INDUSTRIAL AVE,
TE 3
HWAH NJ 07430

ONE: 201.684.0055
: 201.684.0066

Transcend Wireless

May 13th, 2022

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

RE: Notice of Exempt Modification
302 Ball Pond Road, New Fairfield, CT 06812
Latitude: 41.275307
Longitude: -73.294888
T-Mobile Site#: CT11797A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 145-foot level of the existing 175-foot monopole tower at 302 Ball Pond Road, New Fairfield, CT. The 175-foot monopole tower and property are owned and operated by the Town of New Fairfield. T-Mobile now intends to remove and replace (9) antennas at the 145-foot level of the tower. These antennas will support 5G services.

Planned Modifications:
Tower:
Install New:
(3) Ericsson AIR 6419 B41 Antennas
(3) Commscope VV-65A-R1 Antennas
(3) RFS APXVAALL24 Antennas
(3) Radio 4460 B25 B66
(3) Radio 4480 B71 B85
(3) 6x24 Hybrid Cables

To Be Removed:
(6) AIR21 Antennas
(3) LNX 6515DS Antennas
(3) RRUS11 B12
(6) Existing TMAs
All existing coax cables

Ground:
Install (1) 6160 Power Enclosure
Install (1) B160 Battery Cabinet
Remove (1) 6131 Cabinet and Battery SideCar

This facility was approved by the Town of New Fairfield Planning Commission on March 25, 2002. The proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Patricia Del Monaco, Elected Official, and Evan White, Zoning Enforcement Officerl, as well as the tower and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S;A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Patricia Del Monaco - First Selectman of New Fairfield
Evan White - Zoning Enforcement Officer


ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495
1 LBS
1 OF 1
SHIP TO:
ZONING ENFORCEMENT OFFICER
EVAN WHITE
4 BRUSH HILL ROAD
NEW FAIRFIELD CT 06812
CT 068 0-01
UPS GROUND
TRACKING #: 1Z V25 742 03 9861 8152
BILLING: P/P
Reference #1: CT11797A
XOL 22.04.20 NV45 20.0A 05/2022*


ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495
1 LBS
1 OF 1
SHIP TO:
PATRICIA DEL MONACO
4 BRUSH HILL ROAD
NEW FAIRFIELD CT 06812
CT 068 0-01
UPS GROUND
TRACKING #: 1Z V25 742 03 9730 8140
BILLING: P/P
Reference #1: CT11797A
XOL 22.04.20 NV45 20.0A 05/2022*

Hello, your package has been delivered.

Delivery Date: Tuesday, 05/10/2022

Delivery Time: 11:40 AM

Signed by: TOWN CLERK

TRANSCEND WIRELESS

Tracking Number:	1ZV257420398618152
Ship To:	EVAN WHITE 4 BRUSH HILL ROAD NEW FAIRFIELD, CT 06812 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT11797A

Hello, your package has been delivered.

Delivery Date: Tuesday, 05/10/2022

Delivery Time: 11:40 AM

Signed by: TOWN CLERK

TRANSCEND WIRELESS

Tracking Number:	1ZV257420397308140
Ship To:	PATRICIA DEL MONACO 4 BRUSH HILL ROAD NEW FAIRFIELD, CT 06812 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT11797A


Rita Dr
Rita Dr
Ball Pond Rd
Overbrook Dr
New Fairfield
Police Department
39
Rich Rob Associates
302 Ball Pond Rd, New
Fairfield, CT 06812
Ball Pond Rd
Lubus Raymond C
Consolidated School
New Fairfield Baseball
39
39
Barnum Rd
Margerie Dr
Laidlaw Transit
MEETING HOUSE
HILL SCHOOL
Dufour Transportation
Congregational Church
of New Fairfield
St Edward the
Confessor Roman
Gillotti Rd

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 6 | Print Date 3/25/2020 4:16:01 PM

CURRENT OWNER

NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

SUPPLEMENTAL DATA

Alt Prcl ID	23 16 15-16	BAA	
State Clas	200	Section	3
St Cls Cod	903		
Census Tr	2201000000	Asking	
Devl Lot #		callback	
Survey Ma	3275 / 3476		
GIS ID	00037200	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
BAAX	BAAX	1,417,800	992,400
CAAX	CAAX	1,534,900	1,074,500
DBAX	DBAX	8,141,100	5,698,800
DBAX	DBAX	2,480,600	1,736,400
DBAX	DBAX	1,453,700	1,017,600
	Total	15,028,100	10,519,700

6091

NEW FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
NEW FAIRFIELD TOWN OF	0461	1055	03-18-2010	U	V	0	29
NEW FAIRFIELD TOWN OF	0000	0000	01-01-1900	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	BAAX	992,400	2018	BAAX	1,021,700	2017	BAAX	1,021,700
	CAAX	1,074,500		BAAX	101,400		BAAX	101,400
	DBAX	5,698,800		CAAX	1,179,100		CAAX	1,179,100
	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

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
1				

NOTES

CO FOR ANTENNA + BLDGS - #05-113 7/9/05
2019-BLDG 1 MEETING HOUSE SCHOOL; ELV-2
STOPS, 2000 #, 75 FPM, IA; 10-06 ADDS
SHD; IA; BAS (-540) = COURTYARD
BAS (-96)= CTH AREA
30000 - 10% VAC/EXP = 21600 / .10 =
270,000 CELL TENANT VALUE
PER SURVEY 3275, 3.62 AC REMOVED FROM
41.85 AC. ADDED TO 23 16 12 & 13
SURVEY ALSO COMBINES LOTS 15& 16,
DELETING 16

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	11,064,800
Appraised Xf (B) Value (Bldg)	29,000
Appraised Ob (B) Value (Bldg)	1,453,700
Appraised Land Value (Bldg)	2,480,600
Special Land Value	0
Total Appraised Parcel Value	15,028,100
Valuation Method	C
Total Appraised Parcel Value	15,028,100

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
B15-015	02-13-2015	CM	CELL TOWER			100		
11-00084	07-05-2011	CM	NEW RBS 6601			100		
10-65	06-24-2010	CM	MODIFY TLEL			100		
156	12-22-2009	CM	ANTENAS AND			100		
6-157	08-16-2006		SHED		08-29-2006	100		
5-044	04-01-2005	BP	8X10 SHED			100	03-16-2007	CO# 7-42 NAC
04-106	05-14-2004		TMOBILE EQUI			100	07-08-2005	

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
07-18-2019	ES			00	Meas. & Listed
09-09-2009	JL			12	Field Review
04-17-2009	MI	01		00	Meas. & Listed
10-07-2005	AJ			13	Permit field check
08-26-2004	AJ			12	Field Review

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
1	909	Education	2		1.000	AC	152,000.00	1.00000	A	1.00	C	1.000			0		152,000
1	909	Education	2		12.000	AC	152,000.00	1.00000	0	1.00	C	1.000			0		1,824,000
1	909	Education			25.230	AC	20,000.00	1.00000	0	1.00	C	1.000			0		504,600
		Total Card Land Units			38.230	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location	302 BALL POND RD		Map ID	23/ 16/ 15/ /		Bldg Name	State Use 909
Vision ID 378		Account # 00037200		Bldg # 1	Sec # 1 of 1	Card # 1 of 6	Print Date 3/25/2020 4:16:03 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	60	Public School
Model	94	Commercial
Grade	B	B
Stories:	1	
Occupancy	1.00	
Exterior Wall 1	25	Vinyl
Exterior Wall 2	20	Brick/Masonry
Roof Structure	03	Gable/Hip
Roof Cover	03	Asphalt Shngl.
Interior Wall 1	05	Drywall/Sheet
Interior Wall 2	01	Minim/Masonry
Interior Floor 1	06	Inlaid Sht Gds
Interior Floor 2	14	Carpet
Heating Fuel	02	Oil
Heating Type	04	Forced Air-Duc
AC Type	06	Partial
Bldg Use	909	Education
Heat/AC	02	HEAT/AC SPLIT
Frame Type	03	MASONRY
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	05	SUS-CEIL & WL
Rooms/Prtns	02	AVERAGE
Wall Height	12.00	
% Comn Wall	0.00	
1st Floor Use:	903	903

CONSTRUCTION DETAIL (CONTINUED)

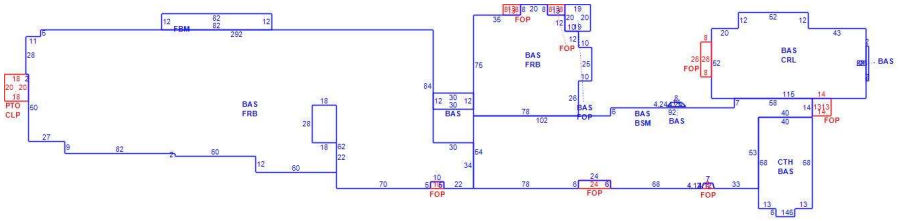
Element	Cd	Description

MIXED USE

Code	Description	Percentage
909	Education	100
		0
		0

COST / MARKET VALUATION

RCN	14,753,798
Year Built	1940
Effective Year Built	1974
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	45
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	55
Cns Sect Rcnld	8,114,600
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
PAV2	PAVING-CONC	L	100	2.80	2003	00	100	00	1.00	300
PAV1	PAVING-ASPH	L	103,00	1.80	2003	A	50	C	1.00	92,700
SPR3	SPRINKLERS-	B	6,604	2.75	1977		55		0.00	10,000
CNP2	CANOPY-GOO	L	546	25.00	1940	A	50	C	1.00	6,800
SHD1	Shed	L	476	14.00		A	50	C	1.00	3,300
ELV3	Residential Elev	B	1	30000.00	1977		55		0.00	16,500
SHD1	Shed	L	80	14.00	2009	A	50	C	1.00	600
CELL	Cell Tenant	L	5	270000.0	2009	G	100	C	0.00	1,350,000

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	59,749	59,749	59,749	154.23	9,214,897
BSM	Basement	0	12,618	3,155	38.56	486,586
CLP	Loading Platform Covered	0	360	108	46.27	16,656
CRL	Crawl Space	0	6,604	0	0.00	0
CTH	Cathedral	0	2,804	280	15.40	43,184
FBM	FBM	689	984	689	107.99	106,262
FOP	Open Porch	0	1,204	301	38.56	46,422
FRB	FRB	31,363	36,898	31,363	131.09	4,837,015
PTO	Patio	0	360	18	7.71	2,776
	Ttl Gross Liv / Lease Area	91,801	121,581	95,663		14,753,798

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 6 | Print Date 3/25/2020 4:16:05 PM

CURRENT OWNER

NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

SUPPLEMENTAL DATA

Alt Prcl ID	23 16 15-16	BAA	
State Clas	200	Section	3
St Cls Cod	903		
Census Tr	2201000000	Asking	
Devl Lot #		callback	
Survey Ma	3275 / 3476		
GIS ID	00037200	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
BAAX	BAAX	1,417,800	992,400
CAAX	CAAX	1,534,900	1,074,500
DBAX	DBAX	8,141,100	5,698,800
DBAX	DBAX	2,480,600	1,736,400
DBAX	DBAX	1,453,700	1,017,600
Total		15,028,100	10,519,700

6091

NEW FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
NEW FAIRFIELD TOWN OF	0461	1055	03-18-2010	U	V	0	29
NEW FAIRFIELD TOWN OF	0000	0000	01-01-1900	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	BAAX	992,400	2018	BAAX	1,021,700	2017	BAAX	1,021,700
	CAAX	1,074,500		BAAX	101,400		BAAX	101,400
	DBAX	5,698,800		CAAX	1,179,100		CAAX	1,179,100
	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

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
1				

NOTES

FIREHOUSE
9 BAYS

APPRAISED VALUE SUMMARY

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Special Land Value	0
Total Appraised Parcel Value	15,028,100
Valuation Method	C
Total Appraised Parcel Value	15,028,100

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
2	907	Fire Vol.	2		0.000	AC	152,000.00	1.00000	1	1.00	45	0.900	FIRE STATION		0		0
				Total Card Land Units	0.000	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location	302 BALL POND RD		Map ID	23/ 16/ 15/ /		Bldg Name	State Use 909
Vision ID 378		Account # 00037200		Bldg # 2	Sec # 1 of 1	Card # 2 of 6	Print Date 3/25/2020 4:16:07 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	59	Fire Station
Model	94	Commercial
Grade	B	B
Stories:	2	
Occupancy	1.00	
Exterior Wall 1	20	Brick/Masonry
Exterior Wall 2		
Roof Structure	06	Mansard
Roof Cover	10	Wood Shingle
Interior Wall 1	03	Plastered
Interior Wall 2	04	Plywood Panel
Interior Floor 1	01	Dirt/None
Interior Floor 2	05	Vinyl/Asphalt
Heating Fuel	02	Oil
Heating Type	05	Hot Water
AC Type	01	None
Bldg Use	907	Fire Vol.
Heat/AC	02	HEAT/AC SPLIT
Frame Type	03	MASONRY
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	06	CEIL & WALLS
Rooms/Prtns	02	AVERAGE
Wall Height	14.00	
% Comn Wall	0.00	
1st Floor Use:	903	903

CONSTRUCTION DETAIL (CONTINUED)

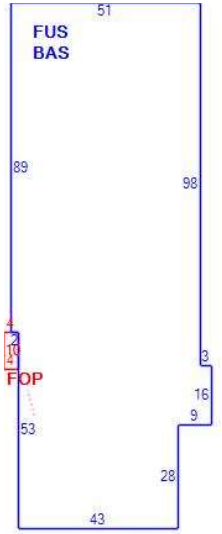
Element	Cd	Description

MIXED USE

Code	Description	Percentage
907	Fire Vol.	100
		0
		0

COST / MARKET VALUATION

RCN	1,868,793
Year Built	1981
Effective Year Built	2001
Depreciation Code	G
Remodel Rating	
Year Remodeled	
Depreciation %	18
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	82
Cns Sect Rcnld	1,532,400
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
GEN	Generator	B	1	3000.00	2019	A	82	C	0.00	2,500

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	7,016	7,016	7,016	136.50	957,669
FOP	Open Porch	0	40	10	34.12	1,365
FUS	Finished Upper Story	6,665	7,016	6,665	129.67	909,759
	Ttl Gross Liv / Lease Area	13,681	14,072	13,691		1,868,793

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 3 | Sec # 1 of 1 | Card # 3 of 6 | Print Date 3/25/2020 4:16:09 PM

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NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

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Total		15,028,100	10,519,700

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	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

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ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
1				

NOTES

COMM TOWER-
POLICE STATION

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	11,064,800
Appraised Xf (B) Value (Bldg)	29,000
Appraised Ob (B) Value (Bldg)	1,453,700
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Total Appraised Parcel Value	15,028,100

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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	901C	Municipal-Comm	2		0.000	AC	152,000.00	1.00000	1	1.00	45	0.900	POLICE DEPT		0		0
				Total Card Land Units	0.000	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location	302 BALL POND RD		Map ID	23/ 16/ 15/ /		Bldg Name	State Use 909
Vision ID 378		Account # 00037200		Bldg # 3	Sec # 1 of 1	Card # 3 of 6	Print Date 3/25/2020 4:16:11 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	61	Police
Model	94	Commercial
Grade	C	C
Stories:	2	
Occupancy	1.00	
Exterior Wall 1	20	Brick/Masonry
Exterior Wall 2		
Roof Structure	03	Gable/Hip
Roof Cover	03	Asphalt Shngl.
Interior Wall 1	05	Drywall/Sheet
Interior Wall 2	01	Minim/Masonry
Interior Floor 1	11	Ceram Clay Til
Interior Floor 2	05	Vinyl/Asphalt
Heating Fuel	02	Oil
Heating Type	04	Forced Air-Duc
AC Type	03	Central
Bldg Use	901C	Municipal-Comm
Heat/AC	01	HEAT/AC PKGS
Frame Type	03	MASONRY
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	05	SUS-CEIL & WL
Rooms/Prtns	02	AVERAGE
Wall Height	14.00	
% Comn Wall	0.00	
1st Floor Use:	903	903

CONSTRUCTION DETAIL (CONTINUED)

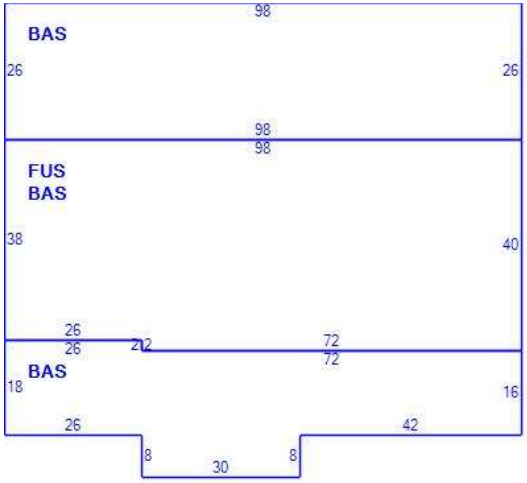
Element	Cd	Description

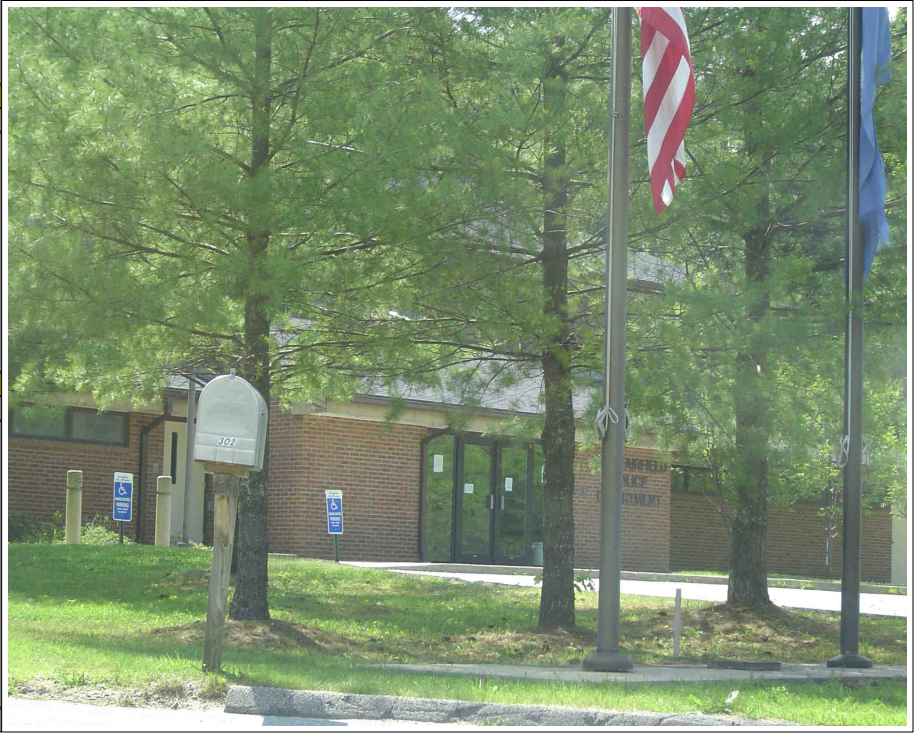
MIXED USE

Code	Description	Percentage
901C	Municipal-Comm	100
		0
		0

COST / MARKET VALUATION

RCN	1,503,675
Year Built	1989
Effective Year Built	2005
Depreciation Code	G
Remodel Rating	
Year Remodeled	
Depreciation %	14
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	86
Cns Sect Rcnld	1,293,200
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

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	8,276	8,276	8,276	125.82	1,041,286
FUS	Finished Upper Story	3,675	3,868	3,675	119.54	462,389
	Ttl Gross Liv / Lease Area	11,951	12,144	11,951		1,503,675

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 4 | Sec # 1 of 1 | Card # 4 of 6 | Print Date 3/25/2020 4:16:12 PM

CURRENT OWNER

NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

SUPPLEMENTAL DATA

Alt Prcl ID	23 16 15-16	BAA	
State Clas	200	Section	3
St Cls Cod	903		
Census Tr	2201000000	Asking	
Devl Lot #		callback	
Survey Ma	3275 / 3476		
GIS ID	00037200	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
BAAX	BAAX	1,417,800	992,400
CAAX	CAAX	1,534,900	1,074,500
DBAX	DBAX	8,141,100	5,698,800
DBAX	DBAX	2,480,600	1,736,400
DBAX	DBAX	1,453,700	1,017,600
	Total	15,028,100	10,519,700

6091

NEW FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
NEW FAIRFIELD TOWN OF	0461	1055	03-18-2010	U	V	0	29
NEW FAIRFIELD TOWN OF	0000	0000	01-01-1900	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	BAAX	992,400	2018	BAAX	1,021,700	2017	BAAX	1,021,700
	CAAX	1,074,500		BAAX	101,400		BAAX	101,400
	DBAX	5,698,800		CAAX	1,179,100		CAAX	1,179,100
	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

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
1				

NOTES

CINGULAR BLDG
ESTIMATED FROM PERMIT
INFO 7/04

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	11,064,800
Appraised Xf (B) Value (Bldg)	29,000
Appraised Ob (B) Value (Bldg)	1,453,700
Appraised Land Value (Bldg)	2,480,600
Special Land Value	0
Total Appraised Parcel Value	15,028,100
Valuation Method	C
Total Appraised Parcel Value	15,028,100

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	901C	Municipal-Comm	2		0.000	AC	0.00	1.00000	1	1.00	45	0.900			0		0
		Total Card Land Units			0.000	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 4 | Sec # 1 of 1 | Card # 4 of 6 | Print Date 3/25/2020 4:16:14 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	97	Tower support
Model	94	Commercial
Grade	C	C
Stories:	1	
Occupancy	0.00	
Exterior Wall 1	19	Brick Veneer
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	04	Tar & Gravel
Interior Wall 1	01	Minim/Masonry
Interior Wall 2		
Interior Floor 1	03	Concr-Finished
Interior Floor 2		
Heating Fuel	03	Gas
Heating Type	04	Forced Air-Duc
AC Type	03	Central
Bldg Use	948	Misc
Heat/AC	02	HEAT/AC SPLIT
Frame Type	02	WOOD FRAME
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	00	NONE
Rooms/Prtns	01	LIGHT
Wall Height	8.00	
% Comn Wall	0.00	
1st Floor Use:		

CONSTRUCTION DETAIL (CONTINUED)

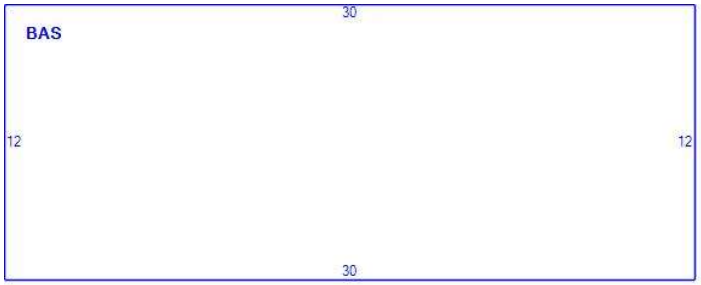
Element	Cd	Description

MIXED USE

Code	Description	Percentage
901C	Municipal-Comm	100
		0
		0

COST / MARKET VALUATION

RCN	42,689
Year Built	2004
Effective Year Built	2006
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	13
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	87
Cns Sect Rcnld	37,100
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

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	360	360	360	118.58	42,689
	Ttl Gross Liv / Lease Area	360	360	360		42,689

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 5 | Sec # 1 of 1 | Card # 5 of 6 | Print Date 3/25/2020 4:16:15 PM

CURRENT OWNER

NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

SUPPLEMENTAL DATA

Alt Prcl ID	23 16 15-16	BAA	
State Clas	200	Section	3
St Cls Cod	903		
Census Tr	2201000000	Asking	
Devl Lot #		callback	
Survey Ma	3275 / 3476		
GIS ID	00037200	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
BAAX	BAAX	1,417,800	992,400
CAAX	CAAX	1,534,900	1,074,500
DBAX	DBAX	8,141,100	5,698,800
DBAX	DBAX	2,480,600	1,736,400
DBAX	DBAX	1,453,700	1,017,600
	Total	15,028,100	10,519,700

6091

NEW FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
NEW FAIRFIELD TOWN OF	0461	1055	03-18-2010	U	V	0	29
NEW FAIRFIELD TOWN OF	0000	0000	01-01-1900	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	BAAX	992,400	2018	BAAX	1,021,700	2017	BAAX	1,021,700
	CAAX	1,074,500		BAAX	101,400		BAAX	101,400
	DBAX	5,698,800		CAAX	1,179,100		CAAX	1,179,100
	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

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
1				

NOTES

EQUIP BLDG INFO ESTIMATED
PER PERMIT 7/04
10-07 CHG COMMERCIAL CODE TO EXEMPT CODE
NO CHANGE IN ASMT

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	11,064,800
Appraised Xf (B) Value (Bldg)	29,000
Appraised Ob (B) Value (Bldg)	1,453,700
Appraised Land Value (Bldg)	2,480,600
Special Land Value	0
Total Appraised Parcel Value	15,028,100
Valuation Method	C
Total Appraised Parcel Value	15,028,100

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
5	901C	Municipal-Comm	2		0.000	AC	10,000.00	1.00000	1	1.00	45	0.900			0		0
		Total Card Land Units			0.000	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 5 | Sec # 1 of 1 | Card # 5 of 6 | Print Date 3/25/2020 4:16:17 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	97	Tower support
Model	94	Commercial
Grade	C	C
Stories:	1	
Occupancy	0.00	
Exterior Wall 1	19	Brick Veneer
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	04	Tar & Gravel
Interior Wall 1	01	Minim/Masonry
Interior Wall 2		
Interior Floor 1	03	Concr-Finished
Interior Floor 2		
Heating Fuel	03	Gas
Heating Type	04	Forced Air-Duc
AC Type	03	Central
Bldg Use	948	Misc
Heat/AC	02	HEAT/AC SPLIT
Frame Type	02	WOOD FRAME
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	00	NONE
Rooms/Prtns	01	LIGHT
Wall Height	8.00	
% Comn Wall	0.00	
1st Floor Use:		

CONSTRUCTION DETAIL (CONTINUED)

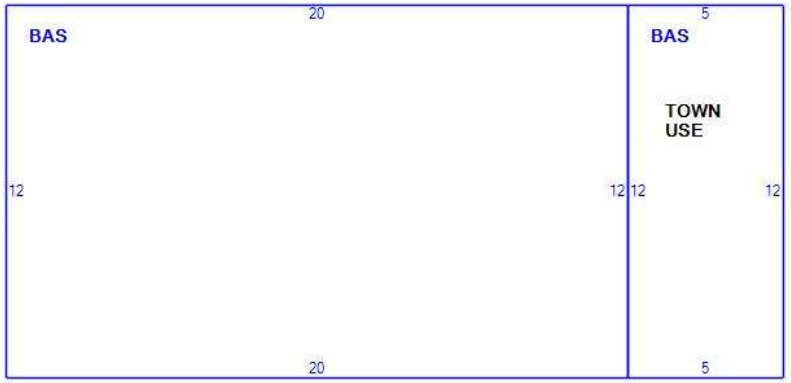
Element	Cd	Description

MIXED USE

Code	Description	Percentage
901C	Municipal-Comm	100
		0
		0

COST / MARKET VALUATION

RCN	35,574
Year Built	2004
Effective Year Built	2006
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	13
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	87
Cns Sect Rcnld	30,900
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

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	300	300	300	118.58	35,574
	Ttl Gross Liv / Lease Area	300	300	300		35,574

