Northeast Site Solutions
Victoria Masse
420 Main St Unit 1 Box 2
Sturbridge, MA 01566
victoria@northeastsitesolutions.com

August 31, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
88 Parsonage Hill Road, North Branford, CT 06422
Latitude: 41.369167 N
Longitude: -72.810477 W
Site#: BOHVN00190B_Dish Wireless

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 88 Parsonage Hill Road, North Branford, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 162-foot level of the existing 195-foot lattice tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Centek, dated August 9, 2022, Exhibit C. Also included is a structural analysis prepared by Centek, dated March 22, 2022 confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of North Branford on December 5, 1997. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Jeffrey Macmillen, Mayor, Eric Knapp, Town Planner for the Town of North Branford, as well as the property owner and the tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 195-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 162-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 19.34% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing lattice tower has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this lattice tower in North Branford. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 162-foot level of the existing 195-foot tower would have an insignificant visual impact on the area around the lattice tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through North Branford.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Jeffrey Macmillen, Mayor
Town of North Branford
909 Foxon Road
North Branford CT 06422

Eric Knapp, Town Planner
Town of North Branford
909 Foxon Road
North Branford CT 06422

Ochenkowski Towers LLC
88 Parsonage Hill Road
Northford CT 06472

Jean Szwabowski
84 Parsonage Hill Road
Northford CT 06472

Exhibit A

Original Facility Approval

TOWN OF NORTH BRANFORD, CT
ZONING PERMIT

Date of Application: 12/5/97

This permit is hereby submitted in accordance with the requirements of Sections 3.1 and 62 of the Town of North Branford's Zoning Regulations for:

✓ new construction
____ change of use
____ sign
____ other (specify): 300' TOWER
____ swimming pool
____ addition
____ excavation/filling

Zoning District ____
Assessor's Map # 51
Subdivision Name
Property Location ____
Lot Frontage 608
Lot # 7
Lot Area 9.31
Lot # ____

Property Owner: S. Veronica Ochestowski
Owner's Address: 88 [illegible] Hill Rd
Owner's Phone No. 484-9544

Property Use:

____ single family residence
____ two family residence
____ commercial (Specify):
____ industrial (Specify):
✓ other (Specify): 300' TOWER (PER ZBA VARIANCE)

Existing Structures:

Description SINGLE FAMILY DWELLING
Dimensions ____ x ____ x ____ (ht)
Bulk
Structures
Use
Setbacks: Front ____ Rear ____ Side ____
Required Setbacks: From Residence Zone ____ Other ____

Proposed Structures/Signs:

(2) 300 FT. TOWERS
34 x 34 x 300' (ht)
____ sq. ft.

Front ____ Rear 50 Side 50

Parking Spaces Required: ____
East Shore Health District Approval: Permit # ____ Proposed Date: ____
Planning & Zoning Approved Required: Yes ____ No ____ Date: ____ App. # ____
Zoning Board of Appeals Approval: Yes ✓ No ____ Date: 5/25/68 App. # 68-35
Inland Wetlands & Watercourses Approval: Yes ____ No ____ Date: ____ App. # ____
Flood Plain Encroachment Permit Required: Yes ____ No ____ Date: ____ App. # ____

Streambelt Protection District: (Sec 33) Yes ____ No ____
Temporary Special Use Permit: (Sec 43) Yes ____ No ____
Special Use Permit: (Sec 42) Yes ____ No ____

Conditions of Approval: _____

Driveway Bond: Amount of Bond $ N/A Date Posted: _____

This permit is issued based upon the plot plan submitted. Falsification, by misrepresentation or ommission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner _____ Date 12/5/97
Signature of Agent: _____ Date _____
Agent's Address 188 Parrott Hill
Agent's Telephone 484-7075

This permit is hereby: _____ Approved _____ Denied

By _____ Date _____
Zoning Enforcement Officer

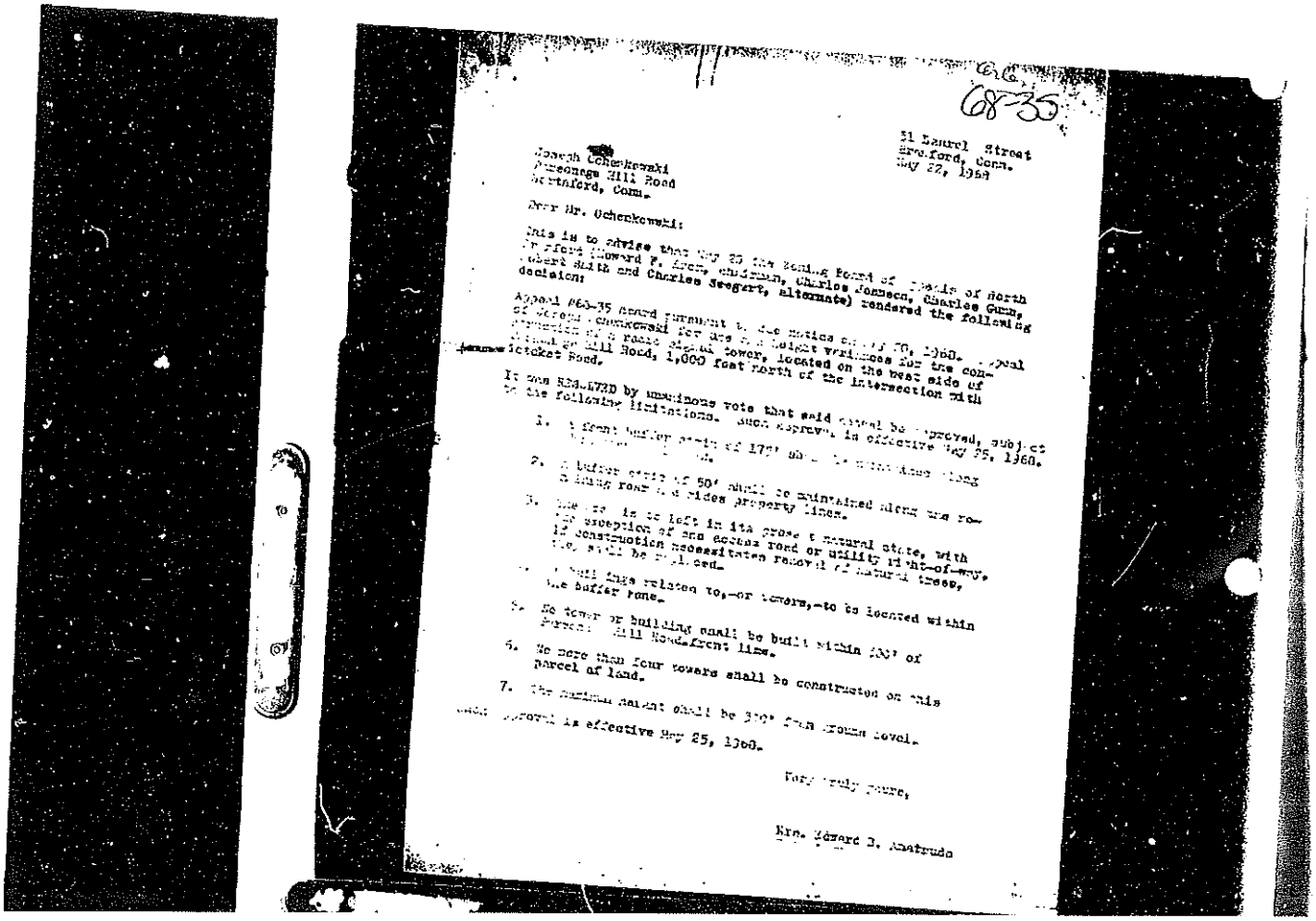
By _____ Date _____
Inland Wetlands Enforcement Officer

By _____ Date 1/2/98 PER ZBA #GB-35 ATTACHED
Planning and Zoning Administrator

By _____ Date _____
Town Engineer

Fee $ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)



68-35

51 Laurel Street
Branford, Conn.
May 27, 1960

Joseph Ochenkowski
Pineconage Hill Road
Northford, Conn.

Dear Mr. Ochenkowski:

This is to advise that ... Zoning Board of ... of North Branford (Howard F. ..., chairman, Charles Jannaca, Charles Gunn, Albert Smith and Charles Seegert, alternate) rendered the following decision:

Appeal #63-35 ... pursuant to due notice on ... 70, 1960. ... peal of Joseph Ochenkowski for ... height variance for the construction of a radio ... tower, located on the west side of ... Hill Road, 1,000 feat north of the intersection with ... Ticket Road.

It was RESOLVED by unanimous vote that said ... be approved, subject to the following limitations. ... approval is effective May 25, 1960.

1. ... front buffer ... of 175' ... be maintained ... along ...
2. ... buffer ... of 50' ... be maintained along the ... along road ... sides property lines.
3. ... is to be left in its ... natural state, with the exception of ... access road or utility right-of-way ... construction necessitates removal of natural trees, ... shall be replaced.
4. ... shall have related to,—or towers,—to be located within the buffer zone.
5. No tower or building shall be built within 200' of ... Hill Road...front line.
6. No more than four towers shall be construction on this parcel of land.
7. The maximum height shall be 300' from ground level.

... approval is effective May 25, 1960.

Very truly yours,

Mrs. Edward J. Montrude

TOWN OF NORTH BRANFORD, CT
ZONING PERMIT

Date of Application: _____

This permit is hereby submitted in accordance with the requirements of Sections 3.1 and 62 of the Town of North Branford's Zoning Regulations for:

_____ new construction
_____ change of use
_____ sign
_____ other (specify): _____
_____ swimming pool
__X__ addition
_____ excavation/filling

Zoning District R-40
Assessor's Map # 51
Subdivision Name _____
Property Location 88 Parsonage Hill Rd.
Lot Frontage _____
Lot # 7
Lot Area _____
Lot # _____

Property Owner Swiatkowski Jean & Ochenkowski Joseph Jr.
Owner's Address 84 Parsonage Hill Rd. Northford, CT 06472
Owner's Phone No. _____

Property Use:

_____ single family residence
_____ two family residence
__X__ commercial (Specify): Wireless Communication facility
_____ industrial (Specify): _____
_____ other (Specify): _____

Existing Structures:

Description Wireless Communication
Dimensions 7' x 16' x 170' (ht)
Bulk _____
Structures _____
Use wireless communication
Setbacks: Front ____ Rear ____ Side ____
Required Setbacks: From Residence Zone _____ Other _____

Proposed Structures/Signs:

Wireless Communication Tower
9 x 112' x 170' (ht)
_____ sq. ft.
_____
Front ____ Rear ____ Side ____

Parking Spaces Required: 0 Proposed 0

		Permit #		Date:	App. #
East Shore Health District Approval:					
Planning & Zoning Approved Required:	Yes	_____	No ✓	Date: _____	App. # _____
Zoning Board of Appeals Approval:	Yes	_____	No ✓	Date: _____	App. # _____
Inland Wetlands & Watercourses Approval:	Yes	_____	No ✓	Date: _____	App. # _____
Flood Plain Encroachment Permit Required:	Yes	_____	No _____	Date: _____	App. # _____
Streambelt Protection District: (Sec 33)	Yes	_____	No _____		
Temporary Special Use Permit: (Sec 43)	Yes	_____	No _____		
Special Use Permit: (Sec 42)	Yes	_____	No _____		

CT. Siting Council Approval letter dated 7-18-02

Conditions of Approval: _____

Driveway Bond: Amount of Bond $ _____ Date Posted: _____

This permit is issued based upon the plot plan submitted. Falsification, by misrepresentation or ommission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner _____ Date _____
Signature of Agent _____ Date _____
Agent's Address _____
Agent's Telephone _____

This permit is hereby: ✓ Approved _____ Denied

By _____ Date 10-17-02
Zoning Enforcement Officer

By _____ Date 10-25-02
Inland Wetlands Enforcement Officer

By _____ Date 10-25-02
Planning and Zoning Administrator N/A

By _____ Date _____
Town Engineer

Fee $ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)

TOWN OF NORTH BRANFORD

BUILDING DEPARTMENT
1599 FOXON ROAD
PO BOX 287
NORTH BRANFORD, CT 06471
TELEPHONE: (203) 315-6008
FAX: (203) 315-6025

CERTIFICATE OF CODE COMPLIANCE

NO. 1853

DATE: January 9, 2003

THIS IS TO CERTIFY THAT WORK SPECIFIED BY BUILDING PERMIT # 7043 ISSUED ON 10/30/2002

LOCATED AT 88 Parsonage Hill Road FOR Wireless Communication Facility IS FOUND TO SUBSTANTIALLY COMPLY WITH THE PROVISIONS OF THE BUILDING AND/OR ZONING ORDINANCES OF THE TOWN OF NORTH BRANFORD AND HAS BEEN COMPLETED TO THE SATISFACTION OF THE NORTH BRANFORD BUILDING DEPARTMENT.

A) USE GROUP B IN ACCORDANCE WITH PROVISIONS OF ARTICLE 3

B) FIRE GRADING 2C AS DEFINED IN ARTICLE 4 AND TABLE 401

SPECIAL STIPULATIONS OR CONDITIONS: Per 1999 Connecticut State Building Code.

Joseph Di Natale
INSPECTED BY

Robert F. Linsley
BUILDING OFFICIAL

DFS

CC: ASSESSOR'S OFFICE
FILES

North Branford Planning & Zoning Commission
North Branford, Connecticut

4429

ZONING PERMIT

This is to certify that the wireless communication facility

located at 83 Parsonage Hill Road

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATION OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and authorize commencement of building construction and site development.

Signed _____
Zoning Enforcement Officer

Date 1-7-03

Signed _____
Planning and Zoning Administrator

Date _____

NOTES:

1. This is not a Building Permit
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by the Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

4429

CERTIFICATE OF ZONING COMPLIANCE/NONCONFORMITY

This is to certify that the wireless communication facility

located at 88 Parsonage Hill Road

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and may be used and/or occupied because -

____ It conforms to the Zoning Regulations

____ It is a lawfully existing nonconforming parcel, use, building or other structure which may be continued in accordance with the provisions of Paragraphs 5.6.1 - 5.6.5 and Section 5 of the ZONING REGULATIONS; or

____ It is in the process of improvement and completion in accordance with an approved APPLICATION FOR A ZONING PERMIT and is entitled to a temporary PERMIT in accordance with Paragraph 62.7.5 PERMIT terminating on _____

____ Other _____

Signed _____
Zoning Enforcement Officer

Date 1-9-03

Signed _____
Planning and Zoning Administrator

Date _____

Notes:

1. This is not a Certificate of Occupancy

2. Any Certificate that pertains to a use, building structure or site development for which a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT has been approved by the Commission shall be countersigned by the Planning and Zoning Administrator

6068

North Branford Planning & Zoning Commission

ZONING PERMIT

This is to certify that the installation of three (3) antennae to existing antenna array, add six (6) remote radio units to array along with a surge arrestor all on existing tower, add one ground cabinet on new 3'x3' concrete pad, as allowed by variance, which must comply with the 2005 CT State Building Code

located at 88 Parsonage Hill Rd.

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and authorize commencement of building construction and site development.

Signed _____
Zoning Enforcement Officer

Date 6/5/2012

Signed _____
Planning and Zoning Administrator

Date _____

Notes:

1. This is not a Building Permit.
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

Exhibit B

Property Card

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 4 | Print Date

CURRENT OWNER

SZWABOWSKI JEAN 1/3
OCHENKOWSKI J J JR 1/3 & K W 1/3
84 PARSONAGE HL RD
NORTHFORD CT 06472-1445

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	5 Well	1 Paved	3 Rural
	6 Septic		

SUPPLEMENTAL DATA

Alt Prcl ID	002953	Block	
Sub-Div		Fire	
Need Lette		School	
Ward		Heart	
Prec.		Freeze	
Tract	1862		
GIS ID	3060	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Assessed	Assessed
RES LAND	1-1	135,200	94,600
RES EXCES	1-2	215,200	150,600
DWELLING	1-3	228,400	160,000
RES OUTBL	1-4	145,100	101,700
UTL LAND	4-1	207,000	144,900
UTL BLDG	4-2	19,100	13,400
UTL OUTBL	4-3	298,800	198,800
	Total	1,248,800	864,000

6099
NORTH
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
SZWABOWSKI JEAN 1/3	0429	1132	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0429	1128	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0276	0749	12-15-1998			0	
OCHENKOWSKI VERONICA TIC +	0269	0844	05-11-1998	U	I	400,000	01
OCHENKOWSKI VERONICA	0040	0206	11-14-1960			0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed V	Year	Code	Assessed
2019	1-1	94,600	2018	1-1	94,600	2017	1-1	94,600
	1-2	150,600		1-2	150,600		1-2	150,600
	1-3	160,000		1-3	160,000		1-3	160,000
	1-4	101,700		1-4	101,700		1-4	101,700
	Total	864000		Total	864000		Total	864000

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

NOTES

FBM=1 BAS=5 FHS=3
FBM AREA=OFFICES: AM. RADIANT TECH;
ECO = MKT/INC/LOC/RS ADJ
OCHEN. DRAINAGE; OCHEN. INS.
CELL TOWER

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	244,700
Appraised Xf (B) Value (Bldg)	2,800
Appraised Ob (B) Value (Bldg)	443,900
Appraised Land Value (Bldg)	557,400
Special Land Value	0
Total Appraised Parcel Value	1,248,800
Valuation Method	C
Total Appraised Parcel Value	1,248,800

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
16-125B	03-01-2016	CM	Commercial	15,000		100		Install three (3) antenna' (NVC
15-50B	09-25-2014		Install 3 antenn	20,000		100		
15-19E	07-28-2014	EL	Electric	1,000		100	10-01-2014	decomm T-mobileTele site
15-16B	07-22-2014	CM	Commercial	30,000		100	10-01-2014	sprint-install 3 new antennas
14-153B	05-21-2014	CM	Commercial	16,500		100	10-01-2014	change out 6 antennas on cell
14-122B	04-07-2014	CM	Commercial	10,000		100	10-01-2014	repl 6 antennas
13-0059	04-10-2013	CM	Commercial	20,000		100	10-01-2013	add cabinets/bracing in Metro

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
06-22-2015	TN			50	Permit Changes
05-06-2010	DR			00	Measur+Listed
11-27-2001	SF			40	No change
08-31-2000	TM			00	Measur+Listed
08-17-2000	JS			00	Measur+Listed

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes	Location Adjustment		Adj Unit P	Land Value
1	010M	SINGLE FAM M	R40		0.920	AC	138,520	1.06090	5	1.00		1.000			1.0000	146,955.8	135,200
1	0101	SINGLE FAM M	R40		7.240	AC	12,000	1.00000	0	0.75		1.000	TOPO		1.0000	9,000	65,200
1	0101	SINGLE FAM M	R40		0.230	AC	652,174	1.00000	0	1.00		1.000	CELL SITE		1.0000	652,174	150,000
		Total Card Land Units			8.390	AC	Parcel Total Land Area			9.3100						Total Land Value	350,400

Property Location	88 PARSONAGE HILL RD		Map ID	51/A 7/ / /		Bldg Name	State Use 0101
Vision ID 3060		Account # 002953		Bldg # 1	Sec # 1 of 1	Card # 1 of 4	Print Date

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	68	RES TYPE COMM
Model	03	Res Type Com
Grade:	04	Above Avg
Stories:	1.5	1 1/2 Stories
Occupancy	2	
Exterior Wall 1	26	Aluminum Sidng
Exterior Wall 2		
Roof Structure:	03	Gable/Hip
Roof Cover	03	Asphalt Shingl
Interior Wall 1	03	Plastered
Interior Wall 2	04	Plywood Panel
Interior Flr 1	14	Carpet
Interior Flr 2	12	Hardwood
Heat Fuel	02	Oil
Heat Type:	04	Forced Air-Duc
AC Type:	03	Central
Total Bedrooms	02	2 Bedrooms
Total Bthrms:	2	
Total Half Baths	1	
Total Xtra Fixtrs		
Total Rooms:		
Bath Style:	02	Average
Kitchen Style:	02	Average

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

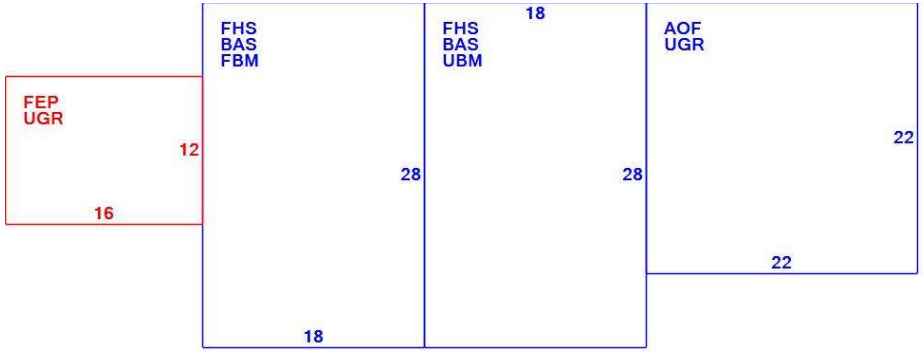
CONDO DATA

Parcel Id		C		Owne	0.0
		B		S	

Adjust Type	Code	Description	Factor%
Condo Flr			
Condo Unit			

COST / MARKET VALUATION

Building Value New	197,304
Year Built	1949
Effective Year Built	1980
Depreciation Code	G
Remodel Rating	
Year Remodeled	
Depreciation %	35
Functional Obsol	0
External Obsol	10
Trend Factor	1
Condition	
Condition %	
Percent Good	55
RCNLD	108,500
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Gd	Grade	Grade Adj.	Appr. Value
FPL2	FIREPLACE 1.	B	1	5000.00	1980		55		0.00	2,800
SHD1	SHED FRAME	L	288	12.00	2001		50		0.00	1,700

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
AOF	Office, (Average)	484	484		0	
BAS	First Floor	1,008	1,008		0	
FBM	Basement, Finished	0	504		0	
FEP	Porch, Enclosed, Finished	0	192		0	
FHS	Half Story, Finished	504	1,008		0	
UBM	Basement, Unfinished	0	504		0	
UGR	Garage, Unfinished	0	676		0	
	Ttl Gross Liv / Lease Area	1,996	4,376			

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 4 | Print Date

CURRENT OWNER

SZWABOWSKI JEAN 1/3
OCHENKOWSKI J J JR 1/3 & K W 1/3
84 PARSONAGE HL RD

NORTHFORD CT 06472-1445

TOPO		UTILITIES		STRT / ROAD		LOCATION	
1	Level	5	Well	1	Paved	3	Rural
		6	Septic				

SUPPLEMENTAL DATA

Alt Prcl ID	002953	Block	
Sub-Div		Fire	
Need Lette		School	
Ward		Heart	
Prec.		Freeze	
Tract	1862		
GIS ID	3060	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Assessed	Assessed
RES LAND	1-1	135,200	94,600
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6099
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SZWABOWSKI JEAN &	0429	1128	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0276	0749	12-15-1998			0	
OCHENKOWSKI VERONICA TIC +	0269	0844	05-11-1998	U	I	400,000	01
OCHENKOWSKI VERONICA	0040	0206	11-14-1960			0	

PREVIOUS ASSESSMENTS (HISTORY)

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2019	1-1	94,600	2018	1-1	94,600	2017	1-1	94,600
	1-2	150,600		1-2	150,600		1-2	150,600
	1-3	160,000		1-3	160,000		1-3	160,000
	1-4	101,700		1-4	101,700		1-4	101,700
	Total	864000		Total	864000		Total	864000

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

NOTES

10/1/94 TC15-94 SPLIT
5/11/98 269-844% TRANS
OCHENKOWSKI VERONICA
(1/4) SZWABOWSKIJEAN +
OCHENKOWSKI JOS JR(3/4)

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	244,700
Appraised Xf (B) Value (Bldg)	2,800
Appraised Ob (B) Value (Bldg)	443,900
Appraised Land Value (Bldg)	557,400
Special Land Value	0
Total Appraised Parcel Value	1,248,800
Valuation Method	C
Total Appraised Parcel Value	1,248,800

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes	Location Adjustment		Adj Unit P	Land Value
2	0101	SINGLE FAM M	R40		0	SF	0	1.00000	0	1.00		1.000			0.0000	0	0
				Total Card Land Units	0.000	SF	Parcel Total Land Area	9.3100							Total Land Value		0

Property Location	88 PARSONAGE HILL RD		Map ID	51/A 7/ / /		Bldg Name	State Use 0101
Vision ID 3060		Account # 002953		Bldg # 2	Sec # 1 of 1	Card # 2 of 4	Print Date

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	01	Ranch
Model	01	Residential
Grade:	03	Average
Stories:	1	1 Story
Occupancy	1	
Exterior Wall 1	25	Vinyl Siding
Exterior Wall 2		
Roof Structure:	03	Gable/Hip
Roof Cover	03	Asphalt Shingl
Interior Wall 1	05	Drywall/Sheet
Interior Wall 2		
Interior Flr 1	14	Carpet
Interior Flr 2		
Heat Fuel	02	Oil
Heat Type:	05	Hot Water
AC Type:	01	None
Total Bedrooms	03	3 Bedrooms
Total Bthrms:	2	
Total Half Baths	0	
Total Xtra Fixtrs		
Total Rooms:	5	5 Rooms
Bath Style:	02	Average
Kitchen Style:	02	Average

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

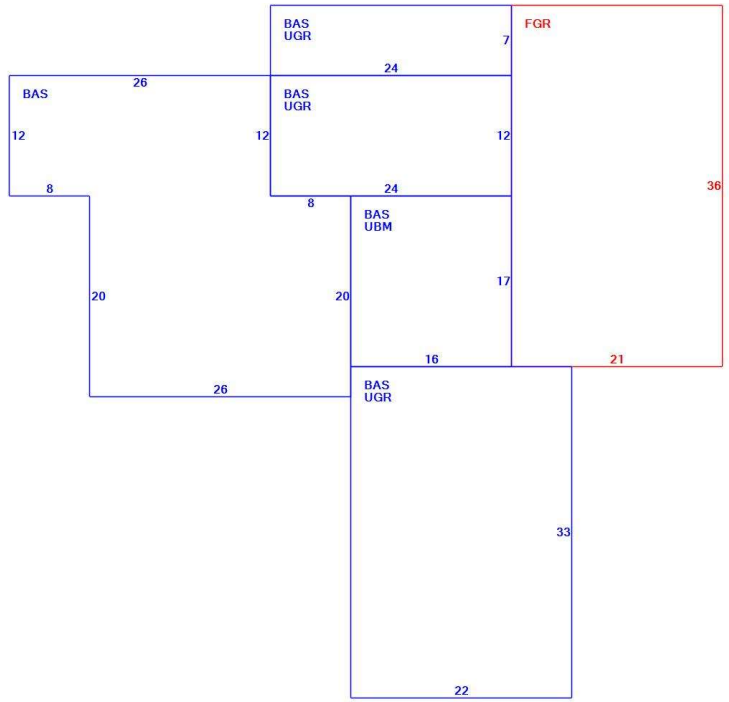
CONDO DATA

Parcel Id		C		Owne	0.0
			B		S

Adjust Type	Code	Description	Factor%
Condo Flr			
Condo Unit			

COST / MARKET VALUATION

Building Value New	183,022
Year Built	1958
Effective Year Built	1989
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	26
Functional Obsol	0
External Obsol	10
Trend Factor	1
Condition	
Condition %	
Percent Good	64
RCNLD	117,100
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Gd	Grade	Grade Adj.	Appr. Value
SHD1	SHED FRAME	L	220	12.00	2001		30		0.00	800

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	2,286	2,286		0	
FGR	Garage, Framed	0	756		0	
UBM	Basement, Unfinished	0	272		0	
UGR	Garage, Unfinished	0	1,182		0	
	Ttl Gross Liv / Lease Area	2,286	4,496			

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 3 | Sec # 1 of 1 | Card # 3 of 4 | Print Date 7/6/2020 4:28:05 PM

CURRENT OWNER

SZWABOWSKI JEAN 1/3
OCHENKOWSKI J J JR 1/3 & K W 1/3
84 PARSONAGE HL RD
REAL_OWNERS CT 06472-1445

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	5 Well	1 Paved	3 Rural
	6 Septic		

SUPPLEMENTAL DATA

Alt Prcl ID	002953	Block	
Sub-Div		Fire	
Need Lette		School	
Ward		Heart	
Prec.		Freeze	
Tract	1862		
GIS ID	3060	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
RES LAND	1-1	135,200	94,600
RES EXCES	1-2	215,200	150,600
DWELLING	1-3	228,400	160,000
RES OUTBL	1-4	145,100	101,700
UTL LAND	4-1	207,000	144,900
UTL BLDG	4-2	19,100	13,400
UTL OUTBL	4-3	298,800	198,800
Total		1,248,800	864,000

6099
NORTH
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
SZWABOWSKI JEAN 1/3	0429	1132	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0429	1128	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0276	0749	12-15-1998			0	
OCHENKOWSKI VERONICA TIC +	0269	0844	05-11-1998	U	I	400,000	01
OCHENKOWSKI VERONICA	0040	0206	11-14-1960			0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	1-1	94,600	2018	1-1	94,600	2017	1-1	94,600
	1-2	150,600		1-2	150,600		1-2	150,600
	1-3	160,000		1-3	160,000		1-3	160,000
	1-4	101,700		1-4	101,700		1-4	101,700
	Total	864000		Total	864000		Total	864000

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

NOTES

POLICE & FIRE EQUIP STORAGE
10/1/06 ADD 20X30 ELEC COMM BLDG
10/1/07 ADD NEXTEL ELCB-NO LONGER PP
36X80 HOOP GARAGE - N/V
METRO PCS OB +15000; SPRINT; UPDATED
ALL ANTENNAES 2013-2014

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	244,700
Appraised Xf (B) Value (Bldg)	2,800
Appraised Ob (B) Value (Bldg)	443,900
Appraised Land Value (Bldg)	557,400
Special Land Value	0
Total Appraised Parcel Value	1,248,800
Valuation Method	C
Total Appraised Parcel Value	1,248,800

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment		Adj Unit Pric	Land Value
3	4300	CELL SITE	R40		0.920	AC	225,000	1.00000	0	1.00		1.000			0	225,000	207,000
				Total Card Land Units	0.920	AC	Parcel Total Land Area:			9.3100						Total Land Value	557,400

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 3 | Sec # 1 of 1 | Card # 3 of 4 | Print Date 7/6/2020 4:28:06 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	40	Industrial
Model	96	Ind or Comm
Grade	03	Average
Stories:	1	
Occupancy	1.00	
Exterior Wall 1	15	Concr/Cinder
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	02	Rolled Compos
Interior Wall 1	05	Drywall/Sheet
Interior Wall 2	01	Minim/Masonry
Interior Floor 1	05	Vinyl/Asphalt
Interior Floor 2		
Heating Fuel	03	Gas
Heating Type	04	Forced Air-Duc
AC Type	02	Heat Pump
Bldg Use	031I	COMM WHSE MDL-96
Total Rooms		
Total Bedrms	00	
Total Baths	0	
Heat/AC	01	HEAT/AC PKGS
Frame Type	03	MASONRY
Baths/Plumbing	01	LIGHT
Ceiling/Wall	06	CEIL & WALLS
Rooms/Prtns	02	AVERAGE
Wall Height	0.00	
% Comn Wall	12.00	
1st Floor Use:	031I	

CONSTRUCTION DETAIL (CONTINUED)

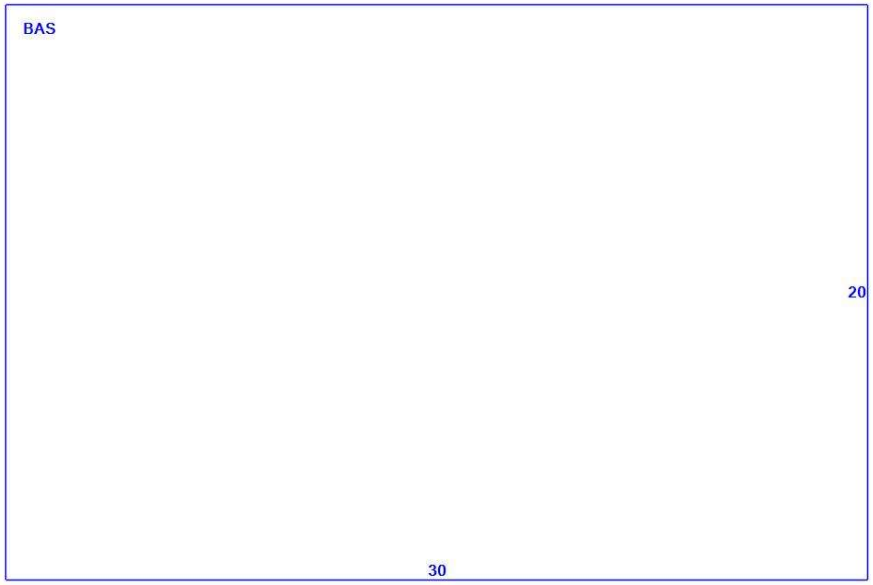
Element	Cd	Description

MIXED USE

Code	Description	Percentage
4300	CELL SITE	100
		0
		0

COST / MARKET VALUATION

RCN	38,964
Year Built	1973
Effective Year Built	1982
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	41
Functional Obsol	0
External Obsol	10
Trend Factor	1
Condition	
Condition %	
Percent Good	49
RCNLD	19,100
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Good	Grade	Grade Adj	Appr. Value
PAV1	PAVING-ASPH	L	4,000	1.90	1989		45		0.00	3,400
FN5	FENCE-10'CHA	L	300	23.50	1989		45		0.00	3,200
SHD8	SHED UNDER	L	128	0.00	2001		50		0.00	15,000
FGR2	GARAGE-GOO	L	1,200	45.00	2001		50		0.00	27,000
MSC4	RADIO TOWER	L	175	500.00	2001		20		0.00	17,500
MSC4	RADIO TOWER	L	175	500.00	2013		100		0.00	87,500
TW1	CELL TOWER	L	125	900.00	2013		100		0.00	50,600
ELCB	ELECTRONIC	L	360	225.00	2010		75		0.00	60,800
ELCB	ELECTRONIC	L	200	225.00	2000		75		0.00	33,800

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	600	600		0	
	Ttl Gross Liv / Lease Area	600	600			

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 4 | Sec # 1 of 1 | Card # 4 of 4 | Print Date

CURRENT OWNER

SZWABOWSKI JEAN 1/3
OCHENKOWSKI J J JR 1/3 & K W 1/3
84 PARSONAGE HL RD
NORTHFORD CT 06472-1445

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	5 Well	1 Paved	3 Rural
	6 Septic		

SUPPLEMENTAL DATA

Alt Prcl ID	002953	Block	
Sub-Div		Fire	
Need Lette		School	
Ward		Heart	
Prec.		Freeze	
Tract	1862		
GIS ID	3060	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Assessed	Assessed
RES LAND	1-1	135,200	94,600
RES EXCES	1-2	215,200	150,600
DWELLING	1-3	228,400	160,000
RES OUTBL	1-4	145,100	101,700
UTL LAND	4-1	207,000	144,900
UTL BLDG	4-2	19,100	13,400
UTL OUTBL	4-3	298,800	198,800
		Total 1,248,800	864,000

6099
NORTH
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
SZWABOWSKI JEAN 1/3	0429	1132	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0429	1128	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0276	0749	12-15-1998			0	
OCHENKOWSKI VERONICA TIC +	0269	0844	05-11-1998	U	I	400,000	01
OCHENKOWSKI VERONICA	0040	0206	11-14-1960			0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed V	Year	Code	Assessed
2019	1-1	94,600	2018	1-1	94,600	2017	1-1	94,600
	1-2	150,600		1-2	150,600		1-2	150,600
	1-3	160,000		1-3	160,000		1-3	160,000
	1-4	101,700		1-4	101,700		1-4	101,700
	Total	864000		Total	864000		Total	864000

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	244,700
Appraised Xf (B) Value (Bldg)	2,800
Appraised Ob (B) Value (Bldg)	443,900
Appraised Land Value (Bldg)	557,400
Special Land Value	0
Total Appraised Parcel Value	1,248,800
Valuation Method	C
Total Appraised Parcel Value	1,248,800

NOTES

AMERICAN RADIANT TECH
OCHENKOWSKI INSURANCE AGENCY

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes	Location Adjustment		Adj Unit P	Land Value
4	0106	AC LND IMP M	R40		0.000	AC	0	1.00000	0	1.00		1.000			0.0000	0	0
				Total Card Land Units	0.000	AC	Parcel Total Land Area	9.3100							Total Land Value		0

Property Location	88 PARSONAGE HILL RD		Map ID	51/A 7/ / /		Bldg Name	State Use 0101
Vision ID 3060		Account # 002953		Bldg # 4	Sec # 1 of 1	Card # 4 of 4	Print Date

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	94	Outbuildings
Model	00	Vacant
Grade:		
Stories:		
Occupancy		
Exterior Wall 1		
Exterior Wall 2		
Roof Structure:		
Roof Cover		
Interior Wall 1		
Interior Wall 2		
Interior Flr 1		
Interior Flr 2		
Heat Fuel		
Heat Type:		
AC Type:		
Total Bedrooms		
Total Bthrms:		
Total Half Baths		
Total Xtra Fixtrs		
Total Rooms:		
Bath Style:		
Kitchen Style:		

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

CONDO DATA

Parcel Id		C		Owne	0.0
		B		S	

Adjust Type	Code	Description	Factor%
Condo Flr			
Condo Unit			

COST / MARKET VALUATION

Building Value New	0
Year Built	0
Effective Year Built	0
Depreciation Code	
Remodel Rating	
Year Remodeled	
Depreciation %	0
Functional Obsol	0
External Obsol	0
Trend Factor	1
Condition	
Condition %	100
Percent Good	
RCNLD	0
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	

No Sketch

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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Gd	Grade	Grade Adj.	Appr. Value
ELCB	ELECTRONIC	L	576	225.00	1980		50		0.00	64,800
ELCB	ELECTRONIC	L	576	225.00	1980		50		0.00	64,800
BRN1	BARN - 1 STO	L	5,058	25.74			10		0.00	13,000

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
	Ttl Gross Liv / Lease Area	0	0			

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 4 | Sec # 1 of 1 | Card # 4 of 4 | Print Date 7/6/2020 4:28:08 PM

CURRENT OWNER

SZWABOWSKI JEAN 1/3
OCHENKOWSKI J J JR 1/3 & K W 1/3
84 PARSONAGE HL RD

REAL_OWNERS CT 06472-1445

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	5 Well	1 Paved	3 Rural
	6 Septic		

SUPPLEMENTAL DATA

Alt Prcl ID	002953	Block	
Sub-Div		Fire	
Need Lette		School	
Ward		Heart	
Prec.		Freeze	
Tract	1862		
GIS ID	3060	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
RES LAND	1-1	135,200	94,600
RES EXCES	1-2	215,200	150,600
DWELLING	1-3	228,400	160,000
RES OUTBL	1-4	145,100	101,700
UTL LAND	4-1	207,000	144,900
UTL BLDG	4-2	19,100	13,400
UTL OUTBL	4-3	298,800	198,800
Total		1,248,800	864,000

6099
NORTH
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
SZWABOWSKI JEAN 1/3	0429	1132	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0429	1128	12-23-2009	U	I	90,000	
SZWABOWSKI JEAN &	0276	0749	12-15-1998			0	
OCHENKOWSKI VERONICA TIC +	0269	0844	05-11-1998	U	I	400,000	01
OCHENKOWSKI VERONICA	0040	0206	11-14-1960			0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	1-1	94,600	2018	1-1	94,600	2017	1-1	94,600
	1-2	150,600		1-2	150,600		1-2	150,600
	1-3	160,000		1-3	160,000		1-3	160,000
	1-4	101,700		1-4	101,700		1-4	101,700
	Total	864000		Total	864000		Total	864000

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	244,700
Appraised Xf (B) Value (Bldg)	2,800
Appraised Ob (B) Value (Bldg)	443,900
Appraised Land Value (Bldg)	557,400
Special Land Value	0
Total Appraised Parcel Value	1,248,800
Valuation Method	C
Total Appraised Parcel Value	1,248,800

NOTES

AMERICAN RADIANT TECH
OCHENKOWSKI INSURANCE AGENCY

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment		Adj Unit Pric	Land Value
4	0106	AC LND IMP M	R40		0.000	AC	0	1.00000	0	1.00		1.000			0	0	0
				Total Card Land Units	0.000	AC	Parcel Total Land Area:		9.3100							Total Land Value	557,400

Property Location 88 PARSONAGE HILL RD | Map ID 51/A 7/ / / | Bldg Name | State Use 0101
Vision ID 3060 | Account # 002953 | Bldg # 4 | Sec # 1 of 1 | Card # 4 of 4 | Print Date 7/6/2020 4:28:09 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	94	Outbuildings
Model	00	Vacant
Grade:		
Stories:		
Occupancy		
Exterior Wall 1		
Exterior Wall 2		
Roof Structure:		
Roof Cover		
Interior Wall 1		
Interior Wall 2		
Interior Flr 1		
Interior Flr 2		
Heat Fuel		
Heat Type:		
AC Type:		
Total Bedrooms		
Total Bthrms:		
Total Half Baths		
Total Xtra Fixtrs		
Total Rooms:		
Bath Style:		
Kitchen Style:		

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

MIXED USE

Code	Description	Percentage
0106	AC LND IMP MDL-00	100
		0
		0

COST / MARKET VALUATION

RCN	0
Year Built	0
Effective Year Built	0
Depreciation Code	
Remodel Rating	
Year Remodeled	
Depreciation %	0
Functional Obsol	0
External Obsol	0
Trend Factor	1
Condition	
Condition %	100
Percent Good	
RCNLD	0
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	

No Sketch

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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Good	Grade	Grade Adj	Appr. Value
ELCB	ELECTRONIC	L	576	225.00	1980		50		0.00	64,800
ELCB	ELECTRONIC	L	576	225.00	1980		50		0.00	64,800
BRN1	BARN - 1 STO	L	5,058	25.74			10		0.00	13,000

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
	Ttl Gross Liv / Lease Area	0	0			

Exhibit C

Construction Drawings

SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
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5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
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19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
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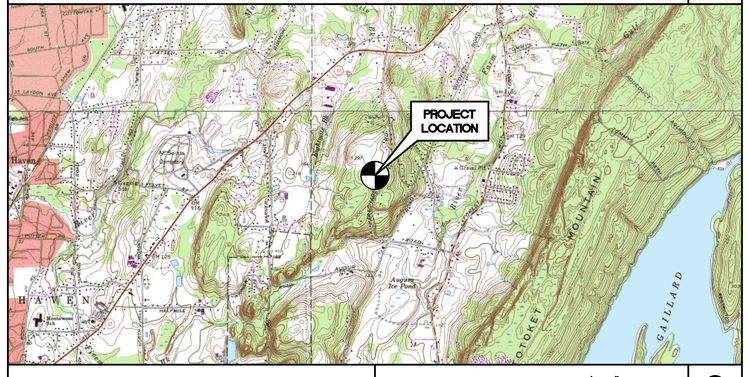
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

SITE LOCATION MAP — N.T.S.

