	-0.2052	-1.4718
L17	106.67-101.67	-0.1841	-0.8186	-0.2088	-1.5000
L18	101.67-96.67	-0.1850	-0.8233	-0.2123	-1.5270
L19	96.67-87.30	-0.2529	-0.7975	-0.3318	-1.4889
L20	87.30-86.30	-0.2681	-0.4798	-0.4318	-0.9796
L21	86.30-85.00	-0.2347	-0.4202	-0.3888	-0.8820
L22	85.00-84.75	-0.2353	-0.4212	-0.3900	-0.8848
L23	84.75-79.75	-0.2373	-0.4249	-0.3940	-0.8942
L24	79.75-75.00	-0.2053	-0.3678	-0.3478	-0.7898
L25	75.00-74.75	-0.1723	-0.3086	-0.2970	-0.6744
L26	74.75-74.00	-0.1726	-0.3092	-0.2976	-0.6758
L27	74.00-73.75	-0.1729	-0.3098	-0.2982	-0.6772
L28	73.75-68.75	-0.2423	-0.3974	-0.4836	-0.8584
L29	68.75-63.75	-0.2859	-0.4623	-0.5694	-0.9774
L30	63.75-58.75	-0.2898	-0.4688	-0.5791	-0.9945
L31	58.75-53.75	-0.2937	-0.4751	-0.5884	-1.0110
L32	53.75-49.00	-0.2974	-0.4812	-0.5971	-1.0264
L33	49.00-42.70	-0.4052	-0.6557	-0.7795	-1.3406
L34	42.70-41.70	-0.4825	-0.7809	-0.8996	-1.5473
L35	41.70-36.70	-0.4837	-0.7829	-0.9027	-1.5532
L36	36.70-31.70	-0.4857	-0.7862	-0.9106	-1.5674
L37	31.70-26.70	-0.4876	-0.7894	-0.9174	-1.5800
L38	26.70-21.70	-0.4894	-0.7924	-0.9230	-1.5904
L39	21.70-16.70	-0.4911	-0.7954	-0.9269	-1.5980
L40	16.70-11.70	-0.4691	-0.7605	-0.8929	-1.5564
L41	11.70-6.70	-0.0656	-0.0510	-0.3207	-0.3190
L42	6.70-1.70	-0.0820	-0.0421	-0.4507	-0.2314
L43	1.70-0.00	-0.0820	-0.0421	-0.4022	-0.2065