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 6 | Sec # 1 of 1 | Card # 6 of 6 | Print Date 3/25/2020 4:16:18 PM

CURRENT OWNER

NEW FAIRFIELD TOWN OF
CONSOLIDATED SCHOOL & FIREHO
4 BRUSH HILL RD

NEW FAIRFIELD CT 06812

TOPO	UTILITIES	STRT / ROAD	LOCATION

SUPPLEMENTAL DATA

Alt Prcl ID	23 16 15-16	BAA	
State Clas	200	Section	3
St Cls Cod	903		
Census Tr	2201000000	Asking	
Devl Lot #		callback	
Survey Ma	3275 / 3476		
GIS ID	00037200	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
BAAX	BAAX	1,417,800	992,400
CAAX	CAAX	1,534,900	1,074,500
DBAX	DBAX	8,141,100	5,698,800
DBAX	DBAX	2,480,600	1,736,400
DBAX	DBAX	1,453,700	1,017,600
	Total	15,028,100	10,519,700

6091

NEW FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
NEW FAIRFIELD TOWN OF	0461	1055	03-18-2010	U	V	0	29
NEW FAIRFIELD TOWN OF	0000	0000	01-01-1900	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2019	BAAX	992,400	2018	BAAX	1,021,700	2017	BAAX	1,021,700
	CAAX	1,074,500		BAAX	101,400		BAAX	101,400
	DBAX	5,698,800		CAAX	1,179,100		CAAX	1,179,100
	DBAX	1,736,400		CAAX	101,400		CAAX	101,400
	Total	10519700		Total	11330800		Total	11330800

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
1				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	11,064,800
Appraised Xf (B) Value (Bldg)	29,000
Appraised Ob (B) Value (Bldg)	1,453,700
Appraised Land Value (Bldg)	2,480,600
Special Land Value	0
Total Appraised Parcel Value	15,028,100
Valuation Method	C
Total Appraised Parcel Value	15,028,100

NOTES

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
6	901C	Municipal-Comm			0.000	AC	0.00	1.00000	0	1.00		1.000			0		0
		Total Card Land Units			0.000	AC	Parcel Total Land Area:			38.2300						Total Land Value	2,480,600

Property Location 302 BALL POND RD | Map ID 23/ 16/ 15/ / | Bldg Name | State Use 909
Vision ID 378 | Account # 00037200 | Bldg # 6 | Sec # 1 of 1 | Card # 6 of 6 | Print Date 3/25/2020 4:16:20 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	97	Tower support
Model	94	Commercial
Grade	C	C
Stories:	1	
Occupancy		
Exterior Wall 1	19	Brick Veneer
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	04	Tar & Gravel
Interior Wall 1	01	Minim/Masonry
Interior Wall 2		
Interior Floor 1	03	Concr-Finished
Interior Floor 2		
Heating Fuel	03	Gas
Heating Type	04	Forced Air-Duc
AC Type	03	Central
Bldg Use	901C	Municipal-Comm
Heat/AC	02	HEAT/AC SPLIT
Frame Type	02	WOOD FRAME
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	00	NONE
Rooms/Prtns	01	LIGHT
Wall Height	8.00	
% Comn Wall		
1st Floor Use:		

CONSTRUCTION DETAIL (CONTINUED)

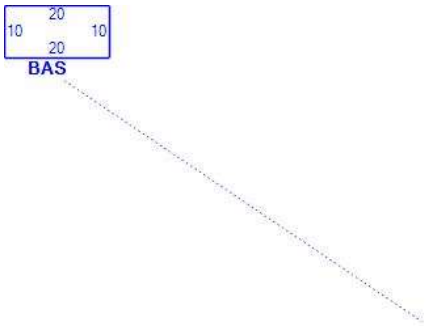
Element	Cd	Description

MIXED USE

Code	Description	Percentage
901C	Municipal-Comm	100
		0
		0

COST / MARKET VALUATION

RCN	65,002
Year Built	2004
Effective Year Built	2006
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	13
Functional Obsol	
External Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	87
Cns Sect Rcnld	56,600
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

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	200	200	200	325.01	65,002
	Ttl Gross Liv / Lease Area	200	200	200		65,002

The Planning Commission

Town of New Fairfield
New Fairfield, Connecticut 06812

Regular Meeting
Monday, March 25, 2002
Town Hall Conference Room, 7:30pm

MINUTES - REVISED

Commissioners Present: Jim Piskura, Ron Stoddard, Chris Gould, Dale Holly

Alternates Present: Jim Mitchell, Joe Longo

Staff Present: Jeannine Fitzgerald

Commissioners Absent: Bill DiTullio, Mike Verrico

Call to Order: 7:37 pm

Appt of Alternates
Chris Gould made motion to elevate Jim Mitchell to full voting status. Seconded by Dale Holly.

Approval of Minutes:
Dale Holly made motion to accept Feb 25th minutes as is. Chris Gould seconded. All in favor.
Dale Holly made motion to accept Mar 11th special minutes. Chris Gould seconded. All in favor. Ron Stoddard abstained.

Correspondence/Announcements:
1. Email from Tony Iadarola re: updates, etc.
2. Email from Tony March 24, 2002 re: Pine Hill
3. Email from Jeannine re: vacation next month. Need someone to take care of agenda, minutes, legal notices and votes.

Jim Piksura will not be at the April 8, 2002 Planimetrics meeting at 7pm.
Jeannine to republish the notice again in CN for next Weds. April 3rd.

OLD BUSINESS
Chelsea Drive - waiting for correspondence
Sonneborn Estates - pending
Pine Hill Subdivision- pending

NEW BUSINESS
Communication Tower – 302 Ball Pond Road Referral
Location is behind Fire House & Police Station
Russ Strilowich, Chairman of the Permanent Building Committee present.

8.24 Referral to Zoning sought

>Chris Gould made motion to grant a positive referral to the PBC. Dale Holly seconded. All in favor.

3:30

The Planning Commission

Town of New Fairfield
New Fairfield, Connecticut 06812

MEMO

TO: Permanent Building Committee

FROM: Jeannine Fitzgerald

RE: Referral for Amendment to Zoning Regulations

DATE: March 26, 2002

The Planning Commission of New Fairfield granted a positive referral to the Communication Tower at 302 Ball Pond Road.

Call me or Jim Piskura at 746-1180 if you have any questions.

cc: Jim Piskura
Maria Haussherr-Hughes
First Selectman's Office

Hand Delivered to Mail Box

ZONING PERMIT

ZONING COMMISSION

TOWN OF NEW FAIRFIELD
4 BRUSH HILL ROAD
NEW FAIRFIELD, CT 06812
203-746-8140

PROPERTY OWNER: Town Of New Fairfield

OWNER'S ADDRESS: 302 Ball Pond Road
New Fairfield, CT 06812

PROPERTY ADDRESS: 302 Ball Pond Road

ZONE: R **MAP: 23** **BLOCK: 16** **LOT: 15-16**

LOT SIZE: **FRONTAGE:**

PROJECT DESCRIPTION: CONSTRUCTION OF ACCESS ROAD TO 100' X 100' COMPOUND FOR 175 FOOT COMMUNICATION TOWER FOR TOWN EMS ANTENNAS

CONSTRUCTION MAY NOT PROCEED UNTIL
A BUILDING PERMIT HAS BEEN OBTAINED

THIS PERMIT MUST BE POSTED ON THE PREMISES

PERMIT VOID IF CONSTRUCTION AUTHORIZED IN NOT COMPLETED WITHIN ONE (1) YEAR OF ISSUANCE.

THIS PERMIT IF ISSUED, IS BASED UPON THE PLOT PLAN SUBMITTED. FALSIFICATION, BY MISREPRESENTATION OR OMISSION, OR FAILURE TO COMPLY WITH THE CONDITIONS OF APPROVAL OF THIS PERMIT SHALL CONSTITUTE A VIOLATION OF THE NEW FAIRFIELD ZONING REGULATIONS.

CONDITIONS OF APPROVAL:
Permit for structure only - Town Emergency Tower/Antenna exempt under section 2.13.10 of the New Fairfield Zoning Regulations.

PERMIT NO. ZO-01-120

DATE ISSUED 07/03/02

FEE waived
(INCLUDES $10. STATE SURCHARGE)

Maria Haussherr-Hughes
Maria Haussherr-Hughes
Zoning Enforcement Officer

TOWN OF NEW FAIRFIELD
4 BRUSH HILL ROAD, NEW FAIRFIELD, CT
203-312-5646

BUILDING PERMIT

POST THIS PERMIT CONSPICUOUSLY

Owner: Town Of New Fairfield
Address: 302 Ball Pond Road
Project Description: CONSTRUCTION OF ACCESS ROAD TO 100' X 100' COMPOUND FOR 175 FOOT COMMUNICATION TOWER FOR TOWN EMS ANTENNAS
Map: 23 **Block:** 16 **Lot:** 15-16

In accordance with application, plans and specifications submitted to the New Fairfield building department, this project will be completed subject to the State of Connecticut building code. Otherwise this permit will be null and void. Occupancy of this new building or addition prior to issuance of certification of occupancy will be considered a violation of the state building code.

Permit No: 02-133 **Fee $:** 0.00

Expires in six months if constructions is not then commenced

Ronald N. Malmberg, Building Official

Inspections:

Date Issued: 07/09/02

1. **Footings**
2. **Footing Drains**
3. **Framing (Rough)**
4. **Plumbing (Rough with Test)**
5. **Electrical**
6. **Insulation**
7. **Gas or Oil Burner**
8. **Final Elec. and Plumbing**
9. **Deck**
10. **Final - Fire Separation, Exits, etc.**

Conditions:

•

T-Mobile

SITE NAME: CT797/NEW FAIRFIELD MP
SITE ID: CT11797A
302 BALL POND RD
NEW FAIRFIELD, CT 06812

T-MOBILE A/L TEMPLATE (PROVIDED BY RFDS)
67E5998E_1xAIR+1OP+1QP

T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)
67E5D998E OUTDOOR

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.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
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.
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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
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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.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
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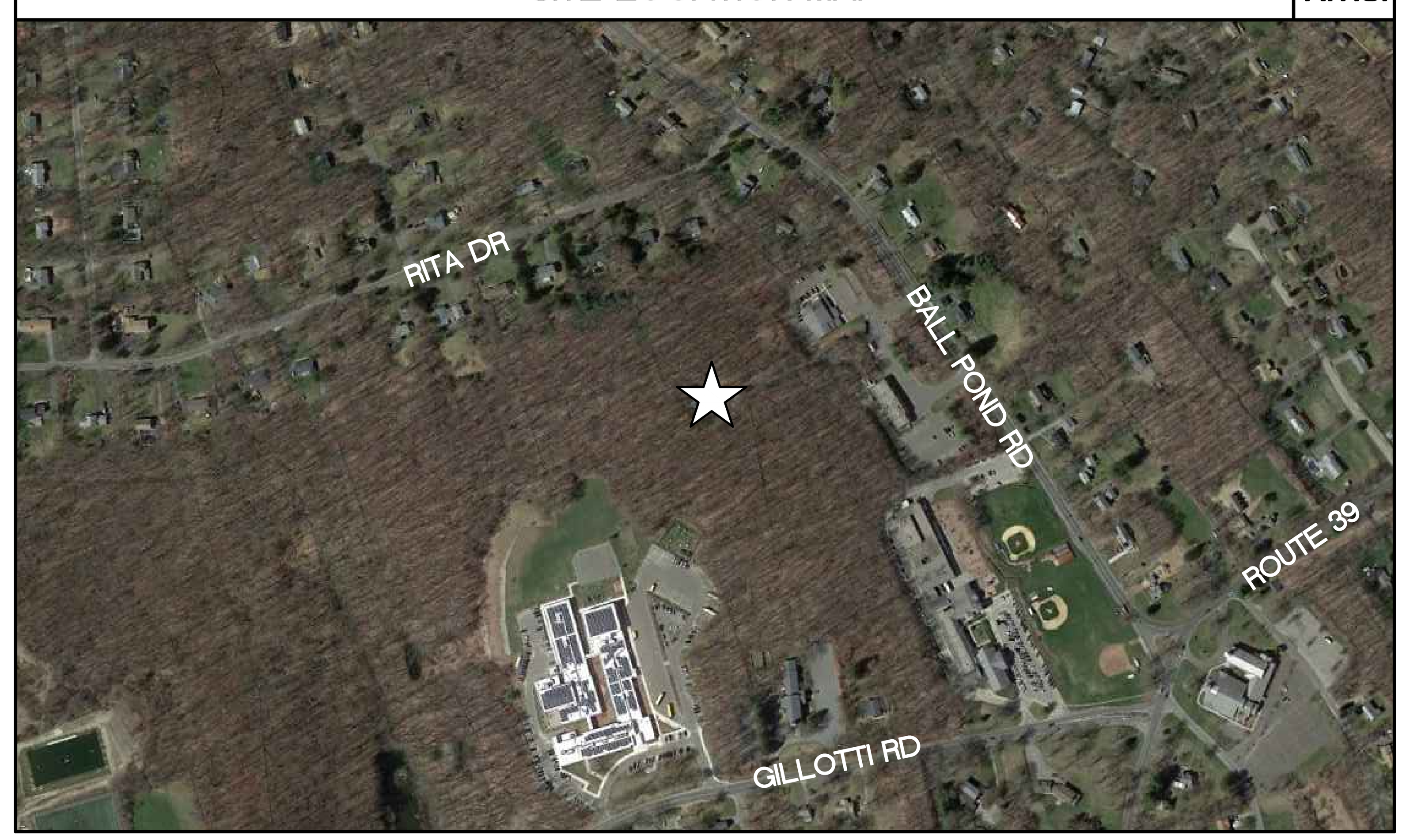
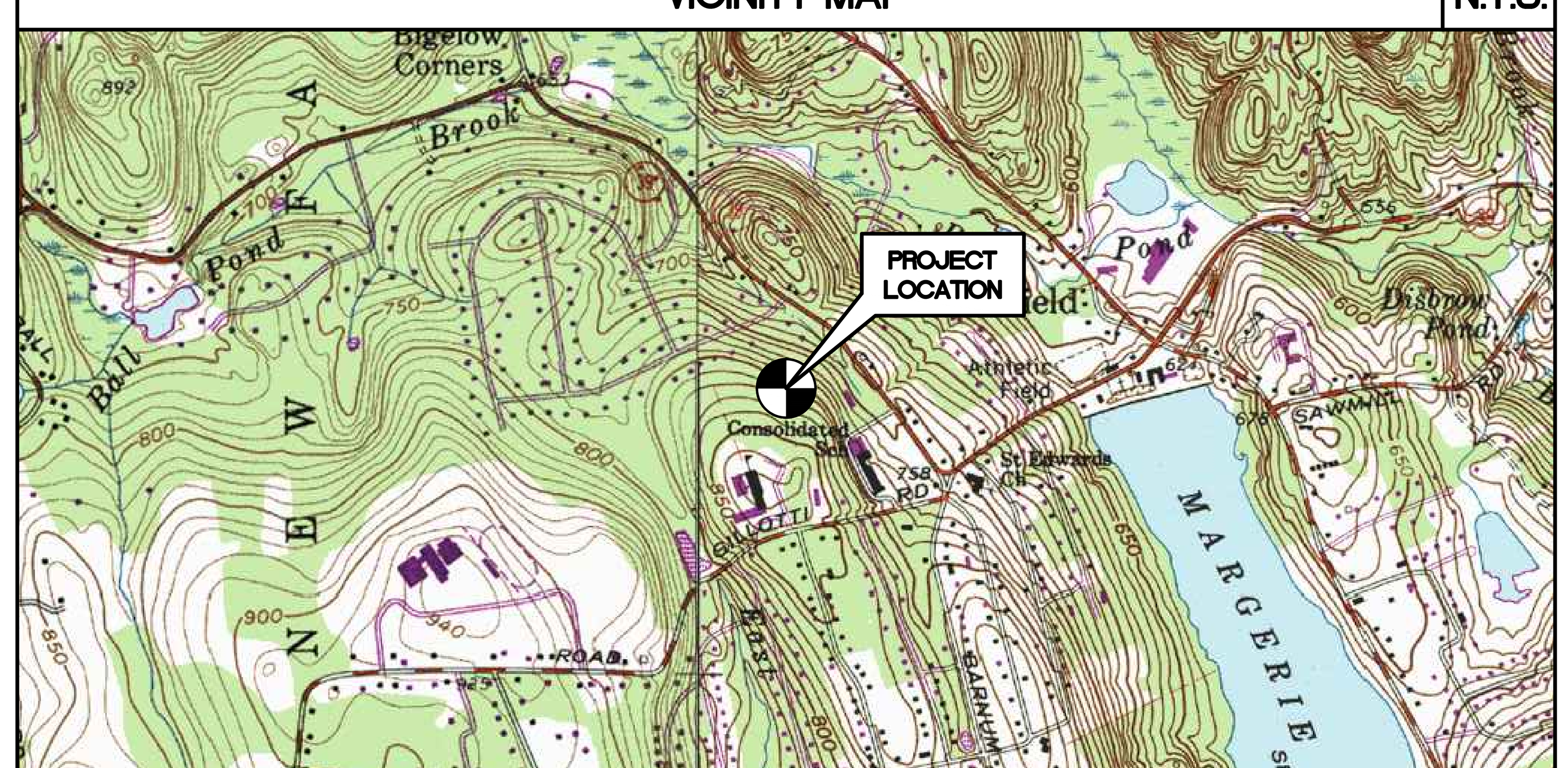
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

SITE LOCATION MAP — N.T.S.



VICINITY MAP — N.T.S.



COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH.

SITE COORDINATES: LATITUDE: 41° 27' 53.07" N
LONGITUDE: 73° 29' 48.88" W
GROUND ELEVATION: ±823' AMSL

NORTH

PROJECT SUMMARY

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

1. REMOVE EXISTING COAX CABLES
2. REMOVE EXISTING 6131 CABINET AND BATTERY SIDE CAR
3. REMOVE EXISTING ANDREW: LNX 6515DS-A1M, TYP. (1) PER SECTOR. TOTAL OF (3)
4. REMOVE EXISTING ERICSSON: AIR21 B2A_B4P, TYP. (1) PER SECTOR, TOTAL OF (3)
5. REMOVE EXISTING ERICSSON: AIR21 B2P_B4A, TYP. (1) PER SECTOR. TOTAL OF (3)
6. REMOVE EXISTING RRUS11 B12, TYP. (1) PER SECTOR. TOTAL OF (3)
7. REMOVE EXISTING EXISTING TMA, TYP. (2) PER SECTOR. TOTAL OF (6)
8. INSTALL (3) 6x24 HYBRID CABLES
9. INSTALL RFS: APXVAALL24_43-U-NA20 ANTENNA, TYP. (1) PER SECTOR. TOTAL OF (3)
10. INSTALL ERICSSON: AIR6419 B41 ANTENNA, TYP. (1) PER SECTOR. TOTAL OF (3)
11. INSTALL COMMSCOPE: VV-65A-R1 ANTENNA, TYP. (1) PER SECTOR. TOTAL OF (3)
12. INSTALL ERICSSON: RADIO 4460 B25+B66, TYP. (1) PER SECTOR. TOTAL OF (3)
13. INSTALL ERICSSON: RADIO 4480 B71+B85, TYP. (1) PER SECTOR. TOTAL OF (3)
14. INSTALL T-MOBILE 6160 POWER ENCLOSURE
15. INSTALL T-MOBILE B160 BATTERY CABINET
16. INSTALL NEW 100A CIRCUIT BREAKER TO SERVE NEW EQUIPMENT.

PROJECT INFORMATION

SITE NAME:	CT797/NEW FAIRFIELD MP
SITE ID:	CT11797A
SITE ADDRESS:	302 BALL POND RD NEW FAIRFIELD, CT 06812
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT. 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
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SHEET INDEX

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
0	05/04/22	RTS	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

T-Mobile
Transcend Wireless

T-MOBILE NORTHEAST LLC

SITE NAME: CT797/NEW FAIRFIELD MP
SITE ID: CT11797A
302 BALL POND RD
NEW FAIRFIELD, CT 06812

DATE: 03/05/22
SCALE: AS NOTED
JOB NO. 22022.12

TITLE SHEET

T-1

SHEET NO. 1 OF 8

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: 105 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.

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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) TMA (QTY)	(QTY) PROPOSED HYBRID/COAX
A1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	145'	40°	(P) RADIO 4480 B71+B85 (1)		(3) 6x24 HYBRID CABLE
A2	PROPOSED	ERICSSON (AIR6419 B41)	33 x 16 x 9	145'	40°			
A3	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	145'	40°	(P) RADIO 4460 B25+B66 (1)		
B1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	145'	160°	(P) RADIO 4480 B71+B85 (1)		
B2	PROPOSED	ERICSSON (AIR6419 B41)	33 x 16 x 9	145'	160°			
B3	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	145'	160°	(P) RADIO 4460 B25+B66 (1)		
C1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	145'	290°	(P) RADIO 4480 B71+B85 (1)		
C2	PROPOSED	ERICSSON (AIR6419 B41)	33 x 16 x 9	145'	290°			
C3	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	145'	290°	(P) RADIO 4460 B25+B66 (1)		

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

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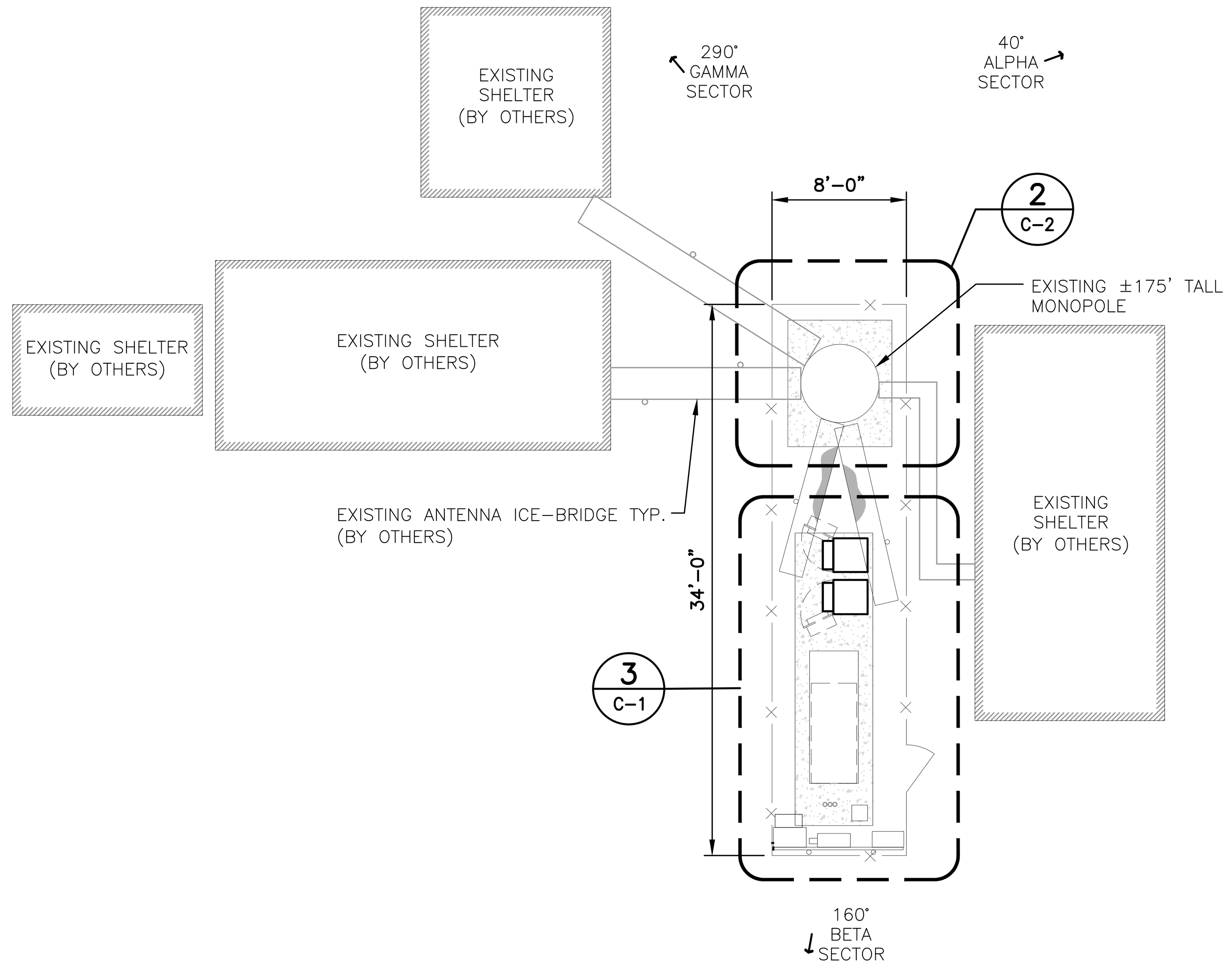
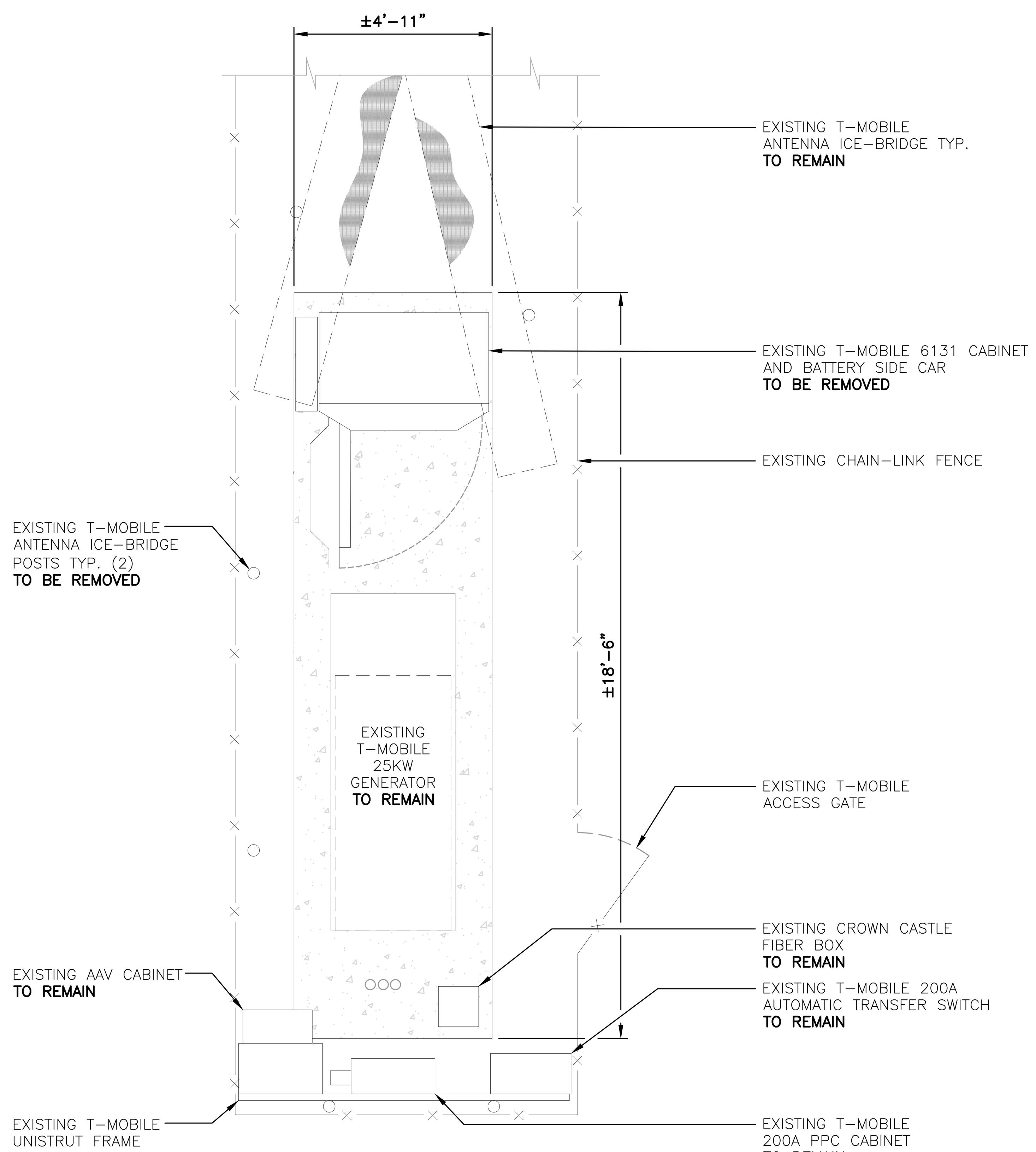
NOTES AND SPECIFICATIONS, ANT. SCHEDULE