VICINITY MAP — N.T.S.



SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA-2C SURVEY, COMPLETED BY CENTEK ENGINEERING, DATED 04/13/22.

SITE COORDINATES: LATITUDE: 41°-22'-09" N
LONGITUDE: 72°-48'-37" W
GROUND ELEVATION: 283'± AMSL

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. INSTALL (1) JMA: MX08FRO665-21 ANTENNA PER SECTOR; TOTAL OF (3)
2. INSTALL (1) FUJITSU: TA08025-B605 RADIO PER SECTOR; TOTAL OF (3)
3. INSTALL (1) FUJITSU: TA08025-B604 RADIO PER SECTOR; TOTAL OF (3)
4. INSTALL (1) RAYCAP: RDIDC-9181-PF-48 OVP BOX
5. INSTALL (1) 1-3/4" HYBRID CABLE
6. INSTALL (1) STEEL PLATFORM (5' x 7')
7. INSTALL (1) H-FRAME (MOUNTED TO STEEL PLATFORM)
8. INSTALL CABLE ICE-BRIDGE
9. INSTALL (1) 200A UTILITY METER
10. INSTALL (1) 200A PPC CABINET
11. INSTALL (1) CHARLES HEX CABINET

PROJECT INFORMATION

SITE NUMBER:	BOHVN00190B
SITE NAME:	PARSONAGE
PROPERTY/TOWER OWNER:	OCHENKOWSKI TOWER LLC 88 PARSONAGE HILL ROAD NORTHFORD, CT 06472
SITE ADDRESS:	88 PARSONAGE HILL RD NORTH BRANFORD, CT 06471
APPLICANT:	DISH WIRELESS, LLC 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
CONTACT PERSON:	CHUCK REGULBUTO NORTHEAST SITE SOLUTIONS, LLC (860) 394-7021
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
SITE COORDINATES:	LATITUDE: 41°-22'-09" N LONGITUDE: 72°-48'-37" W GROUND ELEVATION: 283'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA-2C SURVEY, COMPLETED BY CENTEK ENGINEERING, DATED 04/13/22.

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C-2	ANTENNA PLANS AND TOWER ELEVATION	0
C-3	TYPICAL EQUIPMENT DETAILS	0
C-4	TYPICAL EQUIPMENT DETAILS	0
E-1	ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING	0
E-2	ELECTRICAL SCHEMATIC AND PANEL SCHEDULE	0
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G-1	ELECTRICAL GROUNDING PLANS	0
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G-3	ELECTRICAL GROUNDING DETAILS	0
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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/09/22	RYS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

NSS NORTHEAST SITE SOLUTIONS

dish wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

DISH WIRELESS, LLC

SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

DATE:	04/06/22
SCALE:	AS NOTED
JOB NO.	21091.01

TITLE SHEET

T-1

Sheet No. 1 of 13

NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 101 MPH (Vasd)
  (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
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STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX
2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) OVP (QTY)	(QTY) PROPOSED HYBRID/COAX (LENGTH FT)
A1	PROPOSED	JMA WIRELESS: MX08FRO665-21	72 x 20 x 8	162'	0°	(P) FUJITSU: TA08025-B604 (1), (P) FUJITSU: TA08025-B605 (1)	(P) RAYCAP: RDIDC-9181-PF-48	(1) 1-3/4" HYBRID CABLE (±200FT)
B1	PROPOSED	JMA WIRELESS: MX08FRO665-21	72 x 20 x 8	162'	120°	(P) FUJITSU: TA08025-B604 (1), (P) FUJITSU: TA08025-B605 (1)		
C1	PROPOSED	JMA WIRELESS: MX08FRO665-21	72 x 20 x 8	162'	240°	(P) FUJITSU: TA08025-B604 (1), (P) FUJITSU: TA08025-B605 (1)		

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/09/22	RYS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

NSS NORTHEAST SITE SOLUTIONS
dish wireless
CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

DISH WIRELESS, LLC

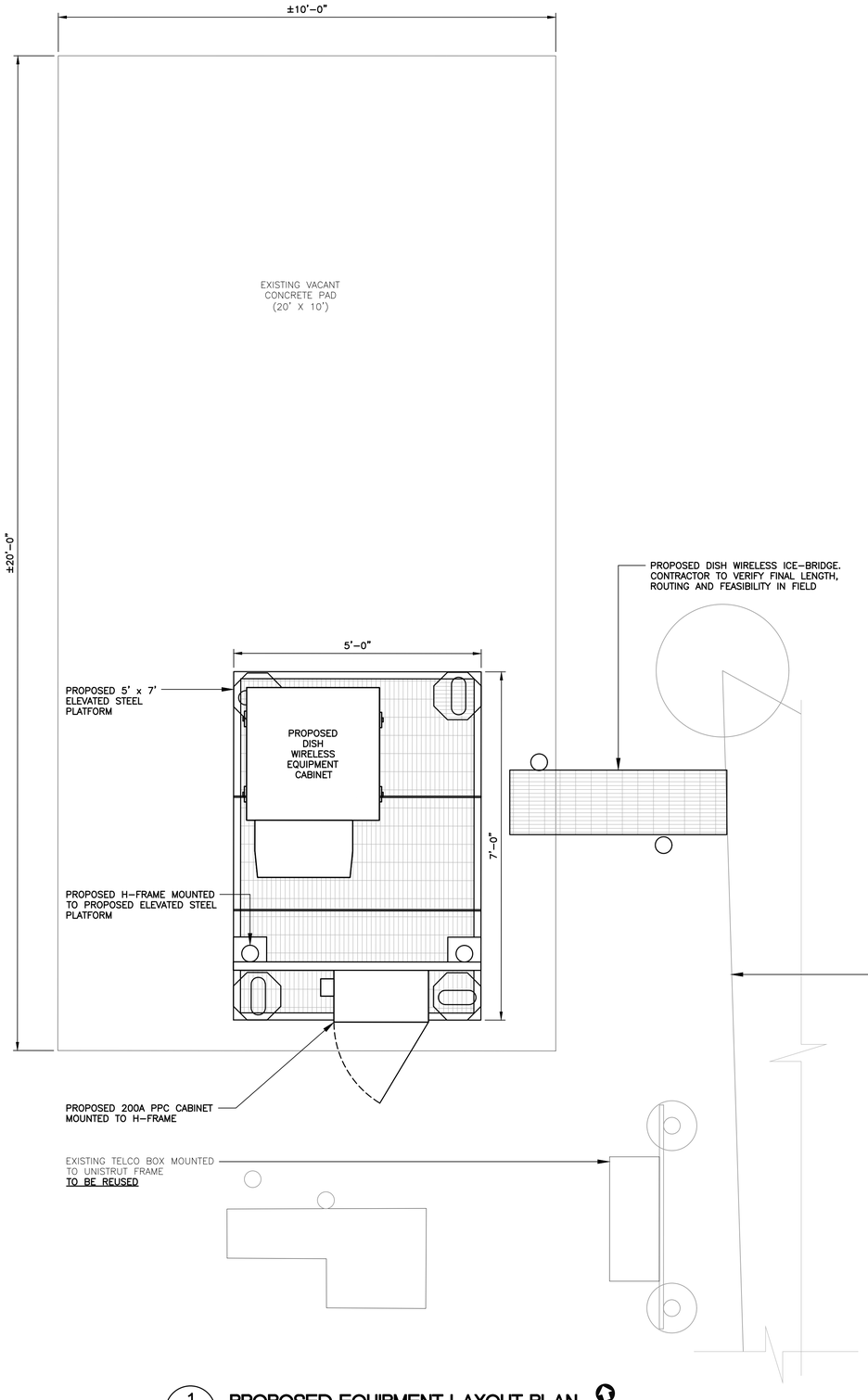
SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

DATE: 04/06/22
SCALE: AS NOTED
JOB NO. 21091.01

NOTES, SPECIFICATIONS, AND ANTENNA SCHEDULE

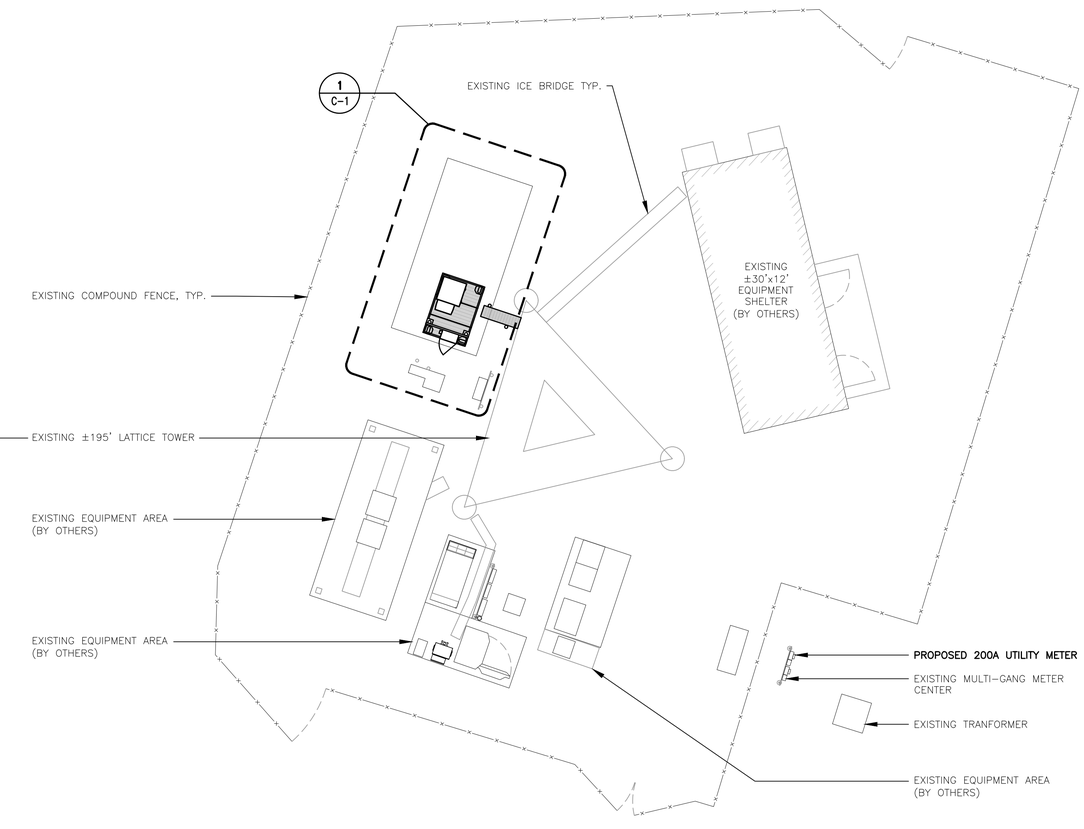
N-1

Sheet No. 2 of 13



1 C-1 **PROPOSED EQUIPMENT LAYOUT PLAN** TRUE NORTH

SCALE: 3/4" = 1'



2 C-1 **PROPOSED COMPOUND PLAN** TRUE NORTH

SCALE: 1" = 8'

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21091.01) DATED 04/14/22 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21091.01) DATED 03/22/22 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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SITE NAME: PARSONAGE
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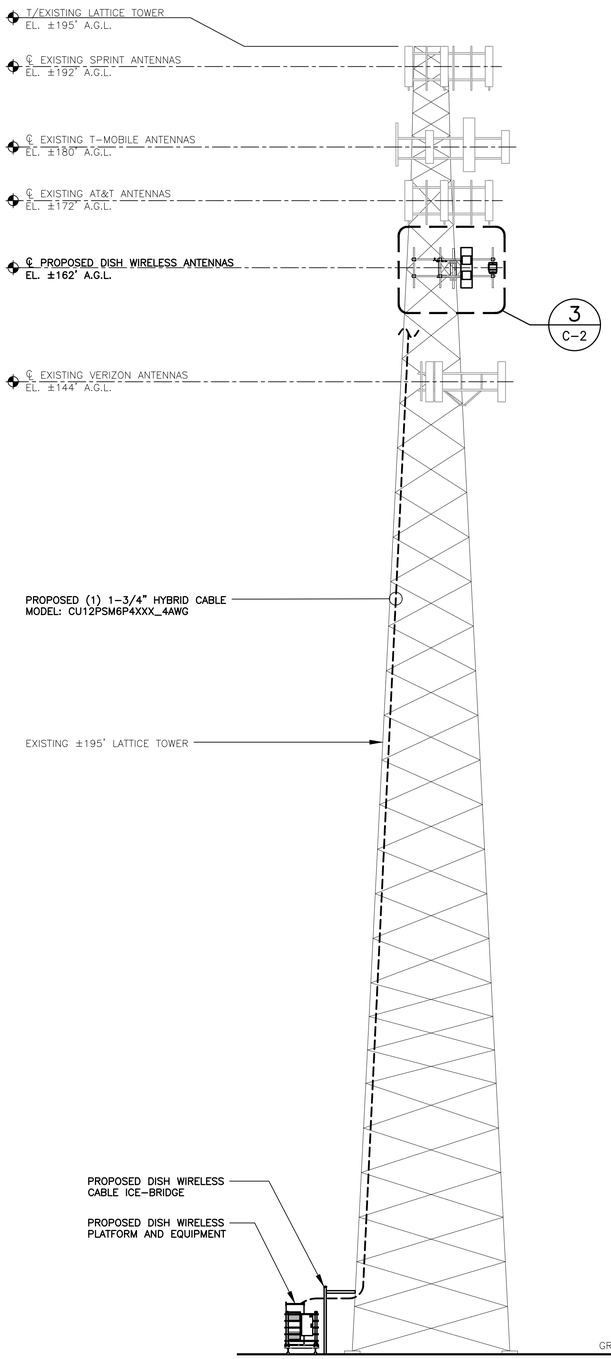
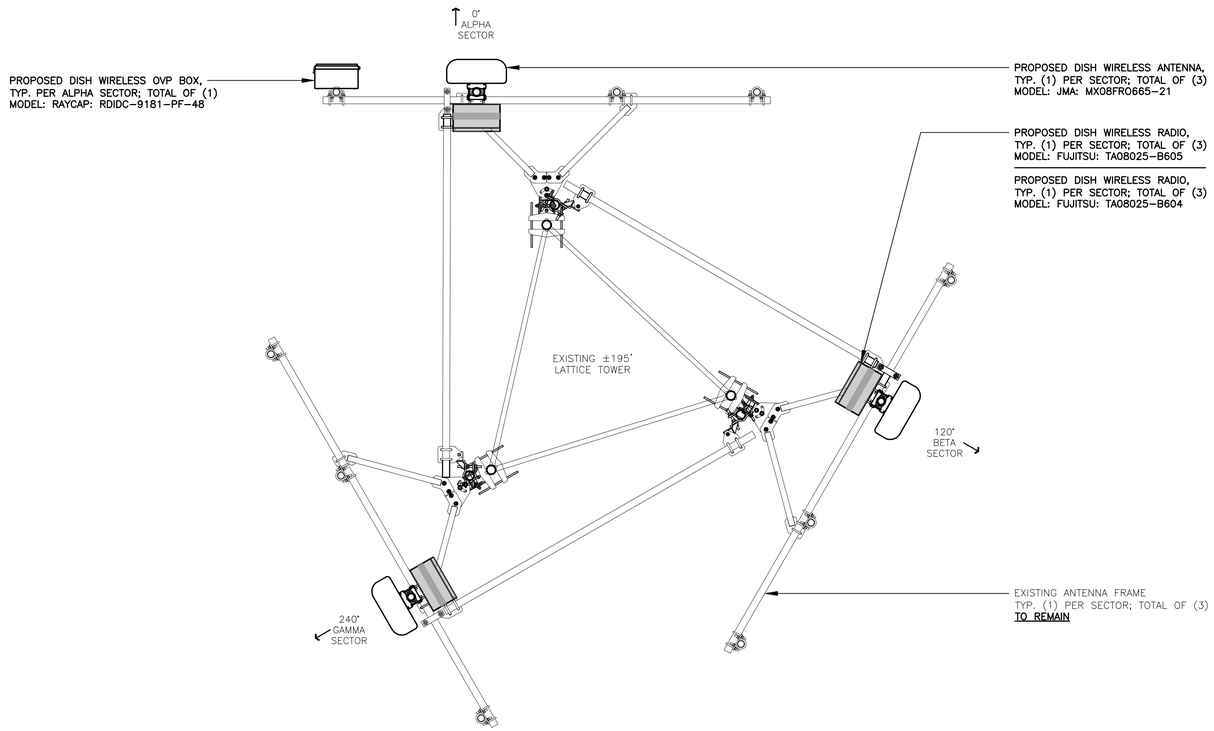
COMPOUND AND EQUIPMENT PLAN

C-1

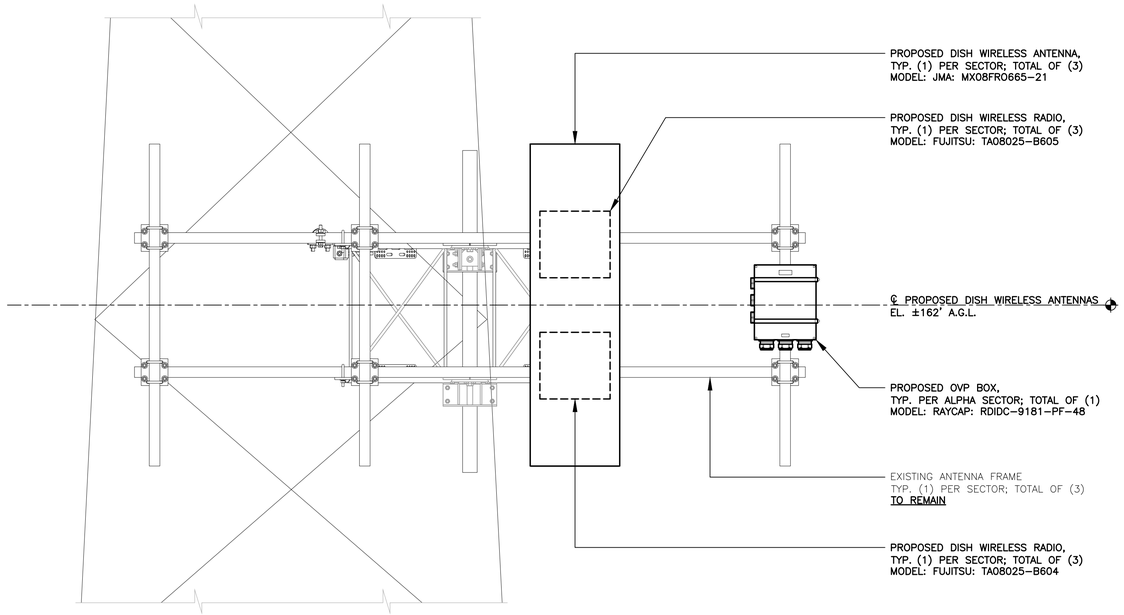
Sheet No. 3 of 13



1 C-2 **PROPOSED TOWER ELEVATION**
SCALE: 3/32" = 1'



2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1/2" = 1'
TRUE NORTH



3 C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 3/4" = 1'

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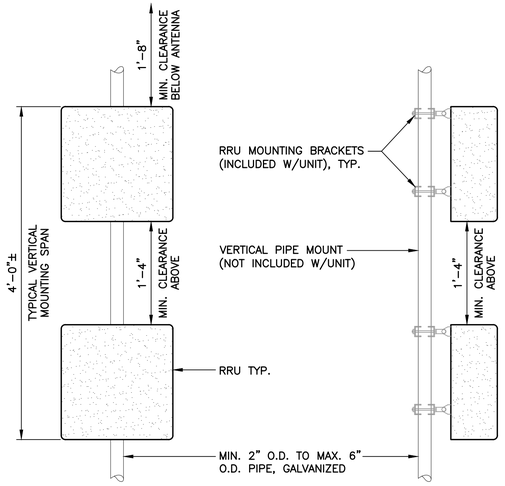
ANTENNA PLANS AND TOWER ELEVATION

C-2

Sheet No. 4 of 13



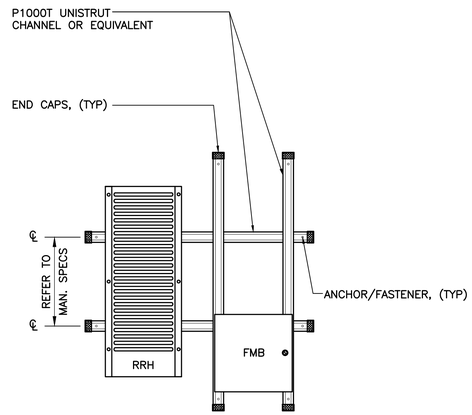
FRONT ELEVATION SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. DISH WIRELESS SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 C-3 TYPICAL RRU MOUNTING DETAILS

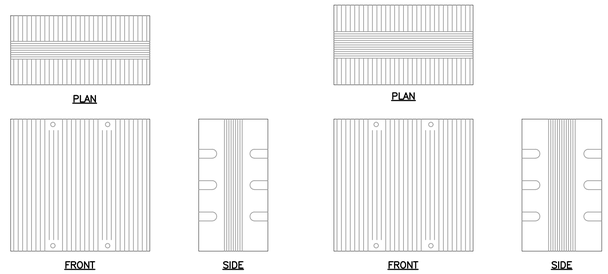
SCALE: NOT TO SCALE



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

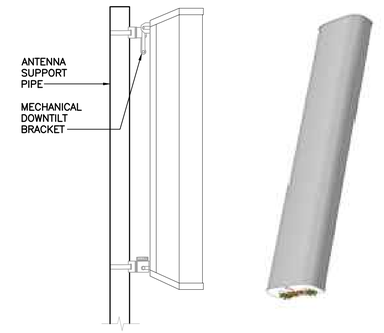


RRU (REMOTE RADIO UNIT)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: FUJITSU MODEL: TA08025-B604	14.9"L x 15.7"W x 7.8"D	±63.9 LBS.
MAKE: FUJITSU MODEL: TA08025-B605	14.9"L x 15.7"W x 9"D	±74.9 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

2 C-3 PROPOSED RRU DETAIL

SCALE: NOT TO SCALE



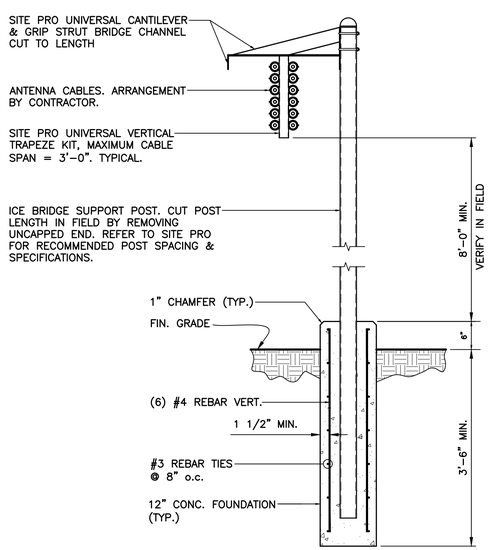
MX08FRO665-21

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: JMA WIRELESS MODEL: MX08FRO665-21	72"L x 20"W x 8"D	±64.5 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

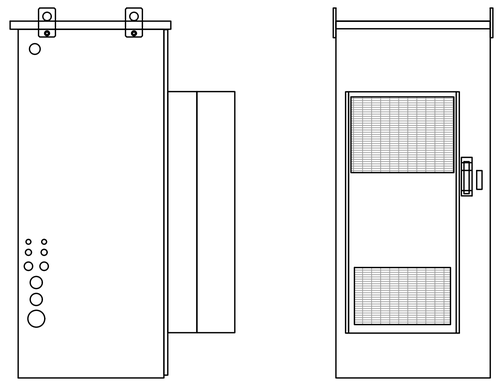
3 C-3 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE



4 C-3 TYPICAL ICE-BRIDGE DETAIL

SCALE: NOT TO SCALE



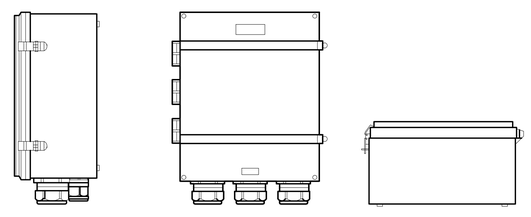
SIDE FRONT PLAN

CHARLES HEX CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CHARLES INDUSTRY HEX MODEL: CUBE-PM639155N4	74"H x 32"W x 32"D	±408 LBS

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

5 C-3 CHARLES HEX CABINET DETAIL

SCALE: NOT TO SCALE



SIDE FRONT PLAN

OVP BOX		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: RDIDC-9181-PF-48	16"H x 14"W x 8"D	21.85 LBS.

NOTES:
1. CONTRACTOR TO CONFIRM OVP BOX MAKE/MODEL AND QUANTITY WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

6 C-3 OVER-VOLTAGE PROTECTION BOX DETAIL

SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

C-3

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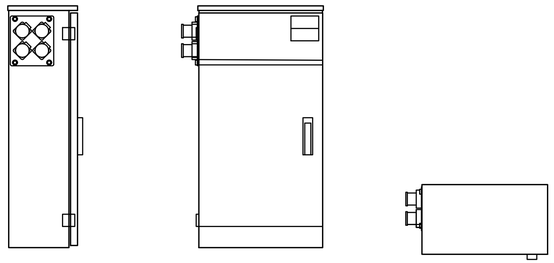
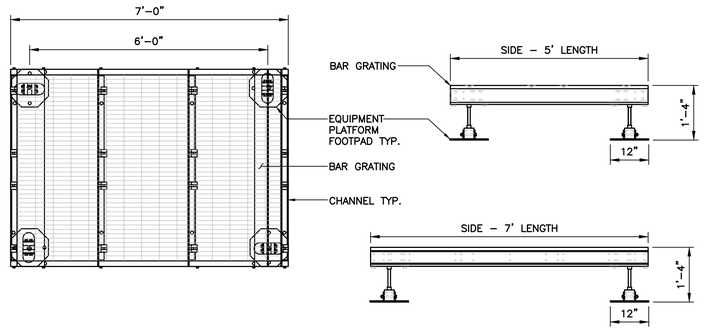


PPC CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: RDIAC-2465-P-240-MTS	39"H x 22.8"W x 12.5"D	80 LBS.

NOTES:
1. CONTRACTOR TO CONFIRM MAKE/MODEL AND QUANTITY WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

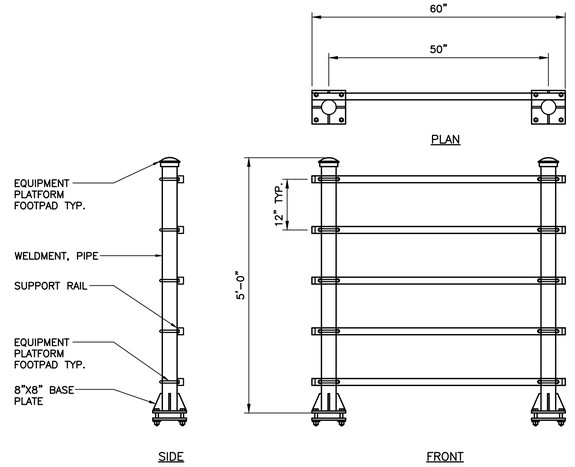
1 C-4 PPC CABINET DETAIL
SCALE: NOT TO SCALE



COMMSCOPE PLATFORM		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: MTC4045LP	16"L x 84"W x 60"D	423 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

2 C-4 PROPOSED PLATFORM DETAIL
SCALE: NOT TO SCALE



H-FRAME		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KENWOOD MODEL: T1701KT5-5S	60"H x 60"W	173 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH DISH WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 C-4 PROPOSED H-FRAME DETAIL
SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

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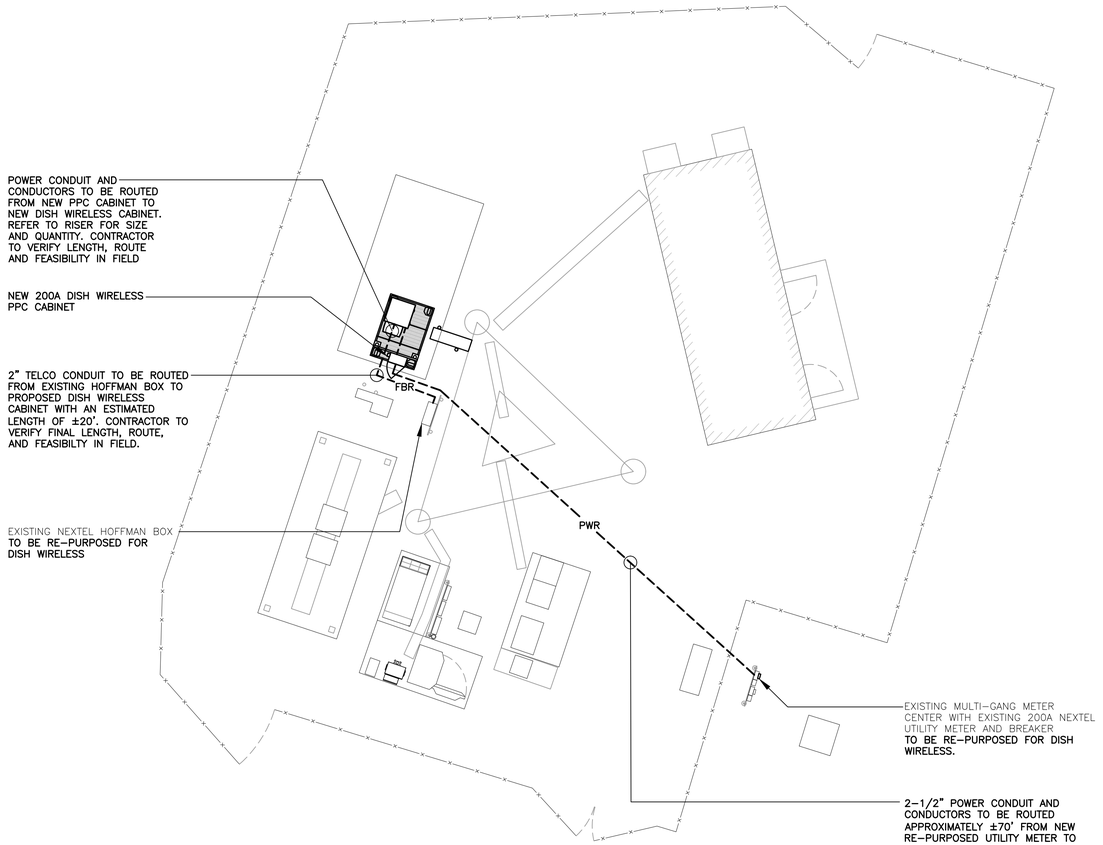
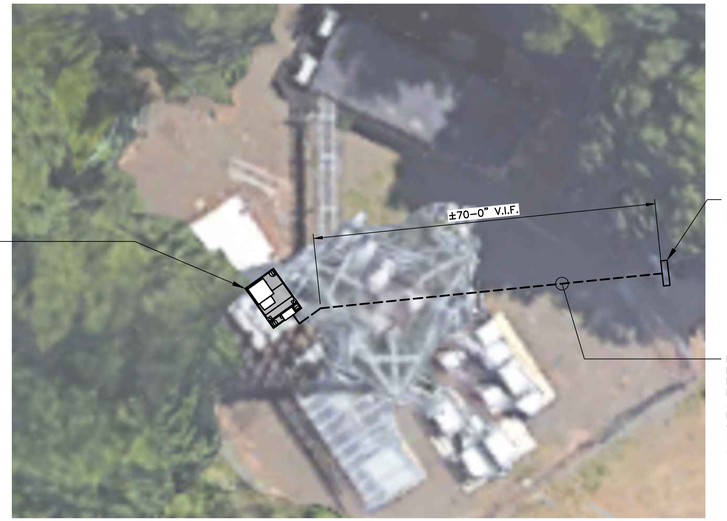


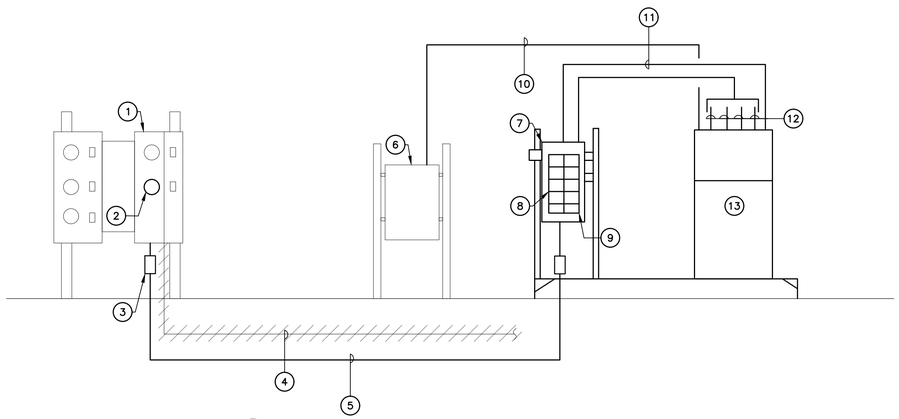
1 / E-1 **ELECTRICAL CONDUIT ROUTING PLAN**
SCALE: NOT TO SCALE



2 / E-1 **CONDUIT ROUTING AERIAL VIEW**
SCALE: NOT TO SCALE

RISER DIAGRAM NOTES

1. EXISTING MULTI-GANG METER TO REMAIN.
2. EXISTING NEXTEL 200A/2P CIRCUIT BREAKER TO BE RE-PURPOSED FOR DISH WIRELESS. PROVIDE WITH NEW 240V, SINGLE PHASE, 3 WIRE, CL200 UTILITY METER. EXISTING BREAKER TO BE RE-LABELED AS DISH WIRELESS.
3. EXPANSION COUPLING TYP.
4. EXISTING CONDUIT AND CONDUCTORS TO BE REMOVED AND REPLACED.
5. (3) 3/0 AWG, (1) #6 AWG GROUND, 2-1/2" CONDUIT
6. EXISTING HOFFMAN BOX TO REMAIN.
7. NEW 200A, 120/240V, SINGLE PHASE PPC CABINET
8. (4) 30A, 2P CIRCUIT BREAKER TO SERVE NEW DISH WIRELESS EQUIPMENT.
9. (1) 20A, 1P CIRCUIT BREAKER TO SERVE NEW DISH WIRELESS EQUIPMENT.
10. 2" CONDUIT FOR TELCO CONNECTION TO EQUIPMENT CABINET(S). REFER TO MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION AND CONSTRUCTION MANAGER FOR PROPER OPERATION OF EQUIPMENT.
11. (2) #12 AWG, (1) #12 AWG GROUND. 3/4" CONDUIT
12. (4) SETS OF (3) #10 AWG, (1) #10 AWG GROUND. 3/4" CONDUIT.
13. NEW DISH WIRELESS CABINET



3 / E-1 **ELECTRICAL RISER DIAGRAM**
SCALE: NOT TO SCALE

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ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING

E-1

Sheet No. 7 of 13

VOLTAGE:	120/240	PHASE:	1	WIRE:	3	PANEL NO.	MDP		
MAIN BUS:	200	AMPS				TOTAL WATTS, L1	11,700		
MAIN BREAKER:	200	A FRAME	200	A TRIP		TOTAL WATTS, L2	11,700	LOC:	EQUIPMENT FRAME
MOUNTING:	SURFACE					TOTAL WATTS	23,400		

NOTES:

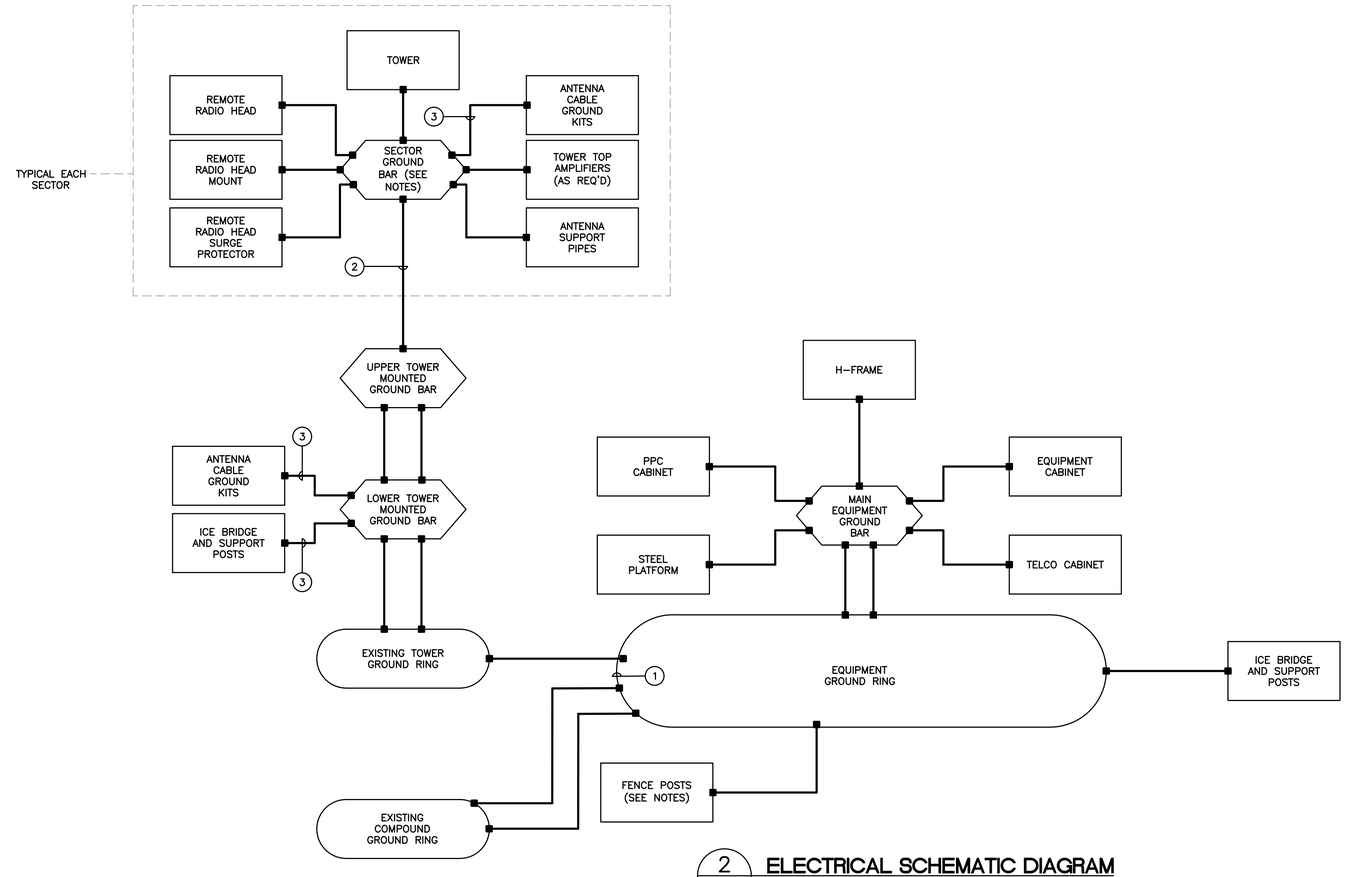
A) PPC SHALL BE 200A, 120/240V, SINGLE PHASE, 3W, 65 KAIC, 200A MCB, 24 POSITION, NEMA 3R ENCLOSURE, LAMINATED ENGRAVED BAKELITE NAMEPLATE, COPPER EQUIPMENT GROUND KIT, INSULATED COPPER SOLID NEUTRAL BAR.

B) BRANCH CIRCUIT BREAKER AND CONDUCTOR SIZE BASED ON SPECIFIC EQUIPMENT. CONFIRM ELECTRICAL REQUIREMENTS PRIOR TO INSTALLATION.

DIRECTORY	WIRE & CONDUIT	WATTS LOAD L1	WATTS LOAD L2	CKT.	AMPS	L1 Y	L2 Y	AMPS	CKT.	WATTS LOAD L1	WATTS LOAD L2	WIRE & CONDUIT	DIRECTORY
RECTIFIER #1	3/4" C, 2 #10, #10GND	2,880		1	30/2P			20	2	180		3/4" C, 2 #12, #12GND	CONVENIECE GFCI OUTLET
			2,880	3				20	4		180	3/4" C, 2 #12, #12GND	PPC GFCI OUTLET
RECTIFIER #2	3/4" C, 2 #10, #10GND	2,880		5	30/2P				6			-	SPACE
			2,880	7					8			-	SPACE
RECTIFIER #3	3/4" C, 2 #10, #10GND	2,880		9	30/2P				10			-	SPACE
			2,880	11					12			-	SPACE
RECTIFIER #4	3/4" C, 2 #10, #10GND	2,880		13	30/2P				14			-	SPACE
			2,880	15					16			-	SPACE
SPACE	-			17					18			-	SPACE
SPACE	-			19					20			-	SPACE
SPACE	-			21					22			-	SPACE
SPACE	-			23					24			-	SPACE

1 / E-2 **ELECTRICAL PANEL SCHEDULE**

SCALE: NOT TO SCALE



2 / E-2 **ELECTRICAL SCHEMATIC DIAGRAM**

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

1. GROUND RING, #2 AWG BCW
2. #2/0 GREEN INSULATED
3. #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL FENCE POSTS WITHIN 6' OF EQUIPMENT SHELTER SHALL BE BONDED TO GROUND RING.
12. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
13. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.