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	176.83 - 181.83	1.0000	1.0000
L2	1	Safety Line 3/8	171.83 - 176.83	1.0000	1.0000
L3	1	Safety Line 3/8	166.83 - 171.83	1.0000	1.0000
L4	1	Safety Line 3/8	161.83 - 166.83	1.0000	1.0000
L5	1	Safety Line 3/8	156.83 - 161.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L6	1	Safety Line 3/8	151.83 - 156.83	1.0000	1.0000
L7	1	Safety Line 3/8	146.83 - 151.83	1.0000	1.0000
L8	1	Safety Line 3/8	141.83 - 146.83	1.0000	1.0000
L9	1	Safety Line 3/8	136.83 - 141.83	1.0000	1.0000
L9	17	LDF4-50A(1/2)	136.83 - 140.00	1.0000	1.0000
L9	19	HB114-1-0813U4-M5F(1-1/4)	136.83 - 140.00	1.0000	1.0000
L9	20	HB114-21U3M12-XXXF(1-1/4)	136.83 - 140.00	1.0000	1.0000
L10	1	Safety Line 3/8	132.91 - 136.83	1.0000	1.0000
L10	17	LDF4-50A(1/2)	132.91 - 136.83	1.0000	1.0000
L10	19	HB114-1-0813U4-M5F(1-1/4)	132.91 - 136.83	1.0000	1.0000
L10	20	HB114-21U3M12-XXXF(1-1/4)	132.91 - 136.83	1.0000	1.0000
L12	1	Safety Line 3/8	126.67 - 131.67	1.0000	1.0000
L12	17	LDF4-50A(1/2)	126.67 - 131.67	1.0000	1.0000
L12	19	HB114-1-0813U4-M5F(1-1/4)	126.67 - 131.67	1.0000	1.0000
L12	20	HB114-21U3M12-XXXF(1-1/4)	126.67 - 131.67	1.0000	1.0000
L13	1	Safety Line 3/8	121.67 - 126.67	1.0000	1.0000
L13	17	LDF4-50A(1/2)	121.67 - 126.67	1.0000	1.0000
L13	19	HB114-1-0813U4-M5F(1-1/4)	121.67 - 126.67	1.0000	1.0000
L13	20	HB114-21U3M12-XXXF(1-1/4)	121.67 - 126.67	1.0000	1.0000
L14	1	Safety Line 3/8	116.67 - 121.67	1.0000	1.0000
L14	17	LDF4-50A(1/2)	116.67 - 121.67	1.0000	1.0000
L14	19	HB114-1-0813U4-M5F(1-1/4)	116.67 - 121.67	1.0000	1.0000
L14	20	HB114-21U3M12-XXXF(1-1/4)	116.67 - 121.67	1.0000	1.0000
L15	1	Safety Line 3/8	111.67 - 116.67	1.0000	1.0000
L15	17	LDF4-50A(1/2)	111.67 - 116.67	1.0000	1.0000
L15	19	HB114-1-0813U4-M5F(1-1/4)	111.67 - 116.67	1.0000	1.0000
L15	20	HB114-21U3M12-XXXF(1-1/4)	111.67 - 116.67	1.0000	1.0000
L16	1	Safety Line 3/8	106.67 - 111.67	1.0000	1.0000
L16	17	LDF4-50A(1/2)	106.67 - 111.67	1.0000	1.0000
L16	19	HB114-1-0813U4-M5F(1-1/4)	106.67 - 111.67	1.0000	1.0000
L16	20	HB114-21U3M12-XXXF(1-1/4)	106.67 - 111.67	1.0000	1.0000
L17	1	Safety Line 3/8	101.67 - 106.67	1.0000	1.0000
L17	17	LDF4-50A(1/2)	101.67 - 106.67	1.0000	1.0000
L17	19	HB114-1-0813U4-M5F(1-1/4)	101.67 - 106.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	20	HB114-21U3M12-XXXF(1-1/4)	101.67 - 106.67	1.0000	1.0000
L18	1	Safety Line 3/8	96.67 - 101.67	1.0000	1.0000
L18	17	LDF4-50A(1/2)	96.67 - 101.67	1.0000	1.0000
L18	19	HB114-1-0813U4-M5F(1-1/4)	96.67 - 101.67	1.0000	1.0000
L18	20	HB114-21U3M12-XXXF(1-1/4)	96.67 - 101.67	1.0000	1.0000
L19	1	Safety Line 3/8	87.30 - 96.67	1.0000	1.0000
L19	17	LDF4-50A(1/2)	87.30 - 96.67	1.0000	1.0000
L19	19	HB114-1-0813U4-M5F(1-1/4)	87.30 - 96.67	1.0000	1.0000
L19	20	HB114-21U3M12-XXXF(1-1/4)	87.30 - 96.67	1.0000	1.0000
L19	24	HB158-1-08U8-S8J18(1-5/8)	87.30 - 90.00	1.0000	1.0000
L19	28	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	29	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	30	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L21	1	Safety Line 3/8	85.00 - 86.30	1.0000	1.0000
L21	17	LDF4-50A(1/2)	85.00 - 86.30	1.0000	1.0000
L21	19	HB114-1-0813U4-M5F(1-1/4)	85.00 - 86.30	1.0000	1.0000
L21	20	HB114-21U3M12-XXXF(1-1/4)	85.00 - 86.30	1.0000	1.0000
L21	24	HB158-1-08U8-S8J18(1-5/8)	85.00 - 86.30	1.0000	1.0000
L21	28	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	29	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	30	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L22	1	Safety Line 3/8	84.75 - 85.00	1.0000	1.0000
L22	17	LDF4-50A(1/2)	84.75 - 85.00	1.0000	1.0000
L22	19	HB114-1-0813U4-M5F(1-1/4)	84.75 - 85.00	1.0000	1.0000
L22	20	HB114-21U3M12-XXXF(1-1/4)	84.75 - 85.00	1.0000	1.0000
L22	24	HB158-1-08U8-S8J18(1-5/8)	84.75 - 85.00	1.0000	1.0000
L22	28	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	29	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	30	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L23	1	Safety Line 3/8	79.75 - 84.75	1.0000	1.0000
L23	17	LDF4-50A(1/2)	79.75 - 84.75	1.0000	1.0000
L23	19	HB114-1-0813U4-M5F(1-1/4)	79.75 - 84.75	1.0000	1.0000
L23	20	HB114-21U3M12-XXXF(1-1/4)	79.75 - 84.75	1.0000	1.0000
L23	24	HB158-1-08U8-S8J18(1-5/8)	79.75 - 84.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	28	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L23	29	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L23	30	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L24	1	Safety Line 3/8	75.00 - 79.75	1.0000	1.0000
L24	17	LDF4-50A(1/2)	75.00 - 79.75	1.0000	1.0000
L24	19	HB114-1-0813U4-M5F(1-1/4)	75.00 - 79.75	1.0000	1.0000
L24	20	HB114-21U3M12-XXXF(1-1/4)	75.00 - 79.75	1.0000	1.0000
L24	24	HB158-1-08U8-S8J18(1-5/8)	75.00 - 79.75	1.0000	1.0000
L24	28	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	29	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	30	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	31	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	32	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	33	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L25	1	Safety Line 3/8	74.75 - 75.00	1.0000	1.0000
L25	17	LDF4-50A(1/2)	74.75 - 75.00	1.0000	1.0000
L25	19	HB114-1-0813U4-M5F(1-1/4)	74.75 - 75.00	1.0000	1.0000
L25	20	HB114-21U3M12-XXXF(1-1/4)	74.75 - 75.00	1.0000	1.0000
L25	24	HB158-1-08U8-S8J18(1-5/8)	74.75 - 75.00	1.0000	1.0000
L25	28	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	29	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	30	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	31	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	32	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	33	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L26	1	Safety Line 3/8	74.00 - 74.75	1.0000	1.0000
L26	17	LDF4-50A(1/2)	74.00 - 74.75	1.0000	1.0000
L26	19	HB114-1-0813U4-M5F(1-1/4)	74.00 - 74.75	1.0000	1.0000
L26	20	HB114-21U3M12-XXXF(1-1/4)	74.00 - 74.75	1.0000	1.0000
L26	24	HB158-1-08U8-S8J18(1-5/8)	74.00 - 74.75	1.0000	1.0000
L26	28	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	29	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	30	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	31	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L26	32	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	33	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L27	1	Safety Line 3/8	73.75 - 74.00	1.0000	1.0000
L27	17	LDF4-50A(1/2)	73.75 - 74.00	1.0000	1.0000
L27	19	HB114-1-0813U4-M5F(1-1/4)	73.75 - 74.00	1.0000	1.0000
L27	20	HB114-21U3M12-XXXF(1-1/4)	73.75 - 74.00	1.0000	1.0000
L27	24	HB158-1-08U8-S8J18(1-5/8)	73.75 - 74.00	1.0000	1.0000
L27	28	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	29	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	30	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	31	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	32	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	33	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L28	1	Safety Line 3/8	68.75 - 73.75	1.0000	1.0000
L28	17	LDF4-50A(1/2)	68.75 - 73.75	1.0000	1.0000
L28	19	HB114-1-0813U4-M5F(1-1/4)	68.75 - 73.75	1.0000	1.0000
L28	20	HB114-21U3M12-XXXF(1-1/4)	68.75 - 73.75	1.0000	1.0000
L28	24	HB158-1-08U8-S8J18(1-5/8)	68.75 - 73.75	1.0000	1.0000
L28	26	LDF4-50A(1/2)	68.75 - 73.00	1.0000	1.0000
L28	28	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	29	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	30	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	31	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	32	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	33	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L29	1	Safety Line 3/8	63.75 - 68.75	1.0000	1.0000
L29	17	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	19	HB114-1-0813U4-M5F(1-1/4)	63.75 - 68.75	1.0000	1.0000
L29	20	HB114-21U3M12-XXXF(1-1/4)	63.75 - 68.75	1.0000	1.0000
L29	24	HB158-1-08U8-S8J18(1-5/8)	63.75 - 68.75	1.0000	1.0000
L29	26	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	31	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	32	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	33	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L30	1	Safety Line 3/8	58.75 - 63.75	1.0000	1.0000
L30	17	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	19	HB114-1-0813U4-M5F(1-1/4)	58.75 - 63.75	1.0000	1.0000
L30	20	HB114-21U3M12-XXXF(1-1/4)	58.75 - 63.75	1.0000	1.0000
L30	24	HB158-1-08U8-S8J18(1-5/8)	58.75 - 63.75	1.0000	1.0000
L30	26	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	31	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	32	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	33	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L31	1	Safety Line 3/8	53.75 - 58.75	1.0000	1.0000
L31	17	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	19	HB114-1-0813U4-M5F(1-1/4)	53.75 - 58.75	1.0000	1.0000
L31	20	HB114-21U3M12-XXXF(1-1/4)	53.75 - 58.75	1.0000	1.0000
L31	24	HB158-1-08U8-S8J18(1-5/8)	53.75 - 58.75	1.0000	1.0000
L31	26	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	31	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	32	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	33	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L32	1	Safety Line 3/8	49.00 - 53.75	1.0000	1.0000
L32	17	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	19	HB114-1-0813U4-M5F(1-1/4)	49.00 - 53.75	1.0000	1.0000
L32	20	HB114-21U3M12-XXXF(1-1/4)	49.00 - 53.75	1.0000	1.0000
L32	24	HB158-1-08U8-S8J18(1-5/8)	49.00 - 53.75	1.0000	1.0000
L32	26	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	31	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	32	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	33	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L33	1	Safety Line 3/8	42.70 - 49.00	1.0000	1.0000
L33	17	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	19	HB114-1-0813U4-M5F(1-1/4)	42.70 - 49.00	1.0000	1.0000
L33	20	HB114-21U3M12-XXXF(1-1/4)	42.70 - 49.00	1.0000	1.0000
L33	24	HB158-1-08U8-S8J18(1-5/8)	42.70 - 49.00	1.0000	1.0000
L33	26	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	31	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	32	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L33	33	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L35	1	Safety Line 3/8	36.70 - 41.70	1.0000	1.0000
L35	17	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L35	19	HB114-1-0813U4-M5F(1-1/4)	36.70 - 41.70	1.0000	1.0000
L35	20	HB114-21U3M12-XXXF(1-1/4)	36.70 - 41.70	1.0000	1.0000
L35	24	HB158-1-08U8-S8J18(1-5/8)	36.70 - 41.70	1.0000	1.0000
L35	26	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L36	1	Safety Line 3/8	31.70 - 36.70	1.0000	1.0000
L36	17	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L36	19	HB114-1-0813U4-M5F(1-1/4)	31.70 - 36.70	1.0000	1.0000
L36	20	HB114-21U3M12-XXXF(1-1/4)	31.70 - 36.70	1.0000	1.0000
L36	24	HB158-1-08U8-S8J18(1-5/8)	31.70 - 36.70	1.0000	1.0000
L36	26	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L37	1	Safety Line 3/8	26.70 - 31.70	1.0000	1.0000
L37	17	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L37	19	HB114-1-0813U4-M5F(1-1/4)	26.70 - 31.70	1.0000	1.0000
L37	20	HB114-21U3M12-XXXF(1-1/4)	26.70 - 31.70	1.0000	1.0000
L37	24	HB158-1-08U8-S8J18(1-5/8)	26.70 - 31.70	1.0000	1.0000
L37	26	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L38	1	Safety Line 3/8	21.70 - 26.70	1.0000	1.0000
L38	17	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L38	19	HB114-1-0813U4-M5F(1-1/4)	21.70 - 26.70	1.0000	1.0000
L38	20	HB114-21U3M12-XXXF(1-1/4)	21.70 - 26.70	1.0000	1.0000
L38	24	HB158-1-08U8-S8J18(1-5/8)	21.70 - 26.70	1.0000	1.0000
L38	26	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L39	1	Safety Line 3/8	16.70 - 21.70	1.0000	1.0000
L39	17	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L39	19	HB114-1-0813U4-M5F(1-1/4)	16.70 - 21.70	1.0000	1.0000
L39	20	HB114-21U3M12-XXXF(1-1/4)	16.70 - 21.70	1.0000	1.0000
L39	24	HB158-1-08U8-S8J18(1-5/8)	16.70 - 21.70	1.0000	1.0000
L39	26	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L40	1	Safety Line 3/8	11.70 - 16.70	1.0000	1.0000
L40	17	LDF4-50A(1/2)	12.00 - 16.70	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L40	19	HB114-1-0813U4-M5F(1-1/4)	12.00 - 16.70	1.0000	1.0000
L40	20	HB114-21U3M12-XXXF(1-1/4)	12.00 - 16.70	1.0000	1.0000
L40	24	HB158-1-08U8-S8J18(1-5/8)	12.00 - 16.70	1.0000	1.0000
L40	26	LDF4-50A(1/2)	11.70 - 16.70	1.0000	1.0000
L41	1	Safety Line 3/8	10.00 - 11.70	1.0000	1.0000
L41	26	LDF4-50A(1/2)	6.70 - 11.70	1.0000	1.0000
L42	26	LDF4-50A(1/2)	1.70 - 6.70	1.0000	1.0000
L43	26	LDF4-50A(1/2)	0.00 - 1.70	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Arm Mount [SO 702-3]	C	None		0.0000	178.00	No Ice	3.22	3.22	0.08
						1/2" Ice	4.15	4.15	0.11
						1" Ice	5.08	5.08	0.15
6' x 2" Mount Pipe	A	From Leg	7.00 -2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	A	From Leg	7.00 2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	7.00 -2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	7.00 2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	7.00 -2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	7.00 2.00 0.00	0.0000	178.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
DS4C06F36D-D	A	From Leg	7.00 -2.00 12.00	0.0000	178.00	No Ice	5.82	5.82	0.05
						1/2" Ice	7.79	7.79	0.09
						1" Ice	9.78	9.78	0.15
DS4C06F36D-D	B	From Leg	7.00 -2.00 12.00	0.0000	178.00	No Ice	5.82	5.82	0.05
						1/2" Ice	7.79	7.79	0.09
						1" Ice	9.78	9.78	0.15
APC-2163	A	From Leg	7.00 2.00	0.0000	178.00	No Ice	3.38	3.38	0.01
						1/2"	4.75	4.75	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			13.00			Ice	6.15	6.15	0.07
						1" Ice			
APC-1362	B	From Leg	7.00	0.0000	178.00	No Ice	3.50	3.50	0.02
			2.00			1/2"	4.93	4.93	0.04
			13.00			Ice	6.38	6.38	0.08
						1" Ice			
APC-301	C	From Leg	7.00	0.0000	178.00	No Ice	3.00	3.00	0.01
			-2.00			1/2"	4.23	4.23	0.04
			13.00			Ice	5.47	5.47	0.07
						1" Ice			
ANT450D6-9	C	From Leg	7.00	0.0000	178.00	No Ice	0.50	0.50	0.02
			-2.00			1/2"	0.90	0.90	0.02
			-3.00			Ice	1.30	1.30	0.03
						1" Ice			
APC-4065	C	From Leg	7.00	0.0000	178.00	No Ice	3.13	3.13	0.01
			2.00			1/2"	4.40	4.40	0.04
			13.00			Ice	5.70	5.70	0.07
						1" Ice			
***									
Platform Mount [LP 601-1]	C	None		0.0000	170.00	No Ice	28.47	28.47	1.12
						1/2"	33.59	33.59	1.51
						Ice	38.71	38.71	1.91
						1" Ice			
Transition Ladder	C	None		0.0000	170.00	No Ice	6.00	6.00	0.16
						1/2"	8.00	8.00	0.24
						Ice	10.00	10.00	0.32
						1" Ice			
QS66512-2 w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2"	8.93	9.66	0.21
			-2.00			Ice	9.46	10.55	0.30
						1" Ice			
QS66512-2 w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2"	8.93	9.66	0.21
			-2.00			Ice	9.46	10.55	0.30
						1" Ice			
QS66512-2 w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2"	8.93	9.66	0.21
			-2.00			Ice	9.46	10.55	0.30
						1" Ice			
7770.00 w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	8.26	6.30	0.07
			6.00			1/2"	8.82	7.48	0.14
			-2.00			Ice	9.35	8.37	0.21
						1" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	8.26	6.30	0.07
			6.00			1/2"	8.82	7.48	0.14
			-2.00			Ice	9.35	8.37	0.21
						1" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	8.26	6.30	0.07
			6.00			1/2"	8.82	7.48	0.14
			-2.00			Ice	9.35	8.37	0.21
						1" Ice			
RRUS 32 B2	A	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.95	1.86	0.07
			-2.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	B	From Face	3.00	0.0000	170.00	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
						1" Ice			
RRUS 32 B2	C	From Face	3.00	0.0000	170.00	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
						1" Ice			
WCS RRUS-32-B30	A	From Face	3.00	0.0000	170.00	No Ice	3.31	2.42	0.08
			0.00			1/2"	3.56	2.64	0.10
			-2.00			Ice	3.81	2.86	0.14
						1" Ice			
WCS RRUS-32-B30	B	From Face	3.00	0.0000	170.00	No Ice	3.31	2.42	0.08
			0.00			1/2"	3.56	2.64	0.10
			-2.00			Ice	3.81	2.86	0.14
						1" Ice			
WCS RRUS-32-B30	C	From Face	3.00	0.0000	170.00	No Ice	3.31	2.42	0.08
			0.00			1/2"	3.56	2.64	0.10
			-2.00			Ice	3.81	2.86	0.14
						1" Ice			
(2) TPX-070821	A	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2"	0.56	0.15	0.01
			-2.00			Ice	0.66	0.20	0.02
						1" Ice			
(2) TPX-070821	B	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2"	0.56	0.15	0.01
			-2.00			Ice	0.66	0.20	0.02
						1" Ice			
(2) TPX-070821	C	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2"	0.56	0.15	0.01
			-2.00			Ice	0.66	0.20	0.02
						1" Ice			
DC6-48-60-18-8F	B	From Face	1.00	0.0000	170.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			-2.00			Ice	1.64	1.64	0.06
						1" Ice			
LGP21401	A	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2"	1.24	0.00	0.02
			-2.00			Ice	1.38	0.00	0.03
						1" Ice			
LGP21401	B	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2"	1.24	0.00	0.02
			-2.00			Ice	1.38	0.00	0.03
						1" Ice			
LGP21401	C	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2"	1.24	0.00	0.02
			-2.00			Ice	1.38	0.00	0.03
						1" Ice			
LGP21401	A	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2"	0.00	0.00	0.02
			-2.00			Ice	0.00	0.00	0.03
						1" Ice			
LGP21401	B	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2"	0.00	0.00	0.02
			-2.00			Ice	0.00	0.00	0.03
						1" Ice			
LGP21401	C	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2"	0.00	0.00	0.02
			-2.00			Ice	0.00	0.00	0.03
						1" Ice			
RRUS 11	A	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice			
RRUS 11	B	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice			
RRUS 11	C	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice			
DC6-48-60-18-8F	A	From Face	1.00	0.0000	170.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			-2.00			Ice	1.64	1.64	0.06
						1" Ice			
***									
Platform Mount [LP 305-1]	C	None		0.0000	157.00	No Ice	18.01	18.01	1.12
						1/2"	23.33	23.33	1.35
						Ice	28.65	28.65	1.58
						1" Ice			
6' x 2" Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
6' x 2" Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
6' x 2" Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice			
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice			
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2"	6.78	6.43	0.17
			1.00			Ice	7.21	7.13	0.23
						1" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2"	6.78	6.43	0.17
			1.00			Ice	7.21	7.13	0.23
						1" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2"	6.78	6.43	0.17
			1.00			Ice	7.21	7.13	0.23
						1" Ice			
RRUS 11 B12	A	From Leg	3.00	0.0000	157.00	No Ice	0.45	1.18	0.05
			0.00			1/2"	0.58	1.33	0.07
			1.00			Ice	0.71	1.48	0.10
						1" Ice			
RRUS 11 B12	B	From Leg	3.00	0.0000	157.00	No Ice	0.45	1.18	0.05
			0.00			1/2"	0.58	1.33	0.07
			1.00			Ice	0.71	1.48	0.10
						1" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 11 B12	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.45 0.58 0.71	1.18 1.33 1.48	0.05 0.07 0.10
ATMAA1412D-1A20	A	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
ATMAA1412D-1A20	B	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
ATMAA1412D-1A20	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
***									
Platform Mount [LP 712-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	24.53 29.94 35.35	24.53 29.94 35.35	1.34 1.65 1.96
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	3.00 -7.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Face	3.00 -7.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	3.00 -7.00 0.00	-20.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Face	3.00 7.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Face	3.00 7.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Face	3.00 7.00 0.00	-20.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
800MHZ RRH	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800 EXTERNAL NOTCH FILTER	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
800 EXTERNAL NOTCH FILTER	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
						1" Ice			
1900MHz RRH (65MHz)	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
						1" Ice			
1900MHz RRH (65MHz)	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
						1" Ice			
1900MHz RRH (65MHz)	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
						1" Ice			
TD-RRH8x20-25	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
						1" Ice			
TD-RRH8x20-25	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
						1" Ice			
TD-RRH8x20-25	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
						1" Ice			
840 10054 w/ Mount Pipe	A	From Face	3.00 0.00 0.00	60.0000	140.00	No Ice 1/2" Ice	4.81 5.16 5.53	2.39 2.92 3.47	0.05 0.09 0.13
						1" Ice			
840 10054 w/ Mount Pipe	B	From Face	3.00 0.00 0.00	60.0000	140.00	No Ice 1/2" Ice	4.81 5.16 5.53	2.39 2.92 3.47	0.05 0.09 0.13
						1" Ice			
840 10054 w/ Mount Pipe	C	From Face	3.00 0.00 0.00	60.0000	140.00	No Ice 1/2" Ice	4.81 5.16 5.53	2.39 2.92 3.47	0.05 0.09 0.13
						1" Ice			
URAS-FLEXIBLE	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
						1" Ice			
URAS-FLEXIBLE	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
						1" Ice			
URAS-FLEXIBLE	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
						1" Ice			
Horizon Compact	A	From Face	3.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
						1" Ice			
Horizon Compact	B	From Face	3.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
						1" Ice			
***									
Platform Mount [LP 712-1]	C	None		0.0000	90.00	No Ice 1/2"	24.53 29.94	24.53 29.94	1.34 1.65

