

August 15, 2022

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

**RE: Notice of Exempt Modification for ATT
Crown #842875; ATT Site ID CTL05139
99 Day Hill Road, Windsor, CT 06095
Latitude: 41.871139 / Longitude: -72.671111**

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 168-foot level of the existing 168-foot monopole tower at 99 Day Hill Road, Windsor, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by the Town of Windsor. AT&T now intends to replace nine (9) antennas, install nine (9) new antennas and ancillary equipment at the 168-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

- Mount Modifications per Mount Modification Design
- (6) Ericsson-AIR6449 B77D + AIR6419 B77G Stacked Antennas
- (1) QUINTEL-QD8616-7 Antennas
- (2) QUINTEL-QD6616-7 Antennas
- (1) RAYCAP-DC9-48-60-24-8C-EV SQUID
- (3) Y CABLES for Existing Dual Band Radios
- (1) 6AWG DC CABLE (7/8")
- (1) 24-PAIR Fiber Cable (3/8")

Remove:

- (3) KATHREIN-800-10121 Antennas
- (2) KATHREIN-800-10965 Antennas
- (1) KATHREIN-800-10966 Antennas
- (1) CCI-TPA-65R-LCUUUU-H8 Antennas
- (2) QUINTEL-QS66512-2 Antennas
- (3) CCI-DTMABP7819VG12A TMAs
- (1) RAYCAP-DC6-48-60-0-8F SQUID

Melanie A. Bachman

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Ground:

Install New:

- (1) 6648 with XCEDE
- (3) Rectifiers

Remove:

- (1) UMTS Cabinet
- (6) CCI-TPX-070821 Triplexers
- (3) CCI-DBC2055F1V1-2 Diplexers
- Remove & Replace Batteries w/5 Strings of Batteries

The facility was approved by the Town of Windsor Planning and Zoning Commission by way of Special Use Application #292A on October 10, 2000.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Donald Trinks, as both the municipality and property owner, Town Planner Eric Barz and Crown Castle is the tower owner.

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

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

Sincerely,



Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Melanie A. Bachman

Page 3

Attachments

cc:

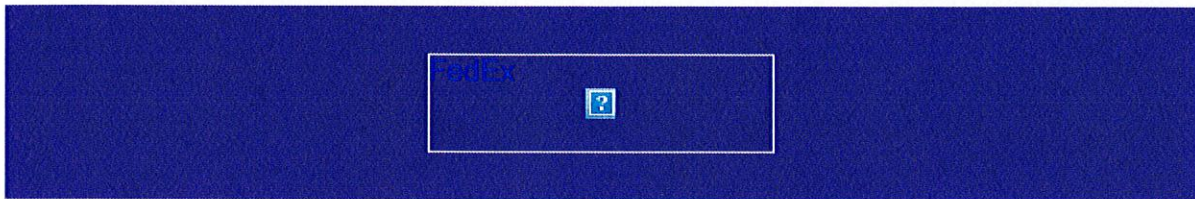
Donald Trinks, Mayor
Town Hall Council Chambers
275 Broad Street
Windsor, CT 06095
860- 285-1800

Eric Barz, Town Planner
Planning Department
275 Broad Street
Windsor, CT 06095
860-285-1981

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: [Tatasciore, Domenica](#)
Subject: FedEx Shipment 777637592487: Your package has been delivered
Date: Tuesday, August 16, 2022 9:41:13 AM

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Hi. Your package was
delivered Tue, 08/16/2022 at
9:36am.



Delivered to 275 BROAD ST, WINDSOR, CT 06095
Received by M.MILLER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [777637592487](#)

FROM Domenica Tatasciore
1800 West Park Drive

Suite 200
WESTBOROUGH, MA, US, 01581

TO Town Hall Council Chambers
Mayor Donald Trinks
275 Broad Street
WINDSOR, CT, US, 06095

REFERENCE 799001.7680

SHIPPER REFERENCE 799001.7680

SHIP DATE Mon 8/15/2022 04:42 PM

DELIVERED TO Receptionist/Front Desk

PACKAGING TYPE FedEx Envelope

ORIGIN WESTBOROUGH, MA, US, 01581

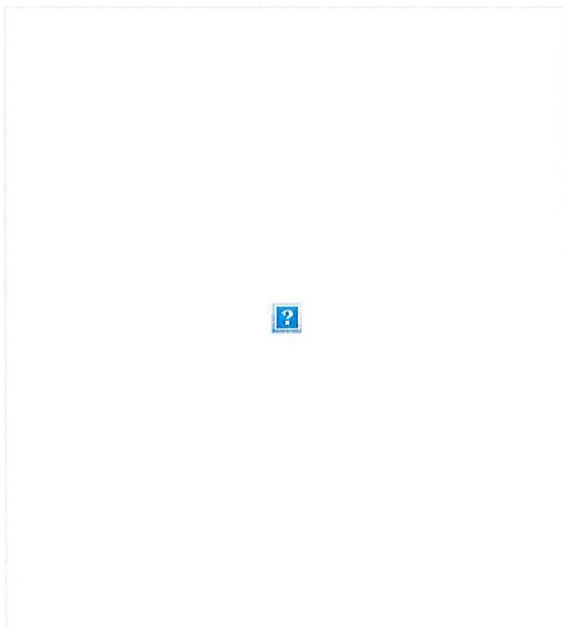
DESTINATION WINDSOR, CT, US, 06095

SPECIAL HANDLING Deliver Weekday

NUMBER OF PIECES 1

TOTAL SHIPMENT WEIGHT 1.00 LB

SERVICE TYPE FedEx Priority Overnight



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Date: Tuesday, August 16, 2022 9:41:12 AM

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Delivered to 275 BROAD ST, WINDSOR, CT 06095
Received by M.MILLER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [777637634627](#)

FROM Domenica Tatasciore
1800 West Park Drive

Suite 200
WESTBOROUGH, MA, US, 01581

TO Windsor Planning Department
Eric Barz, Town Planner
275 Broad Street
WINDSOR, CT, US, 06095

REFERENCE 799001.7680

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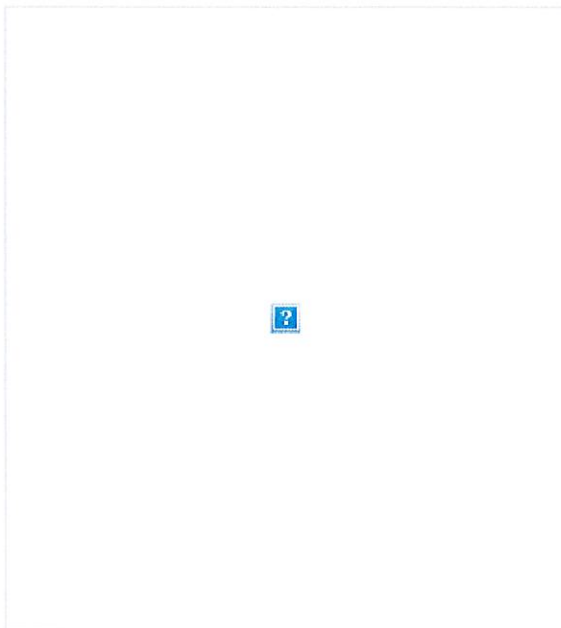
DESTINATION WINDSOR, CT, US, 06095

SPECIAL HANDLING Deliver Weekday

NUMBER OF PIECES 1

TOTAL SHIPMENT WEIGHT 0.50 LB

SERVICE TYPE FedEx Priority Overnight



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I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #292A for a Wireless Telecommunications Tower with a monopole height of 170 feet plus 20-foot Town public service whip antennas for a total height of 190 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1).

This approval also includes the following waivers in accordance with Zoning Regulations Section 12.1:

- 1) a waiver of the height requirement for 15 feet; and
- 2) a waiver of the fall zone distance requirement for 151 feet in relation to the distance of the tower from Day Hill Road, 380 feet being required, 229 feet being proposed.

Said Special Use was granted for the property located at: 99 Day Hill Road

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30th day of November, 2000

Anita Mips Chairperson

Public Act #75-317

Received for Record this _____ day of _____, 2000

Attest: Town Clerk

RECEIVED FOR RECORD
WINDSOR TOWN CLERK

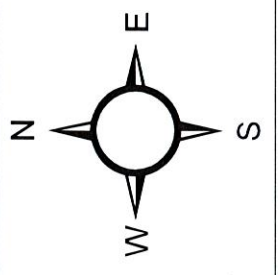
00 NOV 30 PM 12: 58

VOL 1249 PG 156

BY Kathleen H. Quinn
TOWN CLERK



Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
 Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N
 State of Connecticut, Maxar, Microsoft, Esri Community Maps Contributors, MDC, MassGIS, UConn/CTDEEP, © OpenStreetMap, Microsoft, Esri, HERE.



Town of Windsor, CT

-  Parcels
-  Abutter Tool

Town of Windsor makes no warranties, expressed or implied concerning the accuracy, completeness, reliability or suitability of this data. The Town of Windsor does not assume any liability associated with the use or misuse of this information.

CURRENT OWNER		TOPO	UTILITIES	STRT / ROAD	LOCATION	CURRENT ASSESSMENT			
WINDSOR TOWN OF PUBLIC WORKS GARAGE 275 BROAD STREET		1 Level	2 Public Water 3 Public Sewer 4 Gas	1 Paved		Description EX COM LN EX COM BL EX CM OTB	Code 21 22 25	Appraised 766,900 1,633,800 156,300	Assessed 536,830 1,143,660 109,410
WINDSOR CT 06095		Air Pctl ID 9310	SUPPLEMENTAL DATA						
		INC: GH	TRACT 4735.01 CBLOCK 0 DIST HEART GL YEAR						
		2007 1376200	Assoc Pld#						
		GIS ID 9310							

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	Q/U	V/I	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)					
WINDSOR TOWN OF		0334 0257	11-04-1977			0		Year	Code	Assessed	Year	Code	Assessed
								2019	21	536,830	2018	21	536,830
								2020	22	1,143,660	2019	22	1,143,660
								2021	25	109,410	2020	25	109,410
								Total	1789900	1789900	Total	1789900	1789900

EXEMPTIONS		OTHER ASSESSMENTS	
Year	Code	Description	Amount
2011	BAAX	MUNICIPAL	0.00
		Total	0.00

ASSESSING NEIGHBORHOOD		NOTES	
Nbhd	Sub	Tracing	Batch
300	A		

9310.00
 0042-0108-0001 D
 BTR89-CLERICAL
 CANOPY ADDED 10-92
 REF:V1277 P506 7-18-01
 ELEC EASEMENT V1277 P511

BUILDING PERMIT RECORD				VISIT / CHANGE HISTORY										
Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments	Date	Id	Type	Is	Cd	Purpost/Result
E-190462	03-12-2019	FP	Fire Protect		08-16-2019	100	10-01-2019	UPGRADE FIRE ALARM SYS	01-18-1990	JM			43	Change - Reinspection Re
B041271	08-24-2004	NC	New Construct					STORAGE SHED	04-13-1988	GH			00	Measur+Listed
				Total Appraised Parcel Value					Total Appraised Parcel Value				2,557,000	

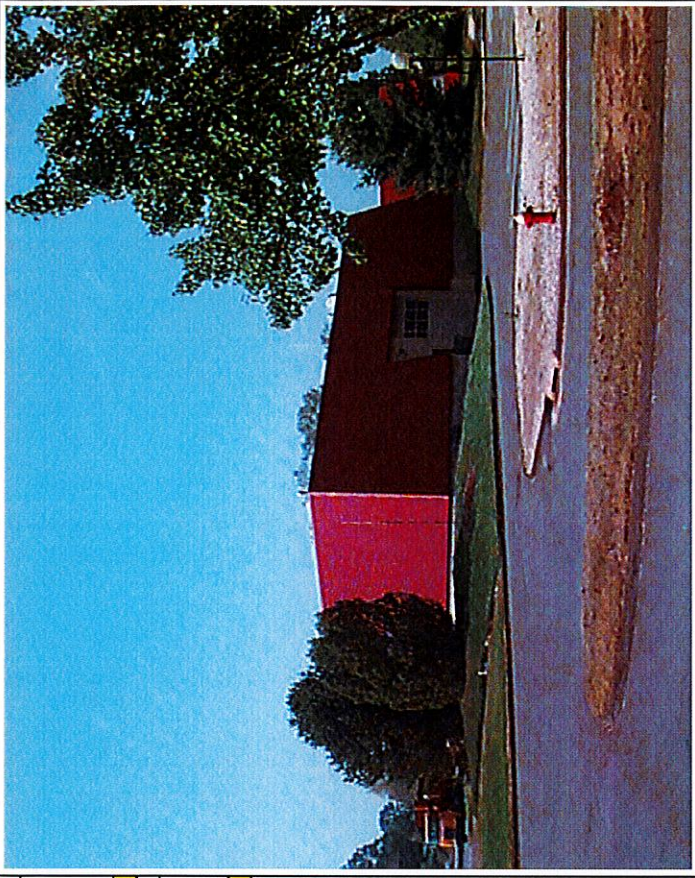
LAND LINE VALUATION SECTION															
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment	Adj Unit Price	Land Value
1	903W	Municipal MDL-9	NZ		5.000 AC	82,000	1.000000	1	1.00	300	1.600		0		656,000
1	903W	Municipal MDL-9	NZ		6.760 AC	82,000	1.000000	0	0.20		1.000		0		110,900
										Total Card Land Units	11.760 AC	Parcel Total Land Area:	11.7600	Total Land Value	766,900

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card) 1,595,900
 Appraised Xi (B) Value (Bldg) 37,900
 Appraised Ob (B) Value (Bldg) 156,300
 Appraised Land Value (Bldg) 766,900
 Special Land Value 0
 Total Appraised Parcel Value 2,557,000
 Valuation Method C

CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)							
Element	Cd	Description	Element	Cd	Description	Element	Cd	Description			
Style:	95	Garage/Office									
Model	96	Ind/Comm									
Grade	03	Average									
Stories:	1										
Occupancy	27	Pre-finish Mtl									
Exterior Wall 1	01	Flat									
Exterior Wall 2	09	Enam Mtl Shing									
Roof Structure	01	Minim/Masonry									
Roof Cover	03	Concrete									
Interior Wall 1	03	Gas									
Interior Wall 2	03	Hot Air-no Duc									
Interior Floor 1	01	None									
Interior Floor 2	903W	Municipal MDL-96									
Heating Fuel	00										
Heating Type	2										
AC Type	00	None									
Bldg Use	05	Steel									
Total Rooms	02	Average									
Total Bedrms	04	Ceil & Min WI									
Total Baths	02	Average									
Heal/AC	16.00										
Frame Type	0.00										
Baths/Plumbing	903Z										
Ceiling/Wall											
Rooms/Prtms											
Wall Height											
% Conn Wall											
1st Floor Use:											
OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)											
Code	Sub	Sub Ty	L/B	Units	Unit Price	Yr Bilt	Cond. Cd	% Gd	Grade	Ad	Appr. V
PAV1		L		20.00	2.50	2003		50	0.00		25,000
FGR1		L		3,800	18.00	2003		75	0.00		51,300
CNP2		B		2,400	20.00	1997		79	0.00		37,900
SHD1		L		10,000	8.00	2004		100	0.00		80,000
BUILDING SUB-AREA SUMMARY SECTION											
Code	Description		Living Area	Floor Area	Eff Area	Unit Cost	Undeprec. Value				
BAS	First Floor		36,300	36,300	36,300	55.65	2,020,095				
Ttl Gross Liv / Lease Area			36,300	36,300	36,300		2,020,095				



BAS
(36,300 sf)

Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T



Site Name:	WINDSORDAY HILL
FA#	10071331
USID:	14489
Site ID:	CTL05139
Address:	99 DAY HILL ROAD WINDSOR, CT 06095
County:	HARTFORD
Latitude:	41.8710919
Longitude:	-72.6705989
Structure Type:	MONOPOLE
Property Owner:	PUBLIC WORKS GARAGE
Pace Job:	MRCTB061153
RFDS Technology:	5G NR 1SR CBAND

Report Information

Report Writer: Sunita Sati

Report Generated Date: 08-05-2022

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented



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1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	470419.0% on Antennas Centerline Level & at AT&T Sec-A antenna no. #A3-2
Max Predictive Spatial Average MPE% at Ground Level (General Public)	0.7%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

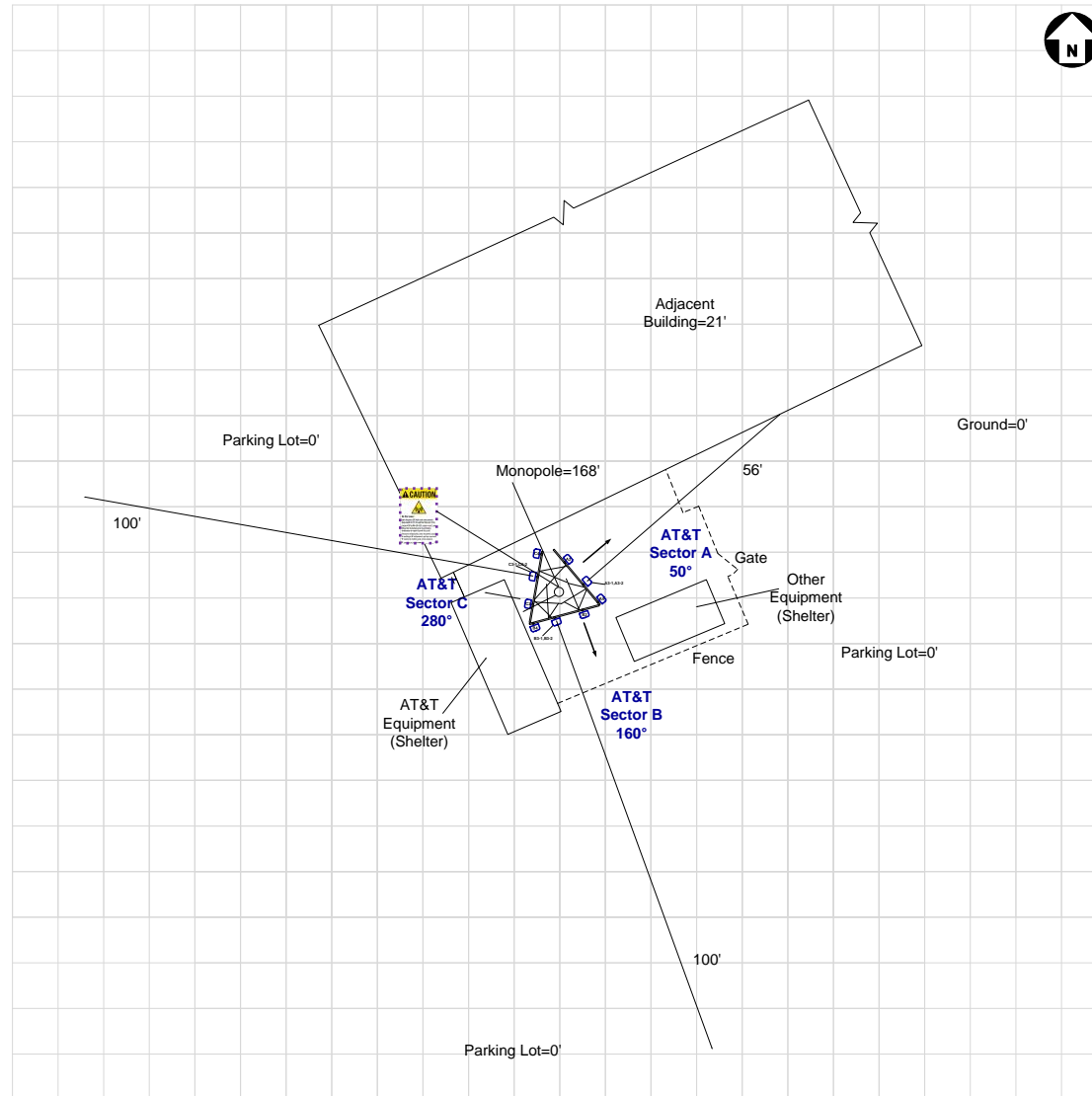
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- CTL05139_842875_WINDSORDAY_HILL_AT&T_5G_NR_1SR_CBAND_,_BBU_ADD,___5G_NR_1SR,___5G_NR_ACTIVATION_FCD_Rev1_7.27.22
- RFDS

2. Site Scale Map



AT&T Antenna		Proposed		Proposed Signage								Lock	Map Scale = 10 ft
	Panel		Barrier										
	OMNI		Posts										

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	H B W (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	50	74	11.85	6	120.00	0.5	1637.50	2686.47
A2	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	50	63	12.45	6	120.00	0.5	1880.10	3084.47
A2	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	50	54	16.25	6	75.00	0.5	2818.78	4624.46
A3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	50	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	50	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A4	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	50	71	12.05	6	120.00	0.5	1714.67	2813.07
A4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	50	71	12.05	6	60.00	0.5	857.34	1406.54
A4	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	50	67	15.05	6	120.00	0.5	3421.22	5612.82
A4	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	50	62	15.55	6	120.00	0.5	3838.67	6297.69
B2	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	160	74	11.85	6	120.00	0.5	1637.50	2686.47
B2	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	160	63	12.45	6	120.00	0.5	1880.10	3084.47
B2	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	160	54	16.25	6	75.00	0.5	2818.78	4624.46
B3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	160	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	160	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B4	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	160	71	12.05	6	120.00	0.5	1714.67	2813.07
B4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	160	71	12.05	6	60.00	0.5	857.34	1406.54
B4	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	160	67	15.05	6	120.00	0.5	3421.22	5612.82
B4	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	160	62	15.55	6	120.00	0.5	3838.67	6297.69
C2	AT&T	CCI	DMP65R-BU8D	Panel	700	LTE(B12)	280	75	12.95	8	120.00	0.5	2109.51	3460.84
C2	AT&T	CCI	DMP65R-BU8D	Panel	850	5G	280	64	13.85	8	120.00	0.5	2595.26	4257.76
C2	AT&T	CCI	DMP65R-BU8D	Panel	2300	LTE	280	64	15.95	8	75.00	0.5	2630.64	4315.80
C3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	280	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	280	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C4	AT&T	Quintel	QD8616-7	Panel	700	LTE(FN)	280	72	12.75	8	120.00	0.5	2014.56	3305.07
C4	AT&T	Quintel	QD8616-7	Panel	700	LTE(B29)	280	72	12.75	8	60.00	0.5	1007.28	1652.54
C4	AT&T	Quintel	QD8616-7	Panel	1900	LTE/5G	280	62	15.05	8	120.00	0.5	3421.22	5612.82
C4	AT&T	Quintel	QD8616-7	Panel	2100	LTE/5G	280	62	15.35	8	120.00	0.5	3665.91	6014.25

Table 3.1: Antenna Inventory Table

Note: ^ **Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**

* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor¹ are used to calculate Transmitter Power & ERP/EIRP

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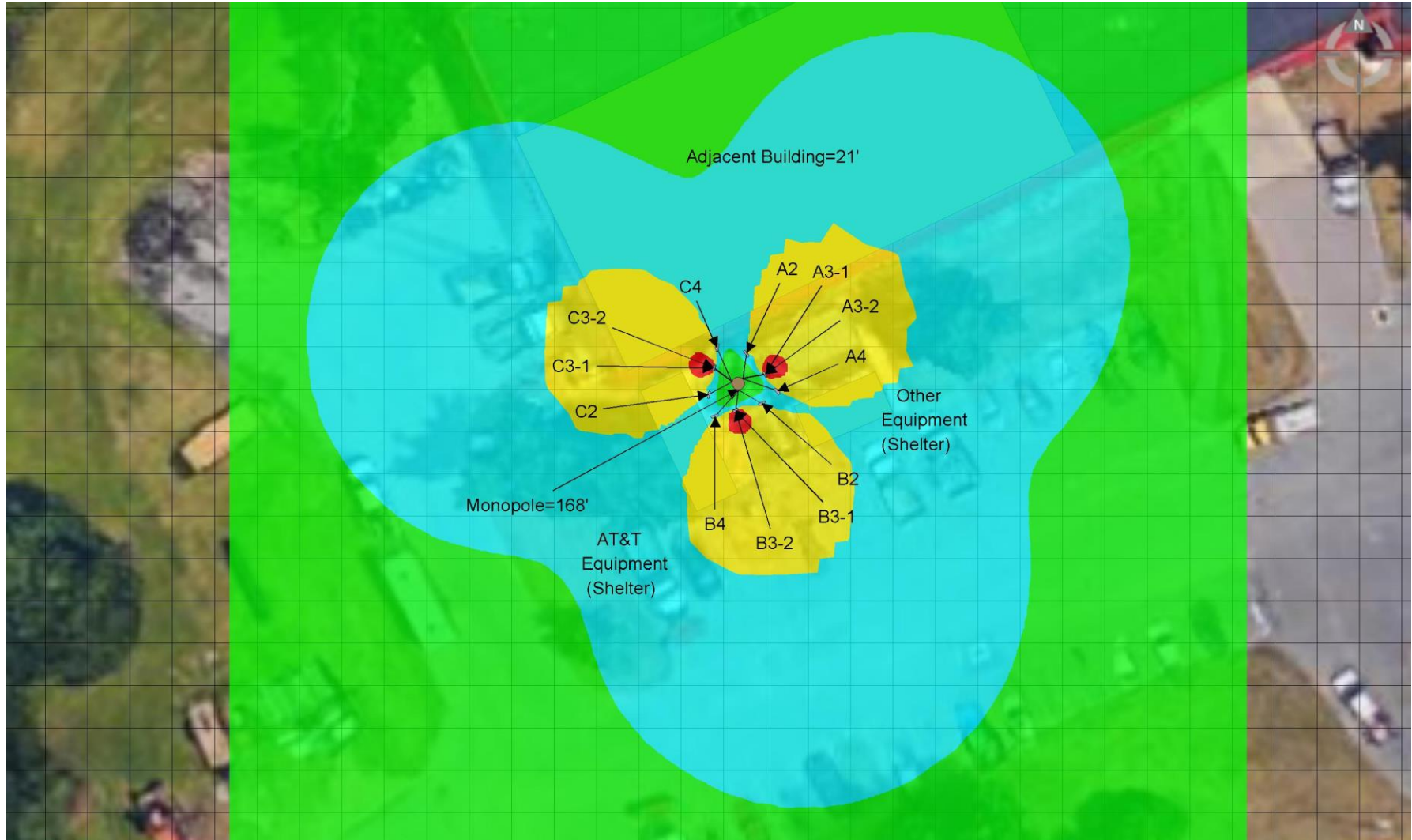
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Adj Bldg	Z-Height from Ground
A2	AT&T	168.00	144.00	165.00
A3-1	AT&T	170.00	147.73	168.73
A3-2	AT&T	166.00	143.73	164.73
A4	AT&T	168.00	144.00	165.00
B2	AT&T	168.00	144.00	165.00
B3-1	AT&T	170.00	147.73	168.73
B3-2	AT&T	166.00	143.73	164.73
B4	AT&T	168.00	144.00	165.00
C2	AT&T	168.00	143.00	164.00
C3-1	AT&T	170.00	147.73	168.73
C3-2	AT&T	166.00	143.73	164.73
C4	AT&T	168.00	143.00	164.00

Table 3.2: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (166 ft.)



Max. Predictive Spatial Average MPE% = **470419.0%**

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Proposed Barrier

Proposed Posts

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Adjacent Building Level (21 ft.)



Max. Predictive Spatial Average MPE% = 0.9%

% of FCC General Public Exposure Limit (Predictive Spatial Average)

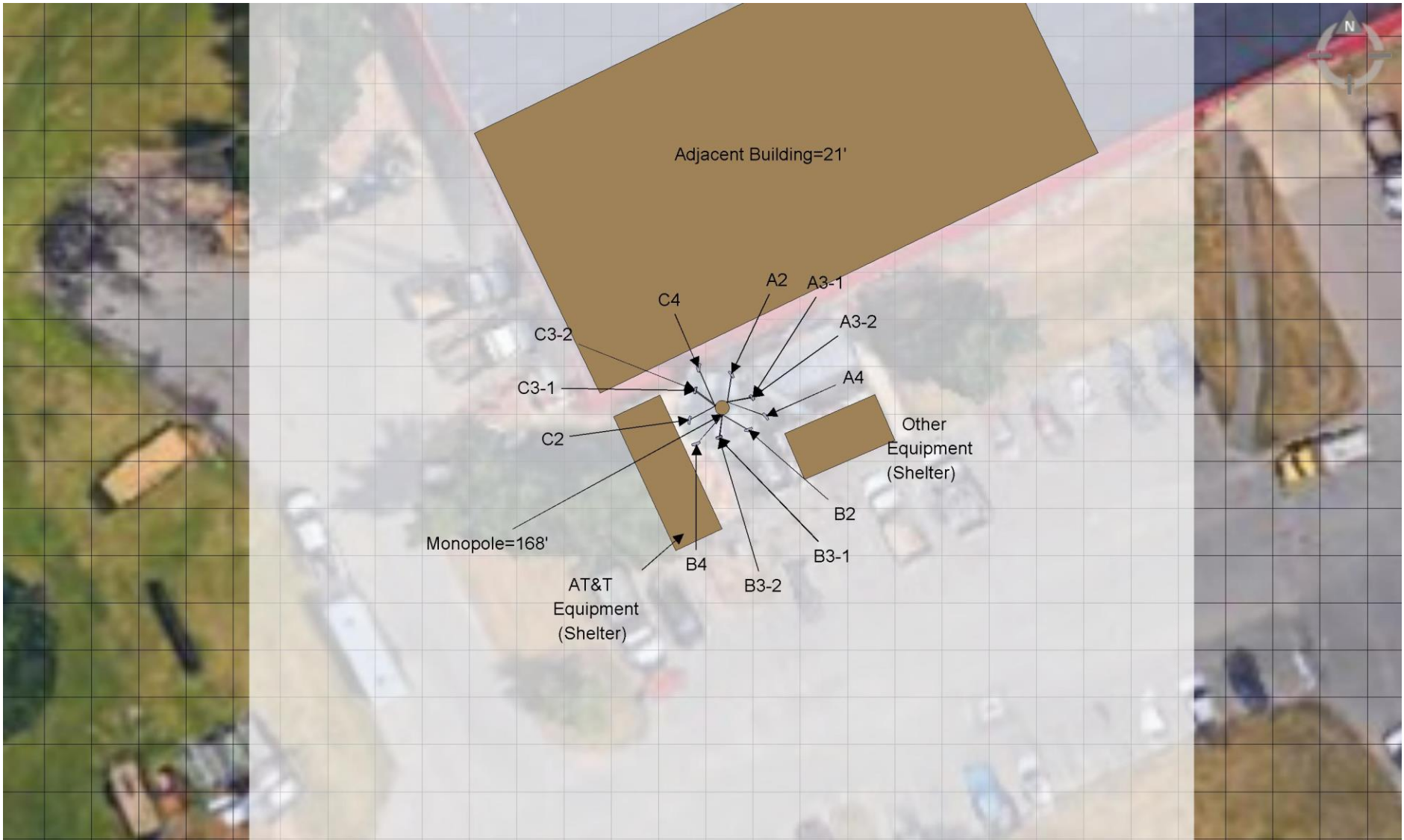
Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Proposed Barrier

Proposed Posts

Map Scale = 10 ft

4.3 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = 0.7%

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Proposed Barrier

Proposed Posts

Map Scale = 10 ft

5. Statement of Compliance

5.1 *Statement of AT&T Mobility Compliance*

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

AT&T Alpha Sector:

- No Action Required

AT&T Beta Sector:

- No Action Required

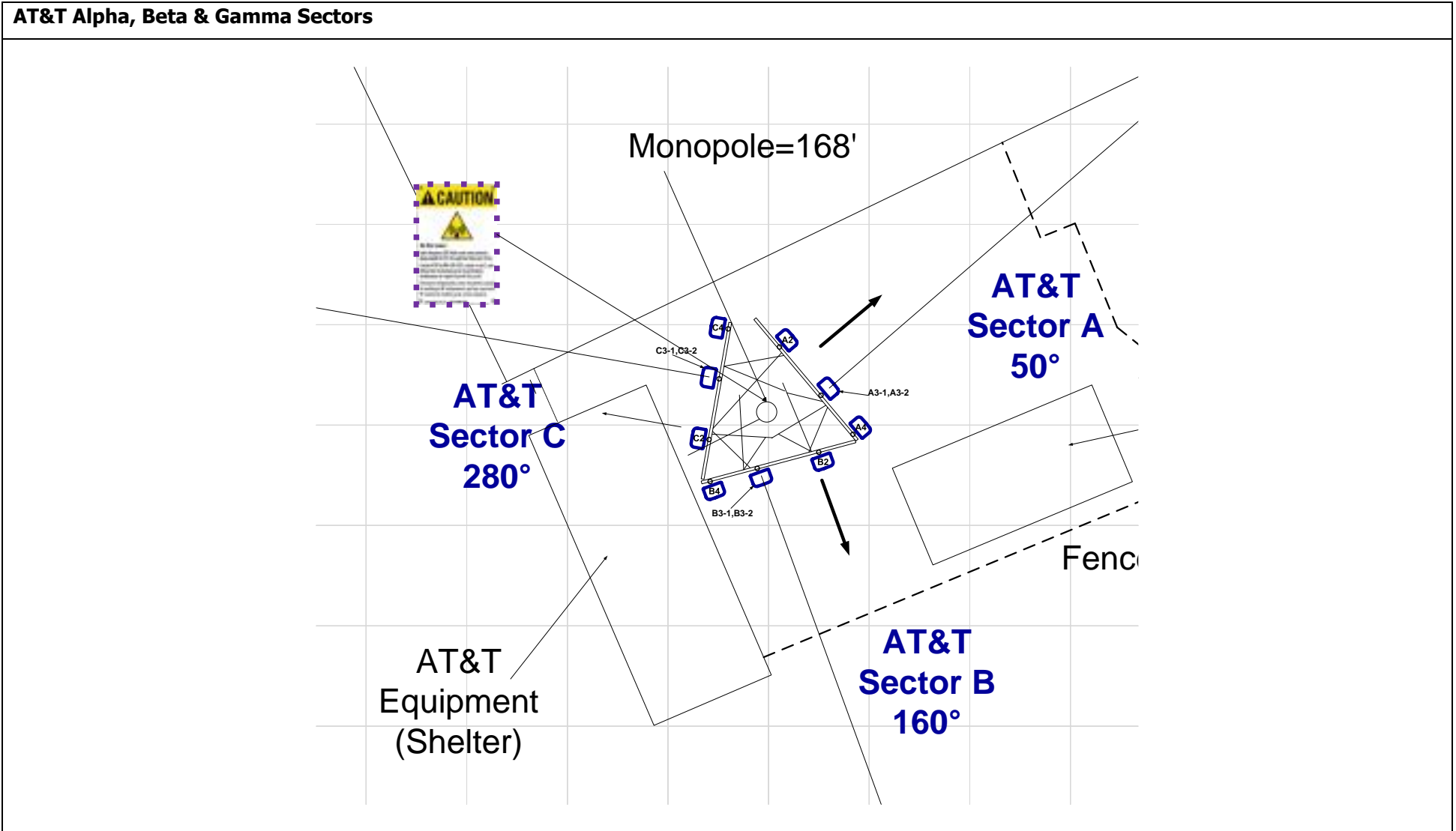
AT&T Gamma Sector:

- No Action Required

Monopole:

- One Caution 2B Sign to be posted on the Monopole at climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 11. (1 Total Sign)

Recommendations Map – Detailed View



AT&T Antenna Panel OMNI		Proposed Barrier Posts		Proposed Signage							Map Scale = 10 ft	
		Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock		

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of “0°” MUST be retained for C-BAND and/or DoD AAS[^] antenna(s) at all times to ensure that “EME (Predictive) Study” shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS[^] antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor¹ are used to calculate Transmitter Power & ERP/EIRP.