N-1

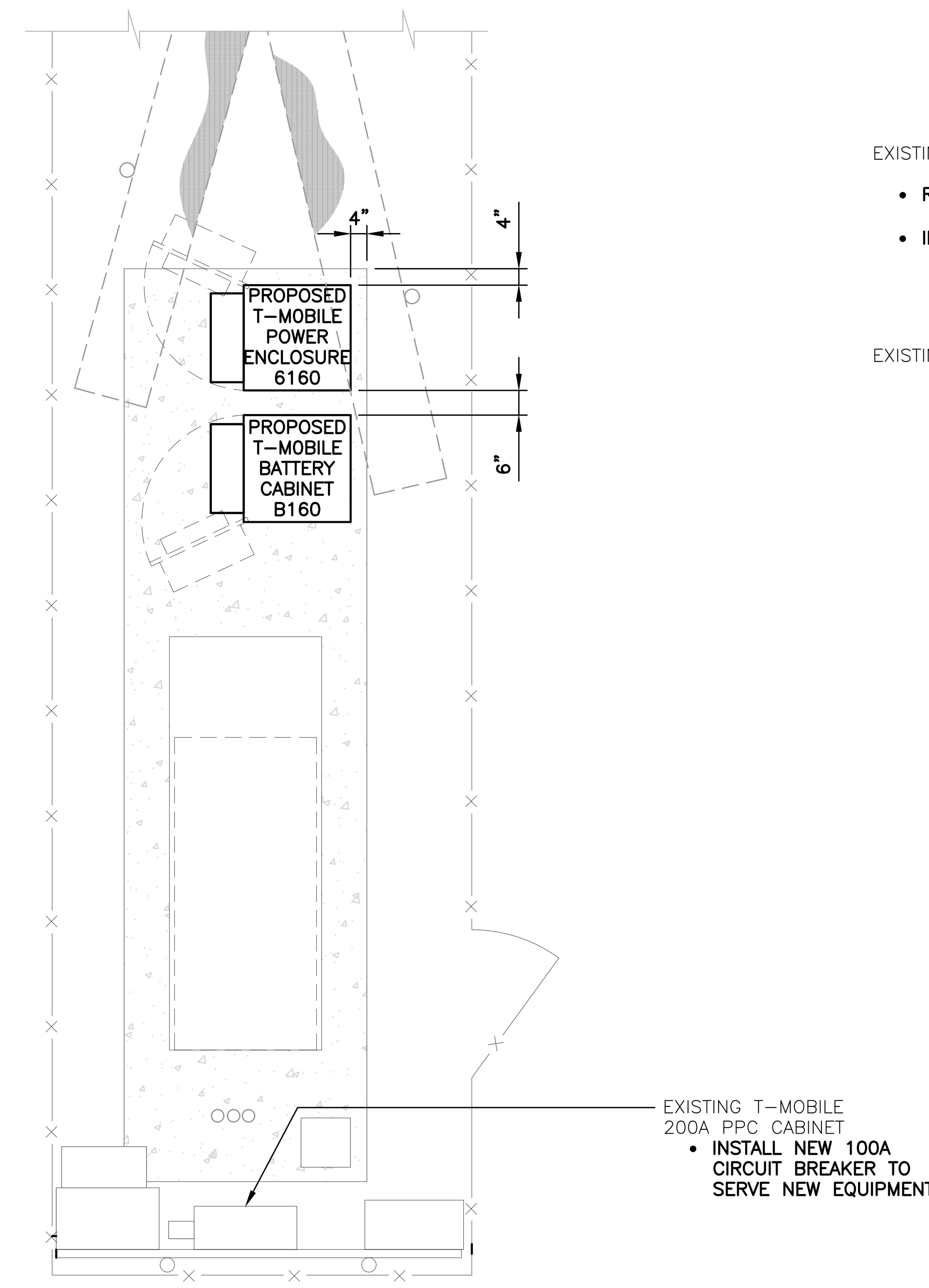
SHEET NO. 2 OF 8



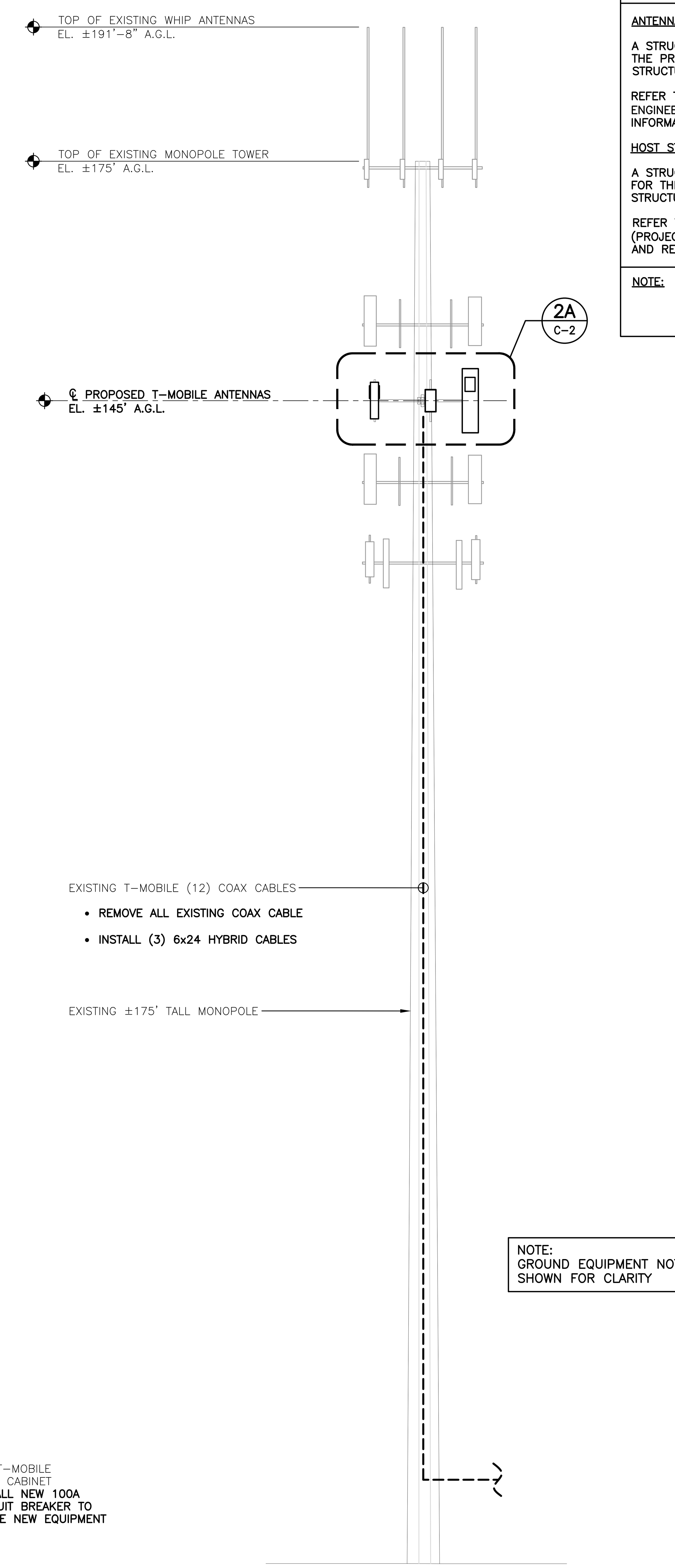
1 C-1 **PROPOSED COMPOUND PLAN**
SCALE: 1" = 8'
TRUE NORTH



2 C-1 **EXISTING EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH



3 C-1 **PROPOSED EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH



4 C-1 **PROPOSED TOWER ELEVATION**
SCALE: 1" = 10'

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 # 22022.12) DATED 04/21/22 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

HOST STRUCTURE

A STRUCTURAL EVALUATION OF THE HOST STRUCTURE WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND WAS FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL LETTER PREPARED BY CENTEK ENGINEERING (PROJECT # 22022.12) DATED 04/21/22 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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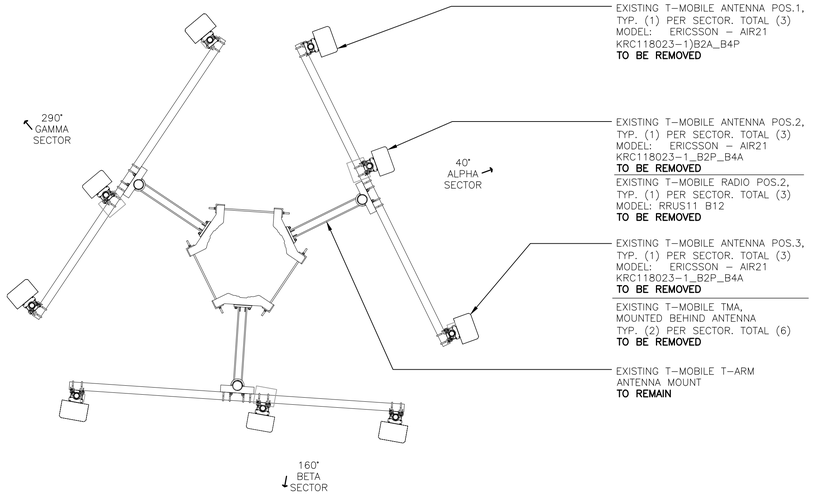
COMPOUND PLAN, EQUIPMENT PLANS, AND ELEVATION

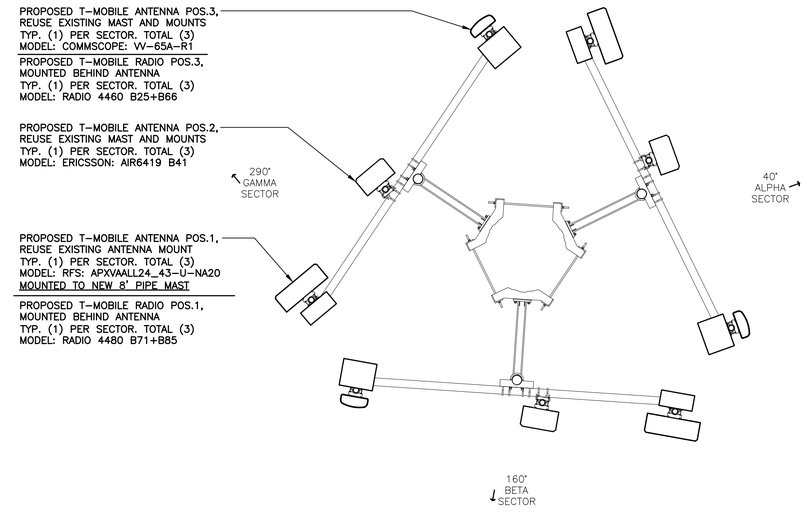
C-1

SHEET NO. 3 OF 8



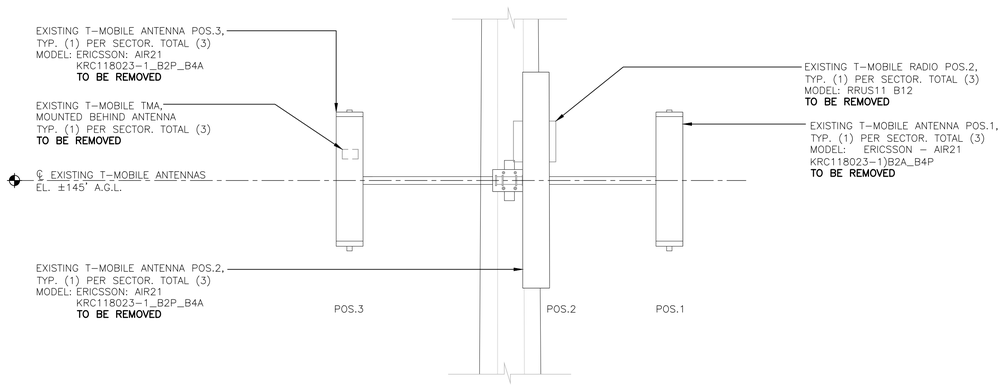
1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 3/8" = 1'

TRUE NORTH

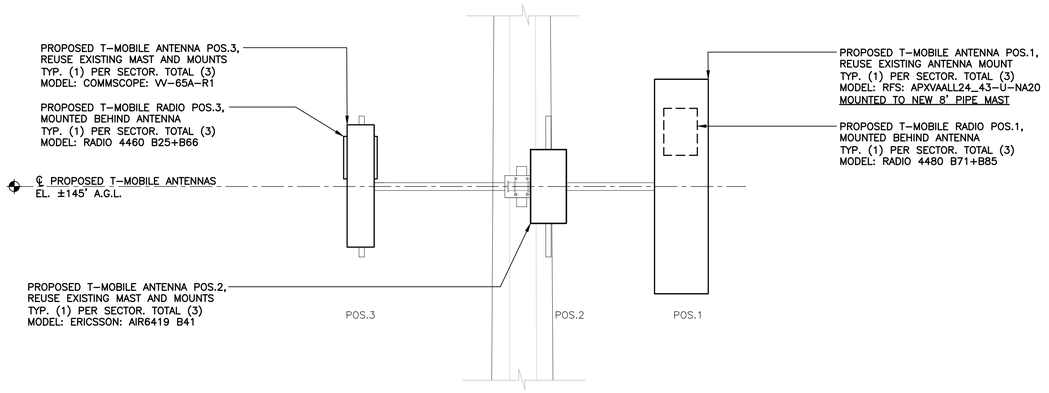


2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 3/8" = 1'

TRUE NORTH



1A C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 3/8" = 1'



2A C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 3/8" = 1'

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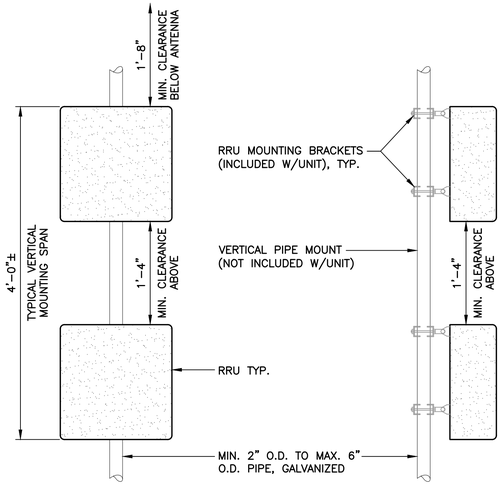
ANTENNA PLANS AND ELEVATIONS

C-2

SHEET NO. 4 OF 8

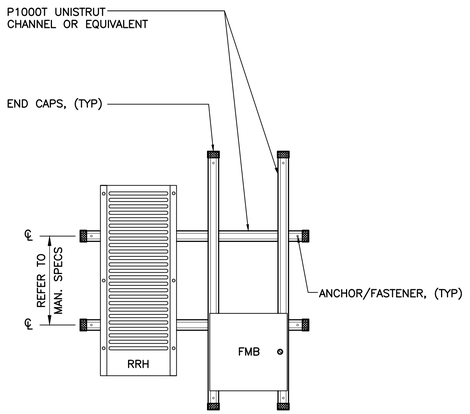


FRONT ELEVATION SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. T–MOBILE 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.

AIR6419 B41

APXVAALL24_43-U-NA20

VV-65A-R1

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6419 B41	33"L x 16"W x 9"D	±41 LBS.
MAKE: RFS MODEL: APXVAALL24_43–U–NA20	95.9"L x 24.0"W x 8.5"D	±150 LBS.
MAKE: COMMSCOPE MODEL: VV–65A–R1	54.7"L x 12.08"W x 4.6"D	±23 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T–MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

2 C–3 **PROPOSED ANTENNA DETAIL**
SCALE: NOT TO SCALE

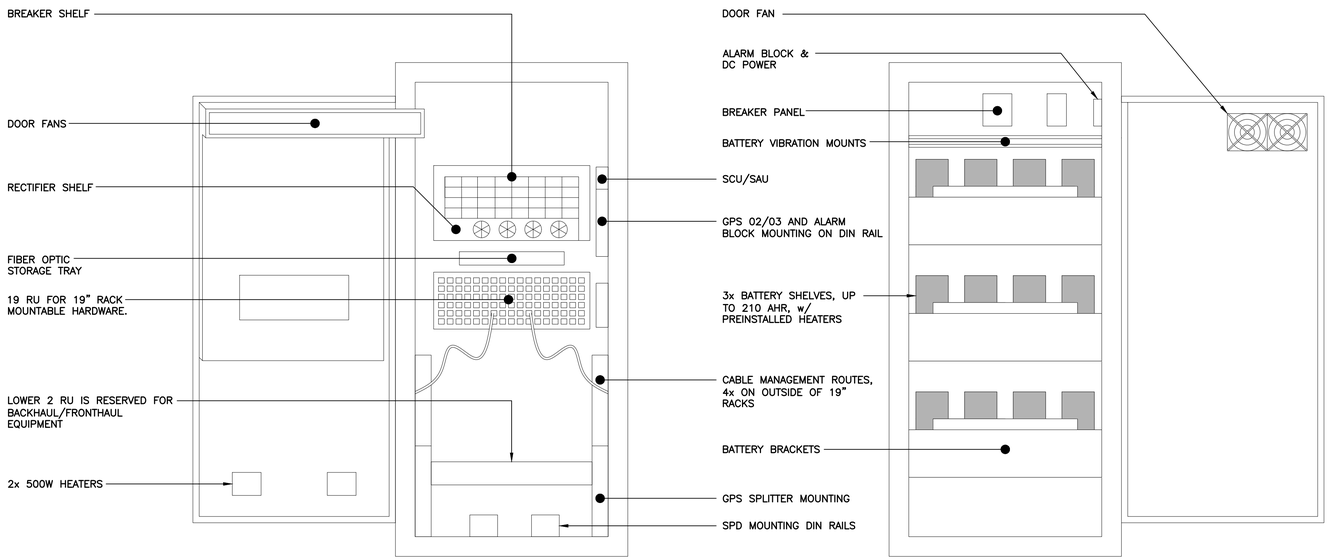
RADIO 4460 B25+B66

RADIO 4480 B71+B85

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T–MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 C–3 **PROPOSED RRU DETAIL**
SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160 CABINET	62.0"H x 26.0"W x 26.0"D	±1200 LBS

4 C–3 **ENCLOSURE 6160 CABINET DETAIL**
SCALE: NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY B160 CABINET	62.0"H x 26.0"W x 26.0"D	±1883 LBS

5 C–3 **BATTERY B160 CABINET DETAIL**
SCALE: NOT TO SCALE

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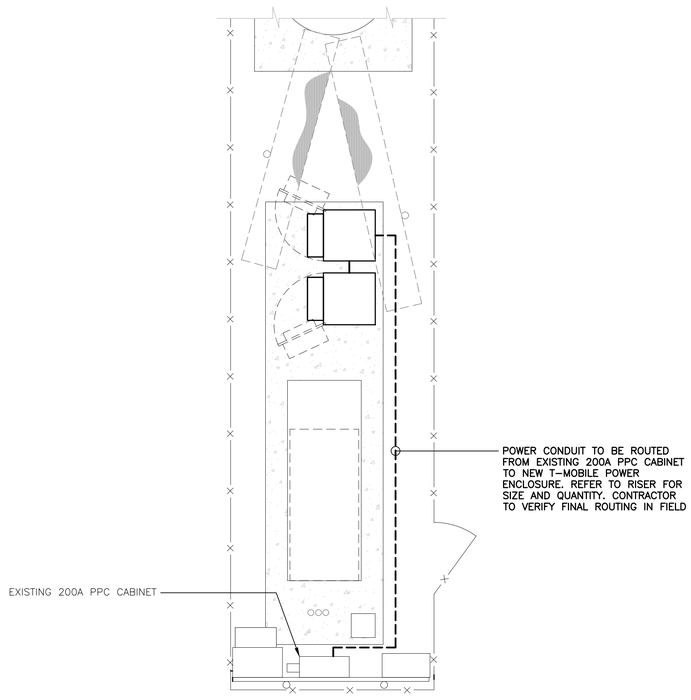
TYPICAL EQUIPMENT DETAILS

C-3

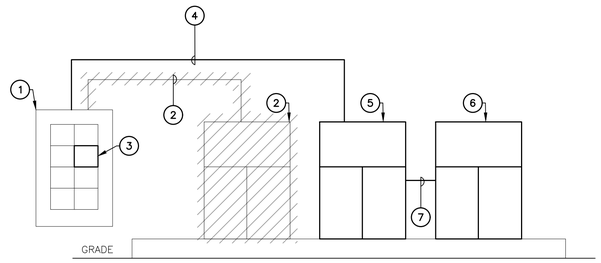
SHEET NO. 5 OF 8



1 E-1 **ELECTRICAL CONDUIT ROUTING PLAN**
SCALE: 1/4" = 1'

RISER DIAGRAM NOTES

1. EXISTING 200A, 120/240V, SINGLE PHASE PPC CABINET TO REMAIN.
2. EXISTING EQUIPMENT CABINET AND ASSOCIATED CONDUITS, CONDUCTORS AND CIRCUIT BREAKERS TO BE REMOVED.
3. NEW 100A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT CABINET.
4. (3) #1 AWG, (1) #8 AWG GROUND, 1-1/2" CONDUIT.
5. NEW RADIO EQUIPMENT CABINET.
6. NEW BATTERY CABINET.
7. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.



2 E-1 **ELECTRICAL POWER RISER DIAGRAM**
SCALE: NOT TO SCALE

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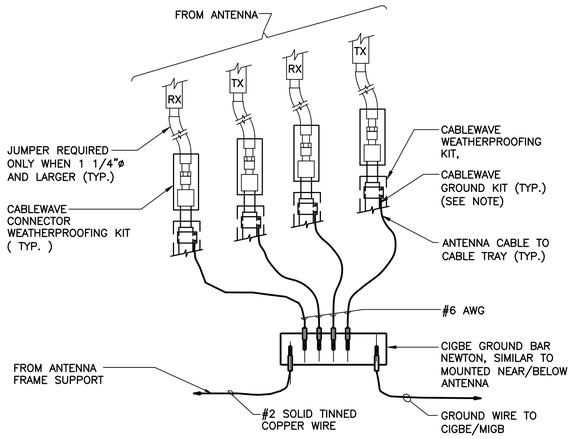
ELECTRICAL DIAGRAM AND CONDUIT ROUTING

E-1

SHEET NO. 6 OF 8

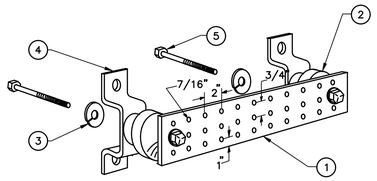


NOTES:

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

1 E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

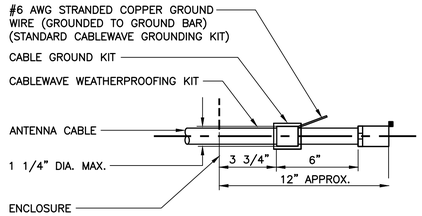


NOTES

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.

2 E-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

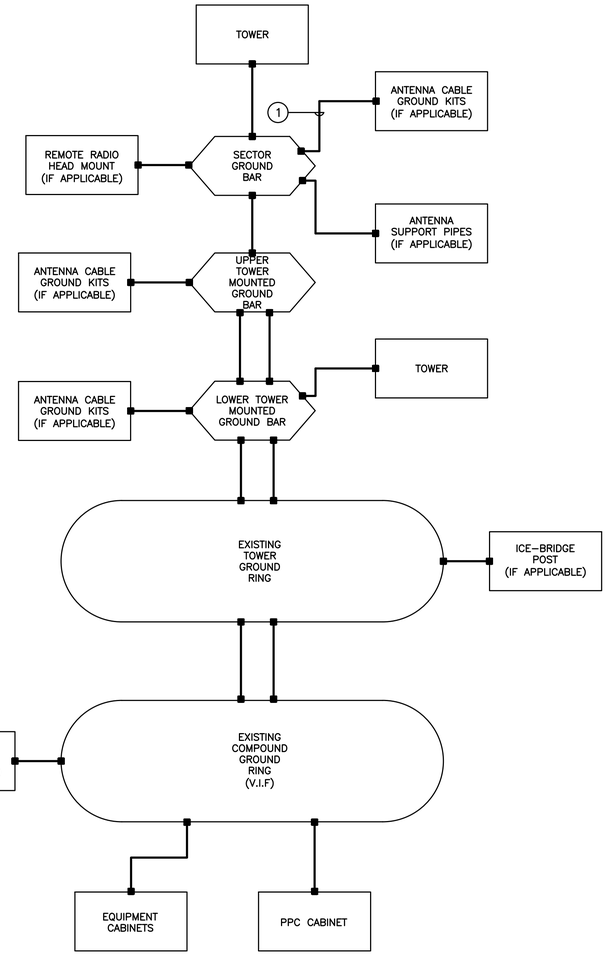


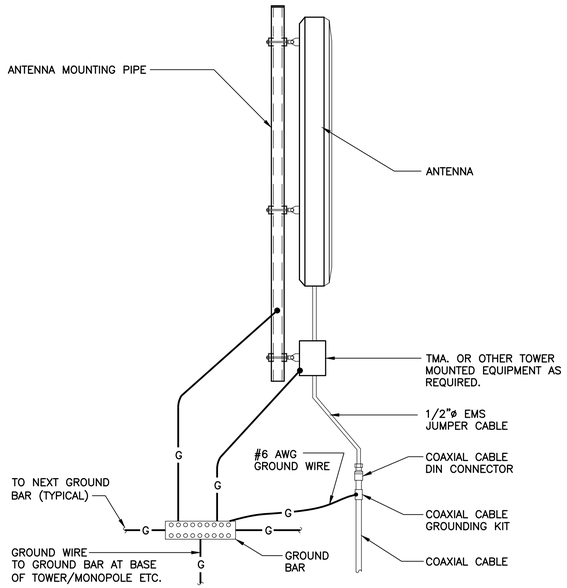
NOTES:

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

3 E-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

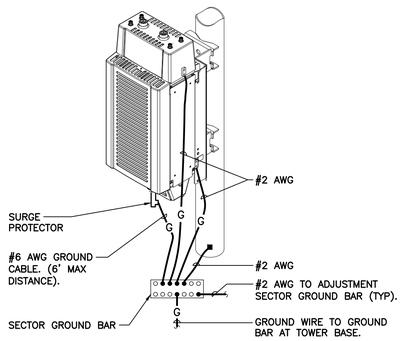




4 E-2 TYPICAL ANTENNA GROUNDING DETAIL

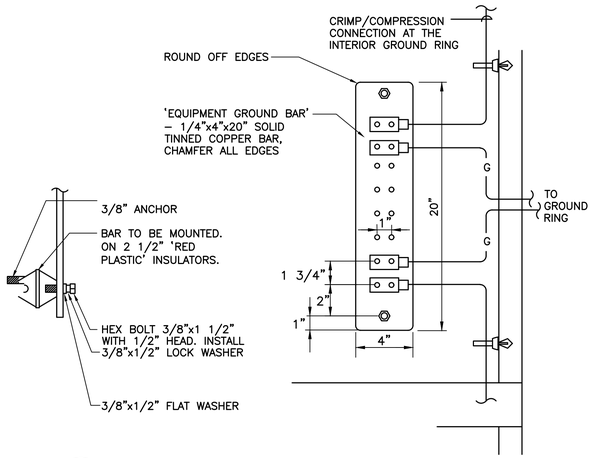
SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



5 E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

#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 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. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
7. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
8. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
9. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

7 E-2 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-2

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ELECTRICAL SPECIFICATIONS

SECTION 16010

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 THE 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. 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.