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						Ice	35.35	35.35	1.96
						1" Ice			
GPS_A	A	From Face	3.00	30.0000	90.00	No Ice	0.26	0.26	0.00
			-6.00			1/2"	0.32	0.32	0.00
			3.00			Ice	0.39	0.39	0.01
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2"	9.34	8.18	0.14
			2.00			Ice	9.89	9.14	0.21
						1" Ice			
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	7.81	5.80	0.04
			-2.00			1/2"	8.36	6.95	0.10
			2.00			Ice	8.87	7.82	0.17
						1" Ice			
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	7.81	5.80	0.04
			-2.00			1/2"	8.36	6.95	0.10
			2.00			Ice	8.87	7.82	0.17
						1" Ice			
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2"	4.17	4.58	0.07
			2.00			Ice	4.54	5.19	0.11
						1" Ice			
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2"	4.17	4.58	0.07
			2.00			Ice	4.54	5.19	0.11
						1" Ice			
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2"	4.17	4.58	0.07
			2.00			Ice	4.54	5.19	0.11
						1" Ice			
LNX-6514DS-T6M w/ Mount Pipe	C	From Face	3.00	0.0000	90.00	No Ice	8.41	7.08	0.06
			-2.00			1/2"	8.97	8.27	0.13
			2.00			Ice	9.50	9.18	0.21
						1" Ice			
(2) RRH2X60-AWS	A	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2"	0.00	2.34	0.08
			2.00			Ice	0.00	2.58	0.11
						1" Ice			
RRH2X60-AWS	B	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2"	0.00	2.34	0.08
			2.00			Ice	0.00	2.58	0.11
						1" Ice			
RRH2X60-AWS	C	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2"	0.00	2.34	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.00			Ice	0.00	2.58	0.11
						1" Ice			
RRH2X60-PCS	A	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2"	2.39	1.90	0.08
			2.00			Ice	2.59	2.09	0.10
						1" Ice			
RRH2X60-PCS	B	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2"	2.39	1.90	0.08
			2.00			Ice	2.59	2.09	0.10
						1" Ice			
RRH2X60-PCS	C	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2"	2.39	1.90	0.08
			2.00			Ice	2.59	2.09	0.10
						1" Ice			
(2) FD9R6004/2C-3L	A	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2"	0.00	0.12	0.01
			2.00			Ice	0.00	0.17	0.01
						1" Ice			
(2) FD9R6004/2C-3L	B	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2"	0.00	0.12	0.01
			2.00			Ice	0.00	0.17	0.01
						1" Ice			
(2) FD9R6004/2C-3L	C	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2"	0.00	0.12	0.01
			2.00			Ice	0.00	0.17	0.01
						1" Ice			
DB-T1-6Z-8AB-0Z	A	From Face	3.00	0.0000	90.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			2.00			Ice	5.35	2.39	0.12
						1" Ice			
DB-T1-6Z-8AB-0Z	C	From Face	3.00	0.0000	90.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			2.00			Ice	5.35	2.39	0.12
						1" Ice			
***									
Side Arm Mount [SO 701-1]	A	From Face	0.00	0.0000	73.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice			
GPS_A	A	From Face	3.00	0.0000	73.00	No Ice	0.26	0.26	0.00
			0.00			1/2"	0.32	0.32	0.00
			0.00			Ice	0.39	0.39	0.01
						1" Ice			
***									
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-4.7	A	Paraboloid w/Shroud (HP)	From Leg	7.00	15.0000		178.00	2.04	No Ice	3.27	0.03
				-2.00					1/2" Ice	3.55	0.05
				0.00					1" Ice	3.82	0.06
HPD2-4.7	B	Paraboloid w/Shroud (HP)	From Leg	7.00	-84.0000		178.00	2.04	No Ice	3.27	0.03
				-2.00					1/2" Ice	3.55	0.05

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
				0.00					1" Ice	3.82	0.06
***											
VHLP2.5-10W	A	Paraboloid w/Shroud (HP)	From Leg	4.00	0.0000		140.00	2.92	No Ice	6.68	0.05
				0.00					1/2" Ice	7.07	0.08
				4.00					1" Ice	7.46	0.12
VHLP2.5-10W	B	Paraboloid w/Shroud (HP)	From Leg	4.00	0.0000		140.00	2.92	No Ice	6.68	0.05
				0.00					1/2" Ice	7.07	0.08
				4.00					1" Ice	7.46	0.12

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	181.833 - 176.833	Pole	Max Tension	48	0.00	-0.00	-0.00
			Max. Compression	26	-3.43	-1.64	1.41
			Max. Mx	8	-0.26	-21.67	0.27
			Max. My	2	-0.24	-0.21	21.62
			Max. Vy	20	-2.76	20.86	-0.02
			Max. Vx	14	2.92	0.06	-21.17
			Max. Torque	24			-2.01
L2	176.833 - 171.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.03	-1.67	1.45
			Max. Mx	8	-0.50	-36.15	0.95
			Max. My	14	-0.46	0.68	-36.52
			Max. Vy	20	-3.07	35.41	-0.92
			Max. Vx	14	3.22	0.68	-36.52
			Max. Torque	24			-2.01
L3	171.833 - 166.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.77	-1.72	1.76
			Max. Mx	8	-3.00	-64.89	1.71
			Max. My	14	-2.95	1.34	-66.05
			Max. Vy	20	-9.91	64.23	-1.80
			Max. Vx	14	10.03	1.34	-66.05
			Max. Torque	24			-2.09
L4	166.833 - 161.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.53	-1.78	1.86
			Max. Mx	8	-3.39	-115.22	2.51
			Max. My	14	-3.34	2.04	-117.08
			Max. Vy	20	-10.26	114.64	-2.79
			Max. Vx	14	10.38	2.04	-117.08
			Max. Torque	24			-2.09
L5	161.833 - 156.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.06	-1.83	1.96
			Max. Mx	8	-5.80	-169.82	3.31
			Max. My	14	-5.75	2.74	-172.38
			Max. Vy	20	-14.15	169.32	-3.78
			Max. Vx	14	14.27	2.74	-172.38
			Max. Torque	24			-2.09
L6	156.833 - 151.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.95	-1.89	2.09
			Max. Mx	8	-6.34	-241.36	4.12
			Max. My	14	-6.29	3.44	-244.65
			Max. Vy	20	-14.52	240.96	-4.78
			Max. Vx	14	14.64	3.44	-244.65
			Max. Torque	24			-2.08
L7	151.833 - 146.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.88	-1.94	2.21
			Max. Mx	8	-6.91	-314.78	4.93
			Max. My	14	-6.86	4.15	-318.80
			Max. Vy	20	-14.90	314.46	-5.78
			Max. Vx	14	15.02	4.15	-318.80
			Max. Torque	24			-2.08
L8	146.833 - 141.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.29	-2.96	2.90
			Max. Mx	8	-7.54	-391.62	5.58
			Max. My	14	-7.46	4.42	-396.32
			Max. Vy	20	-15.95	391.08	-6.35
			Max. Vx	14	16.15	4.42	-396.32

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	14			2.87
L9	141.833 - 136.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.75	-2.90	3.51
			Max. Mx	20	-10.61	488.47	-6.20
			Max. My	14	-10.56	4.25	-494.46
			Max. Vy	20	-21.54	488.47	-6.20
			Max. Vx	14	21.70	4.25	-494.46
			Max. Torque	14			2.86
L10	136.833 - 132.914	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.79	-2.90	3.52
			Max. Mx	20	-10.65	492.04	-6.20
			Max. My	14	-10.60	4.25	-498.06
			Max. Vy	20	-21.54	492.04	-6.20
			Max. Vx	14	21.70	4.25	-498.06
			Max. Torque	14			2.71
L11	132.914 - 131.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.96	-2.78	4.03
			Max. Mx	20	-11.78	601.03	-6.01
			Max. My	14	-11.73	4.02	-607.81
			Max. Vy	20	-22.04	601.03	-6.01
			Max. Vx	14	22.21	4.02	-607.81
			Max. Torque	14			2.71
L12	131.667 - 126.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.55	-2.66	4.54
			Max. Mx	20	-12.71	712.28	-5.82
			Max. My	14	-12.66	3.81	-719.83
			Max. Vy	20	-22.47	712.28	-5.82
			Max. Vx	14	22.63	3.81	-719.83
			Max. Torque	14			2.71
L13	126.667 - 121.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.18	-2.53	5.06
			Max. Mx	20	-13.66	825.70	-5.63
			Max. My	14	-13.62	3.59	-834.01
			Max. Vy	20	-22.91	825.70	-5.63
			Max. Vx	14	23.07	3.59	-834.01
			Max. Torque	14			2.70
L14	121.667 - 116.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.85	-2.39	5.59
			Max. Mx	20	-14.66	941.29	-5.44
			Max. My	14	-14.61	3.37	-950.36
			Max. Vy	20	-23.35	941.29	-5.44
			Max. Vx	14	23.51	3.37	-950.36
			Max. Torque	14			2.70
L15	116.667 - 111.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.56	-2.24	6.13
			Max. Mx	20	-15.68	1059.08	-5.24
			Max. My	14	-15.64	3.16	-1068.92
			Max. Vy	20	-23.79	1059.08	-5.24
			Max. Vx	14	23.95	3.16	-1068.92
			Max. Torque	14			2.70
L16	111.667 - 106.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.32	-2.08	6.68
			Max. Mx	20	-16.74	1179.09	-5.04
			Max. My	14	-16.70	2.95	-1189.70
			Max. Vy	20	-24.24	1179.09	-5.04
			Max. Vx	14	24.40	2.95	-1189.70
			Max. Torque	14			2.69
L17	106.667 - 101.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.11	-1.92	7.24

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-17.83	1301.35	-4.84
			Max. My	14	-17.79	2.73	-1312.72
			Max. Vy	20	-24.69	1301.35	-4.84
			Max. Vx	14	24.85	2.73	-1312.72
			Max. Torque	14			2.69
L18	101.667 - 96.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.94	-1.74	7.80
			Max. Mx	20	-18.95	1425.86	-4.64
			Max. My	14	-18.91	2.52	-1437.99
			Max. Vy	20	-25.14	1425.86	-4.64
			Max. Vx	14	25.30	2.52	-1437.99
			Max. Torque	14			2.69
L19	96.667 - 87.302	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.60	-1.56	8.30
			Max. Mx	20	-19.97	1535.88	-4.46
			Max. My	14	-19.94	2.34	-1548.66
			Max. Vy	20	-25.54	1535.88	-4.46
			Max. Vx	14	25.70	2.34	-1548.66
			Max. Torque	14			2.68
L20	87.302 - 86.302	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.23	0.56	8.53
			Max. Mx	20	-24.73	1719.52	-3.99
			Max. My	14	-24.69	2.18	-1733.48
			Max. Vy	20	-31.55	1719.52	-3.99
			Max. Vx	14	31.83	2.18	-1733.48
			Max. Torque	22			-2.08
L21	86.302 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.83	0.64	8.68
			Max. Mx	20	-25.07	1760.65	-3.88
			Max. My	14	-25.03	2.06	-1774.96
			Max. Vy	20	-31.67	1760.65	-3.88
			Max. Vx	14	31.94	2.06	-1774.96
			Max. Torque	22			-2.08
L22	85 - 84.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.95	0.65	8.71
			Max. Mx	20	-25.16	1768.57	-3.85
			Max. My	14	-25.11	2.04	-1782.94
			Max. Vy	20	-31.67	1768.57	-3.85
			Max. Vx	14	31.95	2.04	-1782.94
			Max. Torque	22			-2.08
L23	84.75 - 79.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.30	0.94	9.28
			Max. Mx	20	-26.48	1927.97	-3.41
			Max. My	14	-26.44	1.61	-1943.66
			Max. Vy	20	-32.11	1927.97	-3.41
			Max. Vx	14	32.38	1.61	-1943.66
			Max. Torque	22			-2.08
L24	79.75 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.68	1.22	9.83
			Max. Mx	20	-27.78	2081.36	-2.99
			Max. My	14	-27.74	1.19	-2098.29
			Max. Vy	20	-32.51	2081.36	-2.99
			Max. Vx	14	32.78	1.19	-2098.29
			Max. Torque	22			-2.07
L25	75 - 74.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.81	1.23	9.86
			Max. Mx	20	-27.87	2089.49	-2.97
			Max. My	14	-27.83	1.17	-2106.48
			Max. Vy	20	-32.51	2089.49	-2.97
			Max. Vx	14	32.79	1.17	-2106.48
			Max. Torque	22			-2.07
L26	74.75 - 74	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.21	1.28	9.94
			Max. Mx	20	-28.07	2113.90	-2.90