AT&T recommended to use worst-case tilts for the simulations.

¹ **Power Reduction Factor:** IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a “0.32” factor to calculate the “Actual Maximum” (time averaged) power value, which accounts for “Beam Scanning,” “Scheduling,” and “RBS Utilization” This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:

1. IEEE Access, *Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO* (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÅR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, *A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems* (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, *In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies* (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, *Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network* (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)
5. Ofcom Technical Report, *Electromagnetic Field (EMF) measurements near 5G mobile phone base stations* (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of “Generic” as an antenna model, or “Other Carrier” for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer’s published data regarding the antenna’s physical characteristics makes more conservative assumptions.

Where the frequency is unknown, MobileComm uses the closest frequency in the antenna’s range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

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

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

General Population/Uncontrolled exposure limits apply to situations in which the general public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 and 800 MHz Bands is approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

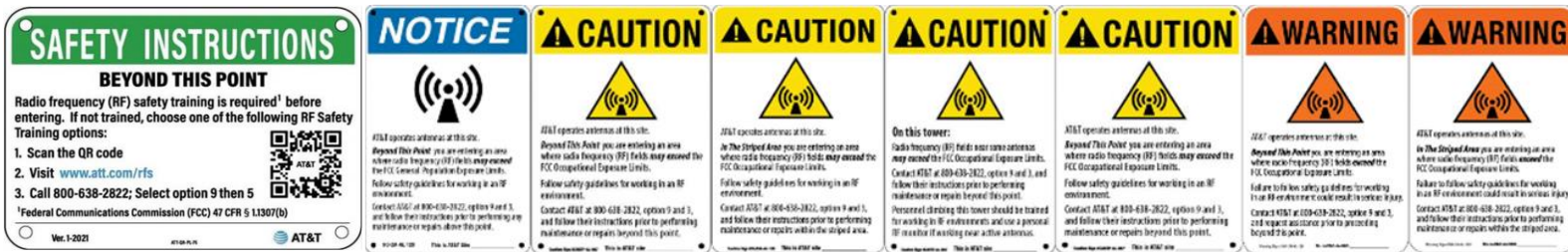
FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

- All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.
- The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:
 - adding new antennas that may have been located on the site
 - removing of any existing antennas
 - changes in the radiating power or number of RF emitters
- Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.



- Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.
- For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:
 - White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits
 - Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits
 - Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.
 - Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.
 - Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

Spatial Average Measurement A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: *Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.*

Training and Qualification Verification: *All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).*

Physical Access Control: *Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:*

- *Locked door or gate*
- *Alarmed door*
- *Locked ladder access*
- *Restrictive Barrier at antenna locations (e.g. Chain link with posted RF Sign)*

RF Signage: *Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.*

Assume all antennas are active: *Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.*

Maintain a 3 foot clearance from all antennas: *There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.*

Decibel (dB) – *A unit for measuring power or strength of a signal.*

Duty Cycle – *The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 75% corresponds to continuous operation.*

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – *The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.*

Generic Antenna – *For the purposes of this report, the use of “Generic” as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.*

Isotropic Antenna – *An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.*

Maximum Measurement – *This measurement represents the single largest measurement recorded when performing a spatial average measurement.*

Maximum Exposure Limit (MPE) – *The RMS and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.*

Occupational/Controlled Environment – *Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.*

Radio Frequency Radiation – *Electromagnetic waves that are propagated from antennas through space.*

Spatial Average Measurement – *A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.*

Transmitter Power Output (TPO) – *The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.



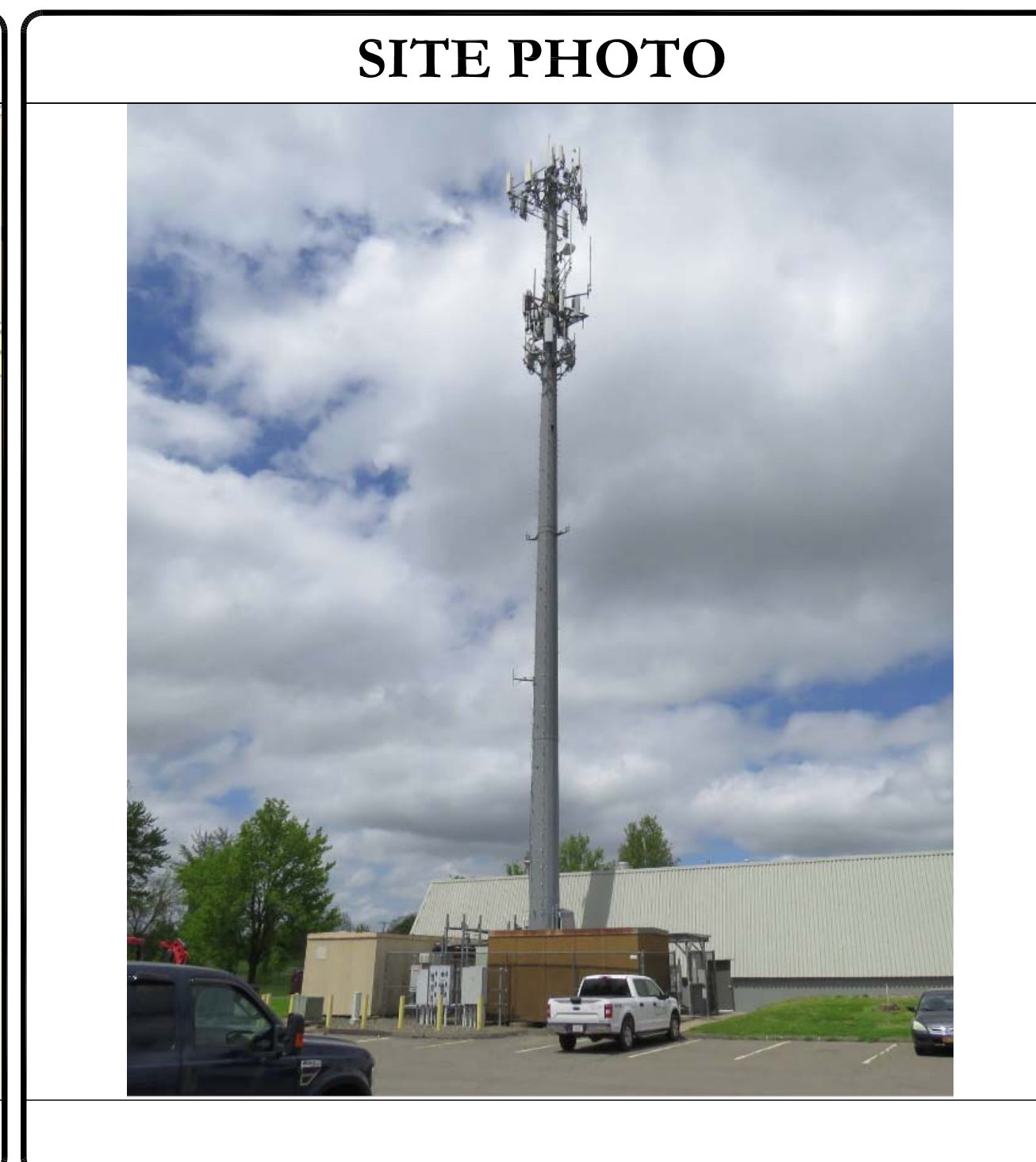
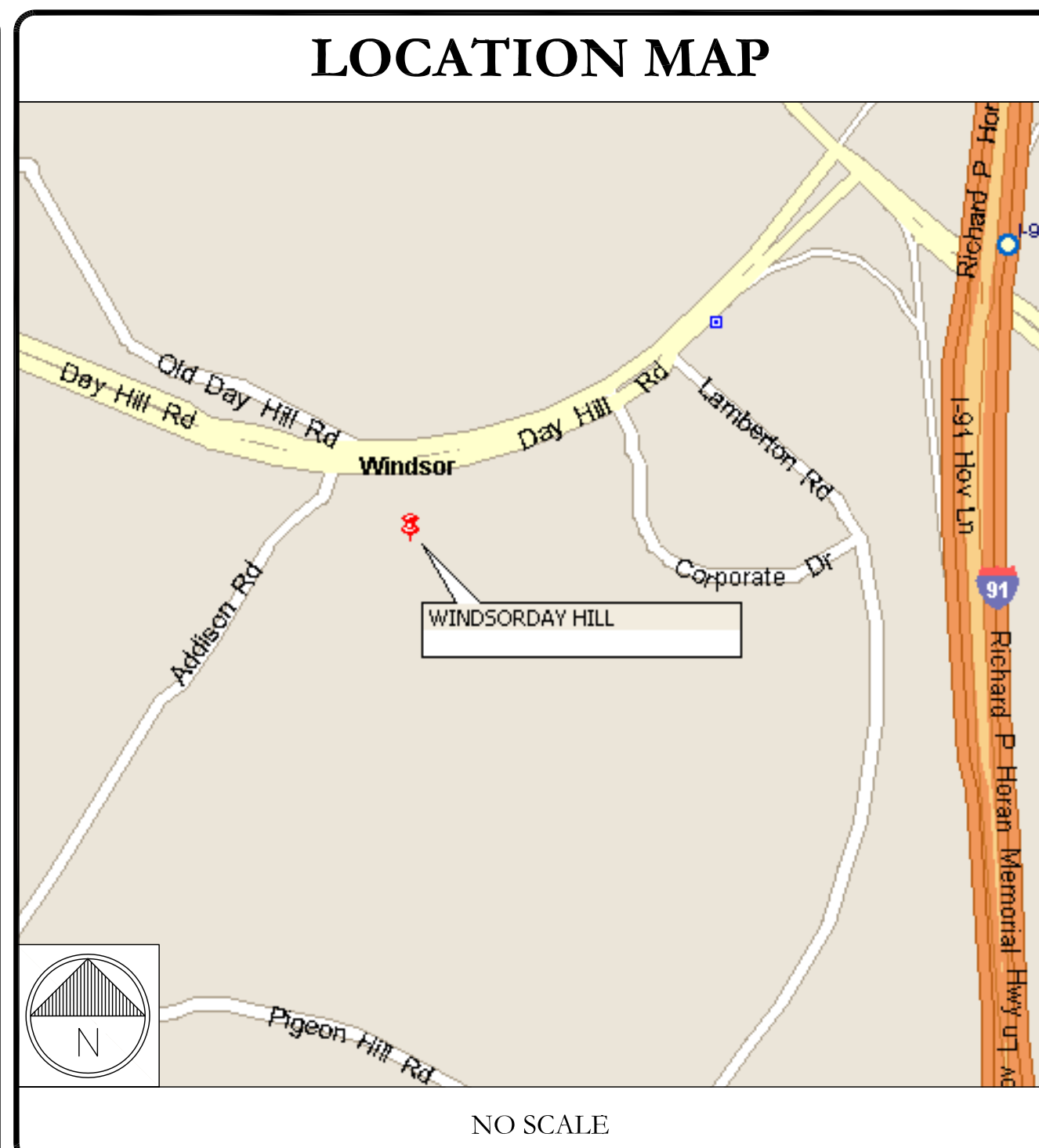
AT&T SITE NUMBER: CTL05139
AT&T SITE NAME: WINDSORDAY HILL
AT&T FA CODE: 10071331
AT&T PACE NUMBER: MRCTB061153, MRCTB061158, MRCTB061159, MRCTB061109, MRCTB061082
AT&T PROJECT: 5G NR 1SR CBAND , BBU ADD, 5G NR 1SR, 5G NR ACTIVATION

BUSINESS UNIT #: 842875
SITE ADDRESS: 99 DAY HILL ROAD
WINDSOR, CT 06095
COUNTY: HARTFORD
SITE TYPE: MONOPOLE
TOWER HEIGHT: 168'-0"



SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	WINDSORDAY HILL
SITE ADDRESS:	99 DAY HILL ROAD WINDSOR, CT 06095
COUNTY:	HARTFORD
MAP/PARCEL #:	9310
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.871139
LONGITUDE:	-72.671111
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	172'
CURRENT ZONING:	NZ
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:	PUBLIC WORKS GARAGE 275 BROAD STREET WINDSOR, CT 06095
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 800-286-2000
TELCO PROVIDER:	AT&T 860-620-6900

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	MOUNT MODIFICATION DRAWINGS



AT&T SITE NUMBER: CTL05139

BU #: 842875
WINDSORDAY HILL

99 DAY HILL ROAD
 WINDSOR, CT 06095

EXISTING
 168'-0" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	6/14/22	TDG	PRELIMINARY REVIEW	MTJ
0	7/13/22	TDG	CONSTRUCTION	MTJ
1	7/27/22	TDG	CONSTRUCTION	MTJ

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 VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCastle.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCastle.COM HEATHER MILLER - AES HEATHER.MILLER@CROWNCastle.COM
NOTE:	PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:

- REMOVE (3) KATHREIN - 800-10121 ANTENNAS
- REMOVE (2) KATHREIN - 800-10965 ANTENNAS
- REMOVE (1) KATHREIN - 800-10966 ANTENNA
- REMOVE (1) CCI - TPA-65R-LCUUUU-H8 ANTENNA
- REMOVE (2) QUINTEL - QS66512-2 ANTENNAS
- REMOVE (3) CCI - DTMABP7819VG12A TMAs
- REMOVE (1) RAYCAP - DC6-48-60-0-8F SQUID
- INSTALL MOUNT MODIFICATIONS PER MOUNT MODIFICATION DESIGN BY POWER OF DESIGN DATED MAY 27, 2022
- INSTALL (6) ERICSSON - AIR6449 B77D (BELOW) + AIR6419 B77G (ABOVE) STACKED ANTENNAS
- INSTALL (1) QUINTEL - QD8616-7 ANTENNA
- INSTALL (2) QUINTEL - QD6616-7 ANTENNAS
- INSTALL (1) RAYCAP - DC9-48-60-24-8C-EV SQUID
- INSTALL (3) Y CABLES FOR EXISTING DUAL BAND RADIOS
- INSTALL (1) 6AWG DC CABLE (7/8")
- INSTALL (1) 24-PAIR FIBER CABLE (3/8")

GROUND SCOPE OF WORK:

- REMOVE (1) UMTS CABINET
- REMOVE (6) CCI - TPX-070821 TRIPLEXERS
- REMOVE (3) CCI - DBC2055F1V1-2 DIPLEXERS
- REMOVE & REPLACE BATTERIES W/ (5) STRINGS OF BATTERIES
- INSTALL (1) 6648 WITH XCEDE
- INSTALL (3) RECTIFIERS

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	2018 CONNECTICUT SBC/2015 IBC
MECHANICAL	2018 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2018 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

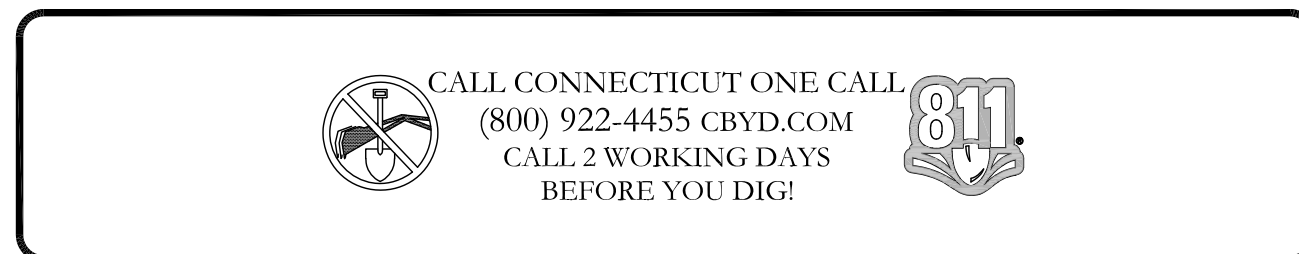
STRUCTURAL ANALYSIS: MORRISON HERSHFIELD
 DATED: 6/2/22

MOUNT MODIFICATION ANALYSIS: POWER OF DESIGN
 DATED: 5/27/22

RFDS REVISION: N/A
 DATED: 4/18/22

ORDER ID: 611136
 REVISION: 0

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.



MTS ENGINEERING P.L.L.C.
 BER:2386985
 Expires 3/31/22

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:	REVISION:
T-1	1

92492.008.01_WINDSORDAY_HILL.dwg - SheetT-1 - User: kevin.turkoll - Jul 27, 2022 - 2:03pm

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.

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.

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION CARRIER: AT&T TOWER OWNER: CROWN CASTLE USA INC.

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.

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.

Table with 3 columns: SYSTEM, CONDUCTOR, COLOR. Lists color codes for various systems like 120/240V, 120/208V, 277/480V, and DC VOLTAGE.

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

ABBREVIATIONS:

- ANT ANTENNA
(E) EXISTING
FIF FACILITY INTERFACE FRAME
GEN GENERATOR
GPS GLOBAL POSITIONING SYSTEM

AT&T logo and address: 575 MOROSGO DRIVE ATLANTA, GA 30324-3300

CROWN CASTLE logo and address: 3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065

B+T GRP logo and address: 1717 S. BOULDER SUITE 300 TULSA, OK 74119

AT&T SITE NUMBER: CTL05139

BU #: 842875 WINDSORDAY HILL

99 DAY HILL ROAD WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

ISSUED FOR:

Table with 5 columns: REV, DATE, DRWN, DESCRIPTION, DES./QA. Shows revision history for preliminary review and construction.

Professional Engineer seal for Kevin Turkoff, No. 23924, expires 7/27/22.

MTS ENGINEERING P.L.L.C. BER:2386985 Expires 3/31/23

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SHEET NUMBER: T-2 REVISION: 1



575 MOROSGO DRIVE
ATLANTA, GA 30324-3300



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



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

AT&T SITE NUMBER: CTL05139

BU #: 842875
WINDSORDAY HILL

99 DAY HILL ROAD
WINDSOR, CT 06095

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

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0	7/13/22	TDG	CONSTRUCTION	MTJ
1	7/27/22	TDG	CONSTRUCTION	MTJ



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

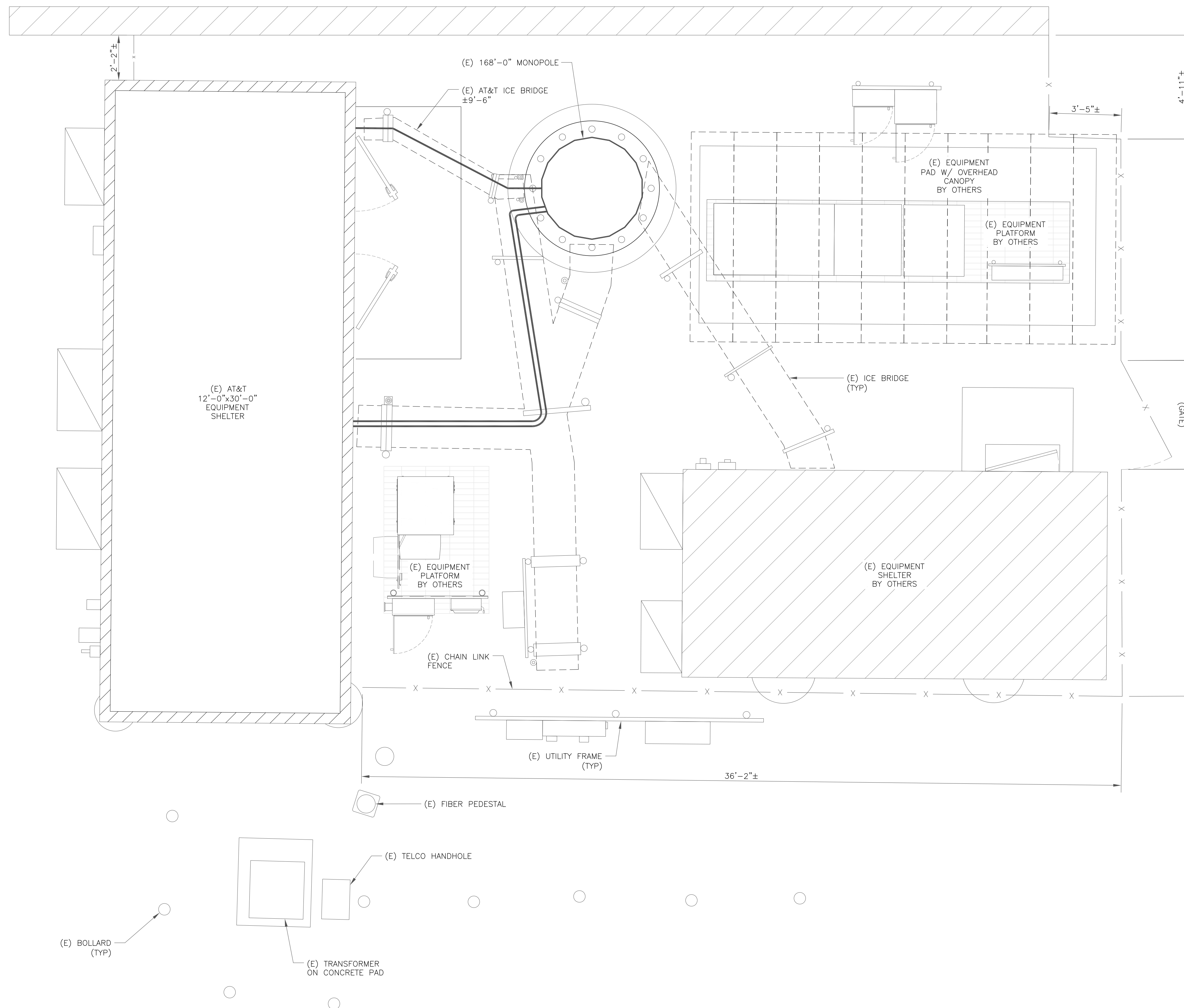
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SHEET NUMBER:

C-1.1

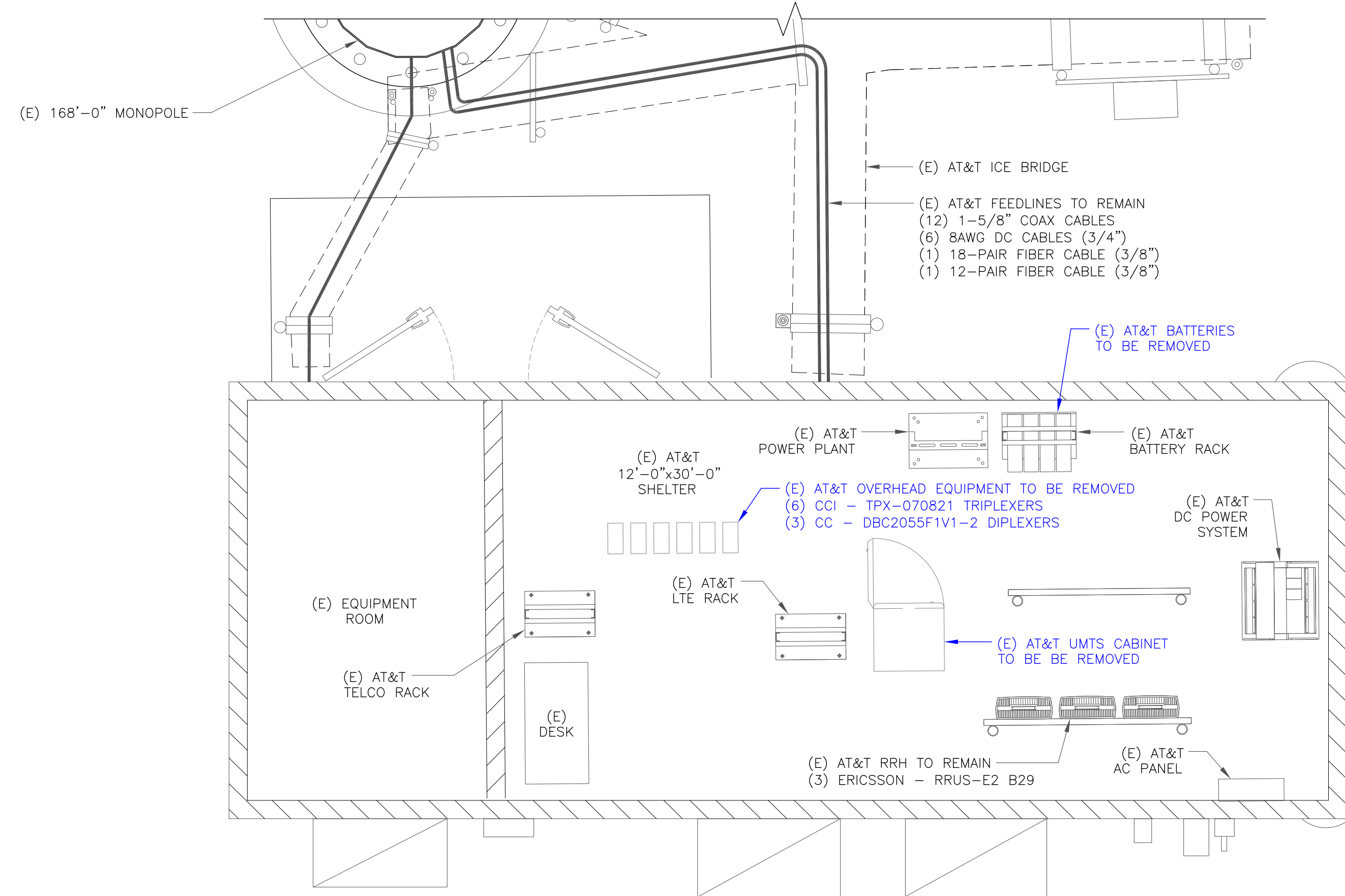
REVISION:

1

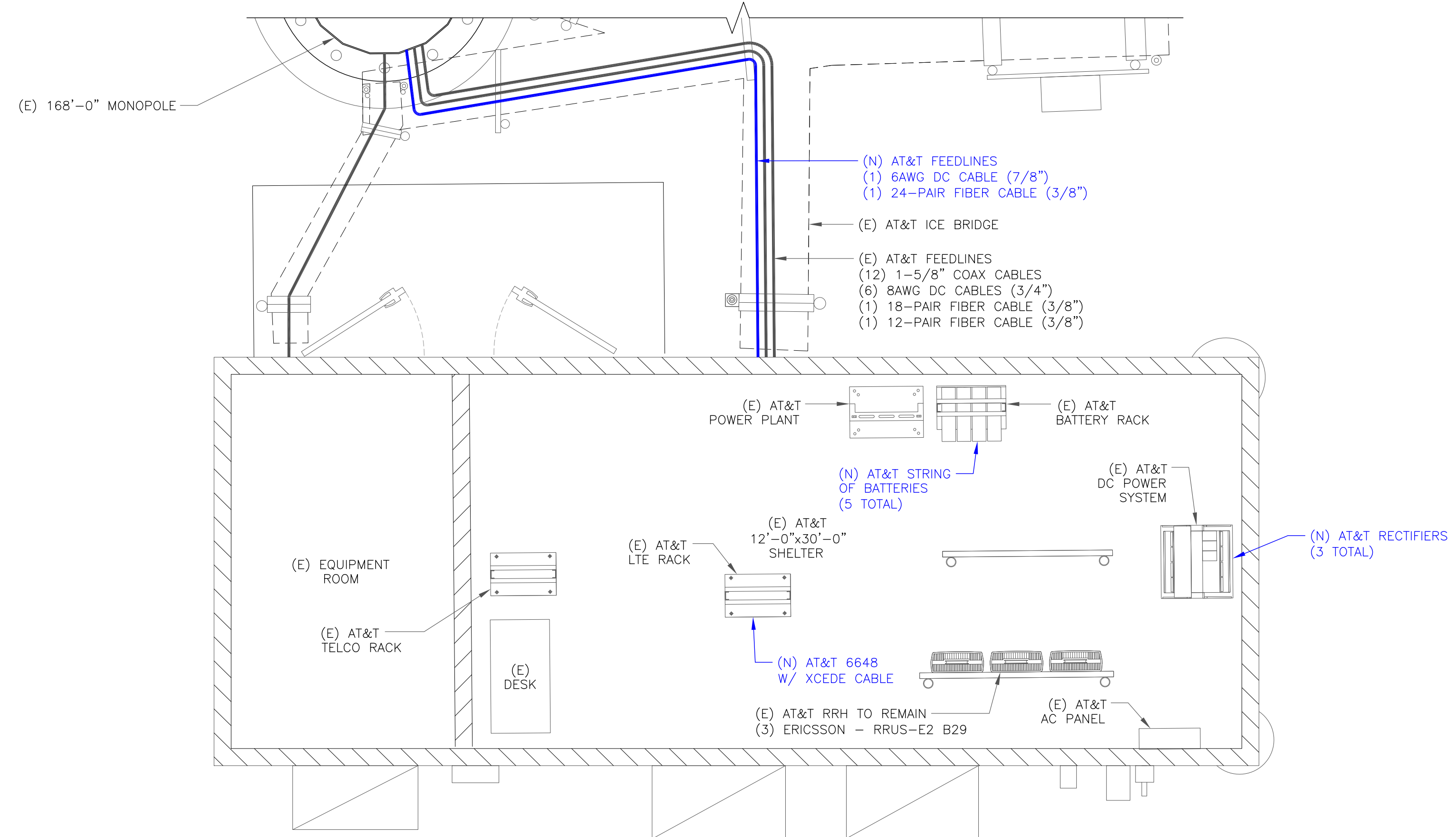
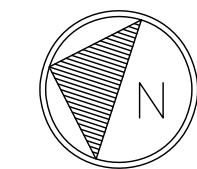


1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)

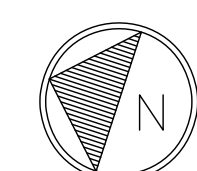




1 EXISTING EQUIPMENT PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



- GROUND SCOPE OF WORK:**
- REMOVE (6) CCI - TPX-070821 TRIPLEXERS
 - REMOVE (3) CCI - DBC2055F1V1-2 DIPLEXERS
 - REMOVE (1) UMS CABINET
 - REMOVE & REPLACE BATTERIES W/ (5) STRINGS OF BATTERIES
 - INSTALL 6648 WITH XCEDE CABLE
 - INSTALL (3) RECTIFIERS