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ELECTRICAL SCHEMATIC AND PANEL SCHEDULE

E-2

Sheet No. 8 of 13

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. INSTALL 200A, 240/120V, 1P, 3 WIRE ELECTRIC SERVICE WITH REVENUE METER AND 200A MAIN CIRCUIT BREAKER FOR OWNER AND ASSOCIATED DISTRIBUTION EQUIPMENT. (AS REQUIRED BY UTILITY CO.)
2. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
3. FEEDERS AND BRANCH CIRCUIT WIRING TO PANELS, RECEPTACLES, EQUIPMENT, ETC. AS INDICATED OR NOTED ON PLANS.
4. GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, GROUNDING RING, GROUND BARS, ETC.
5. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.
6. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.

B. LOCAL UTILITY COMPANIES SHALL PROVIDE THE FOLLOWING:

1. TELEPHONE CABLES.
2. SHUTDOWN OF SERVICE (COORDINATE WITH OWNER).

C. CONTRACTOR SHALL CONFER WITH LOCAL UTILITY COMPANIES TO ASCERTAIN THE LIMITS OF THEIR WORK AND SHALL INCLUDE IN BID ANY CHARGES OR FEES MADE BY THE UTILITY COMPANIES FOR THEIR PORTION OF THE WORK AND SHALL PROVIDE AND INSTALL ALL ITEMS REQUIRED, BUT NOT PROVIDED BY UTILITY COMPANY.

D. ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL INSTALLATION WITH ELECTRIC UTILITY CO. PRIOR TO INSTALLATION.

E. CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR LOCATION OF TELEPHONE SERVICE AND TO DETERMINE ANY REQUIRED EQUIPMENT TO BE INSTALLED BY CONTRACTOR.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)
2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE
3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE
4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.
2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/09/22	RYS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

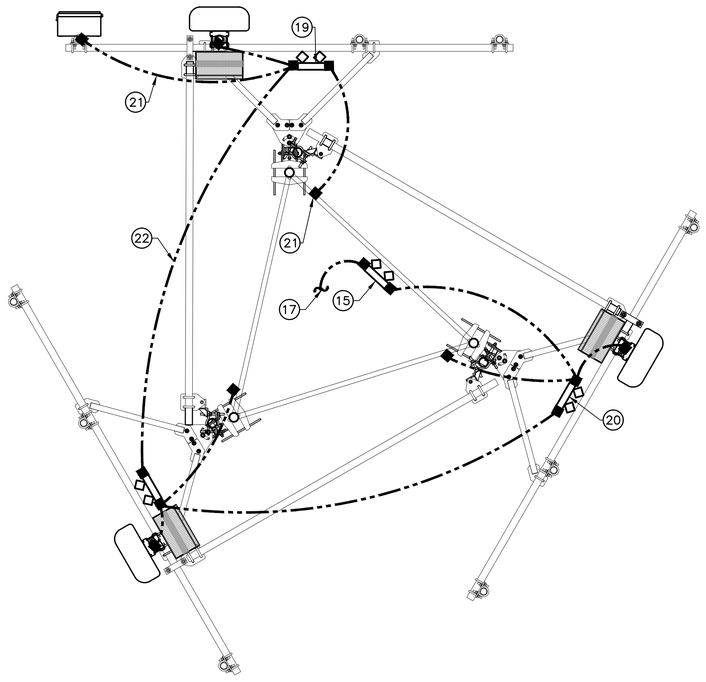
DISH WIRELESS, LLC

SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

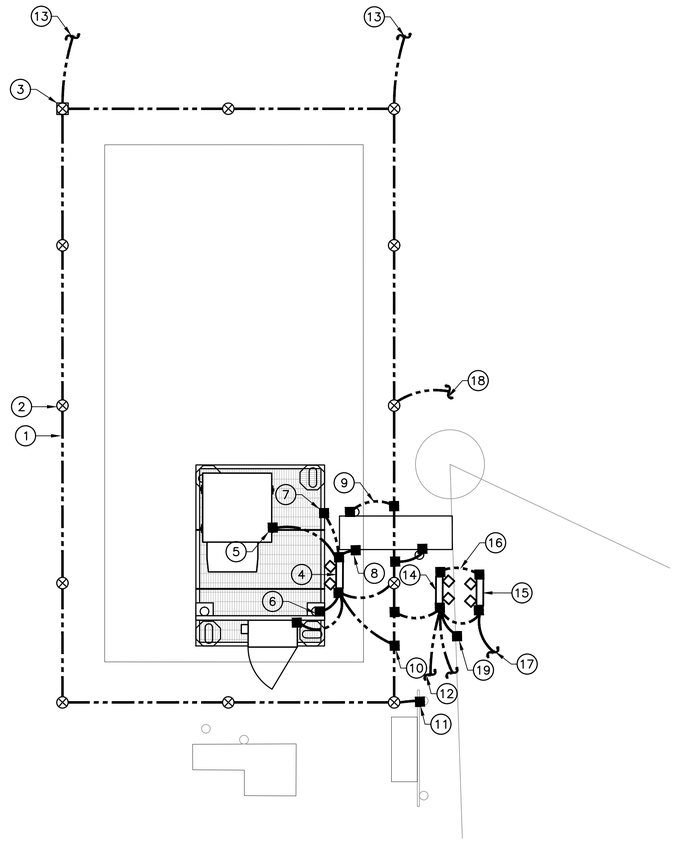
DATE: 04/06/22
SCALE: AS NOTED
JOB NO. 21091.01

ELECTRICAL SPECIFICATIONS

E-3



1 G-1 **ELECTRICAL GROUNDING PLAN - ANTENNA**
SCALE: NOT TO SCALE



2 G-1 **ELECTRICAL GROUNDING PLAN - EQUIPMENT**
SCALE: NOT TO SCALE

GROUNDING PLAN NOTES

1. #2 SOLID TINNED BCW GROUND RING (2'-0" FROM OUTSIDE EDGE OF EQUIPMENT SHELTER FOUNDATION WHEN ROUTED ALONG SHELTER PERIMETER.) (TYP.).
2. GROUNDING ROD (TYP.).
3. GROUNDING ROD WITH ACCESS (TYP.).
4. MAIN EQUIPMENT GROUND BAR.
5. BOND EQUIPMENT TO GROUND BAR TYP.
6. BOND H-FRAME TO GROUND BAR.
7. BOND GROUND BAR TO EQUIPMENT PLATFORM.
8. BOND GROUND BAR TO ICE BRIDGE
9. ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO GROUND RING.
10. BOND GROUND BAR TO EQUIPMENT GROUND RING TYP. 2 PLACES.
11. BOND EXISTING EQUIPMENT FRAME TO GROUND RING.
12. BOND GROUND BAR TO TOWER GROUND RING, TYP. (2 LEADS)
13. CONNECT EQUIPMENT GROUND RING TO EXISTING COMPOUND GROUND RING TYP. OF 2 PLACES
14. LOWER TOWER MOUNTED GROUND BAR.
15. UPPER TOWER MOUNTED GROUND BAR.
16. BOND LOWER TOWER MOUNTED GROUND BAR TO UPPER TOWER MOUNTED GROUND BAR, TYP. (2 LEADS)
17. BOND UPPER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR.
18. CONNECT EQUIPMENT GROUND RING TO EXISTING TOWER GROUND RING. TYP.
19. BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER STEEL.
20. SECTOR GROUND BARS TYP.
21. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR.
22. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
23. BOND SECTOR GROUND BAR TO TOWER STEEL

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/09/22	RYS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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NSS NORTHEAST STRUCTURAL SOLUTIONS
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DISH WIRELESS, LLC

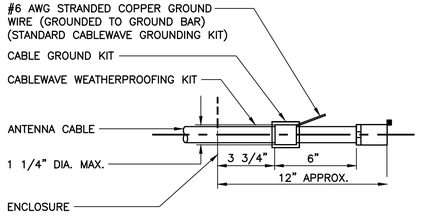
SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

DATE:	04/06/22
SCALE:	AS NOTED
JOB NO.	21091.01

ELECTRICAL GROUNDING PLANS

G-1

Sheet No. 10 of 13

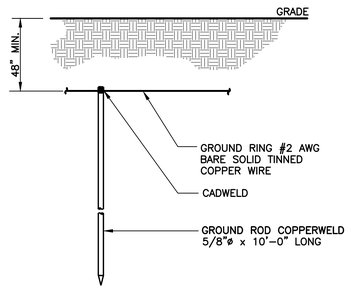


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

1 G-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

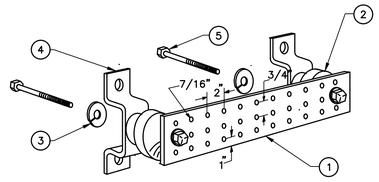


NOTES:

1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

2 G-2 GROUND ROD DETAIL

SCALE: NOT TO SCALE

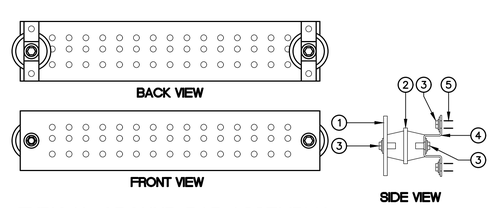


NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

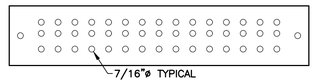
3 G-2 GROUND BAR DETAIL

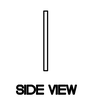
SCALE: NOT TO SCALE



TYPICAL GROUND BAR ASSEMBLY

N.T.S.



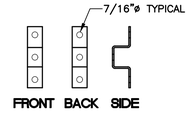


TYPICAL GROUND BAR - DIMENSIONS

N.T.S.

NOTES

1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.

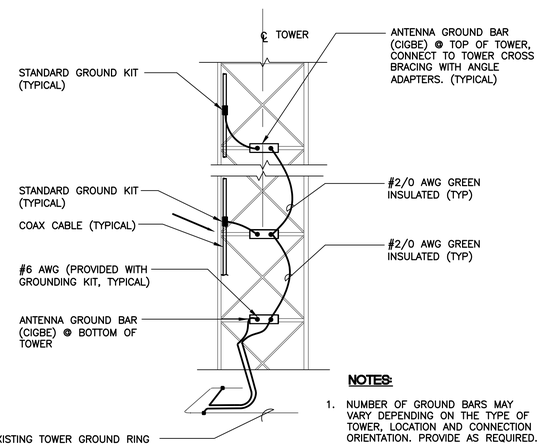


BRACKET FOR GROUND BAR-DIMENSIONS

N.T.S.

4 G-2 MASTER/EQUIPMENT GROUND BAR DETAILS

SCALE: NOT TO SCALE



NOTES:

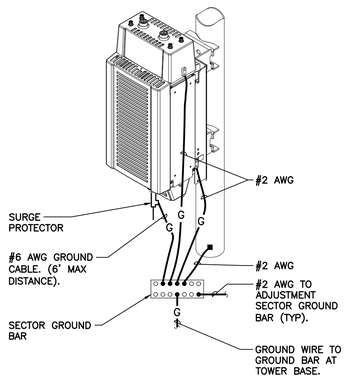
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

5 G-2 ANTENNA CABLE GROUNDING - LATTICE TOWER

SCALE: NOT TO SCALE

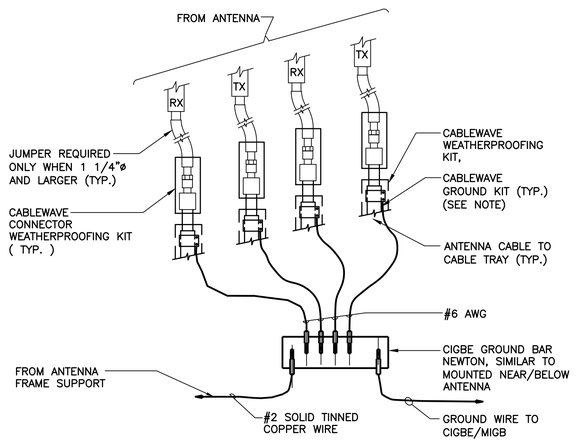
EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



6 G-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE

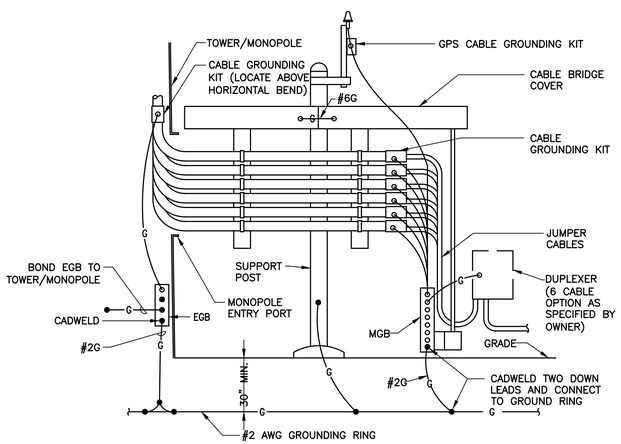


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

7 G-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE



8 G-2 CABLE BRIDGE GROUNDING DIAGRAM

SCALE: NOT TO SCALE

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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/09/22	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

dish wireless

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CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
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Branford, CT 06405
www.CentekEng.com

DISH WIRELESS, LLC

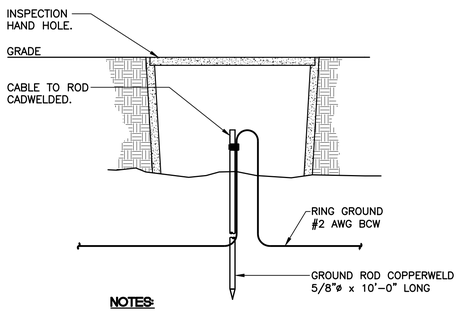
SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

DATE:	04/06/22
SCALE:	AS NOTED
JOB NO.	21091.01

ELECTRICAL GROUNDING DETAILS

G-2

Sheet No. 11 of 13

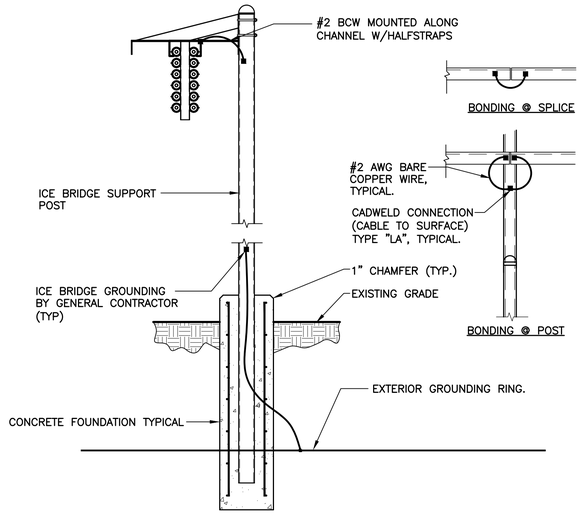


NOTES:

1. INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA x 18" DEEP.

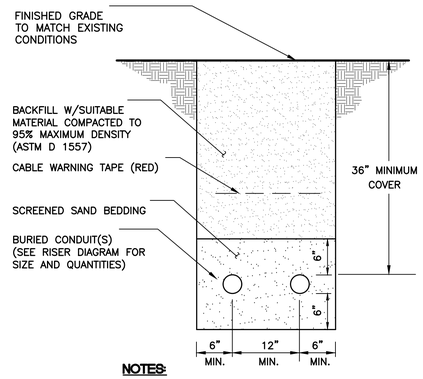
1 G-3 GROUND ROD WITH ACCESS DETAIL

SCALE: NOT TO SCALE



2 G-3 ICE BRIDGE BONDING DETAIL

SCALE: NOT TO SCALE

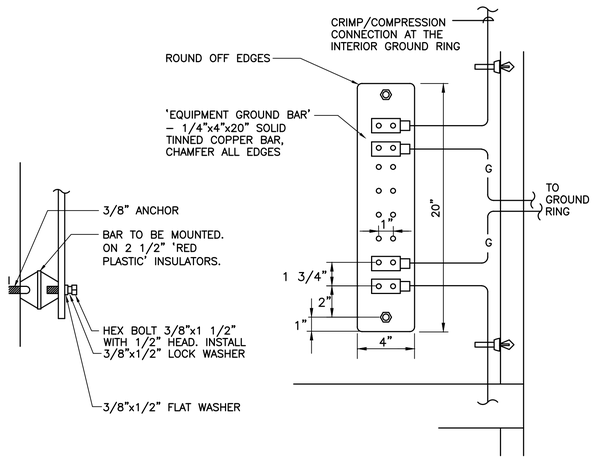


NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
4. COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

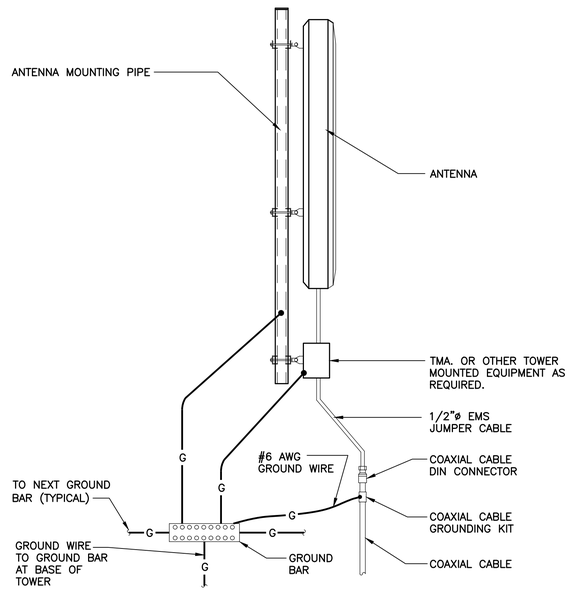
3 G-3 TYPICAL ELECTRICAL TRENCH DETAIL

SCALE: NOT TO SCALE



4 G-3 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE



5 G-3 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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NOTES

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www.CentekEng.com

DISH WIRELESS, LLC

SITE NUMBER: BOHVN00190B
SITE NAME: PARSONAGE
88 PARSONAGE HILL RD
NORTH BRANFORD, CT 06471

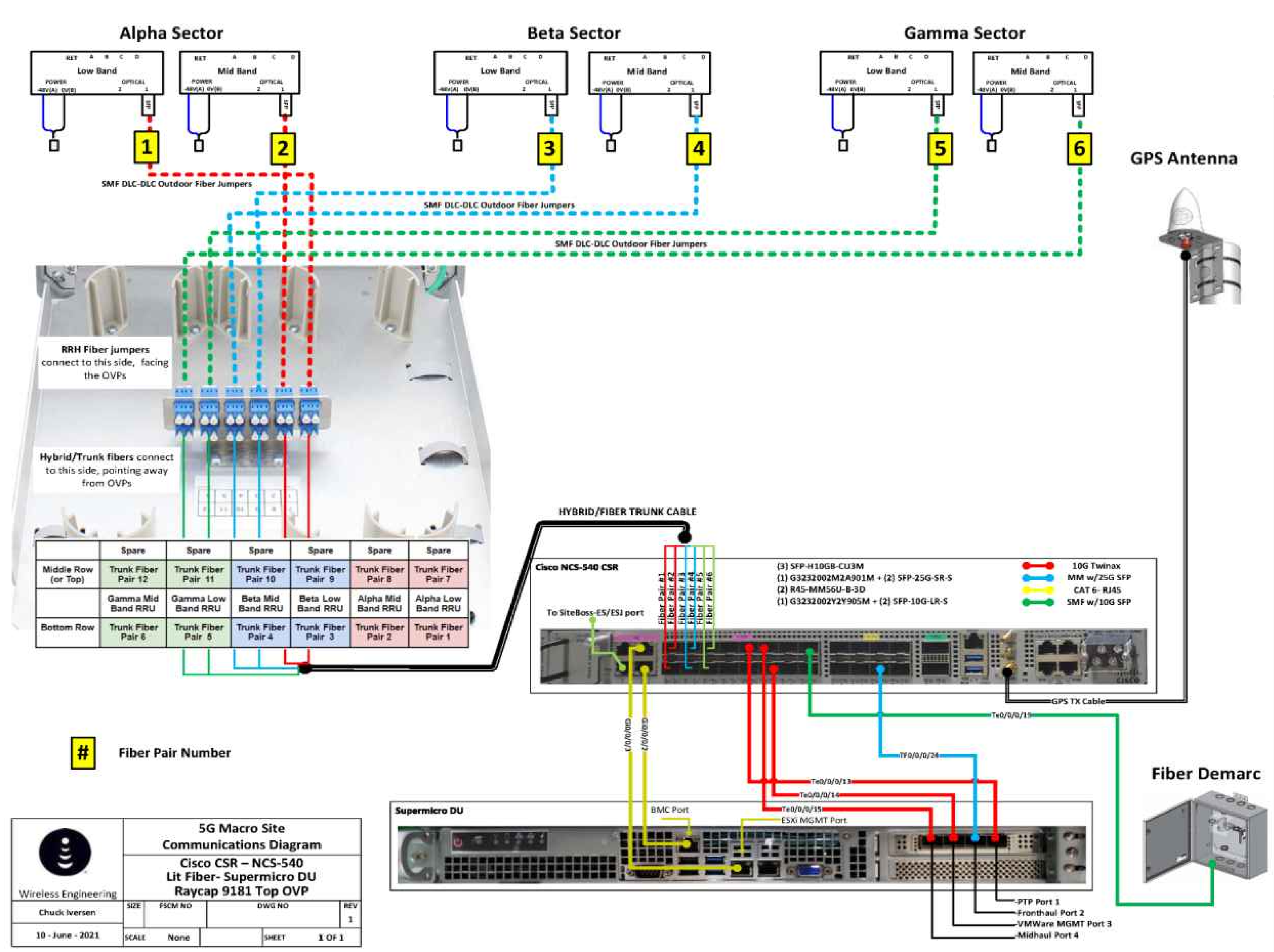
DATE:	04/06/22
SCALE:	AS NOTED
JOB NO.	21091.01

ELECTRICAL GROUNDING DETAILS

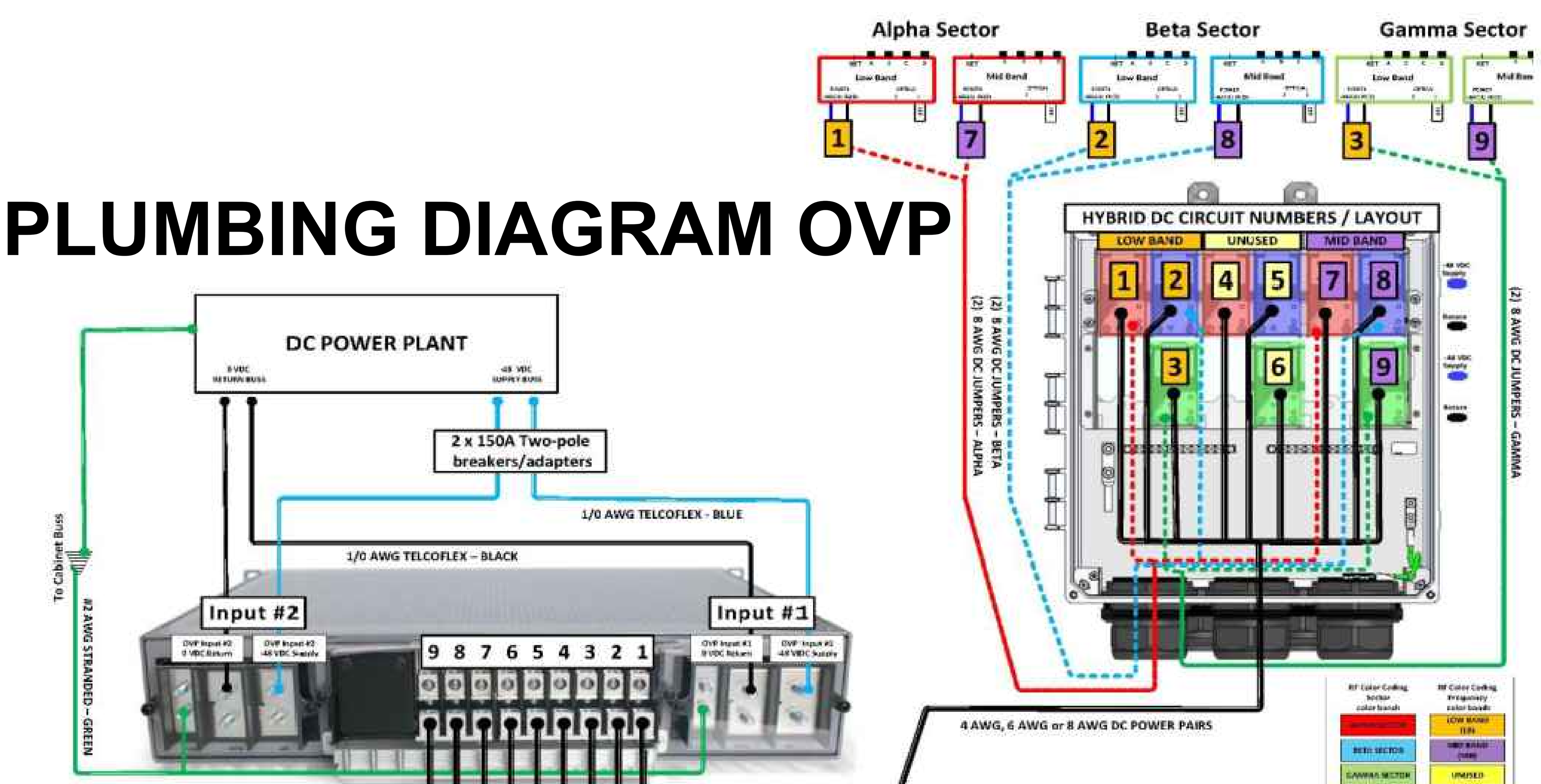
G-3

Sheet No. 12 of 13

PLUMBING DIAGRAM NETWORK

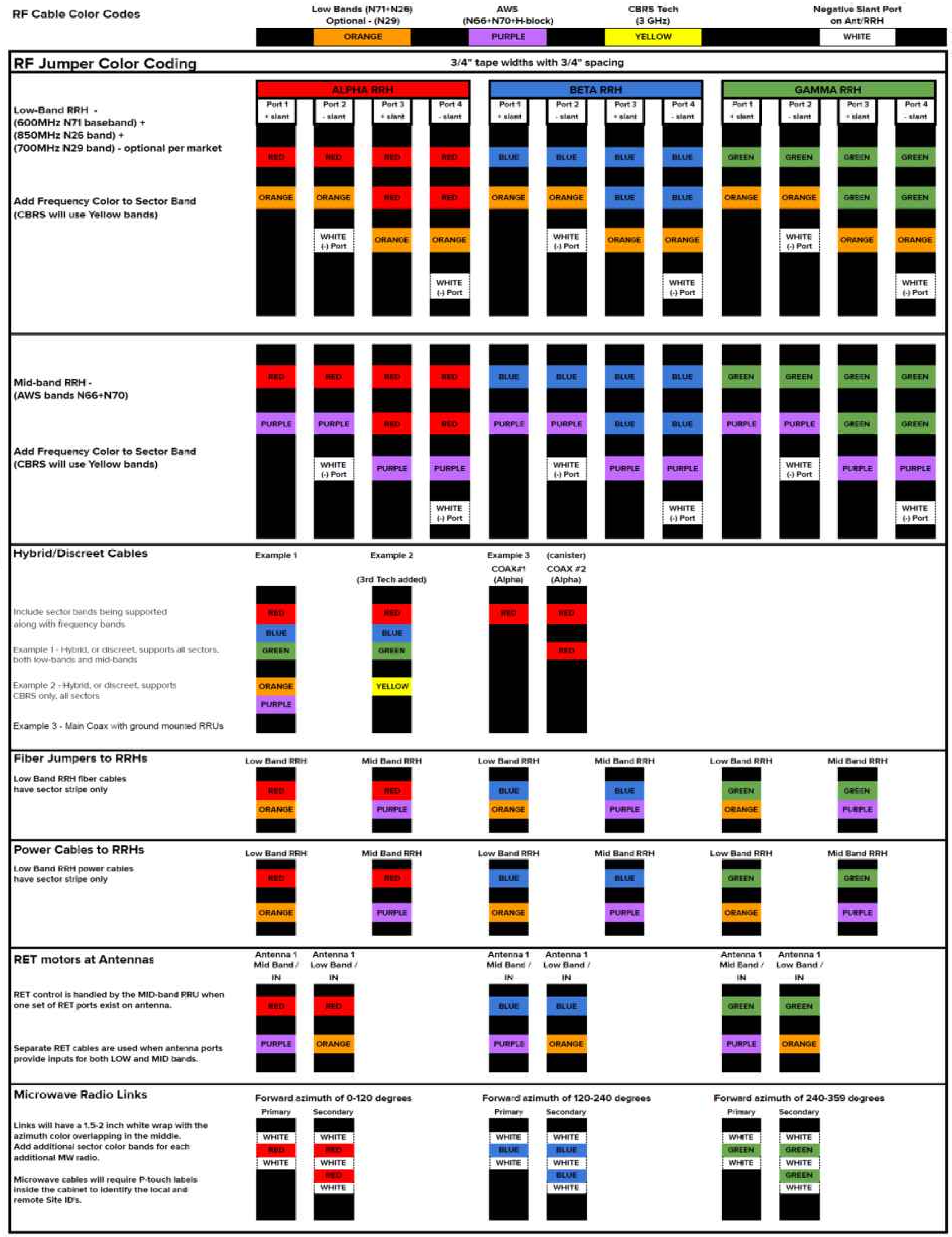


PLUMBING DIAGRAM OVP



OVP CKTs	Input Circuit #2			Input Circuit #1					
Sectors Boosted	CKT #9	CKT #8	CKT #7	CKT #6	CKT #5	CKT #4	CKT #3	CKT #2	CKT #1
NO	MB	MB	MB	unused	unused	unused	LB	LB	LB
ALL	MB	MB	MB	unused	unused	unused	LB	LB	LB
Alpha	MB	unused	LB	MB	unused	LB	MB	unused	LB
Beta	MB	unused	LB	MB	unused	LB	MB	unused	LB
Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB
Alpha/ Beta	MB	unused	LB	MB	unused	LB	MB	unused	LB
Beta/ Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB
Alpha/ Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB

RF COLOR CODING



REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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DATE: 04/06/22
SCALE: AS NOTED
JOB NO. 21091.01

RF COLOR CODING AND PLUMBING DIAGRAM

RF-1

Sheet No. 13 of 13

Exhibit D

Structural Analysis Report

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

195' Existing Lattice Tower

Proposed Dish Wireless
Antenna Upgrade

Site Ref: BOHVN00190B

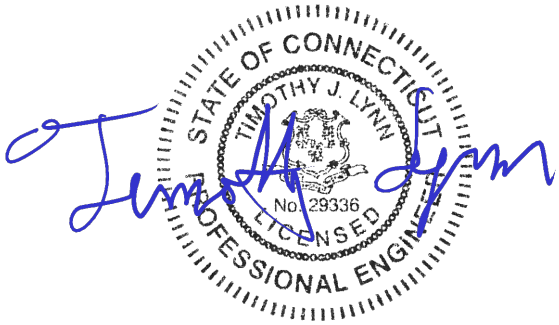
88 Parsonage Hill Road
North Branford, CT

Centek Project No. 21091.01

~~Date: March 22, 2022~~

Rev 1: August 31, 2022

Max Stress Ratio = 74.2%



Prepared for:
Northeast Site Solutions
1053 Farmington Ave., Unit G,
Farmington, CT 06032

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna configuration proposed by Dish on the existing lattice tower located in Northford (North Branford), Connecticut.

The host tower is a 195-ft, three-legged, lattice tower originally designed and manufactured by Central Tower project no. F-722 dated 4/9/99. The tower geometry, structure member sizes and foundation information were taken from the aforementioned design documents.

Existing antenna and appurtenance inventory was taken from a previous structural analysis prepared by Centek dated May 25, 2022.

Proposed antenna and appurtenance inventory for Dish was taken from an RF data sheet dated 03/22/22.

The tower consists of ten (10) vertical sections consisting of solid round pipe legs conforming to ASTM A529 Gr. 50 and steel angle lateral bracing conforming to ASTM A36. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 5-ft 0-in at the top and 23-ft 6-in at the bottom.

Antenna and Appurtenance Summary

The existing and proposed loads considered in the analysis consist of the following:

- Sprint (Existing):
  Antenna: Three (3) RFS APXVSPP18-C-A20 panel antennas, three (3) 1900MHz 4X45W RRHs, three (3) 800MHz 2X50W RRHs and three (3) Notch Filters mounted on a triangular platform with a RAD center elevation of ±192-ft above grade level.
  Coax Cable: Three (3) 1-1/4"∅ Hybriflex cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- T-MOBILE (Existing/Reserved):
  Antennas: Three (3) Ericsson AIR6419 panel antennas, three (3) RFS APXVAALL24_43 panel antennas, three (3) Ericsson 4460 remote radio heads and three (3) Ericsson 4480 remote radio heads mounted on three (3) SitePro VFA12-HD V-Frames with a RAD center elevation of ±180-ft above grade level.
  Coax Cables: Three (3) 6x24 hybrid cables running on a face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing/Reserved):
  Antenna: Three (3) Kathrein 800-10121 panel antennas, three (3) CCI OPA65R-BU6DA panel antennas, three (3) CCI DMP65R-BU6DA panel antennas, six (6) Powerwave LGP21401 TMAs, three (3) Ericsson 4478 B14 remote radio heads, three (3) Ericsson 4449 B5/B12 remote radio heads, three (3) Ericsson 8843 B2/B66A remote radio heads and two (2) Raycap DC6-48-60-18-8F surge arrestors mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±172-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables, two (2) fiber cable and four (4) dc control cables running on a leg/face of the existing tower as specified in Section 3 of this report.

- Empty Mounts (Existing):
  Antenna: Three (3) 12-ft T-Frames with a RAD center elevation of ±162-ft above grade level. **(To be used for proposed Dish equipment).**
- Verizon (Existing to Remain/Reserved):
  Antennas (Existing): Three (3) Andrew LNX-6513DS panel antennas, six (6) Commscope JAHH-65B-R3B panel antennas, three (3) Samsung B2/B66A remote radio heads, three (3) Samsung B5/B13 remote radio heads, three (3) Commscope CBC78T-DS-43 diplexers, one (1) OVP box and one (1) main distribution box mounted on (3) 12-ft T-Frames with a RAD center elevation of ±146-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables and two (2) 1-5/8" ∅ fiber cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: One (1) GPS antenna on a 2-ft standoff with an elevation of ±80-ft above grade level.
  Coax Cable: One (1) 1/2" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- **Dish (Proposed):**
  Antennas: Three (3) JMA MX08FR0665-21 panel antennas, three (3) Fujitsu TA08025-B605 remote radio heads, three (3) Fujitsu TA08025-B604 remote radio heads and one (1) main distribution box mounted on three (3) existing 12-ft T-Frames with a RAD center elevation of ±162-ft above grade level.
  Coax Cable: One (1) 1-3/4" ∅ hybrid cable running on a face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75" radial ice on the tower structure and its components.

Basic Wind Speed:	*Northford*; V_{asd} = 101 mph (Nominal)	*[Appendix N of the 2018 CT Building Code]*
Load Cases 1:	101 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2018 CT Building Code]*
Load Cases 2:	50 mph wind speed w/ 0.75" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Design flexural strength was determined based on section 4.7 and Table 4-8 of the TIA-222-G.

Calculated stresses were found to be within allowable limits. This tower was found to be at **74.2%** of its total capacity.

Tower Section	Elevation	Stress Ratio (%of capacity)	Result
Diagonal (T2)	155'-0"-175'-0"	74.2%	**PASS**
Leg (T9)	20'-0"-40'-0"	65.7%	**PASS**

Foundation and Anchors

The existing foundation consists of a three (3) 3-ft ∅ x 4-ft long reinforced concrete piers concentrically bearing on a 34-ft square x 2-ft 6-in thick reinforced concrete mat. The sub grade conditions used in the foundation analysis were derived from the aforementioned design documents. The base of the tower is connected to the foundation by means of (8) 1.375"∅, ASTM A449 anchor bolts per leg embedded 5-ft 10-in into the concrete foundation structure.

- The tower reactions developed from the governing Load Case were used in the verification of the foundation and anchor bolts:

Load Effect	Proposed Tower Reactions
Leg Shear	44,702 lbs
Leg Compression	424,486 lbs
Leg Tension	358,929 lbs
Base Moment	8,079,397 ft-lbs
Base Shear	73,051 lbs

- The anchor bolts were found to be within allowable limits.

Tower Section	Component	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	50.5%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	TIA-222-G Section 9.4 FS[1]	Proposed Loading (FS)[1]	Result
Reinforced Concrete Pad and Piers	Overturning	1.0	1.61	**PASS**

Note 1: FS denotes Factor of Safety

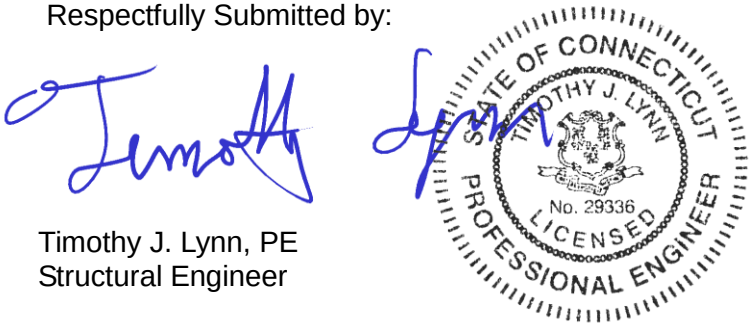
Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed antenna configuration with the below recommendations.