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-28.03	1.11	-2131.09
			Max. Vy	20	-32.58	2113.90	-2.90
			Max. Vx	14	32.86	1.11	-2131.09
			Max. Torque	22			-2.07
L27	74 - 73.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.35	1.29	9.97
			Max. Mx	20	-28.14	2122.04	-2.88
			Max. My	14	-28.11	1.09	-2139.30
			Max. Vy	20	-32.60	2122.04	-2.88
			Max. Vx	14	32.87	1.09	-2139.30
			Max. Torque	22			-2.07
L28	73.75 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.07	1.95	10.75
			Max. Mx	20	-29.61	2286.47	-2.45
			Max. My	14	-29.58	0.83	-2304.93
			Max. Vy	20	-33.09	2286.47	-2.45
			Max. Vx	14	33.39	0.83	-2304.93
			Max. Torque	22			-2.07
L29	68.75 - 63.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.56	2.31	11.36
			Max. Mx	20	-31.05	2452.91	-2.08
			Max. My	14	-31.02	0.48	-2472.75
			Max. Vy	20	-33.51	2452.91	-2.08
			Max. Vx	14	33.80	0.48	-2472.75
			Max. Torque	22			-2.07
L30	63.75 - 58.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.09	2.67	11.97
			Max. Mx	20	-32.52	2621.38	-1.72
			Max. My	14	-32.49	0.14	-2642.61
			Max. Vy	20	-33.91	2621.38	-1.72
			Max. Vx	14	34.21	0.14	-2642.61
			Max. Torque	22			-2.07
L31	58.75 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.65	3.04	12.58
			Max. Mx	20	-34.02	2791.87	-1.35
			Max. My	14	-34.00	-0.21	-2814.48
			Max. Vy	20	-34.31	2791.87	-1.35
			Max. Vx	14	34.60	-0.21	-2814.48
			Max. Torque	22			-2.07
L32	53.75 - 49	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.10	3.39	13.15
			Max. Mx	20	-35.47	2955.68	-1.00
			Max. My	14	-35.45	-0.53	-2979.59
			Max. Vy	20	-34.69	2955.68	-1.00
			Max. Vx	14	34.98	-0.53	-2979.59
			Max. Torque	22			-2.06
L33	49 - 42.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.14	3.39	13.17
			Max. Mx	20	-35.52	2958.28	-0.99
			Max. My	14	-35.49	-0.54	-2982.21
			Max. Vy	20	-34.68	2958.28	-0.99
			Max. Vx	14	34.97	-0.54	-2982.21
			Max. Torque	22			-2.06
L34	42.698 - 41.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-91.98	3.93	14.04
			Max. Mx	20	-39.21	3211.72	-0.46
			Max. My	14	-39.19	-1.03	-3237.62
			Max. Vy	20	-35.45	3211.72	-0.46
			Max. Vx	14	35.74	-1.03	-3237.62
			Max. Torque	22			-2.06
L35	41.698 - 36.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.53	4.30	14.63

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-40.96	3389.84	-0.09
			Max. My	14	-40.94	-1.37	-3417.10
			Max. Vy	20	-35.83	3389.84	-0.09
			Max. Vx	14	36.12	-1.37	-3417.10
			Max. Torque	22			-2.06
L36	36.698 - 31.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.11	4.66	15.22
			Max. Mx	20	-42.74	3569.85	0.29
			Max. My	14	-42.72	-1.71	-3598.47
			Max. Vy	20	-36.20	3569.85	0.29
			Max. Vx	14	36.49	-1.71	-3598.47
			Max. Torque	22			-2.06
L37	31.698 - 26.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.72	5.03	15.81
			Max. Mx	20	-44.55	3751.69	0.66
			Max. My	14	-44.54	-2.05	-3781.64
			Max. Vy	20	-36.56	3751.69	0.66
			Max. Vx	14	36.85	-2.05	-3781.64
			Max. Torque	22			-2.06
L38	26.698 - 21.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.35	5.37	16.34
			Max. Mx	20	-46.40	3935.26	1.04
			Max. My	14	-46.38	-2.39	-3966.55
			Max. Vy	20	-36.90	3935.26	1.04
			Max. Vx	14	37.18	-2.39	-3966.55
			Max. Torque	22			-2.06
L39	21.698 - 16.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.00	5.71	16.86
			Max. Mx	20	-48.28	4120.46	1.41
			Max. My	14	-48.27	-2.72	-4153.08
			Max. Vy	20	-37.21	4120.46	1.41
			Max. Vx	14	37.50	-2.72	-4153.08
			Max. Torque	22			-2.06
L40	16.698 - 11.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-107.65	6.03	17.34
			Max. Mx	20	-50.18	4307.16	1.79
			Max. My	14	-50.18	-3.06	-4341.11
			Max. Vy	20	-37.50	4307.16	1.79
			Max. Vx	14	37.79	-3.06	-4341.11
			Max. Torque	22			-2.06
L41	11.698 - 6.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.93	6.06	17.38
			Max. Mx	20	-51.99	4495.29	2.10
			Max. My	14	-51.99	-3.42	-4530.64
			Max. Vy	20	-37.79	4495.29	2.10
			Max. Vx	14	38.07	-3.42	-4530.64
			Max. Torque	22			-2.06
L42	6.698 - 1.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-112.05	6.11	17.40
			Max. Mx	20	-53.70	4684.86	2.41
			Max. My	14	-53.70	-3.79	-4721.61
			Max. Vy	20	-38.08	4684.86	2.41
			Max. Vx	14	38.36	-3.79	-4721.61
			Max. Torque	22			-2.06
L43	1.698 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-112.75	6.12	17.41
			Max. Mx	20	-54.26	4749.57	2.51
			Max. My	14	-54.26	-3.91	-4786.80
			Max. Vy	20	-38.20	4749.57	2.51
			Max. Vx	14	38.48	-3.91	-4786.80
			Max. Torque	22			-2.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	29	112.75	-11.46	6.67
	Max. H_x	20	54.29	38.16	0.06
	Max. H_z	2	54.29	0.19	38.28
	Max. M_x	2	4762.81	0.19	38.28
	Max. M_z	8	4732.00	-38.05	0.00
	Max. Torsion	12	1.84	-18.99	-33.36
	Min. Vert	19	40.72	33.93	-19.78
	Min. H_x	8	54.29	-38.05	0.00
	Min. H_z	14	54.29	-0.07	-38.44
	Min. M_x	14	-4786.80	-0.07	-38.44
	Min. M_z	20	-4749.57	38.16	0.06
	Min. Torsion	22	-2.06	33.01	19.33

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	45.24	0.00	0.00	-1.53	0.35	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	54.29	-0.19	-38.28	-4762.81	23.67	1.43
0.9 Dead+1.6 Wind 0 deg - No Ice	40.72	-0.19	-38.28	-4690.00	23.27	1.42
1.2 Dead+1.6 Wind 30 deg - No Ice	54.29	18.95	-33.11	-4120.46	-2356.99	0.93
0.9 Dead+1.6 Wind 30 deg - No Ice	40.72	18.95	-33.11	-4057.37	-2321.25	0.92
1.2 Dead+1.6 Wind 60 deg - No Ice	54.29	33.84	-19.68	-2446.00	-4191.33	-0.47
0.9 Dead+1.6 Wind 60 deg - No Ice	40.72	33.84	-19.68	-2408.48	-4128.11	-0.47
1.2 Dead+1.6 Wind 90 deg - No Ice	54.29	38.05	-0.00	-9.09	-4732.00	-1.76
0.9 Dead+1.6 Wind 90 deg - No Ice	40.72	38.05	-0.00	-8.37	-4660.21	-1.76
1.2 Dead+1.6 Wind 120 deg - No Ice	54.29	32.91	19.35	2408.30	-4088.70	-1.58
0.9 Dead+1.6 Wind 120 deg - No Ice	40.72	32.91	19.35	2372.23	-4026.73	-1.57
1.2 Dead+1.6 Wind 150 deg - No Ice	54.29	18.99	33.36	4155.06	-2352.71	-1.84
0.9 Dead+1.6 Wind 150 deg - No Ice	40.72	18.99	33.36	4092.39	-2317.21	-1.84
1.2 Dead+1.6 Wind 180 deg - No Ice	54.29	0.07	38.44	4786.80	-3.91	-1.75
0.9 Dead+1.6 Wind 180 deg - No Ice	40.72	0.07	38.44	4714.54	-4.06	-1.74
1.2 Dead+1.6 Wind 210 deg - No Ice	54.29	-18.94	33.33	4153.41	2358.84	-1.08
0.9 Dead+1.6 Wind 210 deg - No Ice	40.72	-18.94	33.33	4090.74	2322.84	-1.07
1.2 Dead+1.6 Wind 240 deg - No Ice	54.29	-33.93	19.78	2459.66	4207.10	0.23
0.9 Dead+1.6 Wind 240 deg	40.72	-33.93	19.78	2422.86	4143.41	0.23

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
- No Ice 1.2 Dead+1.6 Wind 270 deg - No Ice	54.29	-38.16	-0.06	-2.51	4749.57	1.34
0.9 Dead+1.6 Wind 270 deg - No Ice	40.72	-38.16	-0.06	-2.13	4677.32	1.34
1.2 Dead+1.6 Wind 300 deg - No Ice	54.29	-33.01	-19.33	-2408.61	4103.91	2.06
0.9 Dead+1.6 Wind 300 deg - No Ice	40.72	-33.01	-19.33	-2371.58	4041.51	2.05
1.2 Dead+1.6 Wind 330 deg - No Ice	54.29	-19.08	-33.27	-4142.95	2367.85	1.86
0.9 Dead+1.6 Wind 330 deg - No Ice	40.72	-19.08	-33.27	-4079.55	2331.87	1.85
1.2 Dead+1.0 Ice+1.0 Temp	112.75	0.00	-0.00	-17.41	6.12	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	112.75	-0.02	-12.00	-1682.56	9.16	0.49
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	112.75	6.00	-10.44	-1463.36	-823.12	0.28
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	112.75	11.46	-6.67	-917.24	-1536.10	-0.15
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	112.75	12.52	-0.02	-21.91	-1706.46	-0.54
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	112.75	10.31	6.03	820.16	-1423.34	-0.57
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	112.75	6.06	10.63	1448.66	-825.07	-0.64
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	112.75	-0.01	12.04	1654.72	7.83	-0.57
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	112.75	-6.00	10.49	1437.60	836.02	-0.32
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	112.75	-11.48	6.69	886.81	1552.32	0.09
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	112.75	-12.55	0.01	-14.67	1722.86	0.45
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	112.75	-10.33	-6.02	-854.43	1439.03	0.68
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	112.75	-6.07	-10.61	-1479.52	840.98	0.64
Dead+Wind 0 deg - Service	45.24	-0.04	-8.19	-1013.68	5.28	0.32
Dead+Wind 30 deg - Service	45.24	4.05	-7.08	-877.11	-500.79	0.21
Dead+Wind 60 deg - Service	45.24	7.24	-4.21	-521.23	-890.83	-0.10
Dead+Wind 90 deg - Service	45.24	8.14	-0.00	-3.14	-1005.62	-0.39
Dead+Wind 120 deg - Service	45.24	7.04	4.14	510.72	-868.89	-0.35
Dead+Wind 150 deg - Service	45.24	4.06	7.14	882.08	-499.90	-0.41
Dead+Wind 180 deg - Service	45.24	0.02	8.22	1016.41	-0.59	-0.39
Dead+Wind 210 deg - Service	45.24	-4.05	7.13	881.76	501.71	-0.24
Dead+Wind 240 deg - Service	45.24	-7.26	4.23	521.74	894.73	0.05
Dead+Wind 270 deg - Service	45.24	-8.16	-0.01	-1.75	1009.89	0.30
Dead+Wind 300 deg - Service	45.24	-7.06	-4.14	-513.23	872.64	0.46
Dead+Wind 330 deg - Service	45.24	-4.08	-7.12	-881.92	503.61	0.42