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

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AT&T SITE NUMBER: CTL05139

BU #: 842875
WINDSORDAY HILL

99 DAY HILL ROAD
WINDSOR, CT 06095

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

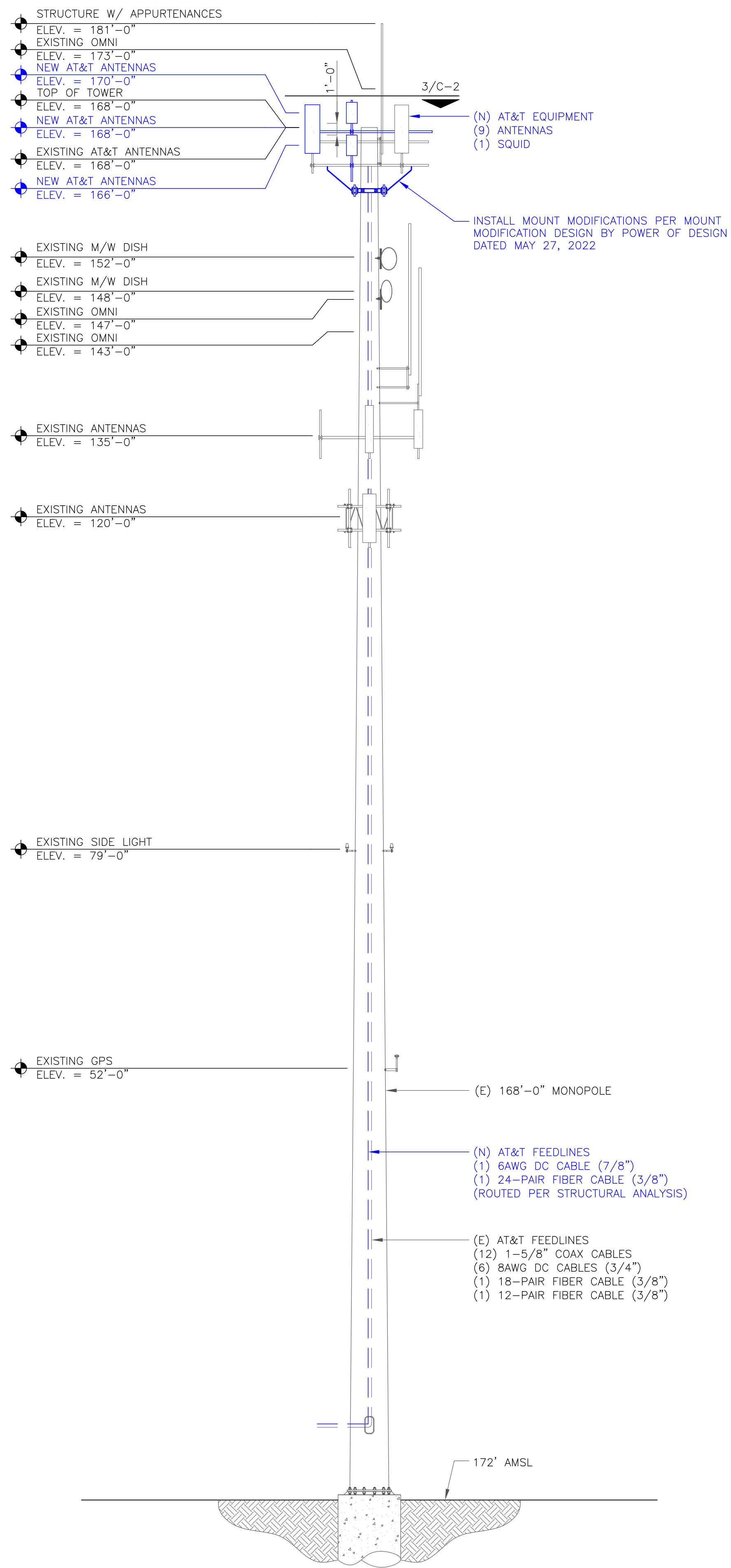
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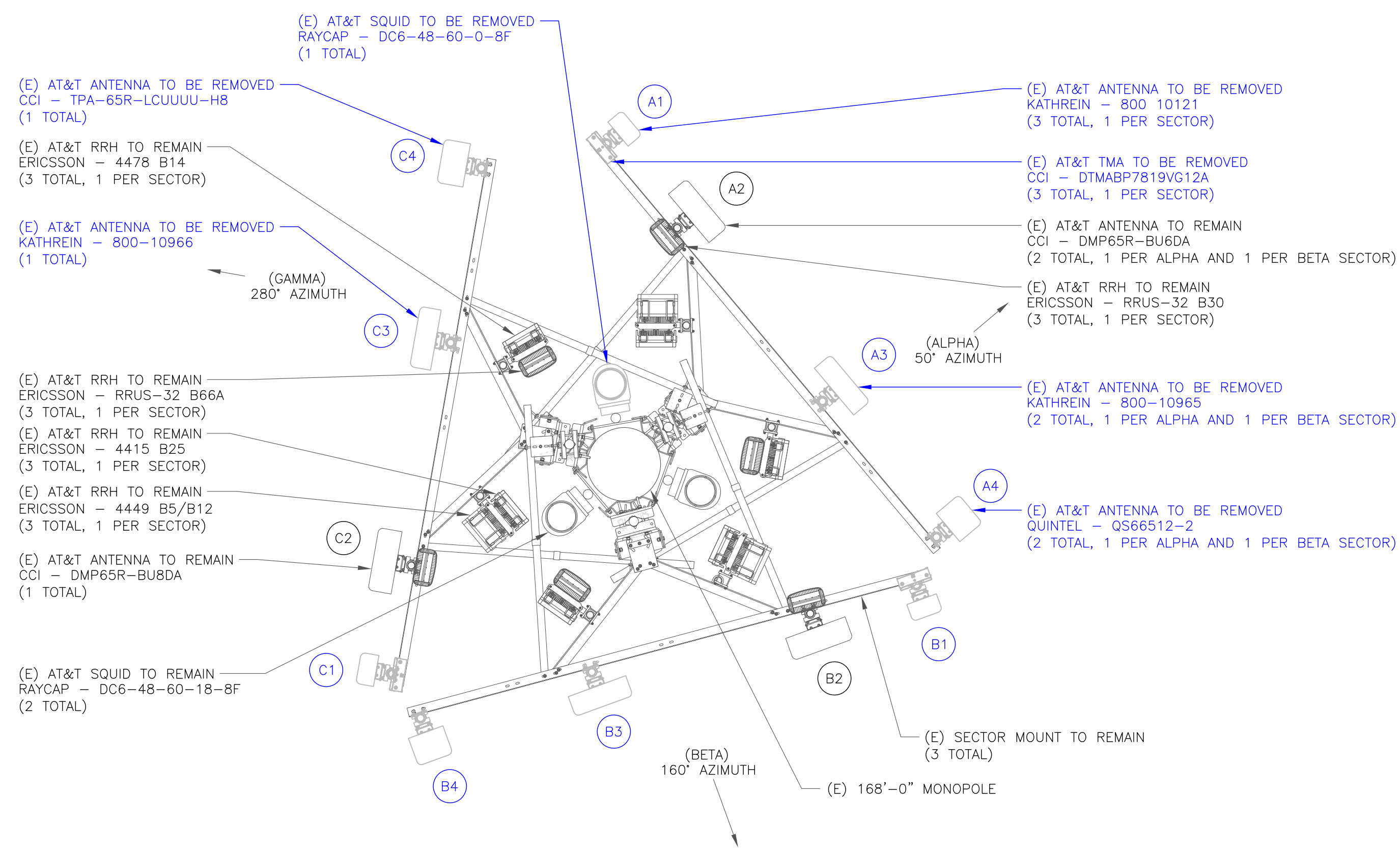
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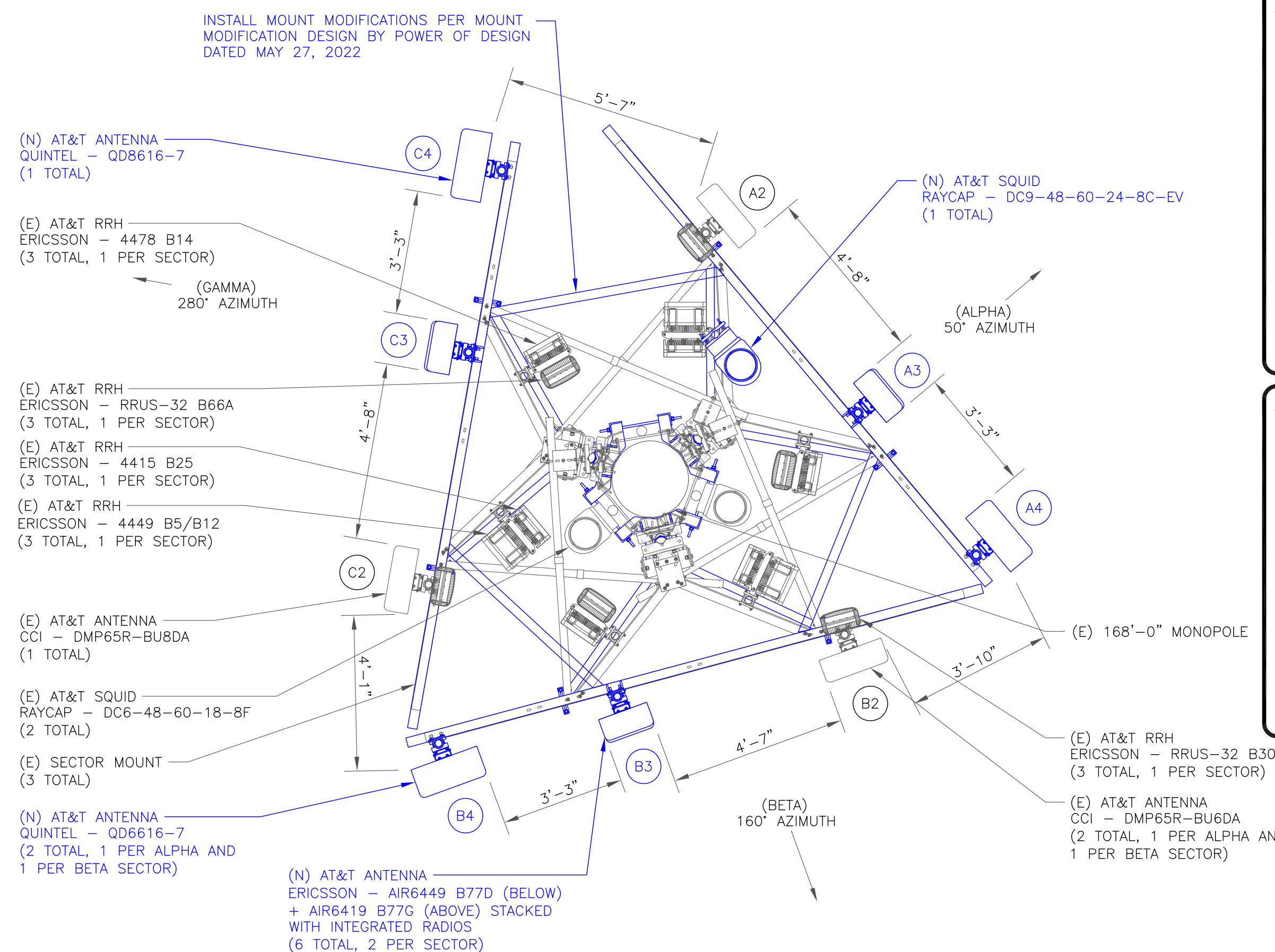
SHEET NUMBER: **C-1.2** REVISION: **1**



1 FINAL ELEVATION
 SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
 SCALE: 3/8"=1'-0" (FULL SIZE)
 3/16"=1'-0" (11x17)



3 FINAL ANTENNA PLAN
 SCALE: 3/8"=1'-0" (FULL SIZE)
 3/16"=1'-0" (11x17)

"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.

- INSTALLER NOTES:
- REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
 - REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
 - CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
 - 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
 - 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
 - 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
 - ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
 - 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

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99 DAY HILL ROAD
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EXISTING
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SHEET NUMBER: **C-2** REVISION: **1**

92492.008.01_WINDSORDAY HILL.dwg - Sheet:C-2 - User: kevin.turkoll - Jul 27, 2022 - 2:05pm

**FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)**

ALPHA																		
POSITION	ANTENNA				RADIO			DIPLEXER		TMA		SURGE PROTECTION		CABLES				
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	-	-	-	-	-	-	-	-	-	-	-	-	1	(E) RAYCAP - DC6-48-60-18-8F SQUID	3	(E) 8AWG DC	3/4"	218'-0"
															1	(E) 18-PAIR CABLE	3/8"	218'-0"
A2	LTE 700/ 5G 850/ LTE WCS	(E) CCI - DMP65R-BU6DA	50°	168'-0"	1 1	(E) ERICSSON - 4449 B5/B12 (1) Y-CABLE	TOWER	-	-	-	-	-	-	-	-	-	-	-
						(E) ERICSSON - RRUS-32 B30	TOWER											
A4	5G CBAND /5G DOD	(N) ERICSSON - AIR6449 B77D (BELOW) + AIR6419 B77G (ABOVE) STACKED	50°	166'-0" 170'-0"	-	INTEGRATED WITHIN	TOWER	-	-	-	-	-	-	-	-	-	-	-
A4	LTE 700/ LTE 1900/ LTE AWS/ 5G 1900/ 5G AWS	(N) QUINTEL - QD6616-7	50°	168'-0"	1 1 1 1	(E) ERICSSON - 4415 B25 (E) ERICSSON - 4478 B14 (E) ERICSSON - RRUS-32 B66A (E) ERICSSON - RRUS-E2 B29	TOWER TOWER TOWER GROUND	-	-	-	-	-	-	-	2	(E) COAX	1-5/8"	218'-0"
BETA																		
B1	-	-	-	-	-	-	-	-	-	-	-	-	1	(E) RAYCAP - DC6-48-60-18-8F SQUID	3	(E) 8AWG DC	3/4"	218'-0"
															1	(E) 12-PAIR CABLE	3/8"	218'-0"
B2	LTE 700/ 5G 850/ LTE WCS	(E) CCI - DMP65R-BU6DA	160°	168'-0"	1 1	(E) ERICSSON - 4449 B5/B12 (1) Y-CABLE	TOWER	-	-	-	-	-	-	-	-	-	-	-
						(E) ERICSSON - RRUS-32 B30	TOWER											
B3	5G CBAND /5G DOD	(N) ERICSSON - AIR6449 B77D (BELOW) + AIR6419 B77G (ABOVE) STACKED	160°	166'-0" 170'-0"	-	INTEGRATED WITHIN	TOWER	-	-	-	-	-	-	-	-	-	-	-
B4	LTE 700/ LTE 1900/ LTE AWS/ 5G 1900/ 5G AWS	(N) QUINTEL - QD6616-7	160°	168'-0"	1 1 1 1	(E) ERICSSON - 4415 B25 (E) ERICSSON - 4478 B14 (E) ERICSSON - RRUS-32 B66A (E) ERICSSON - RRUS-E2 B29	TOWER TOWER TOWER GROUND	-	-	-	-	-	-	-	2	(E) COAX	1-5/8"	218'-0"
GAMMA																		
C1	-	-	-	-	-	-	-	-	-	-	-	-	1	(N) RAYCAP - DC9-48-60-24-8C-EV SQUID	1	(N) 6AWG DC CABLE	7/8"	218'-0"
															1	(N) 24-PAIR CABLE	3/8"	218'-0"
C2	LTE 700/ 5G 850/ LTE WCS	(E) CCI - DMP65R-BU8DA	280°	168'-0"	1 1	(E) ERICSSON - 4449 B5/B12 (1) Y-CABLE	TOWER	-	-	-	-	-	-	-	-	-	-	-
						(E) ERICSSON - RRUS-32 B30	TOWER											
C3	5G CBAND /5G DOD	(N) ERICSSON - AIR6449 B77D (BELOW) + AIR6419 B77G (ABOVE) STACKED	280°	166'-0" 170'-0"	-	INTEGRATED WITHIN	TOWER	-	-	-	-	-	-	-	-	-	-	-
C4	LTE 700/ LTE 1900/ LTE AWS/ 5G 1900/ 5G AWS	(N) QUINTEL - QD6616-7	280°	168'-0"	1 1 1 1	(E) ERICSSON - 4415 B25 (E) ERICSSON - 4478 B14 (E) ERICSSON - RRUS-32 B66A (E) ERICSSON - RRUS-E2 B29	TOWER TOWER TOWER GROUND	-	-	-	-	-	-	-	2	(E) COAX	1-5/8"	218'-0"
															6	(E) COAX	1-5/8"	218'-0"

NOTE:
(E) - EXISTING
(N) - NEW

UNUSED FEEDLINES: 6 (E) COAX 1-5/8" 218'-0"



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BU #: 842875
WINDSOR DAY HILL

99 DAY HILL ROAD
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SHEET NUMBER: **C-3** REVISION: **1**

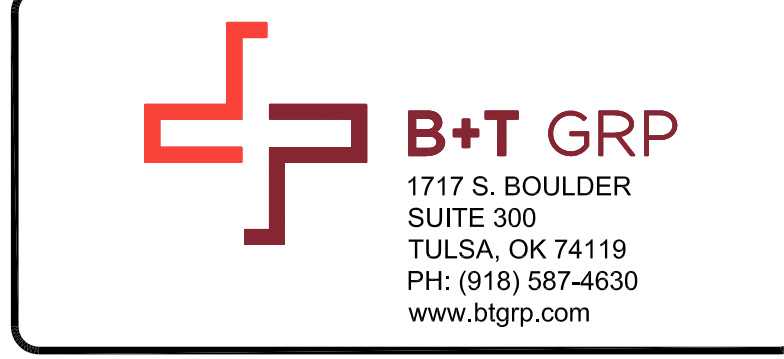
1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE



575 MOROSGO DRIVE
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SHEET NUMBER: **C-4** REVISION: **1**

1 NOT USED
SCALE: NOT TO SCALE

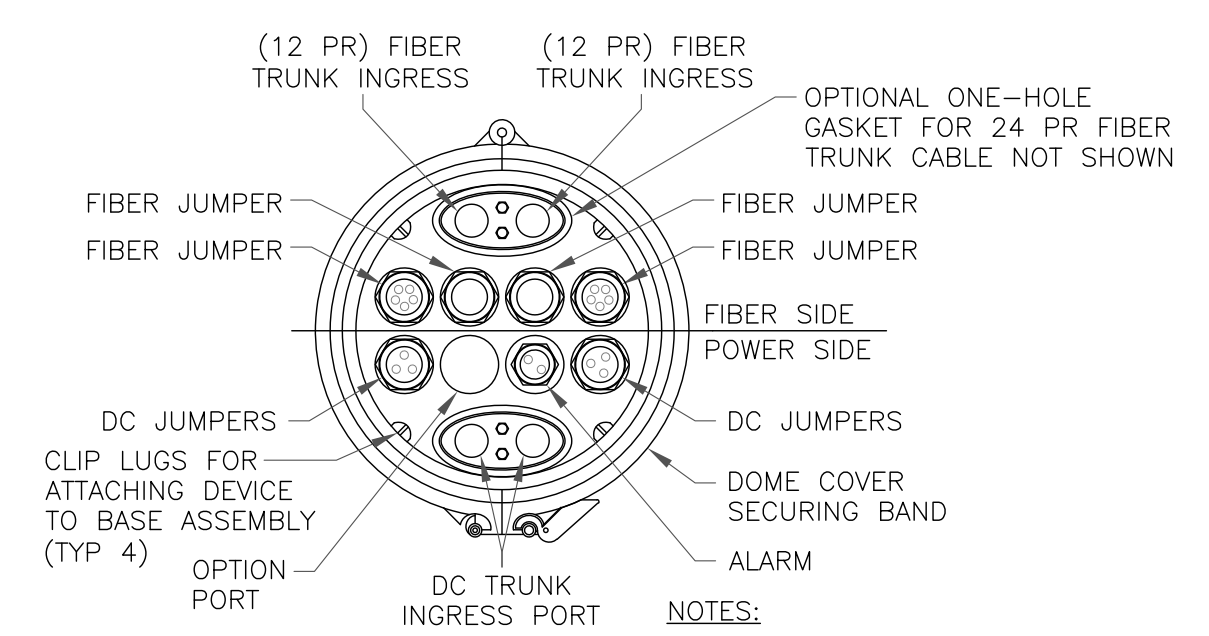
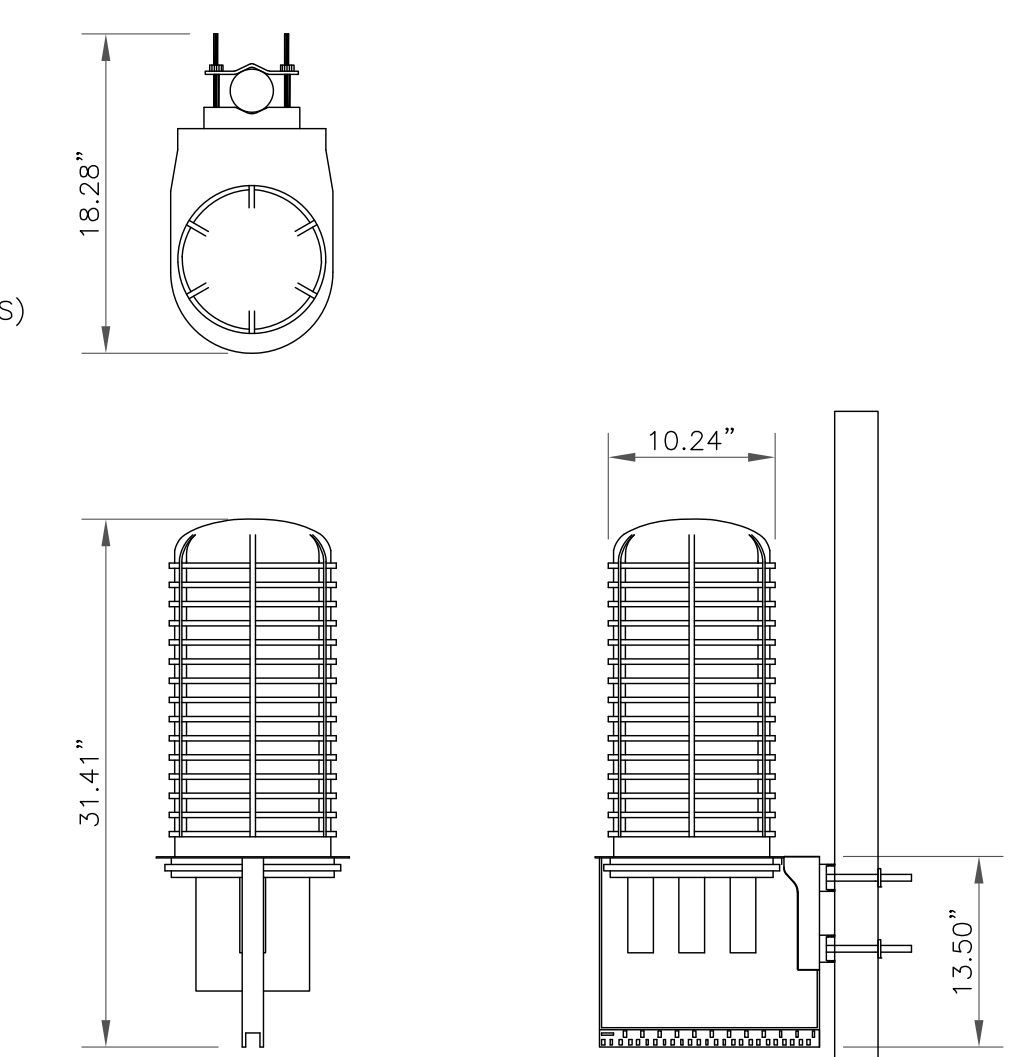
2 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

RAYCAP
DC9-48-60-24-8C-EV

RAYCAP - DC9-48-60-24-8C-EV
SIZE: 10.24x31.40 IN.
WEIGHT: 26.2 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 330 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

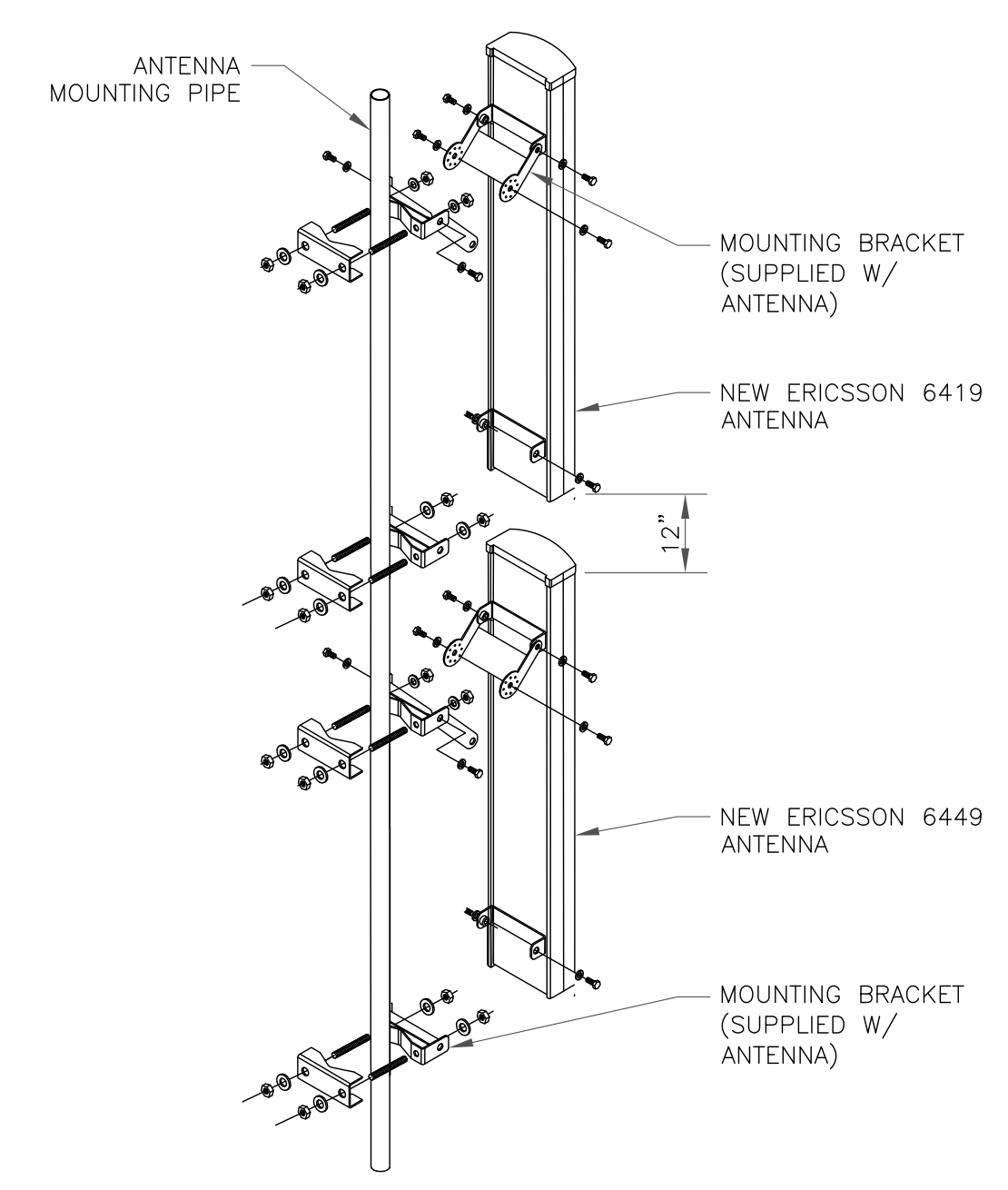
CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION



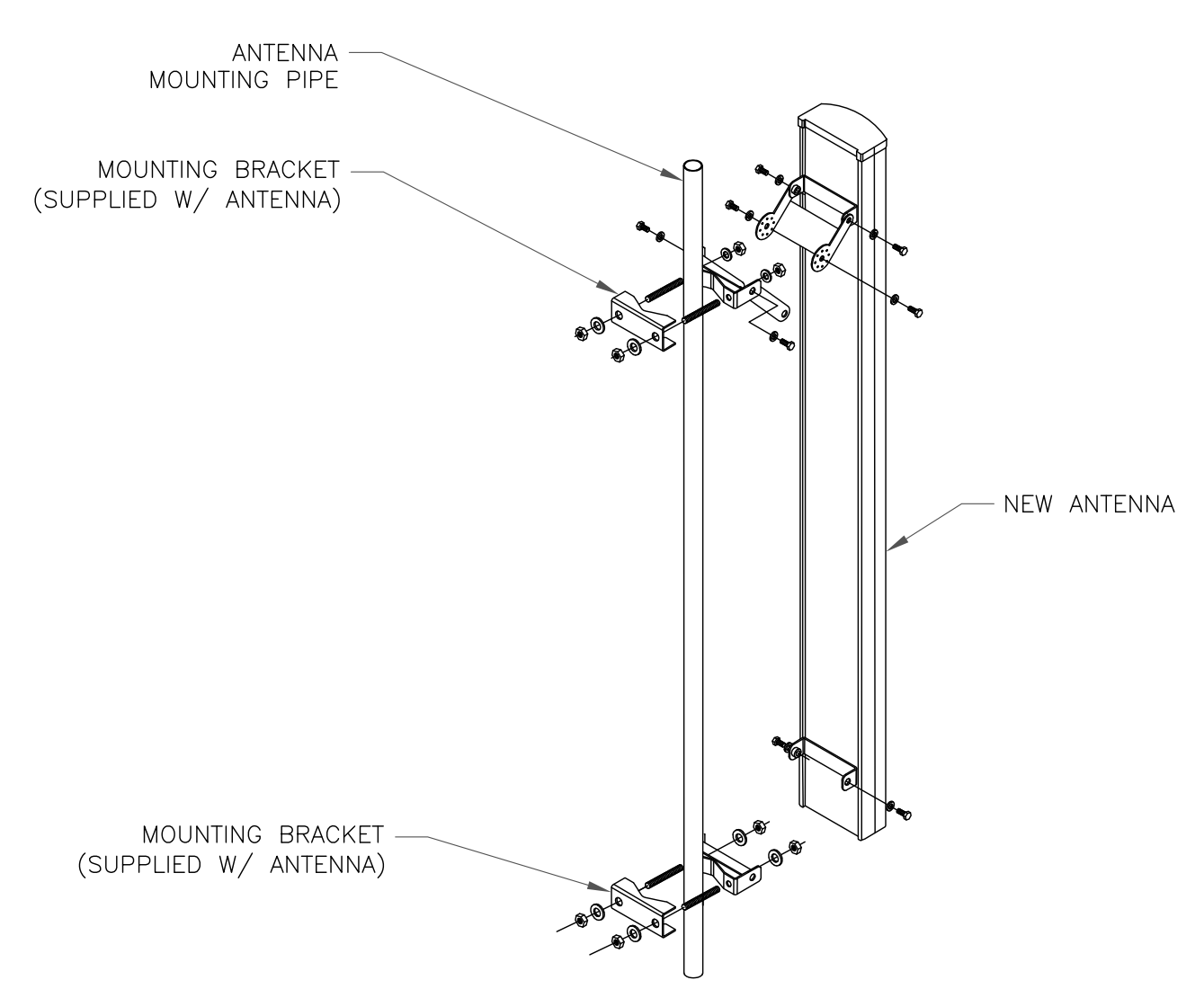
- NOTES:
- REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

INSTALLER NOTE:
ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

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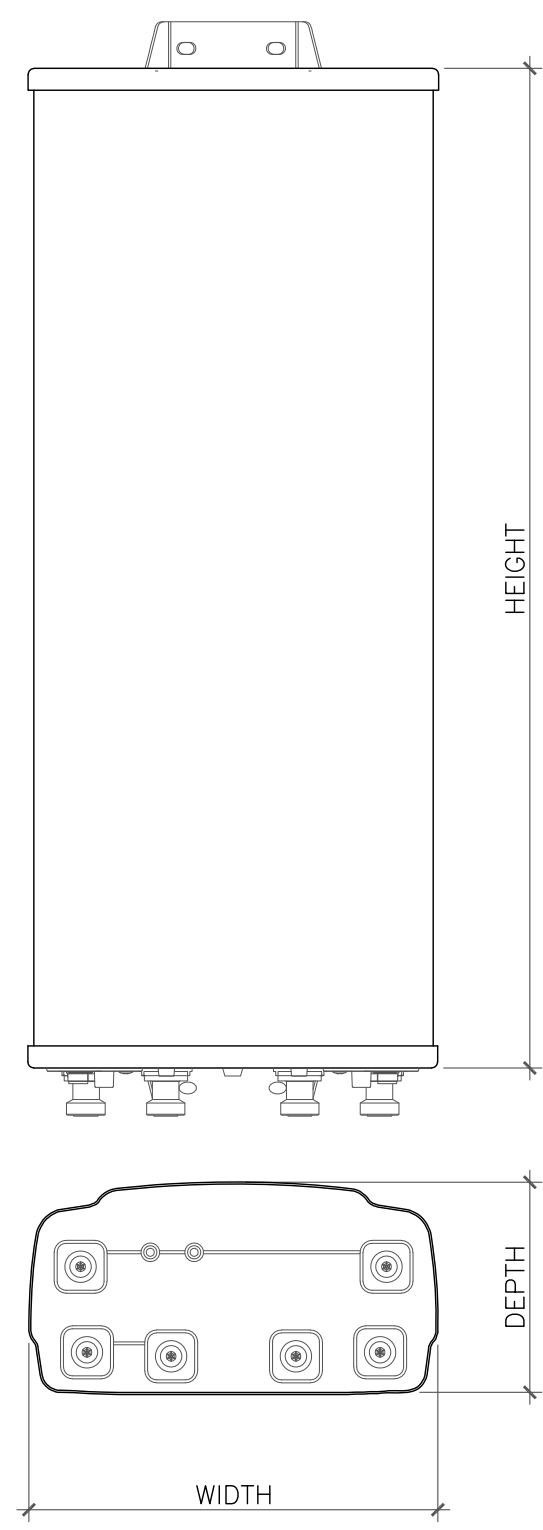


4 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE



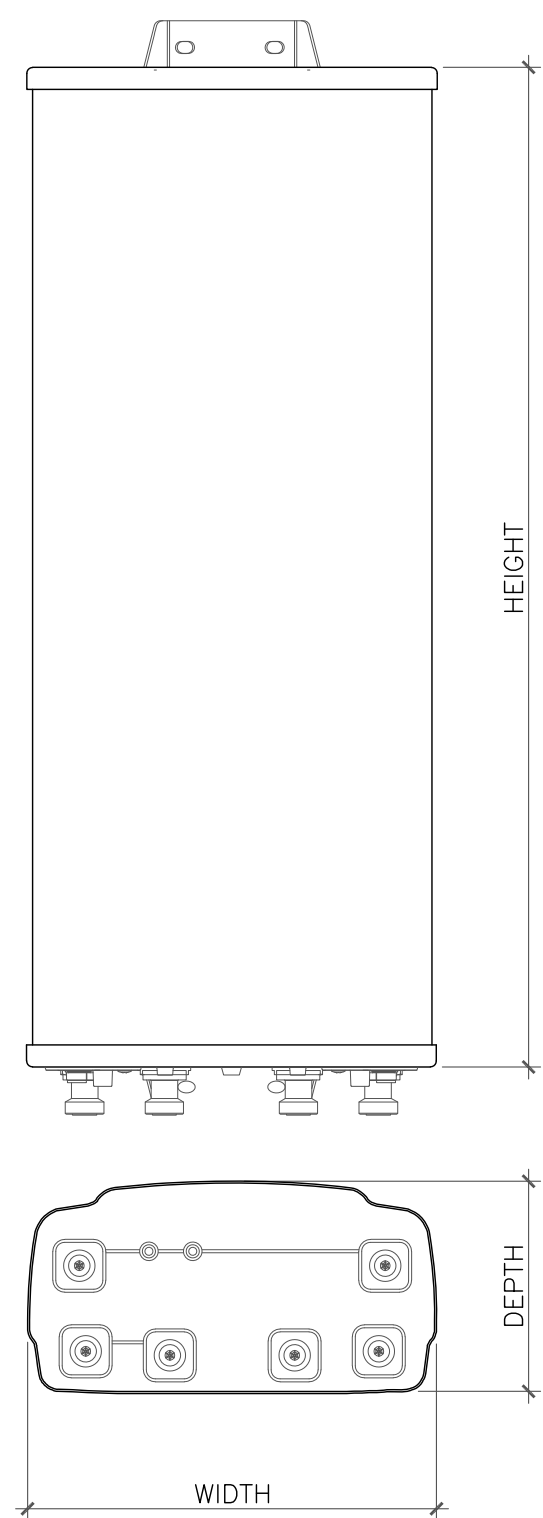
5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE



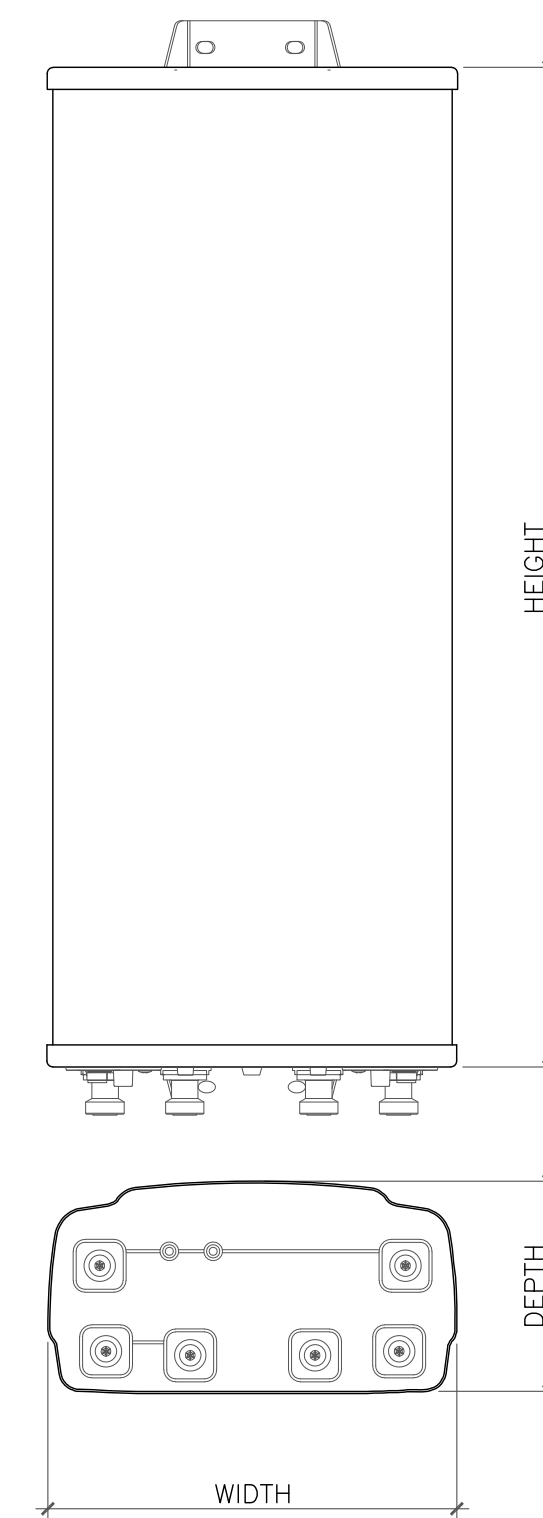
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6419 B77G	31.10"	16.10"	7.30"	44.0 lbs
AIR 6449 B77D	30.39"	15.87"	8.07"	81.60 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QD6616-7	72.00"	22.00"	9.60"	59.1 lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QD8616-7	96.00"	22.00"	9.60"	68.2 lbs

3 ANTENNA DETAIL
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C-5

REVISION:
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4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- ⊙ COPPER GROUND ROD
- ⊗ GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

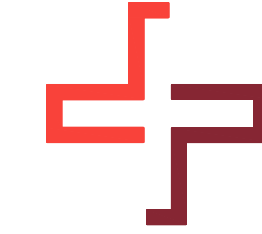
DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.