The analysis is based, in part, on the information provided to this office by Dish. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

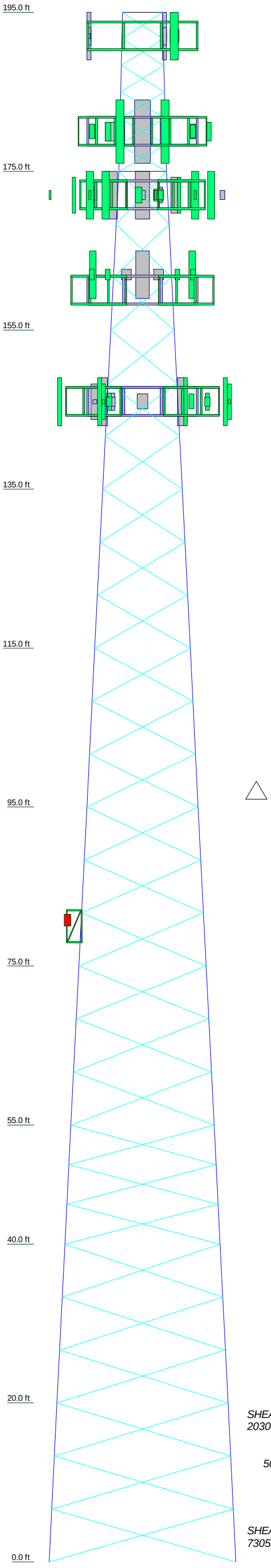
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly RISA Tower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4		SR 5
Leg Grade	A529-50									
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4		L4x4x5/16	L4x4x3/8
Diagonal Grade	A36									
Top Girts	SR 1 1/4					N.A.				
Bottom Girts	SR 1 1/4					N.A.				
Face Width (ft)	5	6	8	10	12	14	16	18	19.5	21.5
# Panels @ (ft)	6 @ 3.33333			18 @ 6.66667				3 @ 5		6 @ 6.66667
Weight (lb)	2548.7	2793.3	3572.1	4036.1	4788.8	5354.2	5794.0	5023.9	6793.1	8126.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top Triangular Mount (Sprint)	192	4478 B14 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4478 B14 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4449 B5/B12 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4449 B5/B12 (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	4449 B5/B12 (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	8843 B2/B66A (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	8843 B2/B66A (ATI)	172
Notch Filter (Sprint)	192	8843 B2/B66A (ATI)	172
Notch Filter (Sprint)	192	MX08FRO665-21 (Dish - Proposed)	162
Notch Filter (Sprint)	192	MX08FRO665-21 (Dish - Proposed)	162
FD-RRH 4x45 1900 (Sprint)	192	MX08FRO665-21 (Dish - Proposed)	162
FD-RRH 4x45 1900 (Sprint)	192	TA08025-B604 (Dish - Proposed)	162
FD-RRH 4x45 1900 (Sprint)	192	TA08025-B604 (Dish - Proposed)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B604 (Dish - Proposed)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B605 (Dish - Proposed)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B605 (Dish - Proposed)	162
AIR6419 (T-Mobile)	180	TA08025-B605 (Dish - Proposed)	162
APXVAALL24-43 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Dish)	160
AIR6419 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Dish)	160
APXVAALL24-43 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Dish)	160
AIR6419 (T-Mobile)	180	(2) JAHH-65B-R3B (Verizon)	146
APXVAALL24-43 (T-Mobile)	180	LNX-6513DS-VTM (Verizon)	146
4460 B25+B66 (T-Mobile)	180	(2) JAHH-65B-R3B (Verizon)	146
4460 B25+B66 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4460 B25+B66 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B5/B13 RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B5/B13 RRH (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	B5/B13 RRH (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	RC2DC-3315-PF-48 (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	CBC78T-DS-43 (Verizon)	146
800 10121 (ATI)	172	CBC78T-DS-43 (Verizon)	146
OPA65R-BU6D (ATI)	172	CBC78T-DS-43 (Verizon)	146
DMP65R-BU6D (ATI)	172	RC2DC-3315-PF-48 (Verizon)	146
800 10121 (ATI)	172	LNX-6513DS-VTM (Verizon)	146
OPA65R-BU6D (ATI)	172	(2) JAHH-65B-R3B (Verizon)	146
DMP65R-BU6D (ATI)	172	LNX-6513DS-VTM (Verizon)	146
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OPA65R-BU6D (ATI)	172	Pirod 12' T-Frame Sector Mount (1) (Verizon)	146
DMP65R-BU6D (ATI)	172	Pirod 12' T-Frame Sector Mount (1) (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
DC6-48-60-18-8F Surge Arrestor (ATI)	172	2-ft Stand Off (Sprint)	80
DC6-48-60-18-8F Surge Arrestor (ATI)	172	GPS (Sprint)	80
4478 B14 (ATI)	172		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 74.2%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 424486 lb
SHEAR: 44702 lb

UPLIFT: -358929 lb
SHEAR: 38585 lb

AXIAL 173171 lb
SHEAR 20304 lb *MOMENT 2396667 lb-ft*
TORQUE 29166 lb-ft
50 mph WIND - 0.7500 in ICE

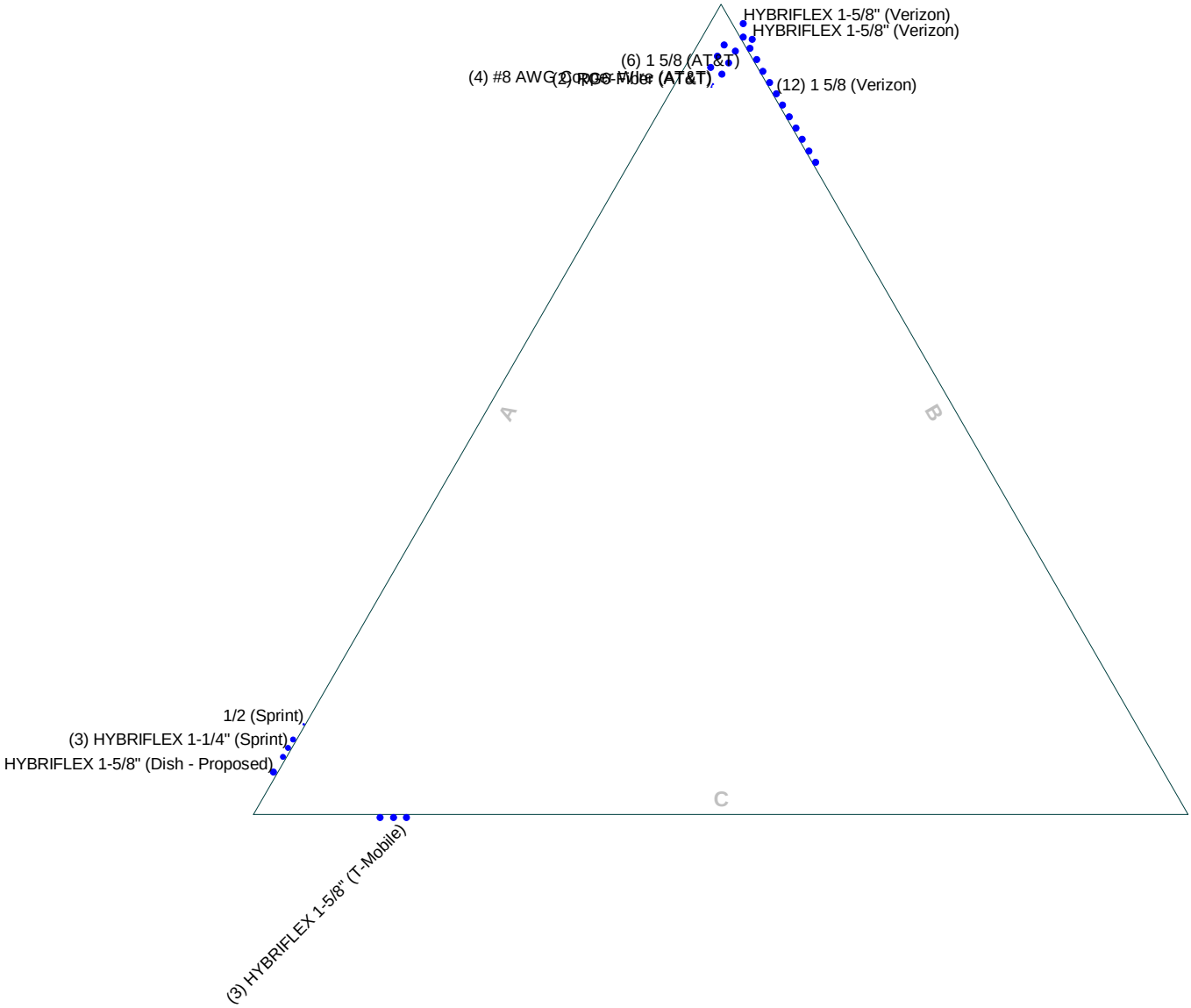
AXIAL 82489 lb
SHEAR 73051 lb *MOMENT 8079397 lb-ft*
TORQUE 70044 lb-ft
REACTIONS - 101 mph WIND

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 21091.01 - BOHVN00190A			
Project: 195' Lattice Tower - 88 Parsonage Hill Rd., Northford, CT			
Client: Dish	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 08/31/22	Scale: NTS	
Path: J:\Jobs\21091\00 WI\01_BOHVN00190A\05_Structural\Tower\Backup Documentation\Rev (1)\Tnx195-ft Central Lattice Tower.eri		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face



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Job:	***21091.01 - BOHVN00190A***		
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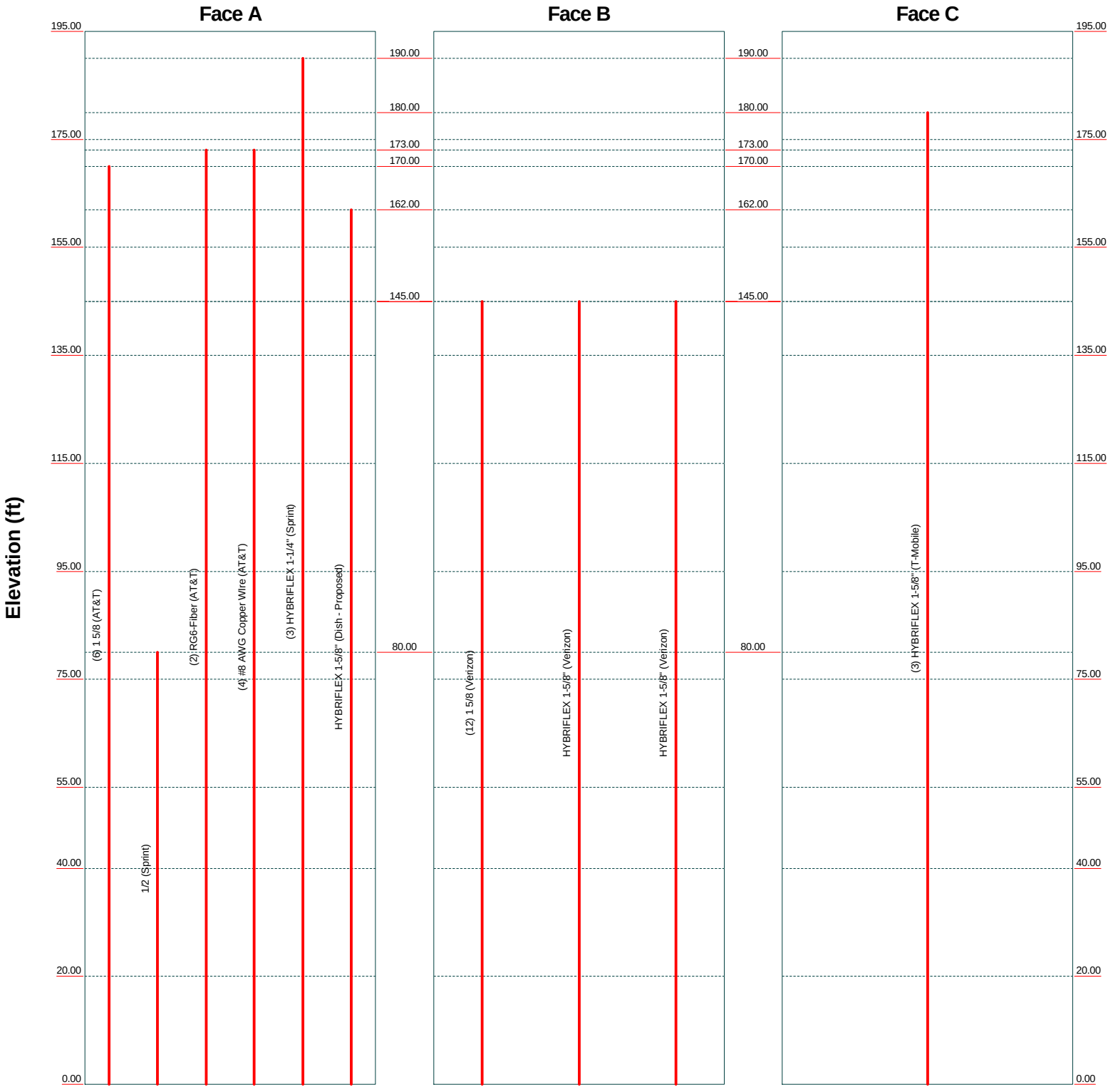
Client: Dish		Drawn by: TJL	App'd:
Code: TIA-222-G		Date: 08/31/22	Scale: NTS
Path: J:\Jobs\21091\00 WI\01_BOHVN00190A\05_Structural\Tower\Backup Documentation\Rev (3)\Tnx195-ft Central Lattice Tower.eri			Dwg No. E-7

Feed Line Distribution Chart
0' - 195'

Round | Flat | App In Face | App Out Face | Truss Leg



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Code: TIA-222-G	Date: 08/31/22	Scale: NTS
Path: J:\Jobs\21091\00\WI01_BOHVN00190A\05_Structural\Tower\Backup Documentation\Rev (3)\Tnx195-ft Central Lattice Tower.eri		Dwg No. E-7

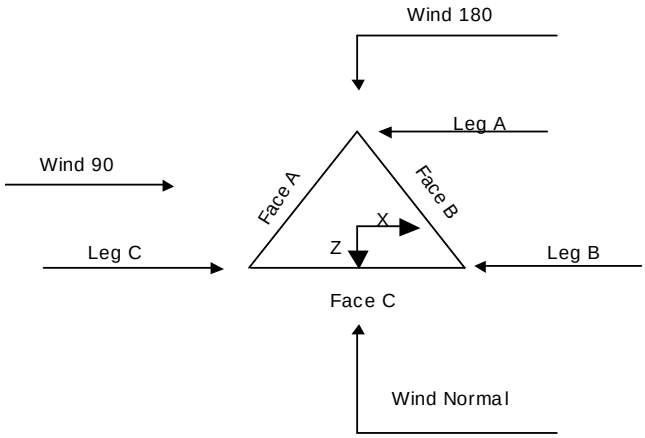
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 23.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 101 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
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		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	195.00-175.00			5.00	1	20.00
T2	175.00-155.00			6.00	1	20.00
T3	155.00-135.00			8.00	1	20.00
T4	135.00-115.00			10.00	1	20.00
T5	115.00-95.00			12.00	1	20.00
T6	95.00-75.00			14.00	1	20.00
T7	75.00-55.00			16.00	1	20.00
T8	55.00-40.00			18.00	1	15.00
T9	40.00-20.00			19.50	1	20.00
T10	20.00-0.00			21.50	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	195.00-175.00	3.33	X Brace	No	Yes	0.0000	0.0000
T2	175.00-155.00	6.67	X Brace	No	No	0.0000	0.0000
T3	155.00-135.00	6.67	X Brace	No	No	0.0000	0.0000
T4	135.00-115.00	6.67	X Brace	No	No	0.0000	0.0000
T5	115.00-95.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T6	95.00-75.00	6.67	X Brace	No	No	0.0000	0.0000
T7	75.00-55.00	6.67	X Brace	No	No	0.0000	0.0000
T8	55.00-40.00	5.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 195.00-175.00	Solid Round	3	A529-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 175.00-155.00	Solid Round	3 3/4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 155.00-135.00	Solid Round	4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T4 135.00-115.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T5 115.00-95.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x3/8	A36 (36 ksi)
T6 95.00-75.00	Solid Round	4 1/2	A529-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T7 75.00-55.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T8 55.00-40.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T9 40.00-20.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x5/16	A36 (36 ksi)
T10 20.00-0.00	Solid Round	5	A529-50 (50 ksi)	Single Angle	L4x4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 195.00-175.00	Solid Round	1 1/4	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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

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
T1 195.00-175.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000	36.0000
T2 175.00-155.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 155.00-135.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 135.00-115.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 115.00-95.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 95.00-75.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 75.00-55.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 55.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
195.00-175.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
175.00-155.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
155.00-135.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
135.00-115.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
115.00-95.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
95.00-75.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
75.00-55.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
55.00-40.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 195.00-175.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 175.00-155.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 155.00-135.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 135.00-115.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 115.00-95.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 95.00-75.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 75.00-55.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 55.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 195.00-175.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 175.00-155.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 155.00-135.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 135.00-115.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 115.00-95.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 95.00-75.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 75.00-55.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 55.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 195.00-175.00	Flange	1.1250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 175.00-155.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 155.00-135.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 135.00-115.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 115.00-95.00	Flange	1.1250 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 95.00-75.00	Flange	1.1250 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 75.00-55.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 55.00-40.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0
T9 40.00-20.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0
T10 20.00-0.00	Flange	1.3750 A449	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	0.0000	-0.38	12	12	1.9800	1.9800		1.04
1 5/8 (AT&T)	A	No	No	Ar (CaAa)	170.00 - 0.00	-10.0000	0.45	6	3	1.9800	1.9800		1.04
1/2 (Sprint)	A	No	No	Ar (CaAa)	80.00 - 0.00	0.0000	-0.39	1	1	0.5800	0.5800		0.25
RG6-Fiber (AT&T)	A	No	No	Ar (CaAa)	173.00 - 0.00	-10.0000	0.42	2	2	0.5000	0.5000		1.00
#8 AWG Copper WIre (AT&T)	A	No	No	Ar (CaAa)	173.00 - 0.00	-10.0000	0.42	4	4	0.2500	0.1285		0.05
HYBRIFLEX 1-5/8" (T-Mobile)	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.35	3	3	1.9800	1.9800		1.90
HYBRIFLEX 1-1/4" (Sprint)	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.42	3	3	1.5400	1.5400		1.30
HYBRIFLEX 1-5/8" (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	2.0000	-0.45	1	1	1.9800	1.9800		1.90
HYBRIFLEX 1-5/8" (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	2.0000	-0.47	1	1	1.9800	1.9800		1.90
HYBRIFLEX 1-5/8" (Dish - Proposed)	A	No	No	Ar (CaAa)	162.00 - 0.00	0.0000	-0.45	1	1	1.9800	1.9800		1.90

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 lb
T1	195.00-175.00	A	0.000	0.000	6.930	0.000	58.50
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	2.970	0.000	28.50
T2	175.00-155.00	A	0.000	0.000	31.171	0.000	224.50
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	11.880	0.000	114.00
T3	155.00-135.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	27.720	0.000	162.80
		C	0.000	0.000	11.880	0.000	114.00
T4	135.00-115.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T5	115.00-95.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T6	95.00-75.00	A	0.000	0.000	40.278	0.000	286.05
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T7	75.00-55.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T8	55.00-40.00	A	0.000	0.000	30.861	0.000	217.35
		B	0.000	0.000	41.580	0.000	244.20
		C	0.000	0.000	8.910	0.000	85.50
T9	40.00-20.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T10	20.00-0.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00

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 lb
T1	195.00-175.00	A	1.782	0.000	0.000	23.188	0.000	328.69
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	9.101	0.000	142.87
T2	175.00-155.00	A	1.762	0.000	0.000	93.464	0.000	1448.51
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	36.271	0.000	566.24
T3	155.00-135.00	A	1.739	0.000	0.000	113.284	0.000	1815.87
		B		0.000	0.000	72.569	0.000	1192.88
		C		0.000	0.000	36.123	0.000	560.42
T4	135.00-115.00	A	1.714	0.000	0.000	112.474	0.000	1793.18
		B		0.000	0.000	144.792	0.000	2358.18
		C		0.000	0.000	35.956	0.000	553.86
T5	115.00-95.00	A	1.684	0.000	0.000	111.538	0.000	1767.15
		B		0.000	0.000	144.392	0.000	2326.44
		C		0.000	0.000	35.764	0.000	546.32

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 lb
T6	95.00-75.00	A	1.649	0.000	0.000	112.365	0.000	1760.19
		B		0.000	0.000	143.916	0.000	2288.86
		C		0.000	0.000	35.535	0.000	537.41
T7	75.00-55.00	A	1.605	0.000	0.000	116.629	0.000	1789.62
		B		0.000	0.000	143.327	0.000	2242.54
		C		0.000	0.000	35.251	0.000	526.45
T8	55.00-40.00	A	1.556	0.000	0.000	86.150	0.000	1307.22
		B		0.000	0.000	106.993	0.000	1642.71
		C		0.000	0.000	26.197	0.000	385.59
T9	40.00-20.00	A	1.486	0.000	0.000	112.384	0.000	1678.43
		B		0.000	0.000	141.715	0.000	2117.22
		C		0.000	0.000	34.478	0.000	496.94
T10	20.00-0.00	A	1.331	0.000	0.000	106.900	0.000	1540.74
		B		0.000	0.000	139.633	0.000	1958.12
		C		0.000	0.000	33.482	0.000	459.78

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	195.00-175.00	-5.0196	2.7976	-5.7700	3.1776
T2	175.00-155.00	-5.5026	-2.8003	-8.4358	-2.8998
T3	155.00-135.00	-5.1726	-12.9800	-7.8182	-14.4786
T4	135.00-115.00	-4.1458	-20.0992	-6.6172	-23.4691
T5	115.00-95.00	-4.8040	-22.5476	-7.7199	-26.7702
T6	95.00-75.00	-5.1375	-23.2653	-8.7493	-28.8584
T7	75.00-55.00	-5.5086	-23.4518	-10.1342	-30.0515
T8	55.00-40.00	-5.1565	-21.9548	-9.9497	-29.7450
T9	40.00-20.00	-6.1404	-25.7220	-11.3513	-34.0639
T10	20.00-0.00	-6.4284	-26.7432	-11.7130	-36.1709

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	7	HYBRIFLEX 1-5/8"	175.00 - 180.00	0.6000	0.5397
T1	8	HYBRIFLEX 1-1/4"	175.00 - 190.00	0.6000	0.5397
T2	2	1 5/8	155.00 - 170.00	0.6000	0.6000
T2	5	RG6-Fiber	155.00 - 173.00	0.6000	0.6000
T2	6	#8 AWG Copper WIre	155.00 - 173.00	0.6000	0.6000
T2	7	HYBRIFLEX 1-5/8"	155.00 - 175.00	0.6000	0.6000
T2	8	HYBRIFLEX 1-1/4"	155.00 - 175.00	0.6000	0.6000
T2	11	HYBRIFLEX 1-5/8"	155.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			162.00		
T3	1	1 5/8	135.00 - 145.00	0.6000	0.6000
T3	2	1 5/8	135.00 - 155.00	0.6000	0.6000
T3	5	RG6-Fiber	135.00 - 155.00	0.6000	0.6000
T3	6	#8 AWG Copper WIre	135.00 - 155.00	0.6000	0.6000
T3	7	HYBRIFLEX 1-5/8"	135.00 - 155.00	0.6000	0.6000
T3	8	HYBRIFLEX 1-1/4"	135.00 - 155.00	0.6000	0.6000
T3	9	HYBRIFLEX 1-5/8"	135.00 - 145.00	0.6000	0.6000
T3	10	HYBRIFLEX 1-5/8"	135.00 - 145.00	0.6000	0.6000
T3	11	HYBRIFLEX 1-5/8"	135.00 - 155.00	1.0000	1.0000
T4	1	1 5/8	115.00 - 135.00	0.6000	0.6000
T4	2	1 5/8	115.00 - 135.00	0.6000	0.6000
T4	5	RG6-Fiber	115.00 - 135.00	0.6000	0.6000
T4	6	#8 AWG Copper WIre	115.00 - 135.00	0.6000	0.6000
T4	7	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	8	HYBRIFLEX 1-1/4"	115.00 - 135.00	0.6000	0.6000
T4	9	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	10	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	11	HYBRIFLEX 1-5/8"	115.00 - 135.00	1.0000	1.0000
T5	1	1 5/8	95.00 - 115.00	0.6000	0.6000
T5	2	1 5/8	95.00 - 115.00	0.6000	0.6000
T5	5	RG6-Fiber	95.00 - 115.00	0.6000	0.6000
T5	6	#8 AWG Copper WIre	95.00 - 115.00	0.6000	0.6000
T5	7	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	8	HYBRIFLEX 1-1/4"	95.00 - 115.00	0.6000	0.6000
T5	9	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	10	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	11	HYBRIFLEX 1-5/8"	95.00 - 115.00	1.0000	1.0000
T6	1	1 5/8	75.00 - 95.00	0.6000	0.6000
T6	2	1 5/8	75.00 - 95.00	0.6000	0.6000
T6	4	1/2	75.00 - 80.00	0.6000	0.6000
T6	5	RG6-Fiber	75.00 - 95.00	0.6000	0.6000
T6	6	#8 AWG Copper WIre	75.00 - 95.00	0.6000	0.6000
T6	7	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	8	HYBRIFLEX 1-1/4"	75.00 - 95.00	0.6000	0.6000
T6	9	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	10	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	11	HYBRIFLEX 1-5/8"	75.00 - 95.00	1.0000	1.0000
T7	1	1 5/8	55.00 - 75.00	0.6000	0.6000
T7	2	1 5/8	55.00 - 75.00	0.6000	0.6000
T7	4	1/2	55.00 - 75.00	0.6000	0.6000
T7	5	RG6-Fiber	55.00 - 75.00	0.6000	0.6000
T7	6	#8 AWG Copper WIre	55.00 - 75.00	0.6000	0.6000
T7	7	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	8	HYBRIFLEX 1-1/4"	55.00 - 75.00	0.6000	0.6000
T7	9	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000
T7	10	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000
T7	11	HYBRIFLEX 1-5/8"	55.00 - 75.00	1.0000	1.0000
T8	1	1 5/8	40.00 - 55.00	0.6000	0.6000
T8	2	1 5/8	40.00 - 55.00	0.6000	0.6000
T8	4	1/2	40.00 - 55.00	0.6000	0.6000
T8	5	RG6-Fiber	40.00 - 55.00	0.6000	0.6000
T8	6	#8 AWG Copper WIre	40.00 - 55.00	0.6000	0.6000
T8	7	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	8	HYBRIFLEX 1-1/4"	40.00 - 55.00	0.6000	0.6000
T8	9	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	10	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	11	HYBRIFLEX 1-5/8"	40.00 - 55.00	1.0000	1.0000
T9	1	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	2	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	4	1/2	20.00 - 40.00	0.6000	0.6000
T9	5	RG6-Fiber	20.00 - 40.00	0.6000	0.6000
T9	6	#8 AWG Copper WIre	20.00 - 40.00	0.6000	0.6000
T9	7	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	8	HYBRIFLEX 1-1/4"	20.00 - 40.00	0.6000	0.6000
T9	9	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	10	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	11	HYBRIFLEX 1-5/8"	20.00 - 40.00	1.0000	1.0000
T10	1	1 5/8	0.00 - 20.00	0.6000	0.6000
T10	2	1 5/8	0.00 - 20.00	0.6000	0.6000
T10	4	1/2	0.00 - 20.00	0.6000	0.6000
T10	5	RG6-Fiber	0.00 - 20.00	0.6000	0.6000
T10	6	#8 AWG Copper WIre	0.00 - 20.00	0.6000	0.6000
T10	7	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	8	HYBRIFLEX 1-1/4"	0.00 - 20.00	0.6000	0.6000
T10	9	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	10	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	11	HYBRIFLEX 1-5/8"	0.00 - 20.00	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 lb
Top Triangular Mount (Sprint)	C	From Face	2.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	75.30 86.60 97.90	75.30 86.60 97.90	2500.00 2875.00 3250.00
APXVSPP18-C-A20 (Sprint)	A	From Face	4.00 -4.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	57.00 106.52 162.12
APXVSPP18-C-A20 (Sprint)	B	From Face	4.00 -4.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	57.00 106.52 162.12
APXVSPP18-C-A20 (Sprint)	C	From Face	4.00 -4.00	0.0000	192.00	No Ice 1/2" Ice	8.02 8.48	5.28 5.74	57.00 106.52

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 lb
			0.00			1" Ice	8.94	6.20	162.12
FD-RRH 2x50 800	A	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH 2x50 800	B	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH 2x50 800	C	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
Notch Filter	A	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
Notch Filter	B	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
Notch Filter	C	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
FD-RRH 4x45 1900	A	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
FD-RRH 4x45 1900	B	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
FD-RRH 4x45 1900	C	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
SitePro VFA12-HD	A	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
SitePro VFA12-HD	B	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
SitePro VFA12-HD	C	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
AIR6419	A	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	A	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6419	B	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	B	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6419	C	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	C	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
4460 B25+B66	A	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38

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 lb
			0.00			1" Ice	2.97	2.34	163.03
4460 B25+B66	B	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4460 B25+B66	C	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4480 B71+B85	A	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4480 B71+B85	B	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4480 B71+B85	C	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
800 10121	A	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	A	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	A	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
800 10121	B	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	B	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	B	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
800 10121	C	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	C	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	C	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
(2) LGP21401 TMA	A	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31
			0.00			1" Ice	1.06	0.54	30.86
(2) LGP21401 TMA	B	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31

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 lb
			0.00			1" Ice	1.06	0.54	30.86
(2) LGP21401 TMA	C	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31
			0.00			1" Ice	1.06	0.54	30.86
DC6-48-60-18-8F Surge	B	From Face	0.50	0.0000	172.00	No Ice	1.91	1.91	20.00
Arrestor			0.50			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
DC6-48-60-18-8F Surge	C	From Face	0.50	0.0000	172.00	No Ice	1.91	1.91	20.00
Arrestor			0.50			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
4478 B14	A	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4478 B14	B	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4478 B14	C	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4449 B5/B12	A	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
4449 B5/B12	B	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
4449 B5/B12	C	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
8843 B2/B66A	A	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
8843 B2/B66A	B	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
8843 B2/B66A	C	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Dish)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Dish)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Dish)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
SitePro SFS-V-L	A	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00

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 lb
			0.00			1" Ice	6.53	6.07	137.00
SitePro SFS-V-L	B	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00
			0.00			1" Ice	6.53	6.07	137.00
SitePro SFS-V-L	C	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00
			0.00			1" Ice	6.53	6.07	137.00
LNX-6513DS-VTM	A	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	A	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
LNX-6513DS-VTM	B	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	B	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
LNX-6513DS-VTM	C	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	C	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
B2/B66A RRH	A	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B2/B66A RRH	B	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B2/B66A RRH	C	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B5/B13 RRH	A	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
B5/B13 RRH	B	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
B5/B13 RRH	C	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
RC2DC-3315-PF-48	A	From Leg	2.00	0.0000	146.00	No Ice	3.01	1.96	25.00
(Verizon)			0.00			1/2" Ice	3.23	2.15	51.21
			0.00			1" Ice	3.46	2.35	80.79
CBC78T-DS-43	A	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
CBC78T-DS-43	B	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
CBC78T-DS-43	C	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
RC2DC-3315-PF-48	B	From Leg	2.00	0.0000	146.00	No Ice	3.01	1.96	25.00
(Verizon)			0.00			1/2" Ice	3.23	2.15	51.21

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 lb
			0.00			1" Ice	3.46	2.35	80.79
GPS	C	From Leg	2.00	0.0000	80.00	No Ice	1.00	1.00	10.00
(Sprint)			0.00			1/2" Ice	1.50	1.50	15.00
			0.00			1" Ice	2.00	2.00	20.00
2-ft Stand Off	C	From Leg	1.00	0.0000	80.00	No Ice	1.07	1.07	20.00
(Sprint)			0.00			1/2" Ice	1.62	1.62	28.00
			0.00			1" Ice	2.17	2.17	36.00
MX08FRO665-21	A	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish - Proposed)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
MX08FRO665-21	B	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish - Proposed)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
MX08FRO665-21	C	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish - Proposed)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
TA08025-B604	A	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish - Proposed)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B604	B	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish - Proposed)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B604	C	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish - Proposed)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B605	A	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish - Proposed)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96
TA08025-B605	B	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish - Proposed)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96
TA08025-B605	C	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish - Proposed)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % 	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	185.00	1.441	32	115.002	A	0.000	18.774	10.004	53.29	6.930	0.000
195.00-175.00					B	0.000	18.774		53.29	0.000	0.000
					C	0.000	18.774		53.29	2.970	0.000
T2	165.00	1.406	31	146.258	A	11.554	12.521	12.521	52.01	31.171	0.000
175.00-155.00					B	11.554	12.521		52.01	0.000	0.000
					C	11.554	12.521		52.01	11.880	0.000
T3	145.00	1.369	30	186.675	A	13.489	13.356	13.356	49.75	39.988	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
155.00-135.00					B	13.489	13.356		49.75	27.720	0.000
					C	13.489	13.356		49.75	11.880	0.000
T4	125.00	1.326	29	227.092	A	18.679	14.190	14.190	43.17	39.988	0.000
135.00-115.00					B	18.679	14.190		43.17	55.440	0.000
					C	18.679	14.190		43.17	11.880	0.000
T5	105.00	1.279	28	267.092	A	21.322	14.190	14.190	39.96	39.988	0.000
115.00-95.00					B	21.322	14.190		39.96	55.440	0.000
					C	21.322	14.190		39.96	11.880	0.000
T6 95.00-75.00	85.00	1.223	27	307.509	A	28.012	15.025	15.025	34.91	40.278	0.000
					B	28.012	15.025		34.91	55.440	0.000
					C	28.012	15.025		34.91	11.880	0.000
T7 75.00-55.00	65.00	1.156	26	347.927	A	35.675	15.860	15.860	30.78	41.148	0.000
					B	35.675	15.860		30.78	55.440	0.000
					C	35.675	15.860		30.78	11.880	0.000
T8 55.00-40.00	47.50	1.082	24	287.195	A	37.993	11.895	11.895	23.84	30.861	0.000
					B	37.993	11.895		23.84	41.580	0.000
					C	37.993	11.895		23.84	8.910	0.000
T9 40.00-20.00	30.00	0.982	22	417.927	A	42.284	15.860	15.860	27.28	41.148	0.000
					B	42.284	15.860		27.28	55.440	0.000
					C	42.284	15.860		27.28	11.880	0.000
T10 20.00-0.00	10.00	0.85	19	458.344	A	46.067	16.694	16.694	26.60	41.148	0.000
					B	46.067	16.694		26.60	55.440	0.000
					C	46.067	16.694		26.60	11.880	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
T1	185.00	1.441	8	1.7822	120.944	A	0.000	55.666	21.890	39.32	23.188	0.000
195.00-175.00						B	0.000	55.666		39.32	0.000	0.000
						C	0.000	55.666		39.32	9.101	0.000
T2	165.00	1.406	8	1.7619	152.138	A	11.554	40.572	24.287	46.59	93.464	0.000
175.00-155.00						B	11.554	40.572		46.59	0.000	0.000
						C	11.554	40.572		46.59	36.271	0.000
T3	145.00	1.369	7	1.7393	192.480	A	13.489	43.739	24.970	43.63	113.284	0.000
155.00-135.00						B	13.489	43.739		43.63	72.569	0.000
						C	13.489	43.739		43.63	36.123	0.000
T4	125.00	1.326	7	1.7137	232.812	A	18.679	46.974	25.634	39.04	112.474	0.000
135.00-115.00						B	18.679	46.974		39.04	144.792	0.000
						C	18.679	46.974		39.04	35.956	0.000
T5 115.00-95.00	105.00	1.279	7	1.6841	272.713	A	21.322	49.375	25.436	35.98	111.538	0.000
						B	21.322	49.375		35.98	144.392	0.000
						C	21.322	49.375		35.98	35.764	0.000
T6 95.00-75.00	85.00	1.223	7	1.6489	313.012	A	28.012	52.429	26.036	32.37	112.365	0.000
						B	28.012	52.429		32.37	143.916	0.000
						C	28.012	52.429		32.37	35.535	0.000
T7 75.00-55.00	65.00	1.156	6	1.6052	353.284	A	35.675	55.211	26.579	29.24	116.629	0.000
						B	35.675	55.211		29.24	143.327	0.000
						C	35.675	55.211		29.24	35.251	0.000
T8 55.00-40.00	47.50	1.082	6	1.5556	291.089	A	37.993	49.237	19.686	22.57	86.150	0.000
						B	37.993	49.237		22.57	106.993	0.000
						C	37.993	49.237		22.57	26.197	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T9 40.00-20.00	30.00	0.982	5	1.4858	422.885	A	42.284	57.194	25.781	25.92	112.384	0.000
						B	42.284	57.194		25.92	141.715	0.000
						C	42.284	57.194		25.92	34.478	0.000
T10 20.00-0.00	10.00	0.85	5	1.3312	462.787	A	46.067	56.246	25.584	25.01	106.900	0.000
						B	46.067	56.246		25.01	139.633	0.000
						C	46.067	56.246		25.01	33.482	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.441	11	115.002	A	0.000	18.774	10.004	53.29	6.930	0.000
195.00-175.00					B	0.000	18.774		53.29	0.000	0.000
					C	0.000	18.774		53.29	2.970	0.000
T2	165.00	1.406	11	146.258	A	11.554	12.521	12.521	52.01	31.171	0.000
175.00-155.00					B	11.554	12.521		52.01	0.000	0.000
					C	11.554	12.521		52.01	11.880	0.000
T3	145.00	1.369	11	186.675	A	13.489	13.356	13.356	49.75	39.988	0.000
155.00-135.00					B	13.489	13.356		49.75	27.720	0.000
					C	13.489	13.356		49.75	11.880	0.000
T4	125.00	1.326	10	227.092	A	18.679	14.190	14.190	43.17	39.988	0.000
135.00-115.00					B	18.679	14.190		43.17	55.440	0.000
					C	18.679	14.190		43.17	11.880	0.000
T5	105.00	1.279	10	267.092	A	21.322	14.190	14.190	39.96	39.988	0.000
115.00-95.00					B	21.322	14.190		39.96	55.440	0.000
					C	21.322	14.190		39.96	11.880	0.000
T6 95.00-75.00	85.00	1.223	10	307.509	A	28.012	15.025	15.025	34.91	40.278	0.000
					B	28.012	15.025		34.91	55.440	0.000
					C	28.012	15.025		34.91	11.880	0.000
T7 75.00-55.00	65.00	1.156	9	347.927	A	35.675	15.860	15.860	30.78	41.148	0.000
					B	35.675	15.860		30.78	55.440	0.000
					C	35.675	15.860		30.78	11.880	0.000
T8 55.00-40.00	47.50	1.082	8	287.195	A	37.993	11.895	11.895	23.84	30.861	0.000
					B	37.993	11.895		23.84	41.580	0.000
					C	37.993	11.895		23.84	8.910	0.000
T9 40.00-20.00	30.00	0.982	8	417.927	A	42.284	15.860	15.860	27.28	41.148	0.000
					B	42.284	15.860		27.28	55.440	0.000
					C	42.284	15.860		27.28	11.880	0.000
T10 20.00-0.00	10.00	0.85	7	458.344	A	46.067	16.694	16.694	26.60	41.148	0.000
					B	46.067	16.694		26.60	55.440	0.000
					C	46.067	16.694		26.60	11.880	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	1	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		1	1	10.683			
			C	0.163	2.723		1	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	1	1	18.377	2025.68	101.28	C
175.00-155.00			B	0.165	2.718		1	1	18.377			
			C	0.165	2.718		1	1	18.377			
T3	561.60	3572.06	A	0.144	2.794	30	1	1	20.594	2760.03	138.00	C
155.00-135.00			B	0.144	2.794		1	1	20.594			
			C	0.144	2.794		1	1	20.594			
T4	724.40	4036.07	A	0.145	2.791	29	1	1	26.109	3474.84	173.74	C
135.00-115.00			B	0.145	2.791		1	1	26.109			
			C	0.145	2.791		1	1	26.109			
T5	724.40	4789.76	A	0.133	2.835	28	1	1	28.771	3559.52	177.98	C
115.00-95.00			B	0.133	2.835		1	1	28.771			
			C	0.133	2.835		1	1	28.771			
T6	725.65	5354.18	A	0.14	2.809	27	1	1	35.815	3847.75	192.39	C
95.00-75.00			B	0.14	2.809		1	1	35.815			
			C	0.14	2.809		1	1	35.815			
T7	729.40	5794.03	A	0.148	2.778	26	1	1	43.858	4111.49	205.57	C
75.00-55.00			B	0.148	2.778		1	1	43.858			
			C	0.148	2.778		1	1	43.858			
T8	547.05	5023.91	A	0.174	2.686	24	1	1	44.281	3449.09	229.94	C
55.00-40.00			B	0.174	2.686		1	1	44.281			
			C	0.174	2.686		1	1	44.281			
T9	729.40	6793.06	A	0.139	2.812	22	1	1	50.690	3877.10	193.86	C
40.00-20.00			B	0.139	2.812		1	1	50.690			
			C	0.139	2.812		1	1	50.690			
T10	729.40	8126.54	A	0.137	2.82	19	1	1	54.975	3555.60	177.78	C
20.00-0.00			B	0.137	2.82		1	1	54.975			
			C	0.137	2.82		1	1	54.975			
Sum Weight:	5896.80	48831.58						OTM	2628715.4 2 lb-ft	31613.34		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.825	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.825	1	10.683			
			C	0.163	2.723		0.825	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.825	1	16.355	1879.84	93.99	C
175.00-155.00			B	0.165	2.718		0.825	1	16.355			
			C	0.165	2.718		0.825	1	16.355			
T3	561.60	3572.06	A	0.144	2.794	30	0.825	1	18.233	2589.70	129.48	C
155.00-135.00			B	0.144	2.794		0.825	1	18.233			
			C	0.144	2.794		0.825	1	18.233			
T4	724.40	4036.07	A	0.145	2.791	29	0.825	1	22.840	3246.51	162.33	C
135.00-115.00			B	0.145	2.791		0.825	1	22.840			
			C	0.145	2.791		0.825	1	22.840			
T5	724.40	4789.76	A	0.133	2.835	28	0.825	1	25.039	3304.29	165.21	C
115.00-95.00			B	0.133	2.835		0.825	1	25.039			
			C	0.133	2.835		0.825	1	25.039			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T6	725.65	5354.18	A	0.14	2.809	27	0.825	1	30.913	3530.01	176.50	C
95.00-75.00			B	0.14	2.809		0.825	1	30.913			
			C	0.14	2.809		0.825	1	30.913			
T7	729.40	5794.03	A	0.148	2.778	26	0.825	1	37.615	3733.19	186.66	C
75.00-55.00			B	0.148	2.778		0.825	1	37.615			
			C	0.148	2.778		0.825	1	37.615			
T8	547.05	5023.91	A	0.174	2.686	24	0.825	1	37.632	3084.48	205.63	C
55.00-40.00			B	0.174	2.686		0.825	1	37.632			
			C	0.174	2.686		0.825	1	37.632			
T9	729.40	6793.06	A	0.139	2.812	22	0.825	1	43.290	3491.48	174.57	C
40.00-20.00			B	0.139	2.812		0.825	1	43.290			
			C	0.139	2.812		0.825	1	43.290			
T10	729.40	8126.54	A	0.137	2.82	19	0.825	1	46.913	3190.98	159.55	C
20.00-0.00			B	0.137	2.82		0.825	1	46.913			
			C	0.137	2.82		0.825	1	46.913			
Sum Weight:	5896.80	48831.58						OTM	2440480.2 7 lb-ft	29002.69		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.8	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.8	1	10.683			
			C	0.163	2.723		0.8	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.8	1	16.066	1859.00	92.95	C
175.00-155.00			B	0.165	2.718		0.8	1	16.066			
			C	0.165	2.718		0.8	1	16.066			
T3	561.60	3572.06	A	0.144	2.794	30	0.8	1	17.896	2565.36	128.27	C
155.00-135.00			B	0.144	2.794		0.8	1	17.896			
			C	0.144	2.794		0.8	1	17.896			
T4	724.40	4036.07	A	0.145	2.791	29	0.8	1	22.373	3213.89	160.69	C
135.00-115.00			B	0.145	2.791		0.8	1	22.373			
			C	0.145	2.791		0.8	1	22.373			
T5	724.40	4789.76	A	0.133	2.835	28	0.8	1	24.506	3267.83	163.39	C
115.00-95.00			B	0.133	2.835		0.8	1	24.506			
			C	0.133	2.835		0.8	1	24.506			
T6	725.65	5354.18	A	0.14	2.809	27	0.8	1	30.213	3484.62	174.23	C
95.00-75.00			B	0.14	2.809		0.8	1	30.213			
			C	0.14	2.809		0.8	1	30.213			
T7	729.40	5794.03	A	0.148	2.778	26	0.8	1	36.723	3679.15	183.96	C
75.00-55.00			B	0.148	2.778		0.8	1	36.723			
			C	0.148	2.778		0.8	1	36.723			
T8	547.05	5023.91	A	0.174	2.686	24	0.8	1	36.682	3032.39	202.16	C
55.00-40.00			B	0.174	2.686		0.8	1	36.682			
			C	0.174	2.686		0.8	1	36.682			
T9	729.40	6793.06	A	0.139	2.812	22	0.8	1	42.233	3436.39	171.82	C
40.00-20.00			B	0.139	2.812		0.8	1	42.233			
			C	0.139	2.812		0.8	1	42.233			
T10	729.40	8126.54	A	0.137	2.82	19	0.8	1	45.762	3138.89	156.94	C
20.00-0.00			B	0.137	2.82		0.8	1	45.762			
			C	0.137	2.82		0.8	1	45.762			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
Sum Weight:	5896.80	48831.58						OTM	2413589.53 lb-ft	28629.75		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.85	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.85	1	10.683			
			C	0.163	2.723		0.85	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.85	1	16.644	1900.67	95.03	C
175.00-155.00			B	0.165	2.718		0.85	1	16.644			
			C	0.165	2.718		0.85	1	16.644			
T3	561.60	3572.06	A	0.144	2.794	30	0.85	1	18.571	2614.03	130.70	C
155.00-135.00			B	0.144	2.794		0.85	1	18.571			
			C	0.144	2.794		0.85	1	18.571			
T4	724.40	4036.07	A	0.145	2.791	29	0.85	1	23.307	3279.13	163.96	C
135.00-115.00			B	0.145	2.791		0.85	1	23.307			
			C	0.145	2.791		0.85	1	23.307			
T5	724.40	4789.76	A	0.133	2.835	28	0.85	1	25.572	3340.75	167.04	C
115.00-95.00			B	0.133	2.835		0.85	1	25.572			
			C	0.133	2.835		0.85	1	25.572			
T6	725.65	5354.18	A	0.14	2.809	27	0.85	1	31.613	3575.40	178.77	C
95.00-75.00			B	0.14	2.809		0.85	1	31.613			
			C	0.14	2.809		0.85	1	31.613			
T7	729.40	5794.03	A	0.148	2.778	26	0.85	1	38.507	3787.24	189.36	C
75.00-55.00			B	0.148	2.778		0.85	1	38.507			
			C	0.148	2.778		0.85	1	38.507			
T8	547.05	5023.91	A	0.174	2.686	24	0.85	1	38.582	3136.56	209.10	C
55.00-40.00			B	0.174	2.686		0.85	1	38.582			
			C	0.174	2.686		0.85	1	38.582			
T9	729.40	6793.06	A	0.139	2.812	22	0.85	1	44.347	3546.57	177.33	C
40.00-20.00			B	0.139	2.812		0.85	1	44.347			
			C	0.139	2.812		0.85	1	44.347			
T10	729.40	8126.54	A	0.137	2.82	19	0.85	1	48.065	3243.07	162.15	C
20.00-0.00			B	0.137	2.82		0.85	1	48.065			
			C	0.137	2.82		0.85	1	48.065			
Sum Weight:	5896.80	48831.58						OTM	2467371.00 lb-ft	29375.64		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	1	1	36.982	598.21	29.91	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
195.00-175.00			B	0.46	1.957		1	1	36.982			
			C	0.46	1.957		1	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	1	1	36.438	1034.85	51.74	C
175.00-155.00			B	0.343	2.189		1	1	36.438			
			C	0.343	2.189		1	1	36.438			
T3	3569.17	6566.06	A	0.297	2.303	7	1	1	39.649	1448.38	72.42	C
155.00-135.00			B	0.297	2.303		1	1	39.649			
			C	0.297	2.303		1	1	39.649			
T4	4705.23	7674.74	A	0.282	2.345	7	1	1	46.559	1775.34	88.77	C
135.00-115.00			B	0.282	2.345		1	1	46.559			
			C	0.282	2.345		1	1	46.559			
T5	4639.91	8731.00	A	0.259	2.41	7	1	1	50.321	1777.18	88.86	C
115.00-95.00			B	0.259	2.41		1	1	50.321			
			C	0.259	2.41		1	1	50.321			
T6	4586.47	10026.74	A	0.257	2.417	7	1	1	58.774	1817.36	90.87	C
95.00-75.00			B	0.257	2.417		1	1	58.774			
			C	0.257	2.417		1	1	58.774			
T7	4558.61	11224.75	A	0.257	2.416	6	1	1	68.073	1847.89	92.39	C
75.00-55.00			B	0.257	2.416		1	1	68.073			
			C	0.257	2.416		1	1	68.073			
T8	3335.52	10352.39	A	0.3	2.297	6	1	1	67.477	1449.18	96.61	C
55.00-40.00			B	0.3	2.297		1	1	67.477			
			C	0.3	2.297		1	1	67.477			
T9	4292.59	12504.55	A	0.235	2.483	5	1	1	75.544	1656.21	82.81	C
40.00-20.00			B	0.235	2.483		1	1	75.544			
			C	0.235	2.483		1	1	75.544			
T10	3958.63	13546.27	A	0.221	2.527	5	1	1	78.605	1455.68	72.78	C
20.00-0.00			B	0.221	2.527		1	1	78.605			
			C	0.221	2.527		1	1	78.605			
Sum Weight:	36132.44	91039.54						OTM	1307621.7 6 lb-ft	14860.28		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.825	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.825	1	36.982			
			C	0.46	1.957		0.825	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.825	1	34.416	1006.07	50.30	C
175.00-155.00			B	0.343	2.189		0.825	1	34.416			
			C	0.343	2.189		0.825	1	34.416			
T3	3569.17	6566.06	A	0.297	2.303	7	0.825	1	37.288	1413.97	70.70	C
155.00-135.00			B	0.297	2.303		0.825	1	37.288			
			C	0.297	2.303		0.825	1	37.288			
T4	4705.23	7674.74	A	0.282	2.345	7	0.825	1	43.290	1728.32	86.42	C
135.00-115.00			B	0.282	2.345		0.825	1	43.290			
			C	0.282	2.345		0.825	1	43.290			
T5	4639.91	8731.00	A	0.259	2.41	7	0.825	1	46.590	1724.01	86.20	C
115.00-95.00			B	0.259	2.41		0.825	1	46.590			
			C	0.259	2.41		0.825	1	46.590			
T6	4586.47	10026.74	A	0.257	2.417	7	0.825	1	53.872	1750.36	87.52	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
95.00-75.00			B	0.257	2.417		0.825	1	53.872			
			C	0.257	2.417		0.825	1	53.872			
T7	4558.61	11224.75	A	0.257	2.416	6	0.825	1	61.830	1767.28	88.36	C
75.00-55.00			B	0.257	2.416		0.825	1	61.830			
			C	0.257	2.416		0.825	1	61.830			
T8	3335.52	10352.39	A	0.3	2.297	6	0.825	1	60.828	1372.78	91.52	C
55.00-40.00			B	0.3	2.297		0.825	1	60.828			
			C	0.3	2.297		0.825	1	60.828			
T9	4292.59	12504.55	A	0.235	2.483	5	0.825	1	68.144	1572.77	78.64	C
40.00-20.00			B	0.235	2.483		0.825	1	68.144			
			C	0.235	2.483		0.825	1	68.144			
T10	3958.63	13546.27	A	0.221	2.527	5	0.825	1	70.543	1375.61	68.78	C
20.00-0.00			B	0.221	2.527		0.825	1	70.543			
			C	0.221	2.527		0.825	1	70.543			
Sum Weight:	36132.44	91039.54						OTM	1268556.4 0 lb-ft	14309.37		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.8	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.8	1	36.982			
			C	0.46	1.957		0.8	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.8	1	34.127	1001.96	50.10	C
175.00-155.00			B	0.343	2.189		0.8	1	34.127			
			C	0.343	2.189		0.8	1	34.127			
T3	3569.17	6566.06	A	0.297	2.303	7	0.8	1	36.951	1409.06	70.45	C
155.00-135.00			B	0.297	2.303		0.8	1	36.951			
			C	0.297	2.303		0.8	1	36.951			
T4	4705.23	7674.74	A	0.282	2.345	7	0.8	1	42.823	1721.60	86.08	C
135.00-115.00			B	0.282	2.345		0.8	1	42.823			
			C	0.282	2.345		0.8	1	42.823			
T5	4639.91	8731.00	A	0.259	2.41	7	0.8	1	46.057	1716.41	85.82	C
115.00-95.00			B	0.259	2.41		0.8	1	46.057			
			C	0.259	2.41		0.8	1	46.057			
T6	4586.47	10026.74	A	0.257	2.417	7	0.8	1	53.172	1740.79	87.04	C
95.00-75.00			B	0.257	2.417		0.8	1	53.172			
			C	0.257	2.417		0.8	1	53.172			
T7	4558.61	11224.75	A	0.257	2.416	6	0.8	1	60.939	1755.76	87.79	C
75.00-55.00			B	0.257	2.416		0.8	1	60.939			
			C	0.257	2.416		0.8	1	60.939			
T8	3335.52	10352.39	A	0.3	2.297	6	0.8	1	59.878	1361.86	90.79	C
55.00-40.00			B	0.3	2.297		0.8	1	59.878			
			C	0.3	2.297		0.8	1	59.878			
T9	4292.59	12504.55	A	0.235	2.483	5	0.8	1	67.087	1560.85	78.04	C
40.00-20.00			B	0.235	2.483		0.8	1	67.087			
			C	0.235	2.483		0.8	1	67.087			
T10	3958.63	13546.27	A	0.221	2.527	5	0.8	1	69.391	1364.17	68.21	C
20.00-0.00			B	0.221	2.527		0.8	1	69.391			
			C	0.221	2.527		0.8	1	69.391			
Sum Weight:	36132.44	91039.54						OTM	1262975.6	14230.67		

