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

June 7, 2023

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

RE: **Tower Share Application -T-Mobile: CTNL200A**
Crown Site ID#842423
10 North Ridge Drive, Windham, CT 06256
Latitude: 41° 44′ 23.53″ / Longitude: -72° 10′ 22.47″

Dear Ms. Bachman:

Please accept this letter by Crown Castle USA Inc. on behalf of T-Mobile Northeast LLC ("T-Mobile") for notification of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2) and §16-50aa. The property is owned by Walmart Real Estate Business. The tower is operated by CCATT LLC ("Crown Castle"). A copy of this letter is being sent to Thomas DeVivo - Mayor, Town of Windham and Matthew Vertefeuille – Planning, Town of Windham as well as Walmart Real Estate Business, property owner. The facility was originally approved by the Connecticut Siting Council, Docket No. 275 on April 26, 2004.

T-Mobile proposes to install six (9) antennas and six (6) remote radios, at the 64-foot mount level on the existing 87-foot monopole tower located at 10 North Ridge Drive, Windham, CT. T-Mobile to also install, three (3) Hybrid cables (6x24) and (1) new Site PRO1 antenna mount. T-Mobile to add equipment cabinets and one (1) new 48kw diesel generator on a new 10' x 15' concrete pad within the existing compound space. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

(3) Ericsson 6449 B41 Antennas
(3) RFS APXVAALL24_43-U-NA20 Antennas
(3) RFS – W -65A-R1 Antennas
(3) Ericsson-Radio 4460 B25+ B66 RRU
(3) Ericsson-Radio 4480_B71+B85 RRU
(3) Hybrid Cable (6x24)
(1) Site Pro1-RMQP-496-HK Platform Mount

Ground:
Install New:

(1) 6160 AC V1 Cabinet
(1) B160 Cabinet
(1) RBS 6601
(2) PSU 4813 Voltage Booster
(1) CSR IXRE V2 (GEN2)
(3) BB 6648
(1) 48KW Diesel Generator
(2) PSU 4813 VR2a; (1) DUG20 IN RBS 6601 Cabinet
(1) Telco Board
(1) ATS
(1) PPC Equipment
(1) 8'x10' Ice Canopy
(1) H-Frames
(1) Meter
(1) 2'x10' Ice Bridge
(1) 10'-0" x 15'-0" Concrete pad.

The planned modification to the facility fall within the activities explicitly provided for in R.C.S.A §16-50j 72(b)(2), specifically:

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

Connecticut General Statute 16-50aa indicates the Council must approve the share use of telecommunication facility provided it finds the shared use is technically, legally, environmentally and economically feasible and meets public safety concerns.

A. Technical Feasibility. The existing monopole has been deemed structurally capable

of supporting the T-Mobile proposed loading. The structural analysis is included in the package.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Lebanon. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 64-foot level of the existing 87-foot tower would have an insignificant visual impact on the area around the tower. T-Mobile ground equipment would be installed within the existing facility compound. T-Mobile shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced of the radio frequency emissions would not increase to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. T-Mobile has authorization to collocate their antennas on the cell tower.

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed Tower Share to the above-reference telecommunications facility. Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive, Suite 250
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Thomas DeVito, Mayor
Town of Windham
979 Main Street
Willimantic, CT 06226
(860) 465-3040

Mathew Vertefeuille, Planning
Town of Windham
979 Main Street
Willimantic, CT 06226
(860) 465-3040

Walmart Real Estate Business Trust - Property Owner
PO Box 8050 MS 0555
Bentonville, AR 72716

DOCKET NO. 275 – AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 10 North Ridge Road, Windham, Connecticut. } Connecticut

} Siting

} Council

April 26, 2004

ecision and Order

ursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and aintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and creational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to eed, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of nvironmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS d/b/a AT&T Wireless for the construction, aintenance and operation of a wireless telecommunications facility at 10 North Ridge Road, Windham, Connecticut. The Council approves the Alternative 1 tower onfiguration.

ne facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas c AT&T Wireless PCS LLC, Omnipoint Communications, Inc. and other entities, both public and private, but such tower shall not exceed 107 feet above ground level. Antennas and lighting mounted on the tower shall not exceed a total height of 109 feet above ground level. Tower lighting shall consist of a single steady red beacon.

2. Construction activities shall be limited to the period of mid-August to mid-May to avoid the nesting season of rare birds that may utilize the site.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:

a. a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, and landscaping;

b. specifications for the tower, tower foundation, antennas, equipment building, and security fence; and

c. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sedimer Control, as amended.

4. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided tower space is available and such antennas are compatible with the structural integrity of the tower.

5. Prior to the commencement of operation, the Certificate Holder shall provide to the Council a worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office o Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall submit a revised electromagnetic radio frequency power density report to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

7. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

ursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and otice of issuance shall be published in The Hartford Courant and the Willimantic Chronicle.

sion ID: 5636 | Account #00704900 | Bldg #: 1 of 1 | Sec #: 1 of 2 | Card 1 of 3 | Print Date: 08/11/2021 16:17

CURRENT OWNER

ALMART REAL ESTATE BUSINESS
X #0555 STORE 01-2022
BOX 8050 MS 0555

NTONVILLE, AR 72716
ditional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION
1 Level	2 Public Water	1 Paved	
	3 Public Sewer		
	0 None		

SUPPLEMENTAL DATA

Other ID:	5- 3/225/ 21	LCI	C
Zoning	C4	ParcelStatus	
Neighborhood	330 - 0	Cost Flag	
Living Units	0	Lot Number	0
Census	8005	A_D	02
District No	1		
GIS ID:		*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COM LAND	2-1	1,735,680	1,214,980
COM BLDG	2-2	8,817,690	6,172,370
COM OUTBL	2-5	885,720	620,010
	Total	11,439,090	8,007,360

6163
WINDHAM, CT

VISION

RECORD OF OWNERSHIP

BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
ALMART REAL ESTATE BUSINESS TRUST	910/ 48	03/02/2006	U	I	0
ALMART STORES INC	398/ 37	10/30/1992	U	I	0
NN RESIDENTIAL LAND	362/ 231	07/01/1991	U	I	0
MAR ASSOCIATES	312/ 544	07/25/1988	U	I	0
NDHAM PROPERTIES INC	295/ 433	12/01/1986	U	I	0
VANEWSKY SHIRLEY	220/ 148	08/01/1969	U	I	0

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2020	2-1	1,214,980	2019	2-1	1,214,980	2018	2-1	1,214,9
2020	2-2	6,107,380	2019	2-2	6,107,380	2018	2-2	6,107,3
2020	2-5	620,010	2019	2-5	620,010	2018	2-5	620,0
	Total:	7,942,370		*Total:*	7,942,370		*Total:*	7,942,3

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A			322	C

NOTES

5/95-GH1 630 TO 1008 SQ FT

GL: ADTN = 30% COMPLETE

SIDE CARD: P

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	8,383,3
Appraised XF (B) Value (Bldg)	477,9
Appraised OB (L) Value (Bldg)	885,7
Appraised Land Value (Bldg)	1,735,6
Special Land Value	
Total Appraised Parcel Value	11,439,0
Valuation Method:	
Adjustment:	
Net Total Appraised Parcel Value	11,439,0

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
2100231	07/08/2021	05	General Renov	25,000		0		
2000187	08/20/2020	05	General Renov	1,200	08/04/2021	100	01/21/2021	
2000092	08/10/2020	51	Mechanical	0	08/04/2021	100	01/21/2021	
2000186	08/10/2020	05	General Renov	500,000	08/04/2021	100	01/21/2021	
2000162	07/27/2020	53	Cell Tower/Antennae	20,000		0		
2000008	07/02/2020	33	Sprinklers	12,000		0		
2000027	06/08/2020	06	Electrical	645		0		

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
09/28/2010			AO	8	NO RESPONSE
04/23/2007			BH		

LAND LINE VALUATION SECTION

Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Valu
201	Commercial	C4				6.00	AC	247,500.00	1.0000	0	1.0000	1.00	330	1.00			1.00		1,485,0
201	Commercial					9.00	AC	11,250.00	1.0000	0	1.0000	1.00		0.00			1.00		101,2
201	Commercial					8.40	AC	7,920.00	1.0000	0	1.0000	1.00		0.00			1.00		66,5
201	Commercial					1.00	AC	82,900.00	1.0000	0	1.0000	1.00		0.00			1.00		82,9

Total Card Land Units: 24.40 AC | Parcel Total Land Area: 24.4 AC | Total Land Value: 1,735,6

sion ID: 5636 Account #00704900 Bldg #: 1 of 1 Sec #: 1 of 2 Card 1 of 3 Print Date: 08/11/2021 16:17

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
le	17		Retail
del	94		Commercial
ade	04		Average +10
ries	1.0		
cupancy	1		
terior Wall 1	15		Concrete/mas
vel From	01		01
vel To	01		01
cov Parking	0		
imeter	1228		
ntical Units	1		
ficiency	0		
edroom	0		
edroom	0		
edroom	0		
Type	03		Central
ucture Type	345		345
lg Use	201		Commercial
cent Finish	100		
ating	04		Forced Air
me Type	03		Masonry
mbing	02		Average
cal Modifier	2.75		
titions	02		Average
ll Height	16		
e	16101		

CONSTRUCTION DETAIL (CONTINUED)

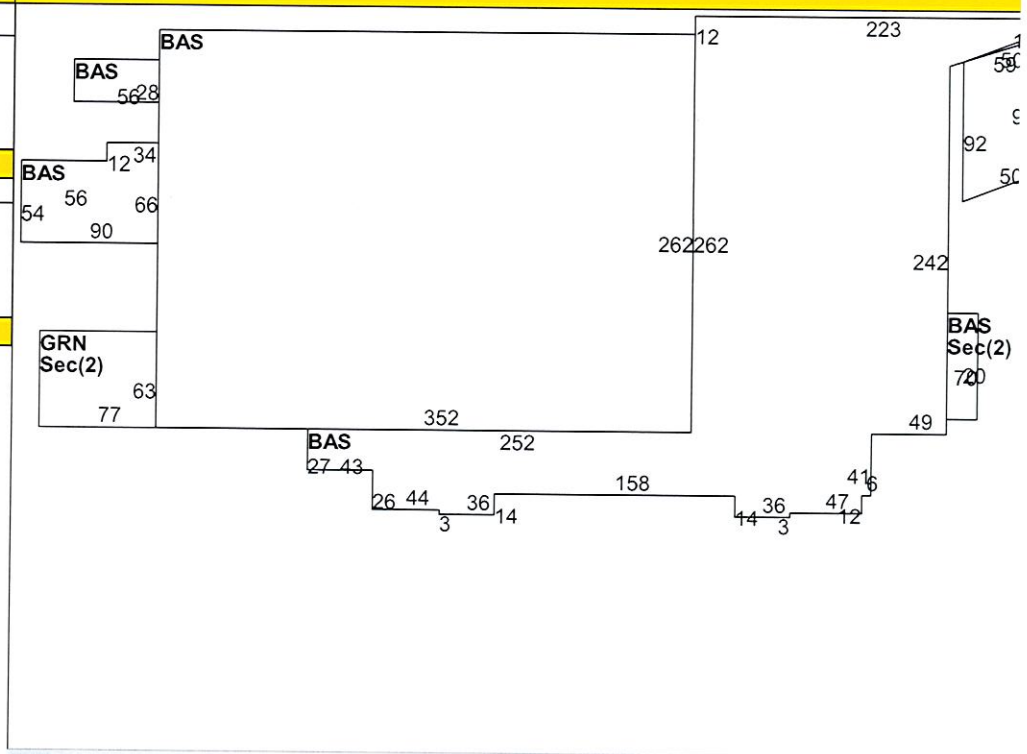
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
201	Commercial	100

COST/MARKET VALUATION

Adj. Base Rate:	63.42
AYB	1993
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	21
Functional Obslnc	
External Obslnc	
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	79
Apprais Val	8,383,300
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



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

ode	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
1O	ASPHALT PAF			L	409,57	2.50	1993				80	819,140
3O	LIGHT POLE I			L	22	952.00	1993				70	14,660
1O	GREENHOUSE			L	1,008	25.00	1994				50	12,600
3O	CHAIN LINK 6			L	480	16.90	2000				70	5,680
3O	UTILITY STO			L	0	14.00	2010				70	0
5O	CANOPY ONL			L	4,806	10.00	2001		0		70	33,640
1X	ENCLOSED E			B	845	75.00	1997		1		100	50,070
5X	CANOPY ONL			B	4,806	18.00	1997		1		100	68,340
X	SPRINKLER W			B	166,28	2.28	1997		1		100	299,520

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Gross Area	Living Area	Eff. Area
S	First Floor	167,328	167,328	

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
ALMART REAL ESTATE BUSINESS				
X #0555 STORE 01-2022				
BOX 8050 MS 0555				
NTONVILLE, AR 72716				
ditional Owners:				

SUPPLEMENTAL DATA

Other ID: 5- 3/225/ 21

GIS ID: ASSOC PID#

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
		Total	11,439,090	8,007,360

6163
WINDHAM, CT

VISION

RECORD OF OWNERSHIP

BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
Total:			Total:			Total:		

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A			322	C

NOTES

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	8,383,3
Appraised XF (B) Value (Bldg)	477,9
Appraised OB (L) Value (Bldg)	885,7
Appraised Land Value (Bldg)	1,735,6
Special Land Value	
Total Appraised Parcel Value	11,439,0
Valuation Method:	
Adjustment:	
Net Total Appraised Parcel Value	11,439,0

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result

LAND LINE VALUATION SECTION

Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Valu

Total Card Land Units: 0.00 AC Parcel Total Land Area: 24.4 AC Total Land Value:

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
201	Commercial	100

COST/MARKET VALUATION

Cost Trend Factor

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

ode	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
4X	TRUCK AND T			B	1,568	12.90	1997		1		100	15,980
4X	TRUCK AND T			B	4,324	12.90	1997		1		100	44,070

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Gross Area	Living Area	Eff. Area

No Photo On Record

sion ID: 5636 | Account #00704900 | Bldg #: 1 of 1 | Sec #: 2 of 2 | Card 3 of 3 | Print Date: 08/11/2021 16:18

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
ALMART REAL ESTATE BUSINESS	1 Level	2 Public Water	1 Paved	
X #0555 STORE 01-2022		3 Public Sewer		
BOX 8050 MS 0555		0 None		
NTONVILLE, AR 72716				
ditional Owners:				

SUPPLEMENTAL DATA

Other ID:	5- 3/225/ 21	LCI	C
Zoning	C4	ParcelStatus	
Neighborhood	330 - 0	Cost Flag	
Living Units	0	Lot Number	0
Census	8005	A_D	02
District No	1		
GIS ID:		ASSOC PID#	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COM LAND	2-1	1,735,680	1,214,980
COM BLDG	2-2	8,817,690	6,172,370
COM OUTBL	2-5	885,720	620,010
	Total	11,439,090	8,007,360

6163
WINDHAM, CT

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RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
ALMART REAL ESTATE BUSINESS TRUST	910/ 48	03/02/2006	U	I	0	
ALMART STORES INC	398/ 37	10/30/1992	U	I	0	
NN RESIDENTIAL LAND	362/ 231	07/01/1991	U	I	0	
MAR ASSOCIATES	312/ 544	07/25/1988	U	I	0	
NDHAM PROPERTIES INC	295/ 433	12/01/1986	U	I	0	
VANEWSKY SHIRLEY	220/ 148	08/01/1969	U	I	0	

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2020	2-1	1,214,980	2019	2-1	1,214,980	2018	2-1	1,214,9
2020	2-2	6,107,380	2019	2-2	6,107,380	2018	2-2	6,107,3
2020	2-5	620,010	2019	2-5	620,010	2018	2-5	620,0
	Total:	7,942,370		Total:	7,942,370		Total:	7,942,3

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	136,7
Appraised XF (B) Value (Bldg)	
Appraised OB (L) Value (Bldg)	
Appraised Land Value (Bldg)	1,735,6
Special Land Value	
Total Appraised Parcel Value	11,439,0
Valuation Method:	
Adjustment:	
Net Total Appraised Parcel Value	11,439,0

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A			322	C

NOTES

5/95-GH1 630 TO 1008 SQ FT

GL: ADTN = 30% COMPLETE

SIDE CARD: P

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
09/28/2010			AO	8	NO RESPONSE
04/23/2007			BH		

LAND LINE VALUATION SECTION

Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Valu
201	Commercial	C4				6.00	AC	247,500.00	1.0000	0	1.0000	1.00	330	1.00			1.00		1,485,0
201	Commercial					9.00	AC	11,250.00	1.0000	0	1.0000	1.00		0.00			1.00		101,2
201	Commercial					8.40	AC	7,920.00	1.0000	0	1.0000	1.00		0.00			1.00		66,5
201	Commercial					1.00	AC	82,900.00	1.0000	0	1.0000	1.00		0.00			1.00		82,9

Total Card Land Units: 24.40 AC | Parcel Total Land Area: 24.4 AC | Total Land Value: 1,735,6

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
le	25		Service Shop
del	94		Commercial
ade	04		Average +10
ries	1.0		
cupancy			
erior Wall 1	15		Concrete/mas
el From	01		01
el To	01		01
cov Parking			
imeter	246		
ntical Units			
iciency			
edroom			
edroom			
edroom			
Type	01		None
ucture Type			
lg Use	201		Commercial
cent Finish	100		
ating	04		Forced Air
me Type	03		Masonry
mbing	02		Average
cal Modifier			
itions	02		Average
ll Height	14		
e	5268		

CONSTRUCTION DETAIL (CONTINUED)

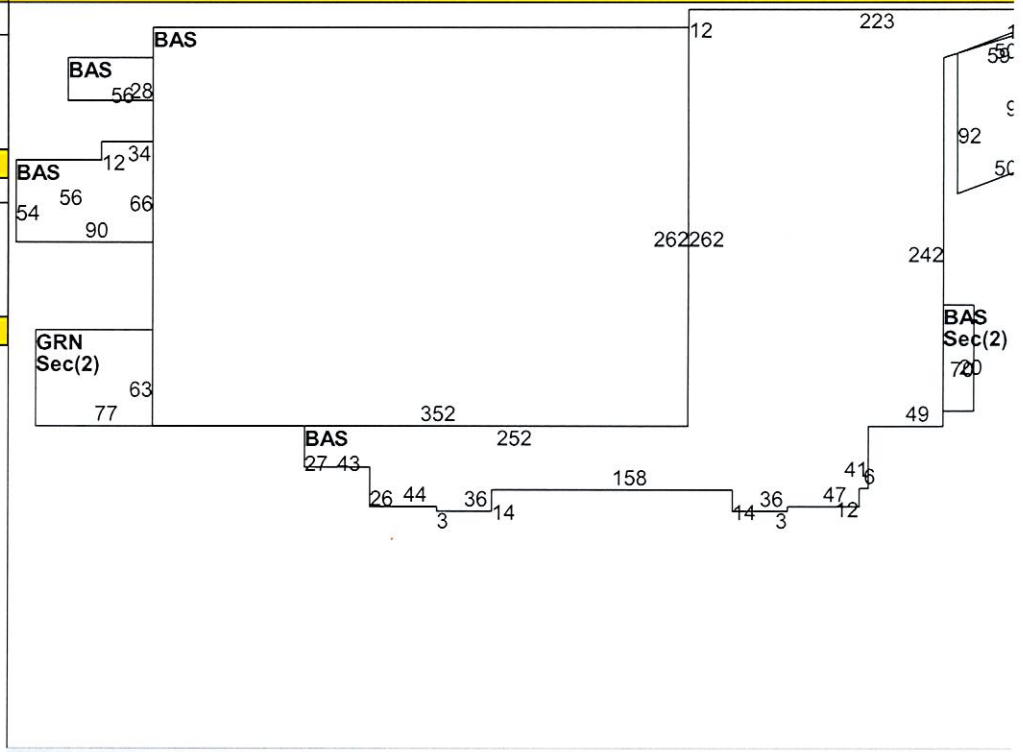
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
201	Commercial	100

COST/MARKET VALUATION

Adj. Base Rate:	40.16
AYB	1993
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	21
Functional Obslnc	
External Obslnc	
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	79
Apprais Val	136,780
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



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

ode	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Gross Area	Living Area	Eff. Area
S	First Floor	1,400	1,400	
N	Greenhouse	4,851	0	

Property Card: **10 NORTHRIDGE DR**

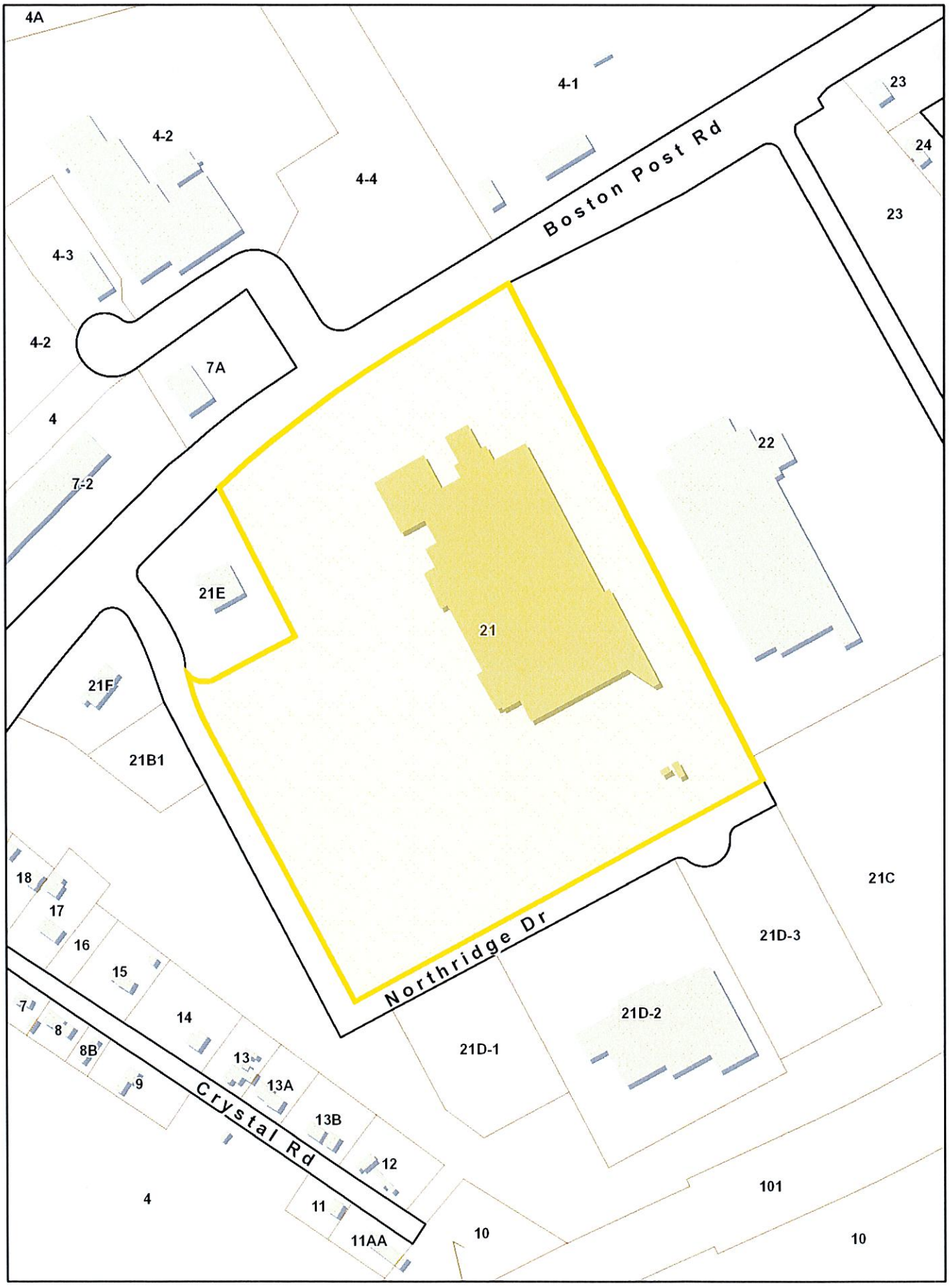
Town of Windham, CT

Parcel Information	
Parcel ID: 5-3-225-21	**Map:** 5-3
Vision ID: 5636	**Lot:** 225-21
Owner: WALMART REAL ESTATE BUSINESS	**Use Description:** Commercial
Co-Owner: TRUST	**Zone:** C4
Mailing Address: PO BOX 8050 MS 0555 BENTONVILLE, AR 72716	**Land Area in Acres:** 24.4

Sale History	Assessed Value
Book/Page: 910/ 48	**Land:** $1,214,980
Sale Date: 3/2/2006	**Buildings:** $6,792,380
Sale Price: $0	**Total:** $8,007,360

Building Details: Building # 1

Model:	Commercial	**Int Wall Desc 1:**	
Living Area:	167328	**Int Wall Desc 2:**	
Appr. Year Built:		**Ext Wall Desc 1:**	Concrete/mas
Style:	Retail	**Ext Wall Desc 2:**	01
Stories:	1	**Roof Cover:**	
Occupancy:	1	**Roof Structure:**	01
No. Total Rooms:		**Heat Type:**	
No. Bedrooms:		**Heat Fuel:**	
No. Baths:		**A/C Type:**	Central
No. Half Baths:			


4A
4-1
4-2
4-4
Boston Post Rd
23
24
23
4-3
4-2
7A
4
7-2
22
21E
21
21F
21B1
18
17
16
15
14
13
13A
13B
12
11
11AA
10
Northridge Dr
21C
21D-3
21D-2
21D-1
101
10
7
8
8B
9
Crystal Rd
4

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6/8/2023 9:10 AM

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Delivered
6/8/2023 at 9:45 AM

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NORWICH, CT
6/8/2023 9:10 AM

DELIVERED
WILLIMANTIC, CT US

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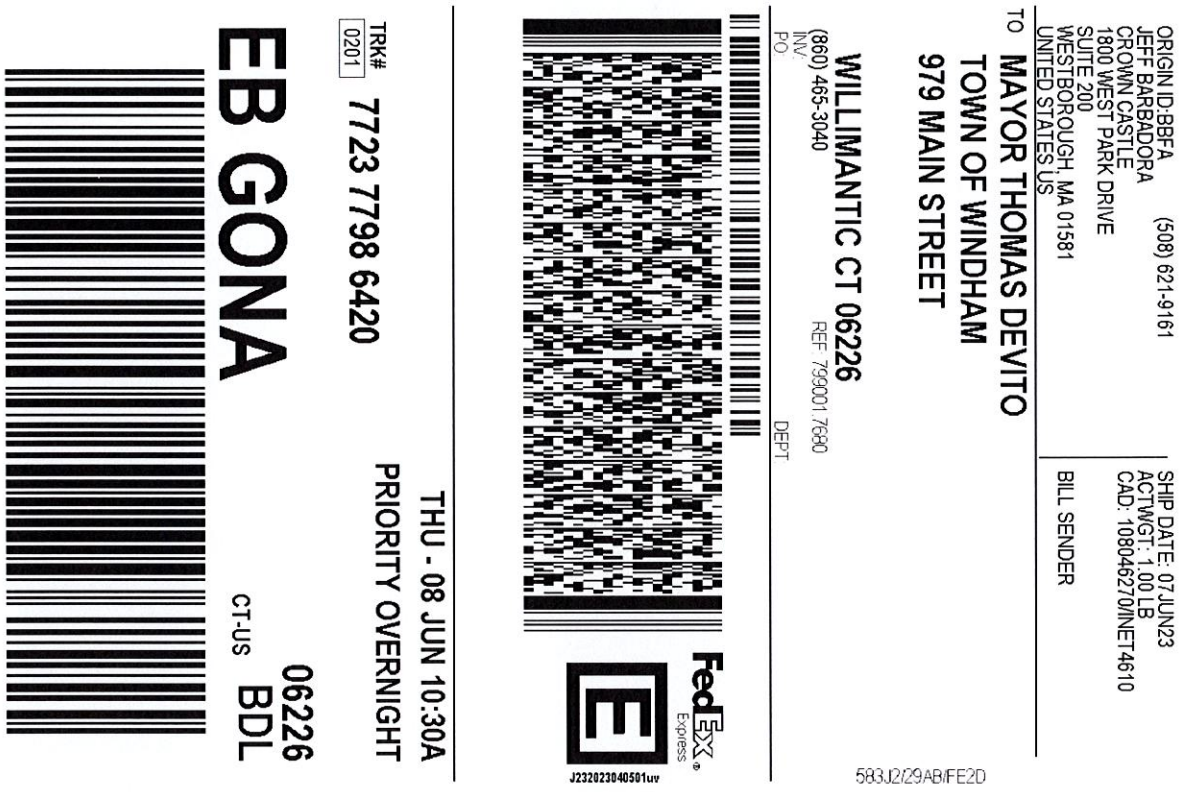