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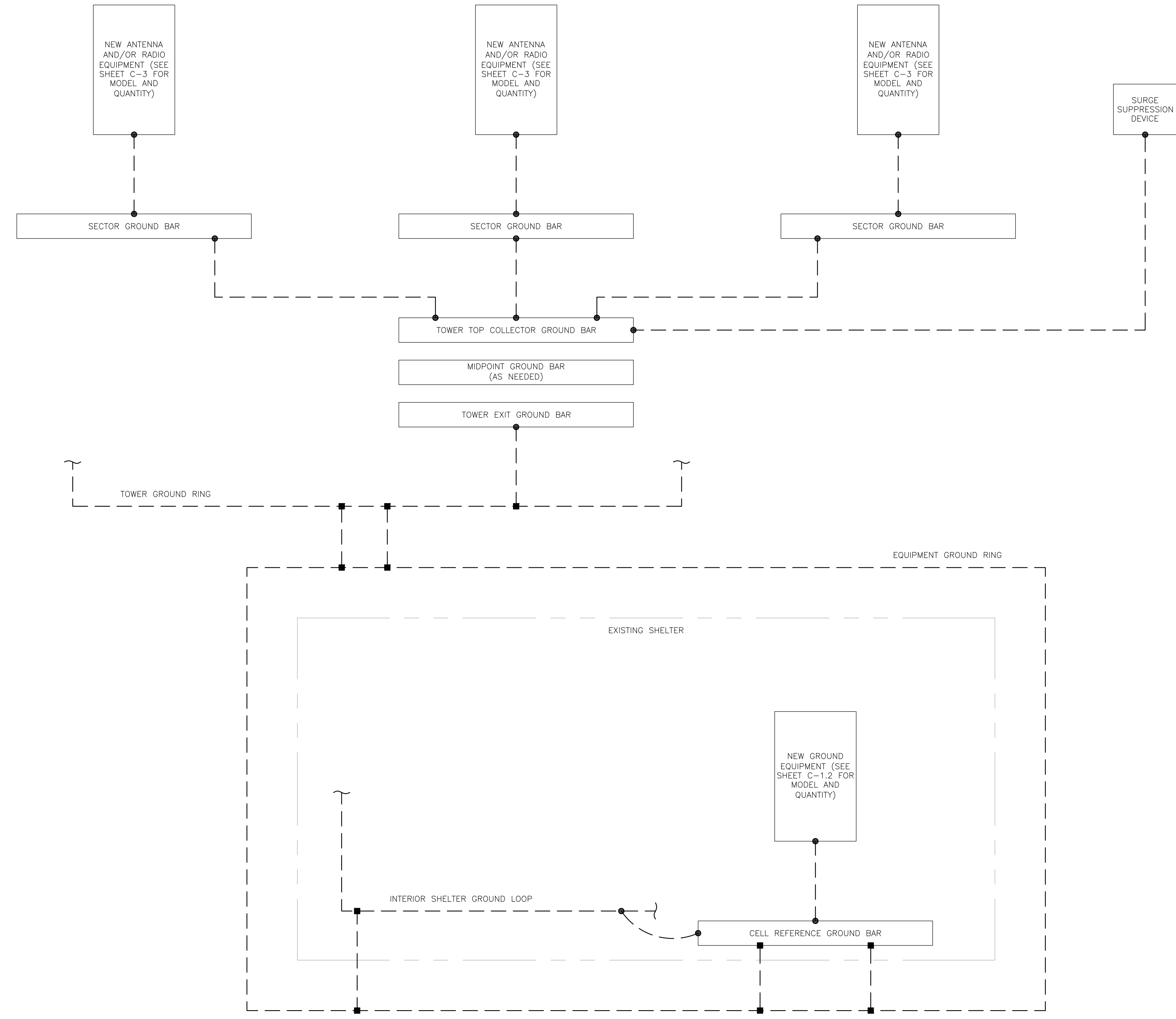
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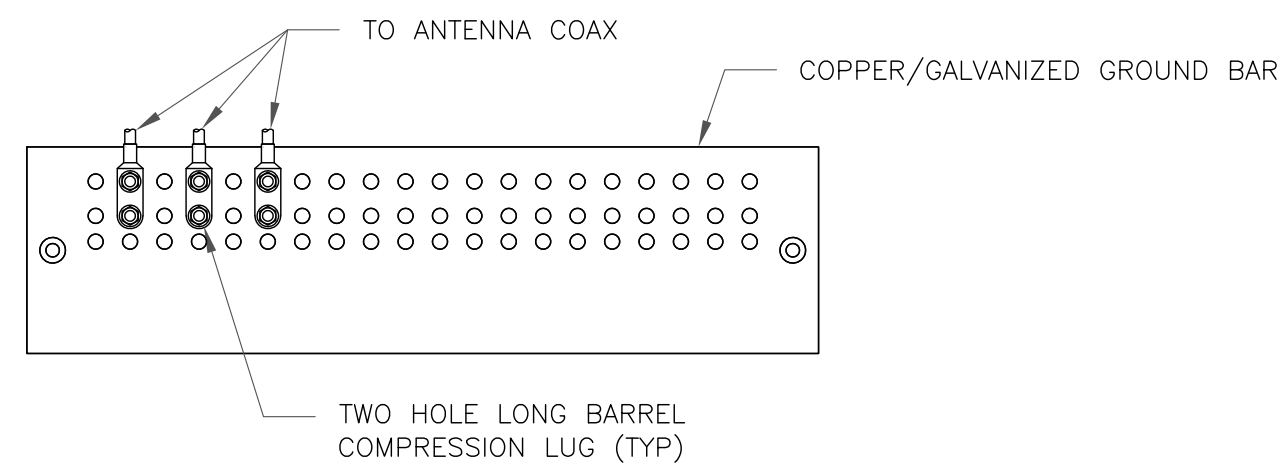
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: **G-1** REVISION: **1**



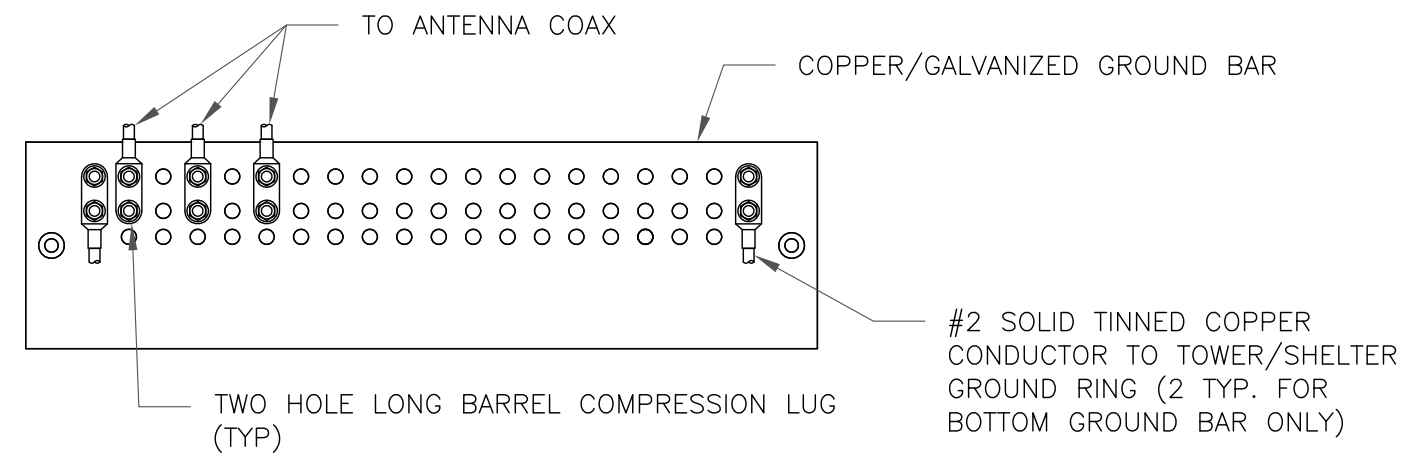
1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE



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

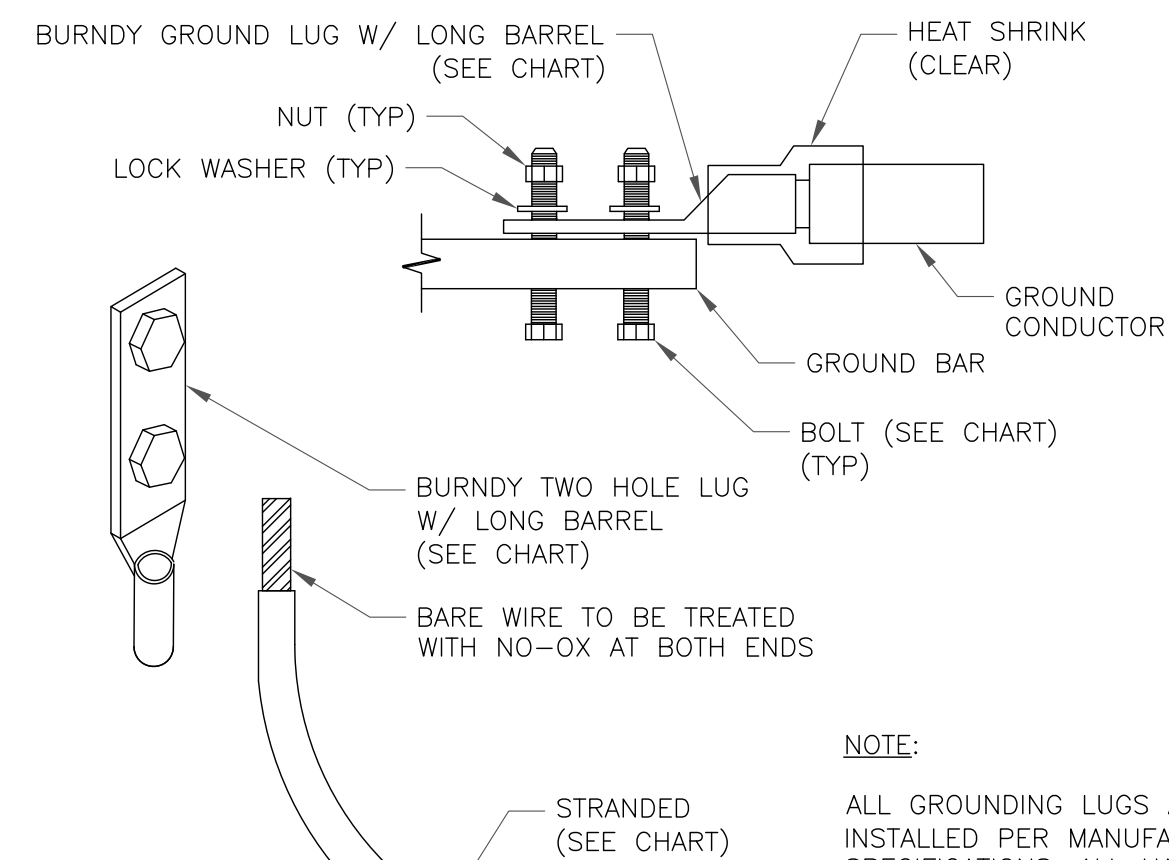


NOTES:

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

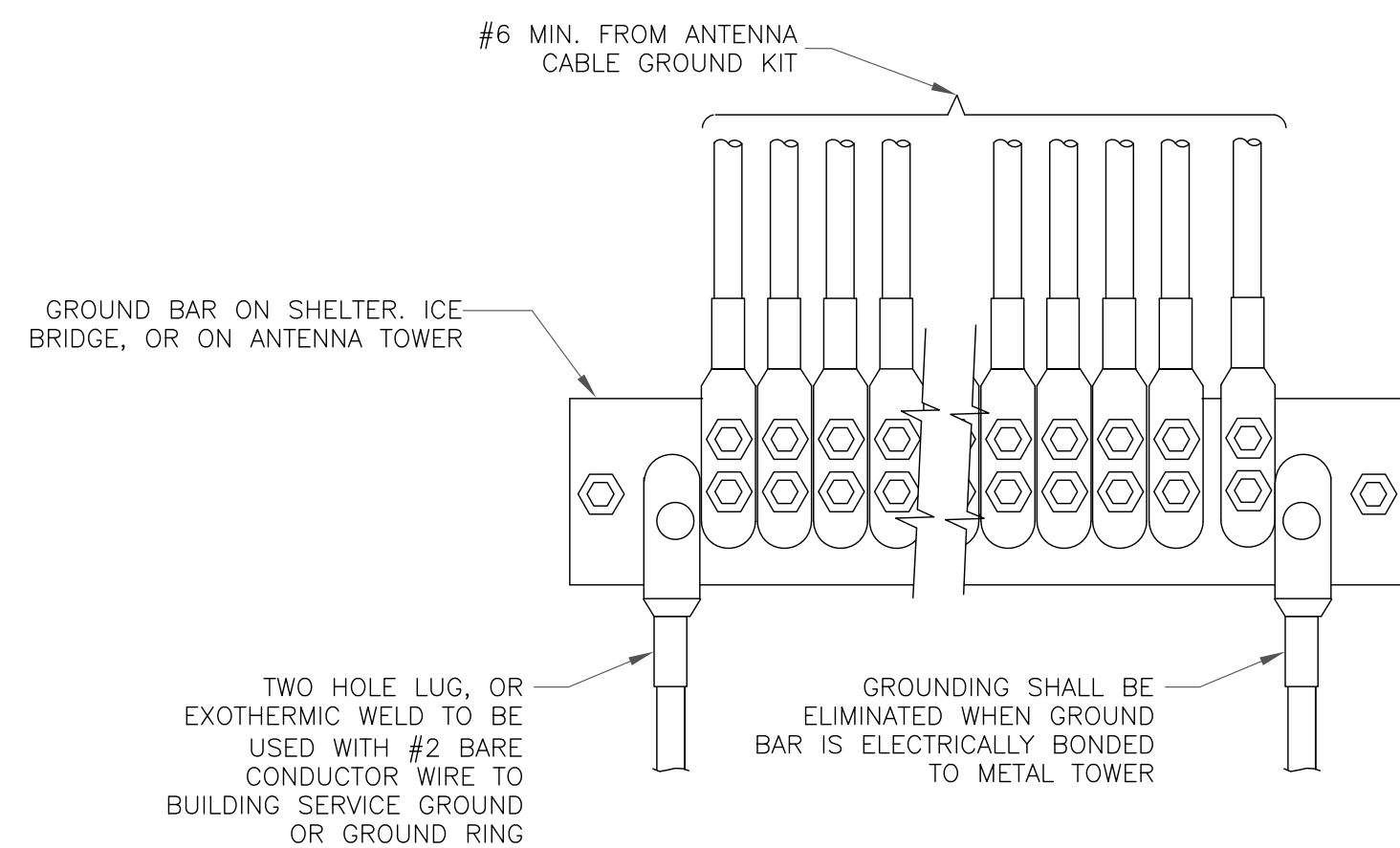
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



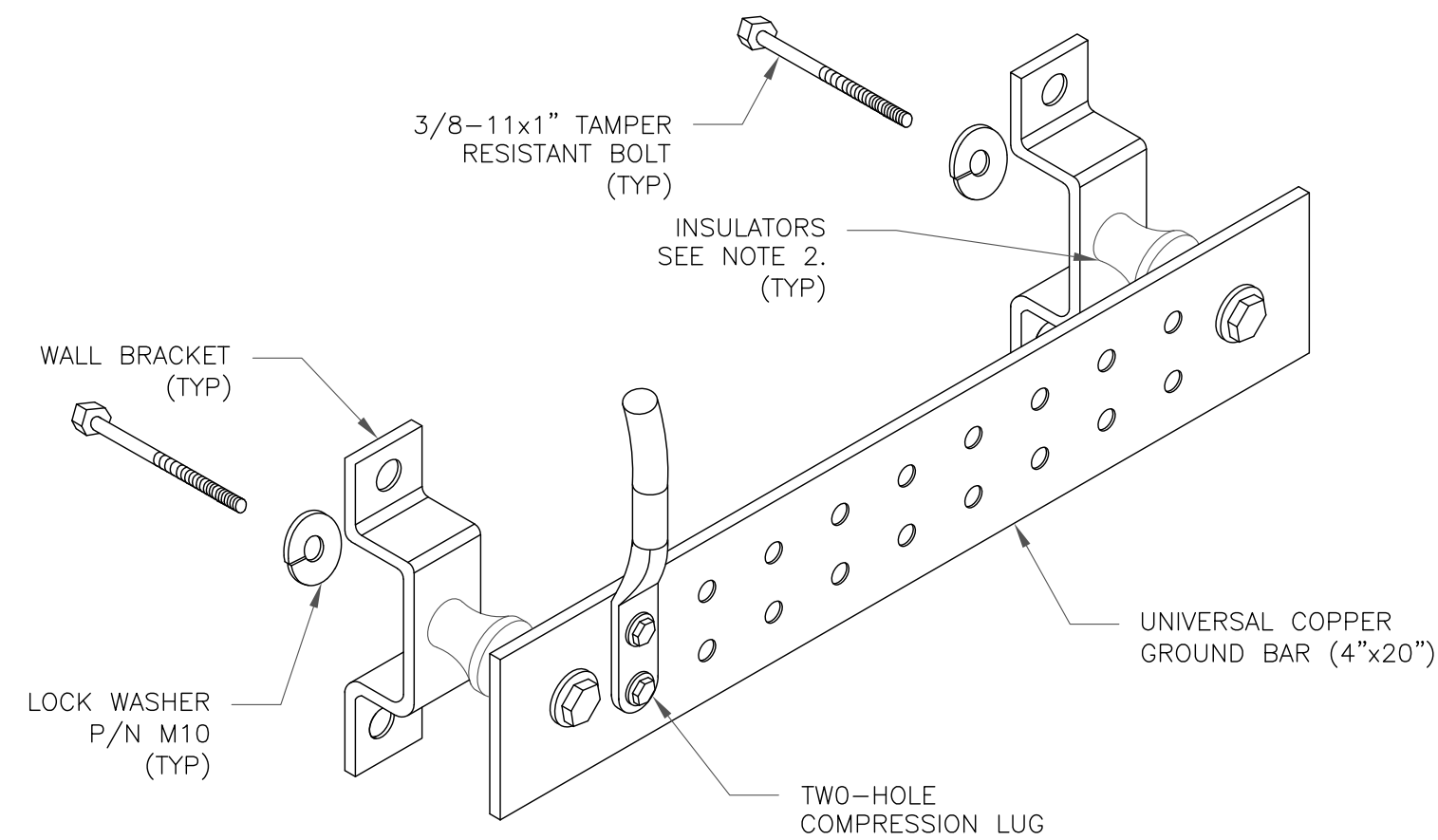
NOTE:

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.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



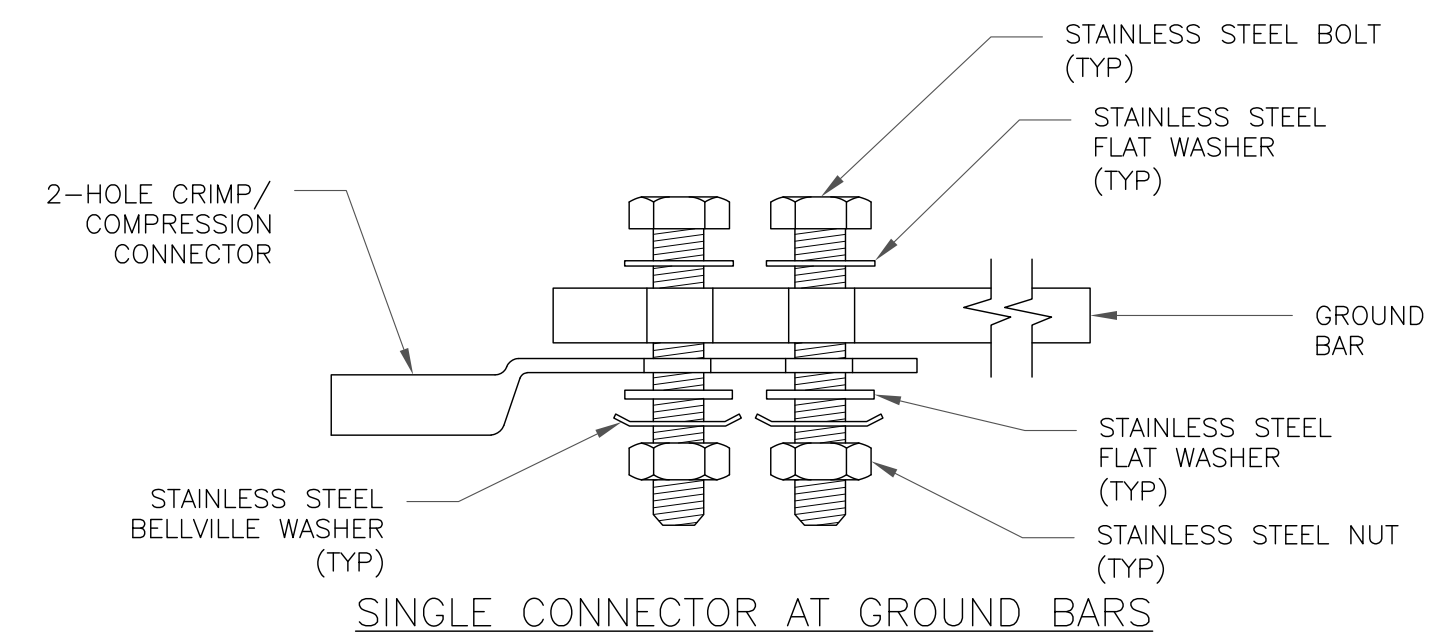
4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



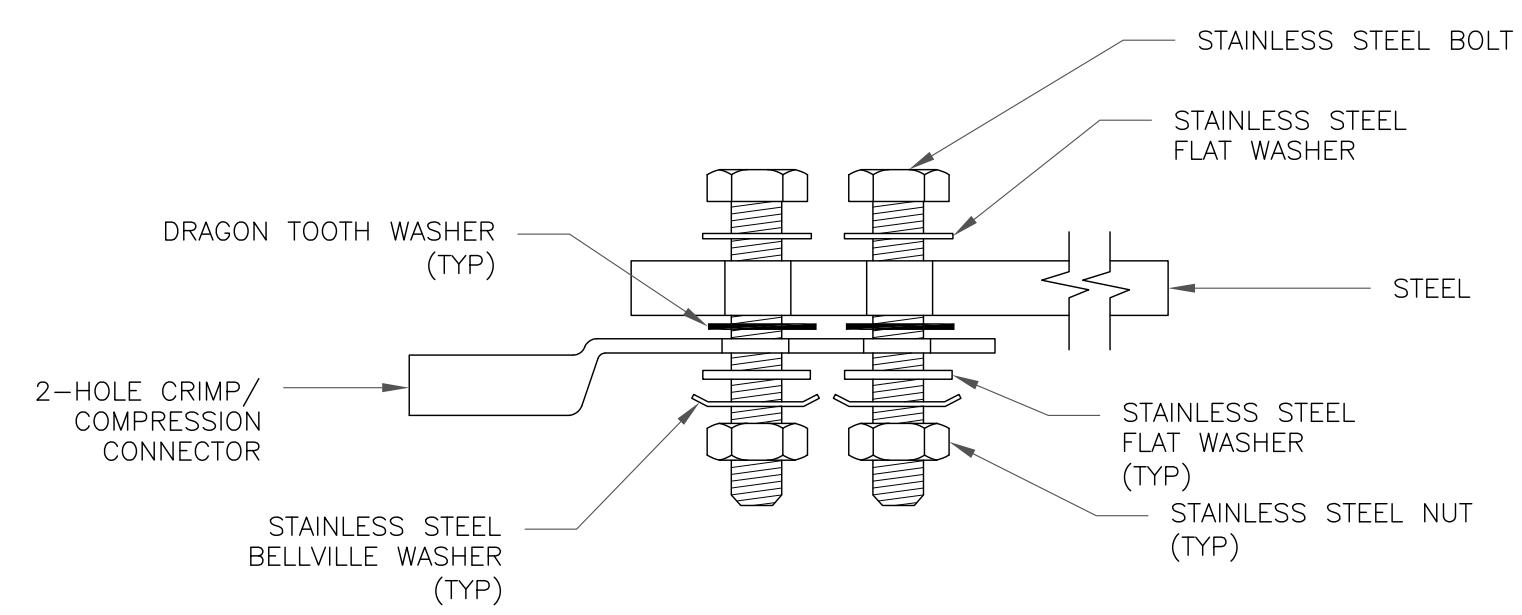
NOTES:

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.