F. 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.

G. 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.

H. 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.

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

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

K. 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.

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

M. 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.

N. THE 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. CONDUITS

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. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR 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 CONNECTED TO THE PANELBOARDS SO 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	CHECKED BY	DESCRIPTION
0	05/04/22	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile

Transcend Wireless

CENTEK engineering
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T-MOBILE NORTHEAST LLC

SITE NAME: CT797/NEW FAIRFIELD MP
SITE ID: CT11797A
302 BALL POND RD
NEW FAIRFIELD, CT 06812

DATE: 03/05/22
SCALE: AS NOTED
JOB NO. 22022.12

ELECTRICAL SPECIFICATIONS

E-3

SHEET NO. 8 OF 8

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

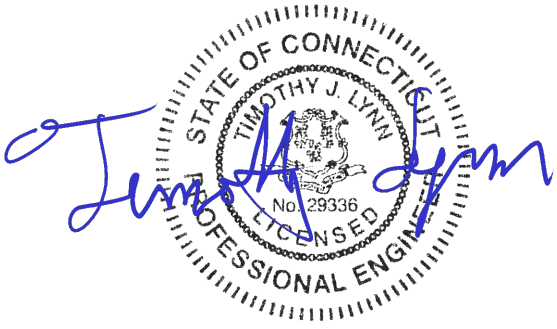
T-Mobile Site #: CT11797A

302 Ball Pond Road
New Fairfield, CT

Centek Project No. 22022.12

Date: April 21, 2022

Max Stress Ratio = 68%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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CENTEK engineering

Centered on Solutions℠

April 21, 2022

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11797A
302 Ball Pond Road
New Fairfield, CT

Centek Project No. 22022.12

Dear Mr. Reid,

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-arms** 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:

- **T-Mobile:**
  T-Arms: Three (3) Ericsson AIR6419 panel antennas, three (3) RFS APXVAALL24_43-U-NA20 panel antennas, three (3) Commscope VV-65A-R1 panel antennas, three (3) Ericsson 4480 remote radio heads and three (3) Ericsson 4460 remote radio heads mounted on three (3) T-Arms with a RAD center elevation of 145-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 89 mph for New Fairfield 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 with the installation of a SitePro V-Style reinforcement kit (p/n VSK-MHD) and three (3) 2 Std. x 12'-6" long handrail pipes 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
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Subject: TIA-222-G Loads

Location: New Fairfield, CT

Rev. 0: 4/21/22 Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22022.12

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

Wind Speeds

Basic Wind Speed $V := 89$ 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 = $Structure\_Type := Pole$ (User Input)

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

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

Structure Height = $h := 175$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 145$ 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 = $G_H = 1.1$ (User Input)

Output

Wind Direction Probability Factor =

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

(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)

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

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

$$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.16$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.739$$

Velocity Pressure Coefficient Antennas =

$$Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.099$$

Velocity Pressure w/o Ice Antennas =

$$qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 21.169$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 6.681$$

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Subject:	TIA-222-G Loads
Location:	New Fairfield, CT
Rev. 0: 4/21/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22022.12

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAALL24-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 471$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.7$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 167$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 177$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 77$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 150$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 426$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 426$	lbs

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Subject:	TIA-222-G Loads
Location:	New Fairfield, CT
Rev. 0: 4/21/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22022.12

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR6419		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 36.3$	in	(User Input)
Antenna Width =	$W_{ant} := 20.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 83$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.7$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.3$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 147$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 2.3$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 63$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.7$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 59$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.4$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 30$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 83$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6828$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5273$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 171$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 171$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope VV-65A-R1		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 54.7$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 33$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.5$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.6$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 138$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.7$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 52$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 60$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 31$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 33$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3045$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4277$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 139$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 139$	lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4460

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 19.6$ in (User Input)

RRUS Width = $W_{RRUS} := 15.7$ in (User Input)

RRUS Thickness = $T_{RRUS} := 12.1$ in (User Input)

RRUS Weight = $WT_{RRUS} := 109$ lbs (User Input)

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

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.2$

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

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 60$ lbs

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

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 46$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 27$ lbs

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

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 22$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 109$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 3723$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 3172$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 103$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 103$ lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4480

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 21.8$ in (User Input)

RRUS Width = $W_{RRUS} := 15.7$ in (User Input)

RRUS Thickness = $T_{RRUS} := 7.5$ in (User Input)

RRUS Weight = $WT_{RRUS} := 84$ lbs (User Input)

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

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.4$

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

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 66$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 32$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.4$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 30$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.9$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 17$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 84$ lbs

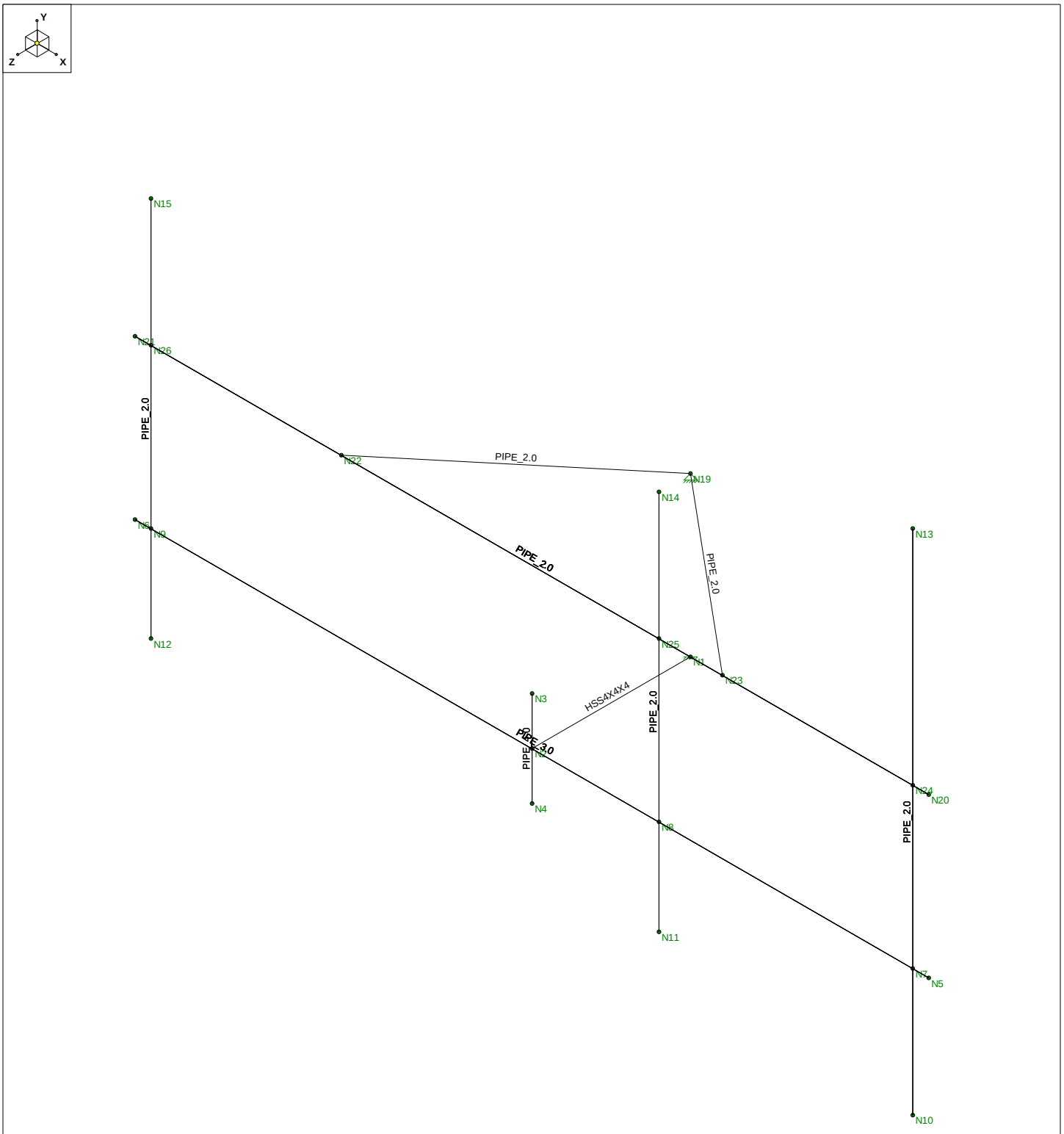
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2567$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2756$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 89$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 89$ lbs



Envelope Only Solution

Centek		
TJL	CT11797A	Apr 21, 2022 at 10:22 AM
22022.12	Member Framing	Mount.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?	No
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	Outrigger	HSS4X4X4	Beam	Tube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Horz	PIPE_3.0	Beam	Pipe	A53 Grade B	Typical	2.07	2.85	2.85	5.69
3	Antenna Mast	PIPE_2.0	Column	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Vert	PIPE_4.0	Column	Pipe	A53 Grade B	Typical	2.96	6.82	6.82	13.6
5	Stabilizer Kit	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25

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	Outrigger	2.5			Lbyy						Lateral
2	M2	Vert	1.5			Lbyy						Lateral
3	M3	Horz	12.5			Lbyy						Lateral
4	M4	Antenna Mast	6			Lbyy						Lateral
5	M5	Antenna Mast	6			Lbyy						Lateral
6	M6	Antenna Mast	8			Lbyy						Lateral
7	M8	Stabilizer Kit	12.5			Lbyy						Lateral
8	M9	Stabilizer Kit	3.905			Lbyy						Lateral
9	M10	Stabilizer Kit	3.905			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			Outrigger	Beam	Tube	A500 Gr.46	Typical
2	M2	N3	N4			Vert	Column	Pipe	A53 Grade B	Typical
3	M3	N6	N5			Horz	Beam	Pipe	A53 Grade B	Typical
4	M4	N15	N12			Antenna Mast	Column	Pipe	A53 Grade B	Typical
5	M5	N14	N11			Antenna Mast	Column	Pipe	A53 Grade B	Typical
6	M6	N13	N10			Antenna Mast	Column	Pipe	A53 Grade B	Typical
7	M8	N21	N20			Stabilizer Kit	Beam	Pipe	A53 Grade B	Typical
8	M9	N22	N19			Stabilizer Kit	Beam	Pipe	A53 Grade B	Typical
9	M10	N19	N23			Stabilizer Kit	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	0	0	0	
2	N2	0	0	2.5	0	
3	N3	0	.75	2.5	0	
4	N4	0	-.75	2.5	0	
5	N5	6.25	0	2.5	0	
6	N6	-6.25	0	2.5	0	
7	N7	6	0	2.5	0	
8	N8	2	0	2.5	0	
9	N9	-6	0	2.5	0	
10	N10	6	-2	2.5	0	
11	N11	2	-1.5	2.5	0	
12	N12	-6	-1.5	2.5	0	
13	N13	6	6	2.5	0	
14	N14	2	4.5	2.5	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N15	-6	4.5	2.5	0	
16	N19	0	2.5	0	0	
17	N20	6.25	2.5	2.5	0	
18	N21	-6.25	2.5	2.5	0	
19	N22	-3	2.5	2.5	0	
20	N23	3	2.5	2.5	0	
21	N24	6	2.5	2.5	0	
22	N25	2	2.5	2.5	0	
23	N26	-6	2.5	2.5	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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N19	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	Y	-.075	.5
2	M6	Y	-.075	7.5
3	M5	Y	-.042	.5
4	M5	Y	-.042	3.5
5	M4	Y	-.017	.5
6	M4	Y	-.017	4.5
7	M4	Y	-.109	%50
8	M6	Y	-.084	%50

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	Y	-.213	.5
2	M6	Y	-.213	7.5
3	M5	Y	-.086	.5
4	M5	Y	-.086	3.5
5	M4	Y	-.07	.5
6	M4	Y	-.07	4.5
7	M4	Y	-.103	%50
8	M6	Y	-.089	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	X	.039	.5
2	M6	X	.039	7.5
3	M5	X	.015	.5
4	M5	X	.015	3.5
5	M4	X	.016	.5
6	M4	X	.016	4.5
7	M4	X	.022	%50
8	M6	X	.017	%50

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	X	.084	.5
2	M6	X	.084	7.5
3	M5	X	.032	.5
4	M5	X	.032	3.5
5	M4	X	.026	.5
6	M4	X	.026	4.5
7	M4	X	.046	%50
8	M6	X	.032	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	Z	.089	.5
2	M6	Z	.089	7.5
3	M5	Z	.03	.5
4	M5	Z	.03	3.5
5	M4	Z	.03	.5
6	M4	Z	.03	4.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M6	Z	.236	.5
2	M6	Z	.236	7.5
3	M5	Z	.074	.5
4	M5	Z	.074	3.5
5	M4	Z	.069	.5
6	M4	Z	.069	4.5

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	M4	X	.003	.003	0	0
2	M5	X	.003	.003	0	0
3	M6	X	.003	.003	0	0
4	M2	X	.003	.003	0	0
5	M1	X	.003	.003	0	0
6	M9	X	.003	.003	0	0
7	M10	X	.003	.003	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	M4	X	.009	.009	0	0
2	M5	X	.009	.009	0	0
3	M6	X	.009	.009	0	0
4	M2	X	.009	.009	0	0
5	M1	X	.009	.009	0	0
6	M9	X	.009	.009	0	0
7	M10	X	.009	.009	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,...

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,...
1	M5	Z	.003	.003	0	0
2	M3	Z	.003	.003	0	0
3	M8	Z	.003	.003	0	0
4	M2	Z	.003	.003	0	0
5	M9	Z	.003	.003	0	0
6	M10	Z	.003	.003	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	M5	Z	.009	.009	0	0
2	M3	Z	.009	.009	0	0
3	M8	Z	.009	.009	0	0
4	M2	Z	.009	.009	0	0
5	M9	Z	.009	.009	0	0
6	M10	Z	.009	.009	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					8			
3	Ice Weight	DL					8			
4	Wind w/ Ice X	WLX					8	7		
5	Wind X	WLZ					8	7		
6	Wind w/ Ice Z	WLX					6	6		
7	Wind Z	WLZ					6	6		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D + 1.6W (X..	Yes	Y		1	1.2	2	1.2	5	1.6																
2	0.9D + 1.6W (X..	Yes	Y		1	.9	2	.9	5	1.6																
3	1.2D + 1.0Di + ...	Yes	Y		1	1.2	2	1.2	3	1	4	1														
4	1.2D + 1.6W (Z...	Yes	Y		1	1.2	2	1.2	7	1.6																
5	0.9D + 1.6W (Z...	Yes	Y		1	.9	2	.9	7	1.6																
6	1.2D + 1.0Di + ...	Yes	Y		1	1.2	2	1.2	3	1	6	1														

Envelope Joint Reactions

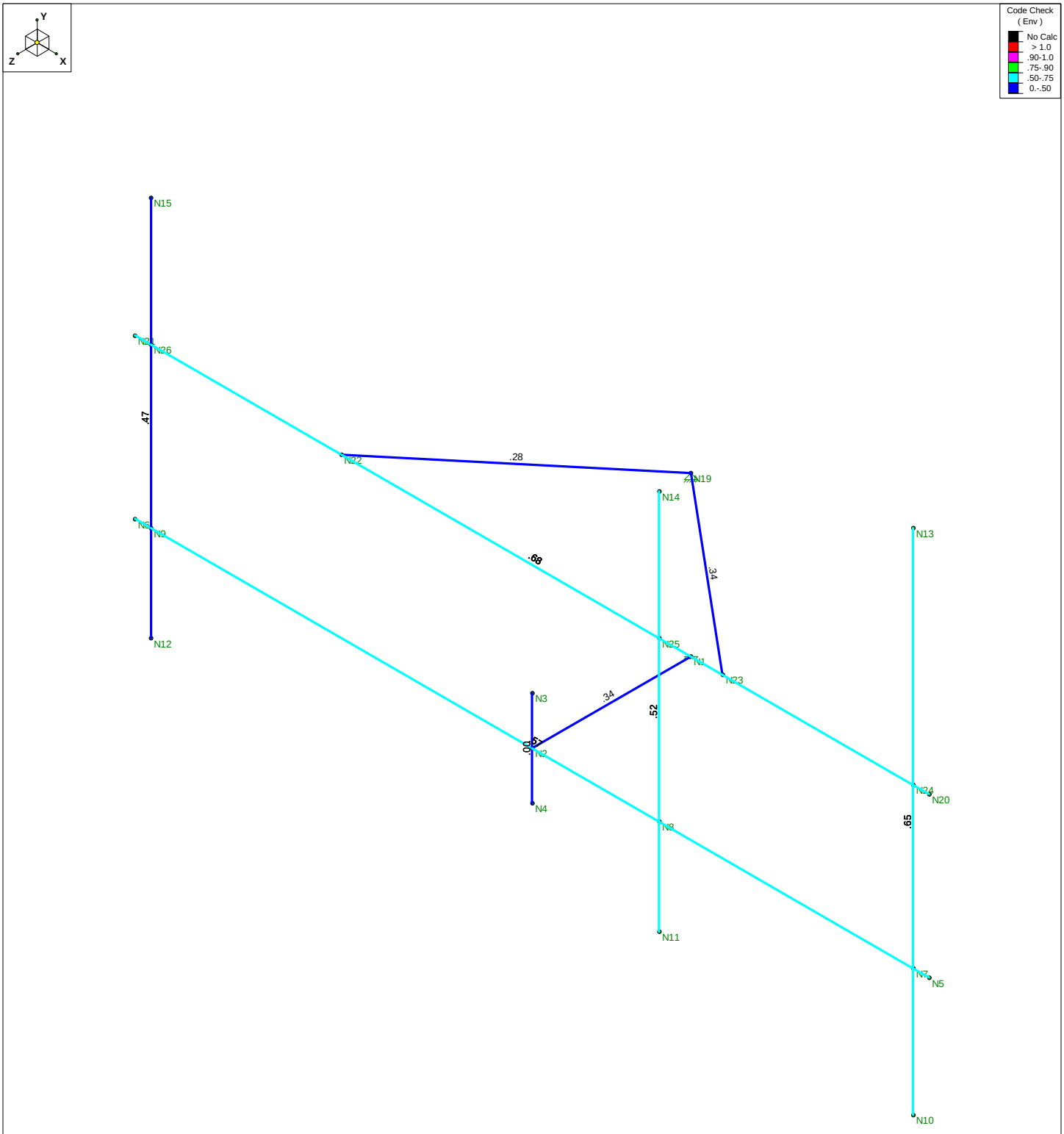
	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.769	4	1.68	6	.335	3	-1.137	2	3.804	4	1.688	3
2		min	-.436	2	.58	2	-.306	5	-3.622	6	-2.388	2	-1.093	5
3	N19	max	-.602	2	.15	3	-.176	2	0	6	0	6	0	6
4		min	-.769	4	-.007	5	-1.523	4	0	1	0	1	0	1
5	Totals:	max	0	6	1.809	6	0	3						
6		min	-1.037	1	.659	2	-1.793	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	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.062	1	-.021	2	0	5	3.056e-03	6	3.817e-03	1	2.757e-03	5
4		min	-.097	5	-.069	6	0	3	8.406e-04	2	-5.781e-03	5	-4.257e-03	3
5	N3	max	.091	1	-.021	2	.027	6	3.056e-03	6	3.817e-03	1	2.757e-03	5
6		min	-.122	5	-.069	6	.007	2	8.406e-04	2	-5.781e-03	5	-4.257e-03	3
7	N4	max	.035	2	-.021	2	-.008	2	3.056e-03	6	3.817e-03	1	2.757e-03	5
8		min	-.073	4	-.069	6	-.028	6	8.406e-04	2	-5.781e-03	5	-4.257e-03	3
9	N5	max	.062	1	.324	5	1.221	5	9.721e-05	5	7.767e-03	1	6.456e-03	5
10		min	-.098	5	-.953	3	-.517	1	-2.331e-03	2	-2.211e-02	5	-1.196e-02	3
11	N6	max	.063	1	.204	2	.441	1	5.106e-03	3	6.697e-03	1	9.433e-03	4
12		min	-.097	5	-.606	4	-.383	5	-1.63e-03	5	-4.328e-03	5	-4.344e-03	2
13	N7	max	.062	1	.304	5	1.154	5	9.721e-05	5	7.767e-03	1	6.456e-03	5
14		min	-.098	5	-.917	3	-.494	1	-2.331e-03	2	-2.211e-02	5	-1.196e-02	3
15	N8	max	.062	1	.055	5	.241	5	3.006e-04	6	6.776e-03	1	4.361e-03	5
16		min	-.097	5	-.282	3	-.133	1	-1.123e-03	2	-1.392e-02	5	-1.151e-02	3
17	N9	max	.063	1	.191	2	.421	1	5.106e-03	3	6.697e-03	1	9.433e-03	4
18		min	-.097	5	-.578	4	-.37	5	-1.63e-03	5	-4.328e-03	5	-4.344e-03	2
19	N10	max	.057	5	.304	5	1.229	5	-1.62e-03	3	7.767e-03	1	6.451e-03	5
20		min	-.25	3	-.917	3	-.438	1	-4.128e-03	4	-2.211e-02	5	-1.145e-02	3
21	N11	max	-.019	5	.055	5	.241	5	2.839e-04	6	6.776e-03	1	4.361e-03	5
22		min	-.179	3	-.282	3	-.115	1	-1.123e-03	2	-1.392e-02	5	-1.15e-02	3
23	N12	max	.074	4	.191	2	.36	1	5.106e-03	3	6.697e-03	1	9.432e-03	4
24		min	-.015	2	-.578	4	-.341	5	-1.63e-03	5	-4.328e-03	5	-4.264e-03	2
25	N13	max	.919	1	.304	5	2.6	5	3.352e-02	5	6.557e-03	1	7.121e-03	5
26		min	-.645	5	-.918	3	-.739	1	-3.484e-03	1	-2.952e-02	5	-1.707e-02	1
27	N14	max	.461	1	.055	5	.329	5	4.035e-03	5	9.523e-03	1	7.524e-03	5
28		min	-.526	5	-.283	3	-.292	1	-2.785e-03	1	-1.385e-02	5	-8.092e-03	3
29	N15	max	.47	1	.191	2	.666	1	6.516e-03	3	5.448e-03	1	7.212e-03	5
30		min	-.517	5	-.578	4	-.436	5	3.118e-04	5	7.225e-04	5	-7.974e-03	1
31	N19	max	0	6	0	6	0	6	5.792e-03	6	1.001e-02	1	7.357e-03	5
32		min	0	1	0	1	0	1	1.884e-03	2	-1.129e-02	5	-5.087e-03	3
33	N20	max	.284	1	.326	5	1.481	5	1.663e-02	5	6.557e-03	1	7.104e-03	5
34		min	-.346	5	-.948	3	-.613	1	-3.473e-03	1	-2.952e-02	5	-1.024e-02	3
35	N21	max	.282	1	.211	2	.571	1	6.51e-03	3	5.448e-03	1	7.21e-03	5
36		min	-.344	5	-.598	4	-.434	5	-9.177e-04	5	7.229e-04	5	-7.521e-03	3
37	N22	max	.282	1	.045	2	.338	1	5.287e-03	3	7.941e-03	1	6.379e-03	4
38		min	-.344	5	-.347	4	-.41	5	1.477e-03	5	-6.822e-03	5	-2.369e-03	2
39	N23	max	.283	1	.129	5	.421	5	5.261e-03	4	8.879e-03	1	5.365e-03	5
40		min	-.347	5	-.41	3	-.338	1	-1.859e-03	2	-1.72e-02	5	-1.263e-02	3
41	N24	max	.284	1	.304	5	1.392	5	1.663e-02	5	6.557e-03	1	7.104e-03	5
42		min	-.346	5	-.917	3	-.593	1	-3.473e-03	1	-2.952e-02	5	-1.024e-02	3
43	N25	max	.283	1	.055	5	.241	5	2.525e-03	5	9.523e-03	1	7.521e-03	5
44		min	-.346	5	-.283	3	-.225	1	-2.783e-03	1	-1.385e-02	5	-7.874e-03	3
45	N26	max	.282	1	.191	2	.555	1	6.51e-03	3	5.448e-03	1	7.21e-03	5
46		min	-.344	5	-.578	4	-.436	5	-9.177e-04	5	7.225e-04	5	-7.521e-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	HSS4X4X4	.342	0	4	.167	0	y	3	135.9...	139.518	16.181	16....	2....	H1...
2	M2	PIPE_4.0	.000	.75	1	.000	.75		1	92.571	93.24	10.631	10....	1....	H1...
3	M3	PIPE_3.0	.570	6....	3	.199	6....		3	28.251	65.205	5.749	5.749	1....	H1...
4	M4	PIPE_2.0	.465	4.5	3	.137	2		4	20.867	32.13	1.872	1.872	2....	H1...
5	M5	PIPE_2.0	.515	4.5	6	.120	2		3	20.867	32.13	1.872	1.872	2....	H1...
6	M6	PIPE_2.0	.646	3.5	4	.215	3.5		4	14.916	32.13	1.872	1.872	1....	H1...
7	M8	PIPE_2.0	.677	9....	4	.276	9....		5	6.295	32.13	1.872	1.872	2....	H3...
8	M9	PIPE_2.0	.279	0	5	.057	3....		3	26.761	32.13	1.872	1.872	1....	H1...
9	M10	PIPE_2.0	.341	3....	5	.153	0		3	26.761	32.13	1.872	1.872	1....	H1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek		
TJL	CT11797A	Apr 21, 2022 at 10:22 AM
22022.12	Unity Check	Mount.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 Tower
Location:	New Fairfield, CT
Rev. 0: 4/21/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22022.12

Antenna Mast Connection:

Anchor Data:

A325 Bolt =

Number of Anchor Bolts =	$N := 4$	(User Input)
Diameter of Bolts =	$D := 0.625in$	(User Input)
Bolt Spacing Horz =	$Sp_H := 6in$	(User Input)
Bolt Spacing Vertical =	$Sp_V := 6in$	(User Input)
Design Tension =	$R_{nt} := 20.7 \cdot kips$	(User Input)
Design Shear =	$R_{nv} := 12.4 \cdot kips$	(User Input)

Design Reactions:

FX =	$F_x := 0.8 \cdot kips$	(User Input)
FY =	$F_y := 1.7 \cdot kips$	(User Input)
FZ =	$F_z := 0.3 \cdot kips$	(User Input)
Moment X =	$Mx := 3.6 \cdot ft \cdot kips$	(User Input)
Moment Y =	$My := 3.8 \cdot ft \cdot kips$	(User Input)
Moment Z =	$Mz := 1.7 \cdot ft \cdot kips$	(User Input)

Anchor Check:

Max Tension Force =

$$T_{Max} := \frac{F_z}{N} + \frac{Mx}{Sp_H \cdot \frac{N}{2}} + \frac{My}{Sp_V \cdot \frac{N}{2}} = 7475\,lb$$

Max Shear Force =

$$V_{Max} := \frac{F_x + F_y}{N} + \frac{Mz}{Sp_H \cdot \frac{N}{2}} = 2325\,lb$$

Condition 1 =

$$Condition1 := if\left(\frac{T_{Max}}{R_{nt}} + \frac{V_{Max}}{R_{nv}} \le 1.0, "OK", "NG"\right) = "OK"$$

% of Capacity =

$$\max\left[\frac{T_{Max}}{R_{nt}}, \frac{V_{Max}}{R_{nv}}, \left[\frac{\left(\frac{T_{Max}}{R_{nt}} + \frac{V_{Max}}{R_{nv}}\right)}{1.0}\right]\right] = 54.9 \cdot \%$$

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

175-ft Nudd Monopole

Proposed T-Mobile
Antenna Upgrade

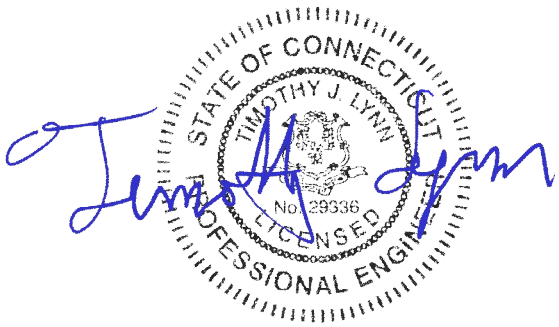
Site Ref: CT11797A

302 Ball Pond Road
New Fairfield, CT

Centek Project No. 22022.12

Date: April 21, 2022

Max Stress Ratio = 67%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

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 upgrade proposed by T-Mobile on the monopole (tower) located in New Fairfield, CT.