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Delivered to Agent for Final Delivery

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June 10, 2023, 10:19 am

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FAQs

Date: **December 02, 2022**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBOS00892A
Crown Castle Designation:	**BU Number:**	842423
	Site Name:	WINDHAM NORTH RIDGE ROAD
	JDE Job Number:	671468
	Work Order Number:	2185757
	Order Number:	572910 Rev. 5
Engineering Firm Designation:	**Crown Castle Project Number:**	2185757
Site Data:	**10 NORTH RIDGE DRIVE, WINDHAM, WINDHAM County, CT** **Latitude *41° 44' 23.53"*, Longitude *-72° 10' 22.47"*** **88.7 Foot - Monopole Tower**	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 78.0%**

This analysis has been performed in accordance with the 2022 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Kenneth Sukitch

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2022.12.02 15:37:05 -05'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 88.7 ft Monopole tower designed by Engineered Endeavors Incorporated.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
54.0	54.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
84.0	84.0	3	cci antennas	DMP65R-BU8D w/ Mount Pipe	12 3 6	1-5/8 3/8 7/8
		3	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe		
		3	cci antennas	OPA65R-BU8D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A_CCIV2		
		3	ericsson	RRUS E2 B29		
		3	ericsson	RRUS-32 B30		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		3	raycap	DC6-48-60-18-8C-EV		
		1	tower mounts	Platform Mount [LP 715-1_KCKR]		
74.0	75.0	3	antel	BXA-70063/6CF w/ Mount Pipe	8	1-5/8
		6	commscope	NHH-65B-R2B w/ Mount Pipe		
		1	raycap	RRFDC-3315-PF-48		
		1	rfs celwave	DB-T1-6Z-8AB-0Z		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
	74.0	1	tower mounts	Platform Mount [LP 303-1]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
64.0	64.0	1	-	RMQP-496-HK	3	1-5/8
		3	commscope	VV-65A-R1_TMO w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4290426	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4712164	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4943145	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	88.7 - 47.57	Pole	TP30.46x21.89x0.25	1	-19.841	1428.483	49.3	Pass
L2	47.57 - 0	Pole	TP39.75x29.058x0.313	2	-30.990	2402.767	78.0	Pass
							Summary	
						Pole (L2)	78.0	Pass
						Rating =	78.0	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	57.0	Pass
1	Base Plate		75.8	Pass
1	Base Foundation (Structure)		59.2	Pass
1	Base Foundation (Soil Interaction)		60.5	Pass

Structure Rating (max from all components) =	78%

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

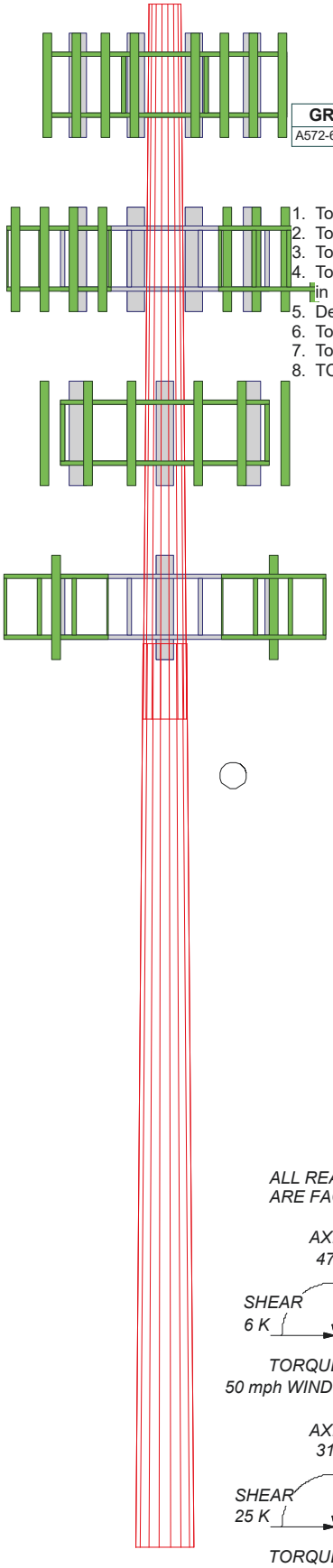
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	41.130	18	0.250	4.330	21.890	30.460	A572-65	2.9
2	51.900	18	0.313		29.058	39.750		6.0
								8.9



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 78%

ALL REACTIONS ARE FACTORED

AXIAL 47 K

SHEAR 6 K *MOMENT 429 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 31 K

SHEAR 25 K *MOMENT 1747 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 120 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: ***BU 842423***			
Project:			
Client: Crown Castle	Drawn by: KSukitch		App'd:
Code: TIA-222-H	Date: 12/02/22		Scale: NTS
Path: C:\Work Area\842423\WO 2185757 - SA\Prod\842423.eri			Dwg No. E-1

Tower Input Data

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

- Tower is located in Windham County, Connecticut.
- Tower base elevation above sea level: 313.000 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °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.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- 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-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H 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	88.700-47.570	41.130	4.330	18	21.890	30.460	0.250	1.000	A572-65 (65 ksi)
L2	47.570-0.000	51.900		18	29.058	39.750	0.313	1.250	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	22.189	17.171	1015.912	7.682	11.120	91.358	2033.161	8.587	3.413	13.651
	30.891	23.972	2763.991	10.725	15.474	178.625	5531.618	11.988	4.921	19.684
L2	30.364	28.512	2976.420	10.205	14.761	201.636	5956.757	14.259	4.564	14.605
	40.315	39.117	7686.392	14.000	20.193	380.646	15382.898	19.562	6.446	20.627

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 88.700-47.570				1	1	1			
L2 47.570-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
* HB158-21U6S24-xxM_TMO(1-5/8) * *	C	No	Surface Ar (CaAa)	64.000 - 0.000	3	3	0.000 0.000	1.996		0.003

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
LDF7-50A(1-5/8)	A	No	No	Inside Pole	84.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
2" Rigid Conduit	A	No	No	Inside Pole	84.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	84.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
FB-L98B-034-XXXXXX(3/8)	A	No	No	Inside Pole	84.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
WR-VG66ST-BRD_CCIV2(7/8)	A	No	No	Inside Pole	84.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" 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
*									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	74.000 - 0.000	8	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
CU12PSM9P8XXX (1-3/8)	A	No	No	Inside Pole	54.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
*									

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	88.700-47.570	A	0.000	0.000	0.000	0.000	0.873
		B	0.000	0.000	0.000	0.000	0.173
		C	0.000	0.000	9.838	0.000	0.123
L2	47.570-0.000	A	0.000	0.000	0.000	0.000	1.205
		B	0.000	0.000	0.000	0.000	0.312
		C	0.000	0.000	28.485	0.000	0.357

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	88.700-47.570	A	0.913	0.000	0.000	0.000	0.000	0.873
		B		0.000	0.000	0.000	0.000	0.173
		C		0.000	0.000	16.047	0.000	0.234
L2	47.570-0.000	A	0.822	0.000	0.000	0.000	0.000	1.205
		B		0.000	0.000	0.000	0.000	0.312
		C		0.000	0.000	46.462	0.000	0.678

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	88.700-47.570	0.000	1.984	0.000	1.755
L2	47.570-0.000	0.000	4.014	0.000	3.492

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	11	HB158-21U6S24-xxM_TMO(1-5/8)	47.57 - 64.00	1.0000	1.0000
L2	11	HB158-21U6S24-xxM_TMO(1-5/8)	0.00 - 47.57	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
** 84 **					
7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	84.000
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	84.000
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	84.000
OPA65R-BU8D w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	84.000
OPA65R-BU8D w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	84.000
OPA65R-BU8D w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	84.000
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	84.000
OPA-65R-LCUU-H8 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	84.000
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	84.000
DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	84.000
DMP65R-BU8D w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	84.000
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	84.000
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	84.000
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	84.000
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	84.000
RRUS-32 B30	A	From Leg	4.000 0.000	0.000	84.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RRUS-32 B30	B	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS-32 B30	C	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS E2 B29	A	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS E2 B29	B	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS E2 B29	C	From Leg	0.000 4.000 0.000	0.000	84.000
DC6-48-60-18-8C-EV	A	From Leg	0.000 2.000 0.000	0.000	84.000
DC6-48-60-18-8C-EV	B	From Leg	0.000 2.000 0.000	0.000	84.000
DC6-48-60-18-8C-EV	C	From Leg	0.000 2.000 0.000	0.000	84.000
RRUS 4478 B14_CCIV2	A	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 4478 B14_CCIV2	B	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 4478 B14_CCIV2	C	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 4449 B5/B12	A	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 4449 B5/B12	B	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 4449 B5/B12	C	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 8843 B2/B66A_CCIV2	A	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 8843 B2/B66A_CCIV2	B	From Leg	0.000 4.000 0.000	0.000	84.000
RRUS 8843 B2/B66A_CCIV2	C	From Leg	0.000 4.000 0.000	0.000	84.000
Platform Mount [LP 715-1_KCKR]	C	None	0.000	0.000	84.000
6' x 2" Mount Pipe	A	From Leg	2.000 0.000 3.000	0.000	84.000
6' x 2" Mount Pipe	B	From Leg	2.000 0.000 3.000	0.000	84.000
6' x 2" Mount Pipe	C	From Leg	2.000 0.000 3.000	0.000	84.000
** 74 ** BXA-70063/6CF w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	74.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
BXA-70063/6CF w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	74.000
BXA-70063/6CF w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	74.000
(2) NHH-65B-R2B w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	74.000
(2) NHH-65B-R2B w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	74.000
(2) NHH-65B-R2B w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	74.000
MT6407-77A w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	74.000
MT6407-77A w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	74.000
MT6407-77A w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	74.000
RRFDC-3315-PF-48	A	From Leg	1.000 4.000 0.000	0.000	74.000
DB-T1-6Z-8AB-0Z	A	From Leg	1.000 4.000 0.000	0.000	74.000
RF4439D-25A	A	From Leg	1.000 4.000 0.000	0.000	74.000
RF4439D-25A	B	From Leg	1.000 4.000 0.000	0.000	74.000
RF4439D-25A	C	From Leg	1.000 4.000 0.000	0.000	74.000
RF4440D-13A	A	From Leg	1.000 4.000 0.000	0.000	74.000
RF4440D-13A	B	From Leg	1.000 4.000 0.000	0.000	74.000
RF4440D-13A	C	From Leg	1.000 4.000 0.000	0.000	74.000
Platform Mount [LP 303-1]	C	None	1.000	0.000	74.000
Side Arm Mount [SO 102-3]	C	None		0.000	74.000
Mount Reinforcement Specifications	C	None		0.000	74.000
** 64 **					
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	64.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	64.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	64.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	64.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	64.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	64.000
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	64.000
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	64.000
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	64.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 0.000	0.000	64.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 0.000	0.000	64.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 0.000	0.000	64.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 0.000	0.000	64.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 0.000	0.000	64.000
Radio 4480_TMOV2	C	From Leg	4.000 0.000 0.000	0.000	64.000
RMQP-496-HK	C	None		0.000	64.000
5' x 2" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	64.000
5' x 2" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	64.000
5' x 2" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	64.000
8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	64.000
8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	64.000
8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	64.000
** 54 **					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	54.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	54.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	54.000
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	54.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	54.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	54.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	54.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	54.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	54.000
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	54.000
Commscope MC-PK8-DSH	C	None		0.000	54.000
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	54.000
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	54.000
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	54.000
*					

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	88.7 - 47.57	Pole	Max Tension	27	0.000	0.000	-0.001
			Max. Compression	26	-34.653	0.000	1.109
			Max. Mx	8	-19.859	-487.051	0.413
			Max. My	2	-19.841	0.000	490.854
			Max. Vy	8	22.580	-487.051	0.413
			Max. Vx	2	-22.752	0.000	490.854
			Max. Torque	9			0.914
L2	47.57 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.977	0.000	-0.075
			Max. Mx	8	-30.991	-1734.812	-0.247
			Max. My	14	-30.990	0.000	-1747.184
			Max. Vy	8	25.279	-1734.812	-0.247
			Max. Vx	14	25.443	0.000	-1747.184
			Max. Torque	9			0.914

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	46.977	0.000	-6.333
	Max. H_x	20	31.026	25.235	0.000
	Max. H_z	2	31.026	0.000	25.399
	Max. M_x	2	1746.697	0.000	25.399
	Max. M_z	8	1734.812	-25.235	0.000
	Max. Torsion	9	0.912	-25.235	0.000
	Min. Vert	7	23.270	-21.854	12.699
	Min. H_x	8	31.026	-25.235	0.000
	Min. H_z	14	31.026	0.000	-25.399
	Min. M_x	14	-1747.184	0.000	-25.399
	Min. M_z	20	-1734.812	25.235	0.000
	Min. Torsion	21	-0.912	25.235	0.000

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K

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	25.855	0.000	0.000	0.208	0.000	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	31.026	0.000	-25.399	-1746.697	0.000	0.000
0.9 Dead+1.0 Wind 0 deg - No Ice	23.270	0.000	-25.399	-1731.111	0.000	0.000
1.2 Dead+1.0 Wind 30 deg - No Ice	31.026	12.617	-21.996	-1512.659	-867.401	-0.453
0.9 Dead+1.0 Wind 30 deg - No Ice	23.270	12.617	-21.996	-1499.167	-859.631	-0.455
1.2 Dead+1.0 Wind 60 deg - No Ice	31.026	21.854	-12.699	-873.235	-1502.392	-0.786
0.9 Dead+1.0 Wind 60 deg - No Ice	23.270	21.854	-12.699	-865.470	-1488.933	-0.788
1.2 Dead+1.0 Wind 90 deg - No Ice	31.026	25.235	-0.000	0.248	-1734.812	-0.909
0.9 Dead+1.0 Wind 90 deg - No Ice	23.270	25.235	-0.000	0.187	-1719.275	-0.912
1.2 Dead+1.0 Wind 120 deg - No Ice	31.026	21.854	12.699	873.728	-1502.388	-0.788
0.9 Dead+1.0 Wind 120 deg - No Ice	23.270	21.854	12.699	865.843	-1488.931	-0.791
1.2 Dead+1.0 Wind 150 deg - No Ice	31.026	12.617	21.996	1513.148	-867.398	-0.456
0.9 Dead+1.0 Wind 150 deg - No Ice	23.270	12.617	21.996	1499.536	-859.628	-0.457
1.2 Dead+1.0 Wind 180 deg - No Ice	31.026	0.000	25.399	1747.184	0.000	0.000
0.9 Dead+1.0 Wind 180 deg - No Ice	23.270	0.000	25.399	1731.479	0.000	0.000
1.2 Dead+1.0 Wind 210 deg - No Ice	31.026	-12.617	21.996	1513.148	867.398	0.456
0.9 Dead+1.0 Wind 210 deg - No Ice	23.270	-12.617	21.996	1499.536	859.628	0.457
1.2 Dead+1.0 Wind 240 deg - No Ice	31.026	-21.854	12.699	873.728	1502.388	0.788
0.9 Dead+1.0 Wind 240 deg - No Ice	23.270	-21.854	12.699	865.843	1488.931	0.791
1.2 Dead+1.0 Wind 270 deg - No Ice	31.026	-25.235	-0.000	0.248	1734.812	0.909
0.9 Dead+1.0 Wind 270 deg - No Ice	23.270	-25.235	-0.000	0.187	1719.275	0.912
1.2 Dead+1.0 Wind 300 deg - No Ice	31.026	-21.854	-12.699	-873.235	1502.392	0.786
0.9 Dead+1.0 Wind 300 deg - No Ice	23.270	-21.854	-12.699	-865.470	1488.933	0.788
1.2 Dead+1.0 Wind 330 deg - No Ice	31.026	-12.617	-21.996	-1512.659	867.401	0.453
0.9 Dead+1.0 Wind 330 deg - No Ice	23.270	-12.617	-21.996	-1499.167	859.631	0.455
1.2 Dead+1.0 Ice+1.0 Temp	46.977	0.000	0.000	0.075	0.000	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	46.977	0.000	-6.333	-428.606	0.000	0.000
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	46.977	3.152	-5.485	-371.182	-213.170	-0.092
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	46.977	5.459	-3.167	-214.297	-369.221	-0.160
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	46.977	6.303	-0.000	0.013	-426.340	-0.185

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+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	46.977	5.459	3.167	214.322	-369.221	-0.160
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	46.977	3.152	5.485	371.207	-213.170	-0.092
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	46.977	0.000	6.333	428.631	0.000	0.000
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	46.977	-3.152	5.485	371.207	213.170	0.092
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	46.977	-5.459	3.167	214.322	369.221	0.160
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	46.977	-6.303	-0.000	0.013	426.340	0.185
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	46.977	-5.459	-3.167	-214.297	369.221	0.160
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	46.977	-3.152	-5.485	-371.182	213.170	0.092
Dead+Wind 0 deg - Service	25.855	0.000	-5.985	-409.442	0.000	0.000
Dead+Wind 30 deg - Service	25.855	2.973	-5.183	-354.560	-203.399	-0.108
Dead+Wind 60 deg - Service	25.855	5.150	-2.993	-204.620	-352.298	-0.187
Dead+Wind 90 deg - Service	25.855	5.947	0.000	0.203	-406.799	-0.216
Dead+Wind 120 deg - Service	25.855	5.150	2.993	205.025	-352.298	-0.187
Dead+Wind 150 deg - Service	25.855	2.973	5.183	354.966	-203.399	-0.108
Dead+Wind 180 deg - Service	25.855	0.000	5.985	409.848	0.000	0.000
Dead+Wind 210 deg - Service	25.855	-2.973	5.183	354.966	203.399	0.108
Dead+Wind 240 deg - Service	25.855	-5.150	2.993	205.025	352.298	0.187
Dead+Wind 270 deg - Service	25.855	-5.947	0.000	0.203	406.799	0.216
Dead+Wind 300 deg - Service	25.855	-5.150	-2.993	-204.620	352.298	0.187
Dead+Wind 330 deg - Service	25.855	-2.973	-5.183	-354.560	203.399	0.108

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-25.855	0.000	0.000	25.855	0.000	0.000%
2	0.000	-31.026	-25.399	0.000	31.026	25.399	0.000%
3	0.000	-23.270	-25.399	0.000	23.270	25.399	0.000%
4	12.617	-31.026	-21.996	-12.617	31.026	21.996	0.000%
5	12.617	-23.270	-21.996	-12.617	23.270	21.996	0.000%
6	21.854	-31.026	-12.699	-21.854	31.026	12.699	0.000%
7	21.854	-23.270	-12.699	-21.854	23.270	12.699	0.000%
8	25.235	-31.026	0.000	-25.235	31.026	0.000	0.000%
9	25.235	-23.270	0.000	-25.235	23.270	0.000	0.000%
10	21.854	-31.026	12.699	-21.854	31.026	-12.699	0.000%
11	21.854	-23.270	12.699	-21.854	23.270	-12.699	0.000%
12	12.617	-31.026	21.996	-12.617	31.026	-21.996	0.000%
13	12.617	-23.270	21.996	-12.617	23.270	-21.996	0.000%
14	0.000	-31.026	25.399	0.000	31.026	-25.399	0.000%
15	0.000	-23.270	25.399	0.000	23.270	-25.399	0.000%
16	-12.617	-31.026	21.996	12.617	31.026	-21.996	0.000%
17	-12.617	-23.270	21.996	12.617	23.270	-21.996	0.000%
18	-21.854	-31.026	12.699	21.854	31.026	-12.699	0.000%
19	-21.854	-23.270	12.699	21.854	23.270	-12.699	0.000%
20	-25.235	-31.026	0.000	25.235	31.026	0.000	0.000%
21	-25.235	-23.270	0.000	25.235	23.270	0.000	0.000%
22	-21.854	-31.026	-12.699	21.854	31.026	12.699	0.000%
23	-21.854	-23.270	-12.699	21.854	23.270	12.699	0.000%
24	-12.617	-31.026	-21.996	12.617	31.026	21.996	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
25	-12.617	-23.270	-21.996	12.617	23.270	21.996	0.000%
26	0.000	-46.977	0.000	0.000	46.977	0.000	0.000%
27	0.000	-46.977	-6.333	0.000	46.977	6.333	0.000%
28	3.152	-46.977	-5.485	-3.152	46.977	5.485	0.000%
29	5.459	-46.977	-3.167	-5.459	46.977	3.167	0.000%
30	6.303	-46.977	0.000	-6.303	46.977	0.000	0.000%
31	5.459	-46.977	3.167	-5.459	46.977	-3.167	0.000%
32	3.152	-46.977	5.485	-3.152	46.977	-5.485	0.000%
33	0.000	-46.977	6.333	0.000	46.977	-6.333	0.000%
34	-3.152	-46.977	5.485	3.152	46.977	-5.485	0.000%
35	-5.459	-46.977	3.167	5.459	46.977	-3.167	0.000%
36	-6.303	-46.977	0.000	6.303	46.977	0.000	0.000%
37	-5.459	-46.977	-3.167	5.459	46.977	3.167	0.000%
38	-3.152	-46.977	-5.485	3.152	46.977	5.485	0.000%
39	0.000	-25.855	-5.985	0.000	25.855	5.985	0.000%
40	2.973	-25.855	-5.183	-2.973	25.855	5.183	0.000%
41	5.150	-25.855	-2.993	-5.150	25.855	2.993	0.000%
42	5.947	-25.855	0.000	-5.947	25.855	0.000	0.000%
43	5.150	-25.855	2.993	-5.150	25.855	-2.993	0.000%
44	2.973	-25.855	5.183	-2.973	25.855	-5.183	0.000%
45	0.000	-25.855	5.985	0.000	25.855	-5.985	0.000%
46	-2.973	-25.855	5.183	2.973	25.855	-5.183	0.000%
47	-5.150	-25.855	2.993	5.150	25.855	-2.993	0.000%
48	-5.947	-25.855	0.000	5.947	25.855	0.000	0.000%
49	-5.150	-25.855	-2.993	5.150	25.855	2.993	0.000%
50	-2.973	-25.855	-5.183	2.973	25.855	5.183	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	0.00007275
3	Yes	4	0.00000001	0.00002351
4	Yes	5	0.00000001	0.00020062
5	Yes	5	0.00000001	0.00008878
6	Yes	5	0.00000001	0.00020877
7	Yes	5	0.00000001	0.00009277
8	Yes	4	0.00000001	0.00028900
9	Yes	4	0.00000001	0.00017936
10	Yes	5	0.00000001	0.00019821
11	Yes	5	0.00000001	0.00008772
12	Yes	5	0.00000001	0.00020660
13	Yes	5	0.00000001	0.00009169
14	Yes	4	0.00000001	0.00007279
15	Yes	4	0.00000001	0.00002353
16	Yes	5	0.00000001	0.00020660
17	Yes	5	0.00000001	0.00009169
18	Yes	5	0.00000001	0.00019821
19	Yes	5	0.00000001	0.00008772
20	Yes	4	0.00000001	0.00028900
21	Yes	4	0.00000001	0.00017936
22	Yes	5	0.00000001	0.00020877
23	Yes	5	0.00000001	0.00009277
24	Yes	5	0.00000001	0.00020062
25	Yes	5	0.00000001	0.00008878
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00071143
28	Yes	4	0.00000001	0.00086192
29	Yes	4	0.00000001	0.00086544
30	Yes	4	0.00000001	0.00070627
31	Yes	4	0.00000001	0.00085352
32	Yes	4	0.00000001	0.00085967
33	Yes	4	0.00000001	0.00070697
34	Yes	4	0.00000001	0.00085967
35	Yes	4	0.00000001	0.00085352
36	Yes	4	0.00000001	0.00070627
37	Yes	4	0.00000001	0.00086544
38	Yes	4	0.00000001	0.00086192
39	Yes	4	0.00000001	0.00000935
40	Yes	4	0.00000001	0.00008385
41	Yes	4	0.00000001	0.00009601
42	Yes	4	0.00000001	0.00002079
43	Yes	4	0.00000001	0.00008111
44	Yes	4	0.00000001	0.00009221
45	Yes	4	0.00000001	0.00000935
46	Yes	4	0.00000001	0.00009221
47	Yes	4	0.00000001	0.00008111
48	Yes	4	0.00000001	0.00002079
49	Yes	4	0.00000001	0.00009601
50	Yes	4	0.00000001	0.00008385

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	88.7 - 47.57	10.904	39	0.939	0.002
L2	51.9 - 0	4.180	39	0.716	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84.000	7770.00 w/ Mount Pipe	39	9.948	0.918	0.001	25566
74.000	BXA-70063/6CF w/ Mount Pipe	39	7.956	0.870	0.001	8696
64.000	AIR6449 B41_T-MOBILE w/ Mount Pipe	39	6.103	0.811	0.001	5175
54.000	MX08FRO665-21 w/ Mount Pipe	39	4.482	0.735	0.001	3713

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	88.7 - 47.57	46.498	2	4.006	0.006
L2	51.9 - 0	17.836	2	3.056	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84.000	7770.00 w/ Mount Pipe	2	42.420	3.917	0.006	6047
74.000	BXA-70063/6CF w/ Mount Pipe	2	33.933	3.712	0.005	2055
64.000	AIR6449 B41_T-MOBILE w/ Mount Pipe	2	26.035	3.462	0.004	1222
54.000	MX08FRO665-21 w/ Mount Pipe	2	19.124	3.137	0.004	875

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	88.7 - 47.57 (1)	TP30.46x21.89x0.25	41.130	0.000	0.0	23.256	-19.841	1360.460	0.015
L2	47.57 - 0 (2)	TP39.75x29.058x0.313	51.900	0.000	0.0	39.117	-30.990	2288.350	0.014

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	88.7 - 47.57 (1)	TP30.46x21.89x0.25	490.854	982.733	0.499	0.000	982.733	0.000
L2	47.57 - 0 (2)	TP39.75x29.058x0.313	1747.183	2172.667	0.804	0.000	2172.667	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	88.7 - 47.57 (1)	TP30.46x21.89x0.25	22.752	408.138	0.056	0.000	1047.542	0.000
L2	47.57 - 0 (2)	TP39.75x29.058x0.313	25.443	686.505	0.037	0.000	2371.008	0.000

Pole Interaction Design Data

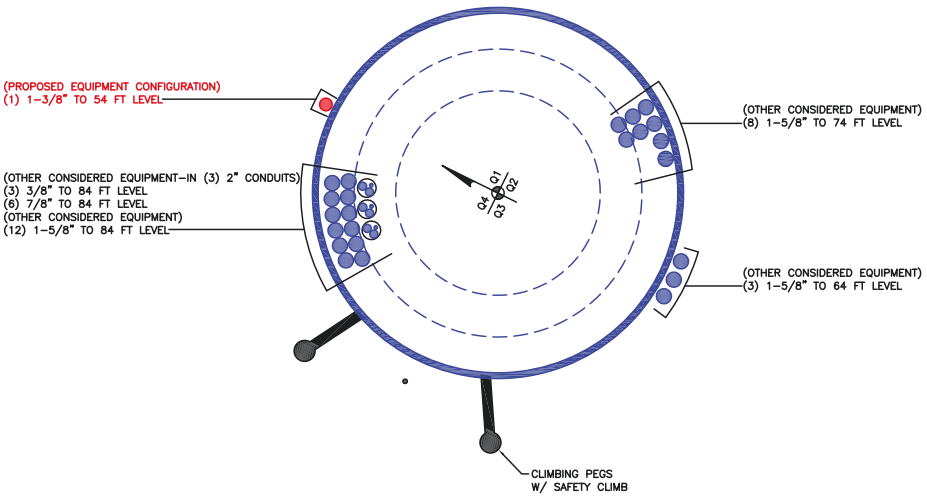
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	88.7 - 47.57 (1)	0.015	0.499	0.000	0.056	0.000	0.517	1.050	4.8.2
L2	47.57 - 0 (2)	0.014	0.804	0.000	0.037	0.000	0.819	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	88.7 - 47.57	Pole	TP30.46x21.89x0.25	1	-19.841	1428.483	49.3	Pass
L2	47.57 - 0	Pole	TP39.75x29.058x0.313	2	-30.990	2402.767	78.0	Pass
							Summary	
						Pole (L2)	78.0	Pass
						RATING =	**78.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 54 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN (3) 2" CONDUITS)
(3) 3/8" TO 84 FT LEVEL
(6) 7/8" TO 84 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 84 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 74 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1-5/8" TO 64 FT LEVEL
Q1
Q2
Q3
Q4
CLIMBING PEGS
W/ SAFETY CLIMB