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-45.24	0.00	0.00	45.24	0.00	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
2	-0.19	-54.29	-38.28	0.19	54.29	38.28	0.000%
3	-0.19	-40.72	-38.28	0.19	40.72	38.28	0.000%
4	18.95	-54.29	-33.11	-18.95	54.29	33.11	0.000%
5	18.95	-40.72	-33.11	-18.95	40.72	33.11	0.000%
6	33.84	-54.29	-19.68	-33.84	54.29	19.68	0.000%
7	33.84	-40.72	-19.68	-33.84	40.72	19.68	0.000%
8	38.05	-54.29	-0.00	-38.05	54.29	0.00	0.000%
9	38.05	-40.72	-0.00	-38.05	40.72	0.00	0.000%
10	32.91	-54.29	19.35	-32.91	54.29	-19.35	0.000%
11	32.91	-40.72	19.35	-32.91	40.72	-19.35	0.000%
12	18.99	-54.29	33.36	-18.99	54.29	-33.36	0.000%
13	18.99	-40.72	33.36	-18.99	40.72	-33.36	0.000%
14	0.07	-54.29	38.44	-0.07	54.29	-38.44	0.000%
15	0.07	-40.72	38.44	-0.07	40.72	-38.44	0.000%
16	-18.94	-54.29	33.33	18.94	54.29	-33.33	0.000%
17	-18.94	-40.72	33.33	18.94	40.72	-33.33	0.000%
18	-33.93	-54.29	19.78	33.93	54.29	-19.78	0.000%
19	-33.93	-40.72	19.78	33.93	40.72	-19.78	0.000%
20	-38.16	-54.29	-0.06	38.16	54.29	0.06	0.000%
21	-38.16	-40.72	-0.06	38.16	40.72	0.06	0.000%
22	-33.01	-54.29	-19.33	33.01	54.29	19.33	0.000%
23	-33.01	-40.72	-19.33	33.01	40.72	19.33	0.000%
24	-19.08	-54.29	-33.27	19.08	54.29	33.27	0.000%
25	-19.08	-40.72	-33.27	19.08	40.72	33.27	0.000%
26	0.00	-112.75	0.00	-0.00	112.75	0.00	0.000%
27	-0.02	-112.75	-12.00	0.02	112.75	12.00	0.000%
28	6.00	-112.75	-10.44	-6.00	112.75	10.44	0.000%
29	11.46	-112.75	-6.67	-11.46	112.75	6.67	0.000%
30	12.52	-112.75	-0.02	-12.52	112.75	0.02	0.000%
31	10.31	-112.75	6.03	-10.31	112.75	-6.03	0.000%
32	6.06	-112.75	10.63	-6.06	112.75	-10.63	0.000%
33	-0.01	-112.75	12.04	0.01	112.75	-12.04	0.000%
34	-6.00	-112.75	10.49	6.00	112.75	-10.49	0.000%
35	-11.48	-112.75	6.69	11.48	112.75	-6.69	0.000%
36	-12.55	-112.75	0.01	12.55	112.75	-0.01	0.000%
37	-10.33	-112.75	-6.02	10.33	112.75	6.02	0.000%
38	-6.07	-112.75	-10.61	6.07	112.75	10.61	0.000%
39	-0.04	-45.24	-8.19	0.04	45.24	8.19	0.000%
40	4.05	-45.24	-7.08	-4.05	45.24	7.08	0.000%
41	7.24	-45.24	-4.21	-7.24	45.24	4.21	0.000%
42	8.14	-45.24	-0.00	-8.14	45.24	0.00	0.000%
43	7.04	-45.24	4.14	-7.04	45.24	-4.14	0.000%
44	4.06	-45.24	7.14	-4.06	45.24	-7.14	0.000%
45	0.02	-45.24	8.22	-0.02	45.24	-8.22	0.000%
46	-4.05	-45.24	7.13	4.05	45.24	-7.13	0.000%
47	-7.26	-45.24	4.23	7.26	45.24	-4.23	0.000%
48	-8.16	-45.24	-0.01	8.16	45.24	0.01	0.000%
49	-7.06	-45.24	-4.14	7.06	45.24	4.14	0.000%
50	-4.08	-45.24	-7.12	4.08	45.24	7.12	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000421
2	Yes	6	0.00000001	0.00022610
3	Yes	6	0.00000001	0.00006003
4	Yes	7	0.00000001	0.00049094
5	Yes	7	0.00000001	0.00009500
6	Yes	7	0.00000001	0.00049216
7	Yes	7	0.00000001	0.00009356
8	Yes	6	0.00000001	0.00036095
9	Yes	6	0.00000001	0.00010317
10	Yes	7	0.00000001	0.00047554

11	Yes	7	0.00000001	0.00009078
12	Yes	7	0.00000001	0.00050041
13	Yes	7	0.00000001	0.00009715
14	Yes	6	0.00000001	0.00033969
15	Yes	6	0.00000001	0.00009706
16	Yes	7	0.00000001	0.00047451
17	Yes	7	0.00000001	0.00009048
18	Yes	7	0.00000001	0.00048985
19	Yes	7	0.00000001	0.00009260
20	Yes	6	0.00000001	0.00025624
21	Yes	6	0.00000001	0.00006975
22	Yes	7	0.00000001	0.00050204
23	Yes	7	0.00000001	0.00009715
24	Yes	7	0.00000001	0.00047249
25	Yes	7	0.00000001	0.00009016
26	Yes	6	0.00000001	0.00049123
27	Yes	9	0.00000001	0.00033737
28	Yes	9	0.00000001	0.00044889
29	Yes	9	0.00000001	0.00048394
30	Yes	9	0.00000001	0.00033835
31	Yes	9	0.00000001	0.00043317
32	Yes	9	0.00000001	0.00044195
33	Yes	9	0.00000001	0.00033117
34	Yes	9	0.00000001	0.00043961
35	Yes	9	0.00000001	0.00047342
36	Yes	9	0.00000001	0.00033902
37	Yes	9	0.00000001	0.00045151
38	Yes	9	0.00000001	0.00045004
39	Yes	5	0.00000001	0.00066889
40	Yes	6	0.00000001	0.00015677
41	Yes	6	0.00000001	0.00016118
42	Yes	5	0.00000001	0.00067989
43	Yes	6	0.00000001	0.00014689
44	Yes	6	0.00000001	0.00016108
45	Yes	5	0.00000001	0.00069536
46	Yes	6	0.00000001	0.00014847
47	Yes	6	0.00000001	0.00016050
48	Yes	5	0.00000001	0.00065751
49	Yes	6	0.00000001	0.00016307
50	Yes	6	0.00000001	0.00014603

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	181.833 - 176.833	44.663	47	2.3088	0.0129
L2	176.833 - 171.833	42.254	47	2.3043	0.0124
L3	171.833 - 166.833	39.859	47	2.2816	0.0105
L4	166.833 - 161.833	37.487	47	2.2531	0.0090
L5	161.833 - 156.833	35.152	47	2.2080	0.0077
L6	156.833 - 151.833	32.870	47	2.1504	0.0066
L7	151.833 - 146.833	30.655	47	2.0801	0.0057
L8	146.833 - 141.833	28.519	47	1.9994	0.0050
L9	141.833 - 136.833	26.471	47	1.9121	0.0043
L10	136.833 - 132.914	24.517	47	1.8190	0.0036
L11	136.667 -	24.454	47	1.8158	0.0035

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L12	131.667 - 126.667	22.576	47	1.7662	0.0032
L13	126.667 - 121.667	20.766	47	1.6906	0.0028
L14	121.667 - 116.667	19.037	47	1.6130	0.0025
L15	116.667 - 111.667	17.389	47	1.5344	0.0022
L16	111.667 - 106.667	15.824	47	1.4554	0.0020
L17	106.667 - 101.667	14.341	47	1.3766	0.0017
L18	101.667 - 96.667	12.941	47	1.2985	0.0015
L19	96.667 - 87.302	11.622	47	1.2214	0.0013
L20	92.323 - 86.302	10.541	47	1.1552	0.0012
L21	86.302 - 85	9.114	47	1.1002	0.0011
L22	85 - 84.75	8.817	47	1.0796	0.0010
L23	84.75 - 79.75	8.761	47	1.0756	0.0010
L24	79.75 - 75	7.676	47	0.9960	0.0009
L25	75 - 74.75	6.722	47	0.9212	0.0008
L26	74.75 - 74	6.674	47	0.9173	0.0008
L27	74 - 73.75	6.531	47	0.9057	0.0008
L28	73.75 - 68.75	6.484	47	0.9018	0.0008
L29	68.75 - 63.75	5.580	47	0.8244	0.0007
L30	63.75 - 58.75	4.757	47	0.7482	0.0006
L31	58.75 - 53.75	4.013	47	0.6733	0.0005
L32	53.75 - 49	3.346	47	0.5997	0.0004
L33	49 - 42.698	2.784	47	0.5312	0.0004
L34	48.925 - 41.698	2.776	47	0.5301	0.0004
L35	41.698 - 36.698	2.010	47	0.4759	0.0003
L36	36.698 - 31.698	1.544	47	0.4138	0.0003
L37	31.698 - 26.698	1.143	47	0.3532	0.0002
L38	26.698 - 21.698	0.804	47	0.2939	0.0002
L39	21.698 - 16.698	0.527	47	0.2360	0.0001
L40	16.698 - 11.698	0.309	47	0.1794	0.0001
L41	11.698 - 6.698	0.151	47	0.1242	0.0001
L42	6.698 - 1.698	0.049	47	0.0702	0.0000
L43	1.698 - 0	0.003	47	0.0174	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	HPD2-4.7	47	42.816	2.3068	0.0131	19516
170.00	Platform Mount [LP 601-1]	47	38.986	2.2721	0.0103	9961
157.00	Platform Mount [LP 305-1]	47	32.945	2.1525	0.0070	4464
144.00	VHLP2.5-10W	47	27.347	1.9506	0.0047	3258
140.00	Platform Mount [LP 712-1]	47	25.743	1.8789	0.0041	3209
90.00	Platform Mount [LP 712-1]	47	9.981	1.1350	0.0011	5388
73.00	Side Arm Mount [SO 701-1]	47	6.343	0.8901	0.0008	3688

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	181.833 - 176.833	209.248	18	10.8507	0.0557

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	176.833 - 171.833	198.005	18	10.8325	0.0534
L3	171.833 - 166.833	186.826	18	10.7351	0.0456
L4	166.833 - 161.833	175.759	18	10.6079	0.0394
L5	161.833 - 156.833	164.859	18	10.4010	0.0343
L6	156.833 - 151.833	154.205	18	10.1301	0.0300
L7	151.833 - 146.833	143.856	18	9.7994	0.0263
L8	146.833 - 141.833	133.872	18	9.4201	0.0231
L9	141.833 - 136.833	124.293	18	9.0089	0.0198
L10	136.833 - 132.914	115.148	18	8.5706	0.0163
L11	136.667 - 131.667	114.852	18	8.5555	0.0162
L12	131.667 - 126.667	106.056	18	8.3215	0.0148
L13	126.667 - 121.667	97.577	18	7.9657	0.0130
L14	121.667 - 116.667	89.470	18	7.6001	0.0114
L15	116.667 - 111.667	81.742	18	7.2296	0.0101
L16	111.667 - 106.667	74.399	18	6.8575	0.0088
L17	106.667 - 101.667	67.440	18	6.4864	0.0078
L18	101.667 - 96.667	60.864	18	6.1183	0.0068
L19	96.667 - 87.302	54.667	18	5.7545	0.0059
L20	92.323 - 86.302	49.588	18	5.4427	0.0053
L21	86.302 - 85	42.883	18	5.1833	0.0048
L22	85 - 84.75	41.486	18	5.0863	0.0047
L23	84.75 - 79.75	41.221	18	5.0675	0.0046
L24	79.75 - 75	36.122	18	4.6925	0.0041
L25	75 - 74.75	31.637	18	4.3401	0.0036
L26	74.75 - 74	31.411	18	4.3217	0.0036
L27	74 - 73.75	30.738	18	4.2668	0.0035
L28	73.75 - 68.75	30.515	18	4.2485	0.0035
L29	68.75 - 63.75	26.264	18	3.8836	0.0031
L30	63.75 - 58.75	22.390	18	3.5244	0.0027
L31	58.75 - 53.75	18.888	18	3.1714	0.0023
L32	53.75 - 49	15.752	18	2.8248	0.0020
L33	49 - 42.698	13.104	18	2.5019	0.0017
L34	48.925 - 41.698	13.065	18	2.4968	0.0017
L35	41.698 - 36.698	9.462	18	2.2410	0.0015
L36	36.698 - 31.698	7.269	18	1.9487	0.0013
L37	31.698 - 26.698	5.379	18	1.6630	0.0010
L38	26.698 - 21.698	3.785	18	1.3838	0.0009
L39	21.698 - 16.698	2.479	18	1.1110	0.0007
L40	16.698 - 11.698	1.456	18	0.8446	0.0005
L41	11.698 - 6.698	0.708	18	0.5844	0.0003
L42	6.698 - 1.698	0.230	18	0.3302	0.0002
L43	1.698 - 0	0.015	18	0.0820	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	HPD2-4.7	18	200.626	10.8432	0.0650	4808
170.00	Platform Mount [LP 601-1]	18	182.753	10.6934	0.0516	2370
157.00	Platform Mount [LP 305-1]	18	154.556	10.1402	0.0347	1019
144.00	VHLP2.5-10W	18	128.393	9.1901	0.0235	731
140.00	Platform Mount [LP 712-1]	18	120.888	8.8525	0.0201	717
90.00	Platform Mount [LP 712-1]	18	46.957	5.3474	0.0051	1166
73.00	Side Arm Mount [SO 701-1]	18	29.853	4.1935	0.0035	792