The host tower is a 175-ft tall, four-section, eighteen sided steel tapered monopole, originally designed and manufactured by Fred A. Nudd Corporation, dated March 19, 2003 on behalf of Integrity Tower. The tower geometry, structure member sizes and foundation system information were obtained from the aforementioned Fred A. Nudd design documents. Subsequent gusset reinforcement design information was obtained from existing design drawings prepared by Vertical Structures, Inc., for All Points Technology (APT); dated April 28, 2005 and additional anchor installation drawings prepared by Infinigy dated April 29, 2015.

Antenna and appurtenance information were obtained from a previous structural analysis report prepared by All-Points Technology Corp. dated April 12, 2021.

The tower is made up of four (4) tapered vertical sections consisting of A572-65 pole sections. The vertical tower sections are slip joint connected. The diameter of the pole (flat-flat) is 24.0-in at the top and 64.5-in at the base.

Antenna and Appurtenance Summary

- TOWN (EXISTING):
  Antennas: Four (4) RFS PD220 Omni-directional whip antennas, one (1) 1'x1' square dish and one (1) 2.5-ft ∅ microwave dish located at the top of the existing monopole on an existing 15-ft low profile platform with an elevation of 175-ft/177-ft above grade.
  Coax Cables: Four (4) 1-5/8" ∅ and two (2) 1/2" coax cables routed within the interior of the existing tower.
- SPRINT (EXISTING):
  Antennas: Three (3) ET-X-TU-42-15-37-18 panel antennas, three (3) RFS APXVTM14 panel antennas, six (6) 800 MHz RRHs and six (6) 1900 MHz RRHs mounted on an existing 13-ft low profile platform with a RAD center elevation of 155-ft above grade.
  Coax Cables: Four (4) 1-5/8" ∅ hybrid cables routed within the interior of the existing tower.
- AT&T (EXISTING):
  Antennas: Three (3) Powerwave 7770 panel antennas, three (3) CCI HPA-65R-BUU-H8 panel antennas, three (3) Kathrein 80010966 panel antennas, six (6) Powerwave LGP 21401 TMAs, six (6) Ericsson RRUS-32 RRUs, three (3) Ericsson 4449 RRUs and two (2) Raycap DC6-48-60-18-8F Surge Arrestors mounted on three (3) existing 10-ft T-Arms with a RAD center elevation of 135-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables, two (2) fiber cables and four (4) dc control cables routed within the interior of the existing tower.

- VERIZON (PROPOSED):
  Antennas: Three (3) Antel BXA-70063-6CF, six (6) Antel LPA 80080/6CF and three (3) Antel BXA-171085-12CF panel antennas with six (6) RFS FD9R6004/2C-3L Diplexers mounted on three (3) existing 12-ft T-Arms with a RAD center elevation of 125-ft above grade.
  Coax Cables: Eighteen (18) 1-5/8" ∅ coax cables routed within the interior of the existing tower.
- TOWN (EXISTING):
  Antennas: One (1) RFS PD220 Omni-directional whip antenna mounted on an existing 4-ft stand-off with an elevation of 100-ft above grade.
  Coax Cables: One (1) 1-5/8" ∅ coax cable routed within the interior of the existing tower.
- **T-MOBILE (EXISTING TO REMOVE):**
  Antennas: Six (6) Ericsson AIR21, three (3) Andrew LNX6515DS panel antennas, three (3) Ericsson RRUS-11 remote radio units and six (6) TMAs mounted on three (3) existing 12-ft T-Arms with a RAD center elevation of 145-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables routed within the interior of the existing tower.
- **T-MOBILE (PROPOSED):**
  Antennas: Three (3) RFS APXVAALL24_43 panel antennas, three (3) Ericsson AIR6419 panel antennas, three (3) Commscope VV-65A-R1 panel antennas, three (3) Ericsson 4480 remote radio units and three (3) Ericsson 4460 remote radio units mounted on three (3) existing 12-ft T-Arms with a RAD center elevation of 145-ft above grade.
  Mount: Handrail to be added to existing T-arms (refere to mount analysis prepabed by Centek dated 4/21/21)
  Coax Cables: Three (3) 6x24 fiber cables running on the inside of the existing tower.

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 or reinforcement drawings.
- 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 existing coax cables to be installed as indicated in 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:	New Fairfield; v = 89 mph (V_{asd})	*[Appendix N of the 2018 CT Building Code]*
Load Cases:	Load Case 1; 89 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 Case 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

- Calculated stresses were found to be within allowable limits. This tower was found to be at **66.8%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Pole Shaft (L4)	0.0'-41.00'	66.8%	**PASS**

Foundation and Anchors

The foundation consists of a 7.0-ft diameter x 2.25-ft long reinforced concrete pier on a 27.5-ft x 4.0-ft thick reinforce concrete pad. The sub-grade conditions used in the analysis of the existing foundation were obtained from a geotechnical testing report prepared by Criscuolo Shepard Associates, PC; dated November 11, 2001. The base of the tower is connected to the foundation by means of (24) 2"∅, ASTM A687 anchor bolts (original) and four (4) 1.75" ∅, Williams 150ksi rebar anchors (added per Infinigy reinforcement design dated 4/29/15).

- The tower base reactions developed from the governing Load Case 1 were used in the verification of the foundation and its anchors:

Location	Vector	Proposed Reactions
Base	Shear	33 kips
	Compression	59 kips
	Moment	4039 kip-ft

- 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 Pier	OTM[(2)]	1.0	2.08	**PASS**

Note 1: FS denotes Factor of Safety.
Note 2: OTM denotes Overturning Moment.

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

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Combined Axial and Shear	51.9%	**PASS**
Base Plate	Bending	44.6%	**PASS**

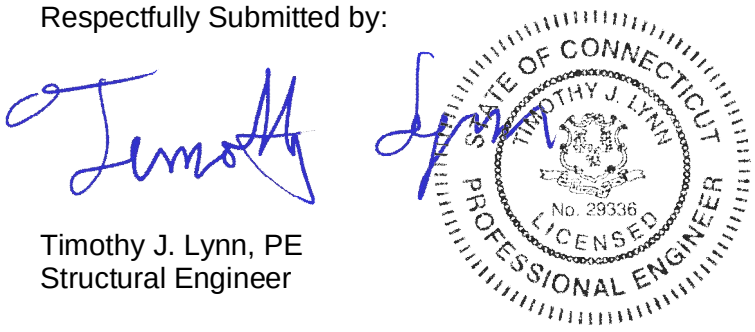
Conclusion

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

The analysis is based, in part, on the information provided to this office by T-Mobile. 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.

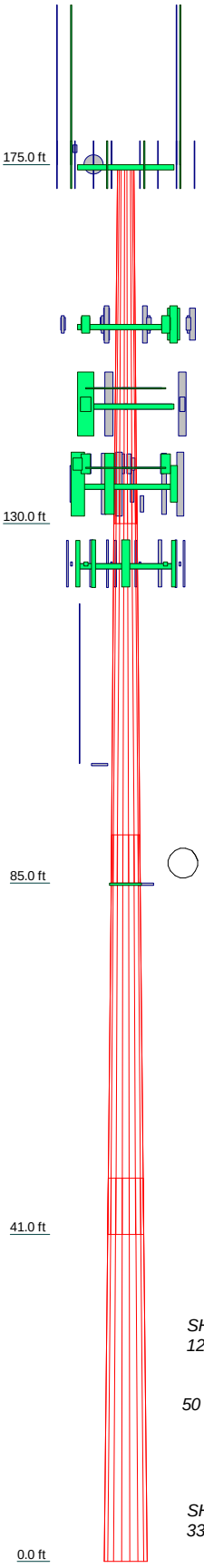
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

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

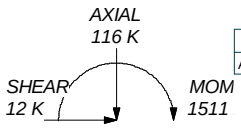
TnxTower Features:

- 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.

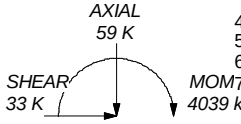
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	45.000	18	0.250	5.000	24.000	34.690		3.5
2	50.000	18	0.313	6.000	33.002	44.690		6.5
3	50.000	18	0.375	7.000	42.662	54.500		9.8
4	48.000	18	0.375		52.093	64.500		11.3
							A572-65	31.1



ALL REACTIONS ARE FACTORED



TORQUE 2 kip-ft
50 mph WIND - 0.750 in ICE



TORQUE 2 kip-ft
REACTIONS - 89 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1' x 1' Panel (Unknown)	177	Valmont T-Arm (1) (T-Mobile)	145
6'x2" Pipe Mount	175	Valmont T-Arm (1) (T-Mobile)	145
6'x2" Pipe Mount	175	Valmont T-Arm (1) (T-Mobile)	145
6'x2" Pipe Mount	175	VV-65A-R1 (T-Mobile - Proposed)	145
6'x2" Pipe Mount	175	AIR6419 (T-Mobile - Proposed)	145
6'x2" Pipe Mount	175	APXVAALL24-43 (T-Mobile - Proposed)	145
6'x2" Pipe Mount	175		
6'x2" Pipe Mount	175	10' x 2.5" Horz Pipe (ATI)	137
6'x2" Pipe Mount	175	10' x 2.5" Horz Pipe (ATI)	137
6'x2" Pipe Mount	175	10' x 2.5" Horz Pipe (ATI)	137
6'x2" Pipe Mount	175	HPA-65R-BUU-H8 (ATI)	135
6'x2" Pipe Mount	175	7770.00 (ATI)	135
PD220 (Municipal)	175	7770.00 (ATI)	135
PD220 (Municipal)	175	7770.00 (ATI)	135
PD220 (Municipal)	175	80010966 (ATI)	135
PD220 (Municipal)	175	80010966 (ATI)	135
6'x2" Pipe Mount	175	80010966 (ATI)	135
PiROD 15' Low Profile Platform (Monopole) (Municipal)	175	(2) LGP21401 TMA (ATI)	135
		(2) LGP21401 TMA (ATI)	135
2.5ft Dia. Dish (Unknown)	175	(2) LGP21401 TMA (ATI)	135
ET-X-TU-42-15-37-18-iR-SP (Sprint)	155	(2) RRUS-32 (ATI)	135
APXVTM14 (Sprint)	155	(2) RRUS-32 (ATI)	135
ET-X-TU-42-15-37-18-iR-SP (Sprint)	155	(2) RRUS-32 (ATI)	135
APXVTM14 (Sprint)	155	4449 B5/B12 (ATI)	135
ET-X-TU-42-15-37-18-iR-SP (Sprint)	155	4449 B5/B12 (ATI)	135
APXVTM14 (Sprint)	155	4449 B5/B12 (ATI)	135
(2) FD-RRH 2x50 800 (Sprint)	155	DC6-48-60-18-8F Surge Arrestor (ATI)	135
(2) FD-RRH 2x50 800 (Sprint)	155	DC6-48-60-18-8F Surge Arrestor (ATI)	135
(2) FD-RRH 2x50 800 (Sprint)	155	Valmont T-Arm (1) (ATI)	135
(2) FD-RRH 4x45 1900 (Sprint)	155	Valmont T-Arm (1) (ATI)	135
(2) FD-RRH 4x45 1900 (Sprint)	155	Valmont T-Arm (1) (ATI)	135
(2) FD-RRH 4x45 1900 (Sprint)	155	HPA-65R-BUU-H8 (ATI)	135
PiROD 13' Low Profile Platform (Sprint)	155	HPA-65R-BUU-H8 (ATI)	135
10' x 2.5" Horz Pipe (T-Mobile - Proposed)	147	LPA-80080-6CF (Verizon)	125
		BXA-171085-12CF (Verizon)	125
10' x 2.5" Horz Pipe (T-Mobile - Proposed)	147	BXA-70063/6CF (Verizon)	125
		LPA-80080-6CF (Verizon)	125
10' x 2.5" Horz Pipe (T-Mobile - Proposed)	147	LPA-80080-6CF (Verizon)	125
		BXA-171085-12CF (Verizon)	125
Monopole Sector Stabilizer Kit VSK-M (T-Mobile - Proposed)	147	BXA-70063/6CF (Verizon)	125
		LPA-80080-6CF (Verizon)	125
VV-65A-R1 (T-Mobile - Proposed)	145	LPA-80080-6CF (Verizon)	125
AIR6419 (T-Mobile - Proposed)	145	BXA-171085-12CF (Verizon)	125
APXVAALL24-43 (T-Mobile - Proposed)	145	BXA-70063/6CF (Verizon)	125
VV-65A-R1 (T-Mobile - Proposed)	145	LPA-80080-6CF (Verizon)	125
AIR6419 (T-Mobile - Proposed)	145	(2) FD9R6004/2C-3L Diplexer (Verizon)	125
APXVAALL24-43 (T-Mobile - Proposed)	145	(2) FD9R6004/2C-3L Diplexer (Verizon)	125
		(2) FD9R6004/2C-3L Diplexer (Verizon)	125
4460 B25+B66 (T-Mobile - Proposed)	145	Valmont T-Arm (1) (Verizon)	125
4460 B25+B66 (T-Mobile - Proposed)	145	Valmont T-Arm (1) (Verizon)	125
4460 B25+B66 (T-Mobile - Proposed)	145	Valmont T-Arm (1) (Verizon)	125
4480 B71+B85 (T-Mobile - Proposed)	145	4-ft Standoff (Municipal)	100
4480 B71+B85 (T-Mobile - Proposed)	145	PD220 (Municipal)	100
4480 B71+B85 (T-Mobile - Proposed)	145	Valmont B2069 2' GPS Mount (Empty)	85
		Valmont B2069 2' GPS Mount (Empty)	85

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 89 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 III.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TOWER RATING: 66.8%

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

Job: 22022.12 - CT11797A			
Project: 175-ft NUDD Monopole - New Fairfield, CT			
Client: T-Mobile	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 04/21/22	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 89 mph.
Structure Class III.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 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 pole 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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	175.000-130.000	45.000	5.000	18	24.000	34.690	0.250	1.000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	130.000-85.000	50.000	6.000	18	33.002	44.690	0.313	1.250	A572-65 (65 ksi)
L3	85.000-41.000	50.000	7.000	18	42.662	54.500	0.375	1.500	A572-65 (65 ksi)
L4	41.000-0.000	48.000		18	52.093	64.500	0.375	1.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.332	18.846	1342.998	8.431	12.192	110.154	2687.762	9.425	3.784	15.136
	35.187	27.328	4095.188	12.226	17.623	232.384	8195.764	13.667	5.665	22.662
L2	34.650	32.424	4377.519	11.605	16.765	261.109	8760.799	16.215	5.258	16.827
	45.331	44.017	10951.734	15.754	22.703	482.402	21917.879	22.013	7.315	23.409
L3	44.705	50.333	11371.314	15.012	21.673	524.688	22757.591	25.171	6.849	18.263
	55.283	64.422	23843.465	19.214	27.686	861.210	47718.304	32.217	8.932	23.819
L4	54.676	61.557	20801.487	18.360	26.463	786.056	41630.345	30.784	8.508	22.689
	65.437	76.325	39651.331	22.764	32.766	1210.136	79354.837	38.170	10.692	28.512

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 175.000-130.000				1	1	1			
L2 130.000-85.000				1	1	1			
L3 85.000-41.000				1	1	1			
L4 41.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
1 5/8 (Municipal)	C	No	Yes	Inside Pole	175.000 - 6.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
HYBRIFLEX 1-1/4" (Sprint)	C	No	Yes	Inside Pole	155.000 - 6.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
HYBRIFLEX 1-5/8" (T-Mobile)	C	No	Yes	Inside Pole	145.000 - 6.000	3	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
1 5/8	C	No	Yes	Inside Pole	135.000 - 6.000	12	No Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
(AT&T)							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
1 5/8	C	No	Yes	Inside Pole	125.000 - 6.000	18	No Ice	0.000	0.001
(Verizon)							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
Safety Line 3/8	C	No	Yes	CaAa (Out Of Face)	175.000 - 0.000	1	No Ice	0.037	0.000
							1/2" Ice	0.137	0.001
							1" Ice	0.238	0.001
DC Trunk	C	No	Yes	Inside Pole	135.000 - 6.000	4	No Ice	0.000	0.000
(AT&T)							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
Fiber Trunk	C	No	Yes	Inside Pole	135.000 - 6.000	2	No Ice	0.000	0.001
(AT&T)							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
1 5/8	C	No	Yes	Inside Pole	100.000 - 6.000	1	No Ice	0.000	0.001
(Municipal)							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.000-130.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	1.688	0.487
L2	130.000-85.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	1.688	2.123
L3	85.000-41.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	1.650	2.198
L4	41.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	1.538	1.750

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.000-130.000	A	2.183	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	21.339	0.591
L2	130.000-85.000	A	2.109	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	21.339	2.228
L3	85.000-41.000	A	2.000	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	20.207	2.297
L4	41.000-0.000	A	1.783	0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	17.934	1.837

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
6'x2" Pipe Mount	A	From Face	5.000 2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	A	From Face	5.000 -2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	A	From Face	5.000 6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	A	From Face	5.000 -6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	B	From Face	5.000 2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	B	From Face	5.000 -2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	B	From Face	5.000 6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	B	From Face	5.000 -6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	C	From Face	5.000 2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	C	From Face	5.000 -2.300 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	C	From Face	5.000 6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
6'x2" Pipe Mount	C	From Face	5.000 -6.800 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	1.200 1.802 2.170	1.200 1.802 2.170	0.022 0.031 0.045
PD220 (Municipal)	A	From Face	5.000 -6.800 10.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	3.080 5.300 7.537	3.080 5.300 7.537	0.023 0.049 0.088
PD220 (Municipal)	B	From Face	5.000 2.300 10.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	3.080 5.300 7.537	3.080 5.300 7.537	0.023 0.049 0.088
PD220 (Municipal)	C	From Face	5.000 -6.800 10.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	3.080 5.300 7.537	3.080 5.300 7.537	0.023 0.049 0.088

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
PD220	C	From Face	5.000	0.000	175.000	No Ice	3.080	3.080	0.023
(Municipal)			6.800			1/2" Ice	5.300	5.300	0.049
			10.000			1" Ice	7.537	7.537	0.088
PD220	A	From Face	5.000	0.000	100.000	No Ice	3.080	3.080	0.023
(Municipal)			0.000			1/2" Ice	5.300	5.300	0.049
			10.000			1" Ice	7.537	7.537	0.088
4-ft Standoff	A	From Face	2.000	0.000	100.000	No Ice	1.200	0.075	0.030
(Municipal)			0.000			1/2" Ice	1.487	0.112	0.041
			0.000			1" Ice	1.781	0.156	0.057
1' x 1' Panel	A	From Face	5.000	0.000	177.000	No Ice	1.200	0.317	0.018
(Unknown)			-2.300			1/2" Ice	1.337	0.401	0.026
			0.000			1" Ice	1.481	0.492	0.036
PiROD 15' Low Profile	C	From Face	3.000	0.000	175.000	No Ice	17.300	17.300	1.500
Platform (Monopole)			0.000			1/2" Ice	22.100	22.100	2.030
(Municipal)			0.000			1" Ice	26.900	26.900	2.560
ET-X-TU-42-15-37-18-iR-SP	A	From Face	5.000	0.000	155.000	No Ice	7.281	3.288	0.060
(Sprint)			6.000			1/2" Ice	7.637	3.589	0.106
			0.000			1" Ice	8.001	3.897	0.156
APXVTM14	A	From Face	5.000	0.000	155.000	No Ice	6.342	3.607	0.056
(Sprint)			6.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
ET-X-TU-42-15-37-18-iR-SP	B	From Face	5.000	0.000	155.000	No Ice	7.281	3.288	0.060
(Sprint)			6.000			1/2" Ice	7.637	3.589	0.106
			0.000			1" Ice	8.001	3.897	0.156
APXVTM14	B	From Face	5.000	0.000	155.000	No Ice	6.342	3.607	0.056
(Sprint)			-6.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
ET-X-TU-42-15-37-18-iR-SP	C	From Face	5.000	0.000	155.000	No Ice	7.281	3.288	0.060
(Sprint)			-6.000			1/2" Ice	7.637	3.589	0.106
			0.000			1" Ice	8.001	3.897	0.156
APXVTM14	C	From Face	5.000	0.000	155.000	No Ice	6.342	3.607	0.056
(Sprint)			-6.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
(2) FD-RRH 2x50 800	A	From Face	5.000	0.000	155.000	No Ice	2.058	1.932	0.064
(Sprint)			0.000			1/2" Ice	2.240	2.109	0.086
			0.000			1" Ice	2.429	2.293	0.111
(2) FD-RRH 2x50 800	B	From Face	5.000	0.000	155.000	No Ice	2.058	1.932	0.064
(Sprint)			0.000			1/2" Ice	2.240	2.109	0.086
			0.000			1" Ice	2.429	2.293	0.111
(2) FD-RRH 2x50 800	C	From Face	5.000	0.000	155.000	No Ice	2.058	1.932	0.064
(Sprint)			0.000			1/2" Ice	2.240	2.109	0.086
			0.000			1" Ice	2.429	2.293	0.111
(2) FD-RRH 4x45 1900	A	From Face	5.000	0.000	155.000	No Ice	2.319	2.384	0.060
(Sprint)			0.000			1/2" Ice	2.524	2.590	0.084
			0.000			1" Ice	2.736	2.804	0.111
(2) FD-RRH 4x45 1900	B	From Face	5.000	0.000	155.000	No Ice	2.319	2.384	0.060
(Sprint)			0.000			1/2" Ice	2.524	2.590	0.084
			0.000			1" Ice	2.736	2.804	0.111
(2) FD-RRH 4x45 1900	C	From Face	5.000	0.000	155.000	No Ice	2.319	2.384	0.060
(Sprint)			0.000			1/2" Ice	2.524	2.590	0.084
			0.000			1" Ice	2.736	2.804	0.111
PiROD 13' Low Profile	C	None		0.000	155.000	No Ice	15.700	15.700	1.300
Platform						1/2" Ice	20.100	20.100	1.765
(Sprint)						1" Ice	24.500	24.500	2.230
VV-65A-R1	A	From Face	4.000	0.000	145.000	No Ice	5.928	2.755	0.030
(T-Mobile - Proposed)			5.000			1/2" Ice	6.291	3.097	0.064
			0.000			1" Ice	6.661	3.445	0.103