APPENDIX C

ADDITIONAL CALCULATIONS

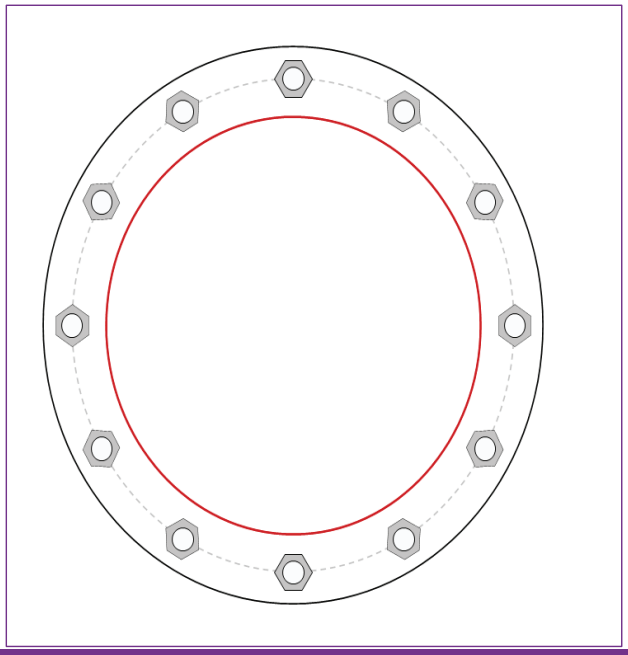
Monopole Base Plate Connection

Site Info	
BU #	842423
Site Name	HAM NORTH RIDGE RC
Order #	572910 - Rev. 5

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	3.25

Applied Loads	
Moment (kip-ft)	1747.18
Axial Force (kips)	30.99
Shear Force (kips)	25.44

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 47" BC

Base Plate Data

53" OD x 1.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

39.75" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 145.97	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.12	ϕVn = 149.1	**57.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	42.97	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**75.8%**	**Pass**

Pier and Pad Foundation

BU # :	842423
Site Name:	WINDHAM NORTH
App. Number:	572910 - Rev. 5

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	31.03	kips
Base Shear, Vu_comp:	25.4	kips
Moment, M_u:	1747.18	ft-kips
Tower Height, **H**:	88.7	ft
BP Dist. Above Fdn, bp_{dist}:	5.5	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	22	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	4	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, W_1:	20	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	11	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	16.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	99	
Base Friction, μ:	0.5	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	n/a	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	187.63	25.40	**12.9%**	**Pass**
Bearing Pressure (ksf)	12.54	2.26	**18.0%**	**Pass**
*Overturning (kip*ft)*	3202.22	1936.62	**60.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	2973.10	1848.78	**59.2%**	**Pass**
Pier Compression (kip)	13497.04	51.39	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	1523.05	705.35	**44.1%**	**Pass**
Pad Shear - 1-way (kips)	617.33	129.16	**19.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.024	**13.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	2142.83	1109.27	**49.3%**	**Pass**

**Rating per TIA-222-H Section 15.5*

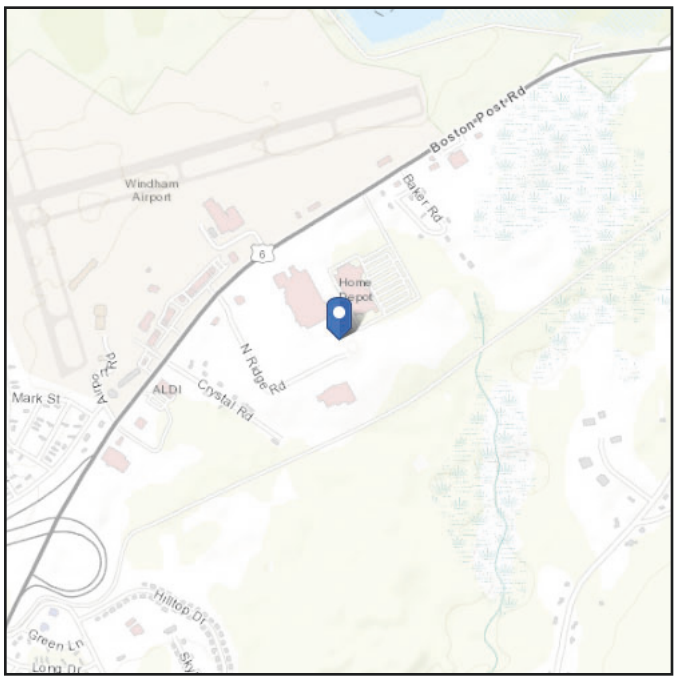
Structural Rating*:	**59.2%**
Soil Rating*:	**60.5%**

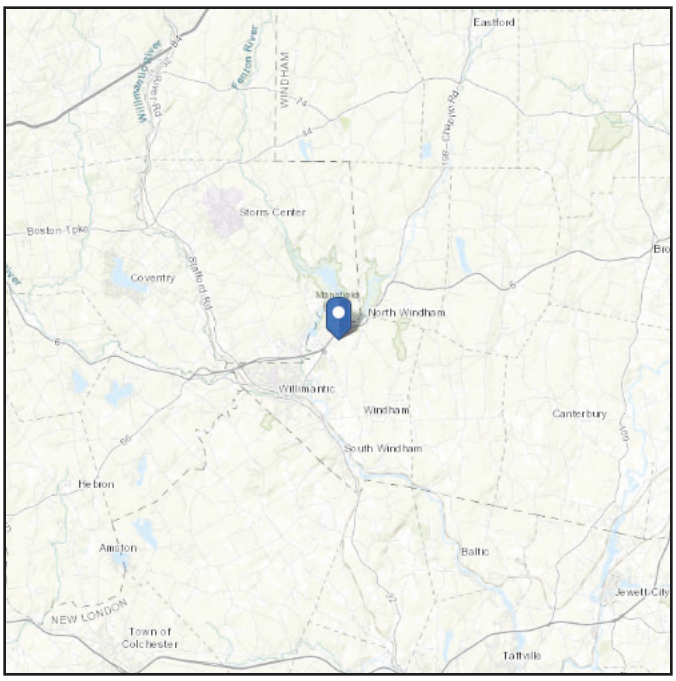
Version 4.1.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.739869
Risk Category:	II	**Longitude:**	-72.172908
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	312.63 ft (NAVD 88)





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Fri Dec 02 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Seismic

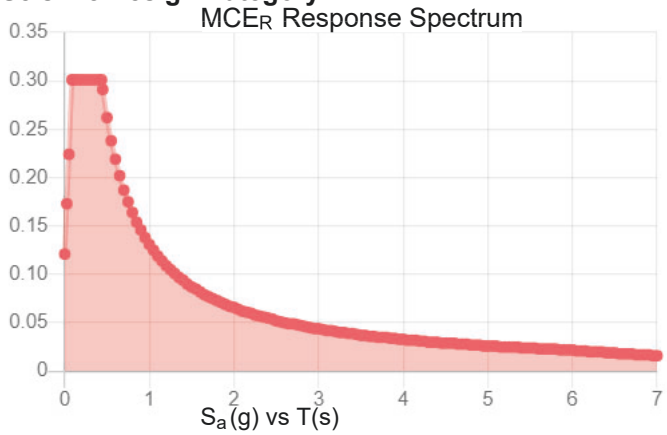
D - Default (see Section 11.4.3)

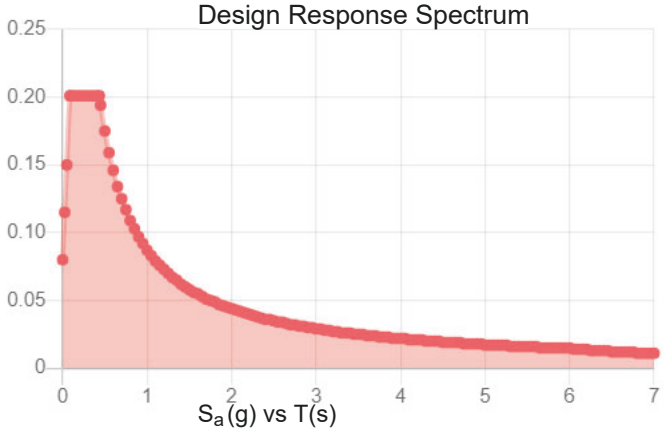
Site Soil Class:

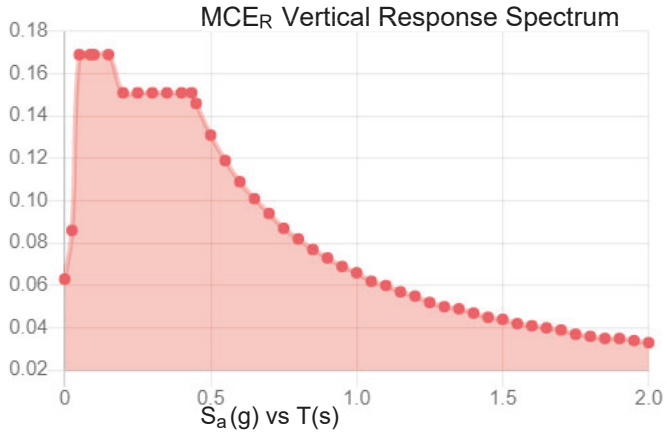
Results:

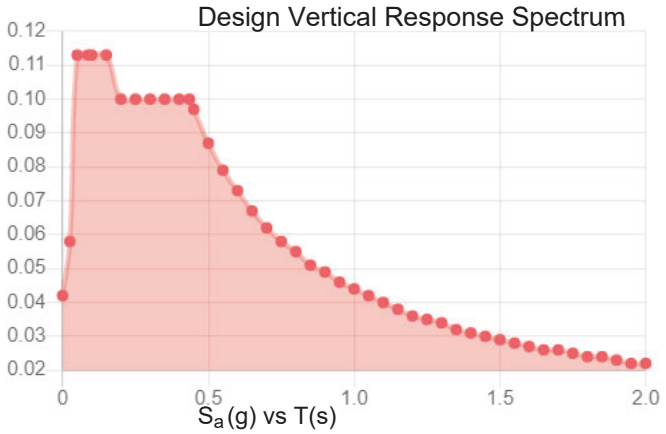
S_S :	0.188	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.301	F_{PGA} :	1.596
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.201	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Fri Dec 02 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Dec 02 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Date: **March 29, 2023**

Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject:	**Mount Analysis - Conditional Passing Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CTNL200A
	Carrier Site Name:	-
Crown Castle Designation:	**BU Number:**	842423
	Site Name:	WINDHAM NORTH RIDGE ROAD
	JDE Job Number:	671709
	Order Number:	573238 Rev. 7
Engineering Firm Designation:	**Trylon Report Designation:**	225495
Site Data:	**10 North Ridge Drive, Windham, Windham County, CT, 06256** **Latitude 41°44'23.53" Longitude -72°10'22.47"**	
Structure Information:	**Tower Height & Type:**	**88.7 ft Monopole**
	Mount Elevation:	**64.0 ft**
	Mount Width & Type:	**12.5 ft Platform**

Trylon is pleased to submit this **"Mount Analysis - Conditional Passing Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient***

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Steve Mustaro, P.E.

Respectfully Submitted by:
Cliff Abernathy, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed three sector 12.5 ft Platform, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2021 IBC / 2022 CBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.188
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
64.0	64.0	3	COMMSCOPE	VV-65A-R1_TMO	12.5 ft Platform [Site Pro 1 RMQP-496-HK]
		3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	RADIO 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	573238 Rev. 7	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	RMQP-496-HK	Trylon

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision E).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Trylon should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2, 3, 4	Mount Pipe(s)	MP6	64.0	33.6	Pass
	Horizontal(s)	H3		10.6	Pass
	Standoff(s)	S2		13.8	Pass
	Bracing(s)	M38		26.5	Pass
	Handrail(s)	HR1		31.0	Pass
	Kicker(s)	M95		7.0	Pass
	Mount Connection(s)	-		12.9	Pass

Structure Rating (max from all components) =	33.6%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.
3) All sectors are typical
4) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

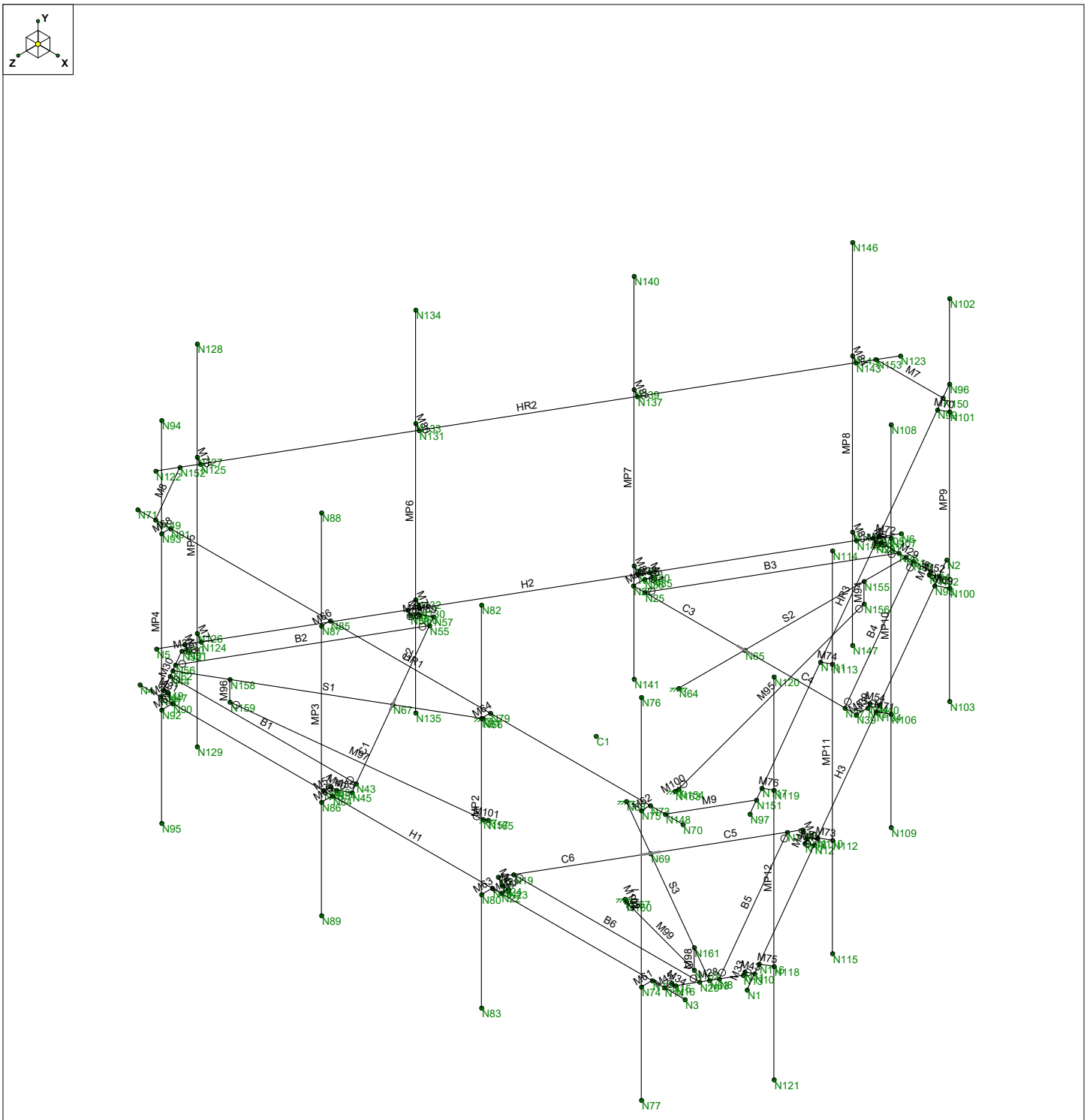
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Site Pro 1 RMQP-496-HK.

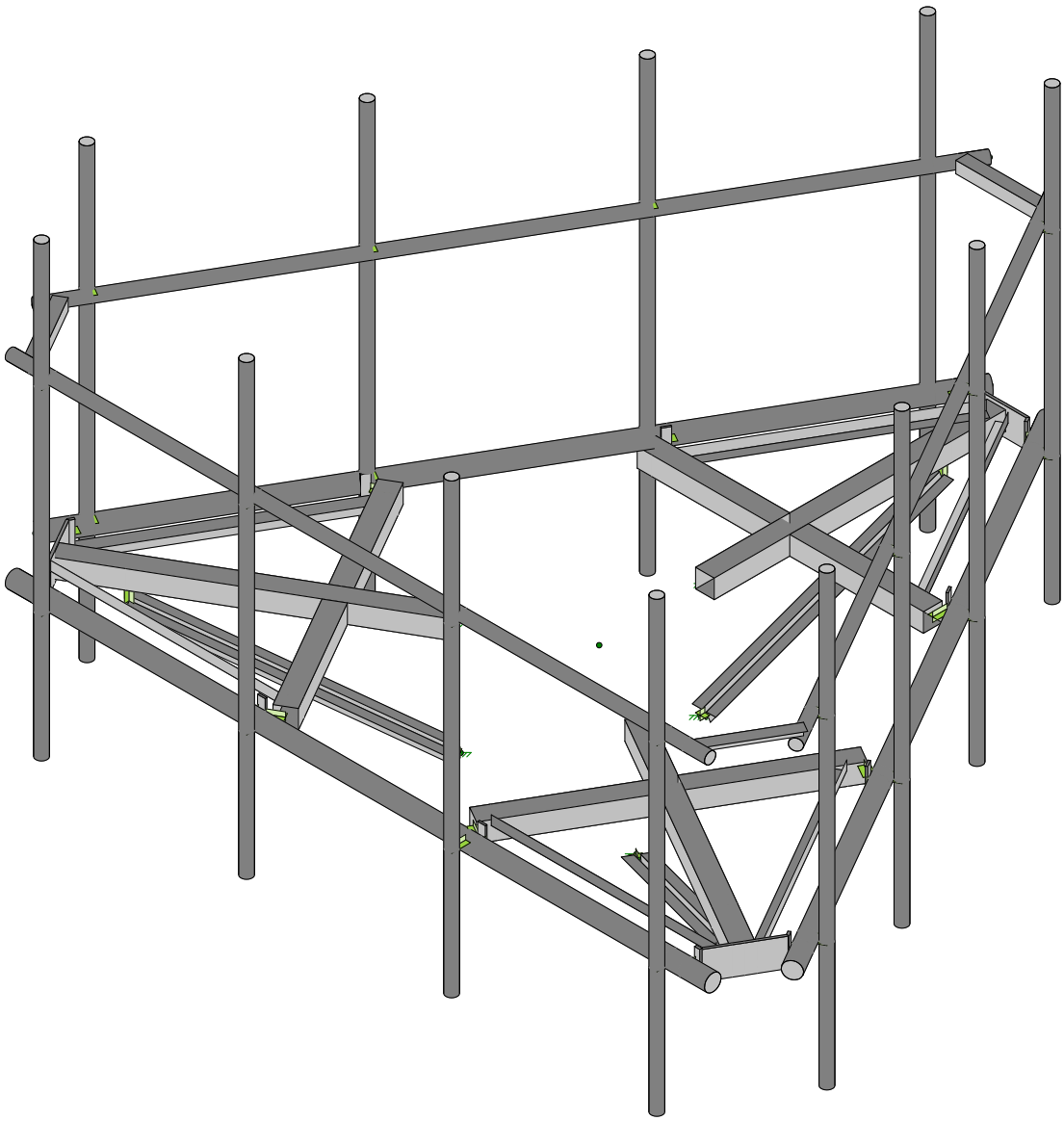
No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Trylon	842423	Wireframe
SMM		Mar 29, 2023 at 2:36 PM
225495		842423_loaded.r3d



Trylon	842423	Render
SMM		Mar 29, 2023 at 2:36 PM
225495		842423_loaded.r3d

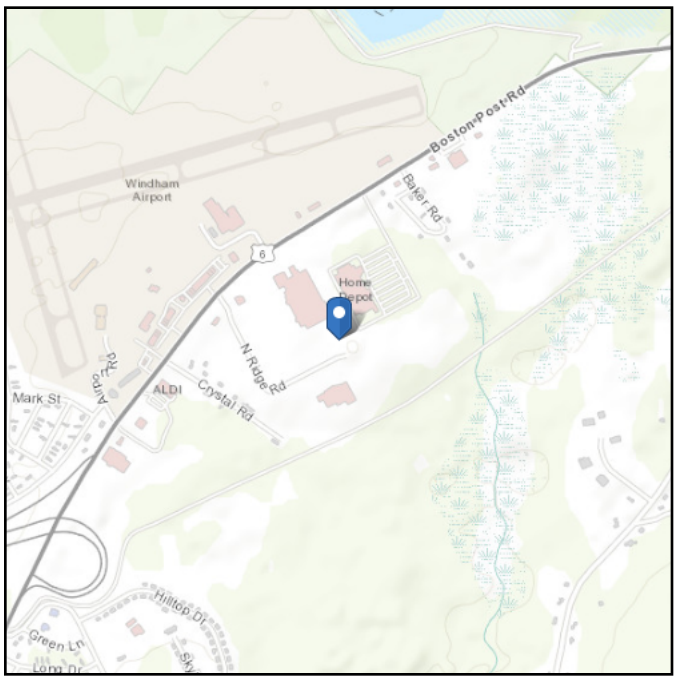
APPENDIX B

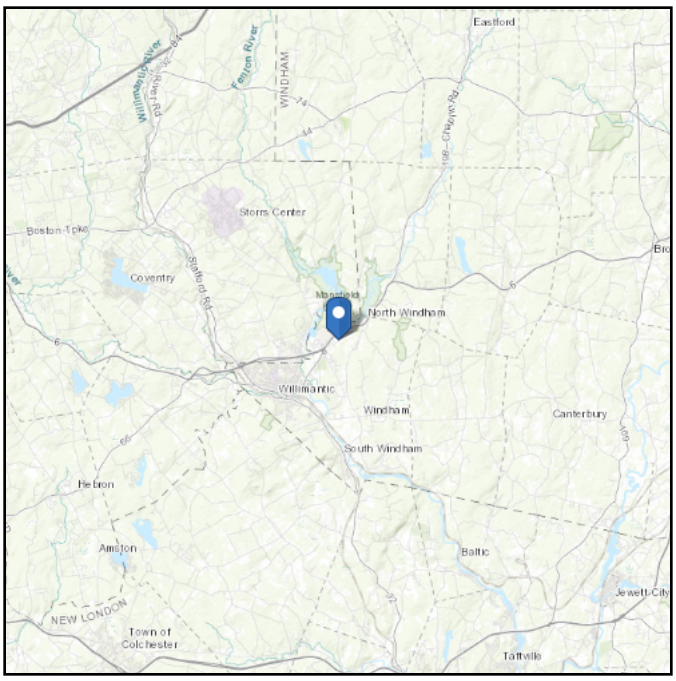
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.739869
Risk Category:	II	**Longitude:**	-72.172908
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	307.28806705434647 ft (NAVD 88)





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Wed Mar 29 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Seismic

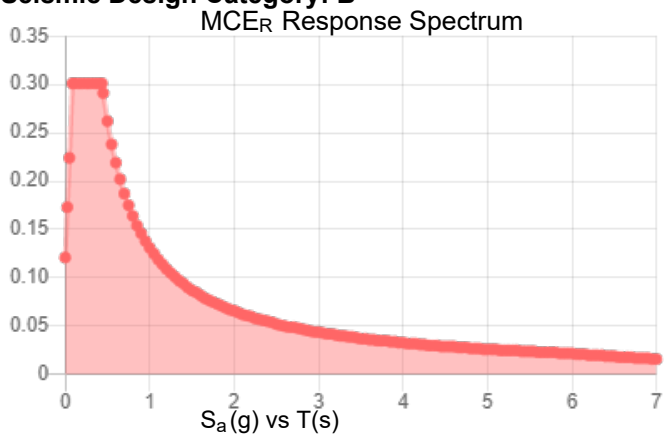
D - Default (see Section 11.4.3)

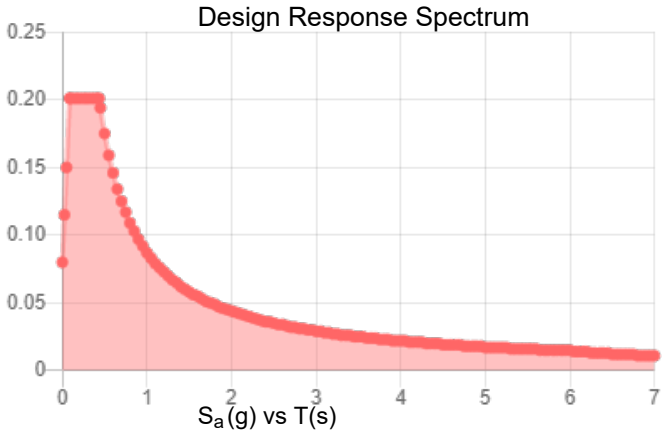
Site Soil Class:

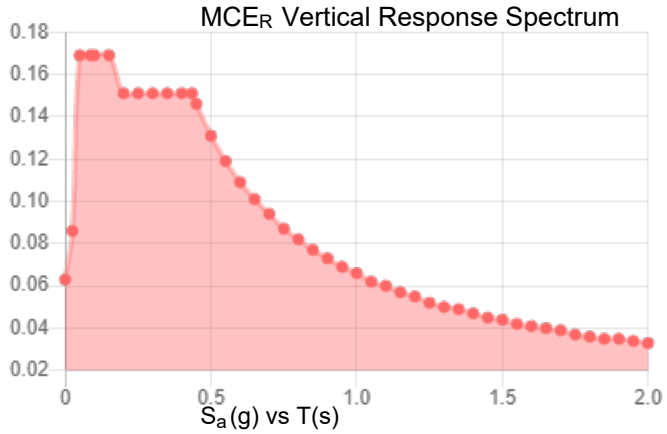
Results:

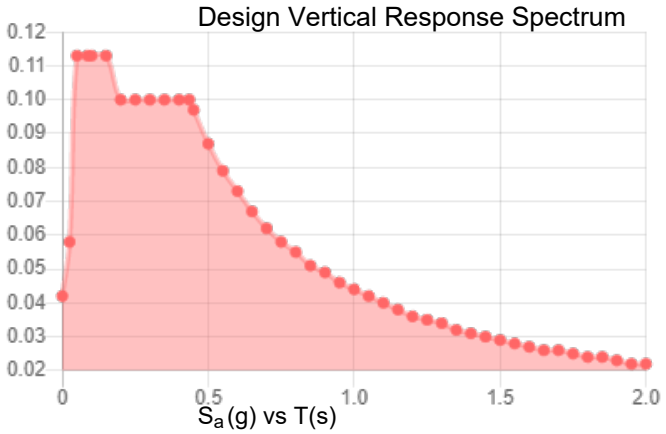
S_S :	0.188	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.301	F_{PGA} :	1.596
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.201	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Wed Mar 29 2023**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Mar 29 2023

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Trylon
1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	225495
Carrier Site ID:	BU 824423
Carrier Site Name:	NDHAM NORTH RIDGE RC

CODES AND STANDARDS	
Building Code:	2018 IBC
Local Building Code:	2022 CTSBC
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	64.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	88.7	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Default	--
Ground Elevation:	307.3	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.15	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	39.90	psf
Ground Elevation Factor (K_e):	0.99	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	6.42	psf
Mount Ice Thickness (t_{iz}):	1.07	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	71.82	psf
Round Member Pressure:	43.09	psf
Ice Wind Pressure:	6.94	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.19	g
1 Second Accel (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.20	g
1 Second Des. (S_{D1}):	0.09	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.10	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
AIR6449 B41_T-MOBILE	3	64	No Ice	5.27	2.03	114.63
--	--	--	w/ Ice	6.15	2.71	88.26
APXVAALL24_43-U-NA20_TMO	3	64	No Ice	14.67	5.32	149.90
--	--	--	w/ Ice	16.22	6.68	249.29
VV-65A-R1_TMO	3	64	No Ice	4.48	1.74	33.30
--	--	--	w/ Ice	5.42	2.58	77.57
RADIO 4460 B2/B25 B66_TMO	3	64	No Ice	2.14	1.69	109.00
--	--	--	w/ Ice	2.40	1.93	51.06
RADIO 4480_TMOV2	3	64	No Ice	2.88	1.40	81.00
--	--	--	w/ Ice	3.19	1.65	50.51
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
AIR6449 B41_T-MOBILE	3	64	1.00	1.15	0.95	1.07	39.90	6.93
XVAALL24_43-U-NA20_TI	3	64	1.00	1.15	0.95	1.07	39.90	6.93
VV-65A-R1_TMO	3	64	1.00	1.15	0.95	1.07	39.90	6.93
ADIO 4460 B2/B25 B66_TM	3	64	1.00	1.15	0.95	1.07	39.90	6.93
RADIO 4480_TMOV2	3	64	1.00	1.15	0.95	1.07	39.90	6.93

