



Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

June 15, 2022

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

RE: Tower Share Application  
44 Gavitt Road, Barkhamsted, CT 06063  
Latitude: 41.946083  
Longitude: -72.911472  
Site #: CT11709-S\_CTNH393A\_SBA/T-Mobile

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile. T-Mobile plans to install antennas and related equipment to the tower site located at 44 Gavitt Road, Barkhamsted, Connecticut.

T-Mobile proposes to install nine (9) antennas and six (6) RRUs at the 147-foot level of the existing 170-foot monopole tower, three (3) HCS Fiber cables will also be installed. T-Mobile equipment cabinets and a 48KW diesel generator will be placed within a 10' x 15' lease area within the existing fenced compound. Included are plans by Chappell Engineering, dated May 12, 2022, Exhibit C. Also included is a structural analysis prepared by SBA, dated May 16, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 387 on February 25, 2010. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Donald S. Stein, First Selectman, and Debra Brydon Zoning Administrator for the Town of Barkhamsted, as well as the tower owner (SBA) and property owner (Richard & Karen Langer).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 170-feet and the T-Mobile antennas will be located at a center line height of 147-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligible.



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4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 3.66% as evidenced by Exhibit F.

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

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting T-Mobile proposed loading. The structural analysis is included as Exhibit D.

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 147-foot level of the existing 170-foot tower would have an insignificant visual impact on the area around the tower. T-Mobile ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

*Denise Sabo*

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



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SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: Donald S. Stein, First Selectman  
Town of Barkhamsted  
67 Ripley Hill Road  
Barkhamsted, CT 06063

Debra Brydon – Administrator Zoning & Inland Wetlands Officer  
Town of Barkhamsted  
67 Ripley Hill Road  
Barkhamsted, CT 06063

Richard & Karen Langer - Property Owners  
44 Gavitt Road  
Barkhamsted, CT 06063

SBA - Tower Owner

# Exhibit A

## **Original Facility Approval**



**DOCKET NO. 387** – SBA Towers II, LLC application for a } Connecticut  
Certificate of Environmental Compatibility and Public Need for }  
the construction, maintenance and management of a } Siting  
telecommunications facility at 44 Gavitt Road, Barkhamsted, }  
Connecticut. } Council

February 25, 2010

### **Decision and Order**

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, management, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to SBA Towers II, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 44 Gavitt Road, Barkhamsted, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC, Cellco Partnership, Inc. d/b/a Verizon Wireless and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level.
2. The Certificate Holder shall not conduct any construction activities related to this facility before May 15 in any given calendar year.
3. The Certificate Holder shall hire an environmental inspector to monitor the efficacy of erosion and sedimentation controls in place during the construction period and to inspect the construction area for amphibians. Any periodic reports prepared by the environmental inspector shall be submitted to the Council.
4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Barkhamsted for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

- a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
  - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
5. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
8. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Barkhamsted public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
9. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
10. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
11. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Barkhamsted. Any proposed modifications to this Decision and Order shall likewise be so served.

12. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
13. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.
14. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Hartford Courant.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

**Applicant**

SBA Towers II, LLC  
One Research Drive, Suite 200C  
Westborough, Massachusetts 01581

**Its Representative**

Carrie L. Larson, Esq.  
Pullman & Comley, LLC  
90 State House Square  
Hartford, CT 06103-3702

**Party**

Town of Barkhamsted  
Town Hall  
67 Ripley Hill Road  
Pleasant Valley, CT 06063

**Its Representative**

The Honorable Donald S. Stein  
First Selectman  
Town of Barkhamsted  
Town Hall  
67 Ripley Hill Road  
Pleasant Valley, CT 06063

**Intervenor**

New Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067

**Its Representative**

Christopher B Fisher, Esq.  
Daniel M. Laub, Esq.  
Cuddy & Feder LLP  
445 Hamilton Avenue, 14<sup>th</sup> Floor  
White Plains, NY 10601

**Intervenor**

Cellco Partnership, Inc. d/b/a Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