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	5.00	0.00	0.0	12.2420	-0.24	909.52	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	5.00	0.00	0.0	13.1765	-0.47	978.95	0.000
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	5.00	0.00	0.0	14.1111	-2.94	1048.39	0.003
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	5.00	0.00	0.0	15.0457	-3.33	1117.82	0.003
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	5.00	0.00	0.0	15.9803	-5.74	1187.25	0.005
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	5.00	0.00	0.0	16.9149	-6.28	1256.69	0.005
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	5.00	0.00	0.0	17.8494	-6.85	1326.12	0.005
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	5.00	0.00	0.0	18.7840	-7.47	1395.56	0.005
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	5.00	0.00	0.0	19.7186	-10.57	1464.99	0.007
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	3.92	0.00	0.0	19.7496	-10.61	1467.30	0.007
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	5.00	0.00	0.0	30.2695	-11.74	2248.87	0.005
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	5.00	0.00	0.0	31.6585	-12.67	2352.07	0.005
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	5.00	0.00	0.0	33.0474	-13.63	2455.26	0.006
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	5.00	0.00	0.0	34.4364	-14.54	2558.45	0.006
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	5.00	0.00	0.0	35.8254	-15.56	2661.65	0.006
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	5.00	0.00	0.0	37.2143	-16.62	2764.84	0.006
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	5.00	0.00	0.0	38.6033	-17.70	2868.03	0.006
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	5.00	0.00	0.0	39.9923	-18.82	2971.23	0.006
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	9.36	0.00	0.0	41.1990	-19.84	3060.88	0.006
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	6.02	0.00	0.0	41.9766	-24.60	3118.65	0.008
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1.30	0.00	0.0	42.3378	-24.93	3145.49	0.008
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	0.25	0.00	0.0	42.4071	-25.02	3150.64	0.008
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	5.00	0.00	0.0	43.7942	-26.35	3253.69	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	4.75	0.00	0.0	45.1119	-27.65	3343.12	0.008
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.375	0.25	0.00	0.0	45.1812	-27.74	3346.95	0.008
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.375	0.75	0.00	0.0	45.3893	-27.94	3358.42	0.008
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	0.25	0.00	0.0	45.4586	-28.02	3362.23	0.008
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	5.00	0.00	0.0	46.8457	-29.49	3437.70	0.009
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	5.00	0.00	0.0	48.2327	-30.94	3511.56	0.009
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	5.00	0.00	0.0	49.6197	-32.42	3583.82	0.009
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	5.00	0.00	0.0	51.0068	-33.93	3654.47	0.009
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	4.75	0.00	0.0	52.3245	-35.39	3720.10	0.010
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	6.30	0.00	0.0	52.3453	-35.43	3721.12	0.010
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	7.23	0.00	0.0	62.2789	-39.13	4598.58	0.009
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	5.00	0.00	0.0	63.8963	-40.89	4686.31	0.009
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	5.00	0.00	0.0	65.5136	-42.68	4772.43	0.009
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	5.00	0.00	0.0	67.1309	-44.50	4856.96	0.009
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	5.00	0.00	0.0	68.7483	-46.36	4939.87	0.009
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	5.00	0.00	0.0	70.3656	-48.24	5021.19	0.010
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	5.00	0.00	0.0	71.9829	-50.16	5100.90	0.010
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	5.00	0.00	0.0	73.6003	-51.98	5179.00	0.010
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	5.00	0.00	0.0	75.2176	-53.69	5255.50	0.010
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	1.70	0.00	0.0	75.7669	-54.26	5281.12	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	21.82	286.17	0.076	0.00	286.17	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	36.82	331.91	0.111	0.00	331.91	0.000
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	66.24	381.04	0.174	0.00	381.04	0.000
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	117.53	433.55	0.271	0.00	433.55	0.000
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	173.09	489.46	0.354	0.00	489.46	0.000
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	245.63	548.75	0.448	0.00	548.75	0.000
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	320.04	611.44	0.523	0.00	611.44	0.000
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	397.55	677.52	0.587	0.00	677.52	0.000
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	495.53	746.98	0.663	0.00	746.98	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	499.12	749.35	0.666	0.00	749.35	0.000
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	608.65	1168.07	0.521	0.00	1168.07	0.000
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	720.44	1278.53	0.563	0.00	1278.53	0.000
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	834.39	1394.00	0.599	0.00	1394.00	0.000
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	951.96	1514.46	0.629	0.00	1514.46	0.000
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	1072.22	1639.90	0.654	0.00	1639.90	0.000
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	1195.09	1770.34	0.675	0.00	1770.34	0.000
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	1320.57	1905.77	0.693	0.00	1905.77	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	1448.64	2046.19	0.708	0.00	2046.19	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	1562.00	2172.24	0.719	0.00	2172.24	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	1750.53	2255.46	0.776	0.00	2255.46	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1792.78	2294.64	0.781	0.00	2294.64	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	1800.92	2302.21	0.782	0.00	2302.21	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	1964.80	2456.08	0.800	0.00	2456.08	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	2122.64	2600.28	0.816	0.00	2600.28	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.375	2131.01	2607.31	0.817	0.00	2607.31	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.375	2156.14	2628.41	0.820	0.00	2628.41	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	2164.53	2635.45	0.821	0.00	2635.45	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	2333.92	2777.63	0.840	0.00	2777.63	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	2505.54	2922.11	0.857	0.00	2922.11	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	2679.34	3068.78	0.873	0.00	3068.78	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	2855.27	3217.53	0.887	0.00	3217.53	0.000
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	3024.31	3360.66	0.900	0.00	3360.66	0.000
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	3026.99	3362.93	0.900	0.00	3362.93	0.000
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	3288.53	4233.07	0.777	0.00	4233.07	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	3472.31	4426.94	0.784	0.00	4426.94	0.000
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	3657.99	4623.49	0.791	0.00	4623.49	0.000
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	3845.49	4822.61	0.797	0.00	4822.61	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	4034.72	5024.17	0.803	0.00	5024.17	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	4225.54	5228.07	0.808	0.00	5228.07	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	4417.86	5434.18	0.813	0.00	5434.18	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	4611.59	5642.39	0.817	0.00	5642.39	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	4806.76	5852.58	0.821	0.00	5852.58	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	4873.37	5924.40	0.823	0.00	5924.40	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	2.85	454.76	0.006	0.95	573.04	0.002
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	3.15	489.48	0.006	0.95	664.63	0.001
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	10.09	524.19	0.019	1.16	763.00	0.002
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	10.44	558.91	0.019	1.16	868.17	0.001
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	14.33	593.63	0.024	1.16	980.12	0.001
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	14.70	628.34	0.023	1.16	1098.85	0.001
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	15.08	663.06	0.023	1.16	1224.38	0.001
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	16.13	697.78	0.023	2.02	1356.69	0.001
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	21.65	732.50	0.030	1.90	1495.79	0.001
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	21.66	733.65	0.030	1.90	1500.53	0.001
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	22.16	1124.44	0.020	1.90	2338.98	0.001
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	22.59	1176.03	0.019	1.90	2560.20	0.001
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	23.02	1227.63	0.019	1.89	2791.41	0.001
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	23.80	1279.23	0.019	0.22	3032.62	0.000
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	24.33	1330.82	0.018	0.22	3283.82	0.000
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	24.85	1382.42	0.018	0.22	3545.01	0.000
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	25.37	1434.02	0.018	0.22	3816.20	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	25.89	1485.61	0.017	0.22	4097.38	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	26.33	1530.44	0.017	0.22	4349.79	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	32.41	1559.33	0.021	0.08	4516.43	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	32.54	1572.74	0.021	0.08	4594.90	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	32.55	1575.32	0.021	0.08	4610.05	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	33.03	1626.84	0.020	0.08	4918.17	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	33.47	1671.56	0.020	0.08	5206.93	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.375	33.48	1673.47	0.020	0.08	5220.98	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.375	33.56	1679.21	0.020	0.08	5263.24	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	33.57	1681.12	0.020	0.08	5277.35	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	34.12	1718.85	0.020	0.23	5562.04	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	34.56	1755.78	0.020	0.23	5851.36	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	35.00	1791.91	0.020	0.23	6145.07	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	35.42	1827.23	0.019	0.23	6442.93	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	35.81	1860.05	0.019	0.23	6729.54	0.000
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	35.80	1860.56	0.019	0.23	6734.09	0.000
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	36.58	2299.29	0.016	0.23	8476.50	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	36.97	2343.15	0.016	0.23	8864.75	0.000
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	37.35	2386.22	0.016	0.23	9258.33	0.000
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	37.70	2428.48	0.016	0.23	9657.00	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	38.03	2469.94	0.015	0.23	10060.67	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	38.34	2510.59	0.015	0.23	10468.92	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	38.63	2550.45	0.015	0.23	10881.67	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	38.91	2589.50	0.015	0.23	11298.58	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	39.20	2627.75	0.015	0.23	11719.50	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	39.31	2640.56	0.015	0.23	11863.25	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	181.833 - 176.833 (1)	0.000	0.076	0.000	0.006	0.002	0.077	1.000	4.8.2
L2	176.833 - 171.833 (2)	0.000	0.111	0.000	0.006	0.001	0.111	1.000	4.8.2
L3	171.833 - 166.833 (3)	0.003	0.174	0.000	0.019	0.002	0.177	1.000	4.8.2
L4	166.833 - 161.833 (4)	0.003	0.271	0.000	0.019	0.001	0.274	1.000	4.8.2
L5	161.833 - 156.833 (5)	0.005	0.354	0.000	0.024	0.001	0.359	1.000	4.8.2
L6	156.833 - 151.833 (6)	0.005	0.448	0.000	0.023	0.001	0.453	1.000	4.8.2
L7	151.833 - 146.833 (7)	0.005	0.523	0.000	0.023	0.001	0.529	1.000	4.8.2
L8	146.833 - 141.833 (8)	0.005	0.587	0.000	0.023	0.001	0.593	1.000	4.8.2
L9	141.833 - 136.833 (9)	0.007	0.663	0.000	0.030	0.001	0.672	1.000	4.8.2
L10	136.833 - 132.914 (10)	0.007	0.666	0.000	0.030	0.001	0.674	1.000	4.8.2
L11	132.914 - 131.667 (11)	0.005	0.521	0.000	0.020	0.001	0.527	1.000	4.8.2
L12	131.667 - 126.667 (12)	0.005	0.563	0.000	0.019	0.001	0.569	1.000	4.8.2
L13	126.667 - 121.667 (13)	0.006	0.599	0.000	0.019	0.001	0.604	1.000	4.8.2
L14	121.667 - 116.667 (14)	0.006	0.629	0.000	0.019	0.000	0.635	1.000	4.8.2
L15	116.667 - 111.667 (15)	0.006	0.654	0.000	0.018	0.000	0.660	1.000	4.8.2
L16	111.667 - 106.667 (16)	0.006	0.675	0.000	0.018	0.000	0.681	1.000	4.8.2
L17	106.667 -	0.006	0.693	0.000	0.018	0.000	0.699	1.000	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	101.667 (17)								
L18	101.667 - 96.667 (18)	0.006	0.708	0.000	0.017	0.000	0.715	1.000	4.8.2
L19	96.667 - 87.302 (19)	0.006	0.719	0.000	0.017	0.000	0.726	1.000	4.8.2
L20	87.302 - 86.302 (20)	0.008	0.776	0.000	0.021	0.000	0.784	1.000	4.8.2
L21	86.302 - 85 (21)	0.008	0.781	0.000	0.021	0.000	0.790	1.000	4.8.2
L22	85 - 84.75 (22)	0.008	0.782	0.000	0.021	0.000	0.791	1.000	4.8.2
L23	84.75 - 79.75 (23)	0.008	0.800	0.000	0.020	0.000	0.808	1.000	4.8.2
L24	79.75 - 75 (24)	0.008	0.816	0.000	0.020	0.000	0.825	1.000	4.8.2
L25	75 - 74.75 (25)	0.008	0.817	0.000	0.020	0.000	0.826	1.000	4.8.2
L26	74.75 - 74 (26)	0.008	0.820	0.000	0.020	0.000	0.829	1.000	4.8.2
L27	74 - 73.75 (27)	0.008	0.821	0.000	0.020	0.000	0.830	1.000	4.8.2
L28	73.75 - 68.75 (28)	0.009	0.840	0.000	0.020	0.000	0.849	1.000	4.8.2
L29	68.75 - 63.75 (29)	0.009	0.857	0.000	0.020	0.000	0.867	1.000	4.8.2
L30	63.75 - 58.75 (30)	0.009	0.873	0.000	0.020	0.000	0.883	1.000	4.8.2
L31	58.75 - 53.75 (31)	0.009	0.887	0.000	0.019	0.000	0.897	1.000	4.8.2
L32	53.75 - 49 (32)	0.010	0.900	0.000	0.019	0.000	0.910	1.000	4.8.2
L33	49 - 42.698 (33)	0.010	0.900	0.000	0.019	0.000	0.910	1.000	4.8.2
L34	42.698 - 41.698 (34)	0.009	0.777	0.000	0.016	0.000	0.786	1.000	4.8.2
L35	41.698 - 36.698 (35)	0.009	0.784	0.000	0.016	0.000	0.793	1.000	4.8.2
L36	36.698 - 31.698 (36)	0.009	0.791	0.000	0.016	0.000	0.800	1.000	4.8.2
L37	31.698 - 26.698 (37)	0.009	0.797	0.000	0.016	0.000	0.807	1.000	4.8.2
L38	26.698 - 21.698 (38)	0.009	0.803	0.000	0.015	0.000	0.813	1.000	4.8.2
L39	21.698 - 16.698 (39)	0.010	0.808	0.000	0.015	0.000	0.818	1.000	4.8.2
L40	16.698 - 11.698 (40)	0.010	0.813	0.000	0.015	0.000	0.823	1.000	4.8.2
L41	11.698 - 6.698 (41)	0.010	0.817	0.000	0.015	0.000	0.828	1.000	4.8.2
L42	6.698 - 1.698 (42)	0.010	0.821	0.000	0.015	0.000	0.832	1.000	4.8.2
L43	1.698 - 0 (43)	0.010	0.823	0.000	0.015	0.000	0.833	1.000	4.8.2