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
AIR6449 B41_T-MOBILE	3	No Ice	189.25	101.99	160.17	72.90	160.17	101.99
--	--	w/ Ice	38.32	22.25	32.96	16.89	32.96	22.25
APXVAALL24_43-U-NA20_TMO	3	No Ice	526.82	274.99	442.88	191.05	442.88	274.99
--	--	w/ Ice	101.11	56.53	86.25	41.66	86.25	56.53
VV-65A-R1_TMO	3	No Ice	160.88	87.09	136.28	62.49	136.28	87.09
--	--	w/ Ice	33.82	20.51	29.39	16.08	29.39	20.51
RADIO 4460 B2/B25 B66_TMO	3	No Ice	76.82	64.61	72.75	60.54	72.75	64.61
--	--	w/ Ice	14.98	12.75	14.23	12.00	14.23	12.75
RADIO 4480_TMOV2	3	No Ice	103.37	63.47	90.07	50.17	90.07	63.47
--	--	w/ Ice	19.86	12.66	17.46	10.26	17.46	12.66
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

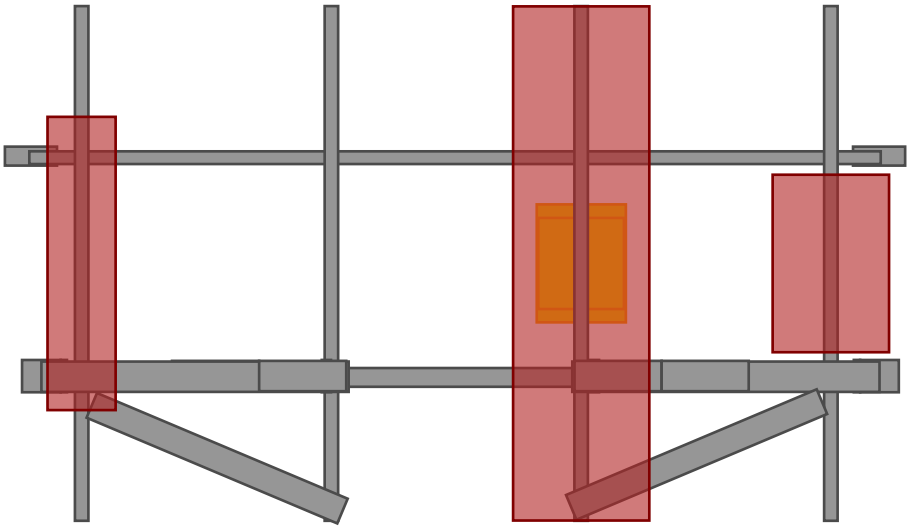
EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	*Qty.*	*Elevation [ft]*	*Weight [lbs]*	F_p [lbs]
AIR6449 B41_T-MOBILE	3	64	114.63	13.79
APXVAALL24_43-U-NA20_TMO	3	64	149.9	18.04
VV-65A-R1_TMO	3	64	33.3	4.01
RADIO 4460 B2/B25 B66_TMO	3	64	109	13.11
RADIO 4480_TMOV2	3	64	81	9.75

ELEVATION VIEW

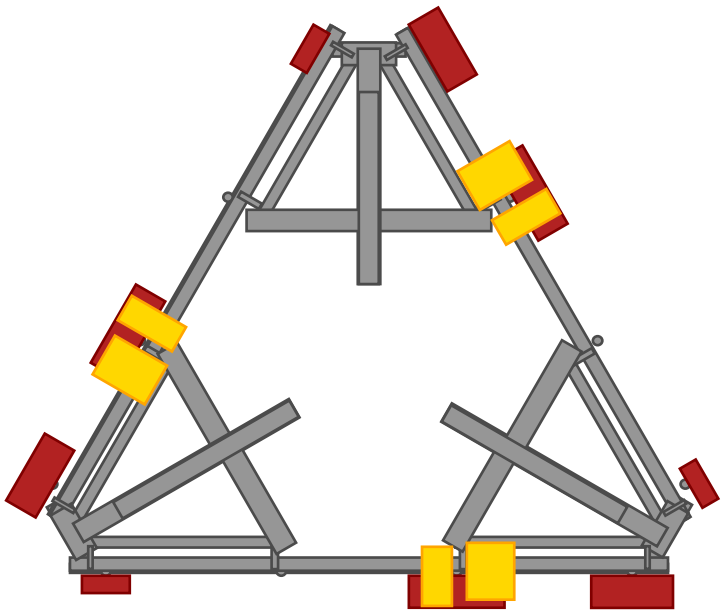


MP4 MP3 MP2 MP1

*these drawings are intended to show approximate locations of equipment on the mount and should not be used to determine exact placement of equipment or additional hardware

**Elevation View Shows Only One Sector

PLAN VIEW



1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
AIR6449 B41_T-MOBILE	3	64	MP1/MP5/MP9	30/150/270
APXVAALL24_43-U-NA20_TMO	3	64	MP2/MP6/MP10	30/150/270
VV-65A-R1_TMO	3	64	MP4/MP8/MP12	30/150/270
RADIO 4460 B2/B25 B66_TMO	3	64	MP2/MP6/MP10	120/240/0
RADIO 4480_TMOV2	3	64	MP2/MP6/MP10	300/60/180

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(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 (in/sec^2)	386.4
Wall Mesh Size (in)	24
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	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	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HSS4X4X4	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
2	L2x2x3	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	L2.5x2.5x4	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
4	Plate 6"x0.5"	Pl 6"x0.5"	Beam	None	A36 Gr.36	Typical	3	.063	9	.237
5	Plate 6"x0.375"	PL 6x0.375	Beam	None	A36 Gr.36	Typical	2.25	.026	6.75	.101
6	HSS3.500X0.216	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
7	HSS2.375X0.154	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	PRK 1245	LL2.5x2.5x3x0	Beam	None	A36 Gr.36	Typical	1.8	1.91	1.07	.023

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X0...	Beam	None	A653 SS Gr33	Typical	.581	.057	4.41	.00063

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	N64	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N68	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N66	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N154						
5	N155						
6	N156						
7	N157						
8	N158						
9	N159						
10	N160						
11	N161						
12	N162						
13	N163	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
14	N165	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	N167	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1			24		3	
2	Structure Wind Z	WLZ						102		
3	Structure Wind X	WLX						102		
4	Wind Load 0 AZI	WLZ					48			
5	Wind Load 30 AZI	None					48			
6	Wind Load 45 AZI	None					48			
7	Wind Load 60 AZI	None					48			
8	Wind Load 90 AZI	WLX					48			
9	Wind Load 120 AZI	None					48			
10	Wind Load 135 AZI	None					48			
11	Wind Load 150 AZI	None					48			
12	Ice Weight	OL1					24	102	3	
13	Ice Structure Wind Z	OL2						102		
14	Ice Structure Wind X	OL3						102		
15	Ice Wind Load 0 AZI	OL2					48			
16	Ice Wind Load 30 AZI	None					48			
17	Ice Wind Load 45 AZI	None					48			
18	Ice Wind Load 60 AZI	None					48			
19	Ice Wind Load 90 AZI	OL3					48			
20	Ice Wind Load 120 AZI	None					48			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
21	Ice Wind Load 135 AZI	None					48			
22	Ice Wind Load 150 AZI	None					48			
23	Seismic Load Z	ELZ			-.12		24			
24	Seismic Load X	ELX	-.12				24			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (Lm)	None					1			
35	Maintenance Load 2 (Lm)	None					1			
36	Maintenance Load 3 (Lm)	None					1			
37	Maintenance Load 4 (Lm)	None					1			
38	Maintenance Load 5 (Lm)	None					1			
39	Maintenance Load 6 (Lm)	None					1			
40	Maintenance Load 7 (Lm)	None					1			
41	Maintenance Load 8 (Lm)	None					1			
42	Maintenance Load 9 (Lm)	None					1			
43	Maintenance Load 10 (Lm)	None					1			
44	Maintenance Load 11 (Lm)	None					1			
45	Maintenance Load 12 (Lm)	None					1			
46	BLC 1 Transient Area Loads	None						51		
47	BLC 12 Transient Area Loads	None						51		

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	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														

Load Combinations (Continued)

	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...
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1													
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1W Li 0 ...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1W Li 4...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1W Li 6...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1W Li 9...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL + 1E 0 ...	Yes	Y		DL	1.24	23	1	24																	
51	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.24	23	.866	24	.5																
52	(1.2+0.2Sds)DL + 1E 4...	Yes	Y		DL	1.24	23	.707	24	.707																
53	(1.2+0.2Sds)DL + 1E 6...	Yes	Y		DL	1.24	23	.5	24	.866																
54	(1.2+0.2Sds)DL + 1E 9...	Yes	Y		DL	1.24	23		24	1																
55	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.24	23	-.5	24	.866																
56	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.24	23	-.707	24	.707																
57	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.24	23	-.866	24	.5																
58	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.24	23	-1	24																	
59	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.24	23	-.866	24	-.5																
60	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.24	23	-.707	24	-.707																
61	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.24	23	-.5	24	-.866																
62	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.24	23		24	-1																
63	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.24	23	.5	24	-.866																
64	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.24	23	.707	24	-.707																
65	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.24	23	.866	24	-.5																
66	(0.9-0.2Sds)DL + 1E 0 ...	Yes	Y		DL	.86	23	1	24																	
67	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.86	23	.866	24	.5																
68	(0.9-0.2Sds)DL + 1E 4...	Yes	Y		DL	.86	23	.707	24	.707																
69	(0.9-0.2Sds)DL + 1E 6...	Yes	Y		DL	.86	23	.5	24	.866																
70	(0.9-0.2Sds)DL + 1E 9...	Yes	Y		DL	.86	23		24	1																
71	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.86	23	-.5	24	.866																
72	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.86	23	-.707	24	.707																

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
73	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.86	23	-.866	24	.5														
74	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.86	23	-1	24															
75	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.86	23	-.866	24	-.5														
76	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.86	23	-.707	24	-.707														
77	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.86	23	-.5	24	-.866														
78	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.86	23		24	-1														
79	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.86	23	.5	24	-.866														
80	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.86	23	.707	24	-.707														
81	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.86	23	.866	24	-.5														
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5																
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5																
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5																
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5																
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5																
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5																
91	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.063	3		4	.063										
92	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.054	3	.031	5	.063										
93	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.044	3	.044	6	.063										
94	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.031	3	.054	7	.063										
95	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2		3	.063	8	.063										
96	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.031	3	.054	9	.063										
97	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.044	3	.044	10	.063										
98	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.054	3	.031	11	.063										
99	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.063	3		4	-.063										
100	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.054	3	-.031	5	-.063										
101	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.044	3	-.044	6	-.063										
102	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	-.031	3	-.054	7	-.063										
103	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2		3	-.063	8	-.063										
104	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.031	3	-.054	9	-.063										
105	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.044	3	-.044	10	-.063										
106	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	34	1.5	2	.054	3	-.031	11	-.063										
107	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.063	3		4	.063										
108	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.054	3	.031	5	.063										
109	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.044	3	.044	6	.063										
110	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.031	3	.054	7	.063										
111	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2		3	.063	8	.063										
112	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.031	3	.054	9	.063										
113	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.044	3	.044	10	.063										
114	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.054	3	.031	11	.063										
115	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.063	3		4	-.063										
116	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.054	3	-.031	5	-.063										
117	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.044	3	-.044	6	-.063										
118	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	-.031	3	-.054	7	-.063										
119	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2		3	-.063	8	-.063										
120	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.031	3	-.054	9	-.063										
121	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.044	3	-.044	10	-.063										
122	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	35	1.5	2	.054	3	-.031	11	-.063										
123	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.063	3		4	.063										
124	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.054	3	.031	5	.063										

Load Combinations (Continued)

	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...
125	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.044	3	.044	6	.063												
126	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.031	3	.054	7	.063												
127	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2		3	.063	8	.063												
128	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.031	3	.054	9	.063												
129	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.044	3	.044	10	.063												
130	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.054	3	.031	11	.063												
131	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.063	3		4	-.063												
132	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.054	3	-.031	5	-.063												
133	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.044	3	-.044	6	-.063												
134	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	-.031	3	-.054	7	-.063												
135	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2		3	-.063	8	-.063												
136	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.031	3	-.054	9	-.063												
137	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.044	3	-.044	10	-.063												
138	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	36	1.5	2	.054	3	-.031	11	-.063												
139	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.063	3		4	.063												
140	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.054	3	.031	5	.063												
141	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.044	3	.044	6	.063												
142	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.031	3	.054	7	.063												
143	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2		3	.063	8	.063												
144	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.031	3	.054	9	.063												
145	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.044	3	.044	10	.063												
146	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.054	3	.031	11	.063												
147	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.063	3		4	-.063												
148	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.054	3	-.031	5	-.063												
149	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.044	3	-.044	6	-.063												
150	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	-.031	3	-.054	7	-.063												
151	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2		3	-.063	8	-.063												
152	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.031	3	-.054	9	-.063												
153	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.044	3	-.044	10	-.063												
154	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	37	1.5	2	.054	3	-.031	11	-.063												
155	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.063	3		4	.063												
156	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.054	3	.031	5	.063												
157	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.044	3	.044	6	.063												
158	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.031	3	.054	7	.063												
159	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2		3	.063	8	.063												
160	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.031	3	.054	9	.063												
161	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.044	3	.044	10	.063												
162	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.054	3	.031	11	.063												
163	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.063	3		4	-.063												
164	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.054	3	-.031	5	-.063												
165	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.044	3	-.044	6	-.063												
166	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	-.031	3	-.054	7	-.063												
167	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2		3	-.063	8	-.063												
168	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.031	3	-.054	9	-.063												
169	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.044	3	-.044	10	-.063												
170	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	38	1.5	2	.054	3	-.031	11	-.063												
171	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.063	3		4	.063												
172	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.054	3	.031	5	.063												
173	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.044	3	.044	6	.063												
174	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.031	3	.054	7	.063												
175	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2		3	.063	8	.063												
176	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.031	3	.054	9	.063												

Load Combinations (Continued)

	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...
177	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.044	3	.044	10	.063												
178	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.054	3	.031	11	.063												
179	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.063	3		4	-.063												
180	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.054	3	-.031	5	-.063												
181	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.044	3	-.044	6	-.063												
182	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	-.031	3	-.054	7	-.063												
183	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2		3	-.063	8	-.063												
184	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.031	3	-.054	9	-.063												
185	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.044	3	-.044	10	-.063												
186	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	39	1.5	2	.054	3	-.031	11	-.063												
187	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.063	3		4	.063												
188	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.054	3	.031	5	.063												
189	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.044	3	.044	6	.063												
190	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.031	3	.054	7	.063												
191	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2		3	.063	8	.063												
192	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.031	3	.054	9	.063												
193	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.044	3	.044	10	.063												
194	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.054	3	.031	11	.063												
195	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.063	3		4	-.063												
196	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.054	3	-.031	5	-.063												
197	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.044	3	-.044	6	-.063												
198	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	-.031	3	-.054	7	-.063												
199	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2		3	-.063	8	-.063												
200	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.031	3	-.054	9	-.063												
201	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.044	3	-.044	10	-.063												
202	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	40	1.5	2	.054	3	-.031	11	-.063												
203	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.063	3		4	.063												
204	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.054	3	.031	5	.063												
205	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.044	3	.044	6	.063												
206	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.031	3	.054	7	.063												
207	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2		3	.063	8	.063												
208	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.031	3	.054	9	.063												
209	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.044	3	.044	10	.063												
210	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.054	3	.031	11	.063												
211	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.063	3		4	-.063												
212	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.054	3	-.031	5	-.063												
213	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.044	3	-.044	6	-.063												
214	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	-.031	3	-.054	7	-.063												
215	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2		3	-.063	8	-.063												
216	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.031	3	-.054	9	-.063												
217	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.044	3	-.044	10	-.063												
218	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	41	1.5	2	.054	3	-.031	11	-.063												
219	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.063	3		4	.063												
220	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.054	3	.031	5	.063												
221	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.044	3	.044	6	.063												
222	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.031	3	.054	7	.063												
223	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2		3	.063	8	.063												
224	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.031	3	.054	9	.063												
225	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.044	3	.044	10	.063												
226	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.054	3	.031	11	.063												
227	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.063	3		4	-.063												
228	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.054	3	-.031	5	-.063												

Load Combinations (Continued)

	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...
229	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.044	3	-.044	6	-.063												
230	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	-.031	3	-.054	7	-.063												
231	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2		3	-.063	8	-.063												
232	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.031	3	-.054	9	-.063												
233	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.044	3	-.044	10	-.063												
234	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	42	1.5	2	.054	3	-.031	11	-.063												
235	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.063	3		4	.063												
236	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.054	3	.031	5	.063												
237	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.044	3	.044	6	.063												
238	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.031	3	.054	7	.063												
239	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2		3	.063	8	.063												
240	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.031	3	.054	9	.063												
241	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.044	3	.044	10	.063												
242	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.054	3	.031	11	.063												
243	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.063	3		4	-.063												
244	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.054	3	-.031	5	-.063												
245	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.044	3	-.044	6	-.063												
246	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	-.031	3	-.054	7	-.063												
247	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2		3	-.063	8	-.063												
248	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.031	3	-.054	9	-.063												
249	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.044	3	-.044	10	-.063												
250	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	43	1.5	2	.054	3	-.031	11	-.063												
251	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.063	3		4	.063												
252	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.054	3	.031	5	.063												
253	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.044	3	.044	6	.063												
254	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.031	3	.054	7	.063												
255	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2		3	.063	8	.063												
256	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.031	3	.054	9	.063												
257	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.044	3	.044	10	.063												
258	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.054	3	.031	11	.063												
259	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.063	3		4	-.063												
260	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.054	3	-.031	5	-.063												
261	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.044	3	-.044	6	-.063												
262	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	-.031	3	-.054	7	-.063												
263	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2		3	-.063	8	-.063												
264	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.031	3	-.054	9	-.063												
265	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.044	3	-.044	10	-.063												
266	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	44	1.5	2	.054	3	-.031	11	-.063												
267	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	.063	3		4	.063												
268	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	.054	3	.031	5	.063												
269	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	.044	3	.044	6	.063												
270	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	.031	3	.054	7	.063												
271	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2		3	.063	8	.063												
272	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.031	3	.054	9	.063												
273	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.044	3	.044	10	.063												
274	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.054	3	.031	11	.063												
275	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.063	3		4	-.063												
276	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.054	3	-.031	5	-.063												
277	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.044	3	-.044	6	-.063												
278	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	-.031	3	-.054	7	-.063												
279	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2		3	-.063	8	-.063												
280	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	45	1.5	2	.031	3	-.054	9	-.063												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
281	1.2DL + 1.5Lm + 1Wm ..	Yes	Y		DL	1.2	45	1.5	2	.044	3	-.044	10	-.063										
282	1.2DL + 1.5Lm + 1Wm ..	Yes	Y		DL	1.2	45	1.5	2	.054	3	-.031	11	-.063										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N64	max	1159.777	6	1223.161	34	4493.847	2	1505.652	34	1471.912	14	824.546	183
2		min	-1157.389	30	387.012	26	-2295.304	26	363.334	26	-1464.35	22	-490.434	255
3	N68	max	1899.619	21	1223.085	45	1480.491	19	-86.871	18	1236.009	9	1354.585	199
4		min	-3804.611	13	385.847	21	-2576.845	11	-1355.84	115	-1228.643	33	227.021	22
5	N66	max	3913.608	7	1224.456	39	1175.656	32	74.248	236	1236.116	3	-308.39	29
6		min	-2012.254	31	386.025	31	-2276.171	8	-1062.327	132	-1228.564	27	-1524.768	238
7	N163	max	33.283	22	1158.443	155	286.628	26	96.537	155	2.606	30	.651	168
8		min	-33.335	30	-100.695	26	-3128.322	155	-8.391	26	-2.689	22	-.332	272
9	N165	max	215.45	31	1157.627	224	1563.077	224	3.859	31	3.121	19	6.616	31
10		min	-2706.581	144	-91.907	31	-122.393	31	-48.495	144	-3.205	11	-83.861	224
11	N167	max	2707.413	102	1157.871	102	1563.093	214	3.755	21	3.12	25	83.712	214
12		min	-215.017	21	-91.727	21	-122.158	21	-48.79	102	-3.206	17	-6.658	21
13	Totals:	max	4495.869	6	6601.504	34	4606.818	2						
14		min	-4495.865	30	2424.482	74	-4606.813	26						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code ..	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [..	phi*Pnt [l..	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	MP6	PIPE 2.0	.353	69	17	.092	69		15	27741.09	32130	1871.625	1871.625	2....	H1-1b
2	MP10	PIPE 2.0	.352	69	11	.089	69		10	30237.765	32130	1871.625	1871.625	2....	H1-1b
3	MP2	PIPE 2.0	.343	69	2	.092	69		4	30237.765	32130	1871.625	1871.625	4....	H1-1b
4	MP7	PIPE 2.0	.333	69	16	.109	69		3	27741.09	32130	1871.625	1871.625	4....	H1-1b
5	MP11	PIPE 2.0	.332	69	11	.111	69		14	30237.765	32130	1871.625	1871.625	4....	H1-1b
6	HR1	PIPE 2.0	.325	51.563	10	.233	9.375		10	6295.422	32130	1871.625	1871.625	1	H3-6
7	MP3	PIPE 2.0	.322	69	6	.111	69		9	27741.09	32130	1871.625	1871.625	2....	H1-1b
8	M8	L2.5x2.5x4	.315	0	6	.092	0	y	11	35721.507	38556	1113.554	2537.388	1....	H2-1
9	MP5	PIPE 2.0	.314	69	8	.190	27		5	27741.09	32130	1871.625	1871.625	1....	H1-1b
10	M7	L2.5x2.5x4	.312	0	16	.093	0	y	6	35721.507	38556	1113.554	2537.388	2....	H2-1
11	M9	L2.5x2.5x4	.309	0	11	.092	0	y	17	35721.507	38556	1113.554	2537.388	1....	H2-1
12	MP9	PIPE 2.0	.307	69	2	.189	27		15	27741.09	32130	1871.625	1871.625	2....	H1-1b
13	MP1	PIPE 2.0	.302	69	13	.192	27		10	30237.765	32130	1871.625	1871.625	4....	H1-1b
14	M38	PL 6x0.375	.278	0	10	.229	1.625	y	252	72040.126	72900	569.533	9112.5	1....	H1-1b
15	M46	PL 6x0.375	.276	0	5	.229	1.625	y	199	72040.126	72900	569.533	9112.5	1....	H1-1b
16	M40	PL 6x0.375	.275	0	16	.229	1.625	y	130	72040.126	72900	569.533	9112.5	1....	H1-1b
17	HR3	PIPE 2.0	.267	142....	18	.230	9.375		15	6295.422	32130	1871.625	1871.625	2....	H1-1b
18	MP12	PIPE 2.0	.267	69	12	.149	27		16	30237.765	32130	1871.625	1871.625	2....	H1-1b
19	HR2	PIPE 2.0	.266	51.563	5	.230	9.375		5	6295.422	32130	1871.625	1871.625	1	H1-1b
20	MP8	PIPE 2.0	.262	69	17	.148	69		6	27741.09	32130	1871.625	1871.625	4....	H1-1b
21	MP4	PIPE 2.0	.256	69	7	.149	69		11	27741.09	32130	1871.625	1871.625	2....	H1-1b
22	M39	PL 6x0.375	.252	0	10	.257	1.625	y	183	72040.126	72900	569.533	9112.5	1....	H1-1b
23	M41	PL 6x0.375	.250	0	15	.257	1.625	y	237	72040.126	72900	569.533	9112.5	1....	H1-1b
24	M37	PL 6x0.375	.250	0	4	.257	1.625	y	114	72040.126	72900	569.533	9112.5	1....	H1-1b
25	M29	Pl 6"x0.5"	.220	6.81	2	.095	6.81	y	167	96256.764	97200	1012.5	12150	1....	H1-1b
26	M30	Pl 6"x0.5"	.209	6.81	7	.095	6.81	y	221	96256.5	97200	1012.5	12150	1....	H1-1b
27	M28	Pl 6"x0.5"	.209	6.81	13	.079	6.81	y	95	96256.52	97200	1012.5	12150	1....	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code ..	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [..	phi*Pnt [l..	phi*Mn y...	phi*Mn z...	Cb	Eqn
28	B6	L2x2x3	.168	25.584	27	.008	0	y	2	9408.233	23392.8	557.717	1066.887	1....	H2-1
29	B1	L2x2x3	.164	25.584	25	.008	0	z	2	9408.233	23392.8	557.717	1067.462	1....	H2-1
30	B2	L2x2x3	.159	26.117	22	.007	0	y	13	9408.233	23392.8	557.717	1067.449	1....	H2-1
31	B5	L2x2x3	.155	26.117	14	.007	51.168	y	41	9408.233	23392.8	557.717	1066.329	1....	H2-1
32	B4	L2x2x3	.148	25.584	33	.007	0	y	7	9408.215	23392.8	557.717	1066.418	1....	H2-1
33	S2	HSS4X4X4	.145	0	14	.088	0	y	184	129360.14	139518	16180.5	16180.5	1	H1-1b
34	B3	L2x2x3	.144	25.584	3	.007	51.168	y	46	9408.215	23392.8	557.717	1065.764	1....	H2-1
35	S3	HSS4X4X4	.131	0	9	.088	0	y	115	129360.14	139518	16180.5	16180.5	1	H1-1b
36	S1	HSS4X4X4	.130	0	4	.088	0	y	237	129360.14	139518	16180.5	16180.5	1	H1-1b
37	H3	PIPE 3.0	.111	96.875	180	.066	51.563		14	28250.554	65205	5748.75	5748.75	2....	H1-1b
38	H2	PIPE 3.0	.111	53.125	250	.064	98.438		3	28250.554	65205	5748.75	5748.75	2....	H1-1b
39	H1	PIPE 3.0	.111	53.125	111	.066	98.438		9	28250.554	65205	5748.75	5748.75	2....	H1-1b
40	C2	HSS4X4X4	.105	28.688	239	.040	28.688	y	236	138403....	139518	16180.5	16180.5	1....	H1-1b
41	C6	HSS4X4X4	.105	28.687	116	.040	28.687	y	114	138403....	139518	16180.5	16180.5	1....	H1-1b
42	C4	HSS4X4X4	.105	28.688	186	.040	28.688	y	183	138403....	139518	16180.5	16180.5	1....	H1-1b
43	C5	HSS4X4X4	.100	0	199	.032	25.699	z	6	138403....	139518	16180.5	16180.5	1....	H1-1b
44	C3	HSS4X4X4	.100	0	252	.032	25.699	z	11	138403....	139518	16180.5	16180.5	1....	H1-1b
45	C1	HSS4X4X4	.100	0	130	.032	25.699	z	17	138403....	139518	16180.5	16180.5	1....	H1-1b
46	M95	LL2.5x2.5x3...	.074	0	155	.004	0	z	14	44862.782	58320	3300.48	2544.692	1	H1-1b*
47	M99	LL2.5x2.5x3...	.074	0	102	.005	54.294	z	9	44862.782	58320	3300.48	2544.692	1...	H1-1b*
48	M97	LL2.5x2.5x3...	.074	0	224	.005	0	z	4	44862.782	58320	3300.48	2544.692	1...	H1-1b*
49	M36	Pl 6"x0.5"	.025	0	2	.210	1.108	y	170	96901.107	97200	1012.5	12150	1....	H1-1b
50	M34	Pl 6"x0.5"	.025	0	13	.210	1.108	y	100	96901.107	97200	1012.5	12150	1....	H1-1b
51	M32	Pl 6"x0.5"	.024	0	8	.210	1.108	y	223	96901.107	97200	1012.5	12150	1....	H1-1b
52	M31	Pl 6"x0.5"	.024	0	7	.183	1.108	y	146	96901.107	97200	1012.5	12150	1....	H1-1b
53	M35	Pl 6"x0.5"	.024	0	2	.183	1.108	y	269	96901.107	97200	1012.5	12150	1....	H1-1b
54	M33	Pl 6"x0.5"	.023	0	12	.183	1.108	y	215	96901.107	97200	1012.5	12150	1....	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear ..	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCULATIONS

Trylon

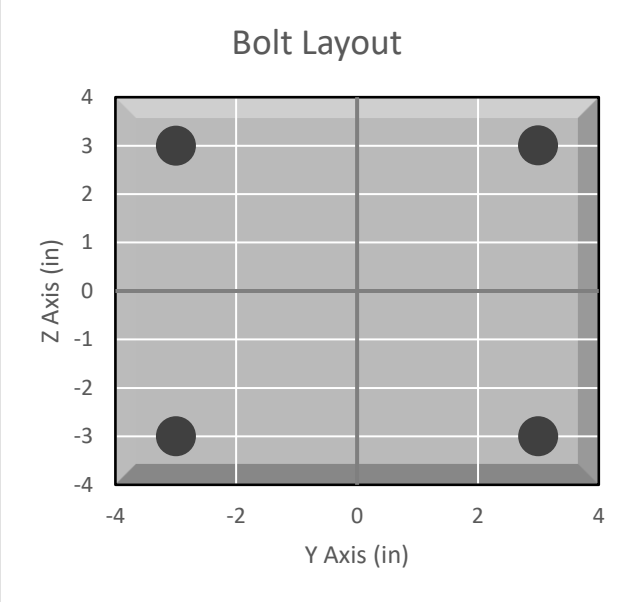
Analysis date: 3/29/2023

BOLT TOOL 1.5.2

Project Data	
Job Code:	225495
Carrier Site ID:	BU 824423
Carrier Site Name:	NDHAM NORTH RIDGE RC

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Standoff to Collar

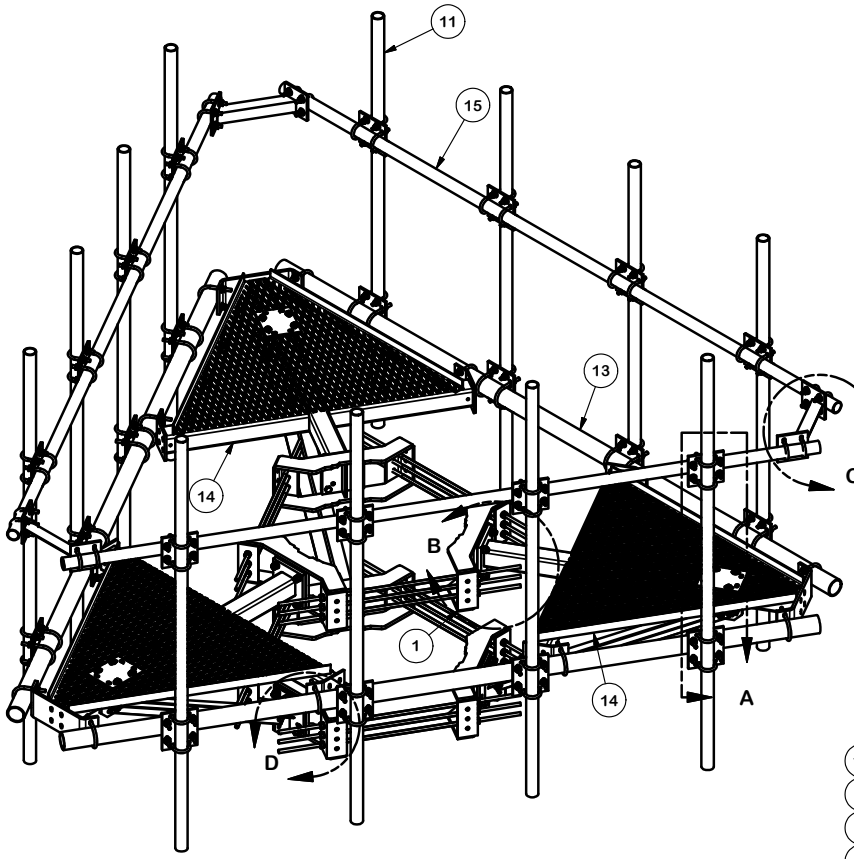
Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	2765.4	lbs
Shear Force (V_u):	616.4	lbs
Tension Usage:	12.9%	--
Shear Usage:	4.3%	--
Interaction:	12.9%	Pass
Controlling Member:	S2	--
Controlling LC:	15	--

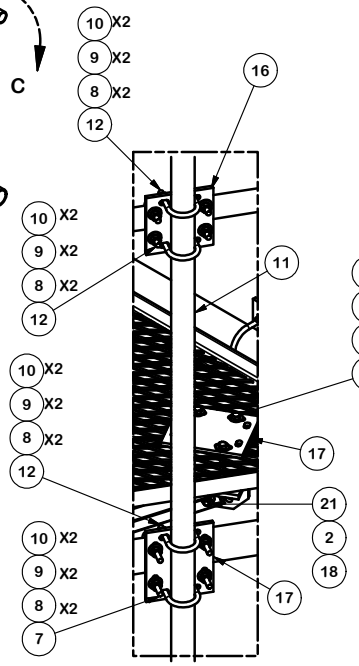
**Rating per TIA-222-H Section 15.5*

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

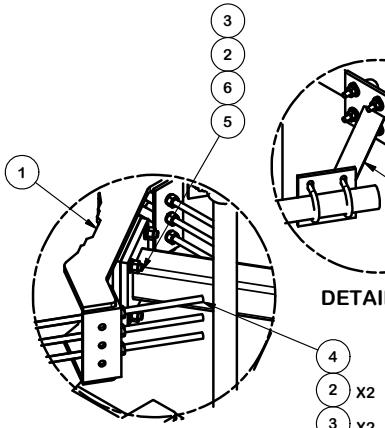
APPENDIX E

SUPPLEMENTAL DRAWINGS

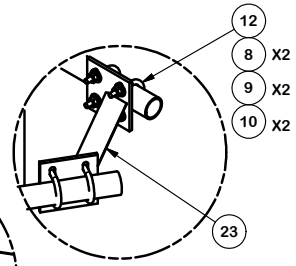




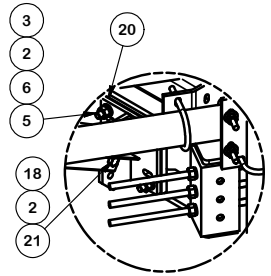
DETAIL A



DETAIL B



DETAIL C



DETAIL D

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	50.17
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2445.81

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED X-253992 TO X-TBW	4488	CEK	9/20/2018

REVISION HISTORY

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

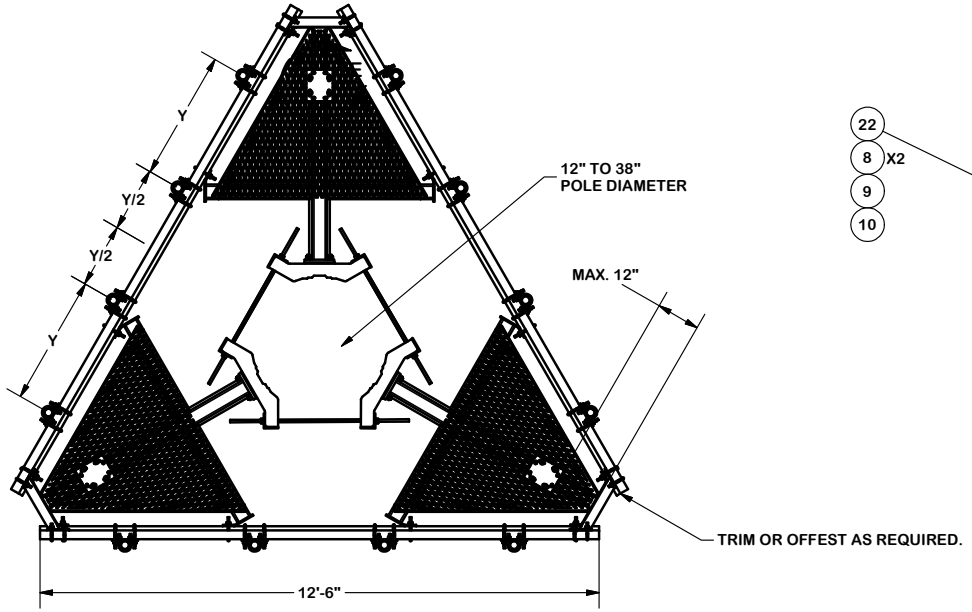
SITE PRO 1 — A valmont COMPANY

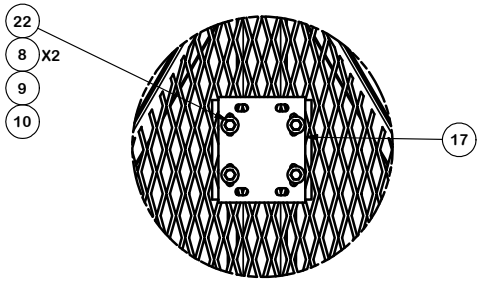
Engineering Support Team: 1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

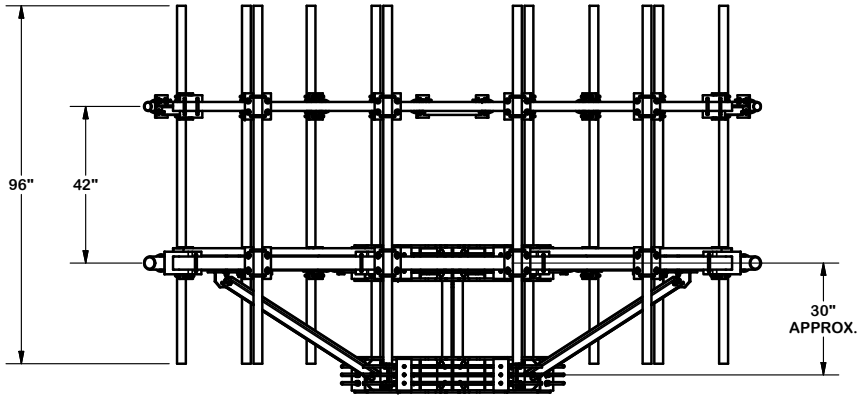
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4488	CEK 7/14/2014		RMQP-496-HK	1 OF 3

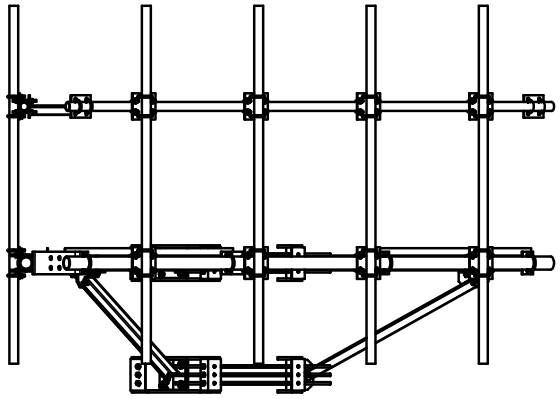
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-496-HK





DETAIL E





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REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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REVISION HISTORY

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Engineering Support Team:
1-888-753-7446

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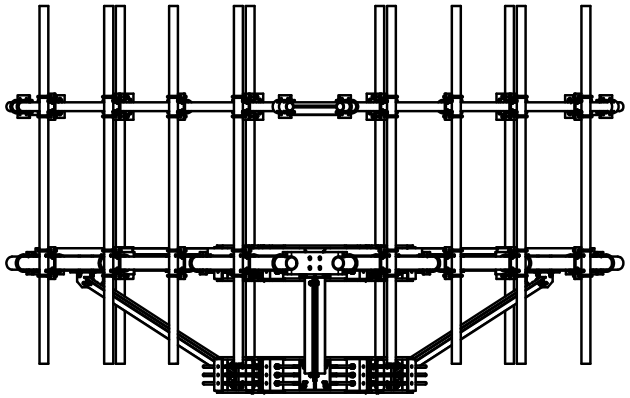
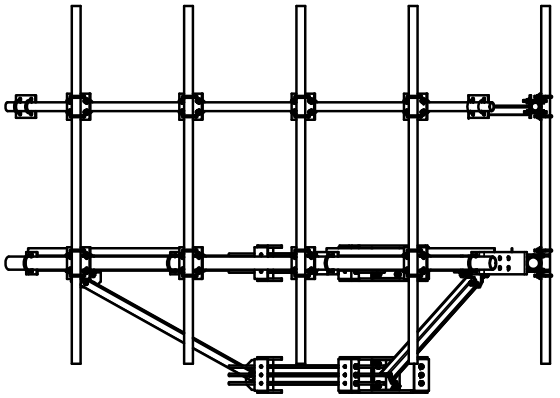
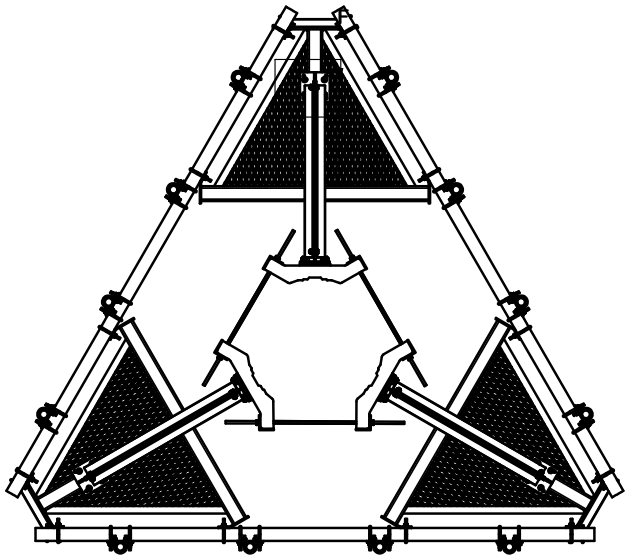
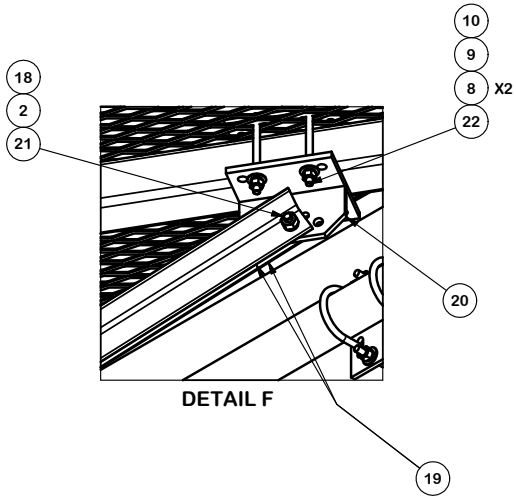
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 7/14/2014		RMQP-496-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-496-HK









DETAIL F

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A	CHANGED X-253992 TO X-TBW	4488	CEK	9/20/2018

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CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 7/14/2014		RMQP-496-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-496-HK

Radio Frequency Emissions Analysis Report

August 4, 2021

Centerline Communications on behalf of T-Mobile

Site Name: CTNL200A
Site Address: 10 North Ridge Drive, Windham, CT 06256

Site Compliance Summary

Compliance Status:	Compliant
Carrier MPE% of FCC General Population Allowable Limit:	37.04993000%
Composite MPE% of FCC General Population Allowable Limit:	37.05616800%

August 4, 2021

T-Mobile Connecticut
Attn: Ryan Clark, Site Acquisition Consultant

Emissions Analysis for Site: **CTNL200A**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed T-Mobile facility to be located a monopole near **10 North Ridge Drive, Windham CT 06256** for the purpose of determining whether the emissions from the proposed facility are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm^2). The general population exposure limits for the 600 MHz (LTE) is 400 µW/cm^2, and for the 1900 MHz (LTE), 2100 (LTE), 2500 (LTE and NR) bands is 1000 µW/cm^2.

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, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.

Calculations

Calculations were performed for the proposed facility using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing focused omnidirectional antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. This is a very conservative estimate since the gain reduction in actual applications is typically greater than 10 dB in the direction of ground immediately surrounding the facility. Real world emissions values from this facility are expected to be lower than values listed in this report at ground level. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

RRH #	Frequency Band	Technology	Channel Count	Transmit Power per Channel (W)
1	2500	LTE/NR	1	60
1	2500	LTE	1	90
1	2500	NR	1	90
2	1900	LTE	2	70
2	1900	LTE	2	70
2	2100	LTE	2	140
3	600	LTE	4	60
4	2500	LTE/NR	1	60
4	2500	LTE	1	90
4	2500	NR	1	90
5	1900	LTE	2	70
5	1900	LTE	2	70
5	2100	LTE	2	140
6	600	LTE	4	60
7	2500	LTE/NR	1	60
7	2500	LTE	1	90
7	2500	NR	1	90

RRH #	Frequency Band	Technology	Channel Count	Transmit Power per Channel (W)
8	1900	LTE	2	70
8	1900	LTE	2	70
8	2100	LTE	2	140
9	600	LTE	4	60

Table 1: Channel Data Table

The following antennas listed in Table 2 were used in the modeling for transmission in the 600 MHz (LTE), 1900 MHz (LTE), 2100 MHz (LTE) and 2500 MHz (LTE) frequency bands. This is based on information from the carrier with regard to anticipated antenna selection.

Sector	Antenna Number	Make / Model	Centerline (ft)
A	1	ERICSSON SON_AIR6449 MACRO	64
A	1	ERICSSON SON_AIR6449 LTE TB	64
A	1	ERICSSON SON_AIR6449 NR TB	64
A	2	RFS APX16DWV-16DWVS-E-A20	64
A	2	RFS APX16DWV-16DWVS-E-A20	64
A	2	RFS APX16DWV-16DWVS-E-A20	64
A	3	RFS APXVAALL24 43-U-NA20	64
B	4	ERICSSON SON_AIR6449 MACRO	64
B	4	ERICSSON SON_AIR6449 LTE TB	64
B	4	ERICSSON SON_AIR6449 NR TB	64
B	5	RFS APX16DWV-16DWVS-E-A20	64
B	5	RFS APX16DWV-16DWVS-E-A20	64
B	5	RFS APX16DWV-16DWVS-E-A20	64
B	6	RFS APXVAALL24 43-U-NA20	64
C	7	ERICSSON SON_AIR6449 MACRO	64
C	7	ERICSSON SON_AIR6449 LTE TB	64
C	7	ERICSSON SON_AIR6449 NR TB	64
C	8	RFS APX16DWV-16DWVS-E-A20	64
C	8	RFS APX16DWV-16DWVS-E-A20	64
C	8	RFS APX16DWV-16DWVS-E-A20	64
C	9	RFS APXVAALL24 43-U-NA20	64

Table 2: Antenna Data

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

Results

Per the calculations completed for the proposed T-Mobile configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

ID	Make / Model	Freq. Band	Gain (dBd)	Centerline (ft)	Channel Count	TX Power (W)	ERP (W)	MPE %
A 1	ERICSSON SON_AIR6449 MACRO	2500	17.3	64.0	1	60	3222.19	0.808049000
A 1	ERICSSON SON_AIR6449 LTE TB	2500	22.35	64.0	1	90	15461.18	5.769139000
A 1	ERICSSON SON_AIR6449 NR TB	2500	22.35	64.0	1	90	15461.18	5.769139000
A 2	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000265000
A 2	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000265000
A 2	RFS APX16DWV-16DWVS-E-A20	2100	16.25	64.0	2	140	11807.50	0.000530000
A 3	RFS APXVAALL24 43-U-NA20	600	12.95	64.0	4	60	4733.81	0.001113000
B 4	ERICSSON SON_AIR6449 MACRO	2500	17.3	64.0	1	60	3222.19	0.809056000
B 4	ERICSSON SON_AIR6449 LTE TB	2500	22.35	64.0	1	90	15461.18	5.769735000
B 4	ERICSSON SON_AIR6449 NR TB	2500	22.35	64.0	1	90	15461.18	5.769735000
B 5	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000266000
B 5	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000266000
B 5	RFS APX16DWV-16DWVS-E-A20	2100	16.25	64.0	2	140	11807.50	0.000531000
B 6	RFS APXVAALL24 43-U-NA20	600	12.95	64.0	4	60	4733.81	0.001115000
C 7	ERICSSON SON_AIR6449 MACRO	2500	17.3	64.0	1	60	3222.19	0.809056000
C 7	ERICSSON SON_AIR6449 LTE TB	2500	22.35	64.0	1	90	15461.18	5.769735000
C 7	ERICSSON SON_AIR6449 NR TB	2500	22.35	64.0	1	90	15461.18	5.769735000
C 8	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000264000
C 8	RFS APX16DWV-16DWVS-E-A20	1900	16.25	64.0	2	70	5903.75	0.000264000
C 8	RFS APX16DWV-16DWVS-E-A20	2100	16.25	64.0	2	140	11807.50	0.000534000
C 9	RFS APXVAALL24 43-U-NA20	600	12.95	64.0	4	60	4733.81	0.001138000
							T-Mobile MPE%	**37.04993000%**

Table 3: T-Mobile Antenna Inventory & Power Level

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 4* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s).

Frequency Band	Technology	Centerline (ft.)	# of Channels	ERP W (Per Channel)	Total Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	MPE %
2500	LTE/NR	64.0	1	3222.19	8.0804930	1000	0.80804900
2500	LTE	64.0	1	15461.18	57.6913850	1000	5.76913900
2500	NR	64.0	1	15461.18	57.6913850	1000	5.76913900
1900	LTE	64.0	2	2951.88	0.0026510	1000	0.00026500
1900	LTE	64.0	2	2951.88	0.0026510	1000	0.00026500
2100	LTE	64.0	2	5903.75	0.0053020	1000	0.00053000
600	LTE	64.0	4	1183.45	0.0044510	400	0.00111300
2500	LTE/NR	64.0	1	3222.19	8.0905560	1000	0.80905600
2500	LTE	64.0	1	15461.18	57.6973500	1000	5.76973500
2500	NR	64.0	1	15461.18	57.6973500	1000	5.76973500
1900	LTE	64.0	2	2951.88	0.0026550	1000	0.00026600
1900	LTE	64.0	2	2951.88	0.0026550	1000	0.00026600
2100	LTE	64.0	2	5903.75	0.0053110	1000	0.00053100
600	LTE	64.0	4	1183.45	0.0044590	400	0.00111500
2500	LTE/NR	64.0	1	3222.19	8.0905560	1000	0.80905600
2500	LTE	64.0	1	15461.18	57.6973500	1000	5.76973500
2500	NR	64.0	1	15461.18	57.6973500	1000	5.76973500
1900	LTE	64.0	2	2951.88	0.0026370	1000	0.00026400
1900	LTE	64.0	2	2951.88	0.0026370	1000	0.00026400
2100	LTE	64.0	2	5903.75	0.0053350	1000	0.00053400
600	LTE	64.0	4	1183.45	0.0045520	400	0.00113800
						T-Mobile MPE%	**37.04993000%**

Table 4: T-Mobile Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the 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:

Carrier	Predicted MPE %
T-Mobile	37.04993000%
AT&T	0.00524000%
Verizon	0.00099800%
Composite	**37.05616800%**

Table 5: Total Predicted MPE(%) by Carrier

Compliance Status:

The anticipated composite MPE value for this site assuming all carriers present is **37.05616800%** of the allowable FCC established general population limit sampled at the ground level.

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.

Erin Kavanaugh
RF Compliance Consultant
Centerline Communications, LLC
750 West Center St. Suite 301
West Bridgewater, MA 02379

T-Mobile

T-MOBILE SITE NUMBER: CTNL200A
T-MOBILE SITE NAME: CTNL200A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 86'-9"

BUSINESS UNIT #: 842423
SITE ADDRESS: 10 NORTH RIDGE DRIVE, WINDHAM, CT 06256
COUNTY: WINDHAM
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE COVERAGE STRATEGY SITE CONFIGURATION: 67E5A998E 6160

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WINDHAM NORTH RIDGE ROAD
SITE ADDRESS:	10 NORTH RIDGE DRIVE WINDHAM, CT 06256
COUNTY:	WINDHAM
MAP/PARCEL #:	5-3-225-21
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.739875°
LONGITUDE:	-72.172916°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	311 FT
CURRENT ZONING:	C4
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	WALMART REAL ESTATE BUSINESS TRUST PO BOX 8050 MS 0555 BENTONVILLE, AR 72716
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	NORTHEAST UTILITIES
TELCO PROVIDER:	AT&T

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 TRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-5.1	ICE CANOPY SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	MOUNT SPECS
ATTACHED	GENERATOR DETAILS
ATTACHED	ICE CANOPY SPECS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

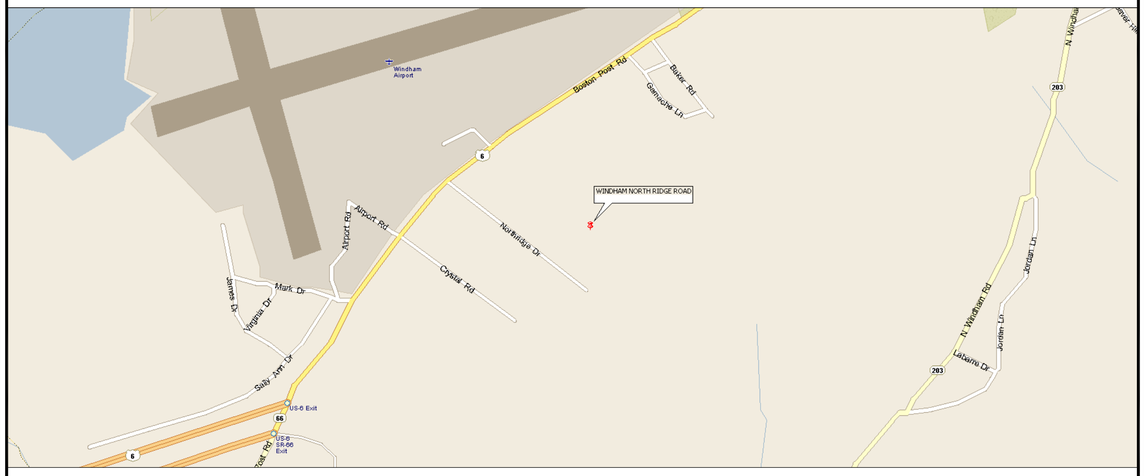
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- INSTALL (9) ANTENNAS
- INSTALL (6) RADIOS
- INSTALL (3) HYBRID CABLES (6X24)
- INSTALL (1) SITE PRO1 - RMQP-496-HK PLATFORM

GROUND SCOPE OF WORK:
- INSTALL (1) GENERAC RD048 48KW GENERATOR
- INSTALL (1) 6160 AC V1 CABINET
- INSTALL (1) B160 CABINET
- INSTALL (1) RBS 6601, (3) BB 6648, (1) CSR IXRE V2 (GEN2) TRANSPORT SYSTEM, (2) PSU 4813 VR2a (Kit), (1) DUG20 IN RBS 6601 CABINET
- INSTALL (1) TELCO BOARD
- INSTALL (1) ATS
- INSTALL (1) PPC EQUIPMENT
- INSTALL (1) 8'x10' ICE CANOPYS
- INSTALL (1) 2'x10' ICE BRIDGE
- INSTALL (1) H-FRAME
- INSTALL (1) METER
- INSTALL (1) 10'-0" x 15'-0" PAD IN A 10'-0" x 15'-0" LEASE AREA

NOTE:
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2022 CONNETICUT SBC/ 2021 IBC
MECHANICAL	2022 CONNETICUT SBC/ 2021 IMC
ELECTRICAL	2022 CONNETICUT SBC/ 2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	12/2/22
MOUNT ANALYSIS REPORT:	TRYLON
DATED:	3/29/23
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	
RFDS REVISION:	1
DATED:	11/24/21
ORDER ID:	573238
REVISION:	0

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APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CTNL200A

BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

4/5/23

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

SHEET NUMBER: T-1
REVISION: 6

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL 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 CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER..40 ksi
   #5 BARS AND LARGER..60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER..2"
      #5 BARS AND SMALLER..1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLAB AND WALLS..3/4"
      BEAMS AND COLUMNS..1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T · · Mobile · · ·
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CTNL200A