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AIR6419	A	From Face	4.000	0.000	145.000	No Ice	3.663	1.661	0.066
(T-Mobile - Proposed)			5.000			1/2" Ice	3.910	1.851	0.091
			0.000			1" Ice	4.164	2.047	0.120
APXVAALL24-43	A	From Face	4.000	0.000	145.000	No Ice	20.243	8.889	0.153
(T-Mobile - Proposed)			5.000			1/2" Ice	20.890	9.487	0.266
			0.000			1" Ice	21.544	10.092	0.387
VV-65A-R1	B	From Face	4.000	0.000	145.000	No Ice	5.928	2.755	0.030
(T-Mobile - Proposed)			5.000			1/2" Ice	6.291	3.097	0.064
			0.000			1" Ice	6.661	3.445	0.103
AIR6419	B	From Face	4.000	0.000	145.000	No Ice	3.663	1.661	0.066
(T-Mobile - Proposed)			5.000			1/2" Ice	3.910	1.851	0.091
			0.000			1" Ice	4.164	2.047	0.120
APXVAALL24-43	B	From Face	4.000	0.000	145.000	No Ice	20.243	8.889	0.153
(T-Mobile - Proposed)			5.000			1/2" Ice	20.890	9.487	0.266
			0.000			1" Ice	21.544	10.092	0.387
VV-65A-R1	C	From Face	4.000	0.000	145.000	No Ice	5.928	2.755	0.030
(T-Mobile - Proposed)			5.000			1/2" Ice	6.291	3.097	0.064
			0.000			1" Ice	6.661	3.445	0.103
AIR6419	C	From Face	4.000	0.000	145.000	No Ice	3.663	1.661	0.066
(T-Mobile - Proposed)			5.000			1/2" Ice	3.910	1.851	0.091
			0.000			1" Ice	4.164	2.047	0.120
APXVAALL24-43	C	From Face	4.000	0.000	145.000	No Ice	20.243	8.889	0.153
(T-Mobile - Proposed)			5.000			1/2" Ice	20.890	9.487	0.266
			0.000			1" Ice	21.544	10.092	0.387
4460 B25+B66	A	From Face	4.000	0.000	145.000	No Ice	2.564	1.976	0.109
(T-Mobile - Proposed)			5.000			1/2" Ice	2.764	2.156	0.134
			0.000			1" Ice	2.971	2.343	0.163
4460 B25+B66	B	From Face	4.000	0.000	145.000	No Ice	2.564	1.976	0.109
(T-Mobile - Proposed)			5.000			1/2" Ice	2.764	2.156	0.134
			0.000			1" Ice	2.971	2.343	0.163
4460 B25+B66	C	From Face	4.000	0.000	145.000	No Ice	2.564	1.976	0.109
(T-Mobile - Proposed)			5.000			1/2" Ice	2.764	2.156	0.134
			0.000			1" Ice	2.971	2.343	0.163
4480 B71+B85	A	From Face	4.000	0.000	145.000	No Ice	2.852	1.383	0.084
(T-Mobile - Proposed)			5.000			1/2" Ice	3.064	1.543	0.106
			0.000			1" Ice	3.284	1.710	0.131
4480 B71+B85	B	From Face	4.000	0.000	145.000	No Ice	2.852	1.383	0.084
(T-Mobile - Proposed)			5.000			1/2" Ice	3.064	1.543	0.106
			0.000			1" Ice	3.284	1.710	0.131
4480 B71+B85	C	From Face	4.000	0.000	145.000	No Ice	2.852	1.383	0.084
(T-Mobile - Proposed)			5.000			1/2" Ice	3.064	1.543	0.106
			0.000			1" Ice	3.284	1.710	0.131
Valmont T-Arm (1)	A	From Face	2.000	0.000	145.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	2.000	0.000	145.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	2.000	0.000	145.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
10' x 2.5" Horz Pipe	A	From Face	1.000	0.000	147.000	No Ice	1.200	1.200	0.058
(T-Mobile - Proposed)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851
10' x 2.5" Horz Pipe	B	From Face	1.000	0.000	147.000	No Ice	1.200	1.200	0.058
(T-Mobile - Proposed)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
10' x 2.5" Horz Pipe	C	From Face	1.000	0.000	147.000	No Ice	1.200	1.200	0.058
(T-Mobile - Proposed)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851
Monopole Sector Stabilizer	A	From Face	1.000	0.000	147.000	No Ice	9.000	9.000	0.350
Kit VSK-M			0.000			1/2" Ice	11.500	11.500	0.425
(T-Mobile - Proposed)			0.000			1" Ice	14.000	14.000	0.500
HPA-65R-BUU-H8	A	From Face	3.000	0.000	135.000	No Ice	12.976	7.516	0.068
(AT&T)			2.000			1/2" Ice	13.558	8.087	0.142
			0.000			1" Ice	14.147	8.666	0.223
HPA-65R-BUU-H8	B	From Face	3.000	0.000	135.000	No Ice	12.976	7.516	0.068
(AT&T)			2.000			1/2" Ice	13.558	8.087	0.142
			0.000			1" Ice	14.147	8.666	0.223
HPA-65R-BUU-H8	C	From Face	3.000	0.000	135.000	No Ice	12.976	7.516	0.068
(AT&T)			2.000			1/2" Ice	13.558	8.087	0.142
			0.000			1" Ice	14.147	8.666	0.223
7770.00	A	From Face	3.000	0.000	135.000	No Ice	5.508	2.928	0.035
(AT&T)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
7770.00	B	From Face	3.000	0.000	135.000	No Ice	5.508	2.928	0.035
(AT&T)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
7770.00	C	From Face	3.000	0.000	135.000	No Ice	5.508	2.928	0.035
(AT&T)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
80010966	A	From Face	3.000	0.000	135.000	No Ice	17.363	7.500	0.126
(AT&T)			6.000			1/2" Ice	17.991	8.089	0.218
			0.000			1" Ice	18.626	8.686	0.319
80010966	B	From Face	3.000	0.000	135.000	No Ice	17.363	7.500	0.126
(AT&T)			6.000			1/2" Ice	17.991	8.089	0.218
			0.000			1" Ice	18.626	8.686	0.319
80010966	C	From Face	3.000	0.000	135.000	No Ice	17.363	7.500	0.126
(AT&T)			6.000			1/2" Ice	17.991	8.089	0.218
			0.000			1" Ice	18.626	8.686	0.319
(2) LGP21401 TMA	A	From Face	3.000	0.000	135.000	No Ice	0.817	0.346	0.018
(AT&T)			0.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
(2) LGP21401 TMA	B	From Face	3.000	0.000	135.000	No Ice	0.817	0.346	0.018
(AT&T)			0.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
(2) LGP21401 TMA	C	From Face	3.000	0.000	135.000	No Ice	0.817	0.346	0.018
(AT&T)			0.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
(2) RRUS-32	A	From Face	1.000	0.000	135.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			2.500			1" Ice	3.809	2.860	0.136
(2) RRUS-32	B	From Face	1.000	0.000	135.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			2.500			1" Ice	3.809	2.860	0.136
(2) RRUS-32	C	From Face	1.000	0.000	135.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			2.500			1" Ice	3.809	2.860	0.136
4449 B5/B12	A	From Face	1.000	0.000	135.000	No Ice	1.968	1.408	0.071
(AT&T)			6.000			1/2" Ice	2.144	1.564	0.090
			2.500			1" Ice	2.328	1.727	0.111
4449 B5/B12	B	From Face	1.000	0.000	135.000	No Ice	1.968	1.408	0.071
(AT&T)			6.000			1/2" Ice	2.144	1.564	0.090
			2.500			1" Ice	2.328	1.727	0.111

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4449 B5/B12	C	From Face	1.000	0.000	135.000	No Ice	1.968	1.408	0.071
(AT&T)			6.000			1/2" Ice	2.144	1.564	0.090
			2.500			1" Ice	2.328	1.727	0.111
DC6-48-60-18-8F Surge	A	From Face	1.000	0.000	135.000	No Ice	1.909	1.909	0.020
Arrestor			0.000			1/2" Ice	2.098	2.098	0.039
(AT&T)			-2.500			1" Ice	2.294	2.294	0.062
DC6-48-60-18-8F Surge	B	From Face	1.000	0.000	135.000	No Ice	1.909	1.909	0.020
Arrestor			0.000			1/2" Ice	2.098	2.098	0.039
(AT&T)			-2.500			1" Ice	2.294	2.294	0.062
Valmont T-Arm (1)	A	From Face	2.000	0.000	135.000	No Ice	10.540	10.540	0.336
(AT&T)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	2.000	0.000	135.000	No Ice	10.540	10.540	0.336
(AT&T)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	2.000	0.000	135.000	No Ice	10.540	10.540	0.336
(AT&T)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
10' x 2.5" Horz Pipe	A	From Face	1.000	0.000	137.000	No Ice	1.200	1.200	0.058
(AT&T)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851
10' x 2.5" Horz Pipe	B	From Face	1.000	0.000	137.000	No Ice	1.200	1.200	0.058
(AT&T)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851
10' x 2.5" Horz Pipe	C	From Face	1.000	0.000	137.000	No Ice	1.200	1.200	0.058
(AT&T)			0.000			1/2" Ice	2.282	2.282	0.448
			0.000			1" Ice	2.894	2.894	0.851
LPA-80080-6CF	A	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
BXA-171085-12CF	A	From Face	3.500	0.000	125.000	No Ice	4.791	3.618	0.015
(Verizon)			4.000			1/2" Ice	5.242	4.058	0.042
			0.000			1" Ice	5.699	4.504	0.075
BXA-70063/6CF	A	From Face	3.500	0.000	125.000	No Ice	7.569	4.158	0.012
(Verizon)			0.000			1/2" Ice	8.016	4.595	0.054
			0.000			1" Ice	8.470	5.040	0.103
LPA-80080-6CF	A	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			-6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
LPA-80080-6CF	B	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
BXA-171085-12CF	B	From Face	3.500	0.000	125.000	No Ice	4.791	3.618	0.015
(Verizon)			4.000			1/2" Ice	5.242	4.058	0.042
			0.000			1" Ice	5.699	4.504	0.075
BXA-70063/6CF	B	From Face	3.500	0.000	125.000	No Ice	7.569	4.158	0.012
(Verizon)			0.000			1/2" Ice	8.016	4.595	0.054
			0.000			1" Ice	8.470	5.040	0.103
LPA-80080-6CF	B	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			-6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
LPA-80080-6CF	C	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
BXA-171085-12CF	C	From Face	3.500	0.000	125.000	No Ice	4.791	3.618	0.015
(Verizon)			4.000			1/2" Ice	5.242	4.058	0.042
			0.000			1" Ice	5.699	4.504	0.075

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-70063/6CF	C	From Face	3.500	0.000	125.000	No Ice	7.569	4.158	0.012
(Verizon)			0.000			1/2" Ice	8.016	4.595	0.054
			0.000			1" Ice	8.470	5.040	0.103
LPA-80080-6CF	C	From Face	3.500	0.000	125.000	No Ice	4.326	8.619	0.021
(Verizon)			-6.000			1/2" Ice	4.764	9.075	0.069
			0.000			1" Ice	5.210	9.539	0.123
(2) FD9R6004/2C-3L	A	From Face	3.500	0.000	125.000	No Ice	0.314	0.076	0.003
Diplexer			0.000			1/2" Ice	0.386	0.119	0.005
(Verizon)			0.000			1" Ice	0.466	0.169	0.009
(2) FD9R6004/2C-3L	B	From Face	3.500	0.000	125.000	No Ice	0.314	0.076	0.003
Diplexer			0.000			1/2" Ice	0.386	0.119	0.005
(Verizon)			0.000			1" Ice	0.466	0.169	0.009
(2) FD9R6004/2C-3L	C	From Face	3.500	0.000	125.000	No Ice	0.314	0.076	0.003
Diplexer			0.000			1/2" Ice	0.386	0.119	0.005
(Verizon)			0.000			1" Ice	0.466	0.169	0.009
Valmont T-Arm (1)	A	From Face	2.000	0.000	125.000	No Ice	10.540	10.540	0.336
(Verizon)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	2.000	0.000	125.000	No Ice	10.540	10.540	0.336
(Verizon)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	2.000	0.000	125.000	No Ice	10.540	10.540	0.336
(Verizon)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont B2069 2' GPS	B	From Face	1.000	0.000	85.000	No Ice	0.780	0.680	0.025
Mount			0.000			1/2" Ice	1.100	1.100	0.033
(Empty)			0.000			1" Ice	1.420	1.520	0.040
Valmont B2069 2' GPS	C	From Face	1.000	0.000	85.000	No Ice	0.780	0.680	0.025
Mount			0.000			1/2" Ice	1.100	1.100	0.033
(Empty)			0.000			1" Ice	1.420	1.520	0.040

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
2.5ft Dia. Dish	A	Paraboloid	From	5.000	Worst		175.000	2.500	No Ice	4.910	0.049
(Unknown)		w/Radome	Face	2.300					1/2" Ice	5.240	0.076
				0.000					1" Ice	5.570	0.103

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	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
L1	151.367	1.112	0.025	111.597	A	0.000	111.597	111.597	100.00	0.000	0.000
175.000-130.0					B	0.000	111.597		100.00	0.000	0.000
00					C	0.000	111.597		100.00	0.000	1.688
L2	106.835	1.007	0.022	149.965	A	0.000	149.965	149.965	100.00	0.000	0.000
130.000-85.00					B	0.000	149.965		100.00	0.000	0.000
0					C	0.000	149.965		100.00	0.000	1.688
L3	62.779	0.865	0.019	183.311	A	0.000	183.311	183.311	100.00	0.000	0.000
85.000-41.000					B	0.000	183.311		100.00	0.000	0.000
					C	0.000	183.311		100.00	0.000	1.650
L4	19.921	0.7	0.016	205.193	A	0.000	205.193	205.193	100.00	0.000	0.000
41.000-0.000					B	0.000	205.193		100.00	0.000	0.000
					C	0.000	205.193		100.00	0.000	1.538

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	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
L1	151.367	1.112	0.007	2.183	127.973	A	0.000	127.973	127.973	100.00	0.000	0.000
175.000-130.000						B	0.000	127.973		100.00	0.000	0.000
						C	0.000	127.973		100.00	0.000	21.339
L2	106.835	1.007	0.006	2.109	166.341	A	0.000	166.341	166.341	100.00	0.000	0.000
130.000-85.000						B	0.000	166.341		100.00	0.000	0.000
						C	0.000	166.341		100.00	0.000	21.339
L3	62.779	0.865	0.005	2.000	198.775	A	0.000	198.775	198.775	100.00	0.000	0.000
85.000-41.000						B	0.000	198.775		100.00	0.000	0.000
						C	0.000	198.775		100.00	0.000	20.207
L4 41.000-0.000	19.921	0.7	0.004	1.783	218.857	A	0.000	218.857	218.857	100.00	0.000	0.000
						B	0.000	218.857		100.00	0.000	0.000
						C	0.000	218.857		100.00	0.000	17.934

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	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
L1	151.367	1.112	0.009	111.597	A	0.000	111.597	111.597	100.00	0.000	0.000
175.000-130.0					B	0.000	111.597		100.00	0.000	0.000
00					C	0.000	111.597		100.00	0.000	1.688
L2	106.835	1.007	0.008	149.965	A	0.000	149.965	149.965	100.00	0.000	0.000
130.000-85.00					B	0.000	149.965		100.00	0.000	0.000
0					C	0.000	149.965		100.00	0.000	1.688
L3	62.779	0.865	0.007	183.311	A	0.000	183.311	183.311	100.00	0.000	0.000
85.000-41.000					B	0.000	183.311		100.00	0.000	0.000
					C	0.000	183.311		100.00	0.000	1.650
L4	19.921	0.7	0.006	205.193	A	0.000	205.193	205.193	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
41.000-0.000					B	0.000	205.193		100.00	0.000	0.000
					C	0.000	205.193		100.00	0.000	1.538

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.025	1	1	111.597	2.010	0.045	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.022	1	1	149.965	2.429	0.054	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.019	1	1	183.311	2.532	0.058	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.016	1	1	205.193	2.308	0.056	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	768.715 kip-ft	9.280		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.025	1	1	111.597	2.010	0.045	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.022	1	1	149.965	2.429	0.054	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.019	1	1	183.311	2.532	0.058	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.016	1	1	205.193	2.308	0.056	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	768.715 kip-ft	9.280		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.025	1	1	111.597	2.010	0.045	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.022	1	1	149.965	2.429	0.054	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.019	1	1	183.311	2.532	0.058	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.016	1	1	205.193	2.308	0.056	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	768.715 kip-ft	9.280		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.025	1	1	111.597	2.010	0.045	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.022	1	1	149.965	2.429	0.054	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.019	1	1	183.311	2.532	0.058	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.016	1	1	205.193	2.308	0.056	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	768.715 kip-ft	9.280		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.591	7.359	A	1	1.2	0.007	1	1	127.973	1.300	0.029	C
175.000-130.0			B	1	1.2		1	1	127.973			
00			C	1	1.2		1	1	127.973			
L2	2.228	11.368	A	1	1.2	0.006	1	1	165.780	1.481	0.033	C
130.000-85.00			B	1	1.2		1	1	165.780			
0			C	1	1.2		1	1	165.780			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L3	2.297	15.332	A	1	1.2	0.005	1	1	197.975	1.483	0.034	C
85.000-41.000			B	1	1.2		1	1	197.975			
			C	1	1.2		1	1	197.975			
L4	1.837	16.762	A	1	1.2	0.004	1	1	217.375	1.309	0.032	C
41.000-0.000			B	1	1.2		1	1	217.375			
			C	1	1.2		1	1	217.375			
Sum Weight:	6.952	50.822						OTM	474.150 kip-ft	5.573		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.591	7.359	A	1	1.2	0.007	1	1	127.973	1.300	0.029	C
175.000-130.0			B	1	1.2		1	1	127.973			
00			C	1	1.2		1	1	127.973			
L2	2.228	11.368	A	1	1.2	0.006	1	1	165.780	1.481	0.033	C
130.000-85.00			B	1	1.2		1	1	165.780			
0			C	1	1.2		1	1	165.780			
L3	2.297	15.332	A	1	1.2	0.005	1	1	197.975	1.483	0.034	C
85.000-41.000			B	1	1.2		1	1	197.975			
			C	1	1.2		1	1	197.975			
L4	1.837	16.762	A	1	1.2	0.004	1	1	217.375	1.309	0.032	C
41.000-0.000			B	1	1.2		1	1	217.375			
			C	1	1.2		1	1	217.375			
Sum Weight:	6.952	50.822						OTM	474.150 kip-ft	5.573		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.591	7.359	A	1	1.2	0.007	1	1	127.973	1.300	0.029	C
175.000-130.0			B	1	1.2		1	1	127.973			
00			C	1	1.2		1	1	127.973			
L2	2.228	11.368	A	1	1.2	0.006	1	1	165.780	1.481	0.033	C
130.000-85.00			B	1	1.2		1	1	165.780			
0			C	1	1.2		1	1	165.780			
L3	2.297	15.332	A	1	1.2	0.005	1	1	197.975	1.483	0.034	C
85.000-41.000			B	1	1.2		1	1	197.975			
			C	1	1.2		1	1	197.975			
L4	1.837	16.762	A	1	1.2	0.004	1	1	217.375	1.309	0.032	C
41.000-0.000			B	1	1.2		1	1	217.375			
			C	1	1.2		1	1	217.375			
Sum Weight:	6.952	50.822						OTM	474.150	5.573		

Section Elevation ft	Add Weight K	Self Weight K	Face e	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
									kip-ft			

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face e	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.591	7.359	A	1	1.2	0.007	1	1	127.973	1.300	0.029	C
175.000-130.0			B	1	1.2		1	1	127.973			
00			C	1	1.2		1	1	127.973			
L2	2.228	11.368	A	1	1.2	0.006	1	1	165.780	1.481	0.033	C
130.000-85.00			B	1	1.2		1	1	165.780			
0			C	1	1.2		1	1	165.780			
L3	2.297	15.332	A	1	1.2	0.005	1	1	197.975	1.483	0.034	C
85.000-41.000			B	1	1.2		1	1	197.975			
			C	1	1.2		1	1	197.975			
L4	1.837	16.762	A	1	1.2	0.004	1	1	217.375	1.309	0.032	C
41.000-0.000			B	1	1.2		1	1	217.375			
			C	1	1.2		1	1	217.375			
Sum Weight:	6.952	50.822						OTM	474.150 kip-ft	5.573		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face e	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.009	1	1	111.597	0.711	0.016	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.008	1	1	149.965	0.859	0.019	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.007	1	1	183.311	0.895	0.020	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.006	1	1	205.193	0.816	0.020	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	271.822 kip-ft	3.281		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.009	1	1	111.597	0.711	0.016	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.008	1	1	149.965	0.859	0.019	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.007	1	1	183.311	0.895	0.020	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.006	1	1	205.193	0.816	0.020	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	271.822 kip-ft	3.281		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.009	1	1	111.597	0.711	0.016	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.008	1	1	149.965	0.859	0.019	C
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.007	1	1	183.311	0.895	0.020	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.006	1	1	205.193	0.816	0.020	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	271.822 kip-ft	3.281		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.487	3.535	A	1	0.65	0.009	1	1	111.597	0.711	0.016	C
175.000-130.0			B	1	0.65		1	1	111.597			
00			C	1	0.65		1	1	111.597			
L2	2.123	6.503	A	1	0.65	0.008	1	1	149.965	0.859	0.019	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
130.000-85.00			B	1	0.65		1	1	149.965			
0			C	1	0.65		1	1	149.965			
L3	2.198	9.762	A	1	0.65	0.007	1	1	183.311	0.895	0.020	C
85.000-41.000			B	1	0.65		1	1	183.311			
			C	1	0.65		1	1	183.311			
L4	1.750	11.260	A	1	0.65	0.006	1	1	205.193	0.816	0.020	C
41.000-0.000			B	1	0.65		1	1	205.193			
			C	1	0.65		1	1	205.193			
Sum Weight:	6.559	31.061						OTM	271.822 kip-ft	3.281		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	31.061					
Bracing Weight	0.000					
Total Member Self-Weight	31.061			4.931	0.167	
Total Weight	48.820			4.931	0.167	
Wind 0 deg - No Ice		-0.022	-20.795	-2414.626	3.175	1.082
Wind 30 deg - No Ice		10.391	-17.998	-2088.963	-1208.743	1.219
Wind 45 deg - No Ice		14.707	-14.689	-1703.827	-1711.047	1.163
Wind 60 deg - No Ice		18.020	-10.379	-1202.243	-2096.735	1.029
Wind 90 deg - No Ice		20.820	0.022	7.939	-2422.863	0.564
Wind 120 deg - No Ice		18.041	10.416	1217.314	-2099.742	-0.053
Wind 135 deg - No Ice		14.737	14.720	1717.943	-1715.301	-0.366
Wind 150 deg - No Ice		10.429	18.020	2101.832	-1213.953	-0.655
Wind 180 deg - No Ice		0.022	20.795	2424.488	-2.841	-1.082
Wind 210 deg - No Ice		-10.391	17.998	2098.825	1209.077	-1.219
Wind 225 deg - No Ice		-14.707	14.689	1713.689	1711.381	-1.163
Wind 240 deg - No Ice		-18.020	10.379	1212.104	2097.068	-1.029
Wind 270 deg - No Ice		-20.820	-0.022	1.923	2423.197	-0.564
Wind 300 deg - No Ice		-18.041	-10.416	-1207.452	2100.076	0.053
Wind 315 deg - No Ice		-14.737	-14.720	-1708.081	1715.634	0.366
Wind 330 deg - No Ice		-10.429	-18.020	-2091.970	1214.287	0.655
Member Ice	19.761					
Total Weight Ice	103.624			13.353	-0.755	
Wind 0 deg - Ice		-0.011	-11.528	-1325.861	0.607	-0.269
Wind 30 deg - Ice		5.761	-9.978	-1145.759	-669.969	0.492
Wind 45 deg - Ice		8.153	-8.144	-932.651	-947.871	0.835
Wind 60 deg - Ice		9.989	-5.755	-655.075	-1161.229	1.121
Wind 90 deg - Ice		11.540	0.011	14.715	-1341.541	1.449
Wind 120 deg - Ice		10.000	5.773	684.140	-1162.591	1.389
Wind 135 deg - Ice		8.168	8.159	961.284	-949.797	1.215
Wind 150 deg - Ice		5.780	9.989	1173.828	-672.328	0.957
Wind 180 deg - Ice		0.011	11.528	1352.567	-2.117	0.269
Wind 210 deg - Ice		-5.761	9.978	1172.466	668.459	-0.492
Wind 225 deg - Ice		-8.153	8.144	959.358	946.362	-0.835
Wind 240 deg - Ice		-9.989	5.755	681.781	1159.720	-1.121
Wind 270 deg - Ice		-11.540	-0.011	11.991	1340.032	-1.449
Wind 300 deg - Ice		-10.000	-5.773	-657.434	1161.082	-1.389
Wind 315 deg - Ice		-8.168	-8.159	-934.577	948.288	-1.215

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 330 deg - Ice		-5.780	-9.989	-1147.121	670.818	-0.957
Total Weight	48.820			4.931	0.167	
Wind 0 deg - Service		-0.008	-7.353	-850.639	1.230	0.383
Wind 30 deg - Service		3.674	-6.364	-735.483	-427.311	0.431
Wind 45 deg - Service		5.200	-5.194	-599.297	-604.929	0.411
Wind 60 deg - Service		6.372	-3.670	-421.933	-741.311	0.364
Wind 90 deg - Service		7.362	0.008	5.995	-856.632	0.199
Wind 120 deg - Service		6.380	3.683	433.637	-742.374	-0.019
Wind 135 deg - Service		5.211	5.205	610.663	-606.433	-0.130
Wind 150 deg - Service		3.688	6.372	746.408	-429.154	-0.232
Wind 180 deg - Service		0.008	7.353	860.501	-0.897	-0.383
Wind 210 deg - Service		-3.674	6.364	745.345	427.645	-0.431
Wind 225 deg - Service		-5.200	5.194	609.159	605.263	-0.411
Wind 240 deg - Service		-6.372	3.670	431.795	741.644	-0.364
Wind 270 deg - Service		-7.362	-0.008	3.867	856.965	-0.199
Wind 300 deg - Service		-6.380	-3.683	-423.775	742.708	0.019
Wind 315 deg - Service		-5.211	-5.205	-600.801	606.767	0.130
Wind 330 deg - Service		-3.688	-6.372	-736.547	429.487	0.232

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	175 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-41.326	-2.400	-16.503
			Max. Mx	26	-12.126	268.088	-5.362
			Max. My	18	-12.124	-0.627	-273.429
			Max. Vy	26	-13.310	268.088	-5.362
			Max. Vx	18	13.293	-0.627	-273.429
			Max. Torque	10			-4.742
L2	130 - 85	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-70.521	-0.787	-16.751
			Max. Mx	26	-25.917	1299.138	-4.417
			Max. My	18	-25.918	-1.451	-1303.012
			Max. Vy	26	-26.243	1299.138	-4.417
			Max. Vx	18	26.203	-1.451	-1303.012
			Max. Torque	6			-2.952
L3	85 - 41	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-90.352	-0.983	-17.652
			Max. Mx	26	-40.003	2510.861	-3.036
			Max. My	18	-40.003	-3.101	-2513.165
			Max. Vy	26	-29.967	2510.861	-3.036
			Max. Vx	18	29.928	-3.101	-2513.165

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	6			-2.216
L4	41 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-115.628	-0.991	-17.800
			Max. Mx	26	-58.566	4032.625	-1.394
			Max. My	18	-58.566	-4.792	-4033.025
			Max. Vy	26	-33.344	4032.625	-1.394
			Max. Vx	18	33.304	-4.792	-4033.025
			Max. Torque	6			-2.213

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	43	115.628	-0.011	-11.528
	Max. H_x	26	58.584	33.312	0.035
	Max. H_z	2	58.584	0.035	33.272
	Max. M_x	2	4020.226	0.035	33.272
	Max. M_z	10	4032.197	-33.312	-0.035
	Max. Torsion	22	2.208	23.531	-23.502
	Min. Vert	7	43.938	-23.531	23.502
	Min. H_x	10	58.584	-33.312	-0.035
	Min. H_z	18	58.584	-0.035	-33.272
	Min. M_x	18	-4033.025	-0.035	-33.272
	Min. M_z	26	-4032.625	33.312	0.035
	Min. Torsion	6	-2.212	-23.531	23.502

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	48.820	0.000	0.000	5.156	0.171	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	58.584	-0.035	-33.272	-4020.226	5.250	1.650
0.9 Dead+1.6 Wind 0 deg - No Ice	43.938	-0.035	-33.272	-3980.802	5.135	1.667
1.2 Dead+1.6 Wind 30 deg - No Ice	58.584	16.626	-28.797	-3478.273	-2011.656	2.168
0.9 Dead+1.6 Wind 30 deg - No Ice	43.938	16.626	-28.797	-3444.374	-1991.162	2.107
1.2 Dead+1.6 Wind 45 deg - No Ice	58.584	23.531	-23.502	-2837.320	-2847.604	2.212
0.9 Dead+1.6 Wind 45 deg - No Ice	43.938	23.531	-23.502	-2809.970	-2818.568	2.117
1.2 Dead+1.6 Wind 60 deg - No Ice	58.584	28.832	-16.606	-2002.569	-3489.474	2.105
0.9 Dead+1.6 Wind 60 deg - No Ice	43.938	28.832	-16.606	-1983.749	-3453.878	1.982
1.2 Dead+1.6 Wind 90 deg - No Ice	58.584	33.312	0.035	11.435	-4032.197	1.476
0.9 Dead+1.6 Wind 90 deg - No Ice	43.938	33.312	0.035	9.678	-3991.068	1.325