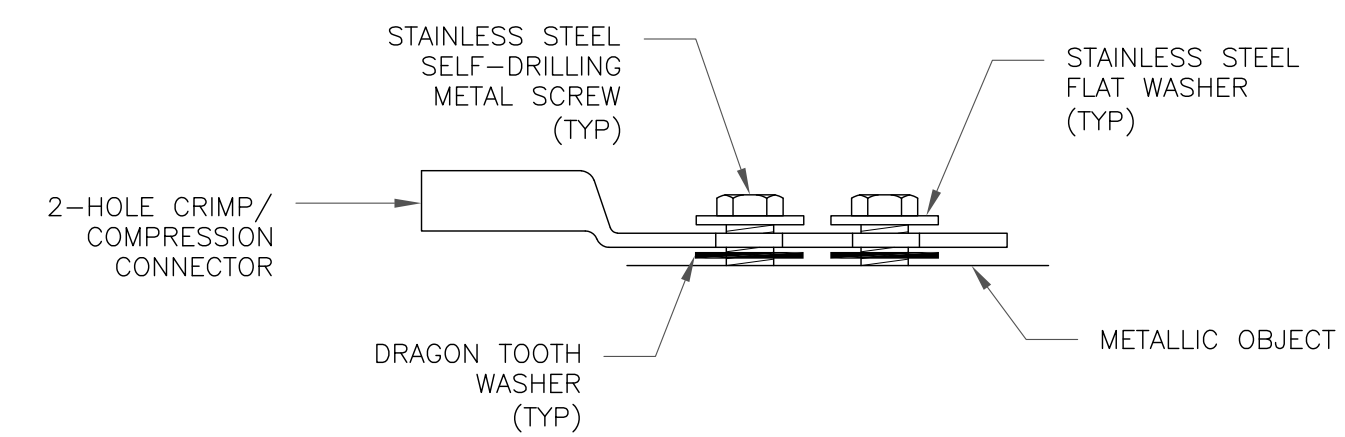
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

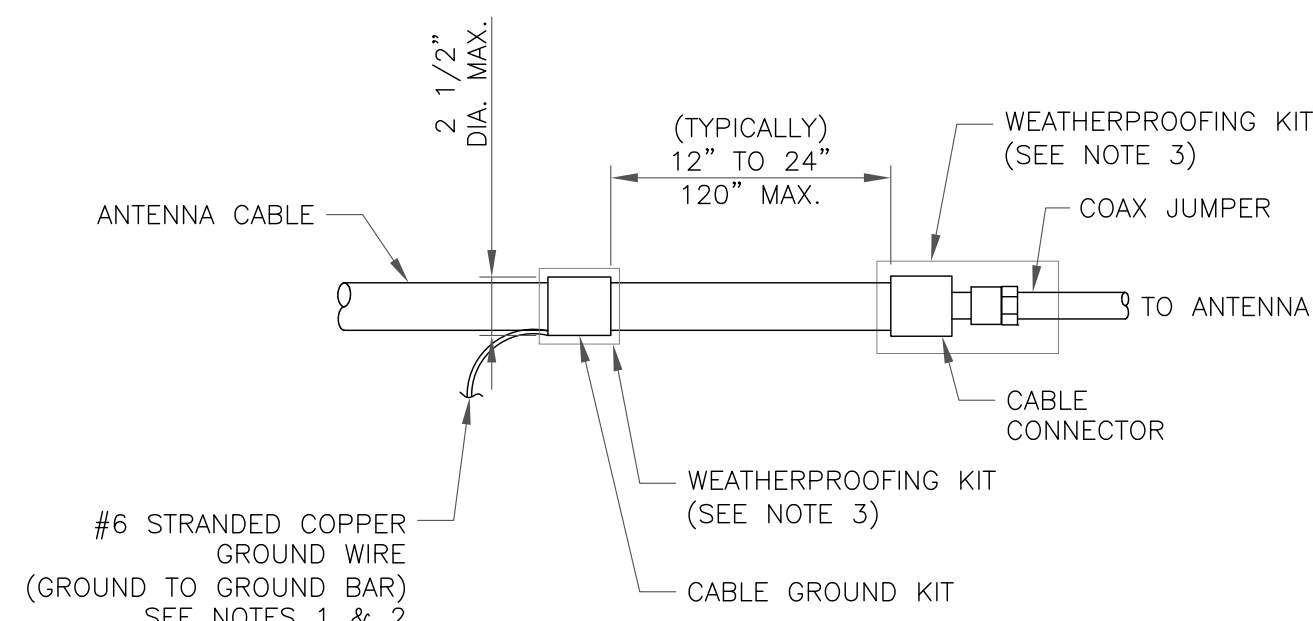


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

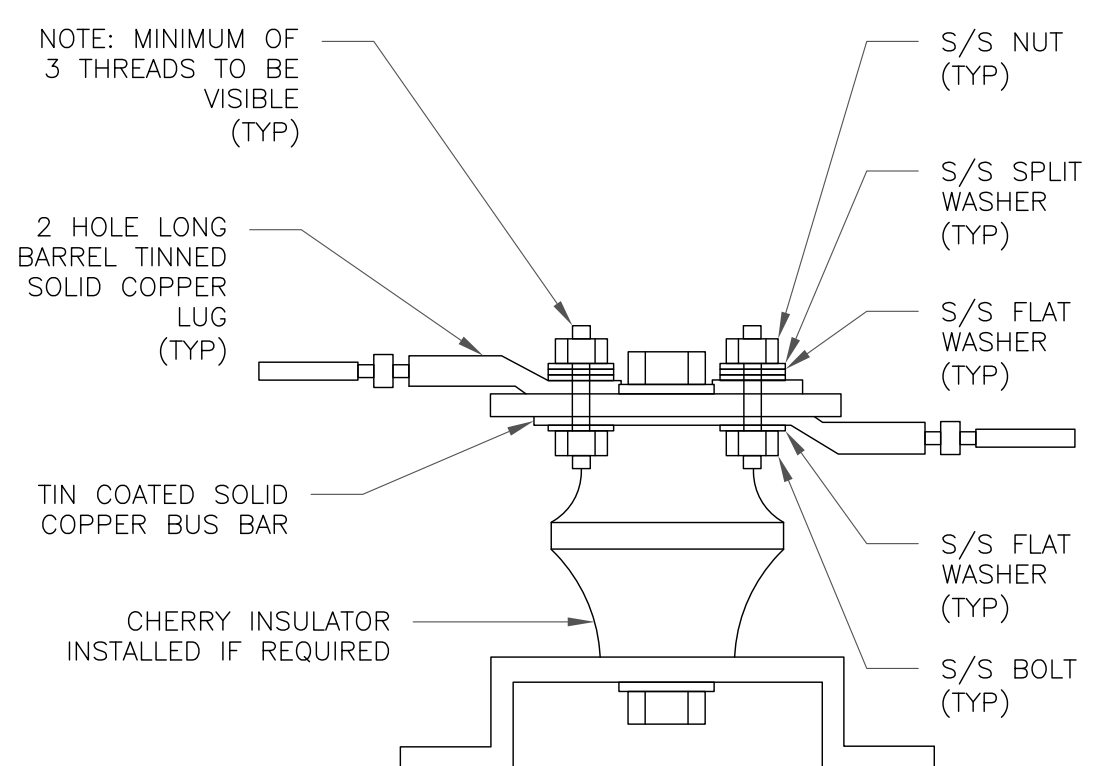
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



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.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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

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

AT&T SITE NUMBER: CTL05139

BU #: 842875
WINDSORDAY HILL

99 DAY HILL ROAD
WINDSOR, CT 06095

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	6/14/22	TDG	PRELIMINARY REVIEW	MTJ
0	7/13/22	TDG	CONSTRUCTION	MTJ
1	7/27/22	TDG	CONSTRUCTION	MTJ



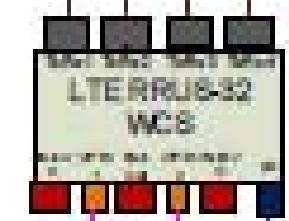
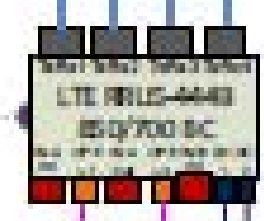
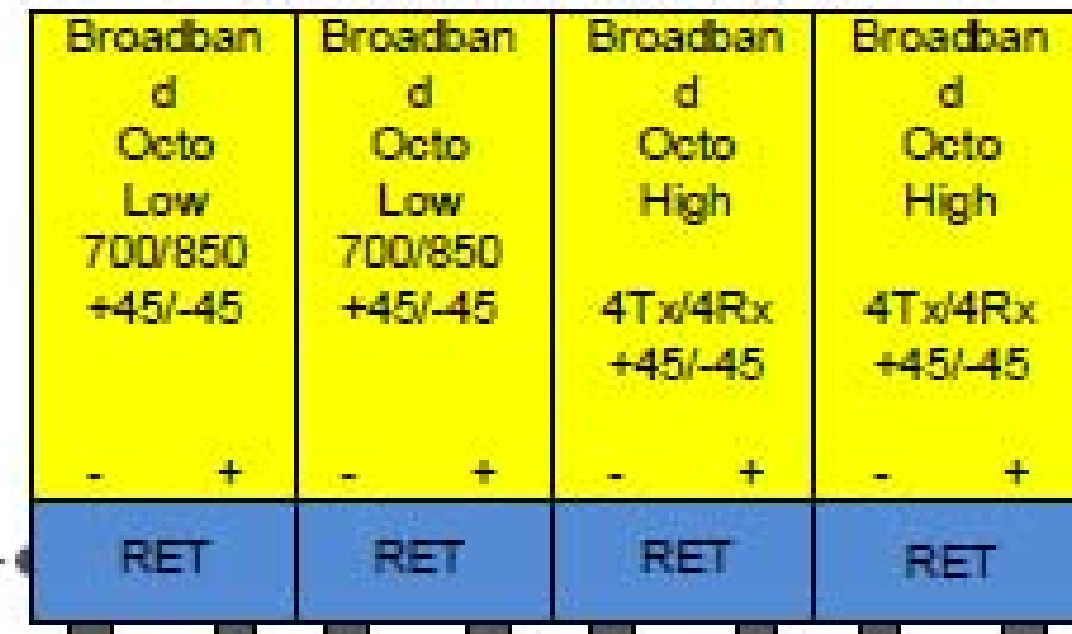
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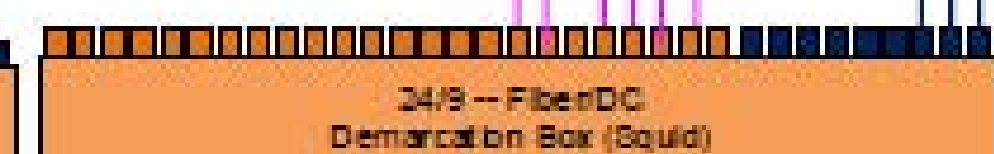
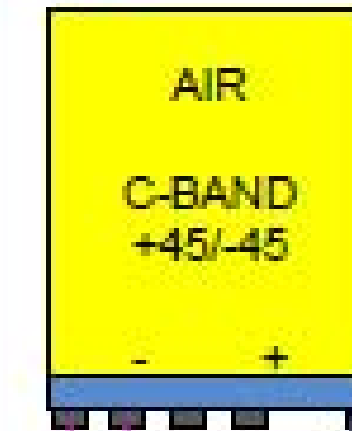
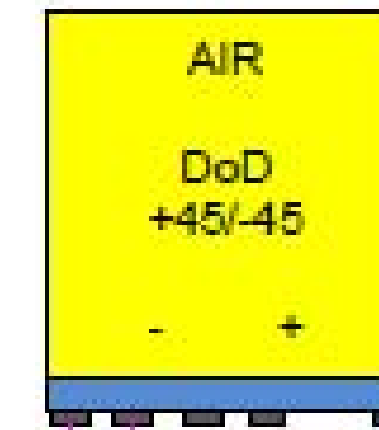
SHEET NUMBER: **G-2** REVISION: **1**

Antenna 1
Empty

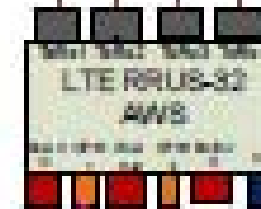
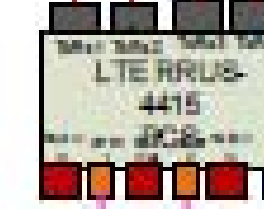
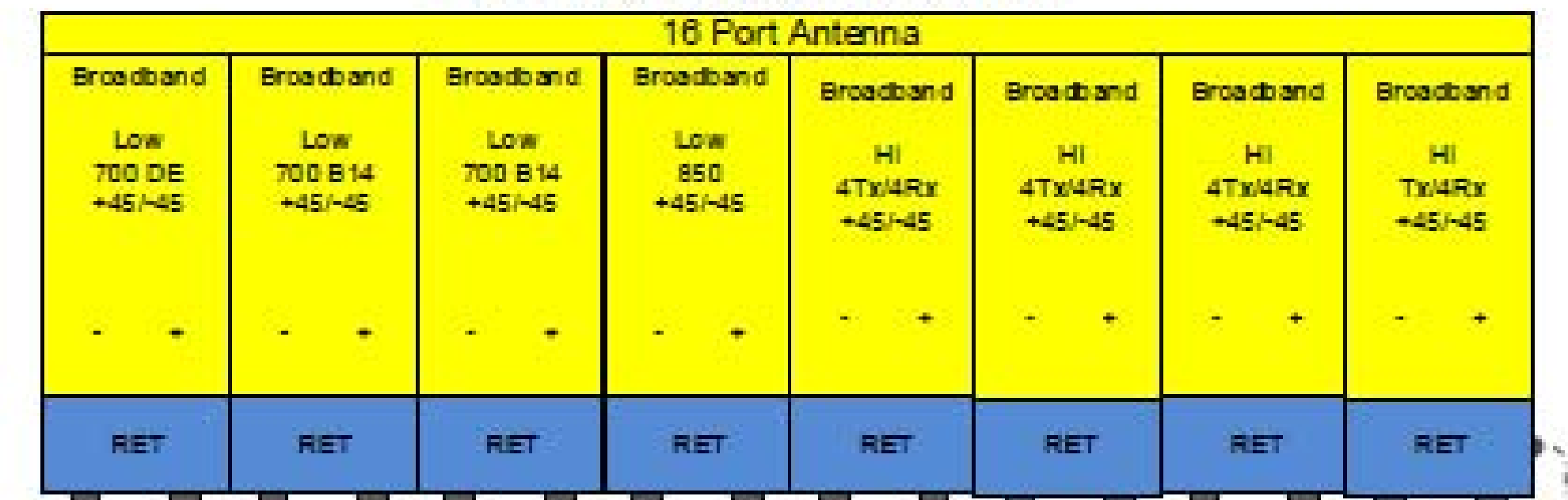
Antenna 2
LTE 700 BC / 850 / WCS



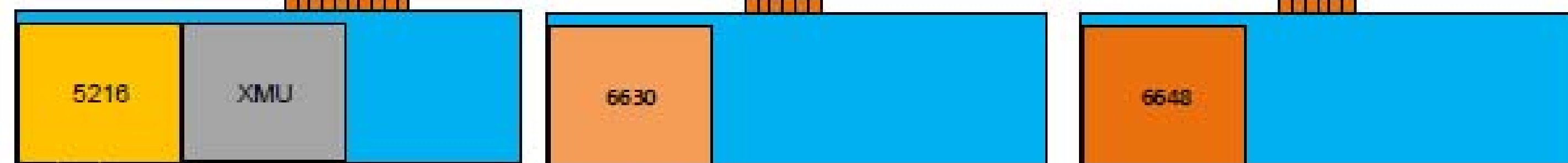
Antenna 3
DoD + C band



Antenna 4
LTE 700 DE / B14 / PCS / AWS



- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs



IDLe

Xcede



SITE:
842875 WINDSORDAY HILL (10071331)

MODIFICATION DRAWING FOR AN EXISTING 14.5' SECTOR FRAME AT 165' ON A 168' MONOPOLE TOWER


PLANS PREPARED FOR:
CROWN CASTLE

PLANS PREPARED BY:
POD
 POWER OF DESIGN
 1033 E. TURKEYFOOT LAKE RD.
 SUITE 206 AKRON, OHIO 44312
 330-961-7432

CARRIER:
AT&T

DRAWING NOTICE:
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MODIFICATION DRAWING


Jason Cheronis

REV.	DATE	DESCRIPTION

SITE INFORMATION:

**WINDSORDAY HILL
 (10071331)**

99 DAY HILL RD.,
 WINDSOR, CT 06095

SITE NUMBER:
842875

<small>POD NUMBER:</small>	22-130386
<small>DESIGNED BY:</small>	AM
<small>DRAWN BY:</small>	LT
<small>CHECKED BY:</small>	JGC
<small>DATE:</small>	05/27/2022

SHEET TITLE:

TITLE SHEET

T-01

SHEET INDEX	
T-01	TITLE SHEET
N-01	NOTES
S-01	PLAN VIEW
S-02	ELEVATION VIEW
MI-01	MODIFICATION CHECKLIST

PROJECT INFORMATION	
<small>COUNTY:</small>	HARTFORD
<small>SITE ADDRESS:</small>	99 DAY HILL RD., WINDSOR, CT 06095
<small>LATITUDE:</small>	41° 52' 16.10"
<small>LONGITUDE:</small>	-72° 40' 16.00"

SCOPE OF WORK:
MOUNT MODIFICATION DRAWINGS INCLUDES: REMOVE MOUNT PIPE, REPLACE MOUNT PIPE & CONNECTION. INSTALL PROPOSED STABILIZER KIT, PIPE FACE, PIPE BRACING & CONNECTIONS

GENERAL NOTES

- THE MODIFICATIONS REPRESENTED IN THESE DRAWINGS ARE BASED ON THE STRUCTURAL DOCUMENTS PROVIDED IN THE STRUCTURAL DOCUMENTS TABLE. THE CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH ALL REFERENCED DOCUMENTS.

REFERENCE DOCUMENTS

DOCUMENT TYPE	DESIGNATION
MOUNT ANALYSIS	POD PROJECT NUMBER: 22-129539 DATED: 05/13/2022

- ALL MODIFICATIONS MUST BE INSTALLED TO BRING THE TOWER INTO CONFORMANCE WITH ALL APPLICABLE CODES.
 - GOVERNING CODES 2018 IBC & TIA-222-H
 - ULTIMATE WIND SPEED 116 MPH 3 SECOND GUST
 - RADIAL ICE THICKNESS 1"
 - WIND SPEED W/ICE 50 MPH 3 SECOND GUST
 - STRUCTURE CLASS II
 - EXPOSURE CATEGORY C
 - TOPOGRAPHIC CATEGORY 1
 - SPECTRAL RESPONSE ACCELERATIONS S_s= 0.179 & S₁= 0.055
- ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE OR APPROVED BY THE EOR. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE PERFORMING WORK SIMILAR TO THAT DESCRIBED WITHIN THESE DRAWINGS. BY ACCEPTANCE OF THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE HAS SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND REGISTERED TO PERFORM THE WORK IN THE PROJECT JURISDICTION.
- WORK SHALL ONLY BE PERFORMED DURING CALM, DRY DAYS (WINDS LESS THAN 10KMPH). IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE INSTILLATION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE-DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
- ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND EOR. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE EOR SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES AND PROCEDURES.
- THE DESIGN WITHIN THESE DRAWINGS ASSUMES THE TOWER AND ITS FOUNDATIONS HAVE BEEN WELL MAINTAINED, IN GOOD CONDITION AND ARE WITHOUT DEFECT. BENT MEMBERS, CORRODED MEMBER, LOOSE BOLTS, CRACKED WELDS, AND OTHER STRUCTURAL DEFECTS HAVE NOT BEEN CONSIDERED UNLESS SPECIFICALLY NOTED. THE TOWER IS ASSUMED TO BE PLUMB AND THE SITE IS ASSUMED LEVEL. THE OWNER AND/OR EOR SHALL BE NOTIFIED IMMEDIATELY IF ANY VARIANCES ARE FOUND.
- THE CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY, LEASE AREA OR APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS PERFORMED WITHIN THESE BOUNDARIES. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAIN AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT ALL WORK PERFORMED COMPLIES WITH ALL APPLICATION SAFETY CODES AND GOVERNING REGULATIONS.
- ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULES AND MATERIAL DELIVERIES, WITH THE OWNER/RESIDENT LEASING AGENT FOR APPROVAL.
- THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNING AGENCIES. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
- ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDED BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE EOR.
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS SHALL MAINTAIN THE EXISTING MEMBER WORKING LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
- ALL DIMENSIONS AND QUANTITIES LISTED WITHIN THESE DRAWINGS ARE INTENDED TO AID THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY ALL DIMENSION AND QUANTITIES PRIOR TO BIDDING AND/OR ORDERING MATERIALS.
- ALL MANUFACTURERS' INSTRUCTIONS SHALL BE FOLLOWED EXACTLY. ANY DEVIATION REQUIRES WRITTEN APPROVAL FROM THE EOR.
- THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING COAX, BRACKETS, ANTENNAS MOUNTS AND ANY OTHER TOWER APPURTENANCE THAT MAY INTERFERE WITH THE INSTILLATION OF THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACE AND/OR RESTORED TO ITS ORIGINAL LOCATION. SOME MOUNTS OR ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATION TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOM MOUNTS OR ATTACHMENTS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE OWNER/EOR PRIOR TO REMOVAL. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE OWNER IN WRITING.
- DO NOT SCALE DRAWINGS.

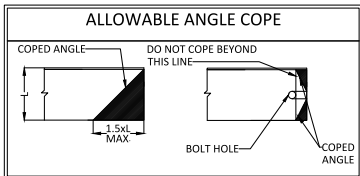
STRUCTURAL STEEL NOTES

- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
- ALL STRUCTURAL STEEL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.

MATERIAL SPECIFICATIONS

ANGLES	ASTM A36 (36 KSI YIELD STRENGTH)
PIPES	ASTM A53 GR.B (35 KSI YIELD STRENGTH)
BOLTS	ASTM A325N
NUTS	ASTM A563
WASHER	ASTM F436
PLATE	ASTM A36 (36 KSI YIELD STRENGTH)

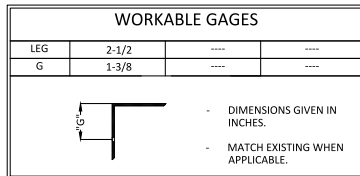
- ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATIONS, LATEST EDITION.
- CAULKING SHALL BE PROVIDED AROUND PERIMETER OF ANY AND ALL MODIFICATION MEMBERS TO ENSURE COMPLETE SEAL BETWEEN EXISTING STRUCTURE AND REINFORCING MEMBERS IN FULL CONTACT WITH EXISTING STEEL. SEALANT IS TO BE EXTERIOR GRADE, PAINTABLE SILICONE CAULKING AS MANUFACTURED BY DOW AND ACCEPTABLE TO EOR.
- HOLES SHALL NOT BE FLAME CUT THROUGH STEEL UNLESS APPROVED BY THE EOR.
- ALL EXPOSED STEEL SHALL BE HOTDIPPED GALVANIZED PER ASTM A123, ASTM A153/A153M, OR ASTM A653 G90, AS APPLICABLE FOR FULL WEATHER PROTECTION. FOR HIGH STRENGTH STEEL FASTENERS WHERE HOTDIPPED GALVANIZING IS NOT PERMITTED DACROMET F1136 GRADE 3 COATING SHALL BE USED. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING TOWER STEEL. CONTRACTOR SHALL OBTAIN EOR APPROVAL FOR STEEL PROTECTION BY ANY OTHER MEANS.
- REPAIR DAMAGED PAINTED/GALVANIZED SURFACES WITH TWO COATS OF BRUSH OR ROLL ON ZRC COILD GALVANIZING COMPOUND OR EOR APPROVED COATING. SURFACES MUST BE WIRE BRUSHED AND SOLVENT CLEANED PRIOR TO APPLICATION OF GALVANIZING COMPOUND.
- ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES (LOCKING NUT/PAL NUT) TO BE INSTALLED IN ACCORDANCE WITH TIA/EIA622 REQUIREMENTS.
- ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.



- ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENT.

BOLT SCHEDULE

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16x11/16	7/8	1-1/2
5/8	11/16	11/16x7/8	1-1/8	1-7/8
3/4	13/16	13/16x1	1-1/4	2-1/4
7/8	15/16	15/16x1-1/8	1-1/2	2-5/8
1	1-1/16	1-1/16x1-5/16	1-3/4	3



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MODIFICATION DRAWING



REV.	DATE	DESCRIPTION

SITE INFORMATION:
WINDSORDAY HILL
(10071331)
99 DAY HILL RD.,
WINDSOR, CT 06095

SITE NUMBER:
842875

POD NUMBER: 22-130386
DESIGNED BY: AM
DRAWN BY: LT
CHECKED BY: JGC
DATE: 05/27/2022

SHEET TITLE:
NOTES

N-01

NOTES:

- ANTENNAE & NOT SHOWN FOR CLARITY
- ALL FIELD DRILLED HOLES SHALL BE SOLVENT CLEANED AND TOUCHED UP WITH TWO COATS OF ZRC RICH PAINT
- EXCESS MATERIALS SHALL BE REMOVED AND DISPOSED OFF SITE BY THE CONTRACTOR

PROPOSED 6'-6" ± P2.0 STD. PIPE BRACE
(TYP. OF 3 TOTAL)

PROPOSED 15'-6" P3.0 STD. PIPE FACE
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED BRACING CONNECTION SITEPRO1 P/N: PUCK
(CONMAT P/N: ANT. 54758)(TYP. OF 2 PER SECTOR, TOTAL
OF 6)

PROPOSED CONNECTION ATTACHED TO PROPOSED FACE
SITEPRO1 P/N: SCX7-U (COMAT P/N: 16985)(TYP. OF 3 PER
SECTOR, TOTAL OF 9)

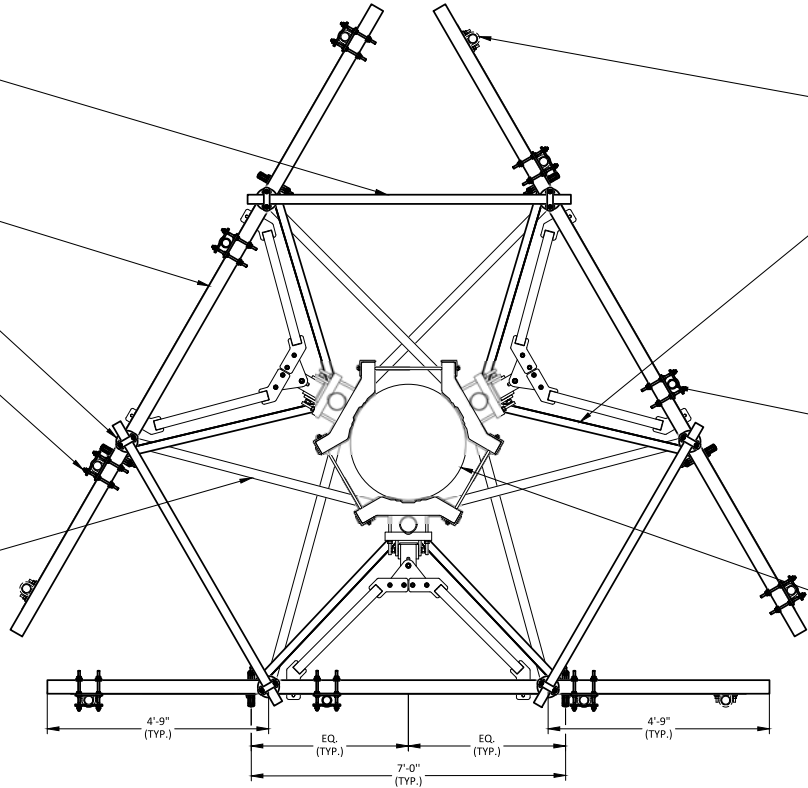
EXISTING TIE-BACK (TYP.)

EXISTING MOUNT PIPE 1 TO BE REMOVED (TYP.)

PROPOSED STABILIZER KIT SITEPRO1 P/N: PRK-SFS-L
(CONMAT P/N: ANT. 16818)(CONTRACTOR TO F.V
LENGTH & TRIM AS NEEDED)

EXISTING MOUNT PIPE 3 TO BE REPLACED W/ 10'-0" P2.5 STD.
MOUNT PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3) & EXISTING
CONNECTIONS ARE TO BE REPLACED W/ PROPOSED SITEPRO1
P/N: SCX7-U (COMAT P/N: 16985)(TYP. OF 2 PER MOUNT PIPE
TOTAL OF 6)

EXISTING TOWER



PLAN VIEW

3/8" = 1'-0"

PLANS PREPARED FOR:



PLANS PREPARED BY:



CARRIER:



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SHEET TITLE:

PLAN VIEW

S-01

NOTES:

- ANTENNAE & NOT SHOWN FOR CLARITY
- ALL FIELD DRILLED HOLES SHALL BE SOLVENT CLEANED AND TOUCHED UP WITH TWO COATS OF ZRC RICH PAINT
- EXCESS MATERIALS SHALL BE REMOVED AND DISPOSED OFF SITE BY THE CONTRACTOR

PROPOSED BRACING CONNECTION SITEPRO1 P/N: PUCK (COMMAT P/N: ANT. 54758)(TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED 6'-6" ± P2.0 STD. PIPE BRACE (TYP. OF 3 TOTAL)

PROPOSED 15'-6" P3.0 STD. PIPE FACE (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING TIE-BACK (TYP.)

EXISTING PORTHOLE

EXISTING MOUNT PIPE 3 TO BE REPLACED W/ 10'-0" P2.5 STD. MOUNT PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3) & EXISTING CONNECTIONS ARE TO BE REPLACED W/ PROPOSED SITEPRO1 P/N: SCX7-U (COMMAT P/N: 16985)(TYP. OF 2 PER MOUNT PIPE TOTAL OF 6)

PROPOSED CONNECTION ATTACHED TO PROPOSED FACE SITEPRO1 P/N: SCX7-U (COMMAT P/N: 16985) (TYP. OF 3 PER SECTOR, TOTAL OF 9)

EXISTING MOUNT PIPE 1 TO BE REMOVED (TYP.)

PROPOSED STABILIZER KIT SITEPRO1 P/N: PRK-SF5-L (COMMAT P/N: ANT. 16818)(CONTRACTOR TO F.V LENGTH & TRIM AS NEEDED)

EXISTING TOWER

2'-0" (TYP.)

1'-4" (TYP.)

2'-9" (TYP.)

ELEVATION VIEW
3/8" = 1'-0"

PLANS PREPARED FOR:



PLANS PREPARED BY:



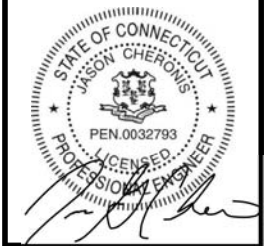
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MODIFICATION DRAWING



REV.	DATE	DESCRIPTION

SITE INFORMATION:
WINDSORDAY HILL
(10071331)
99 DAY HILL RD.,
WINDSOR, CT 06095

SITE NUMBER:
842875

POD NUMBER: 22-130386
DESIGNED BY: AM
DRAWN BY: LT
CHECKED BY: JGC
DATE: 05/27/2022

SHEET TITLE:
ELEVATION VIEW

S-02

MODIFICATION INSPECTION CHECKLIST					
BEFORE CONSTRUCTION		DURING CONSTRUCTION		AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTION AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTION AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTION AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
X	MODIFICATION INSPECTION CHECKLIST DWG	X	CONSTRUCTION INSPECTION (AS REQUIRED BY CROWN)	X	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWING(S)
-	ENGINEER OF RECORD APPROVED SHOP DRAWINGS	-	FOUNDATION INSPECTION	-	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
-	FABRICATION INSPECTION	-	CONCRETE COMP. STRENGTH AND SLUMP TEST	X	PHOTOGRAPHS
X	MATERIAL TEST REPORT	-	POST INSTALLED ANCHOR ROD VERIFICATION	ADDITIONAL TESTING AND INSPECTION	
-	FABRICATOR NDE INSPECTION	-	BASE PLATE GROUT VERIFICATION		
-	NDE REPORT OF MONOPOLE BASEPLATE (AS REQUIRED)	-	THIRD PARTY CERTIFIED WELD INSPECTION		
X	PACKING SLIP	-	EARTHWORK LIFT AND DENSITY (REPORT REQUIRED)		
ADDITIONAL TESTING AND INSPECTION		X	ON SITE COLD GALVANIZING VERIFICATION		
		-	GUY WIRE TENSION REPORT		
		X	GC AS-BUILT DOCUMENTS		
		ADDITIONAL TESTING AND INSPECTION (AS REQUIRED BY CROWN)			

MODIFICATION INSPECTION NOTES:

GENERAL:

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATION AND A REVIEW OF CONSTRUCTION INSPECTION AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD.
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AN IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF. NOR DOES THE MODIFICATION INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. TO ENSURE THAT THE REQUIREMENT OF THE MODIFICATION INSPECTION ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR BEGIN COMMUNICATION AND COORDINATING AS SOON AS A PO OR PAYMENT IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY.

MODIFICATION INSPECTOR:

1. THE MODIFICATION INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSPECTION TO:
 - REVIEW THE REQUIREMENT OF THE MODIFICATION INSPECTION CHECKLIST
 - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS
 - DISCUSS ANY SITE SPECIFIC INSPECTIONS OR CONCERNS
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE INFIELD INSPECTIONS, AND SUBMITTING THE MODIFICATION INSPECTION REPORT.

GENERAL CONTRACTOR:

1. THE GC IS REQUIRED TO CONTACT THE MODIFICATION INSPECTOR AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO:

- REVIEW THE REQUIREMENT OF THE MODIFICATION INSPECTION CHECKLIST
 - WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MODIFICATION INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
 - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.

RECOMMENDATIONS:

1. IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR HE MODIFICATION INSPECTION TO BE CONDUCTED.
- THE GC AND MODIFICATION INSPECTION COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE IT IS PREFERRED TO HAVE THE MODIFICATION INSPECTOR AND GC ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR REXTENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTION TO ALLOW FOUNDATION AND MODIFICATION INSPECTION(S) DONE IN ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON-SITE DURING THE MODIFICATION INSPECTION. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MODIFICATION INSPECTION CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MODIFICATION INSPECTION:

1. IF THE GC AND MODIFICATION INSPECTOR AGREE TO A DATE ON WHICH THE MODIFICATION INSPECTION WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, THE TOWER OWNER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OR DEPOSITS AND/OR OTHER PENALTIES RELATE TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME. EXCEPTIONS MAY BE MADE IN THE DELAY/ CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MODIFICATION INSPECTION:

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE MODIFICATION

INSPECTION ("FAILED MODIFICATION INSPECTION"), THE GC SHALL WORK WITH MODIFICATION INSPECTOR TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MODIFICATION INSPECTION. OR, WITH TOWER OWNER'S APPROVAL, THE GC MAY WORK WITH THE ENGINEER OF RECORD TO REANALYZE THE MODIFICATION/REINFORCEMENT USING AS-BUILT CONDITION.


VERIFICATION INSPECTIONS:

1. TOWER OWNER RESERVES THE RIGHT TO CONDUCT A VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MODIFICATION AND INSPECTION(S) ON TOWER MODIFICATION PRODUCTS.
2. VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MODIFICATION INSPECTION MODIFICATION INSPECTION" REPORT FOR THE ORIGINAL PROJECT.