BU #: 842423
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

CHAD TUTTLE
No. 23924
4/5/23

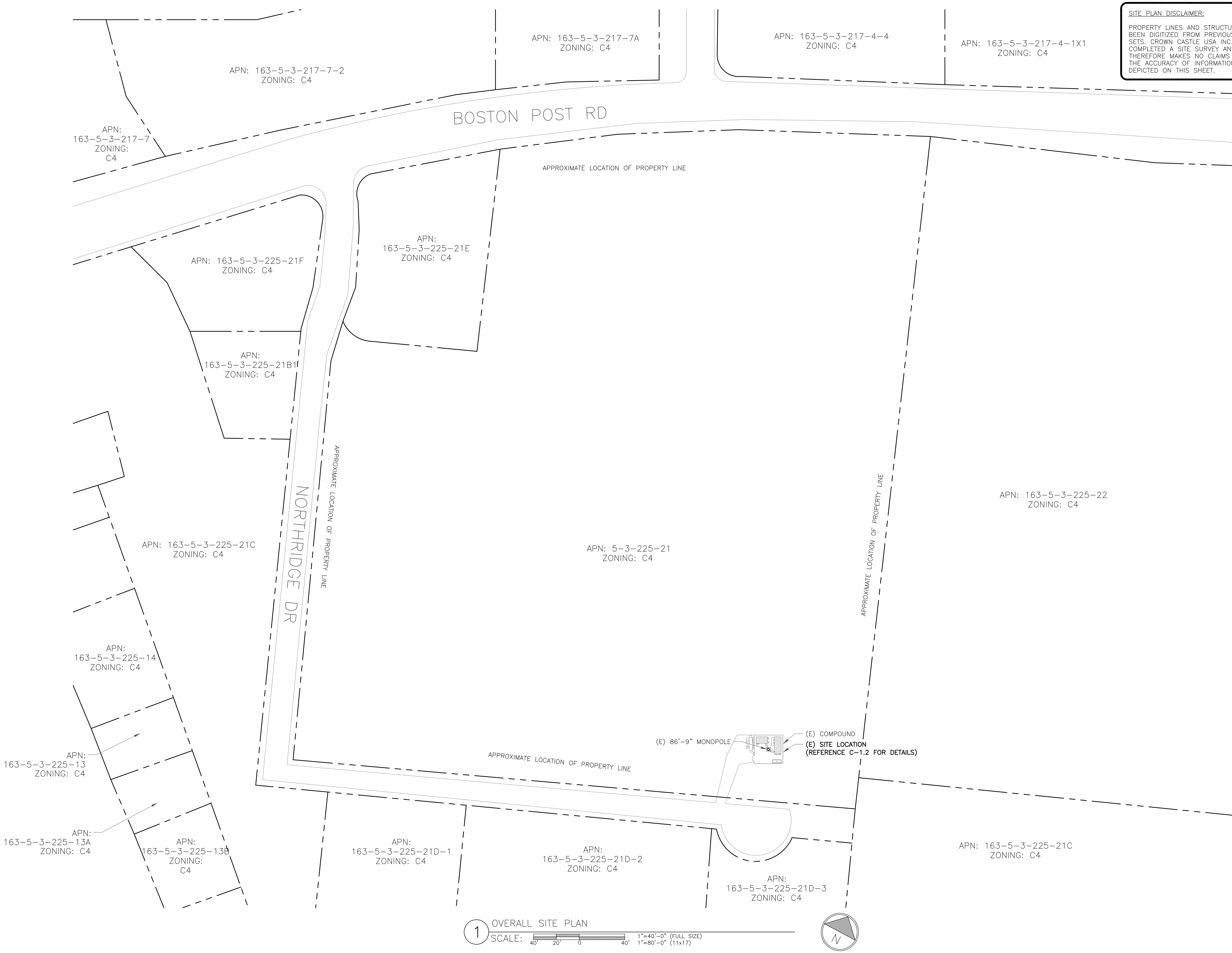
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2
REVISION: 6

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



1 OVERALL SITE PLAN
SCALE: 40' 20' 0 40' 1"=40'-0" (FULL SIZE) 1"=80'-0" (11x17)

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T-MOBILE SITE NUMBER:
CTNL200A

BU #: **842423**
WINDHAM NORTH RIDGE ROAD

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WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

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3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

STATE OF CONNECTICUT No. 23924 LICENSED PROFESSIONAL ENGINEER
4/5/23

B&T ENGINEERING, INC.
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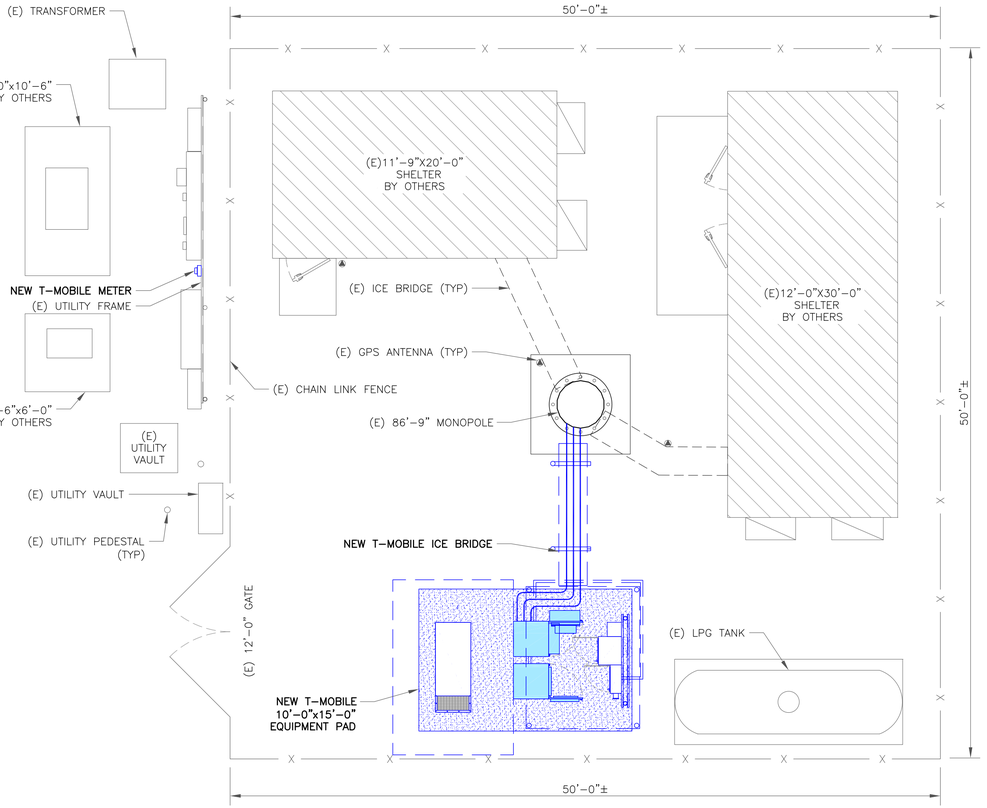
SHEET NUMBER: C-1.1
REVISION: 6

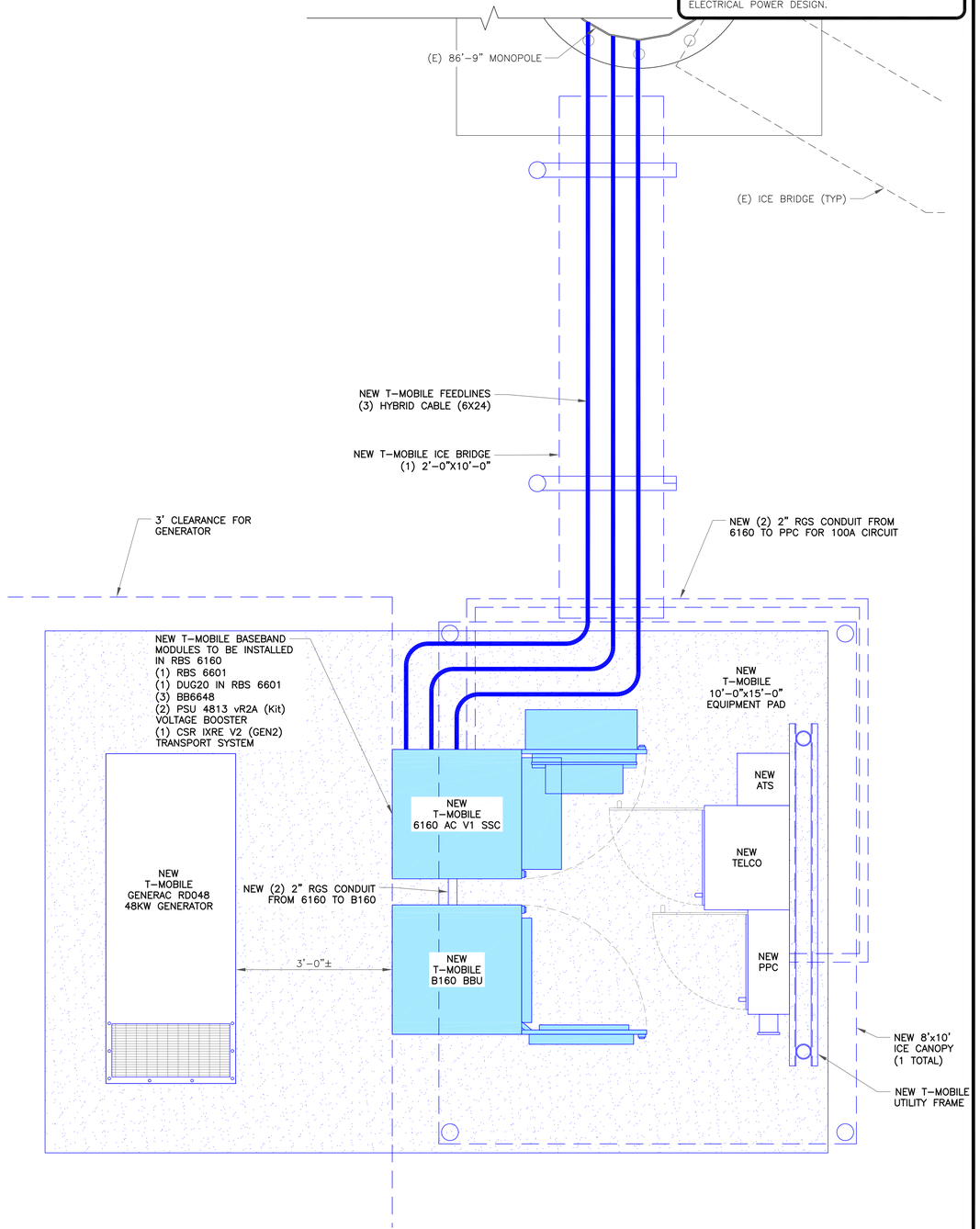
95362.012.01_WINDHAM NORTH RIDGE ROAD.dwg - Sheet:C-1.1 - User: mjones - Apr 05, 2023 - 11:24am



1 SITE PLAN
SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
SCALE: 1' 6" 0 1' 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

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BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

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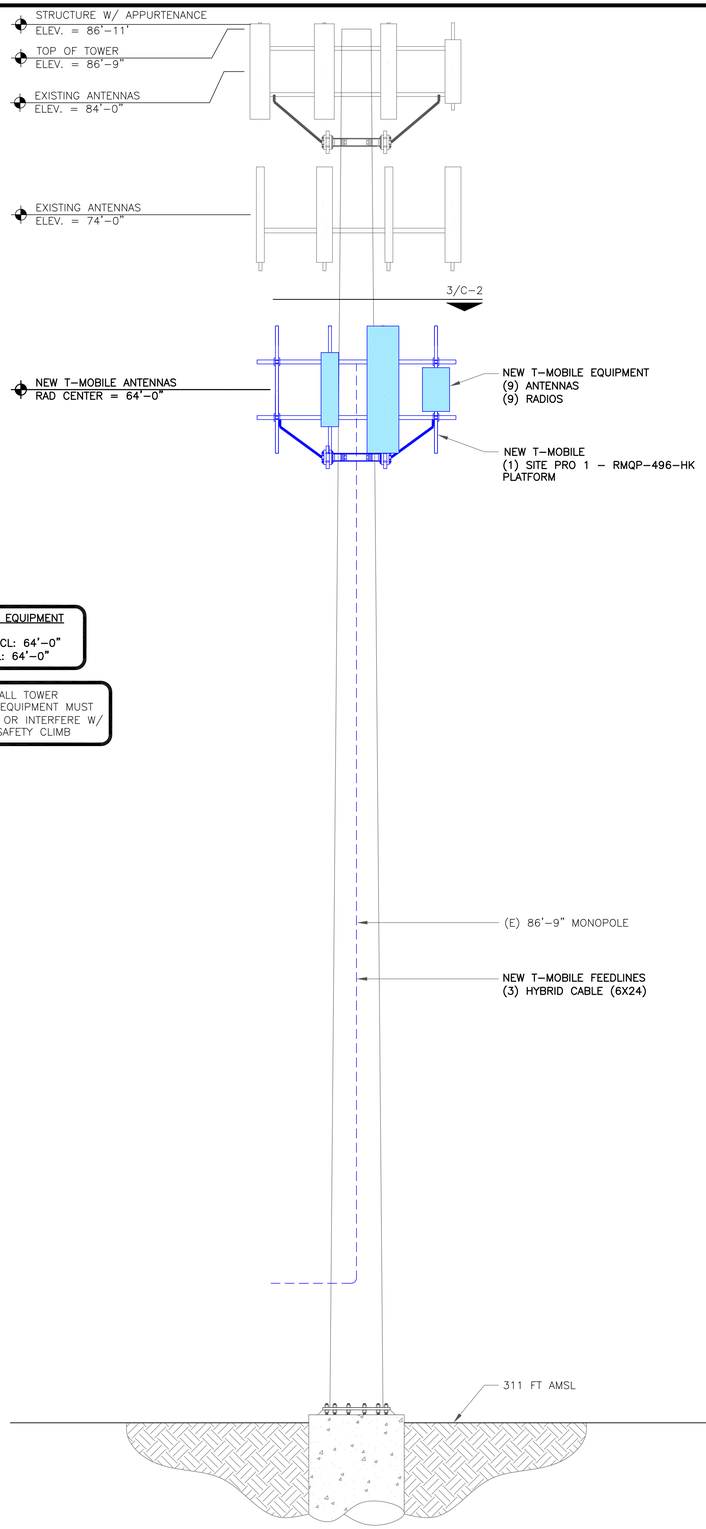
SHEET NUMBER: C-1.2
REVISION: 6



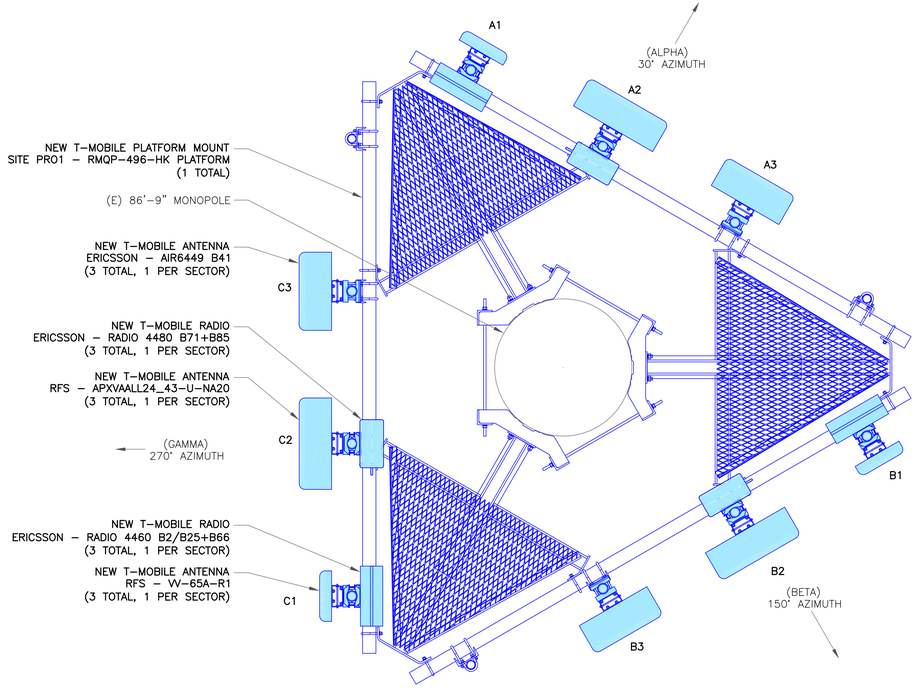
T-MOBILE EQUIPMENT

ANTENNA CL: 64'-0"
MOUNT CL: 64'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

N

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T-MOBILE SITE NUMBER:
CTNL200A

BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

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Expires 2/1/24

SHEET NUMBER: C-2

REVISION: 6

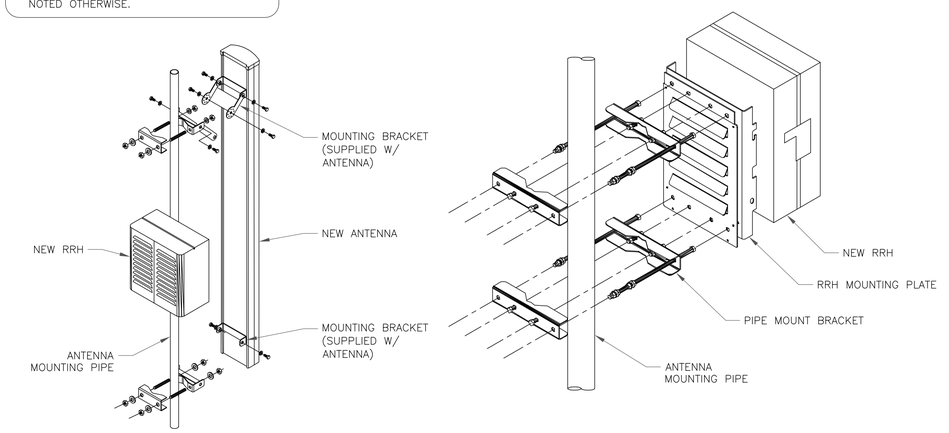
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L2100 /L1900/G1900	RFS	VV-65A-R1	30°	0°	2° / 2°	64'-0"	(1) ERICSSON - RADIO 4460 B2/B25+B66	(1) HYBRID CABLE (6X24)
	A2	L700 / L600 / N600	RFS	APXVAALL24_43-U-NA20	30°	0°	2° / 2° / 2° / 2°	64'-0"	(1) ERICSSON - RADIO 4480 B71+B85	
	A3	L2500 / N2500	ERICSSON	AIR6449 B41	30°	0°	2° / 2°	64'-0"	-	
		-	-	-	-	-	-	-	-	
BETA	B1	L2100 /L1900/G1900	RFS	VV-65A-R1	150°	0°	2° / 2°	64'-0"	(1) ERICSSON - RADIO 4460 B2/B25+B66	(1) HYBRID CABLE (6X24)
	B2	L700 / L600 / N600	RFS	APXVAALL24_43-U-NA20	150°	0°	2° / 2° / 2° / 2°	64'-0"	(1) ERICSSON - RADIO 4480 B71+B85	
	B3	L2500 / N2500	ERICSSON	AIR6449 B41	150°	0°	2° / 2°	64'-0"	-	
		-	-	-	-	-	-	-	-	
GAMMA	C1	L2100 /L1900/G1900	RFS	VV-65A-R1	270°	0°	2° / 2°	64'-0"	(1) ERICSSON - RADIO 4460 B2/B25+B66	(1) HYBRID CABLE (6X24)
	C2	L700 / L600 / N600	RFS	APXVAALL24_43-U-NA20	270°	0°	2° / 2° / 2° / 2°	64'-0"	(1) ERICSSON - RADIO 4480 B71+B85	
	C3	L2500 / N2500	ERICSSON	AIR6449 B41	270°	0°	2° / 2°	64'-0"	-	
		-	-	-	-	-	-	-	-	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
CTNL200A

BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

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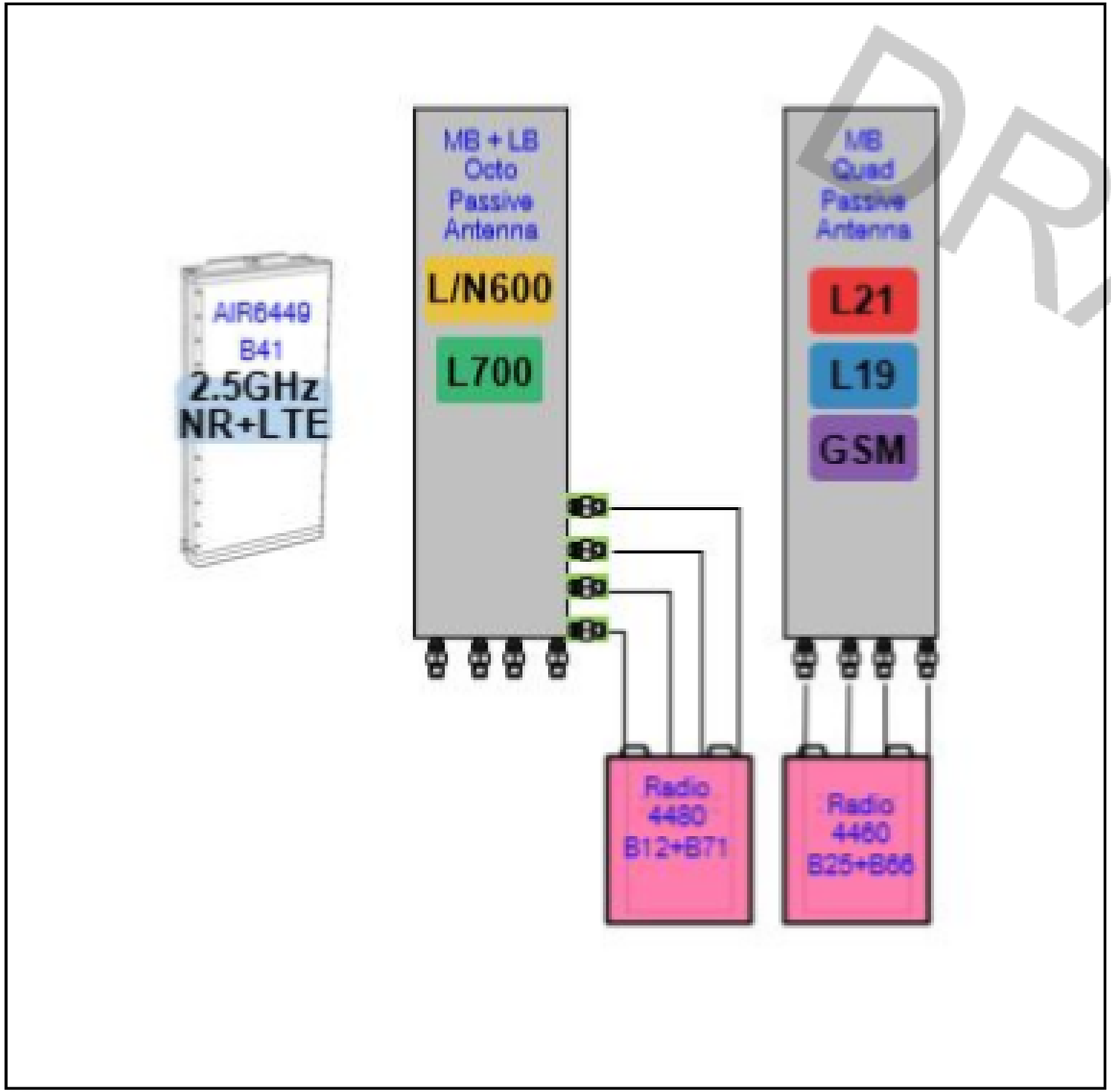
SHEET NUMBER: C-3

REVISION: 6



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
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BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

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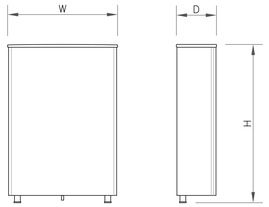
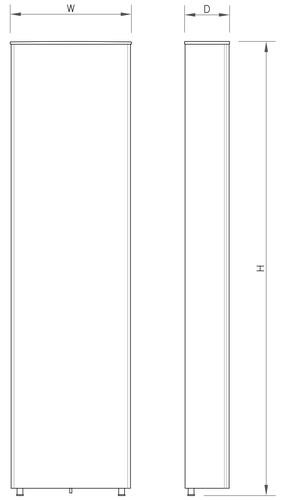
SHEET NUMBER: C-4
REVISION: 6



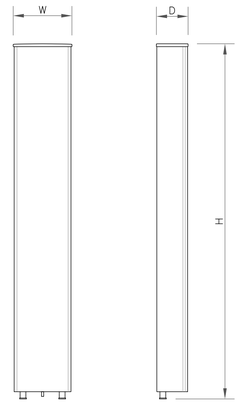
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



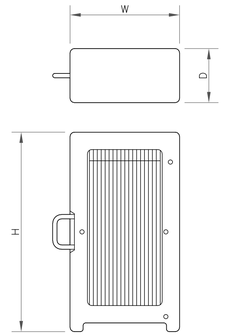
ANTENNA SPECS	
MANUFACTURER	RFS/CELWAVE
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



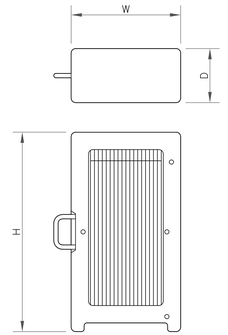
ANTENNA SPECS	
MANUFACTURER	RFS/CELWAVE
MODEL #	VV-65A-R1
WIDTH	12.08"
DEPTH	4.64"
HEIGHT	54.72"
WEIGHT	41.88 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



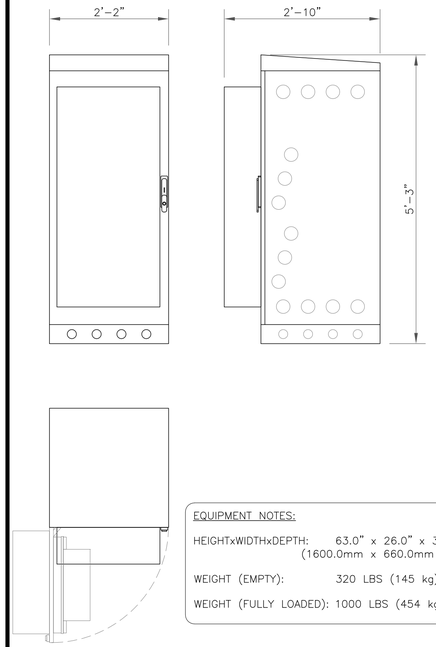
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109.00 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4480 B71+B85
WIDTH	15.70"
DEPTH	7.50"
HEIGHT	21.80"
WEIGHT	92.60 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



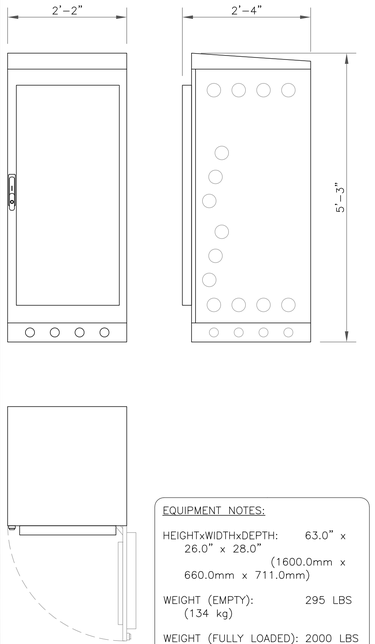
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0" (1600.0mm x 660.0mm x 864.0mm)

WEIGHT (EMPTY): 320 LBS (145 kg)

WEIGHT (FULLY LOADED): 1000 LBS (454 kg)

6 ERICSSON - 6160
SCALE: NOT TO SCALE



EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0" (1600.0mm x 660.0mm x 711.0mm)

WEIGHT (EMPTY): 295 LBS (134 kg)

WEIGHT (FULLY LOADED): 2000 LBS (908 kg)

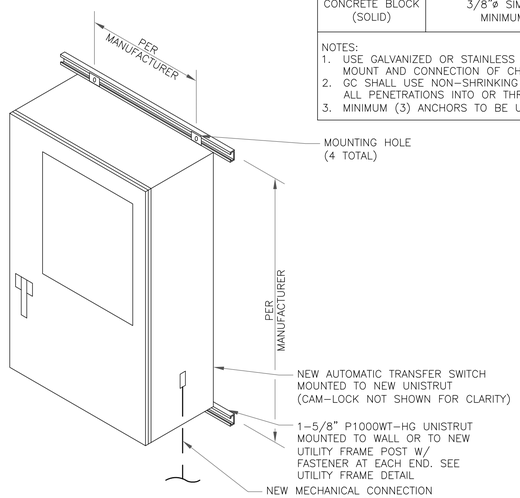
7 ERICSSON - B160
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE

UNISTRUT WALL ATTACHMENT:

WALL CONSTRUCTION TYPE	FASTENER	ANCHOR SPACING
WOOD STUD	3/8" DIA. LAG SCREW	16"
CONCRETE BLOCK (HOLLOW)	-	8"
CONCRETE BLOCK (SOLID)	3/8"ø SIMPSON TITEN HD ANCHOR MINIMUM EMBEDMENT 2-3/4"	24"

NOTES:
1. USE GALVANIZED OR STAINLESS STEEL HARDWARE FOR WALL MOUNT AND CONNECTION OF CHANNELS.
2. GC SHALL USE NON-SHRINKING CAULK TO WEATHER SEAL ALL PENETRATIONS INTO OR THROUGH SHELTER WALL.
3. MINIMUM (3) ANCHORS TO BE USED FOR EACH CHANNEL.