**Its Representative**

Joey Lee Miranda, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597

# Exhibit B

## Property Card

CURRENT OWNER		TOPO	UTILITIES	STRT / ROAD	LOCATION	CURRENT ASSESSMENT				
LANGER KAREN J & RICHARD J		4 Rolling		1 Public		Description	Code	Appraised	Assessed	6005
44 GAVITT RD						RES LAND	1-1	70,810	49,570	
BARKHAMSTED CT 06063						DWELLING	1-3	270,880	189,620	BARKHAMSTED, CT
<b>SUPPLEMENTAL DATA</b>						IND LAND	3-1	235,000	164,500	
Alt Prcl ID 26-33-15A				DV Lot #		IND IMPR	3-3	15,600	10,920	<b>VISION</b>
B.P. Status				Solar Ener		FOREST	6-2	135,560	5,690	
Census Tr.				BAA						
Interior				Callback						
100 Yr Flo				PA490 Dat 3/18/1977						
DV Map #				Assoc Pid#						
GIS ID										
							Total	727,850	420,300	

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	Q/U	V/I	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)								
LANGER KAREN J & RICHARD J		0110	0799	02-14-2001		V	0	Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
LANGER KAREN J		0099	1014	09-09-1996		V	41,250	2021	1-1	49,570	2020	1-1	49,570	2019	1-1	49,570
									1-3	189,620		1-3	189,620		1-3	189,620
									3-1	164,500		3-1	164,500		3-1	164,500
									3-3	10,920		3-3	10,920		3-3	10,920
									6-2	5,690		6-2	5,690		6-2	5,690
							Total	420,300	Total	420,300	Total	420,300	Total	420,300		

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor										
Year	Code	Description	Amount	Code	Description	Number	Amount	Comm Int										
			Total	0.00														

ASSESSING NEIGHBORHOOD						APPRAISED VALUE SUMMARY			
Nbhd	Nbhd Name	Street Index Name	Tracing	Batch		Appraised Bldg. Value (Card)	270,880		
0001						Appraised Xf (B) Value (Bldg)	0		
						Appraised Ob (B) Value (Bldg)	15,600		
						Appraised Land Value (Card)	441,370		

NOTES										VISIT / CHANGE HISTORY					
RD 30'										Date	Id	Type	Is	Cd	Purpost/Result
2010 = LAND LEASE AREA FOR CELL TOWER										05-12-2020	AL	4	0	06	Phone Call Verify Info
2011 UC = 70%										06-28-2018	MVS			33	Datamailer sent
7/12/2012 CO = GARAGE UC										08-12-2013	ES		2	12	Permit - Measure Exterior
10/2012 = 95% (NO GARAGE DOORS)										07-02-2013	FB		1	20	Info at assessors office
POST & BEAM										10-02-2012	FB	3		50	Field Review
										07-12-2012	FB	3	1	00	Meas. and List
										08-17-2011	FB			11	Permit - Exterior Inspect
							Total Appraised Parcel Value	727,850							
							Valuation Method	C							
							Total Appraised Parcel Value	727,850							

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
19-342-E	11-18-2019	EL		25,000		0		modify telecomm tower: repl 9		05-12-2020	AL	4	0	06	Phone Call Verify Info
2398	05-15-2013	EL	Electric	3,500		100		FOR EQUIPMENT SHELTER		06-28-2018	MVS			33	Datamailer sent
13-05-18	05-06-2013	OT	Other	224,000		100	07-30-2013	INSTALL 12'X30' PREFAB EQ		08-12-2013	ES		2	12	Permit - Measure Exterior
13-01-06	01-23-2013	OT	Other	25,000		100		3 new antennas etc		07-02-2013	FB		1	20	Info at assessors office
280	11-17-2011	OT	Other	3,000	07-12-2012	100		underground 1000 gal tank		10-02-2012	FB	3		50	Field Review
247	10-21-2011	WS	Wood Stve	2,000	07-12-2012	100	10-26-2011			07-12-2012	FB	3	1	00	Meas. and List
984	05-25-2011	PL	Plumbing	12,000	07-12-2012	100	10-12-2012			08-17-2011	FB			11	Permit - Exterior Inspect