REQUIRED PHOTOS:

1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS ARE TO BE TAKEN AND INCLUDED IN THE MODIFICATION INSPECTION REPORT:
 - PRECONSTRUCTION GENERAL SITE CONDITION
 - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 - RAW MATERIALS
 - PHOTOS OF ALL CRITICAL DETAILS
 - WELD PREPARATION
 - FOUNDATION MODIFICATION
 - BOLT INSTALLATION AND TORQUE
 - FINAL INSTALLED CONDITION
 - SURFACE COATING REPAIR
 - POST CONDITION PHOTOGRAPHS
 - FINAL INFIELD CONDITION ANY OTHER PHOTOS DEEMED RELEVANT TO SHOW COMPLETE DENTALS OF MODIFICATIONS
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

PLANS PREPARED FOR:




PLANS PREPARED BY:




3033 E. TURKEYFOOT LAKE RD.
SUITE 206 AKRON, OHIO 44312
330-961-7432

CARRIER:



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MODIFICATION DRAWING



REV.	DATE	DESCRIPTION

SITE INFORMATION:

WINDSORDAY HILL
(10071331)
99 DAY HILL RD.,
WINDSOR, CT 06095

SITE NUMBER:
842875

POD NUMBER: 22-130366
DESIGNED BY: AM
DRAWN BY: LT
CHECKED BY: JGC
DATE: 05/27/2022

SHEET TITLE:
MODIFICATION CHECKLIST

MI-01



MORRISON HERSHFIELD

Date: **June 01, 2022**

Morrison Hershfield
1455 Lincoln Park, Suite 500
Atlanta, GA 30346
(770)379-8500

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Site Number: CT5139
FA Number: 10071331

Crown Castle Designation: **BU Number:** 842875
Site Name: Windsorday Hill
JDE Job Number: 711442
Work Order Number: 2113466
Order Number: 611136 Rev. 0

Engineering Firm Designation: **Morrison Hershfield Project Number:** CN7-415R2 / 2200039

Site Data: **99 Day Hill Road, Windsor, Hartford County, CT 06095**
Latitude 41° 52' 16.1", Longitude -72° 40' 16"
168 Foot – Summit Monopole Tower

Morrison Hershfield 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-73.3%

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer



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1) INTRODUCTION

This tower is a 168 ft monopole tower designed by Summit Manufacturing.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
 Risk Category: II
 Wind Speed: 116 mph
 Exposure Category: C
 Topographic Factor: 1
 Ice Thickness: 1.5 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)
170.0	170.0	3	-	15.5' horizontal face mount pipe [#P3.0 STD]	12 6 3 1	1-5/8 3/4 3/8 7/8
		3	-	6' Horizontal Bracing Pipe [#P2.0 STD]		
		3	Site pro 1	14' Heavy Duty V-Frame[#VFA14-HD]		
		1	Site pro 1	Stabilizer Kit[#PRK-SFS-L]		
		3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe		
	168.0	2	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		1	cci antennas	DMP65R-BU8D w/ Mount Pipe		
		2	quintel technology	QD6616-7 w/ Mount Pipe		
		1	quintel technology	QD8616-7 w/ Mount Pipe		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		2	raycap	DC6-48-60-18-8F		
	166.0	1	raycap	DC9-48-60-24-8C-EV_CCIV2		
		3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		

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)
170.0	173.0	1	rfi antennas	CC807-08	1	1-1/4
152.0	152.0	1	rfs/ celwave	SC3-W100ASTX	1	EU 90-FR
		1	-	Pipe Mount [PM 601-1]		
147.0	148.0	1	rfs/celwave	SC3-W100ASTX	1	EU 90-FR 1/2
		1	rfi antennas	BPA7496-180-11 w/ Mount Pipe		
		1	kathrein	782 10876		
	147.0	1	-	Pipe Mount [PM 601-1]		
143.0	143.0	1	pctel	MPRD2449	1	1/4
		1	kathrein	782 10876		
		1	-	Pipe Mount [PM 602-1]		
140.0	148.0	1	bird tech. group	432E-83I-01-T	2 1	7/8 1/4
		2	rfi antennas	CC807-11		
		1	telewave	ANT450F6		
	140.0	1	ericsson	RIU		
		1	motorola	PTP400 w/Mount Pipe		
		1	-	Side Arm Mount [SO 102-1]		
		1	-	Side Arm Mount [SO 306-1]		
135.0	144.0	2	telewave	ANT450F6	2	1/2
	135.0	2	-	Side Arm Mount [SO 702-1]		
130.0	131.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
	130.0	1	Site Pro 1	HRK14-U		
		1	Site Pro 1	PRK-SFS		
		1	-	Platform Mount [LP 1201-1]		
120.0	120.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	-	Commscope MC-PK8-DSH		
100.0	100.0	1	rfs/celwave	SC3-W100ASTX	1	EU 90-FR
		1	-	Pipe Mount [PM 601-1]		
79.0	79.0	2	-	Side Arm Mount [SO 901-1]	-	-
52.0	52.0	1	pctel	GPS-TMG-HR-26NCM	1	1/2
		1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4529457	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4529456	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4589719	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. Morrison Hershfield 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	168 - 119.25	Pole	TP34.288x24x0.25	1	-15.19	1615.32	42.5	Pass
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-25.75	2248.05	70.1	Pass
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-37.14	3547.28	61.9	Pass
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.36	4186.71	73.3	Pass
							Summary	
						Pole (L4)	73.3	Pass
						Rating =	73.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	68.3	Pass
1	Base Plate		49.4	Pass
1	Base Foundation (Structure)	0	65.5	Pass
1	Base Foundation (Soil Interaction)		24.7	Pass

Structure Rating (max from all components) =	73.3%*
---	---------------

Notes:

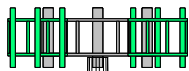
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

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

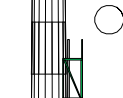
168.0 ft



119.3 ft



78.5 ft



38.8 ft



0.0 ft

MATERIAL STRENGTH

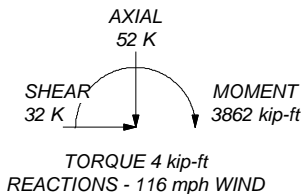
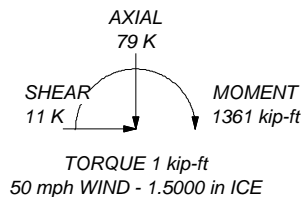
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 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 0.00 ft
8. TOWER RATING: 73.3%

Section	1	2	3	4	
Length (ft)	48.75	45.00	45.00	45.00	
Number of Sides	18	18	18	18	
Thickness (in)	0.2500	0.2813	0.3750	0.3750	
Socket Length (ft)	4.25	5.25	6.25	6.25	
Top Dia (in)	24.0000	32.8911	40.7166	48.1441	
Bot Dia (in)	34.2880	42.3870	50.2130	57.6400	
Grade		A607-65			
Weight (K)	3.8	5.1	8.2	9.6	26.7

ALL REACTIONS ARE FACTORED



Consulting Engineers

Morrison Hershfield

1455 Lincoln Parkway, Suit 500

Atlanta, GA 30346

Phone: (770) 379-8500

FAX: (770) 379-8501

Job: **CN7-415R2 / 2200039**

Project: **842875 / Windsorday Hill**

Client: **Crown Castle USA**

Drawn by: **CSA**

App'd:

Code: **TIA-222-H**

Date: **06/02/22**

Scale: **NTS**

Path:

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 Hartford County, Connecticut.

Tower base elevation above sea level: 166.00 ft.

Basic wind speed of 116 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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	Retention 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.
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Poles
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	√ Include Shear-Torsion Interaction
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Always Use Sub-Critical Flow
		Use Top Mounted Sockets
		√ 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	168.00-119.25	48.75	4.25	18	24.0000	34.2880	0.2500	1.0000	A607-65 (65 ksi)
L2	119.25-78.50	45.00	5.25	18	32.8911	42.3870	0.2813	1.1250	A607-65 (65 ksi)
L3	78.50-38.75	45.00	6.25	18	40.7166	50.2130	0.3750	1.5000	A607-65 (65 ksi)
L4	38.75-0.00	45.00		18	48.1441	57.6400	0.3750	1.5000	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	24.3317	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	34.7784	27.0092	3953.4521	12.0835	17.4183	226.9711	7912.1063	13.5071	5.5947	22.379
L2	34.2658	29.1104	3910.9585	11.5765	16.7087	234.0675	7827.0631	14.5580	5.2938	18.823
	42.9975	37.5873	8419.0120	14.9475	21.5326	390.9892	16849.101	18.7972	6.9651	24.765
L3	42.4119	48.0166	9872.7114	14.3213	20.6841	477.3102	19758.413	24.0129	6.5061	17.35
	50.9298	59.3197	18614.760	17.6925	25.5082	729.7558	37254.015	29.6655	8.1775	21.807
L4	50.1681	56.8571	16391.389	16.9580	24.4572	670.2076	32804.347	28.4340	7.8134	20.836
	58.4713	68.1597	28238.617	20.3291	29.2811	964.3968	56514.392	34.0863	9.4846	25.292

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	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 168.00-119.25				1	1	1			
L2 119.25-78.50				1	1	1			
L3 78.50-38.75				1	1	1			
L4 38.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		CAAA ft ² /ft	Weight plf

Safety Line 3/8"	C	No	No	CaAa (Out Of Face)	168.00 - 8.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.04 0.14 0.24 0.44	0.22 0.75 1.28 2.34

LDF6-50A(1-1/4)	A	No	No	Inside Pole	168.00 - 3.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.60 0.60 0.60 0.60

LDF7-50A(1-5/8)	C	No	No	Inside Pole	168.00 - 3.00	12	No Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	168.00 - 3.00	2	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
							2" Ice	0.00	0.05
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	168.00 - 3.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58

FB-L98B-235-XXX(3/8)	C	No	No	Inside Pole	168.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG66ST-BRD_CCIV2(7/8)	C	No	No	Inside Pole	168.00 - 0.00	1	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
							2" Ice	0.00	0.88

EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	152.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34

LDF4-50A(1/2)	A	No	No	Inside Pole	147.00 - 3.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	147.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34

LDF1-50A(1/4)	A	No	No	Inside Pole	143.00 - 3.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06

CAT5E(1/4)	A	No	No	Inside Pole	140.00 - 3.00	1	No Ice	0.00	0.04
							1/2" Ice	0.00	0.04
							1" Ice	0.00	0.04
							2" Ice	0.00	0.04
LDF5-50A(7/8)	A	No	No	Inside Pole	140.00 - 3.00	2	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33

LDF4-50A(1/2)	A	No	No	Inside Pole	135.00 - 3.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15

HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	130.00 - 3.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50

CU12PSM9P6XXX(1-1/2)	C	No	No	Inside Pole	120.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35

EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	100.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34

LDF4-50A(1/2)	B	No	No	Inside Pole	52.00 - 3.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	168.00-119.25	A	0.000	0.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.08
		C	0.000	0.000	0.000	1.828	0.71
L2	119.25-78.50	A	0.000	0.000	0.000	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.31
		C	0.000	0.000	0.000	1.528	0.69
L3	78.50-38.75	A	0.000	0.000	0.000	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	0.000	1.491	0.67
L4	38.75-0.00	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	1.153	0.61

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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	168.00-119.25	A	1.476	0.000	0.000	0.000	0.000	0.07
		B		0.000	0.000	0.000	0.000	0.08
		C		0.000	0.000	0.000	16.217	0.79
L2	119.25-78.50	A	1.422	0.000	0.000	0.000	0.000	0.11
		B		0.000	0.000	0.000	0.000	0.31
		C		0.000	0.000	0.000	13.555	0.75
L3	78.50-38.75	A	1.350	0.000	0.000	0.000	0.000	0.11
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	0.000	12.796	0.73
L4	38.75-0.00	A	1.210	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	0.000	9.455	0.66

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	168.00-119.25	-0.2978	0.1719	-1.2673	0.7317
L2	119.25-78.50	-0.2994	0.1729	-1.3269	0.7661
L3	78.50-38.75	-0.3004	0.1734	-1.3233	0.7640
L4	38.75-0.00	-0.2357	0.1361	-1.0227	0.5904

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
CC807-08	C	From Leg	4.00 0.00 3.00	0.0000	170.00	No Ice	2.85	2.85	0.03
						1/2" Ice	3.83	3.83	0.05
						Ice	4.67	4.67	0.07
						1" Ice	5.85	5.85	0.15
6' x 2" Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	170.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09

RRUS 4478 B14	A	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	1.84	1.06	0.06
						1/2" Ice	2.01	1.20	0.08
						Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
RRUS 4478 B14	B	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	1.84	1.06	0.06
						1/2" Ice	2.01	1.20	0.08
						Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
RRUS 4478 B14	C	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	1.84	1.06	0.06
						1/2" Ice	2.01	1.20	0.08
						Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
RRUS 32 B66	A	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.74	1.67	0.05
						1/2" Ice	2.96	1.86	0.07
						Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
RRUS 32 B66	B	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.74	1.67	0.05
						1/2" Ice	2.96	1.86	0.07
						Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
RRUS 32 B66	C	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.74	1.67	0.05
						1/2" Ice	2.96	1.86	0.07
						Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
RRUS 32 B30	A	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.69	1.57	0.06
						1/2" Ice	2.91	1.76	0.08
						Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
RRUS 32 B30	B	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.69	1.57	0.06
						1/2" Ice	2.91	1.76	0.08
						Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
RRUS 32 B30	C	From Leg	4.00 0.00 -2.00	0.0000	170.00	No Ice	2.69	1.57	0.06
						1/2" Ice	2.91	1.76	0.08
						Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
(2) DC6-48-60-18-8F	A	From Leg	4.00	0.0000	170.00	No Ice	0.92	0.92	0.02

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment t °	Placement ft	C _{AA} _{Front}	C _{AA} _{Side}	Weight K	
			Horz ft	Lateral ft			ft ²	ft ²		
			0.00				1/2"	1.46	1.46	0.04
			-2.00				Ice	1.64	1.64	0.06
							1" Ice	2.04	2.04	0.11
							2" Ice			

QD6616-7 w/ Mount Pipe	A	From Leg	4.00		0.0000	170.00	No Ice	12.56	6.93	0.16
			0.00				1/2"	13.30	7.60	0.25
			-2.00				Ice	14.06	8.28	0.36
							1" Ice	15.63	9.68	0.61
							2" Ice			
QD6616-7 w/ Mount Pipe	B	From Leg	4.00		0.0000	170.00	No Ice	12.56	6.93	0.16
			0.00				1/2"	13.30	7.60	0.25
			-2.00				Ice	14.06	8.28	0.36
							1" Ice	15.63	9.68	0.61
							2" Ice			
QD8616-7 w/ Mount Pipe	C	From Leg	4.00		0.0000	170.00	No Ice	16.93	9.31	0.18
			0.00				1/2"	17.87	10.17	0.31
			-2.00				Ice	18.83	11.05	0.45
							1" Ice	20.79	12.86	0.77
							2" Ice			
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00		0.0000	170.00	No Ice	11.96	5.97	0.11
			0.00				1/2"	12.70	6.63	0.20
			-2.00				Ice	13.46	7.30	0.30
							1" Ice	15.02	8.69	0.53
							2" Ice			
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00		0.0000	170.00	No Ice	11.96	5.97	0.11
			0.00				1/2"	12.70	6.63	0.20
			-2.00				Ice	13.46	7.30	0.30
							1" Ice	15.02	8.69	0.53
							2" Ice			
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.00		0.0000	170.00	No Ice	15.89	7.89	0.14
			0.00				1/2"	16.81	8.74	0.25
			-2.00				Ice	17.76	9.60	0.38
							1" Ice	19.70	11.37	0.68
							2" Ice			
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.00		0.0000	170.00	No Ice	4.38	2.76	0.06
			0.00				1/2"	4.71	3.19	0.10
			0.00				Ice	5.05	3.64	0.14
							1" Ice	5.75	4.58	0.24
							2" Ice			
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.00		0.0000	170.00	No Ice	4.38	2.76	0.06
			0.00				1/2"	4.71	3.19	0.10
			0.00				Ice	5.05	3.64	0.14
							1" Ice	5.75	4.58	0.24
							2" Ice			
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.00		0.0000	170.00	No Ice	4.38	2.76	0.06
			0.00				1/2"	4.71	3.19	0.10
			0.00				Ice	5.05	3.64	0.14
							1" Ice	5.75	4.58	0.24
							2" Ice			
AIR 6449 B77D_CCIV2 w/ Mount Pipe	A	From Leg	4.00		0.0000	170.00	No Ice	3.58	2.31	0.09
			0.00				1/2"	3.92	2.60	0.13
			-4.00				Ice	4.27	2.91	0.17
							1" Ice	5.02	3.57	0.28
							2" Ice			
AIR 6449 B77D_CCIV2 w/ Mount Pipe	B	From Leg	4.00		0.0000	170.00	No Ice	3.58	2.31	0.09
			0.00				1/2"	3.92	2.60	0.13
			-4.00				Ice	4.27	2.91	0.17
							1" Ice	5.02	3.57	0.28
							2" Ice			
AIR 6449 B77D_CCIV2 w/ Mount Pipe	C	From Leg	4.00		0.0000	170.00	No Ice	3.58	2.31	0.09
			0.00				1/2"	3.92	2.60	0.13
			-4.00				Ice	4.27	2.91	0.17
							1" Ice	5.02	3.57	0.28
							2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA}	C _{AA}	Weight
			Horz	Lateral	Vert			Front	Side	
			ft	ft	ft	°	ft	ft ²	ft ²	K
RRUS 4415 B25	A	From Leg	4.00	0.0000	170.00	No Ice	1.64	0.68	0.04	
			0.00			1/2"	1.80	0.79	0.06	
			-2.00			Ice	1.97	0.91	0.07	
						1" Ice	2.33	1.18	0.11	
						2" Ice				
RRUS 4415 B25	B	From Leg	4.00	0.0000	170.00	No Ice	1.64	0.68	0.04	
			0.00			1/2"	1.80	0.79	0.06	
			-2.00			Ice	1.97	0.91	0.07	
						1" Ice	2.33	1.18	0.11	
						2" Ice				
RRUS 4415 B25	C	From Leg	4.00	0.0000	170.00	No Ice	1.64	0.68	0.04	
			0.00			1/2"	1.80	0.79	0.06	
			-2.00			Ice	1.97	0.91	0.07	
						1" Ice	2.33	1.18	0.11	
						2" Ice				
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	170.00	No Ice	1.97	1.41	0.07	
			0.00			1/2"	2.14	1.56	0.09	
			-2.00			Ice	2.33	1.73	0.11	
						1" Ice	2.72	2.07	0.16	
						2" Ice				
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	170.00	No Ice	1.97	1.41	0.07	
			0.00			1/2"	2.14	1.56	0.09	
			-2.00			Ice	2.33	1.73	0.11	
						1" Ice	2.72	2.07	0.16	
						2" Ice				
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	170.00	No Ice	1.97	1.41	0.07	
			0.00			1/2"	2.14	1.56	0.09	
			-2.00			Ice	2.33	1.73	0.11	
						1" Ice	2.72	2.07	0.16	
						2" Ice				
DC9-48-60-24-8C-EV_CCIV2	B	From Leg	4.00	0.0000	170.00	No Ice	2.74	2.74	0.02	
			0.00			1/2"	2.96	2.96	0.04	
			-2.00			Ice	3.20	3.20	0.07	
						1" Ice	3.68	3.68	0.14	
						2" Ice				
14' Heavy Duty V-Frame[#VFA14-HD]	A	From Leg	2.00	0.0000	170.00	No Ice	14.40	9.00	0.67	
			0.00			1/2"	21.40	14.60	0.83	
			0.00			Ice	27.70	19.50	0.10	
						1" Ice	42.40	31.40	1.29	
						2" Ice				
14' Heavy Duty V-Frame[#VFA14-HD]	B	From Leg	2.00	0.0000	170.00	No Ice	14.40	9.00	0.67	
			0.00			1/2"	21.40	14.60	0.83	
			0.00			Ice	27.70	19.50	0.10	
						1" Ice	42.40	31.40	1.29	
						2" Ice				
14' Heavy Duty V-Frame[#VFA14-HD]	C	From Leg	2.00	0.0000	170.00	No Ice	14.40	9.00	0.67	
			0.00			1/2"	21.40	14.60	0.83	
			0.00			Ice	27.70	19.50	0.10	
						1" Ice	42.40	31.40	1.29	
						2" Ice				
Stabilizer Kit[#PRK-SFS-L]	C	None		0.0000	170.00	No Ice	11.84	11.84	0.28	
						1/2"	16.96	16.96	0.30	
						Ice	22.08	22.08	0.32	
						1" Ice	32.32	32.32	0.36	
						2" Ice				
15.5' horizontal face mount pipe [#P3.0 STD]	A	From Leg	4.00	0.0000	170.00	No Ice	3.57	0.01	0.05	
			0.00			1/2"	5.10	0.05	0.08	
			0.00			Ice	6.64	0.10	0.12	
						1" Ice	9.78	0.24	0.22	
						2" Ice				
15.5' horizontal face mount pipe [#P3.0 STD]	B	From Leg	4.00	0.0000	170.00	No Ice	3.57	0.01	0.05	
			0.00			1/2"	5.10	0.05	0.08	
			0.00			Ice	6.64	0.10	0.12	
						1" Ice	9.78	0.24	0.22	
						2" Ice				

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
15.5' horizontal face mount pipe [#P3.0 STD]	C	From Leg	4.00		0.0000	170.00	No Ice	3.57	0.01	0.05
			0.00				1/2"	5.10	0.05	0.08
			0.00				Ice	6.64	0.10	0.12
							1" Ice	9.78	0.24	0.22
							2" Ice			
6' Horizontal Bracing Pipe [#P2.0 STD]	A	From Leg	2.00		0.0000	170.00	No Ice	1.14	0.01	0.02
			0.00				1/2"	1.76	0.04	0.03
			0.00				Ice	2.14	0.09	0.04
							1" Ice	2.90	0.21	0.08
							2" Ice			
6' Horizontal Bracing Pipe [#P2.0 STD]	B	From Leg	2.00		0.0000	170.00	No Ice	1.14	0.01	0.02
			0.00				1/2"	1.76	0.04	0.03
			0.00				Ice	2.14	0.09	0.04
							1" Ice	2.90	0.21	0.08
							2" Ice			
6' Horizontal Bracing Pipe [#P2.0 STD]	C	From Leg	2.00		0.0000	170.00	No Ice	1.14	0.01	0.02
			0.00				1/2"	1.76	0.04	0.03
			0.00				Ice	2.14	0.09	0.04
							1" Ice	2.90	0.21	0.08
							2" Ice			

Pipe Mount [PM 601-1]	A	From Leg	0.50		0.0000	152.00	No Ice	1.32	1.32	0.07
			0.00				1/2"	1.58	1.58	0.08
			0.00				Ice	1.84	1.84	0.09
							1" Ice	2.40	2.40	0.13
							2" Ice			

BPA7496-180-11 w/ Mount Pipe	A	From Leg	1.00		0.0000	147.00	No Ice	6.07	5.17	0.04
			0.00				1/2"	6.53	6.05	0.09
			1.00				Ice	6.99	6.81	0.15
							1" Ice	7.91	8.37	0.29
							2" Ice			
782 10876	A	From Leg	1.00		0.0000	147.00	No Ice	0.59	0.23	0.01
			0.00				1/2"	0.69	0.31	0.01
			1.00				Ice	0.80	0.39	0.02
							1" Ice	1.04	0.57	0.04
							2" Ice			
Pipe Mount [PM 601-1]	B	From Leg	0.50		0.0000	147.00	No Ice	1.32	1.32	0.07
			0.00				1/2"	1.58	1.58	0.08
			0.00				Ice	1.84	1.84	0.09
							1" Ice	2.40	2.40	0.13
							2" Ice			

782 10876	C	From Leg	1.00		0.0000	143.00	No Ice	0.59	0.23	0.01
			0.00				1/2"	0.69	0.31	0.01
			0.00				Ice	0.80	0.39	0.02
							1" Ice	1.04	0.57	0.04
							2" Ice			
Pipe Mount [PM 602-1]	C	From Leg	0.50		0.0000	143.00	No Ice	2.78	2.78	0.09
			0.00				1/2"	3.21	3.21	0.11
			0.00				Ice	3.64	3.64	0.14
							1" Ice	4.54	4.54	0.21
							2" Ice			

(2) CC807-11	A	From Leg	4.00		0.0000	140.00	No Ice	5.27	5.27	0.05
			0.00				1/2"	7.04	7.04	0.09
			8.00				Ice	8.83	8.83	0.14
							1" Ice	12.45	12.45	0.27
							2" Ice			
ANT450F6	B	From Leg	4.00		0.0000	140.00	No Ice	1.86	1.86	0.02
			0.00				1/2"	2.67	2.67	0.04
			8.00				Ice	3.30	3.30	0.05
							1" Ice	4.28	4.28	0.11
							2" Ice			
432E-831-01-T	A	From Leg	4.00		0.0000	140.00	No Ice	1.42	0.87	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			1/2"	1.57	0.99	0.04
			8.00			Ice	1.73	1.12	0.05
						1" Ice	2.06	1.41	0.09
						2" Ice			
Side Arm Mount [SO 306-1]	A	From Leg	2.00	0.0000	140.00	No Ice	0.41	2.26	0.04
			0.00			1/2"	0.81	3.83	0.06
			0.00			Ice	1.23	5.48	0.09
						1" Ice	2.08	9.37	0.19
						2" Ice			

PTP400 w/Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	0.00	0.00	0.00
			0.00			1/2"	0.00	0.00	0.00
			0.00			Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice			
RIU	B	From Leg	4.00	0.0000	140.00	No Ice	0.16	0.12	0.00
			0.00			1/2"	0.21	0.16	0.00
			0.00			Ice	0.27	0.22	0.01
						1" Ice	0.42	0.35	0.02
						2" Ice			
Side Arm Mount [SO 102-1]	B	From Leg	2.00	0.0000	140.00	No Ice	1.50	1.50	0.03
			0.00			1/2"	1.74	1.74	0.04
			0.00			Ice	1.98	1.98	0.04
						1" Ice	2.46	2.46	0.07
						2" Ice			

ANT450F6	A	From Leg	6.00	0.0000	135.00	No Ice	1.86	1.86	0.02
			0.00			1/2"	2.67	2.67	0.04
			9.00			Ice	3.30	3.30	0.05
						1" Ice	4.28	4.28	0.11
						2" Ice			
ANT450F6	B	From Leg	6.00	0.0000	135.00	No Ice	1.86	1.86	0.02
			0.00			1/2"	2.67	2.67	0.04
			9.00			Ice	3.30	3.30	0.05
						1" Ice	4.28	4.28	0.11
						2" Ice			
4' x 2" Pipe Mount	A	From Leg	6.00	0.0000	135.00	No Ice	0.79	0.79	0.03
			0.00			1/2"	1.03	1.03	0.04
			0.00			Ice	1.28	1.28	0.04
						1" Ice	1.81	1.81	0.07
						2" Ice			
4' x 2" Pipe Mount	B	From Leg	6.00	0.0000	135.00	No Ice	0.79	0.79	0.03
			0.00			1/2"	1.03	1.03	0.04
			0.00			Ice	1.28	1.28	0.04
						1" Ice	1.81	1.81	0.07
						2" Ice			
Side Arm Mount [SO 702-1]	A	From Leg	3.00	0.0000	135.00	No Ice	0.62	1.49	0.03
			0.00			1/2"	0.74	2.07	0.04
			0.00			Ice	0.89	2.54	0.06
						1" Ice	1.25	3.55	0.12
						2" Ice			
Side Arm Mount [SO 702-1]	B	From Leg	3.00	0.0000	135.00	No Ice	0.62	1.49	0.03
			0.00			1/2"	0.74	2.07	0.04
			0.00			Ice	0.89	2.54	0.06
						1" Ice	1.25	3.55	0.12
						2" Ice			

Platform Mount [LP 1201-1]	C	None		0.0000	130.00	No Ice	18.38	18.38	2.10
						1/2"	22.11	22.11	2.65
						Ice	25.87	25.87	3.26
						1" Ice	33.47	33.47	4.66
						2" Ice			
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral						ft
							ft ²	ft ²	K	
10' x 2" Mount Pipe	B	From Leg	4.00	0.00	0.0000	130.00	1" Ice	3.06	3.06	0.09
							2" Ice			
							No Ice	2.38	2.38	0.04
							1/2"	3.40	3.40	0.05
							Ice	4.45	4.45	0.08
6' x 2" Mount Pipe	C	From Leg	4.00	0.00	0.0000	130.00	1" Ice	5.91	5.91	0.15
							2" Ice			
							No Ice	1.43	1.43	0.02
							1/2"	1.92	1.92	0.03
							Ice	2.29	2.29	0.05

APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	130.00	No Ice	14.69	6.87	0.18
							1/2"	15.46	7.55	0.31
							Ice	16.23	8.25	0.45
							1" Ice	17.82	9.67	0.78
							2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	130.00	No Ice	14.69	6.87	0.18
							1/2"	15.46	7.55	0.31
							Ice	16.23	8.25	0.45
							1" Ice	17.82	9.67	0.78
							2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	130.00	No Ice	14.69	6.87	0.18
							1/2"	15.46	7.55	0.31
							Ice	16.23	8.25	0.45
							1" Ice	17.82	9.67	0.78
							2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	130.00	No Ice	5.19	2.71	0.13
							1/2"	5.59	3.04	0.17
							Ice	6.02	3.38	0.23
							1" Ice	6.90	4.12	0.35
							2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	130.00	No Ice	5.19	2.71	0.13
							1/2"	5.59	3.04	0.17
							Ice	6.02	3.38	0.23
							1" Ice	6.90	4.12	0.35
							2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	130.00	No Ice	5.19	2.71	0.13
							1/2"	5.59	3.04	0.17
							Ice	6.02	3.38	0.23
							1" Ice	6.90	4.12	0.35
							2" Ice			
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.00	0.0000	130.00	No Ice	2.14	1.69	0.11
							1/2"	2.32	1.85	0.13
							Ice	2.51	2.02	0.16
							1" Ice	2.91	2.39	0.22
							2" Ice			
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.00	0.0000	130.00	No Ice	2.14	1.69	0.11
							1/2"	2.32	1.85	0.13
							Ice	2.51	2.02	0.16
							1" Ice	2.91	2.39	0.22
							2" Ice			
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.00	0.0000	130.00	No Ice	2.14	1.69	0.11
							1/2"	2.32	1.85	0.13
							Ice	2.51	2.02	0.16
							1" Ice	2.91	2.39	0.22
							2" Ice			
Radio 4480_TMOV2	A	From Leg	4.00	0.00	0.0000	130.00	No Ice	2.88	1.40	0.08
							1/2"	3.09	1.56	0.10
							Ice	3.31	1.73	0.13
							1" Ice	3.78	2.09	0.19
							2" Ice			
Radio 4480_TMOV2	B	From Leg	4.00	0.00	0.0000	130.00	No Ice	2.88	1.40	0.08
								3.09	1.56	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			1.00			1/2" Ice 3.31 3.78	1.73 2.09	0.13 0.19
Radio 4480_TMOV2	C	From Leg	4.00 0.00 1.00	0.0000	130.00	No Ice 1/2" Ice 3.09 3.31 3.78	1.40 1.56 1.73 2.09	0.08 0.10 0.13 0.19
Miscellaneous [NA 507-1]	C	None		0.0000	130.00	No Ice 1/2" Ice 8.18 11.66	4.56 6.39 8.18 11.66	0.25 0.31 0.40 0.66
Miscellaneous [NA 509-3]	C	None		0.0000	130.00	No Ice 1/2" Ice 22.08 32.32	11.84 16.96 22.08 32.32	0.28 0.30 0.32 0.36
*** ***								
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral						ft
RDIDC-9181-PF-48	A	From Leg	4.00	0.00	0.0000	120.00	2" Ice			
							No Ice	2.01	1.17	0.02
							1/2"	2.19	1.31	0.04
							Ice	2.37	1.46	0.06
							1" Ice	2.76	1.78	0.11
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.00	0.0000	120.00	2" Ice			
							No Ice	1.90	1.90	0.03
							1/2"	2.73	2.73	0.04
							Ice	3.40	3.40	0.06
							1" Ice	4.40	4.40	0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.00	0.0000	120.00	2" Ice			
							No Ice	1.90	1.90	0.03
							1/2"	2.73	2.73	0.04
							Ice	3.40	3.40	0.06
							1" Ice	4.40	4.40	0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.00	0.0000	120.00	2" Ice			
							No Ice	1.90	1.90	0.03
							1/2"	2.73	2.73	0.04
							Ice	3.40	3.40	0.06
							1" Ice	4.40	4.40	0.12
Commscope MC-PK8-DSH	C	None			0.0000	120.00	2" Ice			
							No Ice	34.24	34.24	1.75
							1/2"	62.95	62.95	2.10
							Ice	91.66	91.66	2.45
							1" Ice	149.08	149.08	3.15

Pipe Mount [PM 601-1]	B	From Leg	1.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.32	1.32	0.07
							1/2"	1.58	1.58	0.08
							Ice	1.84	1.84	0.09
							1" Ice	2.40	2.40	0.13

1' x 2-1/2"	A	From Leg	2.00	0.00	0.0000	79.00	2" Ice			
							No Ice	0.16	0.16	0.03
							1/2"	0.23	0.23	0.03
							Ice	0.31	0.31	0.03
							1" Ice	0.51	0.51	0.04
1' x 2-1/2"	B	From Leg	2.00	0.00	0.0000	79.00	2" Ice			
							No Ice	0.16	0.16	0.03
							1/2"	0.23	0.23	0.03
							Ice	0.31	0.31	0.03
							1" Ice	0.51	0.51	0.04
Side Arm Mount [SO 901-1]	A	From Leg	1.00	0.00	0.0000	79.00	2" Ice			
							No Ice	0.33	0.62	0.11
							1/2"	0.46	0.78	0.11
							Ice	0.62	0.97	0.12
							1" Ice	1.01	1.43	0.15
Side Arm Mount [SO 901-1]	B	From Leg	1.00	0.00	0.0000	79.00	2" Ice			
							No Ice	0.33	0.62	0.11
							1/2"	0.46	0.78	0.11
							Ice	0.62	0.97	0.12
							1" Ice	1.01	1.43	0.15

GPS-TMG-HR-26NCM	C	From Leg	3.00	0.00	0.0000	52.00	2" Ice			
							No Ice	0.13	0.13	0.00
							1/2"	0.18	0.18	0.00
							Ice	0.24	0.24	0.01
							1" Ice	0.37	0.37	0.01
2' x 2" Pipe Mount	C	From Leg	3.00	0.00	0.0000	52.00	2" Ice			
							No Ice	0.02	0.02	0.01
							1/2"	0.05	0.05	0.01
							Ice	0.09	0.09	0.01
							1" Ice	0.19	0.19	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Side Arm Mount [SO 701-1]	C	From Leg	1.50 0.00 0.00	0.0000	52.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01 4.35	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	

SC3-W100ASTX	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	32.0000		152.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22

SC3-W100ASTX	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 1.00	57.0000		147.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22

MPRD2449	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	10.0000		143.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.69 3.98 4.27 4.84	0.04 0.06 0.08 0.12

SC3-W100ASTX	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	37.0000		100.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22

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

Comb. No.	Description
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
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	168 - 119.25	Pole	Max Tension	26	0.00	0.00	-0.00
			Max. Compression	26	-30.16	-0.80	3.63
			Max. Mx	8	-15.24	-515.43	8.19
			Max. My	2	-15.21	-8.44	519.85
			Max. Vy	8	18.09	-515.43	8.19
			Max. Vx	2	-18.25	-8.44	519.85
			Max. Torque	22			-3.51
L2	119.25 - 78.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.43	-1.47	3.91
			Max. Mx	8	-25.79	-1423.03	14.84
			Max. My	2	-25.76	-17.32	1437.76
			Max. Vy	8	24.92	-1423.03	14.84
			Max. Vx	2	-25.30	-17.32	1437.76
			Max. Torque	22			-4.15
L3	78.5 - 38.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.88	-1.43	3.89
			Max. Mx	8	-37.17	-2456.81	18.38
			Max. My	2	-37.15	-23.22	2486.17
			Max. Vy	8	28.32	-2456.81	18.38
			Max. Vx	2	-28.71	-23.22	2486.17
			Max. Torque	22			-4.19
L4	38.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.48	-1.31	3.82
			Max. Mx	8	-52.36	-3803.58	21.65
			Max. My	2	-52.36	-29.09	3850.19
			Max. Vy	8	31.29	-3803.58	21.65

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-31.67	-29.09	3850.19
			Max. Torque	22			-3.87