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
									3 lb-ft			

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.85	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.85	1	36.982			
			C	0.46	1.957		0.85	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.85	1	34.705	1010.18	50.51	C
175.00-155.00			B	0.343	2.189		0.85	1	34.705			
			C	0.343	2.189		0.85	1	34.705			
T3	3569.17	6566.06	A	0.297	2.303	7	0.85	1	37.625	1418.89	70.94	C
155.00-135.00			B	0.297	2.303		0.85	1	37.625			
			C	0.297	2.303		0.85	1	37.625			
T4	4705.23	7674.74	A	0.282	2.345	7	0.85	1	43.757	1735.04	86.75	C
135.00-115.00			B	0.282	2.345		0.85	1	43.757			
			C	0.282	2.345		0.85	1	43.757			
T5	4639.91	8731.00	A	0.259	2.41	7	0.85	1	47.123	1731.60	86.58	C
115.00-95.00			B	0.259	2.41		0.85	1	47.123			
			C	0.259	2.41		0.85	1	47.123			
T6	4586.47	10026.74	A	0.257	2.417	7	0.85	1	54.573	1759.93	88.00	C
95.00-75.00			B	0.257	2.417		0.85	1	54.573			
			C	0.257	2.417		0.85	1	54.573			
T7	4558.61	11224.75	A	0.257	2.416	6	0.85	1	62.722	1778.80	88.94	C
75.00-55.00			B	0.257	2.416		0.85	1	62.722			
			C	0.257	2.416		0.85	1	62.722			
T8	3335.52	10352.39	A	0.3	2.297	6	0.85	1	61.778	1383.69	92.25	C
55.00-40.00			B	0.3	2.297		0.85	1	61.778			
			C	0.3	2.297		0.85	1	61.778			
T9	4292.59	12504.55	A	0.235	2.483	5	0.85	1	69.201	1584.69	79.23	C
40.00-20.00			B	0.235	2.483		0.85	1	69.201			
			C	0.235	2.483		0.85	1	69.201			
T10	3958.63	13546.27	A	0.221	2.527	5	0.85	1	71.695	1387.05	69.35	C
20.00-0.00			B	0.221	2.527		0.85	1	71.695			
			C	0.221	2.527		0.85	1	71.695			
Sum Weight:	36132.44	91039.54						OTM	1274137.1 6 lb-ft	14388.07		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	1	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		1	1	10.683			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.163	2.723		1	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	1	1	18.680	722.61	36.13	C
175.00-155.00			B	0.165	2.718		1	1	18.680			
			C	0.165	2.718		1	1	18.680			
T3	561.60	3572.06	A	0.144	2.794	11	1	1	21.061	985.92	49.30	C
155.00-135.00			B	0.144	2.794		1	1	21.061			
			C	0.144	2.794		1	1	21.061			
T4	724.40	4036.07	A	0.145	2.791	10	1	1	26.725	1241.48	62.07	C
135.00-115.00			B	0.145	2.791		1	1	26.725			
			C	0.145	2.791		1	1	26.725			
T5	724.40	4789.76	A	0.133	2.835	10	1	1	29.354	1270.27	63.51	C
115.00-95.00			B	0.133	2.835		1	1	29.354			
			C	0.133	2.835		1	1	29.354			
T6	725.65	5354.18	A	0.14	2.809	10	1	1	36.525	1374.13	68.71	C
95.00-75.00			B	0.14	2.809		1	1	36.525			
			C	0.14	2.809		1	1	36.525			
T7	729.40	5794.03	A	0.148	2.778	9	1	1	44.673	1468.39	73.42	C
75.00-55.00			B	0.148	2.778		1	1	44.673			
			C	0.148	2.778		1	1	44.673			
T8	547.05	5023.91	A	0.174	2.686	8	1	1	44.777	1226.81	81.79	C
55.00-40.00			B	0.174	2.686		1	1	44.777			
			C	0.174	2.686		1	1	44.777			
T9	729.40	6793.06	A	0.139	2.812	8	1	1	51.269	1378.90	68.95	C
40.00-20.00			B	0.139	2.812		1	1	51.269			
			C	0.139	2.812		1	1	51.269			
T10	729.40	8126.54	A	0.137	2.82	7	1	1	55.522	1263.52	63.18	C
20.00-0.00			B	0.137	2.82		1	1	55.522			
			C	0.137	2.82		1	1	55.522			
Sum Weight:	5896.80	48831.58						OTM	937441.42 lb-ft	11268.07		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.825	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.825	1	10.683			
			C	0.163	2.723		0.825	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.825	1	16.658	671.14	33.56	C
175.00-155.00			B	0.165	2.718		0.825	1	16.658			
			C	0.165	2.718		0.825	1	16.658			
T3	561.60	3572.06	A	0.144	2.794	11	0.825	1	18.700	925.80	46.29	C
155.00-135.00			B	0.144	2.794		0.825	1	18.700			
			C	0.144	2.794		0.825	1	18.700			
T4	724.40	4036.07	A	0.145	2.791	10	0.825	1	23.456	1160.90	58.04	C
135.00-115.00			B	0.145	2.791		0.825	1	23.456			
			C	0.145	2.791		0.825	1	23.456			
T5	724.40	4789.76	A	0.133	2.835	10	0.825	1	25.623	1180.20	59.01	C
115.00-95.00			B	0.133	2.835		0.825	1	25.623			
			C	0.133	2.835		0.825	1	25.623			
T6	725.65	5354.18	A	0.14	2.809	10	0.825	1	31.623	1262.00	63.10	C
95.00-75.00			B	0.14	2.809		0.825	1	31.623			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.14	2.809		0.825	1	31.623			
T7	729.40	5794.03	A	0.148	2.778	9	0.825	1	38.430	1334.88	66.74	C
75.00-55.00			B	0.148	2.778		0.825	1	38.430			
			C	0.148	2.778		0.825	1	38.430			
T8	547.05	5023.91	A	0.174	2.686	8	0.825	1	38.128	1098.13	73.21	C
55.00-40.00			B	0.174	2.686		0.825	1	38.128			
			C	0.174	2.686		0.825	1	38.128			
T9	729.40	6793.06	A	0.139	2.812	8	0.825	1	43.869	1242.82	62.14	C
40.00-20.00			B	0.139	2.812		0.825	1	43.869			
			C	0.139	2.812		0.825	1	43.869			
T10	729.40	8126.54	A	0.137	2.82	7	0.825	1	47.460	1134.84	56.74	C
20.00-0.00			B	0.137	2.82		0.825	1	47.460			
			C	0.137	2.82		0.825	1	47.460			
Sum Weight:	5896.80	48831.58						OTM	871012.00 lb-ft	10346.76		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.8	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.8	1	10.683			
			C	0.163	2.723		0.8	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.8	1	16.370	663.78	33.19	C
175.00-155.00			B	0.165	2.718		0.8	1	16.370			
			C	0.165	2.718		0.8	1	16.370			
T3	561.60	3572.06	A	0.144	2.794	11	0.8	1	18.363	917.22	45.86	C
155.00-135.00			B	0.144	2.794		0.8	1	18.363			
			C	0.144	2.794		0.8	1	18.363			
T4	724.40	4036.07	A	0.145	2.791	10	0.8	1	22.989	1149.39	57.47	C
135.00-115.00			B	0.145	2.791		0.8	1	22.989			
			C	0.145	2.791		0.8	1	22.989			
T5	724.40	4789.76	A	0.133	2.835	10	0.8	1	25.090	1167.33	58.37	C
115.00-95.00			B	0.133	2.835		0.8	1	25.090			
			C	0.133	2.835		0.8	1	25.090			
T6	725.65	5354.18	A	0.14	2.809	10	0.8	1	30.923	1245.98	62.30	C
95.00-75.00			B	0.14	2.809		0.8	1	30.923			
			C	0.14	2.809		0.8	1	30.923			
T7	729.40	5794.03	A	0.148	2.778	9	0.8	1	37.538	1315.81	65.79	C
75.00-55.00			B	0.148	2.778		0.8	1	37.538			
			C	0.148	2.778		0.8	1	37.538			
T8	547.05	5023.91	A	0.174	2.686	8	0.8	1	37.179	1079.75	71.98	C
55.00-40.00			B	0.174	2.686		0.8	1	37.179			
			C	0.174	2.686		0.8	1	37.179			
T9	729.40	6793.06	A	0.139	2.812	8	0.8	1	42.812	1223.37	61.17	C
40.00-20.00			B	0.139	2.812		0.8	1	42.812			
			C	0.139	2.812		0.8	1	42.812			
T10	729.40	8126.54	A	0.137	2.82	7	0.8	1	46.308	1116.46	55.82	C
20.00-0.00			B	0.137	2.82		0.8	1	46.308			
			C	0.137	2.82		0.8	1	46.308			
Sum Weight:	5896.80	48831.58						OTM	861522.08 lb-ft	10215.14		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.85	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.85	1	10.683			
			C	0.163	2.723		0.85	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.85	1	16.947	678.49	33.92	C
175.00-155.00			B	0.165	2.718		0.85	1	16.947			
			C	0.165	2.718		0.85	1	16.947			
T3	561.60	3572.06	A	0.144	2.794	11	0.85	1	19.037	934.39	46.72	C
155.00-135.00			B	0.144	2.794		0.85	1	19.037			
			C	0.144	2.794		0.85	1	19.037			
T4	724.40	4036.07	A	0.145	2.791	10	0.85	1	23.923	1172.41	58.62	C
135.00-115.00			B	0.145	2.791		0.85	1	23.923			
			C	0.145	2.791		0.85	1	23.923			
T5	724.40	4789.76	A	0.133	2.835	10	0.85	1	26.156	1193.06	59.65	C
115.00-95.00			B	0.133	2.835		0.85	1	26.156			
			C	0.133	2.835		0.85	1	26.156			
T6	725.65	5354.18	A	0.14	2.809	10	0.85	1	32.323	1278.02	63.90	C
95.00-75.00			B	0.14	2.809		0.85	1	32.323			
			C	0.14	2.809		0.85	1	32.323			
T7	729.40	5794.03	A	0.148	2.778	9	0.85	1	39.321	1353.95	67.70	C
75.00-55.00			B	0.148	2.778		0.85	1	39.321			
			C	0.148	2.778		0.85	1	39.321			
T8	547.05	5023.91	A	0.174	2.686	8	0.85	1	39.078	1116.52	74.43	C
55.00-40.00			B	0.174	2.686		0.85	1	39.078			
			C	0.174	2.686		0.85	1	39.078			
T9	729.40	6793.06	A	0.139	2.812	8	0.85	1	44.926	1262.26	63.11	C
40.00-20.00			B	0.139	2.812		0.85	1	44.926			
			C	0.139	2.812		0.85	1	44.926			
T10	729.40	8126.54	A	0.137	2.82	7	0.85	1	48.612	1153.23	57.66	C
20.00-0.00			B	0.137	2.82		0.85	1	48.612			
			C	0.137	2.82		0.85	1	48.612			
Sum Weight:	5896.80	48831.58						OTM	880501.92 lb-ft	10478.37		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	29308.81					
Bracing Weight	19522.77					
Total Member Self-Weight	48831.58			-13056.54	10017.85	
Total Weight	68740.28			-13056.54	10017.85	
Wind 0 deg - No Ice		-9.41	-45657.08	-5033051.35	11391.56	-14150.79
Wind 30 deg - No Ice		21696.12	-37597.59	-4220084.35	-2417324.56	-33435.75
Wind 45 deg - No Ice		30424.10	-30431.78	-3428655.19	-3404459.17	-39960.31

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 60 deg - No Ice		36942.22	-21328.60	-2414301.33	-4149060.12	-43761.63
Wind 90 deg - No Ice		43408.53	9.41	-11682.83	-4847046.31	-42361.62
Wind 120 deg - No Ice		39535.49	22836.69	2498130.53	-4336738.32	-29610.84
Wind 135 deg - No Ice		31492.26	31499.94	3480543.32	-3482460.38	-19948.07
Wind 150 deg - No Ice		21712.41	37607.00	4195344.97	-2419703.89	-8925.86
Wind 180 deg - No Ice		9.41	42673.49	4791812.37	8644.14	14150.79
Wind 210 deg - No Ice		-21696.12	37597.59	4193971.26	2437360.27	33435.75
Wind 225 deg - No Ice		-30424.10	30431.78	3402542.11	3424494.88	39960.31
Wind 240 deg - No Ice		-39526.08	22820.39	2495751.19	4355400.32	43761.63
Wind 270 deg - No Ice		-43408.53	-9.41	-14430.25	4867082.01	42361.62
Wind 300 deg - No Ice		-36951.63	-21344.90	-2416680.66	4170469.53	29610.84
Wind 315 deg - No Ice		-30437.40	-30445.09	-3430597.91	3426437.59	19948.07
Wind 330 deg - No Ice		-21712.41	-37607.00	-4221458.06	2439739.60	8925.86
Member Ice	42207.96					
Total Weight Ice	159423.36			-145399.91	43228.46	
Wind 0 deg - Ice		-2.54	-20304.13	-2374938.30	43599.09	-11270.84
Wind 30 deg - Ice		9912.30	-17173.69	-2047052.97	-1054263.48	-23280.30
Wind 45 deg - Ice		13963.77	-13965.85	-1694036.17	-1505105.18	-27089.10
Wind 60 deg - Ice		17034.83	-9835.07	-1237525.07	-1848387.80	-29051.82
Wind 90 deg - Ice		19829.00	2.54	-145029.28	-2152397.37	-27038.93
Wind 120 deg - Ice		17582.62	10154.26	969690.26	-1887423.12	-17780.98
Wind 135 deg - Ice		14189.96	14192.04	1419545.29	-1521414.12	-11149.72
Wind 150 deg - Ice		9916.70	17176.22	1756623.78	-1054905.43	-3758.63
Wind 180 deg - Ice		2.54	19674.53	2039492.35	42857.83	11270.84
Wind 210 deg - Ice		-9912.30	17173.69	1756253.15	1140720.40	23280.30
Wind 225 deg - Ice		-13963.77	13965.85	1403236.35	1591562.10	27089.10
Wind 240 deg - Ice		-17580.09	10149.87	969048.31	1973509.40	29051.82
Wind 270 deg - Ice		-19829.00	-2.54	-145770.54	2238854.29	27038.93
Wind 300 deg - Ice		-17037.37	-9839.46	-1238167.01	1935215.35	17780.98
Wind 315 deg - Ice		-13967.36	-13969.44	-1694560.32	1592086.25	11149.72
Wind 330 deg - Ice		-9916.70	-17176.22	-2047423.60	1141362.35	3758.63
Total Weight	68740.28			-13056.54	10017.85	
Wind 0 deg - Service		-3.32	-16224.20	-1772526.10	562.22	-4993.91
Wind 30 deg - Service		7712.46	-13365.01	-1484318.39	-861422.90	-11799.70
Wind 45 deg - Service		10815.72	-10818.43	-1203468.30	-1211808.59	-14102.26
Wind 60 deg - Service		13133.73	-7582.76	-843476.77	-1476132.69	-15443.77
Wind 90 deg - Service		15430.67	3.32	9298.33	-1723762.92	-14949.69
Wind 120 deg - Service		14048.91	8114.98	899903.21	-1542365.56	-10449.86
Wind 135 deg - Service		11192.68	11195.39	1248622.53	-1239335.73	-7039.80
Wind 150 deg - Service		7718.21	13368.33	1502430.26	-862262.59	-3150.00
Wind 180 deg - Service		3.32	15171.27	1714233.85	-407.36	4993.91
Wind 210 deg - Service		-7712.46	13365.01	1501945.47	861577.76	11799.70
Wind 225 deg - Service		-10815.72	10818.43	1221095.39	1211963.45	14102.26
Wind 240 deg - Service		-14045.59	8109.23	899063.52	1542035.63	15443.77
Wind 270 deg - Service		-15430.67	-3.32	8328.75	1723917.78	14949.69
Wind 300 deg - Service		-13137.05	-7588.51	-844316.45	1476772.34	10449.86
Wind 315 deg - Service		-10820.41	-10823.12	-1204153.90	1212649.04	7039.80
Wind 330 deg - Service		-7718.21	-13368.33	-1484803.18	862417.45	3150.00

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

Comb. No.	Description
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 45 deg - No Ice
7	0.9 Dead+1.6 Wind 45 deg - No Ice
8	1.2 Dead+1.6 Wind 60 deg - No Ice
9	0.9 Dead+1.6 Wind 60 deg - No Ice
10	1.2 Dead+1.6 Wind 90 deg - No Ice
11	0.9 Dead+1.6 Wind 90 deg - No Ice
12	1.2 Dead+1.6 Wind 120 deg - No Ice
13	0.9 Dead+1.6 Wind 120 deg - No Ice
14	1.2 Dead+1.6 Wind 135 deg - No Ice
15	0.9 Dead+1.6 Wind 135 deg - No Ice
16	1.2 Dead+1.6 Wind 150 deg - No Ice
17	0.9 Dead+1.6 Wind 150 deg - No Ice
18	1.2 Dead+1.6 Wind 180 deg - No Ice
19	0.9 Dead+1.6 Wind 180 deg - No Ice
20	1.2 Dead+1.6 Wind 210 deg - No Ice
21	0.9 Dead+1.6 Wind 210 deg - No Ice
22	1.2 Dead+1.6 Wind 225 deg - No Ice
23	0.9 Dead+1.6 Wind 225 deg - No Ice
24	1.2 Dead+1.6 Wind 240 deg - No Ice
25	0.9 Dead+1.6 Wind 240 deg - No Ice
26	1.2 Dead+1.6 Wind 270 deg - No Ice
27	0.9 Dead+1.6 Wind 270 deg - No Ice
28	1.2 Dead+1.6 Wind 300 deg - No Ice
29	0.9 Dead+1.6 Wind 300 deg - No Ice
30	1.2 Dead+1.6 Wind 315 deg - No Ice
31	0.9 Dead+1.6 Wind 315 deg - No Ice
32	1.2 Dead+1.6 Wind 330 deg - No Ice
33	0.9 Dead+1.6 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service

Comb. No.	Description
66	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	195 - 175	Leg	Max Tension	19	17922.92	-237.92	-0.31
			Max. Compression	24	-23643.46	680.25	-32.51
			Max. Mx	8	10062.32	1064.83	1.80
			Max. My	32	-3041.76	-2.50	-1043.64
			Max. Vy	8	1522.42	-227.04	-108.92
			Max. Vx	12	2279.77	-118.05	-209.75
		Diagonal	Max Tension	10	5096.39	0.00	0.00
			Max. Compression	10	-5166.11	0.00	0.00
			Max. Mx	45	806.04	-15.35	0.93
			Max. My	26	-3566.68	-4.89	-4.61
			Max. Vy	44	-21.89	-15.30	-1.45
			Max. Vx	26	1.51	-4.89	-4.61
		Top Girt	Max Tension	19	348.62	0.00	0.00
			Max. Compression	12	-368.55	0.00	0.00
			Max. Mx	34	-34.16	36.29	0.00
			Max. My	14	70.14	0.00	-0.00
			Max. Vy	34	-29.03	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	269.71	0.00	0.00
			Max. Compression	28	-298.06	0.00	0.00
			Max. Mx	34	-53.58	52.26	0.00
			Max. My	16	-12.81	0.00	-0.00
			Max. Vy	34	-34.84	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
T2	175 - 155	Leg	Max Tension	19	56475.97	-304.82	-19.62
			Max. Compression	24	-67689.99	229.49	-6.23
			Max. Mx	8	23048.79	2060.41	-4.11
			Max. My	32	-6072.94	-55.71	-2001.71
			Max. Vy	18	-951.16	-718.55	-13.27
			Max. Vx	10	895.11	-24.44	624.48
		Diagonal	Max Tension	10	8228.85	0.00	0.00
			Max. Compression	10	-8339.15	0.00	0.00
			Max. Mx	44	898.96	40.24	-5.37
			Max. My	26	-7264.54	1.68	18.63
			Max. Vy	43	37.79	40.19	-5.75
			Max. Vx	26	-4.51	0.00	0.00
T3	155 - 135	Leg	Max Tension	19	102180.92	-842.99	-9.52
			Max. Compression	24	-119421.79	8.97	-64.28
			Max. Mx	28	82835.78	1682.38	-59.44
			Max. My	10	-7614.56	-46.79	-1749.53
			Max. Vy	18	-1185.54	-1032.67	-4.19
			Max. Vx	26	-1150.21	-30.46	-849.91
		Diagonal	Max Tension	10	9326.51	0.00	0.00
			Max. Compression	10	-9383.73	0.00	0.00
			Max. Mx	43	1877.19	66.95	-9.28
			Max. My	10	-8943.64	5.22	-11.78
			Max. Vy	43	53.98	66.95	-9.28
			Max. Vx	50	-3.18	0.00	0.00
T4	135 - 115	Leg	Max Tension	19	147284.10	-183.08	-15.16
			Max. Compression	24	-169149.72	389.20	-82.44
			Max. Mx	13	-165659.67	391.29	56.76
			Max. My	26	-10802.70	-6.27	-412.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	18	119.08	-304.97	-15.79
			Max. Vx	26	177.05	-13.00	-314.44
		Diagonal	Max Tension	4	8815.25	0.00	0.00
			Max. Compression	4	-8922.18	0.00	0.00
			Max. Mx	48	1942.72	97.21	-12.50
			Max. My	46	-5.98	84.21	-13.75
			Max. Vy	48	69.14	97.21	-12.50
			Max. Vx	35	-3.84	0.00	0.00
T5	115 - 95	Leg	Max Tension	19	187121.38	-261.17	-17.46
			Max. Compression	24	-214518.50	240.80	-71.25
			Max. Mx	13	-180632.05	391.29	56.76
			Max. My	26	-11148.45	-6.28	-412.91
			Max. Vy	18	-96.90	-376.93	-24.89
			Max. Vx	10	153.90	-6.56	412.46
		Diagonal	Max Tension	4	9471.86	0.00	0.00
			Max. Compression	4	-9612.55	0.00	0.00
			Max. Mx	48	1882.93	145.57	-18.42
			Max. My	46	-46.25	127.69	-19.85
			Max. Vy	48	91.54	145.57	-18.42
			Max. Vx	46	4.90	0.00	0.00
T6	95 - 75	Leg	Max Tension	29	224159.65	-291.04	-42.92
			Max. Compression	24	-257878.44	236.26	-57.18
			Max. Mx	18	220623.13	-298.30	-28.14
			Max. My	26	-15186.65	-13.78	-378.92
			Max. Vy	18	-99.29	-298.30	-28.14
			Max. Vx	24	-157.77	-164.16	-352.55
		Diagonal	Max Tension	4	10387.36	0.00	0.00
			Max. Compression	4	-10475.67	0.00	0.00
			Max. Mx	48	1917.94	192.76	-24.49
			Max. My	46	-48.64	171.34	-26.39
			Max. Vy	48	109.48	192.76	-24.49
			Max. Vx	46	5.79	0.00	0.00
T7	75 - 55	Leg	Max Tension	29	260026.84	-346.59	-53.30
			Max. Compression	2	-300427.69	80.39	-8.06
			Max. Mx	18	255491.76	-361.79	-20.32
			Max. My	26	-18030.64	-42.69	-479.62
			Max. Vy	18	-120.62	-361.79	-20.32
			Max. Vx	26	-187.88	-42.70	-479.61
		Diagonal	Max Tension	4	11424.25	0.00	0.00
			Max. Compression	4	-11556.73	0.00	0.00
			Max. Mx	48	1876.66	245.60	-31.14
			Max. My	46	-779.80	239.08	-33.36
			Max. Vy	48	125.25	245.59	27.53
			Max. Vx	46	6.56	0.00	0.00
T8	55 - 40	Leg	Max Tension	29	287823.14	-129.50	-4.66
			Max. Compression	2	-334488.72	746.90	47.38
			Max. Mx	43	35376.07	-760.03	-22.59
			Max. My	26	-21359.22	-14.50	-714.84
			Max. Vy	43	252.47	-760.03	-22.59
			Max. Vx	10	-197.35	-14.88	714.73
		Diagonal	Max Tension	20	11970.87	0.00	0.00
			Max. Compression	20	-12091.27	0.00	0.00
			Max. Mx	48	1665.40	257.35	-31.87
			Max. My	38	-2405.87	228.43	35.23
			Max. Vy	48	130.18	249.47	-32.39
			Max. Vx	38	6.64	0.00	0.00
T9	40 - 20	Leg	Max Tension	29	320978.80	-333.67	-36.42
			Max. Compression	2	-375677.13	390.03	24.13
			Max. Mx	40	-142707.69	2053.23	18.41
			Max. My	26	-21770.10	-14.51	-714.84
			Max. Vy	43	-504.14	-1302.50	-8.02

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	26	181.00	-32.97	-671.86
		Diagonal	Max Tension	20	13207.88	0.00	0.00
			Max. Compression	20	-13416.99	0.00	0.00
			Max. Mx	48	805.56	397.23	-45.92
			Max. My	38	-4245.57	363.93	48.75
			Max. Vy	48	157.56	397.23	-45.92
			Max. Vx	38	-8.04	0.00	0.00
T10	20 - 0	Leg	Max Tension	29	354136.59	-336.37	-41.53
			Max. Compression	2	-418166.47	-0.00	-0.03
			Max. Mx	40	-153047.28	3339.62	4.99
			Max. My	26	-26891.17	-57.23	-778.11
			Max. Vy	43	-964.84	-3054.06	-4.79
			Max. Vx	26	-217.78	-57.24	-778.11
		Diagonal	Max Tension	20	14127.74	0.00	0.00
			Max. Compression	20	-14404.70	0.00	0.00
			Max. Mx	48	-928.96	533.44	-56.82
			Max. My	38	-7135.97	514.67	60.44
			Max. Vy	48	176.26	533.44	-56.82
			Max. Vx	38	-9.06	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	24	423658.36	37843.52	-23799.33
	Max. H_x	24	423658.36	37843.52	-23799.33
	Max. H_z	7	-347113.80	-30936.35	21414.19
	Min. Vert	9	-357971.85	-32498.85	20788.01
	Min. H_x	9	-357971.85	-32498.85	20788.01
	Min. H_z	24	423658.36	37843.52	-23799.33
Leg B	Max. Vert	12	422819.34	-38118.58	-23322.41
	Max. H_x	29	-358928.52	32804.85	20314.06
	Max. H_z	31	-348092.93	31357.50	20733.61
	Min. Vert	29	-358928.52	32804.85	20314.06
	Min. H_x	12	422819.34	-38118.58	-23322.41
	Min. H_z	12	422819.34	-38118.58	-23322.41
Leg A	Max. Vert	2	424486.32	-550.67	44698.91
	Max. H_x	27	21311.11	7280.61	1601.61
	Max. H_z	2	424486.32	-550.67	44698.91
	Min. Vert	19	-357677.50	563.51	-38547.18
	Min. H_x	11	21095.04	-7294.57	1583.48
	Min. H_z	19	-357677.50	563.51	-38547.18

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	68740.28	0.00	0.00	-13057.16	10017.89	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	82488.33	-15.05	-73051.34	-8079384.64	14313.00	-22689.46
0.9 Dead+1.6 Wind 0 deg - No	61866.25	-15.05	-73051.34	-8067485.59	11287.43	-22677.68

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Ice						
1.2 Dead+1.6 Wind 30 deg - No Ice	82488.33	34713.79	-60156.15	-6773732.79	-3887091.12	-53534.63
0.9 Dead+1.6 Wind 30 deg - No Ice	61866.25	34713.79	-60156.15	-6763079.66	-3886221.18	-53524.39
1.2 Dead+1.6 Wind 45 deg - No Ice	82488.33	48678.56	-48690.85	-5502462.45	-5472829.59	-63958.37
0.9 Dead+1.6 Wind 45 deg - No Ice	61866.25	48678.56	-48690.85	-5493066.81	-5470369.51	-63953.59
1.2 Dead+1.6 Wind 60 deg - No Ice	82488.33	59107.55	-34125.76	-3873066.77	-6668993.91	-70031.97
0.9 Dead+1.6 Wind 60 deg - No Ice	61866.25	59107.55	-34125.76	-3865293.10	-6665329.50	-70026.99
1.2 Dead+1.6 Wind 90 deg - No Ice	82488.33	69453.65	15.05	-13543.82	-7790196.51	-67783.03
0.9 Dead+1.6 Wind 90 deg - No Ice	61866.25	69453.65	15.05	-9625.51	-7785430.64	-67754.33
1.2 Dead+1.6 Wind 120 deg - No Ice	82488.33	63256.79	36538.71	4018063.13	-6970265.99	-47360.69
0.9 Dead+1.6 Wind 120 deg - No Ice	61866.25	63256.79	36538.71	4017984.61	-6966370.49	-47365.74
1.2 Dead+1.6 Wind 135 deg - No Ice	82488.33	50387.63	50399.91	5596226.17	-5598093.37	-31891.97
0.9 Dead+1.6 Wind 135 deg - No Ice	61866.25	50387.62	50399.91	5594575.93	-5595540.26	-31910.98
1.2 Dead+1.6 Wind 150 deg - No Ice	82488.33	34739.86	60171.21	6744576.12	-3890975.47	-14240.06
0.9 Dead+1.6 Wind 150 deg - No Ice	61866.25	34739.86	60171.21	6741747.93	-3890103.58	-14251.95
1.2 Dead+1.6 Wind 180 deg - No Ice	82488.33	15.05	68277.60	7702806.29	9896.07	22682.53
0.9 Dead+1.6 Wind 180 deg - No Ice	61866.25	15.05	68277.60	7699000.56	6875.48	22671.56
1.2 Dead+1.6 Wind 210 deg - No Ice	82488.33	-34713.78	60156.15	6742338.11	3911336.44	53534.74
0.9 Dead+1.6 Wind 210 deg - No Ice	61866.25	-34713.79	60156.15	6739511.11	3904424.53	53524.49
1.2 Dead+1.6 Wind 225 deg - No Ice	82488.33	-48678.56	48690.85	5471010.41	5497072.76	63974.44
0.9 Dead+1.6 Wind 225 deg - No Ice	61867.10	-48677.87	48691.55	5469442.41	5488569.57	63967.55
1.2 Dead+1.6 Wind 240 deg - No Ice	82489.28	-63241.20	36513.27	4014205.02	6992203.07	70040.04
0.9 Dead+1.6 Wind 240 deg - No Ice	61866.25	-63241.73	36512.63	4014139.94	6982263.72	70044.39
1.2 Dead+1.6 Wind 270 deg - No Ice	82488.33	-69453.65	-15.06	-17941.62	7814320.65	67782.87
0.9 Dead+1.6 Wind 270 deg - No Ice	61866.25	-69453.65	-15.06	-14022.79	7803508.29	67754.25
1.2 Dead+1.6 Wind 300 deg - No Ice	82488.33	-59122.61	-34151.84	-3876839.27	6695346.69	47349.25
0.9 Dead+1.6 Wind 300 deg - No Ice	61866.25	-59122.61	-34151.84	-3869065.02	6685633.40	47355.27
1.2 Dead+1.6 Wind 315 deg - No Ice	82488.33	-48699.85	-48712.14	-5505530.47	5500118.09	31880.10
0.9 Dead+1.6 Wind 315 deg - No Ice	61866.25	-48699.85	-48712.14	-5496134.31	5491608.16	31890.92
1.2 Dead+1.6 Wind 330 deg - No Ice	82488.33	-34739.86	-60171.20	-6775898.72	3915103.54	14239.85
0.9 Dead+1.6 Wind 330 deg - No Ice	61866.25	-34739.86	-60171.20	-6765242.98	3908183.09	14251.79

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Ice+1.0 Temp	173171.41	0.00	0.00	-148368.91	45363.52	-1.04
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	173171.41	-2.54	-20304.13	-2396227.22	45935.69	-11314.33
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	173171.41	9912.30	-17173.68	-2065693.88	-1060747.92	-23370.95
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	173171.41	13963.77	-13965.84	-1709867.65	-1515207.67	-27195.11
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	173171.41	17034.83	-9835.06	-1249709.67	-1861253.93	-29164.06
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	173171.41	19828.99	2.54	-148462.90	-2167680.30	-27144.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	173171.41	17582.62	10154.26	975150.22	-1900519.66	-17852.60
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	173171.41	14189.96	14192.03	1428619.56	-1531602.92	-11195.91
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	173171.41	9916.70	17176.22	1768424.16	-1061369.68	-3777.50
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	173171.41	2.54	19674.52	2053583.08	45203.39	11310.81
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	173171.41	-9912.30	17173.68	1768058.15	1151869.98	23369.47
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	173171.41	-13963.77	13965.84	1412223.45	1606330.35	27193.24
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	173171.41	-17580.08	10149.87	974518.53	1991271.17	29166.27
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	173171.41	-19828.99	-2.54	-149182.82	2258785.52	27143.95
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	173171.41	-17037.37	-9839.46	-1250327.88	1952717.95	17850.66
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	173171.41	-13967.36	-13969.43	-1710369.79	1606823.02	11194.74
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	173171.41	-9916.69	-17176.22	-2066048.10	1152476.94	3775.40
Dead+Wind 0 deg - Service	68740.28	-3.32	-16224.20	-1800261.13	10534.85	-5002.45
Dead+Wind 30 deg - Service	68740.28	7712.46	-13365.01	-1511142.53	-854311.80	-11803.41
Dead+Wind 45 deg - Service	68740.28	10815.72	-10818.43	-1229366.61	-1205867.25	-14105.29
Dead+Wind 60 deg - Service	68740.28	13133.73	-7582.76	-868182.77	-1471077.90	-15445.80
Dead+Wind 90 deg - Service	68740.28	15430.67	3.32	-12576.83	-1719519.74	-14949.52
Dead+Wind 120 deg - Service	68740.28	14048.91	8114.98	880969.73	-1537483.17	-10445.93
Dead+Wind 135 deg - Service	68740.28	11192.68	11195.39	1230852.97	-1233466.41	-7032.02
Dead+Wind 150 deg - Service	68740.28	7718.21	13368.33	1485522.51	-855155.62	-3141.56
Dead+Wind 180 deg - Service	68740.28	3.32	15171.27	1698042.14	9561.32	5001.79
Dead+Wind 210 deg - Service	68740.28	-7712.46	13365.01	1485033.44	874410.94	11803.40
Dead+Wind 225 deg - Service	68740.28	-10815.72	10818.43	1203254.58	1225964.59	14107.29
Dead+Wind 240 deg - Service	68740.28	-14045.59	8109.23	880128.27	1557090.19	15448.50
Dead+Wind 270 deg - Service	68740.28	-15430.67	-3.32	-13546.82	1739612.37	14949.49
Dead+Wind 300 deg - Service	68740.28	-13137.05	-7588.51	-869021.57	1491657.62	10445.19
Dead+Wind 315 deg - Service	68740.28	-10820.41	-10823.12	-1230050.39	1226649.74	7032.43
Dead+Wind 330 deg - Service	68740.28	-7718.21	-13368.33	-1511624.79	875253.55	3141.58