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 120 deg - No Ice	58.584	28.866	16.666	2024.078	-3494.466	0.451
0.9 Dead+1.6 Wind 120 deg - No Ice	43.938	28.866	16.666	2001.761	-3458.820	0.311
1.2 Dead+1.6 Wind 135 deg - No Ice	58.584	23.580	23.551	2857.220	-2854.675	-0.127
0.9 Dead+1.6 Wind 135 deg - No Ice	43.938	23.579	23.551	2826.393	-2825.565	-0.246
1.2 Dead+1.6 Wind 150 deg - No Ice	58.584	16.686	28.832	3496.085	-2020.330	-0.695
0.9 Dead+1.6 Wind 150 deg - No Ice	43.938	16.686	28.832	3458.734	-1999.744	-0.786
1.2 Dead+1.6 Wind 180 deg - No Ice	58.584	0.035	33.272	4033.025	-4.791	-1.653
0.9 Dead+1.6 Wind 180 deg - No Ice	43.938	0.035	33.272	3990.205	-4.796	-1.671
1.2 Dead+1.6 Wind 210 deg - No Ice	58.584	-16.626	28.797	3491.066	2012.094	-2.167
0.9 Dead+1.6 Wind 210 deg - No Ice	43.938	-16.626	28.797	3453.773	1991.485	-2.106
1.2 Dead+1.6 Wind 225 deg - No Ice	58.584	-23.531	23.502	2850.119	2848.033	-2.208
0.9 Dead+1.6 Wind 225 deg - No Ice	43.938	-23.531	23.502	2819.374	2818.884	-2.114
1.2 Dead+1.6 Wind 240 deg - No Ice	58.584	-28.832	16.606	2015.378	3489.896	-2.099
0.9 Dead+1.6 Wind 240 deg - No Ice	43.938	-28.832	16.606	1993.159	3454.190	-1.977
1.2 Dead+1.6 Wind 270 deg - No Ice	58.584	-33.312	-0.035	1.394	4032.625	-1.471
0.9 Dead+1.6 Wind 270 deg - No Ice	43.938	-33.312	-0.035	-0.253	3991.384	-1.320
1.2 Dead+1.6 Wind 300 deg - No Ice	58.584	-28.866	-16.666	-2011.243	3494.915	-0.450
0.9 Dead+1.6 Wind 300 deg - No Ice	43.938	-28.866	-16.666	-1992.332	3459.151	-0.310
1.2 Dead+1.6 Wind 315 deg - No Ice	58.584	-23.580	-23.551	-2844.391	2855.134	0.125
0.9 Dead+1.6 Wind 315 deg - No Ice	43.938	-23.579	-23.551	-2816.968	2825.904	0.244
1.2 Dead+1.6 Wind 330 deg - No Ice	58.584	-16.686	-28.832	-3483.265	2020.794	0.692
0.9 Dead+1.6 Wind 330 deg - No Ice	43.938	-16.686	-28.832	-3449.316	2000.087	0.782
1.2 Dead+1.0 Ice+1.0 Temp	115.628	0.000	0.000	17.800	-0.991	0.010
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	115.628	-0.011	-11.528	-1474.999	0.517	-0.385
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	115.628	5.761	-9.978	-1274.221	-747.043	0.700
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	115.628	8.153	-8.144	-1036.681	-1056.883	1.190
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	115.628	9.989	-5.755	-727.205	-1294.701	1.599
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	115.628	11.541	0.011	19.478	-1495.716	2.073
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	115.628	10.000	5.773	765.783	-1296.266	1.995
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	115.628	8.168	8.159	1074.757	-1059.035	1.748
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	115.628	5.780	9.989	1311.713	-749.700	1.384

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	115.628	0.011	11.528	1510.934	-2.518	0.405
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	115.628	-5.761	9.978	1310.199	745.073	-0.680
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	115.628	-8.153	8.144	1072.615	1054.892	-1.170
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	115.628	-9.989	5.755	763.159	1292.752	-1.579
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	115.628	-11.541	-0.011	16.444	1493.721	-2.053
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	115.628	-10.000	-5.773	-729.836	1294.221	-1.974
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	115.628	-8.168	-8.159	-1038.829	1057.030	-1.729
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	115.628	-5.780	-9.989	-1275.741	747.670	-1.364
Dead+Wind 0 deg - Service	48.820	-0.008	-7.353	-879.278	1.278	0.371
Dead+Wind 30 deg - Service	48.820	3.674	-6.364	-760.219	-441.784	0.474
Dead+Wind 45 deg - Service	48.820	5.200	-5.194	-619.418	-625.421	0.478
Dead+Wind 60 deg - Service	48.820	6.372	-3.670	-436.046	-766.424	0.450
Dead+Wind 90 deg - Service	48.820	7.362	0.008	6.380	-885.653	0.306
Dead+Wind 120 deg - Service	48.820	6.380	3.683	448.511	-767.526	0.080
Dead+Wind 135 deg - Service	48.820	5.211	5.205	631.533	-626.979	-0.045
Dead+Wind 150 deg - Service	48.820	3.688	6.372	771.877	-443.693	-0.168
Dead+Wind 180 deg - Service	48.820	0.008	7.353	889.833	-0.927	-0.370
Dead+Wind 210 deg - Service	48.820	-3.674	6.364	770.774	442.135	-0.473
Dead+Wind 225 deg - Service	48.820	-5.200	5.194	629.973	625.771	-0.478
Dead+Wind 240 deg - Service	48.820	-6.372	3.670	446.601	766.774	-0.449
Dead+Wind 270 deg - Service	48.820	-7.362	-0.008	4.176	886.004	-0.305
Dead+Wind 300 deg - Service	48.820	-6.380	-3.683	-437.954	767.877	-0.079
Dead+Wind 315 deg - Service	48.820	-5.211	-5.205	-620.977	627.331	0.046
Dead+Wind 330 deg - Service	48.820	-3.688	-6.372	-761.321	444.045	0.168

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-48.820	0.000	0.000	48.820	-0.000	0.000%
2	-0.035	-58.584	-33.272	0.035	58.584	33.272	0.000%
3	-0.035	-43.938	-33.272	0.035	43.938	33.272	0.000%
4	16.626	-58.584	-28.797	-16.626	58.584	28.797	0.000%
5	16.626	-43.938	-28.797	-16.626	43.938	28.797	0.000%
6	23.531	-58.584	-23.502	-23.531	58.584	23.502	0.000%
7	23.531	-43.938	-23.502	-23.531	43.938	23.502	0.000%
8	28.832	-58.584	-16.606	-28.832	58.584	16.606	0.000%
9	28.832	-43.938	-16.606	-28.832	43.938	16.606	0.000%
10	33.312	-58.584	0.035	-33.312	58.584	-0.035	0.000%
11	33.312	-43.938	0.035	-33.312	43.938	-0.035	0.000%
12	28.866	-58.584	16.666	-28.866	58.584	-16.666	0.000%
13	28.866	-43.938	16.666	-28.866	43.938	-16.666	0.000%
14	23.579	-58.584	23.551	-23.580	58.584	-23.551	0.000%
15	23.579	-43.938	23.551	-23.579	43.938	-23.551	0.000%
16	16.686	-58.584	28.832	-16.686	58.584	-28.832	0.000%
17	16.686	-43.938	28.832	-16.686	43.938	-28.832	0.000%
18	0.035	-58.584	33.272	-0.035	58.584	-33.272	0.000%
19	0.035	-43.938	33.272	-0.035	43.938	-33.272	0.000%
20	-16.626	-58.584	28.797	16.626	58.584	-28.797	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
21	-16.626	-43.938	28.797	16.626	43.938	-28.797	0.000%
22	-23.531	-58.584	23.502	23.531	58.584	-23.502	0.000%
23	-23.531	-43.938	23.502	23.531	43.938	-23.502	0.000%
24	-28.832	-58.584	16.606	28.832	58.584	-16.606	0.000%
25	-28.832	-43.938	16.606	28.832	43.938	-16.606	0.000%
26	-33.312	-58.584	-0.035	33.312	58.584	0.035	0.000%
27	-33.312	-43.938	-0.035	33.312	43.938	0.035	0.000%
28	-28.866	-58.584	-16.666	28.866	58.584	16.666	0.000%
29	-28.866	-43.938	-16.666	28.866	43.938	16.666	0.000%
30	-23.579	-58.584	-23.551	23.580	58.584	23.551	0.000%
31	-23.579	-43.938	-23.551	23.579	43.938	23.551	0.000%
32	-16.686	-58.584	-28.832	16.686	58.584	28.832	0.000%
33	-16.686	-43.938	-28.832	16.686	43.938	28.832	0.000%
34	0.000	-115.628	0.000	-0.000	115.628	-0.000	0.000%
35	-0.011	-115.628	-11.528	0.011	115.628	11.528	0.000%
36	5.761	-115.628	-9.978	-5.761	115.628	9.978	0.000%
37	8.153	-115.628	-8.144	-8.153	115.628	8.144	0.000%
38	9.989	-115.628	-5.755	-9.989	115.628	5.755	0.000%
39	11.540	-115.628	0.011	-11.541	115.628	-0.011	0.000%
40	10.000	-115.628	5.773	-10.000	115.628	-5.773	0.000%
41	8.168	-115.628	8.159	-8.168	115.628	-8.159	0.000%
42	5.780	-115.628	9.989	-5.780	115.628	-9.989	0.000%
43	0.011	-115.628	11.528	-0.011	115.628	-11.528	0.000%
44	-5.761	-115.628	9.978	5.761	115.628	-9.978	0.000%
45	-8.153	-115.628	8.144	8.153	115.628	-8.144	0.000%
46	-9.989	-115.628	5.755	9.989	115.628	-5.755	0.000%
47	-11.540	-115.628	-0.011	11.541	115.628	0.011	0.000%
48	-10.000	-115.628	-5.773	10.000	115.628	5.773	0.000%
49	-8.168	-115.628	-8.159	8.168	115.628	8.159	0.000%
50	-5.780	-115.628	-9.989	5.780	115.628	9.989	0.000%
51	-0.008	-48.820	-7.353	0.008	48.820	7.353	0.000%
52	3.674	-48.820	-6.364	-3.674	48.820	6.364	0.000%
53	5.200	-48.820	-5.194	-5.200	48.820	5.194	0.000%
54	6.372	-48.820	-3.670	-6.372	48.820	3.670	0.000%
55	7.362	-48.820	0.008	-7.362	48.820	-0.008	0.000%
56	6.380	-48.820	3.683	-6.380	48.820	-3.683	0.000%
57	5.211	-48.820	5.205	-5.211	48.820	-5.205	0.000%
58	3.688	-48.820	6.372	-3.688	48.820	-6.372	0.000%
59	0.008	-48.820	7.353	-0.008	48.820	-7.353	0.000%
60	-3.674	-48.820	6.364	3.674	48.820	-6.364	0.000%
61	-5.200	-48.820	5.194	5.200	48.820	-5.194	0.000%
62	-6.372	-48.820	3.670	6.372	48.820	-3.670	0.000%
63	-7.362	-48.820	-0.008	7.362	48.820	0.008	0.000%
64	-6.380	-48.820	-3.683	6.380	48.820	3.683	0.000%
65	-5.211	-48.820	-5.205	5.211	48.820	5.205	0.000%
66	-3.688	-48.820	-6.372	3.688	48.820	6.372	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	0.00076312
3	Yes	4	0.00000001	0.00049422
4	Yes	5	0.00000001	0.00060335
5	Yes	5	0.00000001	0.00028176

6	Yes	5	0.00000001	0.00065477
7	Yes	5	0.00000001	0.00030273
8	Yes	5	0.00000001	0.00055327
9	Yes	5	0.00000001	0.00025756
10	Yes	4	0.00000001	0.00095642
11	Yes	4	0.00000001	0.00056559
12	Yes	5	0.00000001	0.00059685
13	Yes	5	0.00000001	0.00027610
14	Yes	5	0.00000001	0.00066757
15	Yes	5	0.00000001	0.00030694
16	Yes	5	0.00000001	0.00059802
17	Yes	5	0.00000001	0.00027793
18	Yes	4	0.00000001	0.00083966
19	Yes	4	0.00000001	0.00054409
20	Yes	5	0.00000001	0.00056289
21	Yes	5	0.00000001	0.00026053
22	Yes	5	0.00000001	0.00066592
23	Yes	5	0.00000001	0.00030652
24	Yes	5	0.00000001	0.00061376
25	Yes	5	0.00000001	0.00028495
26	Yes	4	0.00000001	0.00088973
27	Yes	4	0.00000001	0.00052227
28	Yes	5	0.00000001	0.00057504
29	Yes	5	0.00000001	0.00026818
30	Yes	5	0.00000001	0.00065724
31	Yes	5	0.00000001	0.00030351
32	Yes	5	0.00000001	0.00057347
33	Yes	5	0.00000001	0.00026628
34	Yes	4	0.00000001	0.00014294
35	Yes	5	0.00000001	0.00071389
36	Yes	5	0.00000001	0.00098164
37	Yes	6	0.00000001	0.00014567
38	Yes	5	0.00000001	0.00095273
39	Yes	5	0.00000001	0.00076292
40	Yes	6	0.00000001	0.00015013
41	Yes	6	0.00000001	0.00015641
42	Yes	6	0.00000001	0.00014272
43	Yes	5	0.00000001	0.00075453
44	Yes	6	0.00000001	0.00014191
45	Yes	6	0.00000001	0.00015472
46	Yes	6	0.00000001	0.00014813
47	Yes	5	0.00000001	0.00075861
48	Yes	5	0.00000001	0.00095090
49	Yes	6	0.00000001	0.00014572
50	Yes	5	0.00000001	0.00098587
51	Yes	4	0.00000001	0.00005388
52	Yes	4	0.00000001	0.00018743
53	Yes	4	0.00000001	0.00019059
54	Yes	4	0.00000001	0.00014581
55	Yes	4	0.00000001	0.00005805
56	Yes	4	0.00000001	0.00017693
57	Yes	4	0.00000001	0.00019659
58	Yes	4	0.00000001	0.00017912
59	Yes	4	0.00000001	0.00005606
60	Yes	4	0.00000001	0.00015503
61	Yes	4	0.00000001	0.00020190
62	Yes	4	0.00000001	0.00019748
63	Yes	4	0.00000001	0.00005741
64	Yes	4	0.00000001	0.00015729
65	Yes	4	0.00000001	0.00018566
66	Yes	4	0.00000001	0.00015592

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 130	20.925	59	1.006	0.006
L2	135 - 85	12.892	59	0.891	0.002
L3	91 - 41	5.815	58	0.605	0.001
L4	48 - 0	1.619	58	0.309	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	1' x 1' Panel	59	20.925	1.006	0.006	92531
175.000	2.5ft Dia. Dish	59	20.925	1.006	0.006	92531
155.000	ET-X-TU-42-15-37-18-iR-SP	59	16.805	0.962	0.004	23132
147.000	10' x 2.5" Horz Pipe	59	15.203	0.938	0.003	16523
145.000	VV-65A-R1	59	14.809	0.932	0.003	15421
137.000	10' x 2.5" Horz Pipe	59	13.268	0.900	0.002	12209
135.000	HPA-65R-BUU-H8	59	12.892	0.891	0.002	11713
125.000	LPA-80080-6CF	58	11.076	0.839	0.002	10529
100.000	PD220	58	7.057	0.671	0.001	8603
85.000	Valmont B2069 2' GPS Mount	58	5.053	0.562	0.001	7873

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 130	94.170	16	4.437	0.029
L2	135 - 85	58.317	16	4.019	0.009
L3	91 - 41	26.360	14	2.743	0.003
L4	48 - 0	7.345	14	1.401	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	1' x 1' Panel	16	94.170	4.437	0.030	22449
175.000	2.5ft Dia. Dish	16	94.170	4.437	0.030	22449
155.000	ET-X-TU-42-15-37-18-iR-SP	16	75.813	4.296	0.018	5610
147.000	10' x 2.5" Horz Pipe	16	68.663	4.209	0.014	4006
145.000	VV-65A-R1	16	66.904	4.183	0.013	3738
137.000	10' x 2.5" Horz Pipe	16	60.003	4.057	0.010	2957
135.000	HPA-65R-BUU-H8	16	58.317	4.019	0.009	2831
125.000	LPA-80080-6CF	14	50.153	3.792	0.007	2481

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.000	PD220	14	31.989	3.039	0.004	1928
85.000	Valmont B2069 2' GPS Mount	14	22.907	2.548	0.003	1741

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	175 - 130 (1)	TP34.69x24x0.25	45.000	0.000	0.0	26.386	-12.122	1798.360	0.007
L2	130 - 85 (2)	TP44.69x33.002x0.313	50.000	0.000	0.0	42.626	-25.915	2869.420	0.009
L3	85 - 41 (3)	TP54.5x42.662x0.375	50.000	0.000	0.0	62.450	-40.001	4176.040	0.010
L4	41 - 0 (4)	TP64.5x52.093x0.375	48.000	0.000	0.0	76.325	-58.566	4661.850	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	175 - 130 (1)	TP34.69x24x0.25	273.481	1230.092	0.222	0.000	1230.092	0.000
L2	130 - 85 (2)	TP44.69x33.002x0.313	1304.083	2537.208	0.514	0.000	2537.208	0.000
L3	85 - 41 (3)	TP54.5x42.662x0.375	2516.408	4508.758	0.558	0.000	4508.758	0.000
L4	41 - 0 (4)	TP64.5x52.093x0.375	4038.917	6159.508	0.656	0.000	6159.508	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	175 - 130 (1)	TP34.69x24x0.25	13.315	899.182	0.015	0.998	2465.992	0.000
L2	130 - 85 (2)	TP44.69x33.002x0.313	26.247	1434.710	0.018	0.659	5086.192	0.000
L3	85 - 41 (3)	TP54.5x42.662x0.375	29.984	2088.020	0.014	0.127	9038.250	0.000
L4	41 - 0 (4)	TP64.5x52.093x0.375	33.359	2330.930	0.014	0.127	12345.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	175 - 130 (1)	0.007	0.222	0.000	0.015	0.000	0.229 ✔	1.000	4.8.2 ✔
L2	130 - 85 (2)	0.009	0.514	0.000	0.018	0.000	0.523 ✔	1.000	4.8.2 ✔
L3	85 - 41 (3)	0.010	0.558	0.000	0.014	0.000	0.568 ✔	1.000	4.8.2 ✔
L4	41 - 0 (4)	0.013	0.656	0.000	0.014	0.000	0.668 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	175 - 130	Pole	TP34.69x24x0.25	1	-12.122	1798.360	22.9	Pass
L2	130 - 85	Pole	TP44.69x33.002x0.313	2	-25.915	2869.420	52.3	Pass
L3	85 - 41	Pole	TP54.5x42.662x0.375	3	-40.001	4176.040	56.8	Pass
L4	41 - 0	Pole	TP64.5x52.093x0.375	4	-58.566	4661.850	66.8	Pass
							Summary	
						Pole (L4)	66.8	Pass
						RATING =	**66.8**	**Pass**

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Subject:	Anchor Bolt and Baseplate Analysis
Location:	175-FT Nudd Monopole New Fairfield, CT
Rev. 0: 4/21/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22022.12

Anchor Bolt and Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment = $M_u := 4039 \cdot ft \cdot kips$ (Input From tnxTower)

Shear Force = $Shear := 33 \cdot kips$ (Input From tnxTower)

Axial Force = $R_u := 59 \cdot kips$ (Input From tnxTower)

Anchor Bolt Data: Original Anchors

ASTMA687

Number of Anchor Bolts = $N_{Orig} := 24$ (User Input)

Bolt Ultimate Strength = $F_{u.Orig} := 125 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D_{Orig} := 2 \cdot in$ (User Input)

Threads per Inch = $n_{Orig} := 4.5$ (User Input)

Anchor Bolt Data: Additional Anchors (per Infinigy Design dated 4/29/15)

Williams 150ksi Rebar

Number of Anchor Bolts = $N_{Add} := 4$ (User Input)

Bolt Ultimate Strength = $F_{u.Add} := 150 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D_{Add} := 1.75 \cdot in$ (User Input)

Threads per Inch = $n_{Add} := 4.5$ (User Input)

Base Plate Data:

Plate Yield Strength = $F_{ybp} := 42 \cdot ksi$ (User Input)

Base Plate Thickness = $t_{TP} := 1.5 \cdot in$ (User Input)

Base Plate Section Modulus per Bolt (with Stiffner) = $S_x := 24.2 \cdot in^3$ (User Input)

$\eta := 0.5$ For Ungrouted Base Plate per TIA-222-G Section 4.9.9

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

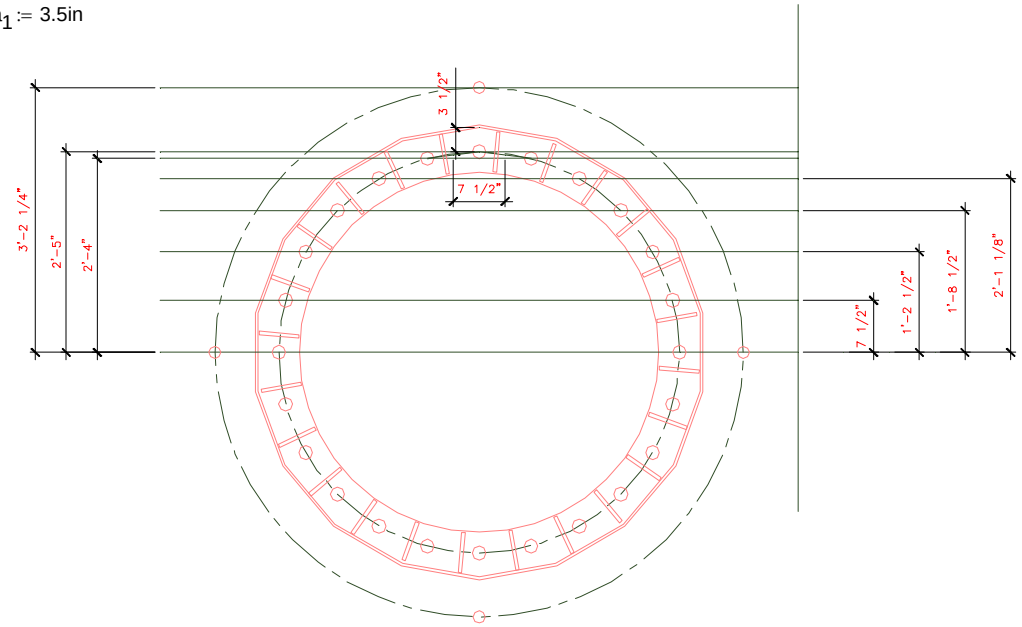
$d_1 := 7.5in$ $d_2 := 14.5in$ $d_3 := 20.5in$ $d_4 := 25.125in$ $d_5 := 28in$ $d_6 := 29in$ $d_7 := 38.25in$ (User Input)

Number of Bolts per Location:

$N_1 := 4$ $N_2 := 4$ $N_3 := 4$ $N_4 := 4$ $N_5 := 4$ $N_6 := 2$ $N_7 := 2$ (User Input)

Critical Distances For Bending in Plate:

$ma_1 := 3.5in$



Calculated Anchor Bolt Properties:

Polar Moment of Inertia (Orig Anchors) = $I_{p.orig} := \left[(d_1)^2 \cdot N_1 + (d_2)^2 \cdot N_2 + (d_3)^2 \cdot N_3 + (d_4)^2 \cdot N_4 + (d_5)^2 \cdot N_5 + (d_6)^2 \cdot N_6\right] = 10090.1 \cdot in^2$

Polar Moment of Inertia (Add Anchors) = $I_{p.Add} := \left[(d_7)^2 \cdot N_7\right] = 2926.1 \cdot in^2$

Gross Area of Bolt = $A_{g.Orig} := \frac{\pi}{4} \cdot (D_{Orig})^2 = 3.142 \cdot in^2$

Gross Area of Bolt = $A_{g.Add} := \frac{\pi}{4} \cdot (D_{Add})^2 = 2.405 \cdot in^2$

% of Load on Original Bolts = $\%_{Orig} := \frac{A_{g.Orig} \cdot I_{p.orig}}{A_{g.Orig} \cdot I_{p.orig} + A_{g.Add} \cdot I_{p.Add}} = 0.818$

% of Load on Add Bolts = $\%_{Add} := \frac{A_{g.Add} \cdot I_{p.Add}}{A_{g.Orig} \cdot I_{p.orig} + A_{g.Add} \cdot I_{p.Add}} = 0.182$

Anchor Bolt Analysis:

NetArea of Bolt = $A_{n.Orig} := \frac{\pi}{4}\cdot\left(D_{Orig} - \frac{0.9743\cdot in}{n_{Orig}}\right)^2 = 2.498\cdot in^2$

Maximum Anchor Rod Force = $P_{u.Orig} := \frac{\%_{Orig}\cdot M_u\cdot d_6}{I_{p.orig}} + \frac{R_u}{N_{Orig}} = 116.5\cdot kips$

Maximum Shear Force = $V_u := \frac{Shear}{N_{Orig}} = 1.4\cdot kips$

Design Tensile Strength = $\Phi R_{nt} := 0.8\cdot F_{u.Orig}\cdot A_{n.Orig} = 249.822\cdot k$

Bolt % of Capacity = $\frac{\left(P_{u.Orig} + \frac{V_u}{\eta}\right)}{\Phi R_{nt}}\cdot 100 = 47.7$

Condition1 = $Condition1 := if\left[\frac{\left(P_{u.Orig} + \frac{V_u}{\eta}\right)}{\Phi R_{nt}} \le 1.00, "OK", "Overstressed"\right]$

Condition1 = "OK"

NetArea of Bolt = $A_{n.Add} := \frac{\pi}{4}\cdot\left(D_{Add} - \frac{0.9743\cdot in}{n_{Add}}\right)^2 = 1.847\cdot in^2$

Maximum Anchor Rod Force = $P_{u.Add} := \frac{\%_{Add}\cdot M_u\cdot d_7}{I_{p.Add}} = 115.1\cdot kips$

Maximum Shear Force = $V_u := 0$

Design Tensile Strength = $\Phi R_{nt} := 0.8\cdot F_{u.Add}\cdot A_{n.Add} = 221.632\cdot k$

Bolt % of Capacity = $\frac{\left(P_{u.Add} + \frac{V_u}{\eta}\right)}{\Phi R_{nt}}\cdot 100 = 51.9$

Condition1 = $Condition1 := if\left[\frac{\left(P_{u.Add} + \frac{V_u}{\eta}\right)}{\Phi R_{nt}} \le 1.00, "OK", "Overstressed"\right]$

Condition1 = "OK"

Base Plate Analysis:

Applied Bending Stress in Plate = $f_{bp} := \frac{\left(P_{u.Orig} \cdot ma_1\right)}{S_x} = 16.84 \cdot ksi$

Design Bending Stress in Plate = $F_{bp} := 0.9 \cdot F_{ybp} = 37.8 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 44.6 \cdot \%$

Condition2= = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

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Subject:	FOUNDATION ANALYSIS
Location:	175-ft Nudd Monopole New Fairfield, CT
Rev. 0: 4/21/22	Prepared by: T.J.L Checked by: C.F.C. Job no. 22022.12

Standard Monopole Foundation:

Input Data:

Tower Data

Overturning Moment =	$OM := 4039 \cdot ft \cdot kips$	(User Input)	
Shear Force =	$Shear := 33 \cdot kip$	(User Input)	
Axial Force =	$Axial := 59 \cdot kip$	(User Input)	
Tower Height =	$H_t := 175 \cdot ft$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 6 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 2.25 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 0.25 \cdot ft$	(User Input)	
Diameter of Pier =	$d_p := 7.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 4.0 \cdot ft$	(User Input)	
Width of Footing =	$W_f := 27.5 \cdot ft$	(User Input)	

Anchor Bolt Data:

Length of Anchor Bolts=	$L_{st} := 72 \cdot in$	(User Input)	
Projection of Anchor Bolts Above Pier =	$A_{BP} := 9 \cdot in$	(User Input)	
Anchor Bolt Diameter =	$d_{anchor} := 2.00 \cdot in$	(User Input)	
Base Plate Bolt Circle =	$MP := 58 \cdot in$	(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)	
Anchor Bolt Yield Strength =	$f_{ya} := 75000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Ultimate Soil Bearing Capacity =	$q_u := 12000 \cdot psf$	(User Input)	
Allowable Soil Bearing Capacity =	$q_a := \frac{q_u}{2} = 6000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 100 \cdot pcf$	(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 =	$BS_{pier} := 11$	(User Input)	
Bar Diameter =	$d_{bpier} := 1.41 \cdot in$	(User Input)	
Number of Bars =	$NB_{pier} := 50$	(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 =	$d_{Tie} := 0.375 \cdot in$	(User Input)	

Pad Reinforcement:

Bar Size =	$BS_{top} := 10$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 1.27 \cdot in$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 3262$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 10$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 1.27 \cdot in$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 32$	(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 = $A_{bpier} := \frac{\pi \cdot d_{bpier}^2}{4} = 1.561 \cdot in^2$

Pad Top Reinforcement Bar Area = $A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 1.267 \cdot in^2$

Pad Bottom Reinforcement Bar Area = $A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 1.267 \cdot in^2$

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

Stability of Footing:

Adjusted Concrete Unit Weight =

$\gamma_c := if\left(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}\right) = 150 \cdot pcf$

Adjusted Soil Unit Weight =

$\gamma_s := if\left(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}\right) = 100 \cdot pcf$

Passive Pressure =

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

$P_{pt} := K_p \cdot \gamma_s \cdot \left(D_f - T_f\right) + c \cdot 2 \cdot \sqrt{K_p} = 0.6 \cdot ksf$

$P_{top} := if\left[n < \left(D_f - T_f\right), P_{pt}, P_{pn}\right] = 0.6 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 1.8 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.2 \cdot ksf$

$T_p := if\left[n < \left(D_f - T_f\right), T_f, \left(D_f - n\right)\right] = 4$

$A_p := W_f \cdot T_p = 110$

Ultimate Shear =

$S_u := P_{ave} \cdot A_p = 132 \cdot kip$

Weight of Concrete Pad =

$WT_c := \left[\left(W_f^2 \cdot T_f\right) + d_p^2 L_p\right] \cdot \gamma_c = 470.288 \cdot kip$

Weight of Soil Above Footing =

$WT_{s1} := \left[\left(W_f^2 - d_p^2\right) \cdot \left(\left|L_p - L_{pag} - n\right|\right)\right] \cdot \gamma_s = 141.45 \cdot kip$

Weight of Soil Wedge at Back Face =

$WT_{s2} := \left(\frac{D_f^2 \cdot \tan\left(\Phi_s\right)}{2} \cdot W_f\right) \cdot \gamma_s = 28.579 \cdot kip$

Weight of Soil Wedge at back face Corners =

$WT_{s3} := 2 \cdot \left[\left(D_f\right)^3 \cdot \frac{\tan\left(\Phi_s\right)}{3}\right] \cdot \gamma_s = 8.314 \cdot kips$

Total Weight =

$WT_{tot} := WT_c + WT_{s1} + Axial = 670.737 \cdot kip$

Resisting Weight =

$WT_R := 0.9 \cdot WT_c + 0.75 \cdot WT_{s1} + 0.75 \cdot Axial = 573.596 \cdot kip$

Resisting Moment =

$M_r := \left(WT_R\right) \cdot \frac{W_f}{2} + 0.75 \cdot S_u \cdot \frac{T_f}{3} + 0.75 \cdot \left[\left(WT_{s2} + WT_{s3}\right) \cdot \left(W_f + \frac{D_f \cdot \tan\left(\Phi_s\right)}{3}\right)\right] = 8812 \cdot kip \cdot ft$

Overturning Moment =

$M_{ot} := OM + Shear \cdot \left(L_p + T_f\right) = 4245 \cdot kip \cdot ft$

Factor of Safety Actual =

$FS := \frac{M_r}{M_{ot}} = 2.08$

Factor of Safety Required =

$FS_{req} := 1$

$OverTurning\_Moment\_Check := if\left(FS \geq FS_{req}, "Okay", "No\ Good"\right)$

$OverTurning\_Moment\_Check = "Okay"$

Shear Capacity in Pier:

Shear Resistance of Pier = $S_p := \frac{P_{ave} \cdot A_p + \mu \cdot WT_{tot}}{FS_{req}} = 433.832 \cdot kips$

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

Shear_Check = "Okay"

Bearing Pressure Caused by Footing:

Area of the Mat = $A_{mat} := W_f^2 = 756.25$

Section Modulus of Mat = $S := \frac{W_f^3}{6} = 3466.15 \cdot ft^3$

Maximum Pressure in Mat = $P_{max} := \frac{WT_{tot}}{A_{mat}} + \frac{M_{ot}}{S} = 2.112 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < .75 \cdot q_u, "Okay", "No Good")$

Max_Pressure_Check = "Okay"

Minimum Pressure in Mat = $P_{min} := \frac{WT_{tot}}{A_{mat}} - \frac{M_{ot}}{S} = -0.338 \cdot ksf$

$Min\_Pressure\_Check := if[(P_{min} \geq 0) \cdot (P_{min} < .75 \cdot q_u), "Okay", "No Good"]$

Min_Pressure_Check = "No Good"

Distance to Resultant of Pressure Distribution = $X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3} = 7.902$

Distance to Kern = $X_k := \frac{W_f}{6} = 4.583$

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

Eccentricity = $e := \frac{\frac{M_{ot}}{1.6}}{WT_{tot}} = 3.956$

Adjusted Soil Pressure = $P_a := \frac{2 \cdot WT_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)} = 1.66 \cdot ksf$

$q_{adj} := if(P_{min} < 0, P_a, P_{max}) = 1.66 \cdot ksf$

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

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 = $P_b := \Phi_c \cdot 0.85 \cdot f_c \cdot \frac{\pi \cdot d_p^2}{4} = 9.185 \times 10^3 \cdot kips$ (ACI-2008 10.14)

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

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)

$d := T_f - Cvr_{pad} - d_{bbot} = 3.644$

$d_1 := \frac{W_f}{2} - \frac{d_p}{2}$

$d_2 := d_1 - d$

$L := \left(\frac{W_f}{2} - e\right) \cdot 3$

$Slope := if\left(L > W_f, \frac{P_{max} - P_{min}}{W_f}, \frac{q_{adj}}{L}\right)$

$V_{req} := \left[\left(q_{adj} - Slope \cdot d_1\right) + \left(\frac{Slope \cdot d_1}{2}\right)\right] \cdot W_f \cdot d_1$

$V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{f_c \cdot psi} \cdot W_f \cdot d$ (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 = $b_o := \left(d_p + d\right) \cdot \pi = 33.4$

Area Included Inside Perimeter = $A_{bo} := \frac{\pi \cdot \left(d_p + d\right)^2}{4} = 89$

Area Outside of Perimeter = $A_{out} := A_{mat} - A_{bo} = 667.3$

Guess Value = $v_u := 1ksf$ (From "Foundation Analysis and design", By Joseph Bowles, Eq. 8-9)

Given $d^2 + d_p \cdot d = \frac{WT_{tot}}{\pi \cdot v_u}$

$v_u := Find(v_u) = 5.5 \cdot ksf$

$V_u := v_u \cdot d \cdot W_f = 551.6 \cdot kips$

Required Shear Strength = $V_{req} := V_u = 551.6 \cdot kips$

Available Shear Strength = $V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f_c \cdot psi} \cdot b_o \cdot d = 3267.8 \cdot kip$ (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)

$q_b := q_{adj} - d_1 \cdot Slope = 0.747 \cdot ksf$

Maximum Bending at Face of Pier = $M_n := \frac{1}{\phi_m} \cdot \left[(q_{adj} - q_b) \cdot \frac{d_1^2}{3} + q_b \cdot \frac{d_1^2}{2} \right] \cdot W_f = 2176.3 \cdot kip \cdot ft$

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

$R_n := \frac{M_n}{W_f \cdot d^2} = 41.4 \cdot psi$

$\rho := \frac{0.85 \cdot f_c}{f_y} \left(1 - \sqrt{1 - \frac{2 \cdot R_n}{0.85 \cdot f_c}} \right) = 0.0007$

$\rho_{min} := \rho = 0.0007$

Required Reinforcement for Temperature and Shrinkage:

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

Check Bottom Bars:

$$As := \begin{cases} \rho_{min} \cdot W_f \cdot d & \text{if } \rho_{min} > \frac{\rho_{sh}}{2} \\ \rho_{sh} \cdot W_f \cdot \frac{d}{2} & \text{otherwise} \end{cases} = 12.988 \cdot in^2$$

$As_{prov.bot} := A_{bbot} \cdot NB_{bot} = 40.5 \cdot in^2$

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

Pad_Reinforcement_Bot = "Okay"

Check Temp Shrinkage Reinforcement:

$As := \rho_{sh} \cdot (W_f \cdot T_f) = 28.5 \cdot in^2$

$As_{prov.top} := A_{btop} \cdot NB_{top} = 4.1 \times 10^3 \cdot in^2$

$As_{prov.tot} := As_{prov.bot} + As_{prov.top} = 4.2 \times 10^3 \cdot in^2$

$Pad\_Reinforcement\_Temp := if(As_{prov.tot} > As, "Okay", "No Good")$

Pad_Reinforcement_Temp = "Okay"

Developement Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 9.14 \cdot in$$

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 =

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

$$L_{dbt} := \frac{3 \cdot f_y \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot} = 44.2 \cdot in$$

Minimum Development Length =

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

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

Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{d_p}{2} - Cvr_{pad} = 120 \cdot in$$

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

Lpad_Check = "Okay"

Steel Reinforcement in Pier:

Area of Pier = $A_p := d_p^2 = 7056 \cdot in^2$

$A_{smin} := 0.01 \cdot 0.5 \cdot A_p = 35.28 \cdot in^2$ (ACI-2008 10.8.4 & 10.9.1)

$A_{sprov} := NB_{pier} \cdot A_{bpier} = 78.07 \cdot in^2$

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

$Steel\_Area\_Check = "Okay"$

NOTE: Anchor Bolts are not accounted for in reinforcement calculation and will provide additional reinforcement to satisfy minimum requirement of steel.

Bar Spacing In Pier = $B_{sPier} := \frac{d_p \cdot \pi}{NB_{pier}} - d_{bpier} = 3.868 \cdot in$

Diameter of Reinforcement Cage = $Diam_{cage} := d_p - 2 \cdot Cvr_{pier} = 78 \cdot in$

Maximum Moment in Pier = $M_p := \left[OM + Shear \cdot \left(L_p + \frac{A_{BP}}{2}\right)\right] = 49507.5 \cdot in \cdot kips$

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

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

$\left(D \;\; N \;\; n \;\; P_u \;\; M_{xu}\right) = (84 \;\; 50 \;\; 11 \;\; 78.6 \;\; 49507.5)$

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

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

$\left(\phi P_n \;\; \phi M_{xn} \;\; f_{sp} \;\; \rho\right) = \left(218 \;\; 1.4 \times 10^5 \;\; -60 \;\; 0\right)$

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

$Axial\_Load\_Check = "Okay"$

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

$Bending\_Check = "Okay"$

Development Length Pier Reinforcement:

Available Length in Foundation:

$L_{pier} := L_p - Cvr_{pier} = 24 \cdot in$

$L_{pad} := T_f - Cvr_{pad} = 45 \cdot in$

Tension: (ACI-2008 12.2.3)

Spacing or Cover Dimension =

$c := if\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right) = 1.934 \cdot in$

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

$L_{dbt} := \frac{3 \cdot f_y \cdot \alpha_{pier} \cdot \beta_{pier} \cdot \gamma_{pier} \cdot \lambda_{pier}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \left(\frac{c + k_{tr}}{d_{bpier}}\right)} \cdot d_{bpier} = 84.46 \cdot in$

Minimum Development Length = $L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f_c}{psi}}} \cdot .7 = 21.624 \cdot in$ (ACI 12.2.1)

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

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

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

$L_{tension\_Check} = "No Good"$

Compression: (ACI-2008 12.3.2)

$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot f_y}{\sqrt{f_c \cdot psi}} = 30.892 \cdot in$

$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot f_y\right) = 25.38 \cdot in$

$L_{dbc} := if\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) = 30.892 \cdot in$

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

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

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 1 - Site Information

Site ID: CT11797A
Status: Final
Version: 5
Project Type: Anchor
Approved: 3/8/2022 8:27:01 PM
Approved By: Pratik.Patil30@T-Mobile.com
Last Modified: 3/8/2022 8:27:01 PM
Last Modified By: Pratik.Patil30@T-Mobile.com

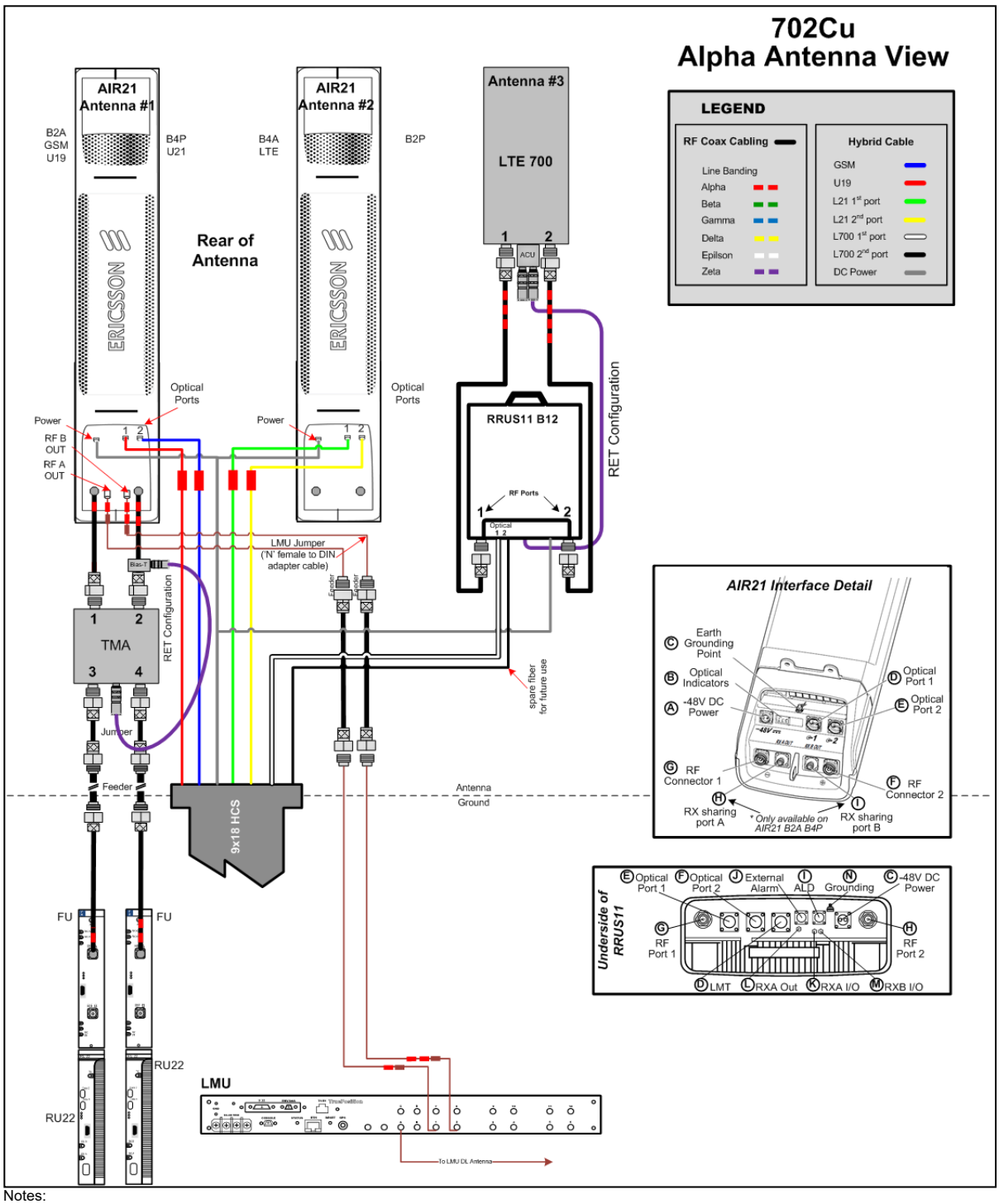
Site Name: CT797/New Fairfield MP
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2022
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Town of New Fairfield

Latitude: 41.46476100
Longitude: -73.49666000
Address: 302 Ball Pond Road (Route 39)
City, State: New Fairfield, CT
Region: NORTHEAST

RAN Template: 67E5D998E Outdoor			**AL Template:** 67E5998E_1xAIR+1OP+1QP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

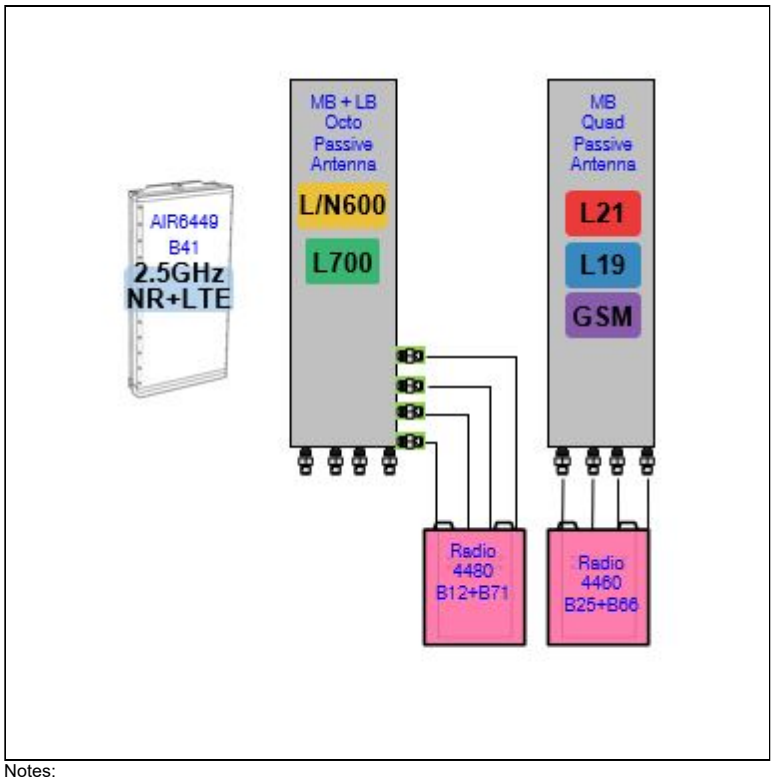
AL_702Cu.png


702Cu
Alpha Antenna View
AIR21
Antenna #1
AIR21
Antenna #2
Antenna #3
LTE 700
B2A
GSM
U19
B4P
U21
B4A
LTE
B2P
Rear of
Antenna
ERICSSON
ERICSSON
ACU
Optical
Ports
Optical
Ports
Power
Power
RF B
OUT
RF A
OUT
RRUS11 B12
RF Ports
Optical
RET Configuration
LMU Jumper
('N' female to DIN
adapter cable)
Bias-T
TMA
RET Configuration
spare fiber
for future use
Jumper
Feeder
Antenna
Ground
9x18 HCS
FU
FU
RU22
RU22
LMU
To LMU DL Antenna
LEGEND
RF Coax Cabling
Line Banding
Alpha
Beta
Gamma
Delta
Epilson
Zeta
Hybrid Cable
GSM
U19
L21 1st port
L21 2nd port
L700 1st port
L700 2nd port
DC Power
AIR21 Interface Detail
Earth
Grounding
Point
Optical
Indicators
-48V DC
Power
Optical
Port 1
Optical
Port 2
RF
Connector 1
RF
Connector 2
RX sharing
port A
* Only available on
AIR21 B2A B4P
RX sharing
port B
Underside of
RRUS11
Optical
Port 1
Optical
Port 2
External
Alarm
ALD
Grounding
-48V DC
Power
RF
Port 1
RF
Port 2
LMT
RXA Out
RXA I/O
RXB I/O

Notes:

Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 792DB Outdoor

Enclosure	1	2
Enclosure Type	RBS 6131	S8000 Outdoor
Baseband	DUW30 (U2100); DUG20 (G1900); BB 5216 (L1900, L2100, L700)	
Multiplexer	XMU (L1900, L2100, L700)	
Radio	RU22 **(x 6)** (U2100)	

Proposed RAN Equipment

Template: 67E5D998E Outdoor

Enclosure	1	2	3
Enclosure Type	Ancillary Equipment (Ericsson)	Enclosure 6160 AC V1	B160
Baseband		RP 6651 (L2500, N2500); RP 6651 (L700, L600, N600, L2100, L1900); DUG20 (G1900); DUW30 (U2100)	
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 3)**	PSU 4813 vR4A (Kit) **(x 2)**	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Upgrade AC Service.

Remove Nortel Cabinet from site.

Remove and return all cabinet radios from existing RBS6131 base station cabinet.

Remove existing RBS6131 base station cabinet.

Add (1) Enclosure 6160.

Move DUG20, DUW30, to new Enclosure 6160

Remove BB5216 and XMU.

Add (1) RP 6651 for L1900, L2100, L600, L700, and N600 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) RP 6651 for L2500/N2500 to new Enclosure 6160.

Add (2) PSU4813 Voltage Booster to new Enclosure 6160.

Add (1) Battery Cabinet B160.

Existing: (12) Coaxial Lines; .

Remove all coaxial lines.

Add (3) 6X24 HCS.

Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 6 - A&L Equipment

Existing Template: 702Cu
Proposed Template: 67E5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**		**3**
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)
Azimuth	40		40		40
M. Tilt	0		0		0
Height	145		145		145
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	U2100	L1900 G1900		L2100	L700
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	4	4		4	2
Cables	1-5/8" Coax - 175 ft. **(x4)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" Coax - 175 ft. **(x2)**	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft. **(x2)**
TMAs	Generic Twin Style 1B - AWS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners					
Radio					RRUS11 B12 (At Antenna)
Sector Equipment					

Unconnected Equipment:

Scope of Work:

GSM and L1900 in single mode.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)		Commscope_VV-65A-R1 (Quad)	
Azimuth	40				40		40	
M. Tilt	0				0		0	
Height	145				145		145	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2			2	2	4	4
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove all TMAs.

Remove all coaxial lines.

Remove all antennae.

Remove RRU S11 b12 from Position 3

Install (1) Low-Band/Mid-Band Octo in Position 1

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6419 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	1		2		3
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)
Azimuth	160		160		160
M. Tilt	0		0		0
Height	145		145		145
Ports	P1	P2	P3	P4	P5
Active Tech.	U2100	L1900 G1900		L2100	L700
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	7	7		7	2
Cables	1-5/8" Coax - 175 ft. **(x4)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" Coax - 175 ft. **(x2)**	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft. **(x2)**
TMAs	Generic Twin Style 1B - AWS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners					
Radio					RRUS11 B12 (At Antenna)
Sector Equipment					

Unconnected Equipment:

Scope of Work:

GSM and L1900 in single mode.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)		Commscope_VV-65A-R1 (Quad)	
Azimuth	160				160		160	
M. Tilt	0				0		0	
Height	145				145		145	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2			2	2	7	7
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove all TMAs.

Remove all coaxial lines.

Remove all antennae.

Remove RRU S11 b12 from Position 3

Install (1) Low-Band/Mid-Band Octo in Position 1

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6419 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	1		2		3
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)
Azimuth	290		290		290
M. Tilt	0		0		0
Height	145		145		145
Ports	P1	P2	P3	P4	P5
Active Tech.	U2100	L1900 G1900		L2100	L700
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2	2		2	2
Cables	1-5/8" Coax - 175 ft. **(x4)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" Coax - 175 ft. **(x2)**	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft.	Fiber Jumper - 15 ft. **(x2)**
TMAs	Generic Twin Style 1B - AWS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners					
Radio					RRUS11 B12 (At Antenna)
Sector Equipment					

Unconnected Equipment:

Scope of Work:

GSM and L1900 in single mode.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)		Commscope_VV-65A-R1 (Quad)	
Azimuth	290				290		290	
M. Tilt	0				0		0	
Height	145				145		145	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2			2	2	2	2
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove all TMAs.

Remove all coaxial lines.

Remove all antennae.

Remove RRU S11 b12 from Position 3

Install (1) Low-Band/Mid-Band Octo in Position 1

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6419 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP+1QP

CT11797A_Anchor_5

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11797A

CT797/New Fairfield MP
302 Ball Pond Road
New Fairfield, Connecticut 06812

May 5, 2022

EBI Project Number: 6222003124

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.36%**

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

May 5, 2022

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11797A - CT797/New Fairfield MP

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **302 Ball Pond Road** in **New Fairfield, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile 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 ($\mu W/cm^2$). 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.

Public 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 and 700 MHz frequency 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), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 302 Ball Pond Road in New Fairfield, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

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

13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values

and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

15) The antenna mounting height centerline of the proposed antennas is 145 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A1 MPE %:	**1.84%**	Antenna B1 MPE %:	**1.84%**	Antenna C1 MPE %:	**1.84%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95
Antenna A2 MPE %:	**5.77%**	Antenna B2 MPE %:	**5.77%**	Antenna C2 MPE %:	**5.77%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts
ERP (W):	15,863.03	ERP (W):	15,863.03	ERP (W):	15,863.03
Antenna A3 MPE %:	**2.95%**	Antenna B3 MPE %:	**2.95%**	Antenna C3 MPE %:	**2.95%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.56%
Town Fire Dept	0.23%
Town Police Dept	0.15%
Town Pub Wks Dept	0.21%
Sprint	0.67%
Clearwire	0.12%
AT&T	4.53%
Verizon	2.89%
Site Total MPE % :	19.36%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.56%
T-Mobile Sector B Total:	10.56%
T-Mobile Sector C Total:	10.56%
Site Total MPE % :	19.36%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	145.0	2.20	600 MHz LTE	400	0.55%
T-Mobile 600 MHz NR	1	1577.94	145.0	2.94	600 MHz NR	400	0.73%
T-Mobile 700 MHz LTE	2	695.22	145.0	2.59	700 MHz LTE	467	0.55%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	9619.47	145.0	17.90	2500 MHz LTE 1C & 2C Traffic	1000	1.79%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	717.84	145.0	1.34	2500 MHz LTE 1C & 2C Broadcast	1000	0.13%
T-Mobile 2500 MHz NR Traffic	1	19238.94	145.0	35.80	2500 MHz NR Traffic	1000	3.58%
T-Mobile 2500 MHz NR Broadcast	1	1435.69	145.0	2.67	2500 MHz NR Broadcast	1000	0.27%
T-Mobile 1900 MHz GSM	4	1076.77	145.0	8.01	1900 MHz GSM	1000	0.80%
T-Mobile 1900 MHz LTE	2	2153.53	145.0	8.01	1900 MHz LTE	1000	0.80%
T-Mobile 2100 MHz UMTS	2	1208.15	145.0	4.50	2100 MHz UMTS	1000	0.45%
T-Mobile 2100 MHz LTE	2	2416.30	145.0	8.99	2100 MHz LTE	1000	0.90%
						Total:	**10.56%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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 T-Mobile 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:

T-Mobile Sector	Power Density Value (%)
Sector A:	10.56%
Sector B:	10.56%
Sector C:	10.56%
T-Mobile Maximum MPE % (Sector A):	10.56%
Site Total:	19.36%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.36%** 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.