Section Capacity Table

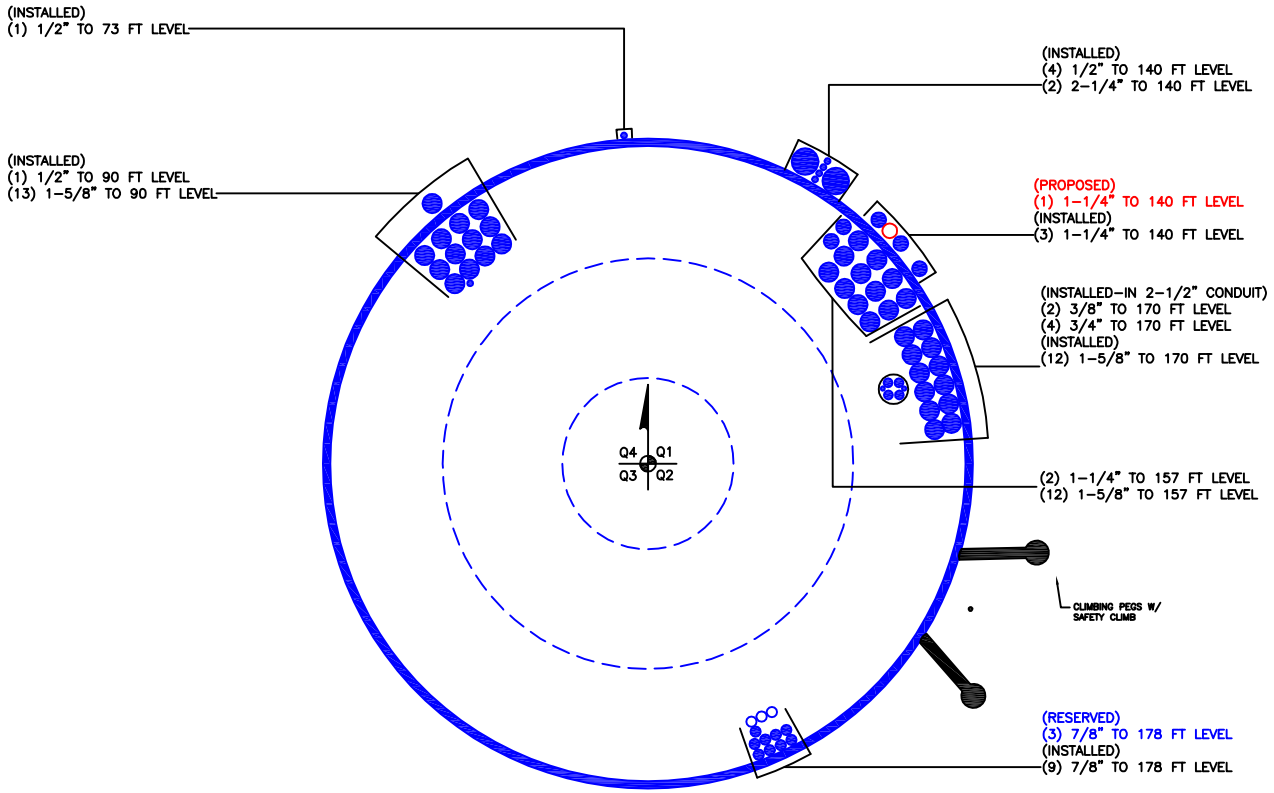
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	181.833 - 176.833	Pole	TP15.6778x14.5x0.25	1	-0.24	909.52	7.7	Pass
L2	176.833 - 171.833	Pole	TP16.8556x15.6778x0.25	2	-0.47	978.95	11.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L3	171.833 - 166.833	Pole	TP18.0334x16.8556x0.25	3	-2.94	1048.39	17.7	Pass
L4	166.833 - 161.833	Pole	TP19.2112x18.0334x0.25	4	-3.33	1117.82	27.4	Pass
L5	161.833 - 156.833	Pole	TP20.389x19.2112x0.25	5	-5.74	1187.25	35.9	Pass
L6	156.833 - 151.833	Pole	TP21.5668x20.389x0.25	6	-6.28	1256.69	45.3	Pass
L7	151.833 - 146.833	Pole	TP22.7446x21.5668x0.25	7	-6.85	1326.12	52.9	Pass
L8	146.833 - 141.833	Pole	TP23.9224x22.7446x0.25	8	-7.47	1395.56	59.3	Pass
L9	141.833 - 136.833	Pole	TP25.1001x23.9224x0.25	9	-10.57	1464.99	67.2	Pass
L10	136.833 - 132.914	Pole	TP26.0233x25.1001x0.25	10	-10.61	1467.30	67.4	Pass
L11	132.914 - 131.667	Pole	TP25.8062x24.6392x0.375	11	-11.74	2248.87	52.7	Pass
L12	131.667 - 126.667	Pole	TP26.9732x25.8062x0.375	12	-12.67	2352.07	56.9	Pass
L13	126.667 - 121.667	Pole	TP28.1401x26.9732x0.375	13	-13.63	2455.26	60.4	Pass
L14	121.667 - 116.667	Pole	TP29.3071x28.1401x0.375	14	-14.54	2558.45	63.5	Pass
L15	116.667 - 111.667	Pole	TP30.474x29.3071x0.375	15	-15.56	2661.65	66.0	Pass
L16	111.667 - 106.667	Pole	TP31.641x30.474x0.375	16	-16.62	2764.84	68.1	Pass
L17	106.667 - 101.667	Pole	TP32.8079x31.641x0.375	17	-17.70	2868.03	69.9	Pass
L18	101.667 - 96.667	Pole	TP33.9749x32.8079x0.375	18	-18.82	2971.23	71.5	Pass
L19	96.667 - 87.302	Pole	TP36.1606x33.9749x0.375	19	-19.84	3060.88	72.6	Pass
L20	87.302 - 86.302	Pole	TP35.642x34.2387x0.375	20	-24.60	3118.65	78.4	Pass
L21	86.302 - 85	Pole	TP35.9455x35.642x0.375	21	-24.93	3145.49	79.0	Pass
L22	85 - 84.75	Pole	TP36.0038x35.9455x0.375	22	-25.02	3150.64	79.1	Pass
L23	84.75 - 79.75	Pole	TP37.1691x36.0038x0.375	23	-26.35	3253.69	80.8	Pass
L24	79.75 - 75	Pole	TP38.2762x37.1691x0.375	24	-27.65	3343.12	82.5	Pass
L25	75 - 74.75	Pole	TP38.3344x38.2762x0.375	25	-27.74	3346.95	82.6	Pass
L26	74.75 - 74	Pole	TP38.5092x38.3344x0.375	26	-27.94	3358.42	82.9	Pass
L27	74 - 73.75	Pole	TP38.5675x38.5092x0.375	27	-28.02	3362.23	83.0	Pass
L28	73.75 - 68.75	Pole	TP39.7328x38.5675x0.375	28	-29.49	3437.70	84.9	Pass
L29	68.75 - 63.75	Pole	TP40.8982x39.7328x0.375	29	-30.94	3511.56	86.7	Pass
L30	63.75 - 58.75	Pole	TP42.0635x40.8982x0.375	30	-32.42	3583.82	88.3	Pass
L31	58.75 - 53.75	Pole	TP43.2288x42.0635x0.375	31	-33.93	3654.47	89.7	Pass
L32	53.75 - 49	Pole	TP44.3359x43.2288x0.375	32	-35.39	3720.10	91.0	Pass
L33	49 - 42.698	Pole	TP45.8047x44.3359x0.375	33	-35.43	3721.12	91.0	Pass
L34	42.698 - 41.698	Pole	TP45.2869x43.6034x0.4375	34	-39.13	4598.58	78.6	Pass
L35	41.698 - 36.698	Pole	TP46.4516x45.2869x0.4375	35	-40.89	4686.31	79.3	Pass
L36	36.698 - 31.698	Pole	TP47.6163x46.4516x0.4375	36	-42.68	4772.43	80.0	Pass
L37	31.698 - 26.698	Pole	TP48.781x47.6163x0.4375	37	-44.50	4856.96	80.7	Pass
L38	26.698 - 21.698	Pole	TP49.9457x48.781x0.4375	38	-46.36	4939.87	81.3	Pass
L39	21.698 - 16.698	Pole	TP51.1104x49.9457x0.4375	39	-48.24	5021.19	81.8	Pass
L40	16.698 - 11.698	Pole	TP52.2751x51.1104x0.4375	40	-50.16	5100.90	82.3	Pass
L41	11.698 - 6.698	Pole	TP53.4398x52.2751x0.4375	41	-51.98	5179.00	82.8	Pass
L42	6.698 - 1.698	Pole	TP54.6045x53.4398x0.4375	42	-53.69	5255.50	83.2	Pass
L43	1.698 - 0	Pole	TP55x54.6045x0.4375	43	-54.26	5281.12	83.3	Pass
							Summary	
						Pole (L33)	91.0	Pass
						RATING =	**91.0**	**Pass**

Note : Above stress ratio for reinforced sections are approximate. More exact calculations are presented in Appendix C.

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842872 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 842872

Work Order: 399476 Rev.1

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	181.833	48.919	3.753	18	14.5	26.0233	0.25	1	A572-65
2	136.667	49.365	5.021	18	24.64	36.1606	0.375	1.5	A572-65
3	92.323	49.625	6.227	18	34.24	45.8047	0.375	1.5	A572-65
4	48.925	48.925	0	18	43.60	55	0.4375	1.75	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	74	85	plate	PL 1x5.75	3				E						E						E		
2	49	75	plate	PL 1x5.75	3		E							E						E			
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	A572-65
2	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	181.833 - 176.833	5		18	14.500	15.678	0.25	A572-65	1.000
2	176.833 - 171.833	5		18	15.678	16.856	0.25	A572-65	1.000
3	171.833 - 166.833	5		18	16.856	18.033	0.25	A572-65	1.000
4	166.833 - 161.833	5		18	18.033	19.211	0.25	A572-65	1.000
5	161.833 - 156.833	5		18	19.211	20.389	0.25	A572-65	1.000
6	156.833 - 151.833	5		18	20.389	21.567	0.25	A572-65	1.000
7	151.833 - 146.833	5		18	21.567	22.745	0.25	A572-65	1.000
8	146.833 - 141.833	5		18	22.745	23.922	0.25	A572-65	1.000
9	141.833 - 136.833	5		18	23.922	25.100	0.25	A572-65	1.000
10	136.833 - 136.667	3.919	3.753	18	25.100	26.023	0.25	A572-65	1.000
11	136.667 - 131.667	5		18	24.639	25.806	0.375	A572-65	1.000
12	131.667 - 126.667	5		18	25.806	26.973	0.375	A572-65	1.000
13	126.667 - 121.667	5		18	26.973	28.140	0.375	A572-65	1.000
14	121.667 - 116.667	5		18	28.140	29.307	0.375	A572-65	1.000
15	116.667 - 111.667	5		18	29.307	30.474	0.375	A572-65	1.000
16	111.667 - 106.667	5		18	30.474	31.641	0.375	A572-65	1.000
17	106.667 - 101.667	5		18	31.641	32.808	0.375	A572-65	1.000
18	101.667 - 96.667	5		18	32.808	33.975	0.375	A572-65	1.000
19	96.667 - 92.323	9.365	5.021	18	33.975	36.161	0.375	A572-65	1.000
20	92.323 - 86.302	6.021		18	34.239	35.642	0.375	A572-65	1.000
21	86.302 - 85	1.302		18	35.642	35.945	0.375	A572-65	1.000
22	85 - 84.75	0.25		18	35.945	36.004	0.375	A572-65	1.000
23	84.75 - 79.75	5		18	36.004	37.169	0.375	A572-65	1.000
24	79.75 - 75	4.75		18	37.169	38.276	0.375	A572-65	1.000
25	75 - 74.75	0.25		18	38.276	38.334	0.6625	A572-65	1.006
26	74.75 - 74	0.75		18	38.334	38.509	0.6625	A572-65	1.004
27	74 - 73.75	0.25		18	38.509	38.567	0.375	A572-65	1.000
28	73.75 - 68.75	5		18	38.567	39.733	0.375	A572-65	1.000
29	68.75 - 63.75	5		18	39.733	40.898	0.375	A572-65	1.000
30	63.75 - 58.75	5		18	40.898	42.064	0.375	A572-65	1.000
31	58.75 - 53.75	5		18	42.064	43.229	0.375	A572-65	1.000
32	53.75 - 49	4.75		18	43.229	44.336	0.375	A572-65	1.000
33	49 - 48.925	6.302	6.227	18	44.336	45.805	0.375	A572-65	1.000
34	48.925 - 41.698	7.227		18	43.603	45.287	0.4375	A572-65	1.000
35	41.698 - 36.698	5		18	45.287	46.452	0.4375	A572-65	1.000
36	36.698 - 31.698	5		18	46.452	47.616	0.4375	A572-65	1.000
37	31.698 - 26.698	5		18	47.616	48.781	0.4375	A572-65	1.000
38	26.698 - 21.698	5		18	48.781	49.946	0.4375	A572-65	1.000
39	21.698 - 16.698	5		18	49.946	51.110	0.4375	A572-65	1.000
40	16.698 - 11.698	5		18	51.110	52.275	0.4375	A572-65	1.000
41	11.698 - 6.698	5		18	52.275	53.440	0.4375	A572-65	1.000
42	6.698 - 1.698	5		18	53.440	54.604	0.4375	A572-65	1.000
43	1.698 - 0	1.698		18	54.604	55.000	0.4375	A572-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	181.833 - 176.833	0.7618	21.921	2.7205
2	176.833 - 171.833	0.4737	36.823	3.1549
3	171.833 - 166.833	2.9434	66.237	10.087
4	166.833 - 161.833	3.3334	117.53	10.436
5	161.833 - 156.833	5.7395	173.09	14.325
6	156.833 - 151.833	6.2777	245.63	14.698
7	151.833 - 146.833	6.85	320.03	15.077
8	146.833 - 141.833	7.4687	397.55	16.134
9	141.833 - 136.833	10.569	495.53	21.651
10	136.833 - 136.667	10.608	499.12	21.663
11	136.667 - 131.667	11.743	608.65	22.16
12	131.667 - 126.667	12.67	720.44	22.588
13	126.667 - 121.667	13.629	834.39	23.023
14	121.667 - 116.667	14.543	951.96	23.803
15	116.667 - 111.667	15.562	1072.2	24.328
16	111.667 - 106.667	16.615	1195.1	24.85
17	106.667 - 101.667	17.702	1320.6	25.371
18	101.667 - 96.667	18.823	1448.6	25.888
19	96.667 - 92.323	19.842	1562	26.333
20	92.323 - 86.302	24.596	1750.5	32.41
21	86.302 - 85	24.933	1792.8	32.539
22	85 - 84.75	25.022	1800.9	32.549
23	84.75 - 79.75	26.349	1964.8	33.029
24	79.75 - 75	27.651	2122.6	33.473
25	75 - 74.75	27.741	2131	33.481
26	74.75 - 74	27.939	2156.1	33.557
27	74 - 73.75	28.02	2164.5	33.572
28	73.75 - 68.75	29.492	2333.9	34.123
29	68.75 - 63.75	30.94	2505.5	34.565
30	63.75 - 58.75	32.419	2679.3	34.996
31	58.75 - 53.75	33.929	2855.3	35.416
32	53.75 - 49	35.387	3024.3	35.807
33	49 - 48.925	35.434	3027	35.798
34	48.925 - 41.698	39.132	3288.5	36.581
35	41.698 - 36.698	40.887	3472.3	36.972
36	36.698 - 31.698	42.676	3658	37.345
37	31.698 - 26.698	44.499	3845.5	37.699
38	26.698 - 21.698	46.355	4034.7	38.033
39	21.698 - 16.698	48.2	4225.5	38.3
40	16.698 - 11.698	50.2	4417.9	38.6
41	11.698 - 6.698	52.0	4611.6	38.9
42	6.698 - 1.698	53.7	4806.8	39.2
43	1.698 - 0	54.3	4873.4	39.3