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	28	79.48	-5.41	9.46
	Max. H _x	21	39.29	31.24	-0.16
	Max. H _z	2	52.38	-0.13	31.63
	Max. M _x	2	3850.19	-0.13	31.63
	Max. M _z	8	3803.58	-31.26	0.07
	Max. Torsion	10	3.29	-26.95	-15.75
	Min. Vert	11	39.29	-26.95	-15.75
	Min. H _x	8	52.38	-31.26	0.07
	Min. H _z	14	52.38	0.16	-31.50
	Min. M _x	14	-3833.21	0.16	-31.50
	Min. M _z	20	-3800.25	31.24	-0.16
	Min. Torsion	22	-3.80	26.89	15.95

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	43.65	0.00	0.00	-0.92	-0.62	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	52.38	0.13	-31.63	-3850.19	-29.09	1.65
0.9 Dead+1.0 Wind 0 deg - No Ice	39.29	0.13	-31.63	-3799.34	-28.40	1.64
1.2 Dead+1.0 Wind 30 deg - No Ice	52.38	15.55	-27.57	-3362.03	-1901.10	0.19
0.9 Dead+1.0 Wind 30 deg - No Ice	39.29	15.55	-27.57	-3317.56	-1875.83	0.20
1.2 Dead+1.0 Wind 60 deg - No Ice	52.38	27.00	-16.05	-1968.52	-3286.87	-1.18
0.9 Dead+1.0 Wind 60 deg - No Ice	39.29	27.00	-16.05	-1942.26	-3243.45	-1.16
1.2 Dead+1.0 Wind 90 deg - No Ice	52.38	31.26	-0.07	-21.65	-3803.58	-2.69
0.9 Dead+1.0 Wind 90 deg - No Ice	39.29	31.26	-0.07	-20.96	-3753.39	-2.67
1.2 Dead+1.0 Wind 120 deg - No Ice	52.38	26.95	15.75	1906.75	-3274.36	-3.29
0.9 Dead+1.0 Wind 120 deg - No Ice	39.29	26.95	15.75	1882.08	-3231.16	-3.27
1.2 Dead+1.0 Wind 150 deg - No Ice	52.38	15.33	27.28	3317.18	-1851.21	-2.25
0.9 Dead+1.0 Wind 150 deg - No Ice	39.29	15.33	27.28	3273.93	-1826.79	-2.24
1.2 Dead+1.0 Wind 180 deg - No Ice	52.38	-0.16	31.50	3833.21	31.21	-1.19
0.9 Dead+1.0 Wind 180 deg - No Ice	39.29	-0.16	31.50	3783.19	30.90	-1.19
1.2 Dead+1.0 Wind 210 deg - No Ice	52.38	-15.60	27.44	3343.60	1905.13	-0.05
0.9 Dead+1.0 Wind 210 deg - No Ice	39.29	-15.60	27.44	3299.96	1880.21	-0.06
1.2 Dead+1.0 Wind 240 deg - No Ice	52.38	-27.06	16.07	1968.41	3295.45	1.11

Load Combination	Vertical	Shear _x	Shear _z	Overturing Moment, M _x	Overturing Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 240 deg - No Ice	39.29	-27.06	16.07	1942.78	3252.31	1.09
1.2 Dead+1.0 Wind 270 deg - No Ice	52.38	-31.24	0.16	37.91	3800.25	2.76
0.9 Dead+1.0 Wind 270 deg - No Ice	39.29	-31.24	0.16	37.55	3750.50	2.74
1.2 Dead+1.0 Wind 300 deg - No Ice	52.38	-26.89	-15.95	-1938.29	3260.99	3.80
0.9 Dead+1.0 Wind 300 deg - No Ice	39.29	-26.89	-15.95	-1912.60	3218.39	3.78
1.2 Dead+1.0 Wind 330 deg - No Ice	52.38	-15.42	-27.42	-3336.41	1861.67	3.03
0.9 Dead+1.0 Wind 330 deg - No Ice	39.29	-15.42	-27.42	-3292.32	1837.50	3.02
1.2 Dead+1.0 Ice+1.0 Temp	79.48	0.00	-0.00	-3.82	-1.31	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	79.48	0.03	-10.89	-1356.05	-7.84	0.03
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	79.48	5.41	-9.46	-1181.16	-675.38	-0.40
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	79.48	9.38	-5.49	-689.73	-1167.43	-0.70
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	79.48	10.85	-0.01	-8.66	-1349.63	-0.91
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	79.48	9.37	5.43	668.26	-1164.55	-0.83
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	79.48	5.36	9.40	1163.49	-664.04	-0.37
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	79.48	-0.03	10.86	1344.75	5.80	0.07
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	79.48	-5.42	9.44	1169.48	673.77	0.44
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	79.48	-9.39	5.50	682.17	1166.87	0.69
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	79.48	-10.84	0.03	4.84	1346.38	0.92
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	79.48	-9.35	-5.47	-682.75	1159.01	0.94
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	79.48	-5.38	-9.43	-1175.27	663.85	0.54
Dead+Wind 0 deg - Service	43.65	0.03	-7.97	-963.75	-7.73	0.42
Dead+Wind 30 deg - Service	43.65	3.92	-6.95	-841.65	-475.98	0.05
Dead+Wind 60 deg - Service	43.65	6.80	-4.04	-493.07	-822.60	-0.30
Dead+Wind 90 deg - Service	43.65	7.88	-0.02	-6.10	-951.82	-0.68
Dead+Wind 120 deg - Service	43.65	6.79	3.97	476.22	-819.44	-0.84
Dead+Wind 150 deg - Service	43.65	3.86	6.87	829.00	-463.50	-0.57
Dead+Wind 180 deg - Service	43.65	-0.04	7.94	958.11	7.33	-0.30
Dead+Wind 210 deg - Service	43.65	-3.93	6.91	835.65	476.06	-0.01
Dead+Wind 240 deg - Service	43.65	-6.82	4.05	491.65	823.83	0.28
Dead+Wind 270 deg - Service	43.65	-7.87	0.04	8.76	950.06	0.70
Dead+Wind 300 deg - Service	43.65	-6.77	-4.02	-485.51	815.17	0.97
Dead+Wind 330 deg - Service	43.65	-3.89	-6.91	-835.22	465.19	0.77

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-43.65	0.00	0.00	43.65	0.00	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
2	0.13	-52.38	-31.63	-0.13	52.38	31.63	0.000%
3	0.13	-39.29	-31.63	-0.13	39.29	31.63	0.000%
4	15.55	-52.38	-27.57	-15.55	52.38	27.57	0.000%
5	15.55	-39.29	-27.57	-15.55	39.29	27.57	0.000%
6	27.00	-52.38	-16.05	-27.00	52.38	16.05	0.000%
7	27.00	-39.29	-16.05	-27.00	39.29	16.05	0.000%
8	31.26	-52.38	-0.07	-31.26	52.38	0.07	0.000%
9	31.26	-39.29	-0.07	-31.26	39.29	0.07	0.000%
10	26.95	-52.38	15.75	-26.95	52.38	-15.75	0.000%
11	26.95	-39.29	15.75	-26.95	39.29	-15.75	0.000%
12	15.33	-52.38	27.28	-15.33	52.38	-27.28	0.000%
13	15.33	-39.29	27.28	-15.33	39.29	-27.28	0.000%
14	-0.16	-52.38	31.50	0.16	52.38	-31.50	0.000%
15	-0.16	-39.29	31.50	0.16	39.29	-31.50	0.000%
16	-15.60	-52.38	27.44	15.60	52.38	-27.44	0.000%
17	-15.60	-39.29	27.44	15.60	39.29	-27.44	0.000%
18	-27.06	-52.38	16.07	27.06	52.38	-16.07	0.000%
19	-27.06	-39.29	16.07	27.06	39.29	-16.07	0.000%
20	-31.24	-52.38	0.16	31.24	52.38	-0.16	0.000%
21	-31.24	-39.29	0.16	31.24	39.29	-0.16	0.000%
22	-26.89	-52.38	-15.95	26.89	52.38	15.95	0.000%
23	-26.89	-39.29	-15.95	26.89	39.29	15.95	0.000%
24	-15.42	-52.38	-27.42	15.42	52.38	27.42	0.000%
25	-15.42	-39.29	-27.42	15.42	39.29	27.42	0.000%
26	0.00	-79.48	0.00	-0.00	79.48	0.00	0.000%
27	0.03	-79.48	-10.89	-0.03	79.48	10.89	0.000%
28	5.41	-79.48	-9.46	-5.41	79.48	9.46	0.000%
29	9.38	-79.48	-5.49	-9.38	79.48	5.49	0.000%
30	10.85	-79.48	-0.01	-10.85	79.48	0.01	0.000%
31	9.37	-79.48	5.43	-9.37	79.48	-5.43	0.000%
32	5.36	-79.48	9.40	-5.36	79.48	-9.40	0.000%
33	-0.03	-79.48	10.86	0.03	79.48	-10.86	0.000%
34	-5.42	-79.48	9.44	5.42	79.48	-9.44	0.000%
35	-9.39	-79.48	5.50	9.39	79.48	-5.50	0.000%
36	-10.84	-79.48	0.03	10.84	79.48	-0.03	0.000%
37	-9.35	-79.48	-5.47	9.35	79.48	5.47	0.000%
38	-5.38	-79.48	-9.43	5.38	79.48	9.43	0.000%
39	0.03	-43.65	-7.97	-0.03	43.65	7.97	0.000%
40	3.92	-43.65	-6.95	-3.92	43.65	6.95	0.000%
41	6.80	-43.65	-4.04	-6.80	43.65	4.04	0.000%
42	7.88	-43.65	-0.02	-7.88	43.65	0.02	0.000%
43	6.79	-43.65	3.97	-6.79	43.65	-3.97	0.000%
44	3.86	-43.65	6.87	-3.86	43.65	-6.87	0.000%
45	-0.04	-43.65	7.94	0.04	43.65	-7.94	0.000%
46	-3.93	-43.65	6.91	3.93	43.65	-6.91	0.000%
47	-6.82	-43.65	4.05	6.82	43.65	-4.05	0.000%
48	-7.87	-43.65	0.04	7.87	43.65	-0.04	0.000%
49	-6.77	-43.65	-4.02	6.77	43.65	4.02	0.000%
50	-3.89	-43.65	-6.91	3.89	43.65	6.91	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00012770
3	Yes	5	0.00000001	0.00005977
4	Yes	6	0.00000001	0.00012131
5	Yes	5	0.00000001	0.00092399
6	Yes	6	0.00000001	0.00012432
7	Yes	5	0.00000001	0.00094816
8	Yes	5	0.00000001	0.00017822
9	Yes	5	0.00000001	0.00008394
10	Yes	6	0.00000001	0.00011212
11	Yes	5	0.00000001	0.00085488
12	Yes	6	0.00000001	0.00012000
13	Yes	5	0.00000001	0.00091570
14	Yes	4	0.00000001	0.00088801
15	Yes	4	0.00000001	0.00036329
16	Yes	6	0.00000001	0.00012071
17	Yes	5	0.00000001	0.00092035
18	Yes	6	0.00000001	0.00012022
19	Yes	5	0.00000001	0.00091708
20	Yes	5	0.00000001	0.00008292
21	Yes	4	0.00000001	0.00091563
22	Yes	6	0.00000001	0.00012515
23	Yes	5	0.00000001	0.00095580
24	Yes	6	0.00000001	0.00011207
25	Yes	5	0.00000001	0.00085319
26	Yes	4	0.00000001	0.00003663
27	Yes	5	0.00000001	0.00067284
28	Yes	5	0.00000001	0.00099648
29	Yes	6	0.00000001	0.00011696
30	Yes	5	0.00000001	0.00067392
31	Yes	5	0.00000001	0.00095473
32	Yes	5	0.00000001	0.00097200
33	Yes	5	0.00000001	0.00066240
34	Yes	5	0.00000001	0.00098448
35	Yes	5	0.00000001	0.00097632
36	Yes	5	0.00000001	0.00066950
37	Yes	6	0.00000001	0.00011541
38	Yes	5	0.00000001	0.00096701
39	Yes	4	0.00000001	0.00014291
40	Yes	4	0.00000001	0.00068848
41	Yes	4	0.00000001	0.00072768
42	Yes	4	0.00000001	0.00019712
43	Yes	4	0.00000001	0.00058614
44	Yes	4	0.00000001	0.00070942
45	Yes	4	0.00000001	0.00010886
46	Yes	4	0.00000001	0.00067705
47	Yes	4	0.00000001	0.00065684
48	Yes	4	0.00000001	0.00017208
49	Yes	4	0.00000001	0.00077795
50	Yes	4	0.00000001	0.00058660

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 119.25	29.434	40	1.5312	0.0042
L2	123.5 - 78.5	16.076	40	1.2655	0.0041
L3	83.75 - 38.75	7.251	40	0.8125	0.0017
L4	45 - 0	2.127	40	0.4299	0.0007

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
170.00	CC807-08	40	29.434	1.5312	0.0042	47408
152.00	SC3-W100ASTX	40	24.398	1.4585	0.0044	14814
148.00	SC3-W100ASTX	40	23.164	1.4379	0.0045	11851
147.00	BPA7496-180-11 w/ Mount Pipe	40	22.857	1.4326	0.0045	11287
143.00	MPRD2449	40	21.643	1.4100	0.0045	9481
140.00	(2) CC807-11	40	20.746	1.3917	0.0045	8465
135.00	ANT450F6	40	19.280	1.3585	0.0044	7182
130.00	Platform Mount [LP 1201-1]	40	17.855	1.3212	0.0043	6236
120.00	MX08FRO665-21 w/ Mount Pipe	40	15.157	1.2318	0.0040	5331
100.00	SC3-W100ASTX	40	10.430	1.0056	0.0028	5349
79.00	1' x 2-1/2"	40	6.434	0.7602	0.0015	5282
52.00	GPS-TMG-HR-26NCM	40	2.785	0.4950	0.0008	4852

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	168 - 119.25	117.450	4	6.1214	0.0174
L2	123.5 - 78.5	64.210	4	5.0589	0.0166
L3	83.75 - 38.75	28.978	4	3.2490	0.0069
L4	45 - 0	8.502	4	1.7189	0.0027

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
170.00	CC807-08	4	117.450	6.1214	0.0174	12150
152.00	SC3-W100ASTX	4	97.384	5.8305	0.0182	3795
148.00	SC3-W100ASTX	4	92.464	5.7483	0.0182	3035
147.00	BPA7496-180-11 w/ Mount Pipe	4	91.243	5.7268	0.0182	2890
143.00	MPRD2449	4	86.406	5.6364	0.0182	2426
140.00	(2) CC807-11	4	82.829	5.5635	0.0182	2165
135.00	ANT450F6	4	76.984	5.4306	0.0179	1836
130.00	Platform Mount [LP 1201-1]	4	71.304	5.2814	0.0175	1593
120.00	MX08FRO665-21 w/ Mount Pipe	4	60.541	4.9244	0.0160	1359
100.00	SC3-W100ASTX	4	41.676	4.0204	0.0110	1354
79.00	1' x 2-1/2"	4	25.712	3.0396	0.0060	1329
52.00	GPS-TMG-HR-26NCM	4	11.131	1.9790	0.0031	1216

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	KI/r	A	P _u	φP _n	Ratio P _u / φP _n
	ft		ft	ft		in ²	K	K	
L1	168 - 119.25	TP34.288x24x0.25	48.75	0.00	0.0	26.297	-15.19	1538.40	0.010
	(1)					5			
L2	119.25 - 78.5	TP42.387x32.8911x0.281	45.00	0.00	0.0	36.598	-25.75	2141.00	0.012
	(2)	3				3			

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	45.00	0.00	0.0	57.749 8	-37.14	3378.36	0.011
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	45.00	0.00	0.0	68.159 7	-52.36	3987.34	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	168 - 119.25 (1)	TP34.288x24x0.25	525.08	1206.64	0.435	0.00	1206.64	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	1447.41	2002.83	0.723	0.00	2002.83	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	2497.32	3912.78	0.638	0.00	3912.78	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	3862.32	5107.74	0.756	0.00	5107.74	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	168 - 119.25 (1)	TP34.288x24x0.25	18.41	461.52	0.040	0.42	1339.48	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	25.34	642.30	0.039	0.36	2306.11	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	28.74	1013.51	0.028	0.24	4306.46	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	31.69	1196.20	0.026	0.19	5998.93	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	168 - 119.25 (1)	0.010	0.435	0.000	0.040	0.000	0.447	1.050	4.8.2
L2	119.25 - 78.5 (2)	0.012	0.723	0.000	0.039	0.000	0.736	1.050	4.8.2
L3	78.5 - 38.75 (3)	0.011	0.638	0.000	0.028	0.000	0.650	1.050	4.8.2
L4	38.75 - 0 (4)	0.013	0.756	0.000	0.026	0.000	0.770	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	168 - 119.25	Pole	TP34.288x24x0.25	1	-15.19	1615.32	42.5	Pass	
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-25.75	2248.05	70.1	Pass	
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-37.14	3547.28	61.9	Pass	
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.36	4186.71	73.3	Pass	
							Summary		
							Pole (L4)	73.3	Pass
							RATING =	73.3	Pass

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/4" TO 170 FT LEVEL

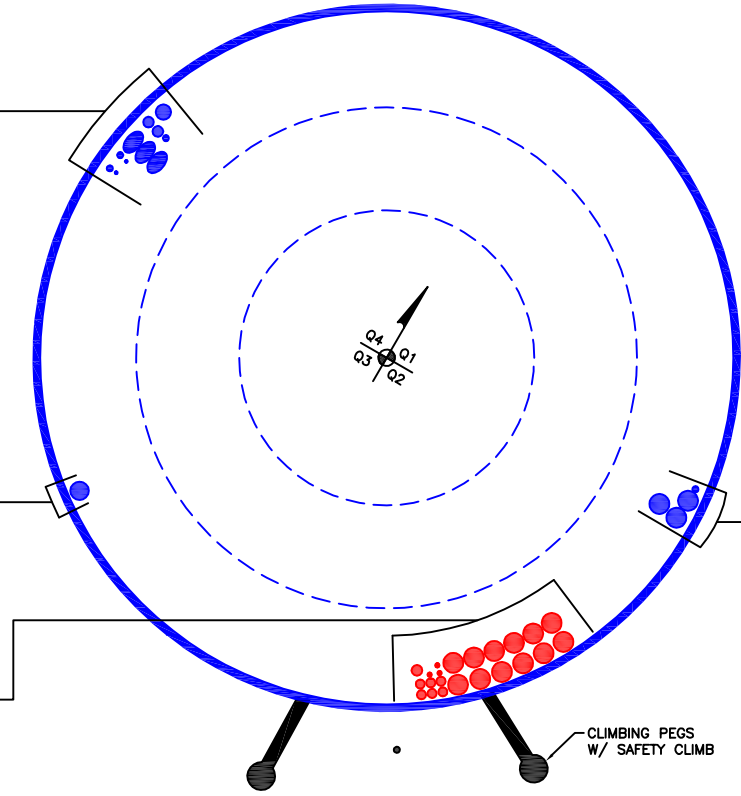
(OTHER CONSIDERED EQUIPMENT)
(1) 1/4" TO 140 FT LEVEL
(1) 1/4" TO 143 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) EU 90-FR TO 100 FT LEVEL
(2) 1/2" TO 135 FT LEVEL
(2) 7/8" TO 140 FT LEVEL
(1) EU 90-FR TO 147 FT LEVEL
(1) 1/2" TO 147 FT LEVEL
(1) EU 90-FR TO 152 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 120 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(3) 3/8" TO 170 FT LEVEL
(6) 3/4" TO 170 FT LEVEL
(1) 7/8" TO 170 FT LEVEL
(12) 1-5/8" TO 170 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(3) 1-5/8" TO 130 FT LEVEL
(SPRINT PCS)
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 52 FT LEVEL



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

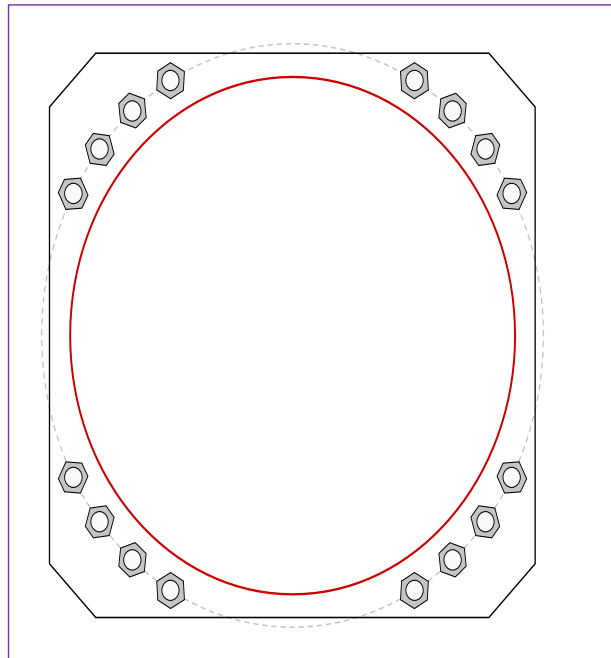


Site Info	
BU #	842875
Site Name	Windsorday Hill
Order #	611136 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.75

Applied Loads	
Moment (kip-ft)	3862.31
Axial Force (kips)	52.36
Shear Force (kips)	31.69

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data

(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 65" BC
Anchor Spacing: 6 in

Base Plate Data

63" W x 3.25" Plate (A572-55; $F_y=55$ ksi, $F_u=70$ ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

57.64" x 0.375" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

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

$P_{u,t} = 174.9$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 1.98$	$\phi V_n = 149.1$	68.3%
$M_u = n/a$	$\phi M_n = n/a$	Pass

Base Plate Summary

Max Stress (ksi):	25.66	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	49.4%	Pass

Drilled Pier Foundation

BU # :	842875
Site Name:	Windsorday Hill
Order Number:	611136 Rev. 0
TIA-222 Revision:	H
Tower Type:	Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	3862.31	
Axial Force (kips)	52.38	
Shear Force (kips)	31.65	

Material Properties		
Concrete Strength, f _c :	3	ksi
Rebar Strength, F _y :	60	ksi
Tie Yield Strength, F _y :	40	ksi

Pier Design Data		
Depth	24	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
<i>From 0.5' above grade to 24' below grade</i>		
Pier Diameter	8	ft
Rebar Quantity	24	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Rebar 2, F _y Override (ksi)	Rebar 3, F _y Override (ksi)

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	Compression	Uplift
D _{v=0} (ft from TOC)	8.73	-
Soil Safety Factor	5.14	-
Max Moment (kip-ft)	4102.90	-
Rating*	24.7%	-

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	1187.52	-
End Bearing (kips)	3015.93	-
Weight of Concrete (kips)	150.11	-
Total Capacity (kips)	4203.45	-
Axial (kips)	202.49	-
Rating*	4.6%	-

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	8.22	-
Critical Moment (kip-ft)	4101.34	-
Critical Moment Capacity	6982.07	-
Rating*	55.9%	-

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	20.09	-
Critical Shear (kip)	565.26	-
Critical Shear Capacity	821.42	-
Rating*	65.5%	-

Structural Foundation Rating*	65.5%
Soil Interaction Rating*	24.7%

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
N/A	<input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Soil Profile													
Groundwater Depth	5			# of Layers	5								

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	10	5	60	87.6	0	35	0.000	0.000	0.00	0.00			Cohesionless
3	10	15	5	55	87.6	0	33	0.000	0.000	0.00	0.00			Cohesionless
4	15	17	2	80	87.6	0	40	0.000	0.000	0.00	0.00			Cohesionless
5	17	24	7	95	87.6	20	0	9.000	9.000			80		Cohesive

=====
LPile for Windows, Version 2019-11.009

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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=====
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Files Used for Analysis

Path to file locations:
\Users\PKumar\Desktop\PKD\

Name of input data file:
New LPile (USCS units).lp11d

Name of output report file:
New LPile (USCS units).lp11o

Name of plot output file:
New LPile (USCS units).lp11p

Name of runtime message file:
New LPile (USCS units).lp11r

Date and Time of Analysis

Date: June 2, 2022

Time: 6:01:47

Problem Title

Project Name: Windsorday Hill

Job Number: CN7-415R2 / 2200039

Client: CCI

Engineer: PKD

Description: 842875

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed = 500
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 100.0000 in
- Number of pile increments = 100

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected

- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Input of side resistance moment along pile not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 24.500 ft
Depth of ground surface below top of pile = 0.5000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	96.0000
2	24.500	96.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile
Length of section = 24.500000 ft
Shaft Diameter = 96.000000 in

Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer = 0.500000 ft
Distance from top of pile to bottom of layer = 5.500000 ft
Effective unit weight at top of layer = 100.000000 pcf
Effective unit weight at bottom of layer = 100.000000 pcf
Undrained cohesion at top of layer = 100.000000 psf
Undrained cohesion at bottom of layer = 100.000000 psf
Epsilon-50 at top of layer = 0.0000
Epsilon-50 at bottom of layer = 0.0000

NOTE: Default values for Epsilon-50 will be computed for this layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 5.500000 ft
Distance from top of pile to bottom of layer = 10.500000 ft
Effective unit weight at top of layer = 60.000000 pcf
Effective unit weight at bottom of layer = 60.000000 pcf
Friction angle at top of layer = 35.000000 deg.
Friction angle at bottom of layer = 35.000000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Default values for subgrade k will be computed for this layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	10.500000	ft
Distance from top of pile to bottom of layer	=	15.500000	ft
Effective unit weight at top of layer	=	55.000000	pcf
Effective unit weight at bottom of layer	=	55.000000	pcf
Friction angle at top of layer	=	33.000000	deg.
Friction angle at bottom of layer	=	33.000000	deg.
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Default values for subgrade k will be computed for this layer.

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	15.500000	ft
Distance from top of pile to bottom of layer	=	17.500000	ft
Effective unit weight at top of layer	=	80.000000	pcf
Effective unit weight at bottom of layer	=	80.000000	pcf
Friction angle at top of layer	=	40.000000	deg.
Friction angle at bottom of layer	=	40.000000	deg.
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Default values for subgrade k will be computed for this layer.

Layer 5 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	17.500000	ft
Distance from top of pile to bottom of layer	=	24.500000	ft
Effective unit weight at top of layer	=	95.000000	pcf
Effective unit weight at bottom of layer	=	95.000000	pcf
Undrained cohesion at top of layer	=	8000.	psf
Undrained cohesion at bottom of layer	=	8000.	psf
Epsilon-50 at top of layer	=	0.0000	
Epsilon-50 at bottom of layer	=	0.0000	
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Default values for Epsilon-50 will be computed for this layer.

NOTE: Default values for subgrade k will be computed for this layer.

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

 Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y kpy Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
1 default	Soft --	0.5000	100.0000	100.0000	--
2 default	Clay --	5.5000	100.0000	100.0000	--
2 --	Sand default	5.5000	60.0000	--	35.0000
2 --	(Reese, et al.) default	10.5000	60.0000	--	35.0000
3 --	Sand default	10.5000	55.0000	--	33.0000
3 --	(Reese, et al.) default	15.5000	55.0000	--	33.0000
4 --	Sand default	15.5000	80.0000	--	40.0000
4 --	(Reese, et al.) default	17.5000	80.0000	--	40.0000
5 default	Stiff Clay default	17.5000	95.0000	8000.	--
5 default	with Free Water default	24.5000	95.0000	8000.	--

 Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

 Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile Length	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----

1 1 V = 32000. lbs M = 46344000. in-lbs 52000.
 No Yes

V = shear force applied normal to pile axis
 M = bending moment applied to pile head
 y = lateral deflection normal to pile axis
 S = pile slope relative to original pile batter angle
 R = rotational stiffness applied to pile head
 Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).
 Thrust force is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	24.500000 ft
Shaft Diameter	=	96.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	4.000000 in
Number of Reinforcing Bars	=	24 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	7238. sq. in.
Total Area of Reinforcing Steel	=	37.440000 sq. in.
Area Ratio of Steel Reinforcement	=	0.52 percent
Edge-to-Edge Bar Spacing	=	9.892263 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	13.19
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = $0.85 F_c A_c + F_y A_s$	=	20608.413 kips
Tensile Load for Cracking of Concrete	=	-2732.748 kips
Nominal Axial Tensile Capacity	=	-2246.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	43.295000	0.000000
2	1.410000	1.560000	41.819759	11.205571
3	1.410000	1.560000	37.494570	21.647500
4	1.410000	1.560000	30.614188	30.614188
5	1.410000	1.560000	21.647500	37.494570
6	1.410000	1.560000	11.205571	41.819759
7	1.410000	1.560000	0.000000	43.295000
8	1.410000	1.560000	-11.205571	41.819759
9	1.410000	1.560000	-21.647500	37.494570
10	1.410000	1.560000	-30.614188	30.614188
11	1.410000	1.560000	-37.494570	21.647500
12	1.410000	1.560000	-41.819759	11.205571
13	1.410000	1.560000	-43.295000	0.000000
14	1.410000	1.560000	-41.819759	-11.205571
15	1.410000	1.560000	-37.494570	-21.647500
16	1.410000	1.560000	-30.614188	-30.614188
17	1.410000	1.560000	-21.647500	-37.494570
18	1.410000	1.560000	-11.205571	-41.819759
19	1.410000	1.560000	0.000000	-43.295000
20	1.410000	1.560000	11.205571	-41.819759
21	1.410000	1.560000	21.647500	-37.494570
22	1.410000	1.560000	30.614188	-30.614188
23	1.410000	1.560000	37.494570	-21.647500
24	1.410000	1.560000	41.819759	-11.205571

NOTE: The positions of the above rebars were computed by LPILE

Minimum spacing between any two bars not equal to zero = 9.892 inches between bars 21 and 22.

Ratio of bar spacing to maximum aggregate size = 13.19

Concrete Properties:

Compressive Strength of Concrete	=	3000. psi
Modulus of Elasticity of Concrete	=	3122019. psi
Modulus of Rupture of Concrete	=	-410.791918 psi
Compression Strain at Peak Stress	=	0.001634
Tensile Strain at Fracture of Concrete	=	-0.0001160
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	52.000

Definitions of Run Messages and Notes:

- C = concrete in section has cracked in tension.
- Y = stress in reinforcing steel has reached yield stress.
- T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
- Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
 Position of neutral axis is measured from edge of compression side of pile.
 Compressive stresses and strains are positive in sign.
 Tensile stresses and strains are negative in sign.