9 ATS MOUNTING DETAIL
SCALE: NOT TO SCALE

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CTNL200A

BU #: **842423**
WINDHAM NORTH RIDGE ROAD

10 NORTH RIDGE DRIVE
WINDHAM, CT 06256

EXISTING
86'-9" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
2	10/11/21	YXI	CONSTRUCTION	YXI
3	11/19/21	JTS	CONSTRUCTION	JTS
4	3/8/22	JTS	CONSTRUCTION	KT
5	3/16/23	YX	CONSTRUCTION	LR
6	4/5/23	YX	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

SHEET NUMBER: C-5

REVISION: 6

Ice Canopy, 8 ft x 10 ft, four 13 ft 4 in burial pipes

Product Classification

Product Type Ice canopies and shields

General Specifications

Pipe, quantity 4

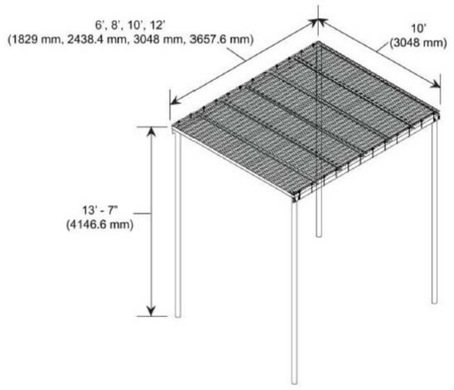
Dimensions

Height 4064 mm | 160 in

Width 2,438.4 mm | 96 in

Length 3048 mm | 120 in

Pipe Length 4064 mm | 160 in



Material Specifications

Material Type Hot dip galvanized steel

Included Products

MF-130 – Direct Burial Pipe Column, 13 ft 4 in

WB-CY210 – Safety Grated Waveguide Bridge Channel, 24 in x 10 ft

1 ICE CANOPY SPECS
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

SHEET NUMBER: C-5.1

REVISION: 6

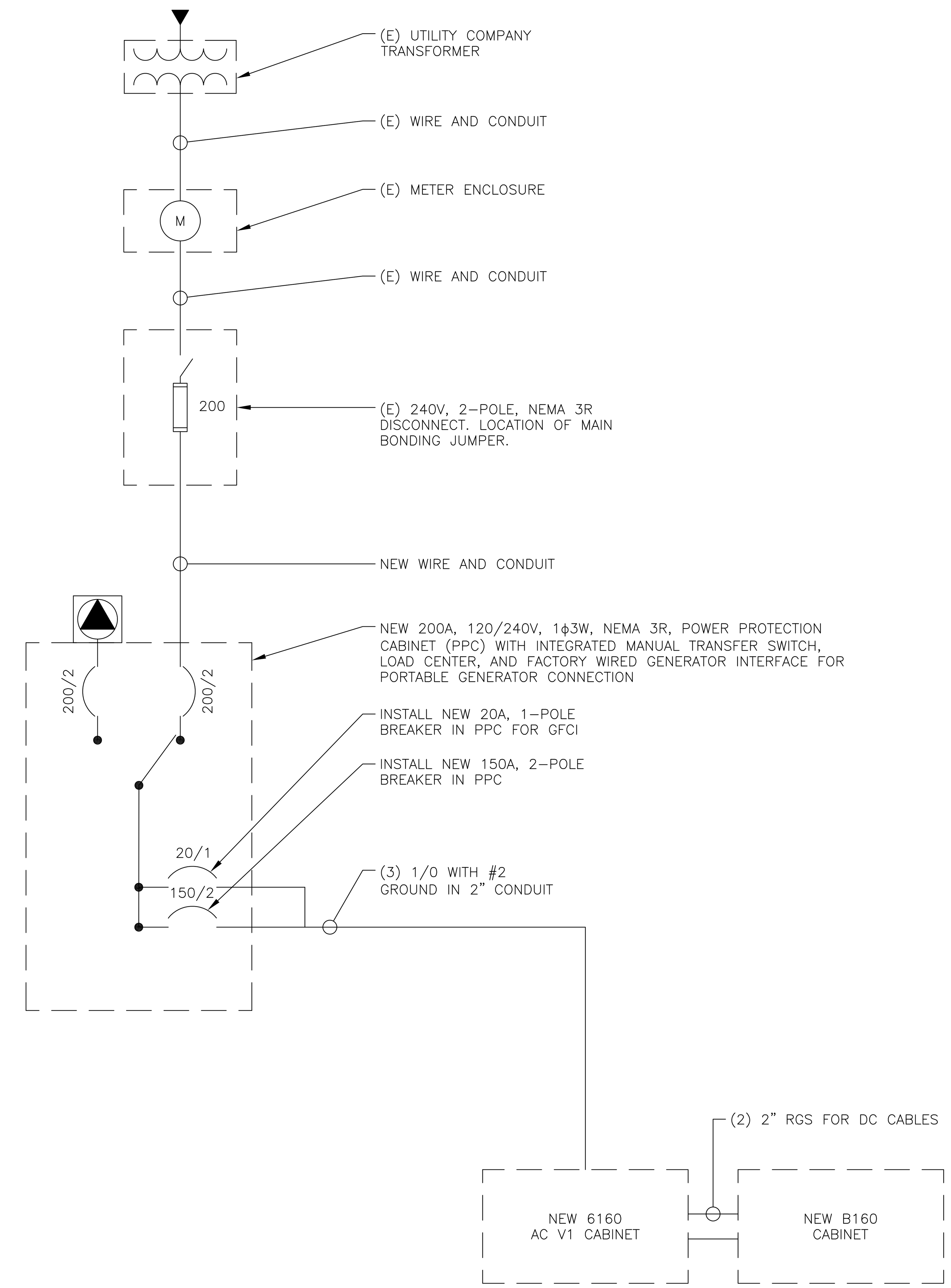
NOTE:
PANEL SCHEDULE PENDING FIELD VERIFICATION

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
6160 AC V1 CABINET	2	150A	1	2	20A	1	GFCI
			3	4			
			5	6			
			7	8			
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			
			25	26			
			27	28			
			29	30			

RATED VOLTAGE: ■120/240 □_______. 1 PHASE, 3 WIRE	BRANCH POLES: □12 □24 ■30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_______.	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
MAIN LUGS ONLY / MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
■CIRCUIT BREAKER BRANCH DEVICES	□____________ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL		

ADD NEW BREAKER IN POSITION 1 AND 3WITH A NEW 2P 150A BREAKER
ADD NEW BREAKER IN POSITION 2 WITH A NEW 1P 20 BREAKER.
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE



NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE–LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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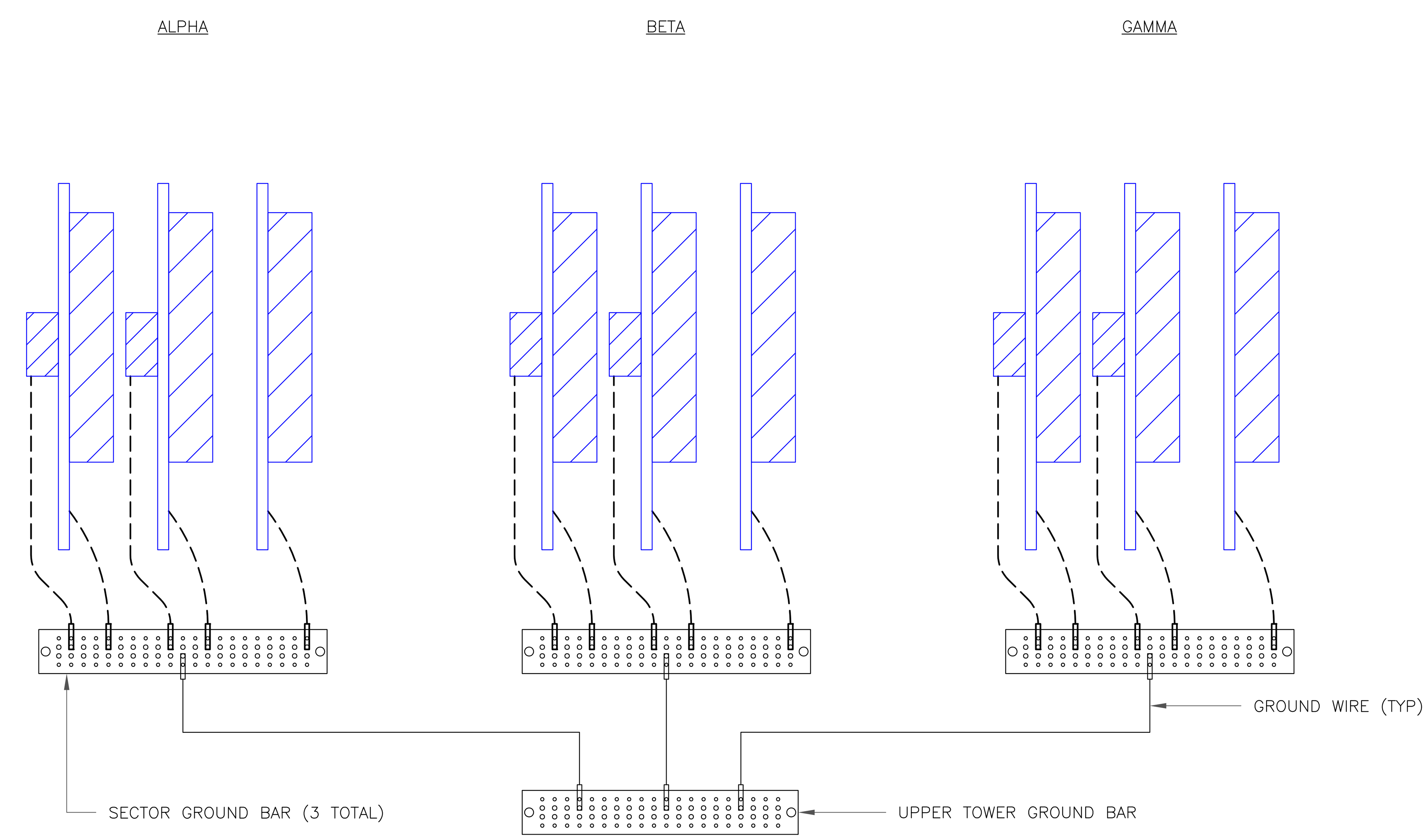
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

SHEET NUMBER: **E-1**
REVISION: **6**

95362.012.01_WINDHAM NORTH RIDGE ROAD.dwg – Sheet:G-1 – User: mjones – Apr 05, 2023 – 11:25am



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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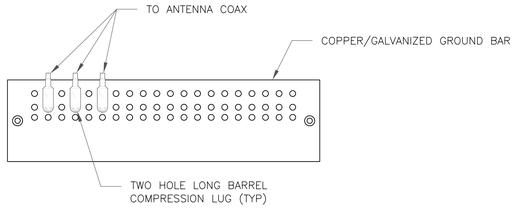
PEC.0001564
Expires 2/1/24

SHEET NUMBER: G-1

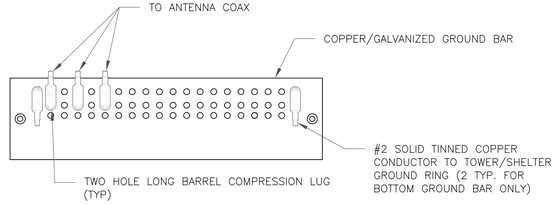
REVISION: 6



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

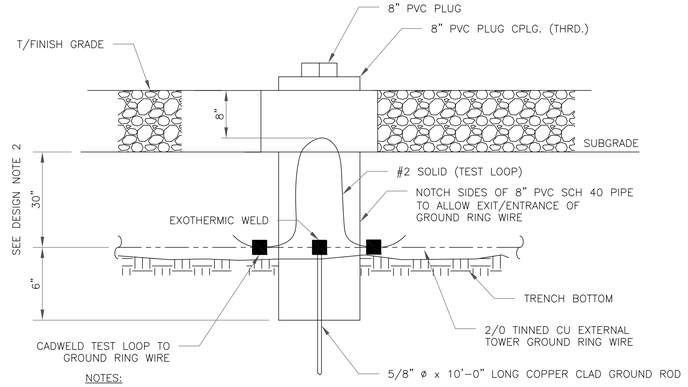
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

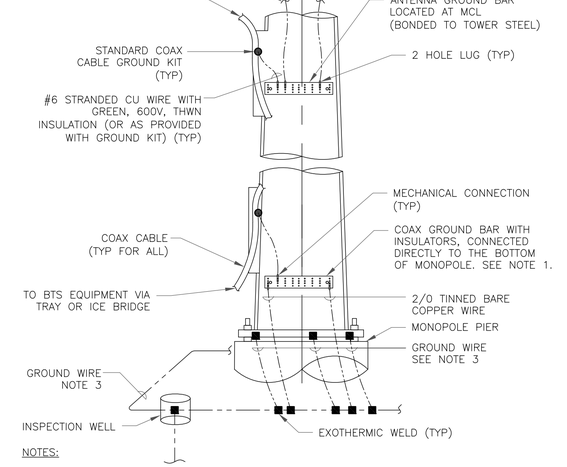
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

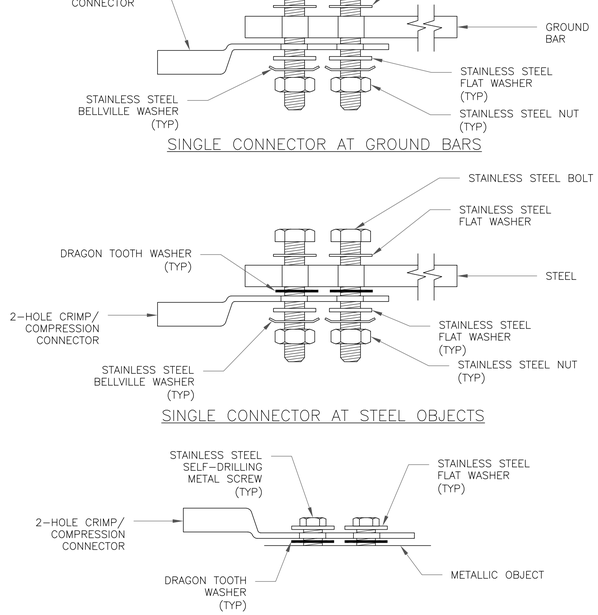
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



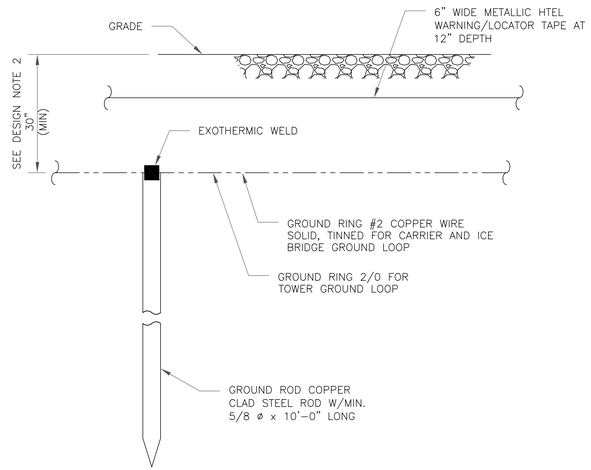
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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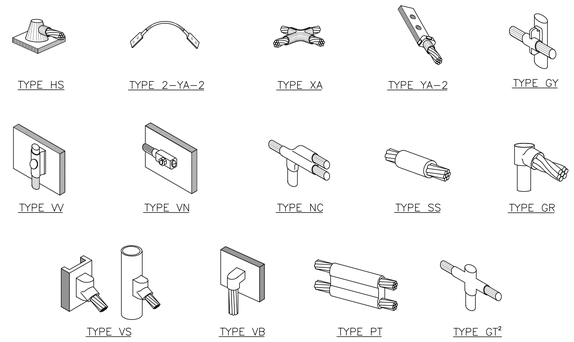
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/24

SHEET NUMBER: G-2
REVISION: 6

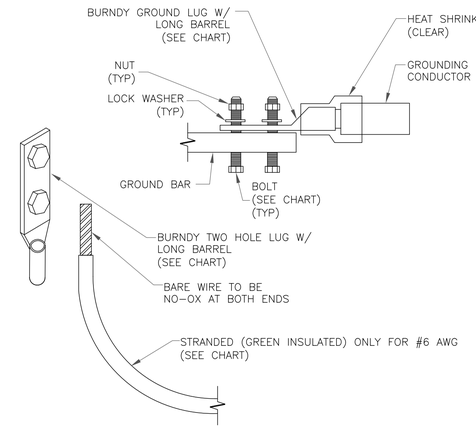


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

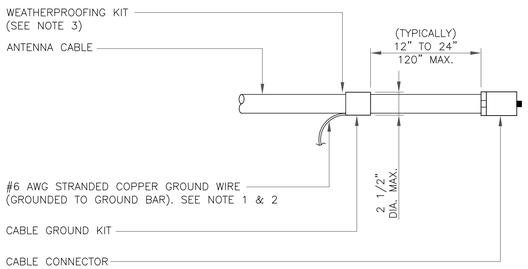
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

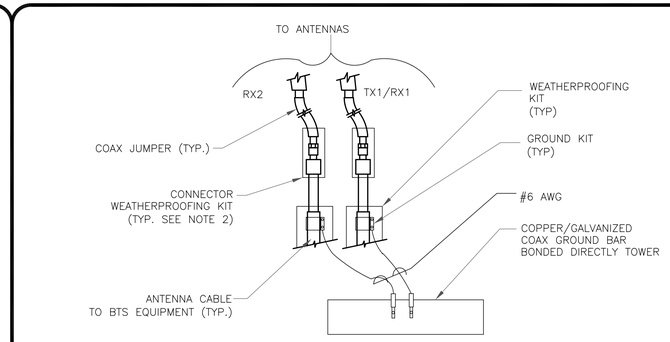
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

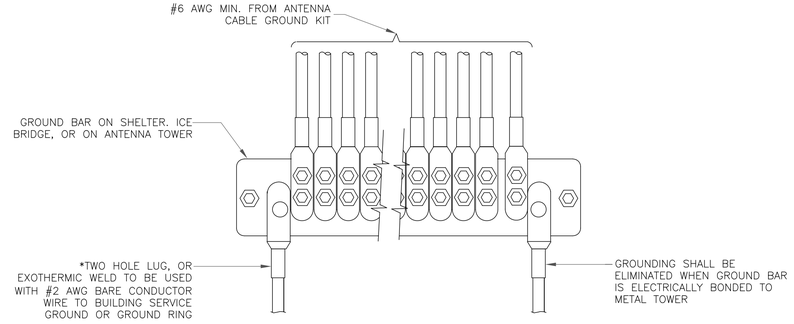
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



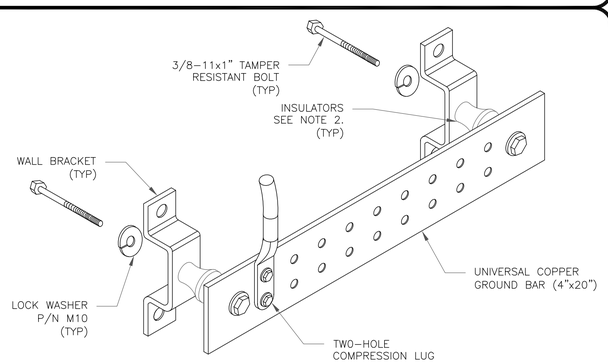
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



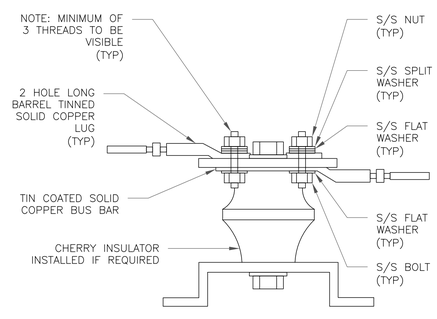
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



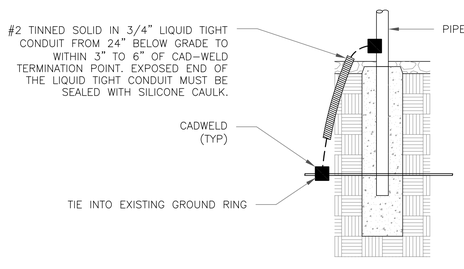
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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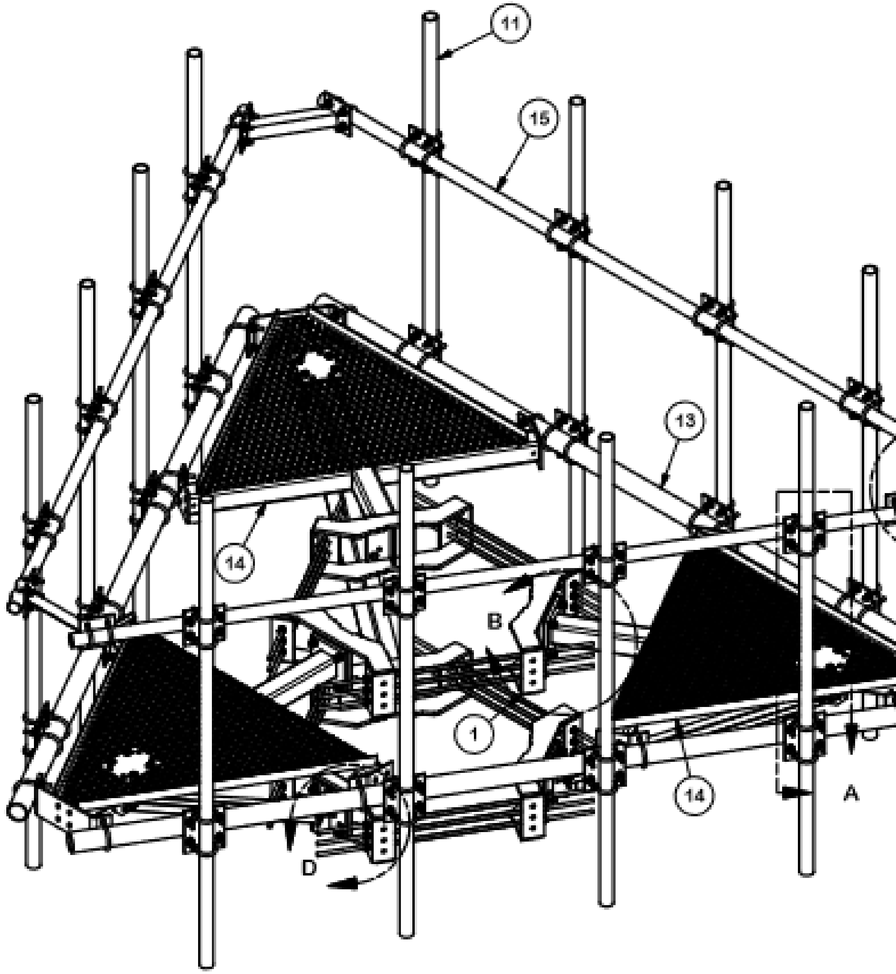
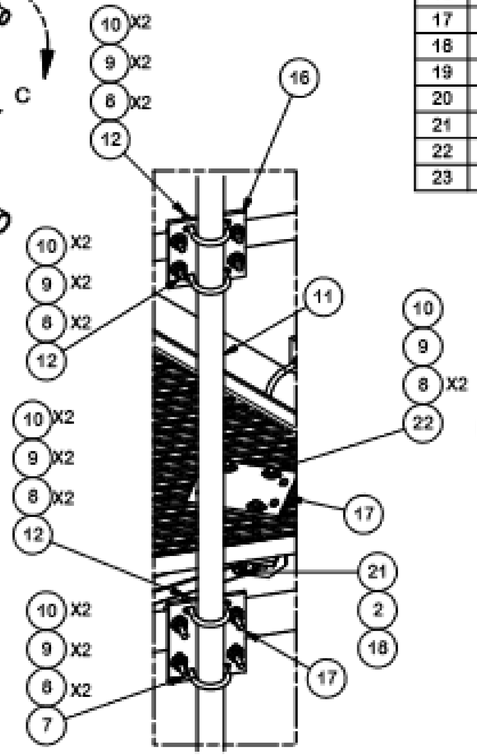
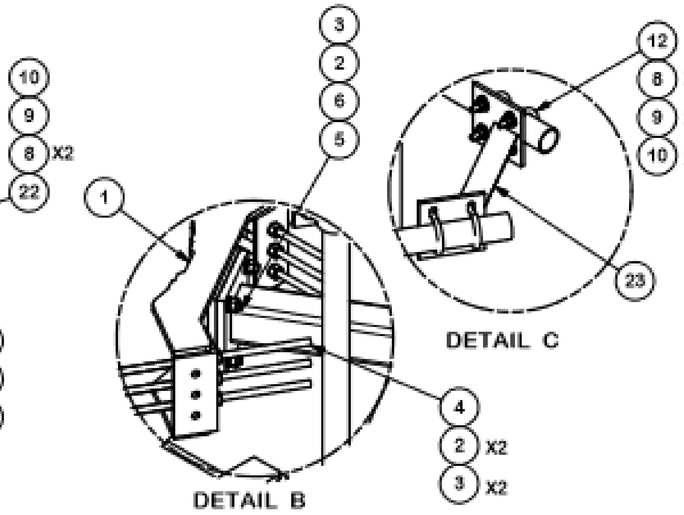
PEC.0001564
Expires 2/1/24

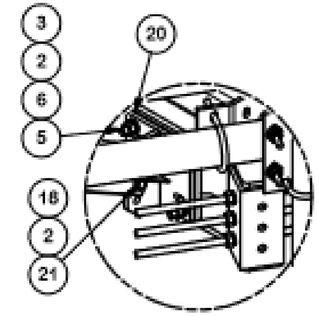
SHEET NUMBER: G-3
REVISION: 6



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	50.17
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2445.81







TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

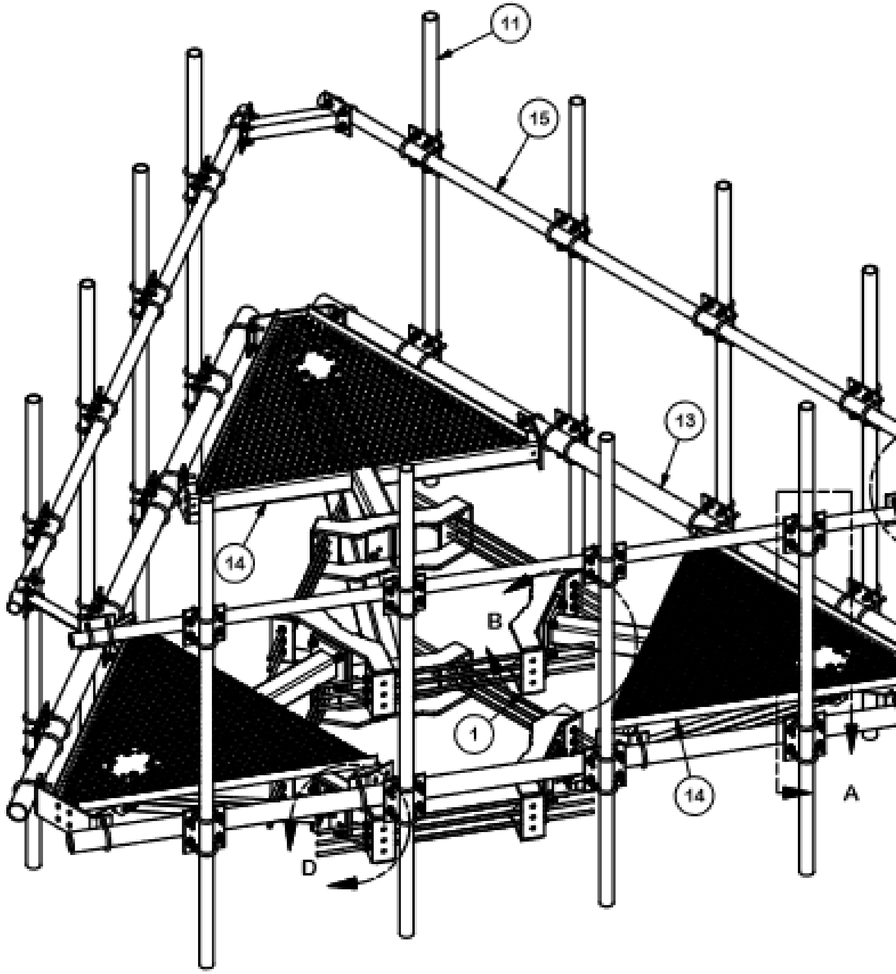
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED X-253992 TO X-TBW	4488	CEK	9/20/2018