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-68740.28	0.00	-0.00	68740.28	-0.00	0.000%
2	-15.05	-82488.33	-73051.33	15.05	82488.33	73051.34	0.000%
3	-15.05	-61866.25	-73051.33	15.05	61866.25	73051.34	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
4	34713.78	-82488.33	-60156.15	-34713.79	82488.33	60156.15	0.000%
5	34713.78	-61866.25	-60156.15	-34713.79	61866.25	60156.15	0.000%
6	48678.55	-82488.33	-48690.85	-48678.56	82488.33	48690.85	0.000%
7	48678.55	-61866.25	-48690.85	-48678.56	61866.25	48690.85	0.000%
8	59107.55	-82488.33	-34125.76	-59107.55	82488.33	34125.76	0.000%
9	59107.55	-61866.25	-34125.76	-59107.55	61866.25	34125.76	0.000%
10	69453.64	-82488.33	15.05	-69453.65	82488.33	-15.05	0.000%
11	69453.64	-61866.25	15.05	-69453.65	61866.25	-15.05	0.000%
12	63256.78	-82488.33	36538.70	-63256.79	82488.33	-36538.71	0.000%
13	63256.78	-61866.25	36538.70	-63256.79	61866.25	-36538.71	0.000%
14	50387.62	-82488.33	50399.91	-50387.63	82488.33	-50399.91	0.000%
15	50387.62	-61866.25	50399.91	-50387.62	61866.25	-50399.91	0.000%
16	34739.86	-82488.33	60171.20	-34739.86	82488.33	-60171.21	0.000%
17	34739.86	-61866.25	60171.20	-34739.86	61866.25	-60171.21	0.000%
18	15.05	-82488.33	68277.59	-15.05	82488.33	-68277.60	0.000%
19	15.05	-61866.25	68277.59	-15.05	61866.25	-68277.60	0.000%
20	-34713.78	-82488.33	60156.15	34713.78	82488.33	-60156.15	0.000%
21	-34713.78	-61866.25	60156.15	34713.79	61866.25	-60156.15	0.000%
22	-48678.55	-82488.33	48690.85	48678.56	82488.33	-48690.85	0.000%
23	-48678.55	-61866.25	48690.85	48677.87	61867.10	-48691.55	0.001%
24	-63241.73	-82488.33	36512.63	63241.20	82489.28	-36513.27	0.001%
25	-63241.73	-61866.25	36512.63	63241.73	61866.25	-36512.63	0.000%
26	-69453.64	-82488.33	-15.05	69453.65	82488.33	15.06	0.000%
27	-69453.64	-61866.25	-15.05	69453.65	61866.25	15.06	0.000%
28	-59122.60	-82488.33	-34151.83	59122.61	82488.33	34151.84	0.000%
29	-59122.60	-61866.25	-34151.83	59122.61	61866.25	34151.84	0.000%
30	-48699.84	-82488.33	-48712.14	48699.85	82488.33	48712.14	0.000%
31	-48699.84	-61866.25	-48712.14	48699.85	61866.25	48712.14	0.000%
32	-34739.86	-82488.33	-60171.20	34739.86	82488.33	60171.20	0.000%
33	-34739.86	-61866.25	-60171.20	34739.86	61866.25	60171.20	0.000%
34	0.00	-173171.41	0.00	-0.00	173171.41	-0.00	0.000%
35	-2.54	-173171.41	-20304.13	2.54	173171.41	20304.13	0.000%
36	9912.30	-173171.41	-17173.69	-9912.30	173171.41	17173.68	0.000%
37	13963.77	-173171.41	-13965.85	-13963.77	173171.41	13965.84	0.000%
38	17034.83	-173171.41	-9835.07	-17034.83	173171.41	9835.06	0.000%
39	19829.00	-173171.41	2.54	-19828.99	173171.41	-2.54	0.000%
40	17582.62	-173171.41	10154.26	-17582.62	173171.41	-10154.26	0.000%
41	14189.96	-173171.41	14192.04	-14189.96	173171.41	-14192.03	0.000%
42	9916.70	-173171.41	17176.22	-9916.70	173171.41	-17176.22	0.000%
43	2.54	-173171.41	19674.53	-2.54	173171.41	-19674.52	0.000%
44	-9912.30	-173171.41	17173.69	9912.30	173171.41	-17173.68	0.000%
45	-13963.77	-173171.41	13965.85	13963.77	173171.41	-13965.84	0.000%
46	-17580.09	-173171.41	10149.87	17580.08	173171.41	-10149.87	0.000%
47	-19829.00	-173171.41	-2.54	19828.99	173171.41	2.54	0.000%
48	-17037.37	-173171.41	-9839.46	17037.37	173171.41	9839.46	0.000%
49	-13967.36	-173171.41	-13969.44	13967.36	173171.41	13969.43	0.000%
50	-9916.70	-173171.41	-17176.22	9916.69	173171.41	17176.22	0.000%
51	-3.32	-68740.28	-16224.20	3.32	68740.28	16224.20	0.000%
52	7712.46	-68740.28	-13365.01	-7712.46	68740.28	13365.01	0.000%
53	10815.72	-68740.28	-10818.43	-10815.72	68740.28	10818.43	0.000%
54	13133.73	-68740.28	-7582.76	-13133.73	68740.28	7582.76	0.000%
55	15430.67	-68740.28	3.32	-15430.67	68740.28	-3.32	0.000%
56	14048.91	-68740.28	8114.98	-14048.91	68740.28	-8114.98	0.000%
57	11192.68	-68740.28	11195.39	-11192.68	68740.28	-11195.39	0.000%
58	7718.21	-68740.28	13368.33	-7718.21	68740.28	-13368.33	0.000%
59	3.32	-68740.28	15171.27	-3.32	68740.28	-15171.27	0.000%
60	-7712.46	-68740.28	13365.01	7712.46	68740.28	-13365.01	0.000%
61	-10815.72	-68740.28	10818.43	10815.72	68740.28	-10818.43	0.000%
62	-14045.59	-68740.28	8109.23	14045.59	68740.28	-8109.23	0.000%
63	-15430.67	-68740.28	-3.32	15430.67	68740.28	3.32	0.000%
64	-13137.05	-68740.28	-7588.51	13137.05	68740.28	7588.51	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
65	-10820.41	-68740.28	-10823.12	10820.41	68740.28	10823.12	0.000%
66	-7718.21	-68740.28	-13368.33	7718.21	68740.28	13368.33	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000050
5	Yes	4	0.00000001	0.00000048
6	Yes	4	0.00000001	0.00000054
7	Yes	4	0.00000001	0.00000049
8	Yes	4	0.00000001	0.00000054
9	Yes	4	0.00000001	0.00000048
10	Yes	4	0.00000001	0.00000054
11	Yes	4	0.00000001	0.00000051
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000047
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000049
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000050
21	Yes	4	0.00000001	0.00000048
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000130
24	Yes	4	0.00000001	0.00000135
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000054
27	Yes	4	0.00000001	0.00000051
28	Yes	4	0.00000001	0.00000051
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000051
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000048
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000135
36	Yes	4	0.00000001	0.00000140
37	Yes	4	0.00000001	0.00000143
38	Yes	4	0.00000001	0.00000144
39	Yes	4	0.00000001	0.00000141
40	Yes	4	0.00000001	0.00000173
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000141
44	Yes	4	0.00000001	0.00000138
45	Yes	4	0.00000001	0.00000137
46	Yes	4	0.00000001	0.00000138
47	Yes	4	0.00000001	0.00000143
48	Yes	4	0.00000001	0.00000146
49	Yes	4	0.00000001	0.00000144

50	Yes	4	0.00000001	0.00000141
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00000001
53	Yes	4	0.00000001	0.00000001
54	Yes	4	0.00000001	0.00000001
55	Yes	4	0.00000001	0.00000001
56	Yes	4	0.00000001	0.00000001
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00000001
59	Yes	4	0.00000001	0.00000001
60	Yes	4	0.00000001	0.00000001
61	Yes	4	0.00000001	0.00000001
62	Yes	4	0.00000001	0.00000001
63	Yes	4	0.00000001	0.00000001
64	Yes	4	0.00000001	0.00000001
65	Yes	4	0.00000001	0.00000001
66	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	2.804	62	0.1131	0.0181
T2	175 - 155	2.329	62	0.1089	0.0100
T3	155 - 135	1.861	62	0.1014	0.0135
T4	135 - 115	1.439	62	0.0898	0.0160
T5	115 - 95	1.066	51	0.0769	0.0160
T6	95 - 75	0.756	51	0.0621	0.0148
T7	75 - 55	0.502	51	0.0483	0.0126
T8	55 - 40	0.297	51	0.0356	0.0095
T9	40 - 20	0.169	51	0.0259	0.0062
T10	20 - 0	0.056	51	0.0124	0.0030

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	Top Triangular Mount	62	2.733	0.1126	0.0166	667194
180.00	SitePro VFA12-HD	62	2.448	0.1102	0.0118	222398
172.00	Pirod 12' T-Frame Sector Mount (1)	62	2.257	0.1081	0.0098	315869
162.00	MX08FRO665-21	62	2.021	0.1045	0.0112	117908
160.00	Pirod 12' T-Frame Sector Mount (1)	62	1.975	0.1037	0.0117	102680
146.00	Pirod 12' T-Frame Sector Mount (1)	62	1.664	0.0965	0.0157	92975
80.00	GPS	51	0.560	0.0516	0.0132	88831

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	12.593	24	0.5008	0.0821
T2	175 - 155	10.481	24	0.4867	0.0453
T3	155 - 135	8.379	24	0.4549	0.0613
T4	135 - 115	6.483	2	0.4038	0.0726
T5	115 - 95	4.800	2	0.3461	0.0726
T6	95 - 75	3.401	2	0.2797	0.0669
T7	75 - 55	2.257	2	0.2174	0.0571
T8	55 - 40	1.336	2	0.1599	0.0432
T9	40 - 20	0.759	2	0.1165	0.0282
T10	20 - 0	0.253	2	0.0558	0.0135

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	Top Triangular Mount	24	12.277	0.4992	0.0753	239162
180.00	SitePro VFA12-HD	24	11.012	0.4914	0.0537	79721
172.00	Pirod 12' T-Frame Sector Mount (1)	24	10.161	0.4834	0.0445	180450
162.00	MX08FRO665-21	24	9.100	0.4686	0.0508	29075
160.00	Pirod 12' T-Frame Sector Mount (1)	24	8.891	0.4650	0.0531	24348
146.00	Pirod 12' T-Frame Sector Mount (1)	24	7.497	0.4334	0.0714	20986
80.00	GPS	2	2.521	0.2324	0.0598	19728

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	195	Leg	A325N	1.1250	4	4480.73	67096.30	0.067 ✔	1	Bolt Tension
T2	175	Leg	A325N	1.1250	6	9412.66	67096.30	0.140 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	8228.84	11092.50	0.742 ✔	1	Member Bearing
T3	155	Leg	A325N	1.1250	6	17030.20	67096.30	0.254 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	9326.51	18487.50	0.504 ✔	1	Member Bearing
T4	135	Leg	A325N	1.1250	6	24547.30	67096.30	0.366 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	8815.25	14790.00	0.596 ✔	1	Member Bearing
T5	115	Leg	A325N	1.1250	8	23390.20	67096.30	0.349 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9471.86	25447.50	0.372 ✔	1	Member Bearing
T6	95	Leg	A325N	1.1250	8	28020.00	67096.30	0.418 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10387.40	21206.30	0.490 ✔	1	Member Bearing
T7	75	Leg	A325N	1.2500	8	32503.40	82835.00	0.392 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11424.30	16965.00	0.673 ✔	1	Member Bearing
T8	55	Leg	A325N	1.2500	8	35977.90	82835.00	0.434 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11970.90	16965.00	0.706 ✔	1	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T9	40	Leg	A325N	1.2500	8	40122.40	82835.00	0.484 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	13207.90	21206.30	0.623 ✔	1	Member Bearing
T10	20	Leg	A449	1.3750	8	44267.10	87701.50	0.505 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	14127.70	25447.50	0.555 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4 K=1.00	7.0686	-23643.50	258313.00	0.092 [1] ✔
T2	175 - 155	3 3/4	20.03	6.68	85.5 K=1.00	11.0447	-67690.00	291317.00	0.232 [1] ✔
T3	155 - 135	4	20.03	6.68	80.1 K=1.00	12.5664	-119422.00	353604.00	0.338 [1] ✔
T4	135 - 115	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-169150.00	421170.00	0.402 [1] ✔
T5	115 - 95	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-214519.00	421170.00	0.509 [1] ✔
T6	95 - 75	4 1/2	20.03	6.68	71.2 K=1.00	15.9043	-257878.00	493875.00	0.522 [1] ✔
T7	75 - 55	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-300428.00	571599.00	0.526 [1] ✔
T8	55 - 40	4 3/4	15.03	5.01	50.6 K=1.00	17.7205	-334489.00	661231.00	0.506 [1] ✔
T9	40 - 20	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-375677.00	571599.00	0.657 [1] ✔
T10	20 - 0	5	20.03	6.68	64.1 K=1.00	19.6350	-418166.00	654248.00	0.639 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	114.0 K=0.90	1.2272	-5166.11	20048.60	0.258 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	119.9 K=1.00	0.9020	-8339.15	13713.70	0.608 [1] ✔
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	140.4 K=1.00	1.4600	-9383.73	16733.60	0.561 [1] ✔
T4	135 - 115	L3x3x1/4	13.44	6.56	132.9 K=1.00	1.4400	-8922.18	18412.40	0.485 [1] ✔
T5	115 - 95	L3x3x3/8	15.21	7.43	151.8 K=1.00	2.1100	-9612.55	20687.10	0.465 [1] ✔
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	144.8 K=1.00	2.0900	-10475.70	22528.10	0.465 [1] ✔
T7	75 - 55	L4x4x1/4	18.88	9.24	139.5 K=1.00	1.9400	-11556.70	22521.80	0.513 [1] ✔
T8	55 - 40	L4x4x1/4	19.89	9.70	146.5 K=1.00	1.9400	-12091.30	20433.10	0.592 [1] ✔
T9	40 - 20	L4x4x5/16	22.19	10.90	165.3 K=1.00	2.4000	-13417.00	19839.90	0.676 [1] ✔
T10	20 - 0	L4x4x3/8	24.11	11.84	180.4 K=1.00	2.8600	-14404.70	19861.70	0.725 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	127.7 K=0.70	1.2272	-368.55	16855.20	0.022 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	154.6 K=0.70	1.2272	-1173.89	11605.30	0.101 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4	7.0686	17922.90	318086.00	0.056 [1] ✔
T2	175 - 155	3 3/4	20.03	6.68	85.5	11.0447	56476.00	497010.00	0.114 [1] ✔
T3	155 - 135	4	20.03	6.68	80.1	12.5664	102181.00	565487.00	0.181 [1] ✔
T4	135 - 115	4 1/4	20.03	6.68	75.4	14.1863	147284.00	638381.00	0.231 [1] ✔
T5	115 - 95	4 1/4	20.03	6.68	75.4	14.1863	187121.00	638381.00	0.293 [1] ✔
T6	95 - 75	4 1/2	20.03	6.68	71.2	15.9043	224160.00	715694.00	0.313 [1] ✔
T7	75 - 55	4 3/4	20.03	6.68	67.5	17.7205	260027.00	797425.00	0.326 [1] ✔
T8	55 - 40	4 3/4	15.03	5.01	50.6	17.7205	287823.00	797425.00	0.361 [1] ✔
T9	40 - 20	4 3/4	20.03	6.68	67.5	17.7205	320979.00	797425.00	0.403 [1] ✔
T10	20 - 0	5	20.03	6.68	64.1	19.6350	354137.00	883573.00	0.401 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	126.7	1.2272	5096.39	39760.80	0.128 [1] ✔
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	78.6	0.9020	8228.84	29224.80	0.282 [1] ✔
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	92.6	1.4600	9326.51	47304.00	0.197 [1] ✔
T4	135 - 115	L3x3x1/4	13.44	6.56	86.5	1.4400	8815.25	46656.00	0.189 [1] ✔
T5	115 - 95	L3x3x3/8	15.21	7.43	99.8	2.1100	9471.86	68364.00	0.139 [1] ✔
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	94.3	2.0900	10387.40	67716.00	0.153 [1] ✔
T7	75 - 55	L4x4x1/4	18.88	9.24	90.3	1.9400	11424.30	62856.00	0.182 [1] ✔
T8	55 - 40	L4x4x1/4	19.89	9.70	94.7	1.9400	11970.90	62856.00	0.190 [1] ✔
T9	40 - 20	L4x4x5/16	22.19	10.90	107.1	2.4000	13207.90	77760.00	0.170 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	L4x4x3/8	24.11	11.84	117.2	2.8600	14127.70	92664.00	0.152 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	182.4	1.2272	348.62	39760.80	0.009 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	220.8	1.2272	1173.89	39760.80	0.030 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	195 - 175	Leg	3	1	-23643.50	258313.00	9.2	Pass
T2	175 - 155	Leg	3 3/4	46	-67690.00	291317.00	23.2	Pass
T3	155 - 135	Leg	4	67	-119422.00	353604.00	33.8	Pass
T4	135 - 115	Leg	4 1/4	88	-169150.00	421170.00	40.2	Pass
T5	115 - 95	Leg	4 1/4	109	-214519.00	421170.00	50.9	Pass
T6	95 - 75	Leg	4 1/2	130	-257878.00	493875.00	52.2	Pass
T7	75 - 55	Leg	4 3/4	153	-300428.00	571599.00	52.6	Pass
T8	55 - 40	Leg	4 3/4	174	-334489.00	661231.00	50.6	Pass
T9	40 - 20	Leg	4 3/4	195	-375677.00	571599.00	65.7	Pass
T10	20 - 0	Leg	5	216	-418166.00	654248.00	63.9	Pass
T1	195 - 175	Diagonal	1 1/4	11	-5166.11	20048.60	25.8	Pass
T2	175 - 155	Diagonal	L2 1/2x2 1/2x3/16	50	-8339.15	13713.70	60.8 74.2 (b)	Pass
T3	155 - 135	Diagonal	L2 1/2x2 1/2x5/16	71	-9383.73	16733.60	56.1	Pass
T4	135 - 115	Diagonal	L3x3x1/4	95	-8922.18	18412.40	48.5 59.6 (b)	Pass
T5	115 - 95	Diagonal	L3x3x3/8	116	-9612.55	20687.10	46.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T6	95 - 75	Diagonal	L3 1/2x3 1/2x5/16	137	-10475.70	22528.10	46.5 49.0 (b)	Pass
T7	75 - 55	Diagonal	L4x4x1/4	158	-11556.70	22521.80	51.3 67.3 (b)	Pass
T8	55 - 40	Diagonal	L4x4x1/4	180	-12091.30	20433.10	59.2 70.6 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	201	-13417.00	19839.90	67.6	Pass
T10	20 - 0	Diagonal	L4x4x3/8	222	-14404.70	19861.70	72.5	Pass
T1	195 - 175	Top Girt	1 1/4	6	-368.55	16855.20	2.2	Pass
T1	195 - 175	Bottom Girt	1 1/4	9	-1173.89	11605.30	10.1	Pass
							Summary	
							Leg (T9) 65.7	Pass
							Diagonal (T2) 74.2	Pass
							Top Girt (T1) 2.2	Pass
							Bottom Girt (T1) 10.1	Pass
							Bolt Checks 74.2	Pass
							RATING = 74.2	**Pass**

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Subject: FOUNDATION ANALYSIS

Location: Northford, CT

Rev. 2: 8/31/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21091.01

Pier and Mat Foundation Analysis:

Input Data:

Tower Data

Overturning Moment =	$OM := 8080 \cdot ft \cdot kips$	(User Input from tnxTower)	
Shear Force =	$S_t := 73 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$WT_t := 83 \cdot kip$	(User Input from tnxTower)	
Max Compression Force =	$C_t := 425 \cdot kip$	(User Input from tnxTower)	
Max Uplift Force =	$U_{.t} := 359 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 195 \cdot ft$	(User Input)	
Tower Width =	$W_t := 23.5 \cdot ft$	(User Input)	
Tower Position on Foundation (1=offset, 2=centered) =	$Pos_t := 2$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 6.0 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 4.0 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 0.5 \cdot ft$	(User Input)	
Diameter of Pier =	$d_p := 3.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 2.5 \cdot ft$	(User Input)	
Width of Footing =	$W_f := 34.0 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 3000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Allowable Soil Bearing Capacity =	$q_s := 4000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 110 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 0$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	(UBC-1997 Fig 23-2)
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Pier Reinforcement:

Bar Size =	$BS_{pier} := 8$	(User Input)	
Bar Diameter =	$d_{bpier} := 1.0 \cdot in$	(User Input)	
Number of Bars =	$NB_{pier} := 20$	(User Input)	
Clear Cover of Reinforcement =	$Cvr_{pier} := 3 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Diameter of Tie =	$d_{Tie} := 4 \cdot in$	(User Input)	

Pad Reinforcement:

Bar Size =	$BS_{top} := 8$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 1.0 \cdot in$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 34$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 8$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 1.000 \cdot in$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 34$	(User Input)	(Bottom of Pad)
Clear Cover of Reinforcement =	$Cvr_{pad} := 3.0 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)

Calculated Factors:

Pier Reinforcement Bar Area = $A_{bpier} := \frac{\pi \cdot d_{bpier}^2}{4} = 0.785 \cdot in^2$

Pad Top Reinforcement Bar Area = $A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 0.785 \cdot in^2$

Pad Bottom Reinforcement Bar Area = $A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 0.785 \cdot in^2$

Coefficient of Lateral Soil Pressure = $K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$

Load Factor = $LF := 1$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}) = 150 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}) = 110 \cdot pcf$

Passive Pressure = $P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = 1.155 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}] = 1.155 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 1.98 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.568 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)] = 2.5 \cdot ft$

$A_p := W_f \cdot T_p = 85 \cdot ft^2$

Ultimate Shear = $S_u := P_{ave} \cdot A_p = 133.238 \cdot kip$

Weight of Concrete = $WT_c := \left[\left(W_f^2 \cdot T_f\right) + (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4} L_p\right)\right] \cdot \gamma_c = 446.223 \cdot kip$

Weight of Soil Above Footing = $WT_{s1} := \left[\left[W_f^2 - (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4}\right)\right] \cdot \left(|L_p - L_{pag} - n|\right)\right] \cdot \gamma_s = 436.9 \cdot kip$

Tower Offset = $X_{t1} := \left[\frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{2}\right]$ $X_{t2} := \frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{3}$

$X_t := if(Pos_t = 1, X_{t1}, X_{t2}) = 10.216$

$X_{off1} := \frac{W_f}{2} - \left[\frac{(W_t \cdot \cos(30 \cdot deg))}{3} + X_t\right] = 0$ $X_{off2} := 0$

$X_{off} := if(Pos_t = 1, X_{off1}, X_{off2})$ $X_{off} = 0 \cdot ft$

Total Weight = $WT_{tot} := 0.9WT_c + 0.75WT_{s1} = 729.3 \cdot kip$

Resisting Moment = $M_r := (WT_{tot}) \cdot \frac{W_f}{2} + 0.9WT_t \cdot \left(\frac{W_f}{2} - X_{off}\right) + 0.75\left(S_u \cdot \frac{T_p}{3}\right) = 13751 \cdot kip \cdot ft$

Overturning Moment = $M_{ot} := OM + S_t \cdot (L_p + T_f) = 8554.5 \cdot kip \cdot ft$

Factor of Safety Actual = $FS := \frac{M_r}{M_{ot}} = 1.61$

Factor of Safety Required = $FS_{req} := 1$ $OverTurning\_Moment\_Check := if(FS \geq FS_{req}, "Okay", "No Good")$

$OverTurning\_Moment\_Check = "Okay"$

Shear Capacity in Pier:

Shear Resistance of Pier = $S_p := \frac{P_{ave} \cdot A_p + \mu \cdot WT_{tot}}{FS_{req}} = 461.41 \cdot kips$

$Shear\_Check := if(S_p > S_t, "Okay", "No Good")$

$Shear\_Check = "Okay"$

Bearing Pressure Caused by Footing:

Total Load = $Load_{tot} := WT_c + WT_{s1} + WT_t = 966 \cdot kip$

Area of the Mat = $A_{mat} := W_f^2 = 1.156 \times 10^3$

Section Modulus of Mat = $S := \frac{W_f^3}{6} = 6550.67 \cdot ft^3$

Maximum Pressure in Mat = $P_{max} := \frac{Load_{tot}}{A_{mat}} + \frac{M_{ot}}{S} = 2.142 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < 0.75q_s, "Okay", "No Good")$

$Max\_Pressure\_Check = "Okay"$

Minimum Pressure in Mat = $P_{min} := \frac{Load_{tot}}{A_{mat}} - \frac{M_{ot}}{S} = -0.47 \cdot ksf$

$Min\_Pressure\_Check := if[(P_{min} \geq 0) \cdot (P_{min} < 0.75q_s), "Okay", "No Good"]$

$Min\_Pressure\_Check = "No Good"$

Distance to Resultant of Pressure Distribution = $X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3} = 9.293$

Distance to Kern = $X_k := \frac{W_f}{6} = 5.667$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity = $e := \frac{M_{ot}}{Load_{tot}} = 8.854$

Adjusted Soil Pressure = $P_a := \frac{2 \cdot Load_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)} = 2.326 \cdot ksf$

$q_{adj} := if(P_{min} < 0, P_a, P_{max}) = 2.326 \cdot ksf$

$Pressure\_Check := if(q_{adj} < 0.75q_s, "Okay", "No Good")$

$Pressure\_Check = "Okay"$

Concrete Bearing Capacity:

Strength Reduction Factor = $\Phi_c := 0.65$ (ACI-2008 9.3.2.2)

Bearing Strength Between Pier and Pad = $P_b := \Phi_c \cdot 0.85 \cdot f_c \cdot \frac{\pi \cdot d_p^2}{4} = 1.687 \times 10^3 \cdot kips$ (ACI-2008 10.14)

$Bearing\_Check := if(P_b > LF \cdot C_t, "Okay", "No Good")$

Bearing_Check = "Okay"

Shear Strength of Concrete:

Beam Shear: (Critical section located at a distance d from the face of Pier) (ACI 11.3.1.1)

$\phi_c := 0.85$ (ACI 9.3.2.5)

$d := T_f - Cvr_{pad} - d_{bbot} = 26 \cdot in$

$FL := LF \cdot \frac{C_t}{W_f^2} = 0.368 \cdot ksf$

$V_{req} := FL \cdot (X_t - .5 \cdot d_p - d) \cdot W_f = 81.868 \cdot kips$

$V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{f_c \cdot psi} \cdot W_f \cdot d = 988 \cdot kip$ (ACI-2008 11.2.1.1)

$Beam\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Beam_Shear_Check = "Okay"

Punching Shear: (Critical Section Located at a distance of d/2 from the face of pier) (ACI 11.11.1.2)

Critical Perimeter of Punching Shear = $b_o := (d_p + d) \cdot \pi = 16.2$

Area Included Inside Perimeter = $A_{bo} := \frac{\pi \cdot (d_p + d)^2}{4} = 21$

Required Shear Strength = $V_{req} := FL \cdot (W_f^2 - A_{bo}) = 417 \cdot kips$

Available Shear Strength = $V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f_c \cdot psi} \cdot b_o \cdot d = 943.1 \cdot kip$ (ACI-2008 11.11.2.1)

$Punching\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Punching_Shear_Check = "Okay"

Steel Reinforcement in Pad:

Required Reinforcement for Bending:

Strength Reduction Factor = $\phi_m := .90$ (ACI-2008 9.3.2.1)

Maximum Moment in Pad = $M_{max} := 1400 \cdot kip \cdot ft$ (User Input)

Design Moment = $M_n := \frac{LF \cdot M_{max}}{\phi_m} = 1.556 \times 10^3 \cdot kips \cdot ft$

$$\beta := \begin{cases} 0.85 \text{ if } 2500 \cdot psi \le f_c \le 4000 \cdot psi \\ 0.65 \text{ if } f_c > 8000 \cdot psi \\ \left[0.85 - \left[\frac{\left(\frac{f_c}{psi} - 4000\right)}{1000}\right] \cdot 0.5\right] \text{ otherwise} \end{cases} = 0.85 \quad \text{(ACI-200810.2.7.3)}$$

$b_{eff} := W_t \cdot \cos(30 \cdot deg) + d_p = 280.219 \cdot in$

$A_s := \frac{M_n}{(f_y \cdot d)} = 11.966 \cdot in^2$

$a := \frac{A_s \cdot f_y}{\beta \cdot f_c \cdot b_{eff}} = 1.005 \cdot in$

$A_s := \frac{M_n}{f_y \cdot \left(d - \frac{a}{2}\right)} = 12.202 \cdot in^2$

$\rho := \frac{A_s}{b_{eff} d} = 0.0201 \cdot in$

Required Reinforcement for Temperature and Shrinkage:

$$\rho_{sh} := \begin{cases} .0018 & \text{if } f_y \geq 60000 \cdot psi \\ .0020 & \text{otherwise} \end{cases} = 0.0018 \qquad \text{(ACI-2008 7.12.2.1)}$$

Check Bottom Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 6.6 \cdot in^2$$

$$As_{prov} := A_{bbot} \cdot NB_{bot} = 26.7 \cdot in^2$$

$$Pad\_Reinforcement\_Bot := if\left(As_{prov} > As, "Okay", "No\ Good"\right)$$

Pad_Reinforcement_Bot = "Okay"

Check top Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 6.6 \cdot in^2$$

$$As_{prov} := A_{btop} \cdot NB_{top} = 26.7 \cdot in^2$$

$$Pad\_Reinforcement\_Top := if\left(As_{prov} > As, "Okay", "No\ Good"\right)$$

Pad_Reinforcement_Top = "Okay"

Developement Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 11.15 \cdot in$$

Spacing or Cover Dimension =

$$c := if\left(Cvr_{pad} < \frac{B_{sPad}}{2}, Cvr_{pad}, \frac{B_{sPad}}{2}\right) = 3 \cdot in$$

Transverse Reinforcement Index =

$$k_{tr} := 0 \qquad \text{(ACI-2008 12.2.3)}$$

$$L_{dbt} := \frac{3 \cdot f_y \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot} = 27.4 \cdot in$$

Minimum Development Length =

$$L_{dbmin} := 12 \cdot in \qquad \text{(ACI-2008 12.2.1)}$$

$$L_{dbtCheck} := if\left(L_{dbt} \geq L_{dbmin}, "Use\ L.dbt", "Use\ L.dbmin"\right) = "Use\ L.dbt"$$

Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{W_t}{2} - Cvr_{pad} = 60 \cdot in$$

$$Lpad\_Check := if\left(L_{Pad} > L_{dbt}, "Okay", "No\ Good"\right)$$

Lpad_Check = "Okay"

Steel Reinforcement in Pier:

Area of Pier = $A_p := \frac{\pi \cdot d_p^2}{4} = 1017.88 \cdot in^2$

$A_{smin} := 0.01 \cdot 0.5 \cdot A_p = 5.09 \cdot in^2$ (ACI-2008 10.8.4 & 10.9.1)

$A_{sprov} := NB_{pier} \cdot A_{bpier} = 15.71 \cdot in^2$

$Steel\_Area\_Check := if(A_{sprov} > A_{smin}, "Okay", "No Good")$

Steel_Area_Check = "Okay"

Bar Spacing In Pier = $B_{sPier} := \frac{d_p \cdot \pi}{NB_{pier}} - d_{bpier} = 4.655 \cdot in$

Diameter of Reinforcement Cage = $Diam_{cage} := d_p - 2 \cdot Cvr_{pier} = 30 \cdot in$

Maximum Moment in Pier = $M_p := S_t \cdot (L_p) \cdot LF = 3504 \cdot in \cdot kips$

Pier Check evaluated from outside program and results are listed below;

$(D \ N \ n \ P_u \ M_{xu}) := \left(d_p \cdot 12 \ \ NB_{pier} \ \ BS_{pier} \ \ \frac{C_t \cdot 1.333}{kips} \ \ \frac{M_p}{in \cdot kips}\right)$

$(D \ N \ n \ P_u \ M_{xu}) = (36 \ \ 20 \ \ 8 \ \ 566.525 \ \ 3.504 \times 10^3)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := (0 \ \ 0 \ \ 0 \ \ 0)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := \phi P'_n(D, N, n, P_u, M_{xu})^T$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) = (1.516 \times 10^3 \ \ 9.376 \times 10^3 \ \ -28.535 \ \ 0.016)$

$Axial\_Load\_Check := if(\phi P_n \geq P_u, "Okay", "No Good")$

Axial_Load_Check = "Okay"

$Bending\_Check := if(\phi M_{xn} \geq M_{xu}, "Okay", "No Good")$

Bending_Check = "Okay"

Development Length Pier Reinforcement:

Available Length in Foundation:

$L_{pier} := L_p - Cvr_{pier} = 45 \cdot in$

$L_{pad} := T_f - Cvr_{pad} = 27 \cdot in$

Tension: (ACI-2008 12.2.3)

Spacing or Cover Dimension =

$c := if\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right) = 2.327 \cdot in$

Transverse Reinforcement =

$k_{tr} := 0$ (ACI-2008 12.2.3)

$L_{dbt} := \frac{3 \cdot f_y \alpha_{pier} \cdot \beta_{pier} \cdot \gamma_{pier} \cdot \lambda_{pier}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \left(\frac{c + k_{tr}}{d_{bpier}}\right)} \cdot d_{bpier} = 35.3 \cdot in$

Minimum Development Length =

$L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f_c}{psi}}} \cdot .7 = 15.336 \cdot in$ (ACI 12.2.1)

Pier reinforcement bars are standard 90 degree hooks and therefore developement in the pad is computed as follows:

$L_{db} := max\left(L_{dbt}, L_{dbmin}\right) = 35.3 \cdot in$

$L_{tension\_Check} := if\left(L_{pier} + L_{pad} > L_{dbt}, "Okay", "No Good"\right)$

$L_{tension\_Check} = "Okay"$

Compression: (ACI-2008 12.3.2)

$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot f_y}{\sqrt{f_c \cdot psi}} = 21.909 \cdot in$

$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot f_y\right) = 18 \cdot in$

$L_{dbc} := if\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) = 21.909 \cdot in$

$L_{compression\_Check} := if\left(L_{pier} + L_{pad} > L_{dbc}, "Okay", "No Good"\right)$

$L_{compression\_Check} = "Okay"$

RF DESIGN SHEET

Issue Date	3/22/2022
Revision	1

RFDS Status	Preliminary
Created By	Parikh, Dipesh

SITE INFORMATION	
DISH Site Number	BOHVN00190B
DISH Site Name	0
Prequal Asset ID	
AOI	HVN
PEA	1
Latitude	41.369167
Longitude	-72.810477
Address	88 Parsonage Hill Rd
City	North Branford
State	CT
ZIP Code	06471
County	New Haven
Rad Center (ft)	162
RAD Confirmed	***No Confirmed RAD***
Structure Type	SST

PROJECT ASSIGNMENTS	
Market Manager	Michael Lawton
Site Development Mgr.	JOHN LYONS
RF Engineer	Dipesh Parikh
Site Acq Specialist/Develop. Cord.	David Goodfellow /
SAQ Vendor/A&E Vendor	NORTHEAST SITE SOLUTIONS LLC / NORTHEAST SITE SOLUTIONS LLC
Asset Owner/Asset #	/ CT11230A
Construction Mgr. (Lead/Field)	Jamie Andrews /
Contractor (General/Tower/Civil)	/ /
Power Company / Fiber Provider	Wallingford Electric /

EMERGENCY CONTACT INFORMATION	
Name	Temporary Emergency Line
Phone	866-624-6874

LEASE AREA	
Dimensions (ft.)	5x7
Type	Steel Platform
Baseband Cabinet	Charles(Amphenol)-H/EX
Dimensions (in)	32" x 32.1" x 74"
Baseband	gNB-CU
Generator Required	No
Make/Model	

DESIGN COMMENTS

This RFDS is preliminary and for planning purposes only.Once site design complete and antenna center line is confirmed please request Final RFD from Dish Market RF.