Axial Thrust Force = 52.000 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg kip-in ²	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
3.12500E-07 0.0611911	5049. 0.4508256	1.61553E+10	54.0662767	0.00001690	-0.00001310
6.25000E-07 0.1149532	10068. 0.8468817	1.61090E+10	51.0445070	0.00003190	-0.00002810
9.37500E-07 0.1682192	15058. 1.2429399	1.60620E+10	50.0373279	0.00004691	-0.00004309
0.00000125 0.2209891	20019. 1.6389997	1.60148E+10	49.5337856	0.00006192	-0.00005808
0.00000156 0.2732629	24949. 2.0350613	1.59676E+10	49.2316971	0.00007692	-0.00007308
0.00000188 0.3250405	29851. 2.4311245	1.59204E+10	49.0303347	0.00009193	-0.00008807
0.00000219 0.3763221	34723. 2.8271893	1.58731E+10	48.8865303	0.0001069	-0.0001031
0.00000250	34723.	1.38890E+10	23.4741285	0.00005869	-0.0001813

0.2074264	-4.9449257 C				
0.00000281	34723.	1.23458E+10	23.0910944	0.00006494	-0.0002051
0.2290308	-5.5942826 C				
0.00000313	34723.	1.11112E+10	22.7859010	0.00007121	-0.0002288
0.2505648	-6.2435278 C				
0.00000344	34723.	1.01011E+10	22.5361546	0.00007747	-0.0002525
0.2720144	-6.8927771 C				
0.00000375	34723.	9259336745.	22.3194100	0.00008370	-0.0002763
0.2932671	-7.5429642 C				
0.00000406	34723.	8547080072.	22.1369917	0.00008993	-0.0003001
0.3144506	-8.1930357 C				
0.00000438	34723.	7936574353.	21.9815470	0.00009617	-0.0003238
0.3355647	-8.8429913 C				
0.00000469	34723.	7407469396.	21.8476841	0.0001024	-0.0003476
0.3566093	-9.4928304 C				
0.00000500	34723.	6944502559.	21.7313590	0.0001087	-0.0003713
0.3775843	-10.1425529 C				
0.00000531	34723.	6536002408.	21.6294792	0.0001149	-0.0003951
0.3984895	-10.7921583 C				
0.00000563	34723.	6172891163.	21.5363882	0.0001211	-0.0004189
0.4192626	-11.4421767 C				
0.00000594	34723.	5848002155.	21.4523869	0.0001274	-0.0004426
0.4399381	-12.0923171 C				
0.00000625	34723.	5555602047.	21.3774622	0.0001336	-0.0004664
0.4605447	-12.7423350 C				
0.00000656	34723.	5291049569.	21.3103196	0.0001398	-0.0004902
0.4810824	-13.3922298 C				
0.00000688	34723.	5050547315.	21.2499002	0.0001461	-0.0005139
0.5015509	-14.0420011 C				
0.00000719	34723.	4830958302.	21.1953291	0.0001523	-0.0005377
0.5219502	-14.6916486 C				
0.00000750	34723.	4629668372.	21.1458773	0.0001586	-0.0005614
0.5422802	-15.3411718 C				
0.00000781	34723.	4444481638.	21.1009324	0.0001649	-0.0005851
0.5625406	-15.9905700 C				
0.00000813	34723.	4273540036.	21.0599763	0.0001711	-0.0006089
0.5827314	-16.6398431 C				
0.00000844	34723.	4115260776.	21.0225676	0.0001774	-0.0006326
0.6028525	-17.2889905 C				
0.00000875	34723.	3968287176.	20.9883280	0.0001836	-0.0006564
0.6229037	-17.9380118 C				
0.00000906	34723.	3831449688.	20.9569314	0.0001899	-0.0006801
0.6428849	-18.5869064 C				
0.00000938	34723.	3703734698.	20.9280951	0.0001962	-0.0007038
0.6627960	-19.2356741 C				
0.00000969	34723.	3584259385.	20.9015732	0.0002025	-0.0007275
0.6826368	-19.8843143 C				
0.00001000	34723.	3472251279.	20.8771501	0.0002088	-0.0007512
0.7024073	-20.5328265 C				
0.00001031	34723.	3367031544.	20.8546366	0.0002151	-0.0007749

0.7221072	-21.1812102	C				
0.00001063	34723.	3268001204.	20.8338658	0.0002214	-0.0007986	
0.7417364	-21.8294651	C				
0.00001094	34723.	3174629741.	20.8146897	0.0002277	-0.0008223	
0.7612949	-22.4775906	C				
0.00001125	34723.	3086445582.	20.7969770	0.0002340	-0.0008460	
0.7807824	-23.1255862	C				
0.00001156	34723.	3003028133.	20.7806104	0.0002403	-0.0008697	
0.8001989	-23.7734516	C				
0.00001188	34723.	2924001077.	20.7654850	0.0002466	-0.0008934	
0.8195442	-24.4211861	C				
0.00001219	34723.	2849026691.	20.7515068	0.0002529	-0.0009171	
0.8388181	-25.0687893	C				
0.00001281	34723.	2710049779.	20.7266612	0.0002656	-0.0009644	
0.8771516	-26.3635999	C				
0.00001344	34723.	2584000952.	20.7054897	0.0002782	-0.0010118	
0.9151980	-27.6578794	C				
0.00001406	34723.	2469156465.	20.6875122	0.0002909	-0.0010591	
0.9529565	-28.9516239	C				
0.00001469	34723.	2364085977.	20.6723304	0.0003036	-0.0011064	
0.9904257	-30.2448292	C				
0.00001531	35433.	2313985647.	20.6596114	0.0003164	-0.0011536	
1.0276047	-31.5374913	C				
0.00001594	36803.	2309219965.	20.6490744	0.0003291	-0.0012009	
1.0644922	-32.8296059	C				
0.00001656	38172.	2304734590.	20.6404812	0.0003419	-0.0012481	
1.1010871	-34.1211688	C				
0.00001719	39540.	2300498097.	20.6332543	0.0003546	-0.0012954	
1.1373696	-35.4123623	C				
0.00001781	40906.	2296484255.	20.6276548	0.0003674	-0.0013426	
1.1733593	-36.7029771	C				
0.00001844	42271.	2292669921.	20.6235516	0.0003802	-0.0013898	
1.2090564	-37.9929947	C				
0.00001906	43635.	2289034963.	20.6208069	0.0003931	-0.0014369	
1.2444595	-39.2824102	C				
0.00001969	44997.	2285561800.	20.6193000	0.0004059	-0.0014841	
1.2795675	-40.5712184	C				
0.00002031	46358.	2282235005.	20.6189255	0.0004188	-0.0015312	
1.3143790	-41.8594142	C				
0.00002094	47717.	2279040990.	20.6195907	0.0004317	-0.0015783	
1.3488928	-43.1469923	C				
0.00002156	49076.	2275967733.	20.6212137	0.0004446	-0.0016254	
1.3831074	-44.4339473	C				
0.00002219	50432.	2273004560.	20.6237220	0.0004576	-0.0016724	
1.4170217	-45.7202739	C				
0.00002281	51788.	2270141962.	20.6270511	0.0004706	-0.0017194	
1.4506342	-47.0059665	C				
0.00002344	53142.	2267371435.	20.6311437	0.0004835	-0.0017665	
1.4839436	-48.2910196	C				
0.00002406	54494.	2264685353.	20.6359482	0.0004966	-0.0018134	

1.5169485	-49.5754274	C				
0.00002469	55845.	2262076973.	20.6413376	0.0005096	-0.0018604	
1.5496424	-50.8592423	C				
0.00002531	57195.	2259540286.	20.6470825	0.0005226	-0.0019074	
1.5820117	-52.1426011	C				
0.00002594	58543.	2257069591.	20.6533790	0.0005357	-0.0019543	
1.6140692	-53.4253366	C				
0.00002656	59889.	2254659827.	20.6601952	0.0005488	-0.0020012	
1.6458138	-54.7074434	C				
0.00002719	61235.	2252306331.	20.6675021	0.0005619	-0.0020481	
1.6772439	-55.9889163	C				
0.00002781	62578.	2250004935.	20.6752736	0.0005750	-0.0020950	
1.7083580	-57.2697496	C				
0.00002844	63920.	2247751809.	20.6834858	0.0005882	-0.0021418	
1.7391549	-58.5499378	C				
0.00002906	65261.	2245543443.	20.6921171	0.0006014	-0.0021886	
1.7696330	-59.8294751	C				
0.00002969	66506.	2240209149.	20.6916490	0.0006143	-0.0022357	
1.7991356	-60.0000000	CY				
0.00003031	67537.	2228041123.	20.6704460	0.0006266	-0.0022834	
1.8268356	-60.0000000	CY				
0.00003094	68458.	2212783604.	20.6396966	0.0006385	-0.0023315	
1.8534817	-60.0000000	CY				
0.00003156	69376.	2198036793.	20.6086739	0.0006505	-0.0023795	
1.8797161	-60.0000000	CY				
0.00003219	70167.	2179952563.	20.5658370	0.0006620	-0.0024280	
1.9047171	-60.0000000	CY				
0.00003281	70828.	2158582741.	20.5111259	0.0006730	-0.0024770	
1.9284633	-60.0000000	CY				
0.00003344	71489.	2137990939.	20.4588813	0.0006841	-0.0025259	
1.9519799	-60.0000000	CY				
0.00003406	72149.	2118134286.	20.4089700	0.0006952	-0.0025748	
1.9752660	-60.0000000	CY				
0.00003469	72808.	2098972845.	20.3612685	0.0007063	-0.0026237	
1.9983207	-60.0000000	CY				
0.00003531	73443.	2079802690.	20.3130452	0.0007173	-0.0026727	
2.0209494	-60.0000000	CY				
0.00003594	73965.	2058154242.	20.2545133	0.0007279	-0.0027221	
2.0424259	-60.0000000	CY				
0.00003656	74408.	2035099248.	20.1897958	0.0007382	-0.0027718	
2.0630499	-60.0000000	CY				
0.00003719	74851.	2012805690.	20.1275647	0.0007485	-0.0028215	
2.0834729	-60.0000000	CY				
0.00003969	76618.	1930524977.	19.9011869	0.0007898	-0.0030202	
2.1631412	-60.0000000	CY				
0.00004219	78185.	1853279295.	19.6848086	0.0008305	-0.0032195	
2.2378740	-60.0000000	CY				
0.00004469	79274.	1773974066.	19.4300984	0.0008683	-0.0034217	
2.3041769	-60.0000000	CY				
0.00004719	80357.	1702922601.	19.2052669	0.0009062	-0.0036238	

2.3676929	-60.0000000	CY				
0.00004969	81433.	1638908061.	19.0063057	0.0009444	-0.0038256	
2.4284283	-60.0000000	CY				
0.00005219	82339.	1577748631.	18.8092267	0.0009816	-0.0040284	
2.4847337	-60.0000000	CY				
0.00005469	82950.	1516803059.	18.5894175	0.0010166	-0.0042334	
2.5349030	-60.0000000	CY				
0.00005719	83551.	1460995267.	18.3841990	0.0010513	-0.0044387	
2.5821405	-60.0000000	CY				
0.00005969	84147.	1409800046.	18.1984879	0.0010862	-0.0046438	
2.6270281	-60.0000000	CY				
0.00006219	84740.	1362659910.	18.0299675	0.0011212	-0.0048488	
2.6695371	-60.0000000	CY				
0.00006469	85330.	1319103550.	17.8766804	0.0011564	-0.0050536	
2.7096382	-60.0000000	CY				
0.00006719	85913.	1278706528.	17.7348681	0.0011916	-0.0052584	
2.7471511	-60.0000000	CY				
0.00006969	86325.	1238743203.	17.5717150	0.0012245	-0.0054655	
2.7798907	-60.0000000	CY				
0.00007219	86622.	1199960038.	17.4052100	0.0012564	-0.0056736	
2.8093832	-60.0000000	CY				
0.00007469	86917.	1163739639.	17.2515049	0.0012885	-0.0058815	
2.8368611	-60.0000000	CY				
0.00007719	87209.	1129832343.	17.1093786	0.0013206	-0.0060894	
2.8622999	-60.0000000	CY				
0.00007969	87498.	1098019804.	16.9777641	0.0013529	-0.0062971	
2.8856749	-60.0000000	CY				
0.00008219	87785.	1068110229.	16.8557252	0.0013853	-0.0065047	
2.9069606	-60.0000000	CY				
0.00008469	88064.	1039873945.	16.7363255	0.0014174	-0.0067126	
2.9258324	-60.0000000	CY				
0.00008719	88336.	1013173254.	16.6197279	0.0014490	-0.0069210	
2.9423881	-60.0000000	CY				
0.00008969	88605.	987933396.	16.5110965	0.0014808	-0.0071292	
2.9569134	-60.0000000	CY				
0.00009219	88872.	964034993.	16.4098084	0.0015128	-0.0073372	
2.9693822	-60.0000000	CY				
0.00009469	89136.	941371248.	16.3153073	0.0015449	-0.0075451	
2.9797674	-60.0000000	CY				
0.00009719	89396.	919833212.	16.2268693	0.0015770	-0.0077530	
2.9880361	-60.0000000	CY				
0.00009969	89643.	899236762.	16.1422598	0.0016092	-0.0079608	
2.9941352	-60.0000000	CY				
0.0001022	89795.	878727726.	16.0468317	0.0016398	-0.0081702	
2.9979384	-60.0000000	CY				
0.0001047	89931.	859041515.	15.9545717	0.0016702	-0.0083798	
2.9997932	-60.0000000	CY				
0.0001072	90050.	840114407.	15.8653395	0.0017006	-0.0085894	
2.9967685	-60.0000000	CY				
0.0001097	90160.	821969532.	15.7736763	0.0017302	-0.0087998	

2.9957709	-60.0000000	CY				
0.0001122	90265.	804594898.	15.6839519	0.0017595	-0.0090105	
2.9985780	-60.0000000	CY				
0.0001147	90370.	787964502.	15.5991503	0.0017890	-0.0092210	
2.9998946	-60.0000000	CY				
0.0001172	90472.	772024332.	15.5192860	0.0018187	-0.0094313	
2.9966023	-60.0000000	CY				
0.0001197	90572.	756735594.	15.4438231	0.0018484	-0.0096416	
2.9941110	-60.0000000	CY				
0.0001222	90671.	742062287.	15.3722997	0.0018783	-0.0098517	
2.9973549	-60.0000000	CY				
0.0001247	90768.	727967036.	15.3044916	0.0019083	-0.0100617	
2.9993235	-60.0000000	CY				
0.0001272	90865.	714415609.	15.2401931	0.0019384	-0.0102716	
2.9999998	-60.0000000	CY				
0.0001297	90959.	701367098.	15.1797370	0.0019686	-0.0104814	
2.9950536	-60.0000000	CY				
0.0001322	91051.	688804350.	15.1222664	0.0019990	-0.0106910	
2.9930309	-60.0000000	CY				
0.0001347	91143.	676700342.	15.0676142	0.0020294	-0.0109006	
2.9963871	-60.0000000	CY				
0.0001372	91234.	665029960.	15.0156362	0.0020600	-0.0111100	
2.9986579	-60.0000000	CY				
0.0001522	91739.	602801841.	14.7335735	0.0022423	-0.0123677	
2.9973290	-60.0000000	CY				
0.0001672	92193.	551432855.	14.5021267	0.0024246	-0.0136254	
2.9905395	-60.0000000	CY				
0.0001822	92471.	507557197.	14.2809336	0.0026018	-0.0148882	
2.9986916	-60.0000000	CY				
0.0001972	92621.	469708129.	14.0753711	0.0027755	-0.0161545	
2.9911906	-60.0000000	CY				
0.0002122	92756.	437140243.	13.9005295	0.0029495	-0.0174205	
2.9999264	-60.0000000	CY				
0.0002272	92851.	408695623.	13.7344473	0.0031203	-0.0186897	
2.9856498	60.0000000	CYT				
0.0002422	92935.	383731480.	13.5975425	0.0032932	-0.0199568	
2.9920384	60.0000000	CYT				
0.0002572	93008.	361633179.	13.4863394	0.0034685	-0.0212215	
2.9996831	60.0000000	CYT				
0.0002722	93063.	341905944.	13.4007863	0.0036475	-0.0224825	
2.9887382	60.0000000	CYT				
0.0002872	93114.	324228530.	13.3278524	0.0038276	-0.0237424	
2.9749016	60.0000000	CYT				

Summary of Results for Nominal Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003

1	0.5000	0.00	N.A.	No	0.00	22625.
2	5.5000	2.2931	No	No	22625.	204526.
3	10.5000	8.0495	Yes	No	227151.	374692.
4	15.5000	10.7850	Yes	No	601843.	267838.
5	17.5000	172.1941	No	No	869681.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 32000.0 lbs
 Applied moment at pile head = 46344000.0 in-lbs
 Axial thrust load on pile head = 52000.0 lbs

Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
Res. Soil	Spr. Distrib.	Moment	Force	S	Stress	Stiffness	p
X	y	Lat. Load					
Es*H	Lat.						
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	0.9802	4.63E+07	32000.	-0.00646	0.00	2.28E+12	
0.00	0.00	0.00					
0.2450	0.9613	4.64E+07	32000.	-0.00640	0.00	2.28E+12	
0.00	0.00	0.00					
0.4900	0.9426	4.65E+07	32000.	-0.00634	0.00	2.28E+12	
0.00	0.00	0.00					
0.7350	0.9240	4.66E+07	31908.	-0.00628	0.00	2.28E+12	
-62.5462	199.0086	0.00					
0.9800	0.9056	4.67E+07	31717.	-0.00622	0.00	2.28E+12	
-67.1053	217.8496	0.00					
1.2250	0.8874	4.68E+07	31514.	-0.00616	0.00	2.28E+12	
-71.5956	237.1963	0.00					
1.4700	0.8694	4.69E+07	31297.	-0.00610	0.00	2.28E+12	
-76.0168	257.0672	0.00					
1.7150	0.8515	4.70E+07	31067.	-0.00604	0.00	2.28E+12	
-80.3684	277.4817	0.00					

1.9600	0.8339	4.71E+07	30824.	-0.00598	0.00	2.28E+12
-84.6501	298.4601	0.00				
2.2050	0.8164	4.72E+07	30569.	-0.00592	0.00	2.28E+12
-88.8613	320.0235	0.00				
2.4500	0.7990	4.73E+07	30302.	-0.00586	0.00	2.28E+12
-93.0017	342.1942	0.00				
2.6950	0.7819	4.74E+07	30022.	-0.00580	0.00	2.28E+12
-97.0709	364.9956	0.00				
2.9400	0.7649	4.75E+07	29731.	-0.00574	0.00	2.28E+12
-101.0683	388.4521	0.00				
3.1850	0.7482	4.75E+07	29428.	-0.00568	0.00	2.28E+12
-104.9935	412.5894	0.00				
3.4300	0.7316	4.76E+07	29114.	-0.00562	0.00	2.28E+12
-108.8461	437.4345	0.00				
3.6750	0.7151	4.77E+07	28788.	-0.00555	0.00	2.28E+12
-112.6257	463.0157	0.00				
3.9200	0.6989	4.78E+07	28452.	-0.00549	0.00	2.28E+12
-116.3316	489.3629	0.00				
4.1650	0.6828	4.79E+07	28104.	-0.00543	0.00	2.28E+12
-119.9635	516.5074	0.00				
4.4100	0.6670	4.80E+07	27746.	-0.00537	0.00	2.28E+12
-123.5209	544.4822	0.00				
4.6550	0.6513	4.80E+07	27378.	-0.00531	0.00	2.28E+12
-127.0032	573.3221	0.00				
4.9000	0.6358	4.81E+07	27000.	-0.00524	0.00	2.28E+12
-130.4099	603.0636	0.00				
5.1450	0.6204	4.82E+07	26611.	-0.00518	0.00	2.28E+12
-133.7406	633.7455	0.00				
5.3900	0.6053	4.83E+07	26213.	-0.00512	0.00	2.28E+12
-136.9946	665.4085	0.00				
5.6350	0.5903	4.84E+07	24499.	-0.00506	0.00	2.28E+12
-1029.	5125.	0.00				
5.8800	0.5755	4.84E+07	21347.	-0.00500	0.00	2.28E+12
-1115.	5697.	0.00				
6.1250	0.5610	4.85E+07	17945.	-0.00493	0.00	2.28E+12
-1199.	6285.	0.00				
6.3700	0.5465	4.85E+07	14299.	-0.00487	0.00	2.28E+12
-1281.	6891.	0.00				
6.6150	0.5323	4.86E+07	10416.	-0.00481	0.00	2.28E+12
-1361.	7514.	0.00				
6.8600	0.5183	4.86E+07	6302.	-0.00474	0.00	2.28E+12
-1438.	8157.	0.00				
7.1050	0.5044	4.86E+07	1964.	-0.00468	0.00	2.28E+12
-1513.	8818.	0.00				
7.3500	0.4907	4.86E+07	-2594.	-0.00462	0.00	2.28E+12
-1588.	9512.	0.00				
7.5950	0.4773	4.86E+07	-7371.	-0.00456	0.00	2.28E+12
-1662.	10239.	0.00				
7.8400	0.4640	4.86E+07	-12365.	-0.00449	0.00	2.28E+12
-1735.	10993.	0.00				

8.0850	0.4508	4.85E+07	-17568.	-0.00443	0.00	2.28E+12
-1805.	11773.	0.00				
8.3300	0.4379	4.85E+07	-22977.	-0.00437	0.00	2.28E+12
-1874.	12582.	0.00				
8.5750	0.4251	4.84E+07	-28585.	-0.00431	0.00	2.28E+12
-1941.	13420.	0.00				
8.8200	0.4126	4.83E+07	-34385.	-0.00424	0.00	2.28E+12
-2005.	14290.	0.00				
9.0650	0.4002	4.82E+07	-40373.	-0.00418	0.00	2.28E+12
-2068.	15191.	0.00				
9.3100	0.3880	4.81E+07	-46541.	-0.00412	0.00	2.28E+12
-2128.	16126.	0.00				
9.5550	0.3760	4.79E+07	-52883.	-0.00406	0.00	2.28E+12
-2186.	17096.	0.00				
9.8000	0.3641	4.78E+07	-59393.	-0.00400	0.00	2.28E+12
-2242.	18102.	0.00				
10.0450	0.3525	4.76E+07	-66063.	-0.00393	0.00	2.28E+12
-2296.	19147.	0.00				
10.2900	0.3410	4.74E+07	-72887.	-0.00387	0.00	2.28E+12
-2346.	20231.	0.00				
10.5350	0.3297	4.71E+07	-79752.	-0.00381	0.00	2.28E+12
-2324.	20719.	0.00				
10.7800	0.3186	4.69E+07	-86631.	-0.00375	0.00	2.28E+12
-2356.	21742.	0.00				
11.0250	0.3077	4.66E+07	-93602.	-0.00369	0.00	2.28E+12
-2386.	22803.	0.00				
11.2700	0.2969	4.64E+07	-100658.	-0.00363	0.00	2.28E+12
-2414.	23906.	0.00				
11.5150	0.2863	4.61E+07	-107793.	-0.00357	0.00	2.28E+12
-2440.	25052.	0.00				
11.7600	0.2759	4.57E+07	-114927.	-0.00351	0.00	2.28E+12
-2413.	25719.	0.00				
12.0050	0.2656	4.54E+07	-121965.	-0.00345	0.00	2.28E+12
-2374.	26279.	0.00				
12.2500	0.2556	4.50E+07	-128885.	-0.00340	0.00	2.29E+12
-2333.	26838.	0.00				
12.4950	0.2457	4.46E+07	-135681.	-0.00334	0.00	2.29E+12
-2290.	27398.	0.00				
12.7400	0.2360	4.42E+07	-142345.	-0.00328	0.00	2.29E+12
-2244.	27958.	0.00				
12.9850	0.2264	4.38E+07	-148871.	-0.00322	0.00	2.29E+12
-2196.	28517.	0.00				
13.2300	0.2170	4.33E+07	-155254.	-0.00317	0.00	2.29E+12
-2146.	29077.	0.00				
13.4750	0.2078	4.29E+07	-161487.	-0.00311	0.00	2.29E+12
-2094.	29636.	0.00				
13.7200	0.1987	4.24E+07	-167565.	-0.00306	0.00	2.29E+12
-2041.	30196.	0.00				
13.9650	0.1898	4.19E+07	-173484.	-0.00300	0.00	2.29E+12
-1985.	30756.	0.00				

14.2100	0.1810	4.14E+07	-179236.	-0.00295	0.00	2.30E+12
-1928.	31315.	0.00				
14.4550	0.1724	4.08E+07	-184819.	-0.00290	0.00	2.30E+12
-1869.	31875.	0.00				
14.7000	0.1640	4.03E+07	-190226.	-0.00285	0.00	2.30E+12
-1809.	32435.	0.00				
14.9450	0.1557	3.97E+07	-195454.	-0.00280	0.00	2.30E+12
-1747.	32994.	0.00				
15.1900	0.1475	3.91E+07	-200497.	-0.00274	0.00	2.30E+12
-1684.	33554.	0.00				
15.4350	0.1395	3.85E+07	-205353.	-0.00270	0.00	2.30E+12
-1619.	34113.	0.00				
15.6800	0.1317	3.79E+07	-212905.	-0.00265	0.00	2.31E+12
-3518.	78547.	0.00				
15.9250	0.1240	3.73E+07	-223270.	-0.00260	0.00	2.31E+12
-3533.	83770.	0.00				
16.1700	0.1164	3.66E+07	-233668.	-0.00255	0.00	2.31E+12
-3541.	89416.	0.00				
16.4150	0.1090	3.59E+07	-244078.	-0.00251	0.00	2.31E+12
-3542.	95542.	0.00				
16.6600	0.1017	3.52E+07	-254482.	-0.00246	0.00	2.33E+12
-3535.	102222.	0.00				
16.9050	0.09451	3.44E+07	-264865.	-0.00244	0.00	1.59E+13
-3528.	109747.	0.00				
17.1500	0.08736	3.36E+07	-275215.	-0.00243	0.00	1.59E+13
-3513.	118232.	0.00				
17.3950	0.08023	3.28E+07	-285508.	-0.00242	0.00	1.59E+13
-3488.	127825.	0.00				
17.6400	0.07312	3.19E+07	-309451.	-0.00242	0.00	1.59E+13
-12800.	514677.	0.00				
17.8850	0.06602	3.10E+07	-346146.	-0.00241	0.00	1.59E+13
-12163.	541633.	0.00				
18.1300	0.05894	2.99E+07	-380919.	-0.00241	0.00	1.59E+13
-11492.	573240.	0.00				
18.3750	0.05188	2.87E+07	-413661.	-0.00240	0.00	1.59E+13
-10782.	611020.	0.00				
18.6200	0.04483	2.75E+07	-444243.	-0.00239	0.00	1.59E+13
-10022.	657299.	0.00				
18.8650	0.03780	2.61E+07	-472504.	-0.00239	0.00	1.60E+13
-9203.	715846.	0.00				
19.1100	0.03078	2.47E+07	-498239.	-0.00239	0.00	1.60E+13
-8304.	793282.	0.00				
19.3550	0.02377	2.32E+07	-521175.	-0.00238	0.00	1.60E+13
-7298.	902634.	0.00				
19.6000	0.01678	2.16E+07	-540917.	-0.00238	0.00	1.60E+13
-6132.	1074387.	0.00				
19.8450	0.00980	2.00E+07	-556618.	-0.00237	0.00	1.60E+13
-4549.	1364983.	0.00				
20.0900	0.00283	1.84E+07	-565259.	-0.00237	0.00	1.60E+13
-1329.	1382270.	0.00				

20.3350	-0.00413	1.67E+07	-564320.	-0.00237	0.00	1.60E+13
1968.	1399558.	0.00				
20.5800	-0.01108	1.50E+07	-554102.	-0.00236	0.00	1.61E+13
4984.	1321850.	0.00				
20.8250	-0.01803	1.34E+07	-537433.	-0.00236	0.00	1.61E+13
6356.	1036499.	0.00				
21.0700	-0.02496	1.19E+07	-517095.	-0.00236	0.00	1.61E+13
7479.	880814.	0.00				
21.3150	-0.03189	1.04E+07	-493674.	-0.00236	0.00	1.61E+13
8454.	779271.	0.00				
21.5600	-0.03882	8987613.	-467537.	-0.00235	0.00	1.61E+13
9326.	706359.	0.00				
21.8050	-0.04574	7653720.	-438946.	-0.00235	0.00	1.61E+13
10124.	650738.	0.00				
22.0500	-0.05265	6407331.	-408097.	-0.00235	0.00	1.61E+13
10862.	606502.	0.00				
22.2950	-0.05956	5254827.	-375148.	-0.00235	0.00	1.62E+13
11553.	570228.	0.00				
22.5400	-0.06647	4202182.	-340224.	-0.00235	0.00	1.62E+13
12204.	539781.	0.00				
22.7850	-0.07338	3255027.	-303434.	-0.00235	0.00	1.62E+13
12823.	513751.	0.00				
23.0300	-0.08029	2418707.	-264868.	-0.00235	0.00	1.62E+13
13413.	491161.	0.00				
23.2750	-0.08719	1698321.	-224605.	-0.00235	0.00	1.62E+13
13977.	471315.	0.00				
23.5200	-0.09409	1098750.	-182713.	-0.00235	0.00	1.62E+13
14520.	453697.	0.00				
23.7650	-0.1010	624685.	-139255.	-0.00235	0.00	1.62E+13
15043.	437920.	0.00				
24.0100	-0.1079	280648.	-94285.	-0.00235	0.00	1.62E+13
15549.	423682.	0.00				
24.2550	-0.1148	71009.	-47851.	-0.00235	0.00	1.62E+13
16038.	410748.	0.00				
24.5000	-0.1217	0.00	0.00	-0.00235	0.00	1.62E+13
16514.	199466.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection	=	0.98022690 inches
Computed slope at pile head	=	-0.00646360 radians
Maximum bending moment	=	48616928. inch-lbs

Maximum shear force = -565259. lbs
 Depth of maximum bending moment = 7.10500000 feet below pile head
 Depth of maximum shear force = 20.09000000 feet below pile head
 Number of iterations = 134
 Number of zero deflection points = 1

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
		lbs	in-lbs	lbs	inches	radians	
1	V, lb	32000.	M, in-lb	52000.	0.9802	-0.00646	
		4.86E+07					

Maximum pile-head deflection = 0.9802268969 inches
 Maximum pile-head rotation = -0.0064636039 radians = -0.370337 deg.

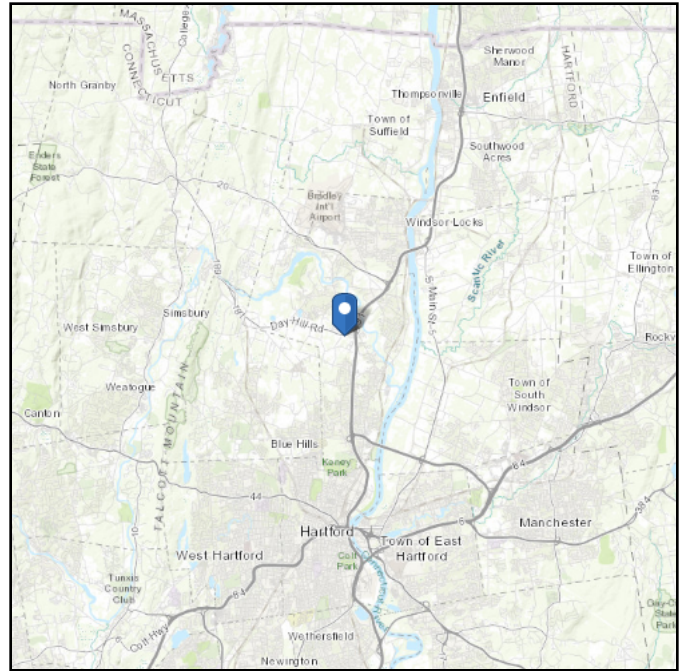
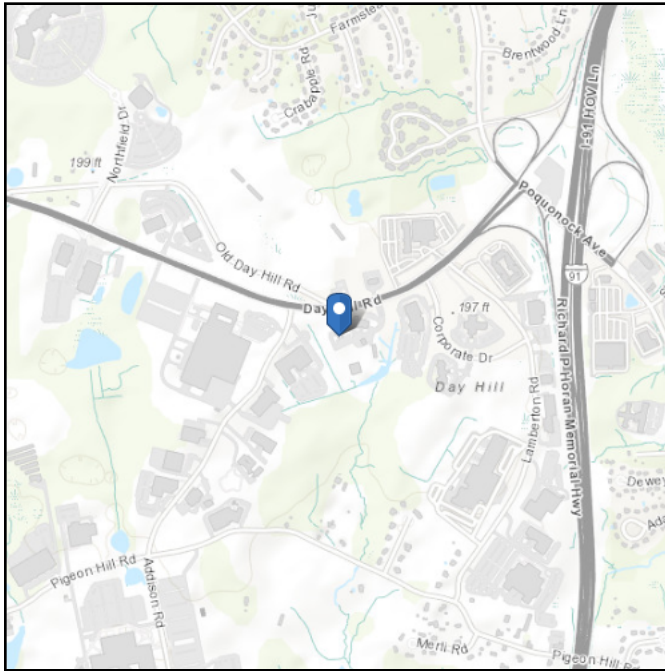
The analysis ended normally.

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 166.35 ft (NAVD 88)
Latitude: 41.871139
Longitude: -72.671111



Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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 Jun 01 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).

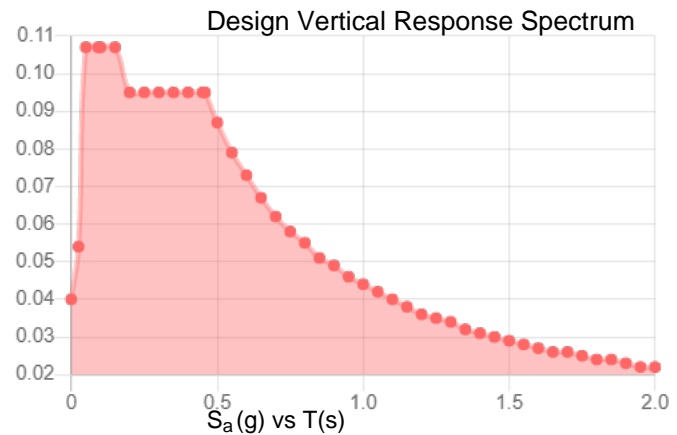
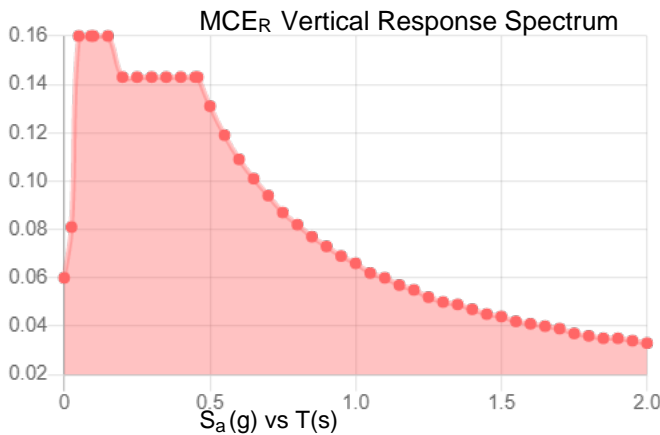
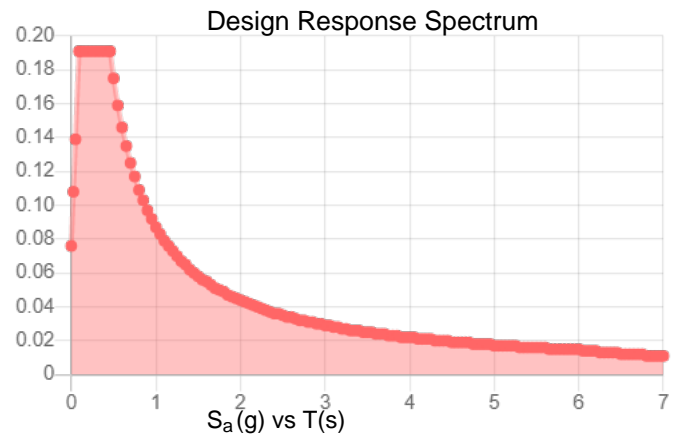
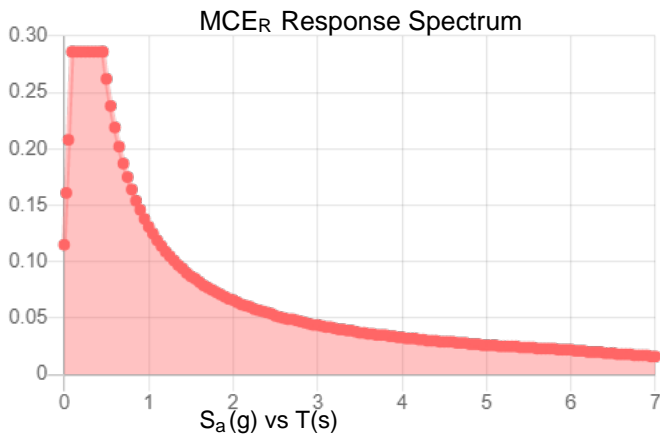
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.179	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.095
F_v :	2.4	PGA _M :	0.152
S_{MS} :	0.286	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.191	C_v :	0.7

Seismic Design Category B



Data Accessed: Wed Jun 01 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: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Jun 01 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.

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