REVISION HISTORY

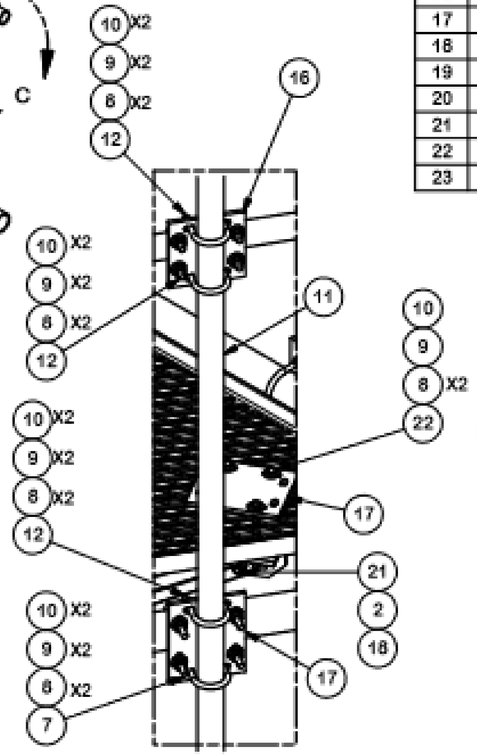
DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

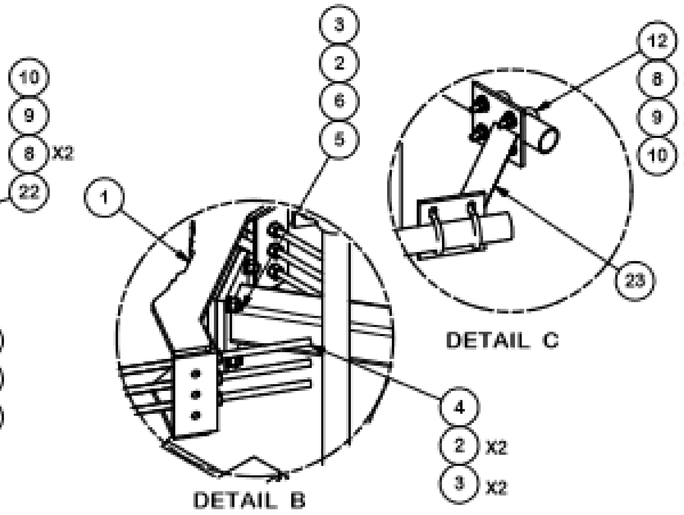
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 7/14/2014		RMQP-496-HK
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81 / 02	CUSTOMER	BMC 7/14/2014	RMQP-496-HK

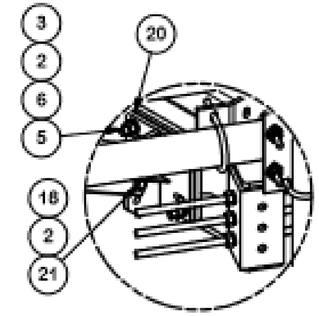
SITE PRO 1
A valmont company
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	50.17
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2445.81







TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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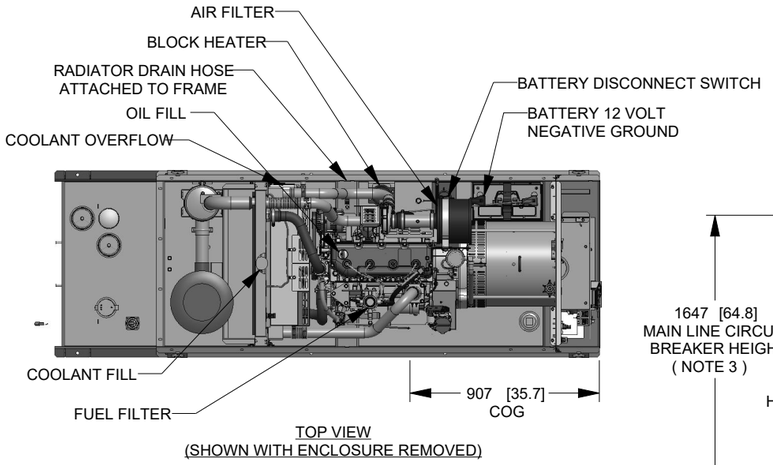
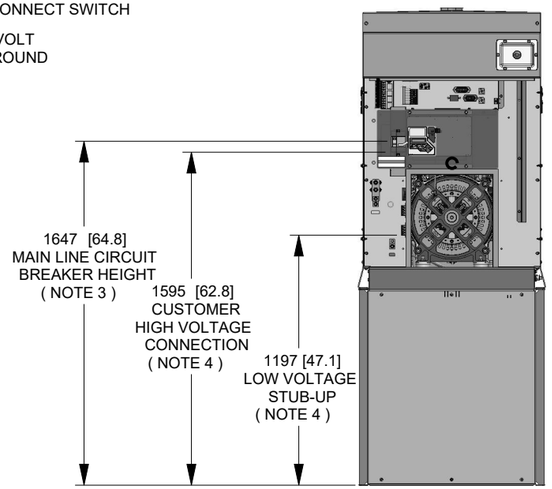


TOP VIEW
(SHOWN WITH ENCLOSURE REMOVED)

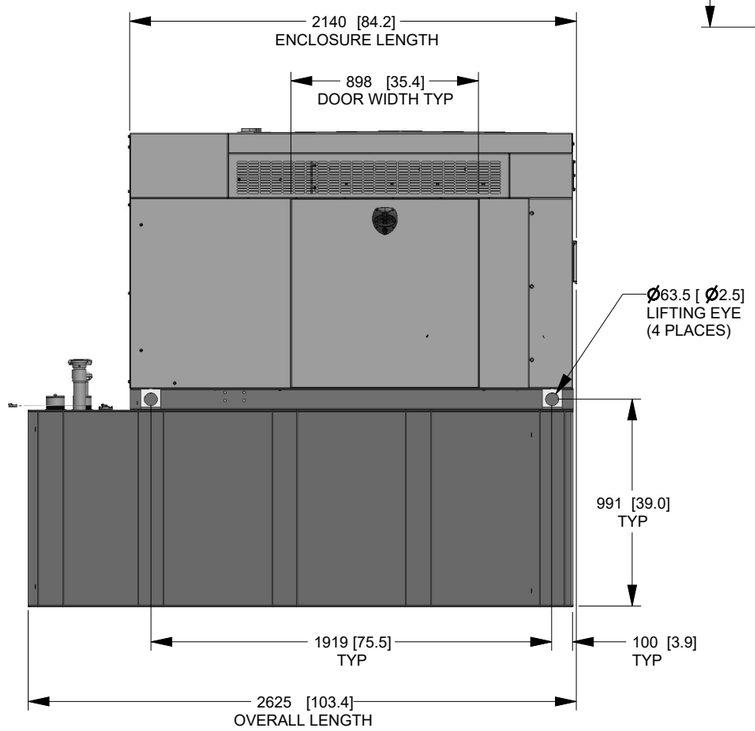
WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 6)	
GENERATOR AS SHOWN	1,322 [2,915]
WITH WOODEN SHIPPING SKID	1,340 [2,954]

WEIGHT: KG [LBS]
DIMENSIONS: MM [INCH]

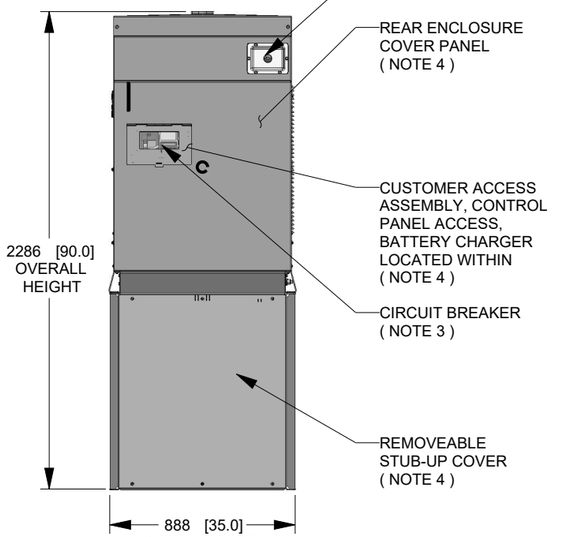


REAR VIEW
(SHOWN WITH REAR COVER PANEL REMOVED)

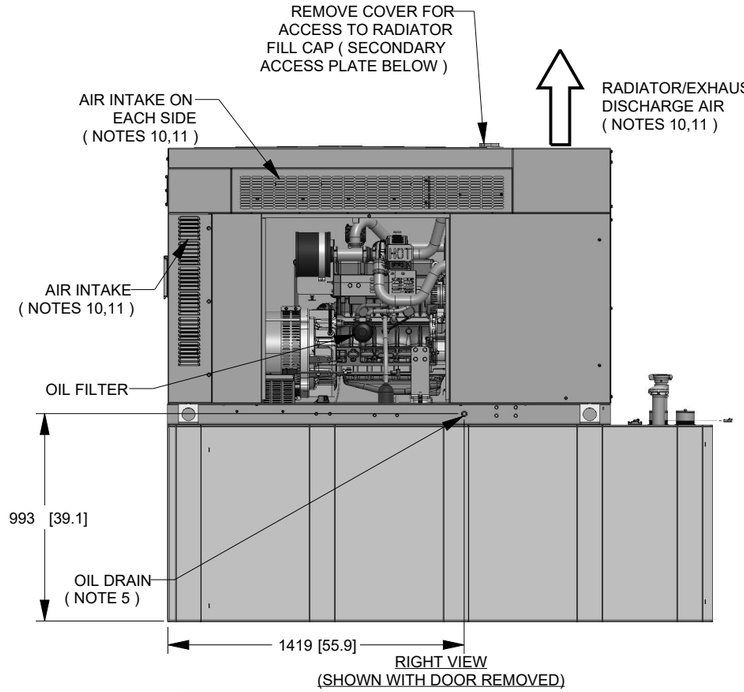
NOTES:
1. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
2. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
   - MAIN LINE CIRCUIT BREAKER 200 AMPS.
   - SEE SPECIFICATION SHEET OR OWNERS MANUAL.
   - ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR.
   - CONTROL PANEL INCLUDES INTEGRATED BATTERY CHARGER.
4. REMOVE THE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
   - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
   - LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES.
5. ENGINE SERVICE CONNECTIONS:
   OIL DRAIN = 1/2" NPT
   RADIATOR DRAIN = HOSE CLAMPED TO FRAME
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
8. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
9. MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8-11 GRADE 5 (USE STANDARD SAE TORQUE SPECS)
10. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED. RECOMMENDED MINIMUM PERIMETER (3FT) AND VERTICAL OVER EXHAUST (5FT) CLEARANCE FOR SITE LOCATION.
12. GENERATOR MUST BE GROUNDED.



LEFT VIEW



REAR VIEW



RIGHT VIEW
(SHOWN WITH DOOR REMOVED)

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

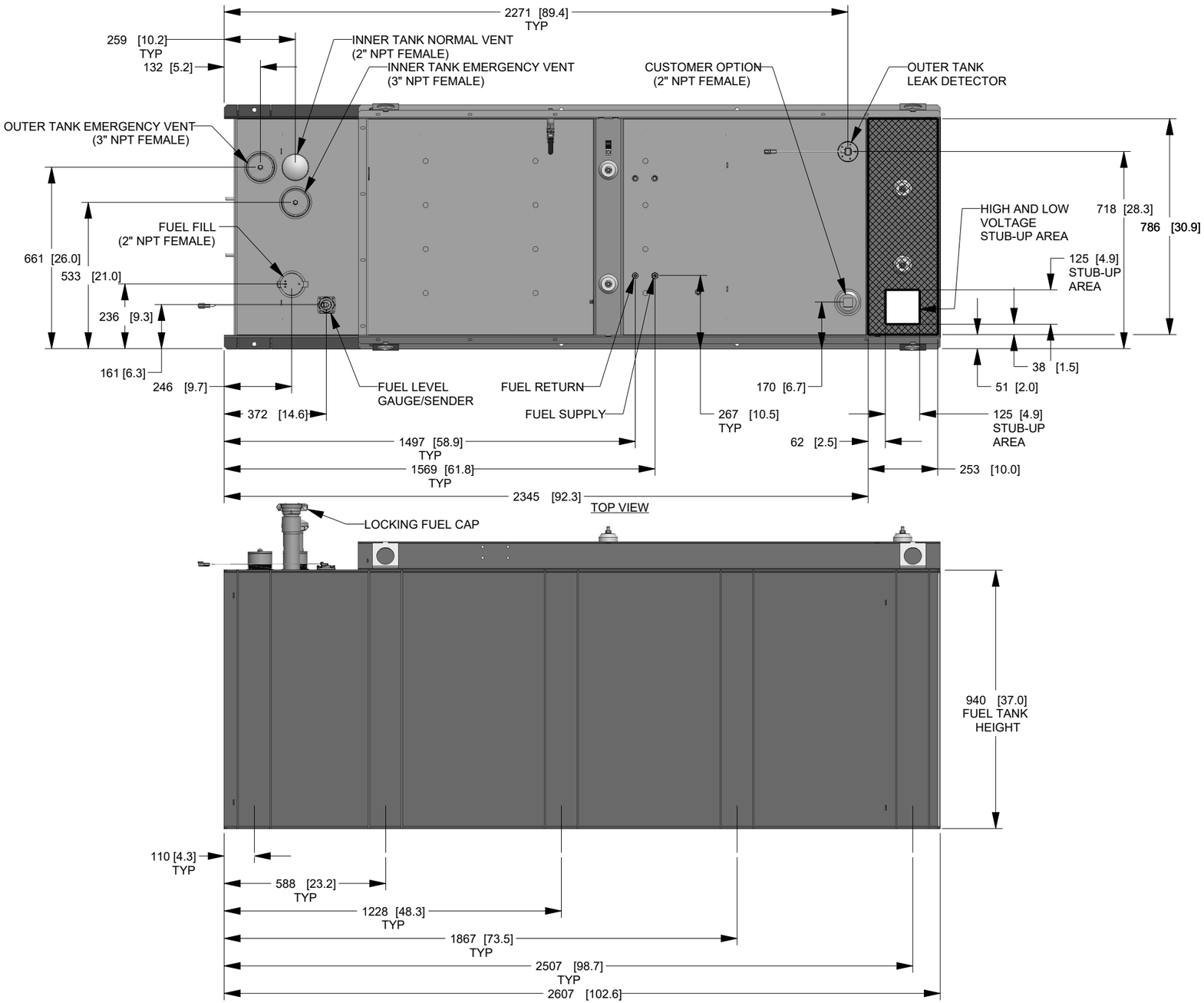
INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL D3.4L G16
48KW Y06 EXT

ISSUE DATE: 8/8/18			
SIZE B	CAGE NO N/A	DWG NO 10000041950	REV A
SCALE 0.035	WT-KG SEE ABOVE	SHEET 1 of 2	

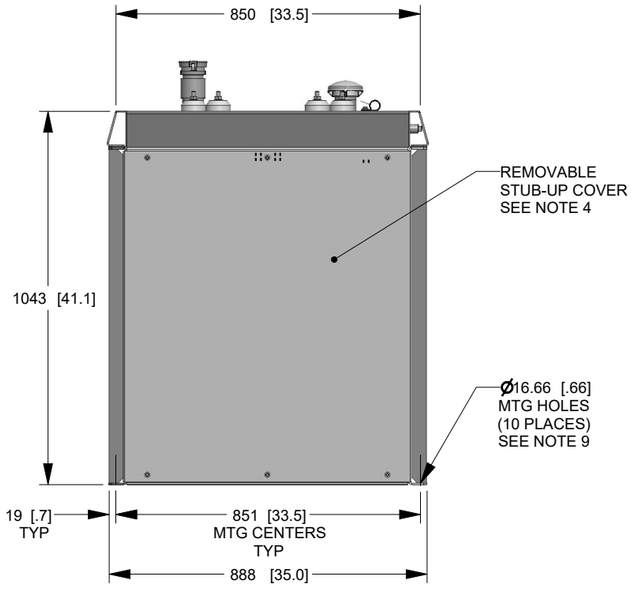


FUEL TANK	
TOTAL CAPACITY	908 [240]
USABLE CAPACITY	867 [229]

CAPACITY: LITER [GALLON]
DIMENSIONS: MM [INCH]

TANK IS LISTED TO UL142 AND ULC5601

NOTE: STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL D3.4L G16
48KW Y06 EXT

ISSUE DATE: 8/8/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000041950	A

SCALE 0.060 | WT-KG SEE ABOVE | SHEET 2 of 2

RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model Number
48kW: G0071940

Standby Power Rating
48 kW, 60 Hz

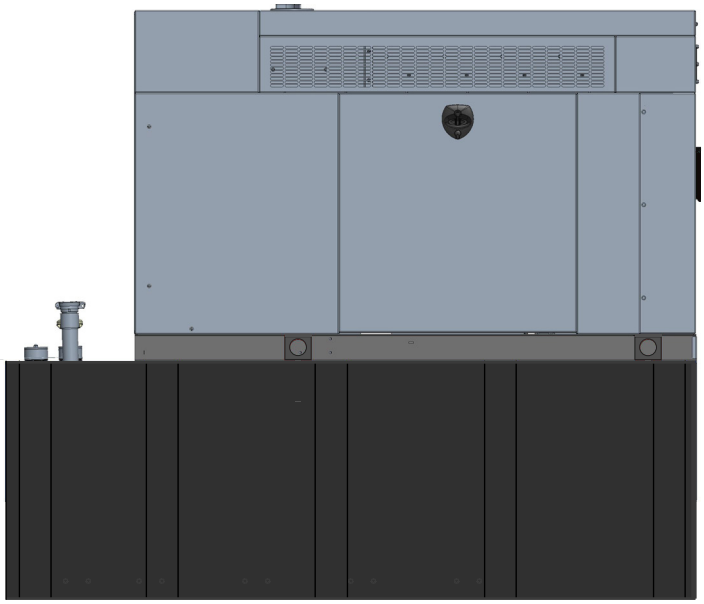


Image used for illustration purposes only

CODES AND STANDARDS

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL508, UL489, UL142
- CSA C22.2
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99
- ISO 3046, 8528, 9001
- NEMA ICS1, ICS10, MG1, 250, ICS6, AB1
- ANSI/IEEE C62.41

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing. Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application. Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

- Block Heater
- Oil Drain Extension
- Fan Guard
- Factory Filled Oil & Coolant

GENERATOR SET

- Sound Attenuated Aluminum Enclosure
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Wrapped Exhaust Piping
- Standard Factory Testing
- Ready to Accept Full Load in <10 Seconds
- External Emergency Stop Push Button

ENCLOSURE

- Lockable Doors- Keyed Lock with Padlock Hasp
- Rust Proof Hardware
- RhinoCoat™ Textured Polyester Powder Coat

Electrical System

- Battery
- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- Smart Battery Charger
- Battery Disconnect

ALTERNATOR SYSTEM

- 2/3 Pitch
- Skewed Stator
- Sealed Bearings
- Low Temperature Rise (<120°C)
- Low THD (<5%)

Cooling System

- Closed Coolant Recovery System
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension
- Can Operate at up to 122°F (50°C) Ambient Temperature

Fuel System

- Primary Fuel Filter
- Stainless Steel Fuel Lines

FUEL TANKS

- 48 Minimum Hour Run Time
- UL142 Listed
- Lockable Fuel Cap

CONTROL SYSTEM

Evolution™ Controller

- Two-Line Plain Text LCD Display
- Programmable Start Delay Between 10-30 seconds
- 10 second Engine Start Sequence
- 5 second Engine Warm Up
- 1 minute Engine Cool-Down
- Starter Lock-Out
- Smart Battery Charger
- Automatic Voltage Regulation with Over and Under Protection
- Automatic Low Oil Pressure Shutdown
- Overspeed Shutdown
- High Temperature Shutdown
- Overcrank Protection
- Safety Fused
- Failure to Transfer Protection
- Low Battery Protection
- 50 Event Run Log
- Future Set Capable Exerciser
- Incorrect Wiring Protection
- Internal Fault Protection
- Common External Fault Capability
- Governor Failure Protection
- OBD2 Diagnostic Port

Alarms

- Door Open
- Fuel Level
  - 90% Full
  - 50% Low Fuel
  - 10% Shutdown
- Generator Running
- Not in Auto
- Common Shutdown

OPTIONAL SHIPPED LOOSE AND FIELD INSTALL KITS

GENERATOR SET

- Paint Kit
- Scheduled Maintenance Kit

FUEL TANK

- Fuel Fill Drop Tube
- Spill Box
- 90% Fuel Audible Alarm
- Tank Risers
- Spill Box Drainback Kit
- Vent Extension Support Kit
- Overfill Prevention Valve

RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC® | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	4
Type	In-Line
Displacement - in³ (L)	207.48 (3.4)
Bore - in (mm)	3.86 (98)
Stroke - in (mm)	4.45 (113)
Compression Ratio	18.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head	Cast Iron OHV
Piston Type	Aluminum

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow Spin-On Canister
Crankcase Capacity - L (qts)	7.0 (7.4)

Cooling System

Cooling System Type	Pressurized Closed Recovery
Fan Type	Pusher
Fan Speed (rpm)	2,029
Fan Diameter - mm (in)	22 (559)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specification	ASTM
Fuel Pump Type	Mechanical Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line (mm/in)	7.94 (0.31) ID
Fuel Return Line (mm/in)	7.94 (0.31) ID
Fuel Filtering (microns)	10

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	Group 27F
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Generac
Poles	4
Field Type	Rotating
Insulation Class - Rotor	F
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Direct
Bearings	Sealed Ball
Coupling	Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Regulation Accuracy (Steady State)	±1.0%

RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

OPERATING DATA

POWER RATINGS

		Standby	
Single-Phase 120/240 VAC @1.0pf	48 kW	Amps: 200	Circuit Breaker Size Amps: 200

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip at 30%	
120/240 V, Single-Phase at 0.4pf	189

FUEL CONSUMPTION RATES*

Percent Load	Diesel gal/hr (L/hr)
25%	1.35 (5.11)
50%	2.15 (8.14)
75%	3.06 (11.58)
100%	3.98 (15.07)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (Radiator and Alternator)	cfm (m^3/min)	2824 (80)
Coolant System Capacity	gal (l)	2.8 (10.6)
Heat Rejection to Coolant	BTU/hr (MJ/hr)	135,900 (143.4)
Temperature Deration	3% for every 5°C above 25°C or 1.7% for every 5°F over 77°F	
Altitude Deration	1% for every 100 m above 915 or 3% for every 1000 ft over 3000 ft	
Maximum Ambient Temperature Operating Range	°F (°C)	-20 - 122 (-28 - 50)
Maximum Radiator Backpressure	in H_2O	0.5

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m^3/min)	190 (5.38)

ENGINE

		Standby
Rated Engine Speed	rpm	1800

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	448 (12.7)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1120 (604.4)

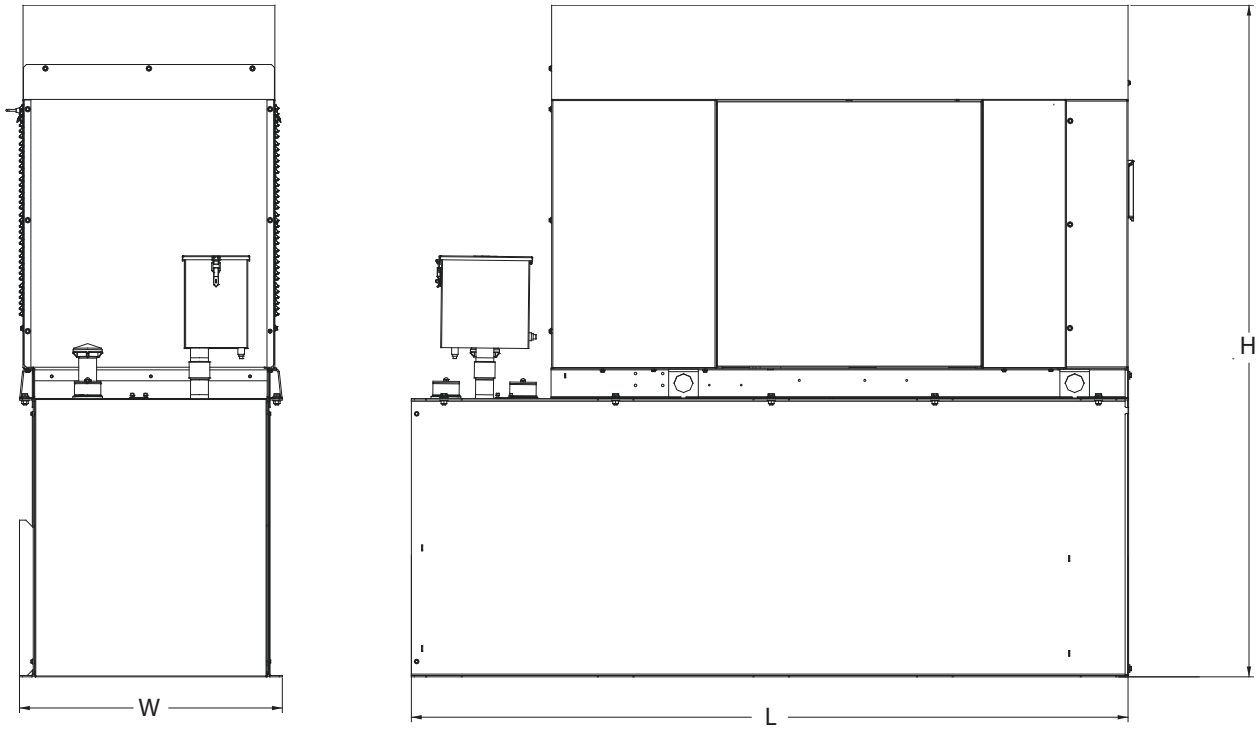
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please consult a Generac Power Systems Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

DIMENSIONS AND WEIGHTS*



Weights and Dimensions

Unit Weight - lbs	Unit Weight with Skid - lbs	Dimensions (L x W x H) - in
2,915	2,954	103.4 (2,625) x 35.0 (888) x 90.0 (2,286)

48kW Fuel Consumption	
Fuel Tank Gross Total Capacity	240
Fuel Tank Gross Usable Capacity	229
Fuel Tank Net Usable Capacity (Run Hours Based on Net Usable Capacity)	206
Run Hours 100% Load	52
Run Hours 75% Load	67
Run Hours 50% Load	96

Sound Emission Data	
Rated Load Sound Output at 23ft - dB(A)	65

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

SPEC SHEET

Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No 1000032700
Rev. 3 08/30/18

THIS CHECK PRINTED ON DOCUCHECK GHOST PAPER AND HAS A GRAPHIC WATERMARK ON REVERSE SIDE

CROWN CASTLE USA INC.
2000 CORPORATE DRIVE
CANONSBURG PA 15317
724-416-2000

JPMorgan Chase Bank, N.A.
DALLAS TX
32-61/1110

2869249

SIX HUNDRED TWENTY FIVE AND 00/100********** DATE 06/06/23 $*******625.00

Pay To The Order Of Connecticut Siting Council
Ten Franklin Square
New Britain CT 6051

2695915

VP and Controller

VOID AFTER 180 DAYS

⑈2869249⑈ ⑆111000614⑆ 10341045 3⑈

Check No 2869249
Check Date 06/06/23

Stub 1 of 1

CKRQ 842423 573238 FILING	06/05/23	Invoice Summ	625.00	625.00
			625.00	625.00