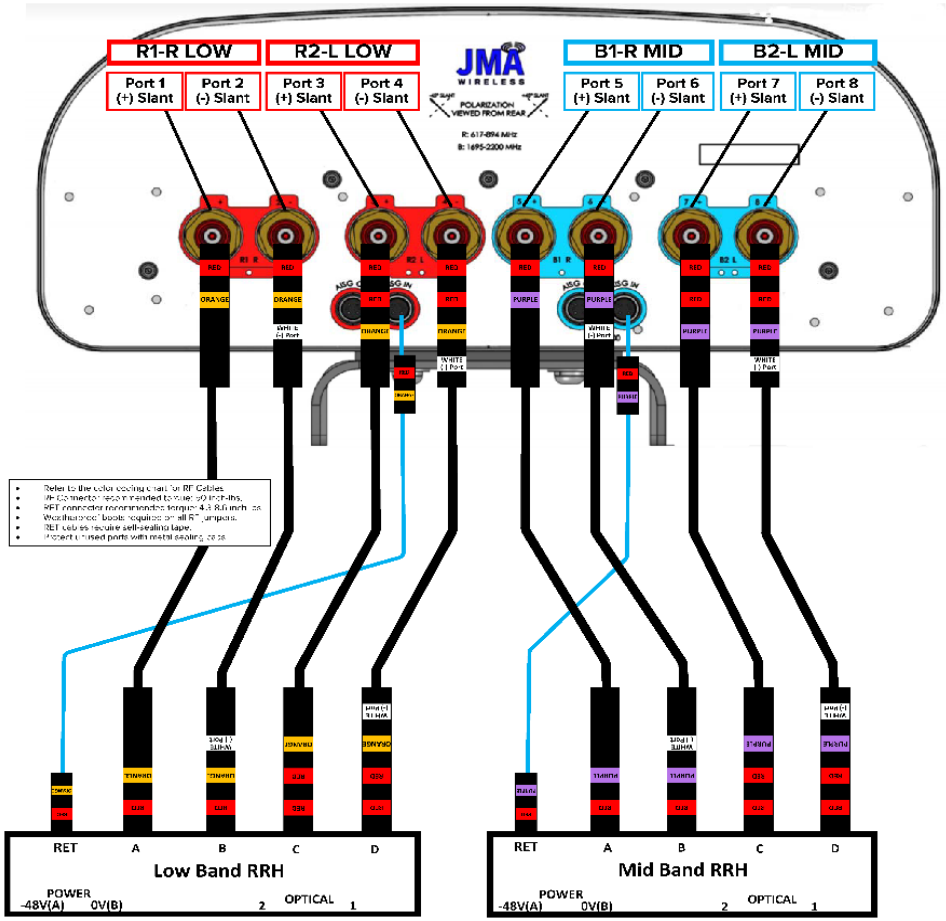
RF EQUIPMENT INFORMATION

Issue Date/Revision	3/22/2022	**Revision:**	1	**Latitude**	41.369167
Site ID	BOHVN00190B			**Longitude**	-72.810477
Site Address	88 Parsonage Hill Rd, North Branford CT 06471			**Prequal Asset ID**	
Structure Type	SST			**SOW / RF Comments**	Dish proposes to place 3 antennas, 6 RRUs, 1 junction box(s), and 1 (power/hybrid) cable(s), at the 162 foot RAD. Dish will require a 5x7 lease area for ground equipment. This RFDS is preliminary and for planning purposes only.Once site design complete and antenna center line is
sectors >20' apart?	No	***Confirmed RAD?***	***No Confirmed RAD*** 162		

	Sector 1 (alpha)			Sector 2 (beta)			Sector 3 (gamma)		
ANTENNA									
Antenna Mount Position	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Antenna ID		1			2			3	
Manufacturer		JMA			JMA			JMA	
Model Number		MX08FRO665-21			MX08FRO665-21			MX08FRO665-21	
Dimensions H x W x D (in)		72.0" x 20.0" x 8.0"			72.0" x 20.0" x 8.0"			72.0" x 20.0" x 8.0"	
Weight (lbs.)		64.5			64.5			64.5	
TX Power Output (watts)		40000			40000			40000	
ERP (dBm)		76.02			76.02			76.02	
RAD Centerline Height (ft.)		162			162			162	
Azimuths (True North)		0°			120°			240°	
Mech Down Tilt		0°			0°			0°	
Default Mount		Generic							
LOW BAND/RADIO #1									
Manufacturer		Fujitsu			Fujitsu			Fujitsu	
Model Number		TA08025-B605			TA08025-B605			TA08025-B605	
Dimensions H x W x D (in.)		14.96" x 15.75" x 9.06"			14.96" x 15.75" x 9.06"			14.96" x 15.75" x 9.06"	
Weight (lbs.)		74.95			74.95			74.95	
Location		Antenna			Antenna			Antenna	
Band		n71 |			n71 |			n71 |	
Quantity		1			1			1	
Port Assignment		Port 1-4			Port 1-4			Port 1-4	
Elec Down Tilt		2°			2°			2°	
MID BAND/RADIO #2									
Manufacturer		Fujitsu			Fujitsu			Fujitsu	
Model Number		TA08025-B604			TA08025-B604			TA08025-B604	
Dimensions H x W x D (in)		14.96" x 15.75" x 7.87"			14.96" x 15.75" x 7.87"			14.96" x 15.75" x 7.87"	
Weight (lbs.)		63.93			63.93			63.93	
Location		Antenna			Antenna			Antenna	
Quantity		1			1			1	
Band		n70 |n66			n70 |n66			n70 |n66	
Port Assignment		Port 5-8			Port 5-8			Port 5-8	
Elec Down Tilt		4°			4°			4°	
OVP (Junction Box)									
Manufacturer		Raycap							
Model Number		RDIDC-9181-PF-48							
Dimensions H x W x D (in.)		18.97" x 16.20" x 9.64"							
Weight (lbs.)		21.85							
Quantity		1							
LINE DETAILS									
Line Type	Hybrid								
Manufacturer	Cables Unlimited								
Model Number	CU12PSM6P4XXX_4AWG								
Diameter (O.D. in.)	1.75"								
Weight (lbs. per ft.)	2.716 lbs/ft								
Quantity	1								
Approx. Cable Length	192								
OTHER EQUIPMENT									
Type of Equipment									
Manufacturer									
Model Number									
Dimensions H x W x D (in)									
Weight (lbs.)									
Equipment Location									
Quantity									

Frequencies	**n29**	**n66**	**n70**	**n71**
Downlink (TX)	0 - 0	2180 - 2200	1995 - 2020	632 - 652
Uplink (RX)	-	-	1915 - 1920	678 - 698

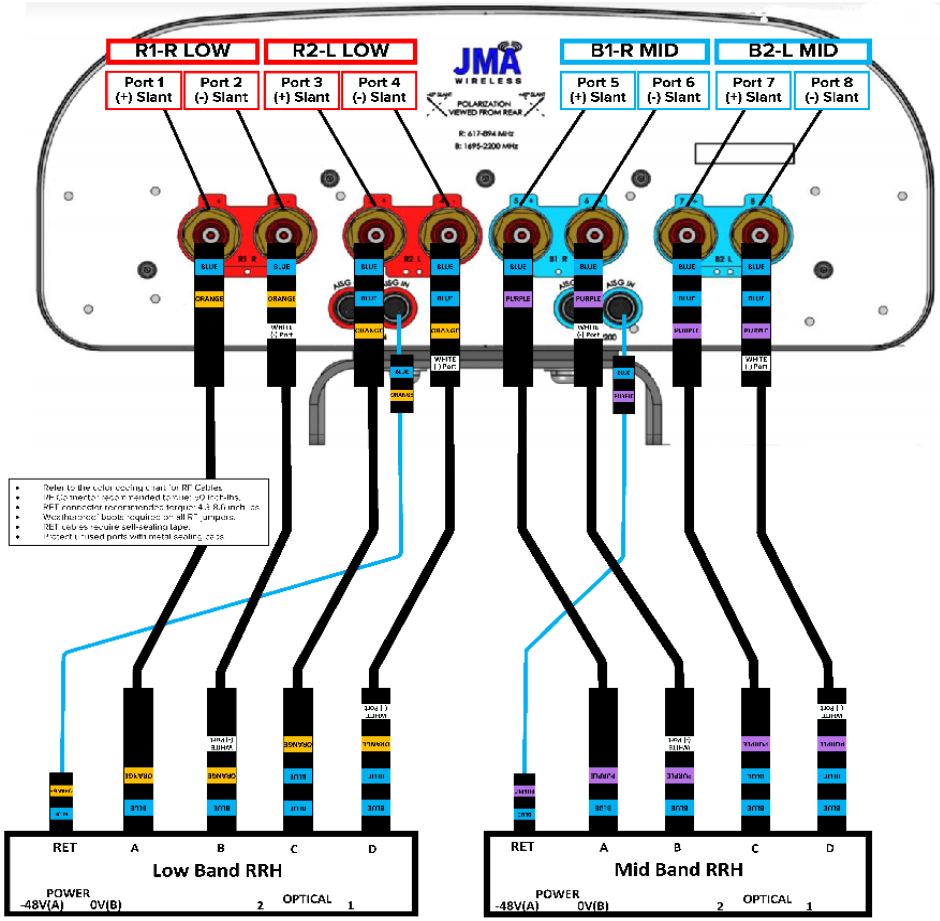
PLUMBING DIAGRAM ANTENNA



Wireless Engineering	ALPHA SECTOR (1 Antenna) RRU AND ANTENNA CABLING CONFIGURATION			
	JMA MX08FRO665-21 – 8 Port – 6ft Fujitsu LOW/MID LOW/MID RET cables			
Chuck Iversen	SIZE	FSCM NO	DWG NO	REV 1
20 - Dec - 2021	SCALE None		SHEET 1 OF 1	

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	72.0/ 20.0/ 8.0 (1828.8/ 508.0/ 203.2)
Shipping dimensions length/width/height, inches (mm)	77.3/ 23.8/ 14.5 (1963.42/ 605/ 368)
No. of RF input ports, connector type, and location	8 x 4.3-10 female, bottom
RF connector torque	96 lbf-in (10.85 N-m or 8 lbf-ft)
Net antenna weight, lb (kg)	64.5 (29.3)
Shipping weight, lb (kg)	104 (47.2)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lb (kg)	18 (8.2)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal and lateral wind loading @ 150 km/h, lbf (N)	108.1 (480.9), 20.5 (91.2)
Effective projected area @ 150 km/h (EPA), frontal, sq ft	4.9

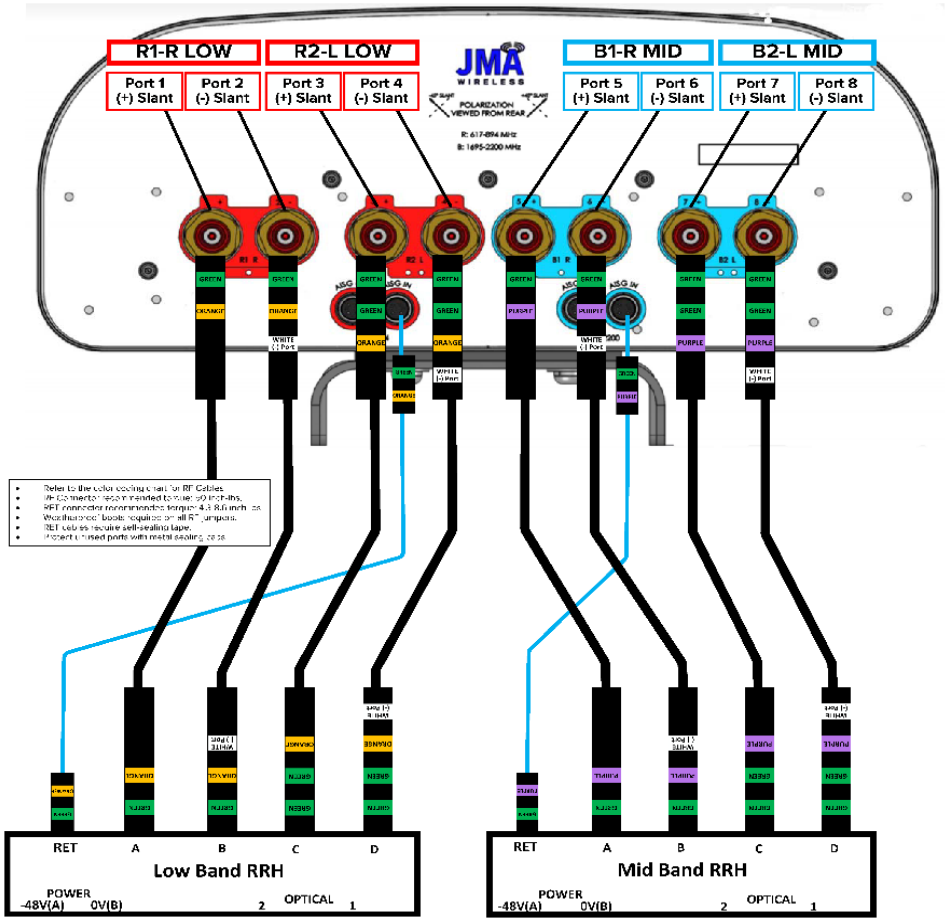
PLUMBING DIAGRAM ANTENNA



Wireless Engineering	BETA SECTOR (1 Antenna) RRU AND ANTENNA CABLING CONFIGURATION			
	JMA MX08FRO665-21 – 8 Port – 6ft Fujitsu LOW/MID LOW/MID RET cables			
Chuck Iversen	SIZE	FSCM NO	DWG NO	REV 1
20 - Dec - 2021	SCALE None		SHEET	1 OF 1

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	72.0/ 20.0/ 8.0 (1828.8/ 508.0/ 203.2)
Shipping dimensions length/width/height, inches (mm)	77.3/ 23.8/ 14.5 (1963.42/ 605/ 368)
No. of RF input ports, connector type, and location	8 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	64.5 (29.3)
Shipping weight, lb (kg)	104 (47.2)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lb (kg)	18 (8.2)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal and lateral wind loading @ 150 km/h, lbf (N)	108.1 (480.9), 20.5 (91.2)
Effective projected area @ 150 km/h (EPA), frontal, sq ft	4.9

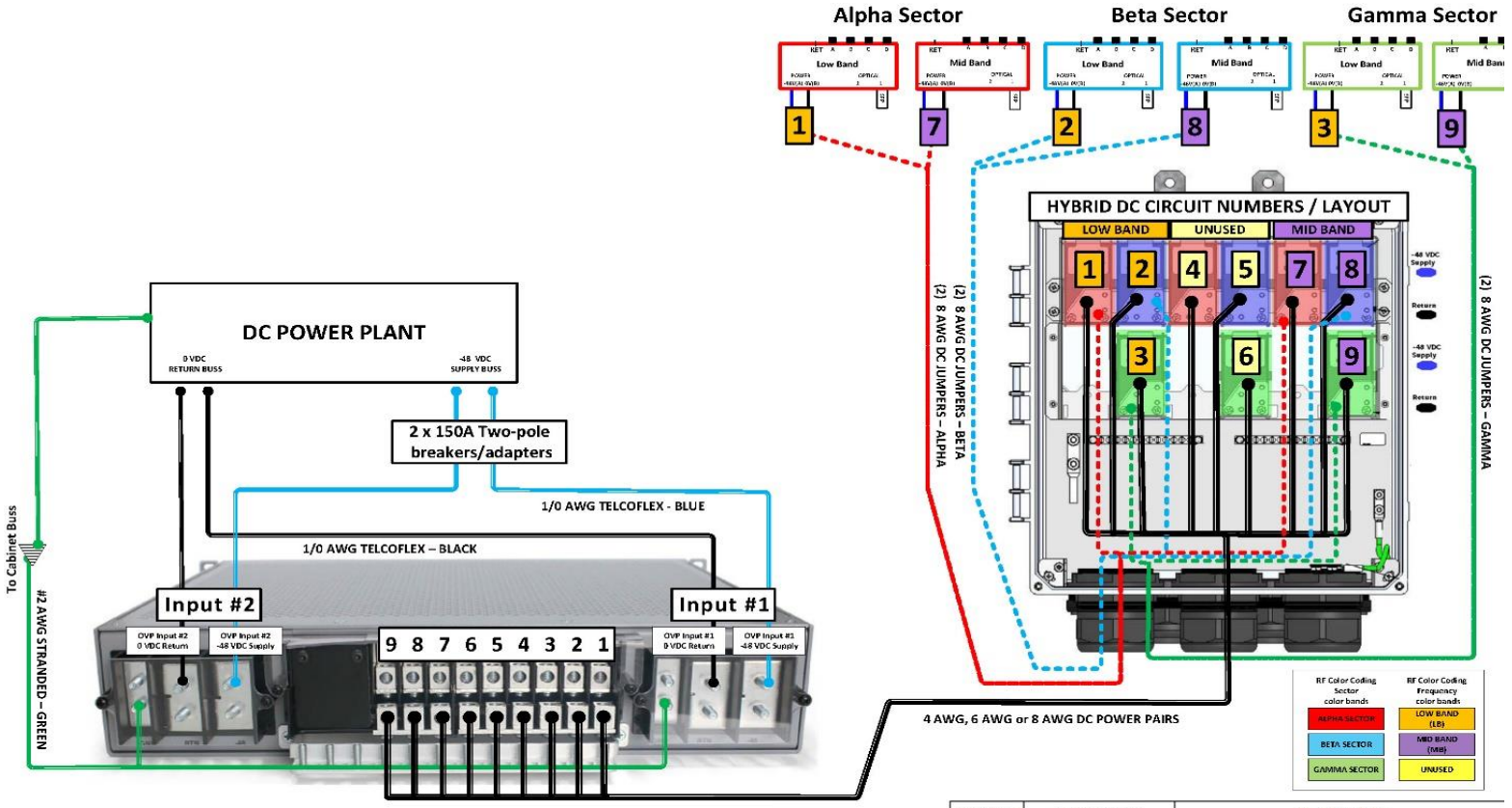
PLUMBING DIAGRAM ANTENNA



Wireless Engineering	GAMMA SECTOR (1 Antenna) RRU AND ANTENNA CABLING CONFIGURATION			
	JMA MX08FRO665-21 – 8 Port – 6ft Fujitsu LOW/MID LOW/MID RET cables			
Chuck Iversen	SIZE	FSCM NO	DWG NO	REV 1
20 - Dec - 2021	SCALE None		SHEET	1 OF 1

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	72.0/ 20.0/ 8.0 (1828.8/ 508.0/ 203.2)
Shipping dimensions length/width/height, inches (mm)	77.3/ 23.8/ 14.5 (1963.42/ 605/ 368)
No. of RF input ports, connector type, and location	8 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	64.5 (29.3)
Shipping weight, lb (kg)	104 (47.2)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lb (kg)	18 (8.2)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal and lateral wind loading @ 150 km/h, lbf (N)	108.1 (480.9), 20.5 (91.2)
Effective projected area @ 150 km/h (EPA), frontal, sq ft	4.9

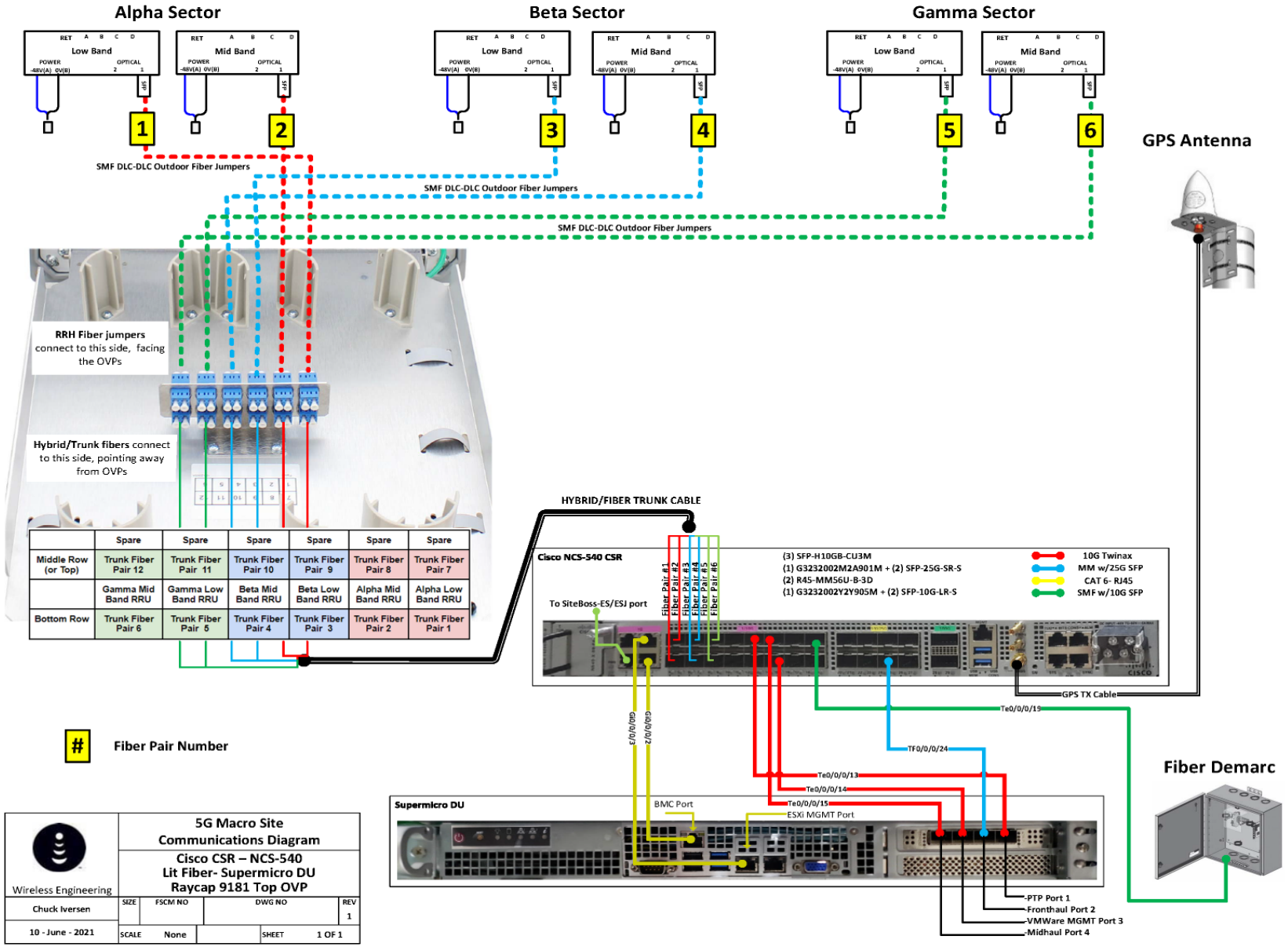
PLUMBING DIAGRAM OVP



OVP CKTs	Input Circuit #2			Input Circuit #1					
Sectors Boosted	CKT #9	CKT #8	CKT #7	CKT #6	CKT #5	CKT #4	CKT #3	CKT #2	CKT #1
NO	MB	MB	MB	unused	unused	unused	LB	LB	LB
ALL	MB	MB	MB	unused	unused	unused	LB	LB	LB
Alpha	MB	unused	LB	MB	unused	LB	MB	unused	LB
Beta	MB	unused	LB	MB	unused	LB	MB	unused	LB
Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB
Alpha/ Beta	MB	unused	LB	MB	unused	LB	MB	unused	LB
Beta/ Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB
Alpha/ Gamma	MB	unused	LB	MB	unused	LB	MB	unused	LB

Wireless Engineering	5G Macro Site DC Power Connection Diagram	
	6 x 12 / 9 x 12 Hybrid Cable Raycap 9181 (CENTRAL) Top OVP No Booster- Tower Config	
Chuck Iversen	SIZE / FSCM NO / DWG NO	REV 1
10 - June - 2021	SCALE None	SHEET 1 OF 1

PLUMBING DIAGRAM NETWORK



	Spare	Spare	Spare	Spare	Spare	Spare
Middle Row (or Top)	Trunk Fiber Pair 12	Trunk Fiber Pair 11	Trunk Fiber Pair 10	Trunk Fiber Pair 9	Trunk Fiber Pair 8	Trunk Fiber Pair 7
	Gamma Mid Band RRU	Gamma Low Band RRU	Beta Mid Band RRU	Beta Low Band RRU	Alpha Mid Band RRU	Alpha Low Band RRU
Bottom Row	Trunk Fiber Pair 6	Trunk Fiber Pair 5	Trunk Fiber Pair 4	Trunk Fiber Pair 3	Trunk Fiber Pair 2	Trunk Fiber Pair 1

Fiber Pair Number

Wireless Engineering	5G Macro Site Communications Diagram Cisco CSR – NCS-540 Lit Fiber- Supermicro DU Raycap 9181 Top OVP		
Chuck Iversen	SIZE	FSCM NO	DWG NO / REV 1
10 - June - 2021	SCALE None		SHEET 1 OF 1

RF COLOR CODING

RF Cable Color Codes

Low Bands (N71+N26) Optional - (N29)	AWS (N66+N70+H-block)	CBRS Tech (3 GHz)	Negative Slant Port on Ant/RRH
ORANGE	PURPLE	YELLOW	WHITE

RF Jumper Color Coding

3/4" tape widths with 3/4" spacing

Low-Band RRH -
(600MHz N71 baseband) +
(850MHz N26 band) +
(700MHz N29 band) - optional per market

Add Frequency Color to Sector Band
(CBRS will use Yellow bands)

ALPHA RRH				BETA RRH				GAMMA RRH			
Port 1 + slant	Port 2 - slant	Port 3 + slant	Port 4 - slant	Port 1 + slant	Port 2 - slant	Port 3 + slant	Port 4 - slant	Port 1 + slant	Port 2 - slant	Port 3 + slant	Port 4 - slant
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) Port	ORANGE	ORANGE		WHITE (-) Port	ORANGE	ORANGE		WHITE (-) Port	ORANGE	ORANGE
			WHITE (-) Port				WHITE (-) Port				WHITE (-) Port

Mid-band RRH -
(AWS bands N66+N70)

Add Frequency Color to Sector Band
(CBRS will use Yellow bands)

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) Port	PURPLE	PURPLE		WHITE (-) Port	PURPLE	PURPLE		WHITE (-) Port	PURPLE	PURPLE
			WHITE (-) Port				WHITE (-) Port				WHITE (-) Port

Hybrid/Discreet Cables

Include sector bands being supported along with frequency bands

Example 1 - Hybrid, or discreet, supports all sectors, both low-bands and mid-bands

Example 2 - Hybrid, or discreet, supports CBRS only, all sectors

Example 3 - Main Coax with ground mounted RRUs

Example 1	Example 2 (3rd Tech added)	Example 3 COAX#1 (Alpha)	(canister) COAX #2 (Alpha)
RED	RED	RED	RED
BLUE	BLUE		
GREEN	GREEN		RED
ORANGE	YELLOW		
PURPLE			

Fiber Jumpers to RRHs

Low Band RRH fiber cables have sector stripe only

Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

Power Cables to RRHs

Low Band RRH power cables have sector stripe only

Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

RET motors at Antennas

RET control is handled by the MID-band RRU when one set of RET ports exist on antenna.

Separate RET cables are used when antenna ports provide inputs for both LOW and MID bands.

Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN	Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN	Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN
RED	RED	BLUE	BLUE	GREEN	GREEN
PURPLE	ORANGE	PURPLE	ORANGE	PURPLE	ORANGE

Microwave Radio Links

Links will have a 1.5-2 inch white wrap with the azimuth color overlapping in the middle. Add additional sector color bands for each additional MW radio.

Microwave cables will require P-touch labels inside the cabinet to identify the local and remote Site ID's.

Forward azimuth of 0-120 degrees		Forward azimuth of 120-240 degrees		Forward azimuth of 240-359 degrees	
Primary	Secondary	Primary	Secondary	Primary	Secondary
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

Exhibit E

Mount Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

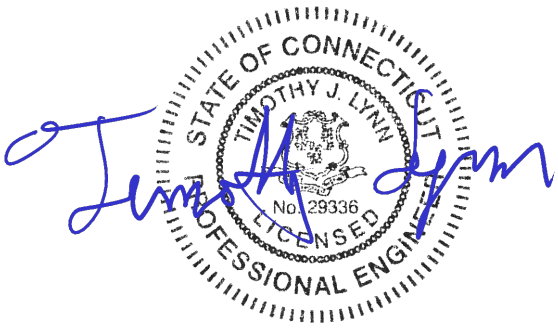
Dish Site #: BOHVN00190B

88 Parsonage Hill Road
North Branford, CT

Centek Project No. 21091.01

~~Date: April 14, 2022~~
Rev 1: August 11, 2022

Max Stress Ratio = 53%



Prepared for:

Northeast Site Solutions
1053 Farmington Ave., Unit G,
Farmington, CT 06032

Table of Contents

CENTEK engineering

Centered on Solutions℠

August 11, 2022

Mr. Chuck Regulbuto
Northeast Site Solutions
1053 Farmington Ave., Unit G
Farmington, CT 06032

Re: Structural Letter ~ Antenna Mount
Dish – Site Ref: BOHVN00190B
88 Parsonage Hill Road
North Branford, CT

Centek Project No. 21091.01

Dear Mr. Regulbuto,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting of three (3) T-frame sector mounts to support the proposed equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- **Dish:**
  T-Frames: Three (3) JMA MX08FRO665-21 panel antennas, three (3) Fujitsu TA0825-B604 remote radio heads and three (3) Fujitsu TA0825-B605 remote radio heads mounted on three (3) T-Frames with a RAD center elevation of 162-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for North Branford as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mount has sufficient capacity** to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: TIA-222-G Loads

Location: North Branford, CT

Rev. 0: 4/13/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21091.01

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed: $V := 101$ mph (User Input - 2018 CSBC Appendix N)

Basic Wind Speed with Ice: $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Lattice (User Input)

Structure Category = $SC := II$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 195$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 162$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 0.85$ (User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.172$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.759$$

Velocity Pressure Coefficient Antennas =

$$Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.401$$

Velocity Pressure w/o Ice Antennas =

$$qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 31.097$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 7.621$$

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Subject:	TIA-222-G Loads
Location:	North Branford, CT
Rev. 0: 4/13/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21091.01

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	MX08FRO665-21		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 20$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 70$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.25$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 10$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 330$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 4$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 132$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 12.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 100$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 49$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 70$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 8935$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 290$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 290$	lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Fujitsu TA0825-B604

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.96$ in (User Input)

RRUS Width = $W_{RRUS} := 15.75$ in (User Input)

RRUS Thickness = $T_{RRUS} := 7.87$ in (User Input)

RRUS Weight = $WT_{RRUS} := 70$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 0.9$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 52$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 0.8$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 26$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.5$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 19$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.5$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 11$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 70$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 1854$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2400$

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 71$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 71$ lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Fujitsu TA0825-B605

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.96$ in (User Input)

RRUS Width = $W_{RRUS} := 15.75$ in (User Input)

RRUS Thickness = $T_{RRUS} := 9.06$ in (User Input)

RRUS Weight = $WT_{RRUS} := 80$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 0.9$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 52$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 0.9$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 30$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.5$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 19$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.6$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 13$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 80$ lbs

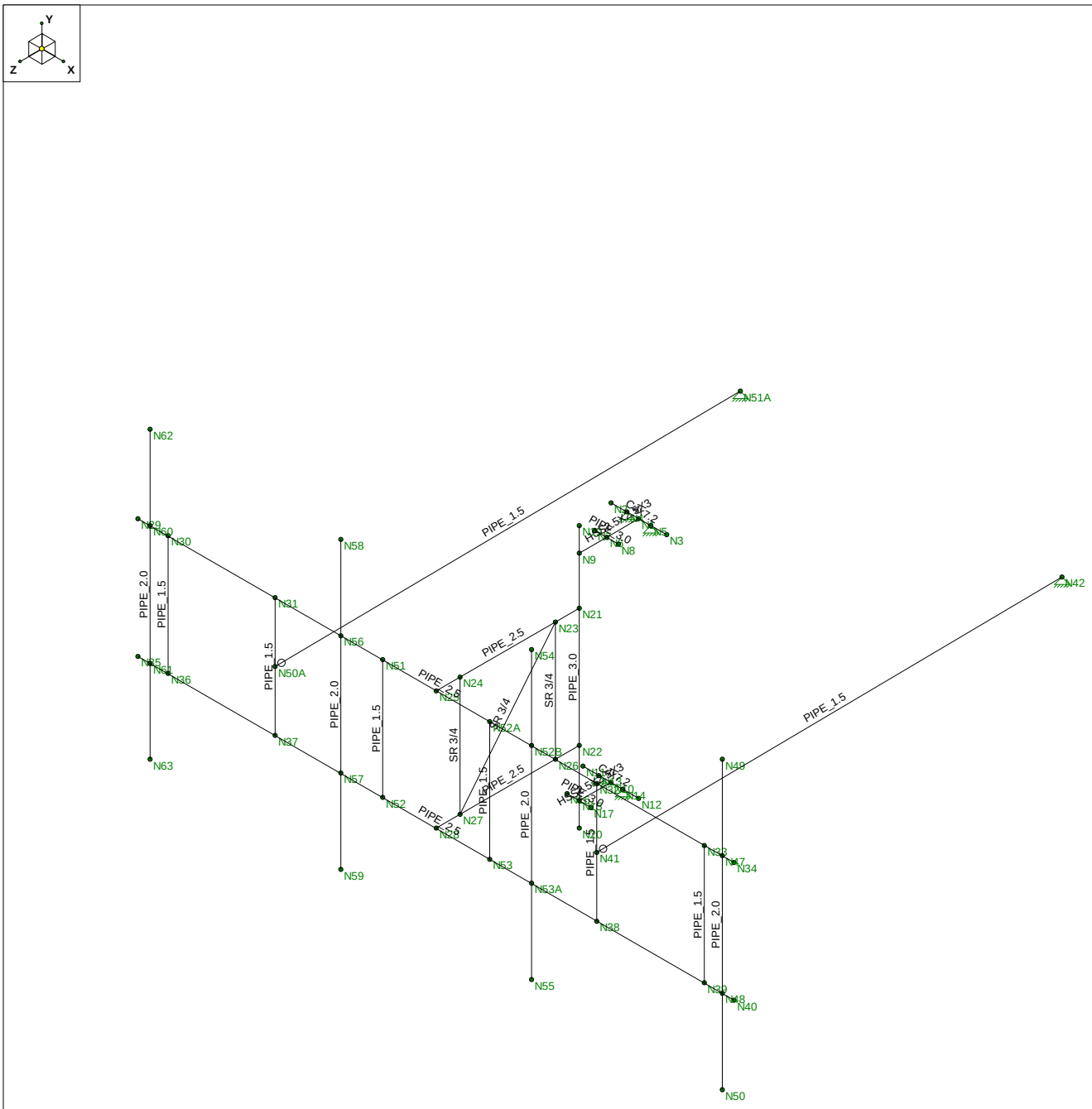
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2135$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2348$

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 76$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 76$ lbs



Envelope Only Solution

Centek	BOHVN00190B	SK - 2
TJL		Apr 14, 2022 at 11:59 AM
21091.01		Mount - old.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Mast	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
2	1.5" Pipe	PIPE_1.5	Beam	Pipe	A53 Grade B	Typical	.749	.293	.293	.586
3	3" Pipe	PIPE_3.0	Beam	Pipe	A53 Grade B	Typical	2.07	2.85	2.85	5.69
4	2.5" Std.	PIPE_2.5	Beam	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
5	C4	C4x7.2	Beam	Channel	A36 Gr.36	Typical	2.13	.425	4.58	.082
6	HSS2.5x2.5	HSS2.5X2.5X3	Beam	Tube	A500 Gr.46	Typical	1.54	1.35	1.35	2.25
7	3/4" SR	SR 3/4	Beam	Tube	A36 Gr.36	Typical	.442	.016	.016	.031

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	C4	1.166			Lbyy						Lateral
2	M2	C4	1.166			Lbyy						Lateral
3	M3	HSS2.5x2.5	.67			Lbyy						Lateral
4	M4	HSS2.5x2.5	.67			Lbyy						Lateral
5	M5	3" Pipe	.5			Lbyy						Lateral
6	M6	3" Pipe	.5			Lbyy						Lateral
7	M7	3" Pipe	5.5			Lbyy						Lateral
8	M9	2.5" Std.	3			Lbyy						Lateral
9	M10	2.5" Std.	3			Lbyy						Lateral
10	M11	3/4" SR	2.5			Lbyy						Lateral
11	M12	3/4" SR	2.5			Lbyy						Lateral
12	M13	2.5" Std.	12.5			Lbyy						Lateral
13	M14	2.5" Std.	12.5			Lbyy						Lateral
14	M15	1.5" Pipe	2.5			Lbyy						Lateral
15	M16	1.5" Pipe	2.5			Lbyy						Lateral
16	M18	1.5" Pipe	2.5			Lbyy						Lateral
17	M19	1.5" Pipe	2.5			Lbyy						Lateral
18	M20	1.5" Pipe	9.881			Lbyy						Lateral
19	M22	Antenna Mast	6			Lbyy						Lateral
20	M23	1.5" Pipe	2.5			Lbyy						Lateral
21	M23A	1.5" Pipe	2.5			Lbyy						Lateral
22	M24	3/4" SR	3.202			Lbyy						Lateral
23	M24A	1.5" Pipe	9.881			Lbyy						Lateral
24	M25	Antenna Mast	6			Lbyy						Lateral
25	M26	Antenna Mast	6			Lbyy						Lateral
26	M27	Antenna Mast	6			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N2	N3		180	C4	Beam	Channel	A36 Gr.36	Typical
2	M2	N11	N12		180	C4	Beam	Channel	A36 Gr.36	Typical
3	M3	N1	N6			HSS2.5x2.5	Beam	Tube	A500 Gr.46	Typical
4	M4	N10	N15			HSS2.5x2.5	Beam	Tube	A500 Gr.46	Typical
5	M5	N7	N8			3" Pipe	Beam	Pipe	A53 Grade B	Typical
6	M6	N16	N17			3" Pipe	Beam	Pipe	A53 Grade B	Typical
7	M7	N19	N20			3" Pipe	Beam	Pipe	A53 Grade B	Typical
8	M8	N9	N6			RIGID	None	None	RIGID	Typical
9	M9	N21	N25			2.5" Std.	Beam	Pipe	A53 Grade B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
10	M10	N22	N28			2.5" Std.	Beam	Pipe	A53 Grade B	Typical
11	M11	N24	N27			3/4" SR	Beam	Tube	A36 Gr.36	Typical
12	M12	N23	N26			3/4" SR	Beam	Tube	A36 Gr.36	Typical
13	M13	N29	N34			2.5" Std.	Beam	Pipe	A53 Grade B	Typical
14	M14	N35	N40			2.5" Std.	Beam	Pipe	A53 Grade B	Typical
15	M15	N30	N36			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
16	M16	N31	N37			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
17	M18	N32	N38			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
18	M19	N33	N39			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
19	M20	N41	N42			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
20	M22	N49	N50			Antenna Mast	Beam	Pipe	A53 Grade B	Typical
21	M23	N51	N52			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
22	M23A	N52A	N53			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
23	M24	N23	N27			3/4" SR	Beam	Tube	A36 Gr.36	Typical
24	M24A	N50A	N51A			1.5" Pipe	Beam	Pipe	A53 Grade B	Typical
25	M25	N54	N55			Antenna Mast	Beam	Pipe	A53 Grade B	Typical
26	M26	N58	N59			Antenna Mast	Beam	Pipe	A53 Grade B	Typical
27	M27	N62	N63			Antenna Mast	Beam	Pipe	A53 Grade B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	2.25	0	0	
2	N2	-.583	2.25	0	0	
3	N3	.583	2.25	0	0	
4	N4	-.25	2.25	0	0	
5	N5	.25	2.25	0	0	
6	N6	0	2.25	.67	0	
7	N7	-.25	2.25	.67	0	
8	N8	.25	2.25	.67	0	
9	N9	0	2.25	1.25	0	
10	N10	0	-2.25	.58	0	
11	N11	-.583	-2.25	.58	0	
12	N12	.583	-2.25	.58	0	
13	N13	-.25	-2.25	.58	0	
14	N14	.25	-2.25	.58	0	
15	N15	0	-2.25	1.25	0	
16	N16	-.25	-2.25	1.25	0	
17	N17	.25	-2.25	1.25	0	
18	N19	0	2.75	1.25	0	
19	N20	0	-2.75	1.25	0	
20	N21	0	1.25	1.25	0	
21	N22	0	-1.25	1.25	0	
22	N23	0	1.25	1.75	0	
23	N24	0	1.25	3.75	0	
24	N25	0	1.25	4.25	0	
25	N26	0	-1.25	1.75	0	
26	N27	0	-1.25	3.75	0	
27	N28	0	-1.25	4.25	0	
28	N29	-6.25	1.25	4.25	0	
29	N30	-5.625	1.25	4.25	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
30	N31	-3.375	1.25	4.25	0	
31	N32	3.375	1.25	4.25	0	
32	N33	5.625	1.25	4.25	0	
33	N34	6.25	1.25	4.25	0	
34	N35	-6.25	-1.25	4.25	0	
35	N36	-5.625	-1.25	4.25	0	
36	N37	-3.375	-1.25	4.25	0	
37	N38	3.375	-1.25	4.25	0	
38	N39	5.625	-1.25	4.25	0	
39	N40	6.25	-1.25	4.25	0	
40	N41	3.375	0	4.25	0	
41	N42	3.25	0	-5.63	0	
42	N47	6	1.25	4.25	0	
43	N48	6	-1.25	4.25	0	
44	N49	6	3	4.25	0	
45	N50	6	-3	4.25	0	
46	N51	-1.125	1.25	4.25	0	
47	N52	-1.125	-1.25	4.25	0	
48	N52A	1.125	1.25	4.25	0	
49	N53	1.125	-1.25	4.25	0	
50	N50A	-3.375	0	4.25	0	
51	N51A	-3.5	0	-5.63	0	
52	N52B	2	1.25	4.25	0	
53	N53A	2	-1.25	4.25	0	
54	N54	2	3	4.25	0	
55	N55	2	-3	4.25	0	
56	N56	-2	1.25	4.25	0	
57	N57	-2	-1.25	4.25	0	
58	N58	-2	3	4.25	0	
59	N59	-2	-3	4.25	0	
60	N60	-6	1.25	4.25	0	
61	N61	-6	-1.25	4.25	0	
62	N62	-6	3	4.25	0	
63	N63	-6	-3	4.25	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N4	Reaction	Reaction	Reaction			
2	N5	Reaction	Reaction	Reaction			
3	N13	Reaction	Reaction	Reaction			
4	N14	Reaction	Reaction	Reaction			
5	N42	Reaction	Reaction	Reaction			
6	N51A	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Y	-.035	.5
2	M25	Y	-.035	5.5
3	M25	Y	-.07	1

Member Point Loads (BLC 2 : Equipment Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	M25	Y	-.08	4

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Y	-.145	.5
2	M25	Y	-.145	5.5
3	M25	Y	-.071	1
4	M25	Y	-.076	4

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	X	.025	.5
2	M25	X	.025	5.5
3	M25	X	.011	1
4	M25	X	.013	4

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	X	.066	.5
2	M25	X	.066	5.5
3	M25	X	.026	1
4	M25	X	.03	4

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Z	.05	.5
2	M25	Z	.05	5.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Z	.165	.5
2	M25	Z	.165	5.5

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	PX	.002	.002	0	0
2	M2	PX	.002	.002	0	0
3	M3	PX	.002	.002	0	0
4	M4	PX	.002	.002	0	0
5	M5	PX	.002	.002	0	0
6	M6	PX	.002	.002	0	0
7	M7	PX	.002	.002	0	0
8	M8	PX	.002	.002	0	0
9	M9	PX	.002	.002	0	0
10	M10	PX	.002	.002	0	0
11	M11	PX	.002	.002	0	0
12	M12	PX	.002	.002	0	0
13	M13	PX	.002	.002	0	0

Member Distributed Loads (BLC 4 : Wind w/ Ice X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
14	M14	PX	.002	.002	0	0
15	M15	PX	.002	.002	0	0
16	M16	PX	.002	.002	0	0
17	M18	PX	.002	.002	0	0
18	M19	PX	.002	.002	0	0
19	M20	PX	.002	.002	0	0
20	M22	PX	.002	.002	0	0
21	M23	PX	.002	.002	0	0
22	M23A	PX	.002	.002	0	0
23	M24	PX	.002	.002	0	0
24	M24A	PX	.002	.002	0	0
25	M25	PX	.002	.002	0	0
26	M26	PX	.002	.002	0	0
27	M27	PX	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	PX	.008	.008	0	0
2	M2	PX	.008	.008	0	0
3	M3	PX	.008	.008	0	0
4	M4	PX	.008	.008	0	0
5	M5	PX	.008	.008	0	0
6	M6	PX	.008	.008	0	0
7	M7	PX	.008	.008	0	0
8	M8	PX	.008	.008	0	0
9	M9	PX	.008	.008	0	0
10	M10	PX	.008	.008	0	0
11	M11	PX	.008	.008	0	0
12	M12	PX	.008	.008	0	0
13	M13	PX	.008	.008	0	0
14	M14	PX	.008	.008	0	0
15	M15	PX	.008	.008	0	0
16	M16	PX	.008	.008	0	0
17	M18	PX	.008	.008	0	0
18	M19	PX	.008	.008	0	0
19	M20	PX	.008	.008	0	0
20	M22	PX	.008	.008	0	0
21	M23	PX	.008	.008	0	0
22	M23A	PX	.008	.008	0	0
23	M24	PX	.008	.008	0	0
24	M24A	PX	.008	.008	0	0
25	M25	PX	.008	.008	0	0
26	M26	PX	.008	.008	0	0
27	M27	PX	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	PZ	.002	.002	0	0
2	M2	PZ	.002	.002	0	0
3	M3	PZ	.002	.002	0	0
4	M4	PZ	.002	.002	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
5	M5	PZ	.002	.002	0	0
6	M6	PZ	.002	.002	0	0
7	M7	PZ	.002	.002	0	0
8	M8	PZ	.002	.002	0	0
9	M9	PZ	.002	.002	0	0
10	M10	PZ	.002	.002	0	0
11	M11	PZ	.002	.002	0	0
12	M12	PZ	.002	.002	0	0
13	M13	PZ	.002	.002	0	0
14	M14	PZ	.002	.002	0	0
15	M15	PZ	.002	.002	0	0
16	M16	PZ	.002	.002	0	0
17	M18	PZ	.002	.002	0	0
18	M19	PZ	.002	.002	0	0
19	M20	PZ	.002	.002	0	0
20	M22	PZ	.002	.002	0	0
21	M23	PZ	.002	.002	0	0
22	M23A	PZ	.002	.002	0	0
23	M24	PZ	.002	.002	0	0
24	M24A	PZ	.002	.002	0	0
25	M25	PZ	.002	.002	0	0
26	M26	PZ	.002	.002	0	0
27	M27	PZ	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	PZ	.008	.008	0	0
2	M2	PZ	.008	.008	0	0
3	M3	PZ	.008	.008	0	0
4	M4	PZ	.008	.008	0	0
5	M5	PZ	.008	.008	0	0
6	M6	PZ	.008	.008	0	0
7	M7	PZ	.008	.008	0	0
8	M8	PZ	.008	.008	0	0
9	M9	PZ	.008	.008	0	0
10	M10	PZ	.008	.008	0	0
11	M11	PZ	.008	.008	0	0
12	M12	PZ	.008	.008	0	0
13	M13	PZ	.008	.008	0	0
14	M14	PZ	.008	.008	0	0
15	M15	PZ	.008	.008	0	0
16	M16	PZ	.008	.008	0	0
17	M18	PZ	.008	.008	0	0
18	M19	PZ	.008	.008	0	0
19	M20	PZ	.008	.008	0	0
20	M22	PZ	.008	.008	0	0
21	M23	PZ	.008	.008	0	0
22	M23A	PZ	.008	.008	0	0
23	M24	PZ	.008	.008	0	0
24	M24A	PZ	.008	.008	0	0
25	M25	PZ	.008	.008	0	0