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.7%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	11.1%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	17.7%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	27.4%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	35.9%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	45.3%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	52.9%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	59.2%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	67.1%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	67.4%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	52.6%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	56.9%	Pass
126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	60.4%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	63.4%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	66.0%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	68.1%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	69.9%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	71.4%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	72.5%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	78.4%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	78.9%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	79.0%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	80.8%	Pass
79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	82.5%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	77.7%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	78.1%	Pass
74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	85.2%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	87.1%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	88.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	90.4%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	91.9%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	93.1%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	91.0%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	78.6%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	79.3%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	80.0%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	80.7%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	81.3%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	81.8%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	82.3%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	82.8%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	83.2%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	83.3%	Pass
				Summary	
			Pole	93.1%	Pass
			Reinforcement	78.1%	Pass
			Overall	93.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
181.83 - 176.83	368	n/a	368	12.24	n/a	12.24	7.7%		
176.83 - 171.83	459	n/a	459	13.18	n/a	13.18	11.1%		
171.83 - 166.83	564	n/a	564	14.11	n/a	14.11	17.7%		
166.83 - 161.83	683	n/a	683	15.05	n/a	15.05	27.4%		
161.83 - 156.83	819	n/a	819	15.98	n/a	15.98	35.9%		
156.83 - 151.83	971	n/a	971	16.91	n/a	16.91	45.3%		
151.83 - 146.83	1141	n/a	1141	17.85	n/a	17.85	52.9%		
146.83 - 141.83	1329	n/a	1329	18.78	n/a	18.78	59.2%		
141.83 - 136.83	1538	n/a	1538	19.72	n/a	19.72	67.1%		
136.83 - 136.67	1545	n/a	1545	19.75	n/a	19.75	67.4%		
136.67 - 131.67	2473	n/a	2473	30.27	n/a	30.27	52.6%		
131.67 - 126.67	2829	n/a	2829	31.66	n/a	31.66	56.9%		
126.67 - 121.67	3218	n/a	3218	33.05	n/a	33.05	60.4%		
121.67 - 116.67	3641	n/a	3641	34.44	n/a	34.44	63.4%		
116.67 - 111.67	4099	n/a	4099	35.82	n/a	35.82	66.0%		
111.67 - 106.67	4595	n/a	4595	37.21	n/a	37.21	68.1%		
106.67 - 101.67	5128	n/a	5128	38.60	n/a	38.60	69.9%		
101.67 - 96.67	5702	n/a	5702	39.99	n/a	39.99	71.4%		
96.67 - 92.32	6234	n/a	6234	41.20	n/a	41.20	72.5%		
92.32 - 86.3	6594	n/a	6594	41.98	n/a	41.98	78.4%		
86.3 - 85	6765	n/a	6765	42.34	n/a	42.34	78.9%		
85 - 84.75	6799	n/a	6799	42.41	n/a	42.41	79.0%		
84.75 - 79.75	7488	n/a	7488	43.79	n/a	43.79	80.8%		
79.75 - 75	8184	n/a	8184	45.11	n/a	45.11	82.5%		
75 - 74.75	8226	6001	14227	45.18	34.50	79.68	48.3%	77.7%	74.2%
74.75 - 74	8340	6054	14394	45.39	34.50	79.89	48.6%	78.1%	74.6%
74 - 73.75	8388	n/a	8388	45.46	n/a	45.46	85.2%		
73.75 - 68.75	9179	n/a	9179	46.84	n/a	46.84	87.1%		
68.75 - 63.75	10018	n/a	10018	48.23	n/a	48.23	88.8%		
63.75 - 58.75	10906	n/a	10906	49.62	n/a	49.62	90.4%		
58.75 - 53.75	11846	n/a	11846	51.00	n/a	51.00	91.9%		
53.75 - 49	12787	n/a	12787	52.32	n/a	52.32	93.1%		
49 - 48.93	12786	n/a	12786	52.34	n/a	52.34	91.0%		
48.93 - 41.7	15821	n/a	15821	62.28	n/a	62.28	78.6%		
41.7 - 36.7	17086	n/a	17086	63.89	n/a	63.89	79.3%		
36.7 - 31.7	18417	n/a	18417	65.51	n/a	65.51	80.0%		
31.7 - 26.7	19814	n/a	19814	67.13	n/a	67.13	80.7%		
26.7 - 21.7	21281	n/a	21281	68.75	n/a	68.75	81.3%		
21.7 - 16.7	22819	n/a	22819	70.36	n/a	70.36	81.8%		
16.7 - 11.7	24429	n/a	24429	71.98	n/a	71.98	82.3%		
11.7 - 6.7	26113	n/a	26113	73.60	n/a	73.60	82.8%		
6.7 - 1.7	27872	n/a	27872	75.21	n/a	75.21	83.2%		
1.7 - 0	28487	n/a	28487	75.76	n/a	75.76	83.3%		

Note: Section capacity checked in 5 degree increments.

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#: *842872*
Site Name: *ROCKY HILL*
App #: *399476 Rev.1*

Pole Manufacturer:	*Other*

Reactions		
Mu:	4873	ft-kips
Axial, Pu:	54	kips
Shear, Vu:	42	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	64	in

Anchor Rod Results

		Stiffened
Max Rod (Cu+ Vu/ń):	237.1 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	91.2% **Pass**	

Plate Data		
Diam:	70	in
Thick:	2	in
Grade:	60	ksi
Single-Rod B-eff:	10.91	in

Base Plate Results

	Flexural Check	Stiffened
Base Plate Stress:	38.5 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	71.3% **Pass**	Y.L. Length:
		N/A, Roark

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.625	in
Fillet V. Weld:	0.375	in
Width:	6.5	in
Height:	36	in
Thick:	1.25	in
Notch:	0.75	in
Grade:	65	ksi
Weld str.:	70	ksi

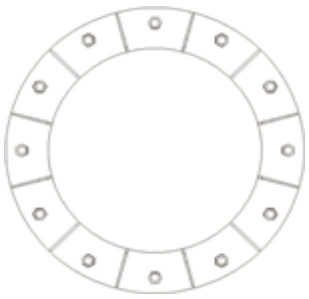
Stiffener Results

Horizontal Weld :	99.3% **Pass**
Vertical Weld:	27.8% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	2.8% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	38.3% **Pass**
Plate Comp. (AISC Bracket):	32.0% **Pass**

Pole Results

Pole Punching Shear Check:	4.3% **Pass**

Pole Data		
Diam:	55	in
Thick:	0.4375	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

Drilled Pier Foundation

BU # :	842872
Site Name:	ROCKY HILL
App. Number:	399476 Rev.1

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	4873	
Axial Force (kips)	54	
Shear Force (kips)	39	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	17.67	ft
Ext. Above Grade	0.83	ft
Pier Section 1		
From 0.83' above grade to 17.67' below grade		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	3	
Rebar Quantity	4	
Rebar Size	11	
Rebar Cage Diameter	71	in

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	3.02	-
Soil Safety Factor	2367.79	-
Max Moment (kip-ft)	4948.30	-
Rating	*0.1%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	439.95	-
End Bearing (kips)	659.53	-
Weight of Concrete (kips)	97.41	-
Total Capacity (kips)	1099.48	-
Axial (kips)	151.41	-
Rating	*13.8%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	2.47	-
Critical Moment (kip-ft)	4945.54	-
Critical Moment Capacity	5633.33	-
Rating	*87.8%*	-

Soil Interaction Rating	**13.8%**
Structural Foundation Rating	**87.8%**

Soil Profile

Groundwater Depth	8.5	ft	# of Layers	7

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ultimate Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	1	1	110	150	750		337.500	337.500	0.00	0.00			Cohesive
2	1	3	2	110	150	750		337.500	337.500	0.00	0.00			Cohesive
3	3	3.5	0.5	120	150	1500		675.000	675.000	0.00	0.00			Cohesive
4	3.5	5	1.5	120	150	3000		1350.000	1350.000	0.00	0.00			Cohesive
5	5	7	2	110	150	1750		787.500	787.500	0.96	0.96			Cohesive
6	7	12	5	135	87.6	5000		2250.000	2250.000	2.32	2.32			Cohesive
7	12	17.67	5.67	72.6	87.6	5000		2250.00	2250.00	2.32	2.32	22.85		Cohesive

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

SPRINT Existing Facility

Site ID: CT43XC847

Rocky Hill FD
52 New Britain Avenue
Rocky Hill, CT 06067

September 28, 2017

EBI Project Number: 6217004141

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.58 %

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

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September 28, 2017

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

Emissions Analysis for Site: **CT43XC847 – Rocky Hill FD**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **52 New Britain Avenue, Rocky Hill, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **52 New Britain Avenue, Rocky Hill, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-120** 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 **140 feet** above ground level (AGL) for **Sector A**, **140 feet** above ground level (AGL) for **Sector B** and **140 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**1.71 %**	Antenna B1 MPE%	**1.71 %**	Antenna C1 MPE%	**1.71 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 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%	**1.25 %**	Antenna B2 MPE%	**1.25 %**	Antenna C2 MPE%	**1.25 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.96 %**
T-Mobile	0.72 %
Verizon Wireless	7.94 %
AT&T	0.86 %
Police	1.00 %
Fire	1.00 %
Clearwire	0.10 %
Site Total MPE %:	**14.58 %**

SPRINT Sector A Total:	2.96 %
SPRINT Sector B Total:	2.96 %
SPRINT Sector C Total:	2.96 %
Site Total:	14.58 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	140	0.88	850 MHz	567	0.16%
Sprint 850 MHz LTE	2	437.55	140	1.75	850 MHz	567	0.31%
Sprint 1900 MHz (PCS) CDMA	5	622.47	140	6.23	1900 MHz (PCS)	1000	0.62%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	140	6.23	1900 MHz (PCS)	1000	0.62%
Sprint 2500 MHz (BRS) LTE	8	778.09	140	12.46	2500 MHz (BRS)	1000	1.25%
						Total:	**2.96%**

Summary

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

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

SPRINT Sector	Power Density Value (%)
Sector A:	2.96 %
Sector B:	2.96 %
Sector C:	2.96 %
SPRINT Maximum Total (per sector):	2.96 %
Site Total:	14.58 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.58 %** 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.