Member Distributed Loads (BLC 7 : Wind Z) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
26	M26	PZ	.008	.008	0	0
27	M27	PZ	.008	.008	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Equipment Weight	DL					4			
3	Ice Weight	DL					4			
4	Wind w/ Ice X	WLX					4	27		
5	Wind X	WLZ					4	27		
6	Wind w/ Ice Z	WLX					2	27		
7	Wind Z	WLZ					2	27		

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.2D + 1.6..	Yes	Y		1	1.2	2	1.2	5	1.6																
2	0.9D + 1.6..	Yes	Y		1	.9	2	.9	5	1.6																
3	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	4	1														
4	1.2D + 1.6..	Yes	Y		1	1.2	2	1.2	7	1.6																
5	0.9D + 1.6..	Yes	Y		1	.9	2	.9	7	1.6																
6	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	6	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N4	max	-.04	5	.368	1	-.501	5	0	6	0	6	0	6
2		min	-.341	1	.153	5	-3.005	1	0	1	0	1	0	1
3	N5	max	-.04	5	.28	6	2.452	1	0	6	0	6	0	6
4		min	-.341	1	-.147	2	-.218	5	0	1	0	1	0	1
5	N13	max	.15	6	.312	6	.971	6	0	6	0	6	0	6
6		min	-.275	2	-.502	2	-1.79	2	0	1	0	1	0	1
7	N14	max	.15	6	.931	1	2.238	1	0	6	0	6	0	6
8		min	-.275	2	.115	5	-.147	5	0	1	0	1	0	1
9	N42	max	-.001	6	.016	4	.274	1	0	6	0	6	0	6
10		min	-.059	2	.011	2	-.648	5	0	1	0	1	0	1
11	N51A	max	0	6	.015	6	-.055	6	0	6	0	6	0	6
12		min	-.067	1	.011	2	-.347	4	0	1	0	1	0	1
13	Totals:	max	0	5	1.21	6	0	2						
14		min	-1.33	1	.579	2	-1.559	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	1	0	2	0	6	6.315e-04	6	1.118e-03	1	2.732e-05	2
2		min	0	5	0	6	0	2	2.94e-04	2	5.812e-05	5	-6.622e-06	6
3	N2	max	0	6	0	6	0	5	6.315e-04	6	-1.646e-04	5	1.318e-05	2
4		min	0	1	0	2	-.001	3	2.94e-04	2	-2.711e-04	3	-1.31e-05	6
5	N3	max	0	6	0	1	0	2	6.315e-04	6	1.89e-04	6	2.172e-05	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
6		min	0	1	0	6	0	6	2.94e-04	2	-2.923e-05	2	4.859e-06	6
7	N4	max	0	6	0	6	0	6	6.315e-04	6	-1.657e-04	5	1.313e-05	2
8		min	0	1	0	1	0	1	2.94e-04	2	-2.711e-04	3	-1.317e-05	6
9	N5	max	0	6	0	6	0	6	6.315e-04	6	1.892e-04	6	2.179e-05	1
10		min	0	1	0	1	0	1	2.94e-04	2	-2.923e-05	2	4.931e-06	6
11	N6	max	.025	1	-.002	2	0	6	1.946e-04	3	4.622e-03	1	4.96e-04	2
12		min	.001	5	-.004	6	0	2	6.351e-05	5	1.949e-04	5	-1.202e-04	6
13	N7	max	.025	1	-.003	5	.014	1	1.946e-04	3	4.622e-03	1	4.961e-04	2
14		min	.001	5	-.004	1	.001	5	6.351e-05	5	1.95e-04	5	-1.202e-04	6
15	N8	max	.025	1	0	2	0	5	1.946e-04	3	4.622e-03	1	4.96e-04	2
16		min	.001	5	-.005	6	-.013	1	6.351e-05	5	1.949e-04	5	-1.203e-04	6
17	N9	max	.057	1	-.003	2	0	6	1.946e-04	3	4.622e-03	1	4.96e-04	2
18		min	.003	5	-.006	6	0	2	6.351e-05	5	1.949e-04	5	-1.202e-04	6
19	N10	max	0	2	0	5	0	5	8.22e-04	6	8.211e-04	2	-5.136e-07	5
20		min	0	6	0	3	0	3	4.025e-04	2	-2.163e-04	6	-7.718e-05	1
21	N11	max	0	6	0	1	0	6	8.22e-04	6	2.278e-04	6	-4.712e-06	5
22		min	0	1	0	5	0	2	4.025e-04	2	4.243e-06	2	-5.785e-05	1
23	N12	max	0	6	0	6	0	1	8.22e-04	6	-3.106e-05	5	1.128e-05	6
24		min	0	1	0	2	0	5	4.025e-04	2	-2.2e-04	1	-4.022e-05	2
25	N13	max	0	6	0	6	0	6	8.22e-04	6	2.276e-04	6	-4.766e-06	5
26		min	0	1	0	1	0	1	4.025e-04	2	4.243e-06	2	-5.792e-05	1
27	N14	max	0	6	0	6	0	6	8.22e-04	6	-2.991e-05	5	1.135e-05	6
28		min	0	1	0	1	0	1	4.025e-04	2	-2.2e-04	1	-4.017e-05	2
29	N15	max	.018	2	-.003	2	0	5	2.167e-04	4	3.341e-03	2	-9.326e-06	5
30		min	-.004	6	-.005	6	0	3	3.597e-05	2	-7.19e-04	6	-1.402e-03	1
31	N16	max	.018	2	.002	2	.01	2	2.167e-04	4	3.341e-03	2	-9.29e-06	5
32		min	-.004	6	-.005	6	-.003	6	3.597e-05	2	-7.19e-04	6	-1.402e-03	1
33	N17	max	.018	2	-.003	5	.001	6	2.167e-04	4	3.341e-03	2	-9.362e-06	5
34		min	-.004	6	-.008	1	-.01	2	3.597e-05	2	-7.191e-04	6	-1.402e-03	1
35	N19	max	.054	1	-.003	2	.002	6	1.946e-04	3	4.622e-03	1	4.954e-04	2
36		min	.003	5	-.006	6	0	2	6.409e-05	5	1.949e-04	5	-1.202e-04	6
37	N20	max	.01	2	-.003	2	0	2	2.162e-04	4	3.341e-03	2	-9.326e-06	5
38		min	-.005	6	-.005	6	-.002	4	3.597e-05	2	-7.19e-04	6	-1.401e-03	1
39	N21	max	.062	1	-.003	2	.003	4	1.216e-04	3	5.811e-03	1	8.265e-05	2
40		min	.002	5	-.006	6	0	2	-7.261e-05	5	1.316e-04	5	-5.092e-04	6
41	N22	max	.037	2	-.003	2	.001	5	1.004e-04	5	4.783e-03	2	-1.141e-04	5
42		min	-.002	6	-.006	6	-.004	3	-3.441e-05	3	-8.609e-04	6	-1.608e-03	1
43	N23	max	.101	1	-.004	5	.003	4	4.554e-04	3	6.999e-03	1	-2.811e-04	2
44		min	.003	5	-.008	3	0	2	1.207e-04	5	2.574e-04	5	-1.323e-03	6
45	N24	max	.269	1	-.009	5	.003	4	9.159e-04	6	5.116e-03	1	-1.266e-03	5
46		min	.009	5	-.022	3	0	2	3.878e-04	2	2.924e-05	5	-4.689e-03	3
47	N25	max	.294	1	-.013	2	.003	4	9.538e-04	6	3.06e-03	1	-1.492e-03	5
48		min	.009	5	-.028	6	0	2	3.881e-04	2	-2.126e-04	5	-5.534e-03	3
49	N26	max	.069	2	-.003	2	.001	5	2.881e-04	6	5.548e-03	2	-3.424e-04	5
50		min	-.01	6	-.007	6	-.004	3	1.269e-04	2	-1.644e-03	6	-1.833e-03	1
51	N27	max	.197	2	-.009	5	0	5	1.022e-03	3	3.8e-03	2	-1.26e-03	5
52		min	-.062	6	-.021	3	-.005	3	2.577e-04	5	-1.897e-03	6	-4.752e-03	3
53	N28	max	.216	2	-.01	5	0	5	1.027e-03	3	2.231e-03	2	-1.49e-03	5
54		min	-.072	6	-.027	3	-.005	3	3.617e-05	5	-1.248e-03	6	-5.551e-03	3
55	N29	max	.294	1	.361	3	.094	4	1.526e-03	6	2.276e-03	4	-1.355e-03	5
56		min	.009	5	.082	5	-.015	2	7.233e-04	2	-9.234e-04	2	-5.32e-03	3
57	N30	max	.294	1	.321	3	.077	4	1.519e-03	6	2.263e-03	4	-1.32e-03	5

Envelope Joint Displacements (Continued)

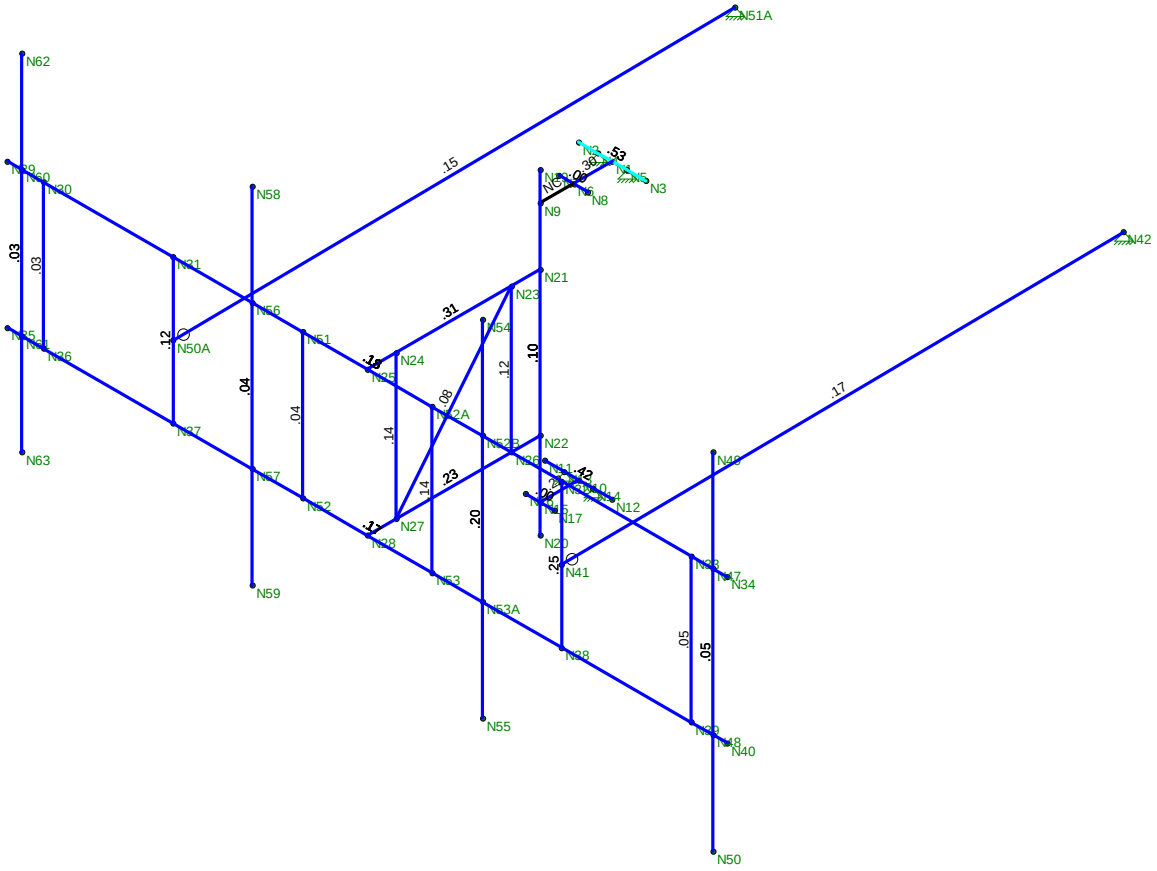
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
58		min	.009	5	.072	5	-.008	2	7.479e-04	2	-9.231e-04	2	-5.272e-03	3
59	N31	max	.294	1	.183	3	.024	4	1.462e-03	6	1.362e-03	4	-1.194e-03	5
60		min	.009	5	.039	5	.016	2	9.706e-04	2	-8.889e-04	2	-5.101e-03	3
61	N32	max	.294	1	-.088	5	.032	5	1.978e-03	5	-2.139e-04	3	-1.835e-03	5
62		min	.009	5	-.289	3	-.017	1	-5.268e-04	1	-1.037e-03	4	-6.154e-03	3
63	N33	max	.294	1	-.136	5	.077	5	9.338e-04	5	-2.207e-04	3	-1.636e-03	5
64		min	.009	5	-.451	3	-.005	3	-4.492e-04	3	-1.974e-03	4	-5.757e-03	3
65	N34	max	.294	1	-.148	5	.092	5	8.345e-04	5	-2.165e-04	3	-1.595e-03	5
66		min	.009	5	-.494	3	-.003	3	-4.464e-04	3	-1.986e-03	4	-5.688e-03	3
67	N35	max	.216	2	.361	3	.077	5	1.457e-03	3	2.281e-03	4	-1.355e-03	5
68		min	-.072	6	.082	5	-.033	1	1.449e-04	5	-9.2e-04	2	-5.314e-03	3
69	N36	max	.216	2	.321	3	.06	5	1.443e-03	3	2.267e-03	4	-1.32e-03	5
70		min	-.072	6	.072	5	-.026	1	1.191e-04	5	-9.203e-04	2	-5.27e-03	3
71	N37	max	.216	2	.183	3	.008	5	1.3e-03	3	1.288e-03	5	-1.192e-03	5
72		min	-.072	6	.039	5	-.021	3	-2.488e-04	5	-9.605e-04	1	-5.111e-03	3
73	N38	max	.216	2	-.088	5	.035	4	4.453e-04	2	-1.42e-04	3	-1.828e-03	5
74		min	-.072	6	-.289	3	-.013	2	-2.066e-03	4	-9.891e-04	5	-6.179e-03	3
75	N39	max	.216	2	-.136	5	.079	4	1.821e-04	2	-1.351e-04	3	-1.637e-03	5
76		min	-.072	6	-.451	3	.006	2	-1.049e-03	4	-1.937e-03	4	-5.753e-03	3
77	N40	max	.216	2	-.148	5	.094	4	1.54e-04	2	-1.394e-04	3	-1.596e-03	5
78		min	-.072	6	-.494	3	.009	3	-9.517e-04	4	-1.953e-03	4	-5.681e-03	3
79	N41	max	.254	1	-.088	5	.005	5	-1.118e-04	2	-1.78e-04	3	-1.305e-03	5
80		min	-.014	5	-.289	3	-.005	1	-5.806e-04	3	-1.013e-03	4	-5.159e-03	3
81	N42	max	0	6	0	6	0	6	4.977e-03	3	1.305e-02	1	-1.34e-03	5
82		min	0	1	0	1	0	1	2.676e-03	5	-1.165e-04	5	-5.229e-03	3
83	N47	max	.294	1	-.143	5	.086	5	8.345e-04	5	-2.165e-04	3	-1.595e-03	5
84		min	.009	5	-.477	3	-.004	3	-4.464e-04	3	-1.986e-03	4	-5.688e-03	3
85	N48	max	.216	2	-.143	5	.088	4	1.54e-04	2	-1.394e-04	3	-1.596e-03	5
86		min	-.072	6	-.477	3	.008	3	-9.517e-04	4	-1.953e-03	4	-5.681e-03	3
87	N49	max	.36	1	-.143	5	.105	5	9.478e-04	5	-2.165e-04	3	-1.595e-03	5
88		min	.042	5	-.477	3	-.013	3	-4.464e-04	3	-1.986e-03	4	-5.706e-03	3
89	N50	max	.167	2	-.143	5	.109	4	1.54e-04	2	-1.394e-04	3	-1.595e-03	5
90		min	-.188	6	-.477	3	.006	2	-1.065e-03	4	-1.953e-03	4	-5.663e-03	3
91	N51	max	.294	1	.044	3	.027	1	1.111e-03	6	8.962e-04	1	-1.342e-03	5
92		min	.009	5	.007	5	.003	5	5.095e-04	2	2.167e-04	5	-5.248e-03	3
93	N52	max	.216	2	.044	3	.015	2	1.116e-03	3	4.47e-04	2	-1.207e-03	5
94		min	-.072	6	.007	5	-.016	6	2.637e-05	5	-5.521e-04	6	-5.211e-03	3
95	N52A	max	.294	1	-.036	5	.012	5	1.283e-03	4	8.307e-04	1	-1.865e-03	5
96		min	.009	5	-.114	3	-.024	1	7.996e-06	2	-8.505e-04	5	-6.657e-03	3
97	N53	max	.216	2	-.036	5	.014	4	3.122e-04	1	6.596e-04	2	-2.001e-03	5
98		min	-.072	6	-.114	3	-.021	2	-1.008e-03	5	-1.012e-03	4	-6.699e-03	3
99	N50A	max	.254	1	.183	3	.003	5	1.537e-03	3	1.322e-03	4	-1.582e-03	5
100		min	-.013	5	.039	5	-.001	1	4.766e-04	5	-9.21e-04	2	-5.617e-03	3
101	N51A	max	0	6	0	6	0	6	2.136e-03	4	1.304e-02	1	-1.597e-03	5
102		min	0	1	0	1	0	1	9.923e-04	3	-1.154e-04	5	-5.61e-03	3
103	N52B	max	.294	1	-.056	5	.021	5	1.922e-03	4	-1.165e-06	3	-1.888e-03	5
104		min	.009	5	-.184	3	-.026	1	-2.715e-04	3	-7.422e-04	4	-6.496e-03	3
105	N53A	max	.216	2	-.057	5	.024	4	2.396e-04	1	-1.253e-04	3	-1.882e-03	5
106		min	-.072	6	-.184	3	-.023	2	-1.924e-03	5	-7.469e-04	4	-6.434e-03	3
107	N54	max	.386	1	-.056	5	.096	5	4.08e-03	4	-1.165e-06	3	-1.889e-03	5
108		min	.048	5	-.184	3	-.031	1	-2.722e-04	3	-7.422e-04	4	-6.755e-03	3
109	N55	max	.175	2	-.057	5	.099	4	2.395e-04	1	-1.253e-04	3	-1.72e-03	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
110		min	-.204	6	-.184	3	-.028	2	-4.078e-03	5	-7.469e-04	4	-6.276e-03	6
111	N56	max	.294	1	.099	3	.03	1	1.278e-03	6	5.72e-04	4	-1.24e-03	5
112		min	.009	5	.02	5	.007	5	6.491e-04	2	-2.394e-04	2	-5.18e-03	3
113	N57	max	.216	2	.099	3	.015	2	1.225e-03	3	3.507e-04	5	-1.248e-03	5
114		min	-.072	6	.02	5	-.02	6	-2.853e-05	5	-4.649e-04	1	-5.176e-03	3
115	N58	max	.349	1	.099	3	.049	3	1.296e-03	6	5.72e-04	4	-1.24e-03	5
116		min	.035	5	.02	5	.026	5	6.492e-04	2	-2.394e-04	2	-5.198e-03	3
117	N59	max	.174	2	.099	3	.01	2	1.225e-03	3	3.507e-04	5	-1.248e-03	5
118		min	-.177	6	.02	5	-.044	6	-1.417e-04	5	-4.649e-04	1	-5.158e-03	3
119	N60	max	.294	1	.345	3	.087	4	1.526e-03	6	2.276e-03	4	-1.355e-03	5
120		min	.009	5	.078	5	-.012	2	7.233e-04	2	-9.234e-04	2	-5.32e-03	3
121	N61	max	.216	2	.345	3	.07	5	1.457e-03	3	2.281e-03	4	-1.355e-03	5
122		min	-.072	6	.078	5	-.03	1	1.449e-04	5	-9.2e-04	2	-5.314e-03	3
123	N62	max	.352	1	.345	3	.109	4	1.543e-03	6	2.276e-03	4	-1.355e-03	5
124		min	.037	5	.078	5	.003	2	7.234e-04	2	-9.234e-04	2	-5.338e-03	3
125	N63	max	.172	2	.345	3	.069	5	1.457e-03	3	2.281e-03	4	-1.355e-03	5
126		min	-.18	6	.078	5	-.057	3	3.172e-05	5	-9.2e-04	2	-5.296e-03	3

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...phi*P...	phi*Pn...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
1	M1	C4x7.2	.530	.5...	1	.152	.34	z	1 65.538	69.012	1.456	7.668	1....	H1...
2	M2	C4x7.2	.416	.5...	1	.113	.5...	z	1 65.538	69.012	1.456	7.668	1....	H1...
3	M3	HSS2.5X2.5...	.304	0	1	.070	0	z	1 63.441	63.756	4.554	4.554	1....	H1...
4	M4	HSS2.5X2.5...	.223	0	2	.120	0	z	2 63.441	63.756	4.554	4.554	1....	H1...
5	M5	PIPE_3.0	.000	.25	4	.000	.25		4 65.118	65.205	5.749	5.749	1....	H1...
6	M6	PIPE_3.0	.000	.25	4	.000	.25		4 65.118	65.205	5.749	5.749	1....	H1...
7	M7	PIPE_3.0	.104	1....	3	.162	4....		1 55.457	65.205	5.749	5.749	1....	H1...
8	M9	PIPE_2.5	.308	3	1	.168	.5		3 47.114	50.715	3.596	3.596	3....	H1...
9	M10	PIPE_2.5	.232	3	2	.159	2.5		6 47.114	50.715	3.596	3.596	2....	H1...
10	M11	SR 3/4	.140	2.5	3	.028	0		6 3.899	14.314	.179	.179	2....	H1...
11	M12	SR 3/4	.124	2.5	3	.027	0		3 3.899	14.314	.179	.179	2....	H1...
12	M13	PIPE_2.5	.182	6....	1	.079	6....		3 14.559	50.715	3.596	3.596	1....	H1...
13	M14	PIPE_2.5	.167	6....	6	.093	6....		4 14.559	50.715	3.596	3.596	1....	H1...
14	M15	PIPE_1.5	.027	2.5	1	.005	2.5		1 20.973	23.593	1.105	1.105	2....	H1...
15	M16	PIPE_1.5	.118	1....	5	.027	1....		4 20.973	23.593	1.105	1.105	2....	H1...
16	M18	PIPE_1.5	.249	1....	5	.048	1....		4 20.973	23.593	1.105	1.105	2....	H1...
17	M19	PIPE_1.5	.046	0	4	.006	0		1 20.973	23.593	1.105	1.105	2....	H1...
18	M20	PIPE_1.5	.174	4....	1	.009	9....		1 4.708	23.593	1.105	1.105	1....	H1...
19	M22	PIPE_2.0	.047	1....	4	.006	1....		3 20.867	32.13	1.872	1.872	4....	H1...
20	M23	PIPE_1.5	.039	0	4	.025	2.5		3 20.973	23.593	1.105	1.105	2....	H1...
21	M23A	PIPE_1.5	.137	0	6	.029	0		3 20.973	23.593	1.105	1.105	2....	H1...
22	M24	SR 3/4	.082	0	1	.010	0		1 2.377	14.314	.179	.179	2....	H1...
23	M24A	PIPE_1.5	.151	4....	1	.009	9....		1 4.708	23.593	1.105	1.105	1....	H1...
24	M25	PIPE_2.0	.203	1....	4	.030	1....		4 20.867	32.13	1.872	1.872	4....	H1...
25	M26	PIPE_2.0	.043	1....	4	.019	4....		3 20.867	32.13	1.872	1.872	4....	H1...
26	M27	PIPE_2.0	.026	4....	4	.004	4....		1 20.867	32.13	1.872	1.872	4....	H1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	BOHVN00190B	SK - 1
TJL		Apr 14, 2022 at 11:59 AM
21091.01		Mount - old.r3d

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Connection to Host Building
Location:	Northford, CT
Rev. 0: 4/14/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21091.01

Antenna Mount Connection:

Anchor Data:

A307 Thru-Bolt =

Number of Anchor Bolts = $N := 1$ (User Input)

Diameter of Bolts = $D := 0.625in$ (User Input)

Design Tension = $T_{design} := 10.4 \cdot kips$ (User Input)

Design Shear = $V_{design} := 6.23 \cdot kips$ (User Input)

Design Reactions:

Shear X = $F_x := 0.4 \cdot kips$ (User Input)

Shear Y = $F_y := 1.0 \cdot kips$ (User Input)

Shear Z = $F_z := 2.5 \cdot kips$ (User Input)

Anchor Check:

Max Tension Force = $T_{Max} := \frac{F_z}{N} = 2.5 \times 10^3 lb$

Max Shear Force = $V_{Max} := \frac{F_y + F_x}{N} = 1.4 \times 10^3 lb$

Condition 1 = $Condition1 := if\left(\frac{T_{Max}}{T_{design}} + \frac{V_{Max}}{V_{design}} \le 1.0, "OK", "NG"\right) = "OK"$

% of Capacity = $\max\left[\frac{T_{Max}}{T_{design}}, \frac{V_{Max}}{V_{design}}, \left(\frac{\frac{T_{Max}}{T_{design}} + \frac{V_{Max}}{V_{design}}}{1.0}\right)\right] = 46.5 \cdot \%$

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOHVN00190B

88 Parsonage Hill Rd
North Branford, CT 06471

June 17, 2022

Fox Hill Telecom Project Number: 221377

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.34 %**

Fox Hill Telecom

June 17, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00190B**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **88 Parsonage Hill Rd, North Branford, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and 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 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) 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 performed for the proposed radio system installation for **Dish** on the subject site located at **88 Parsonage Hill Rd, North Branford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency bandand the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	162
B	1	JMA MX08FRO665-21	162
C	1	JMA MX08FRO665-21	162

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.33
						Sector A Composite MPE%	**3.33**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.33
						Sector B Composite MPE%	**3.33**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.33
						Sector C Composite MPE%	**3.33**

Table 3: Dish Emissions Levels

The Following table (*Table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**3.33 %**
Nextel	0.24 %
Motient	0.54 %
Sprint	1.56 %
T-Mobile	7.83 %
AT&T	3.78 %
Verizon	2.06 %
Site Total MPE %:	**19.34 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	3.33 %
Dish Sector B Total:	3.33 %
Dish Sector C Total:	3.33 %
Site Total:	19.34 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (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
Dish n71 (600 MHz) 5G	4	858.77	162	5.07	n71 (600 MHz)	400	1.27%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	162	9.74	n70 (AWS-4 / 1995-2020)	1000	0.97%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	162	10.93	n66 (AWS-4 / 2180-2200)	1000	1.09%
						Total:	**3.33%**

Table 6: Dish Maximum Sector MPE Power Values

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 Dish 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:

Dish Sector	Power Density Value (%)
Sector A:	3.33 %
Sector B:	3.33 %
Sector C:	3.33 %
Dish Maximum Total (per sector):	3.33 %
Site Total:	19.34 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.34 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Letter of Authorization

Dish Wireless, LLC
Letter of Authorization

CT - CONNECTICUT SITING COUNCIL
Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Tower Share Application
Dish Wireless, LLC telecommunications site at:
88 Parsonnage Hill Road, North Branford CT

OCHENKOWSKI TOWERS, LLC hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for the existing wireless communicationssite described below:

Customer Site ID: BOHVN00190B

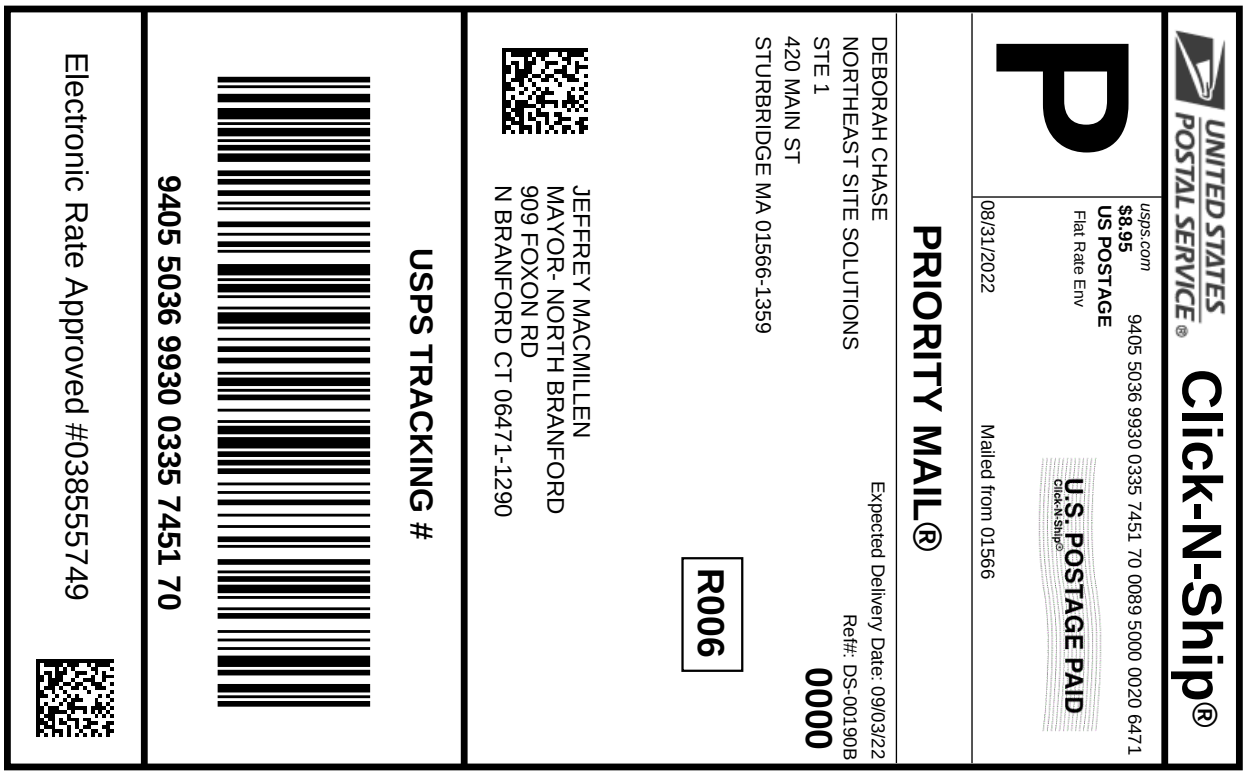
Site Address: 88 Parsonage Hill Road, North Branford CT

OCHENKOWSKI TOWERS, LLC

By: Jared Ochenkowski member LLC Date: 8/26/2022

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 70

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

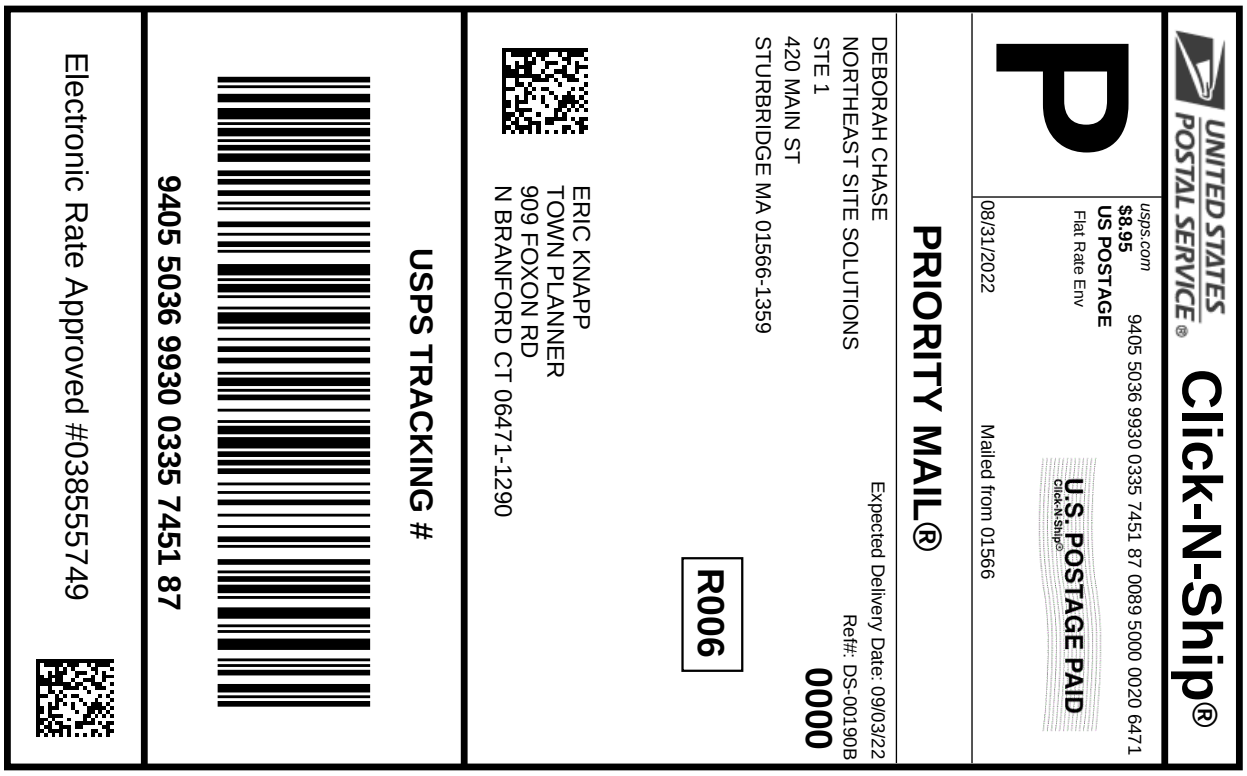
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: JEFFREY MACMILLEN
MAYOR- NORTH BRANFORD
909 FOXON RD
N BRANFORD CT 06471-1290

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 87

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: ERIC KNAPP
TOWN PLANNER
909 FOXON RD
N BRANFORD CT 06471-1290

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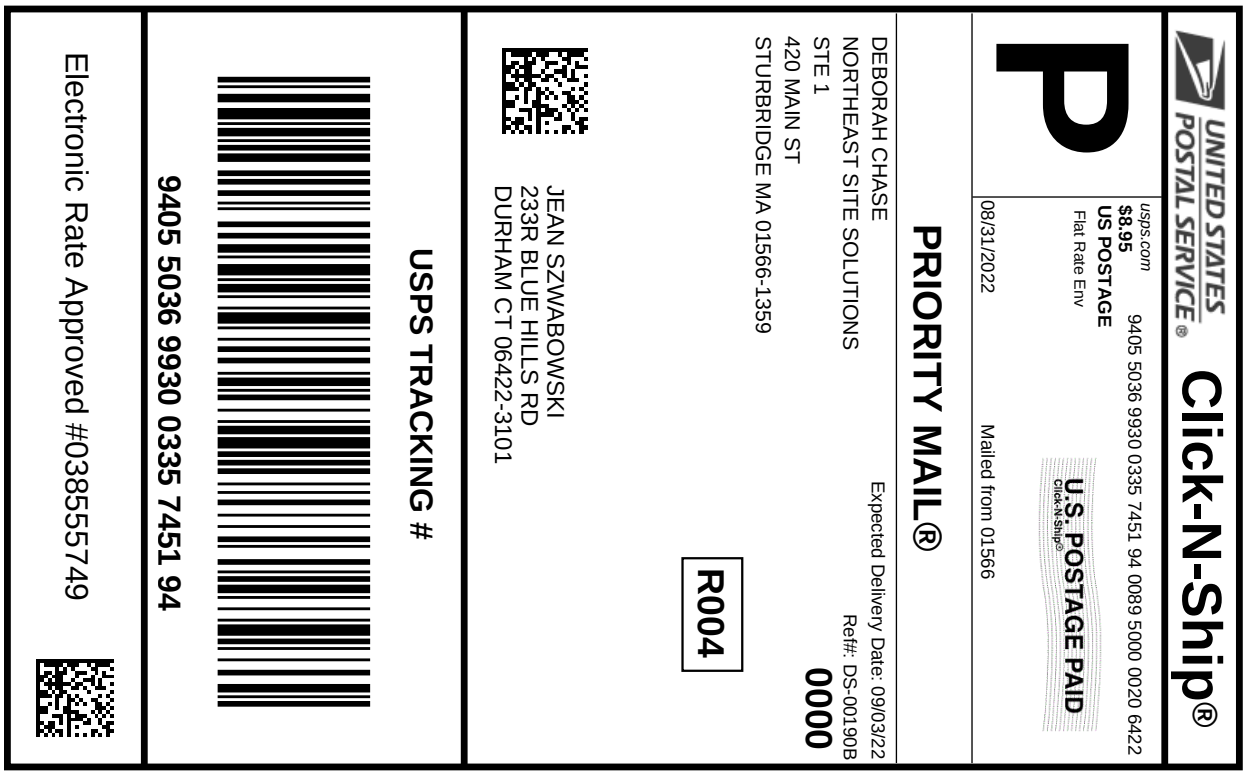

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 94

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: JEAN SZWABOWSKI
233R BLUE HILLS RD
DURHAM CT 06422-3101

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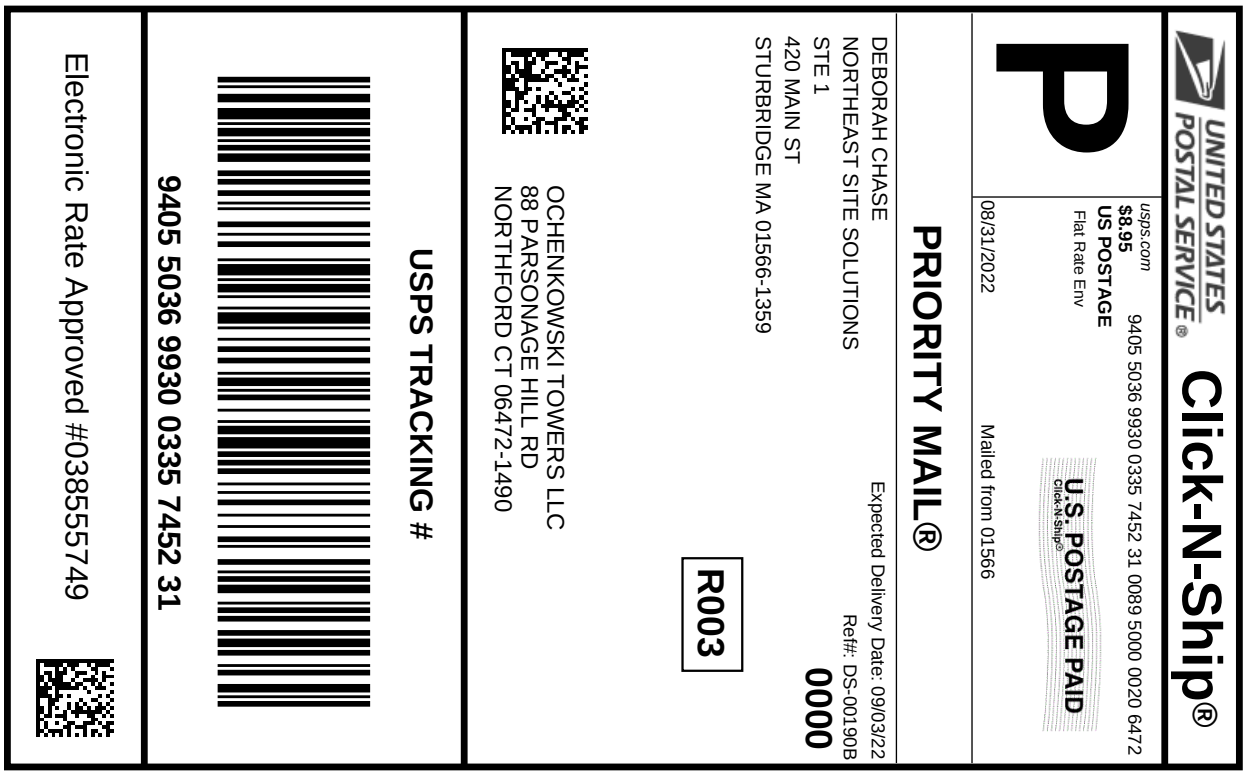

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7452 31

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: OCHENKOWSKI TOWERS LLC
88 PARSONAGE HILL RD
NORTHFORD CT 06472-1490

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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BOHVNW01903 D182

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

09/06/2022 08:49 AM

Product	Qty	Unit Price	Price
Prepaid Mail Durham, CT 06422 Weight: 0 lb 8.70 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0335 7451 94	1		$0.00
Prepaid Mail Northford, CT 06472 Weight: 0 lb 8.60 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0335 7452 31	1		$0.00
Prepaid Mail North Branford, CT 06471 Weight: 0 lb 8.70 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0335 7451 70	1		$0.00
Prepaid Mail North Branford, CT 06471 Weight: 0 lb 8.60 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0335 7451 87	1		$0.00
Grand Total:			$0.00

****
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eligible to receive a third set
of 8 free test kits.
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****

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Track your Packages
Sign up for FREE @
https://informeddelivery.usps.com

All sales final on stamps and postage.
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Thank you for your business.

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or scan this code with your mobile device,

or call 1-800-410-7420.