LAND LINE VALUATION SECTION																	
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj.	Notes	Special Use	Location Adjustment	Adj Unit Pri	Land Value	
1	101	Single Family	RA-2		2.000	AC	61,963.00	0.57142	5	1.00	5	1.000				70,810	
1	610	Forest	RA-2		33.890	AC	4,000.00	1.00000	0	1.00		1.000	PENALTY EXP 03/18/1987	490	240	1.00	135,560
Total Card Land Units					35.890	AC	Parcel Total Land Area					36,000	AC	Total Land Value		206,370	

**CONSTRUCTION DETAIL** **CONSTRUCTION DETAIL (CONTINUED)**

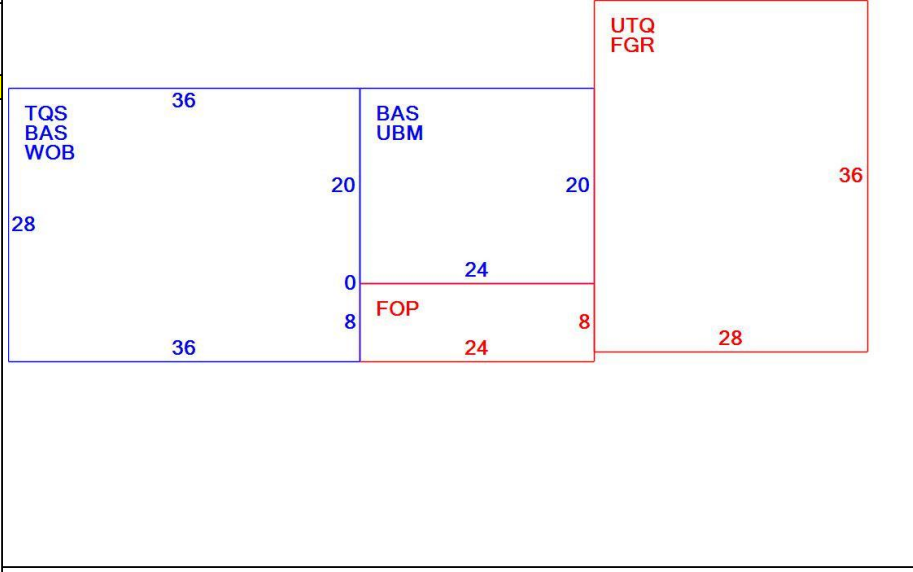
Element	Cd	Description	Element	Cd	Description
Style:	04	Cape Cod			
Model	01	Residential			
Grade:	11	B			
Occupancy	1				
Exterior Wall 1	25	Vinyl Siding			
Exterior Wall 2	08	Wood			
Roof Structure:	03	Gable			
Roof Cover	07	Arch. Shingles			
Interior Wall 1	05	Drywall			
Interior Wall 2					
Interior Flr 1	09	Pine/Soft Wood			
Interior Flr 2					
Heat Fuel	03	Gas	RCN		291,271
Heat Type:	08	Radiant	Year Built		2011
AC Type:					
Total Bedrooms	02	2 Bedrooms	Depreciation Code		A
Total Bthrms:	3	3 Full	Remodel Rating		
Total Half Baths	0		Year Remodeled		
Total Rooms:	6		Depreciation %		7
Bath Style:	02	Average	Functional Obsol		
Kitchen Style:	02	Average	External Obsol		
Fireplace	1		Cost Trend Factor		1
Whirlpool Tubs			Condition		
Fin Basement			Condition %		
Fin Bsmt Qual			Percent Good		93
Bsmt. Garages			RCNLD		270,880
			Dep % Ovr		
			Dep Ovr Comment		
			Misc Imp Ovr		
			Misc Imp Ovr Comment		
			Cost to Cure Ovr		
			Cost to Cure Ovr Comment		

**MIXED USE**

Code	Description	Percentage
101	Single Family	100
		0
		0

**COST / MARKET VALUATION**

RCN	291,271
Year Built	2011
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	7
Functional Obsol	
External Obsol	
Cost Trend Factor	1
Condition	
Condition %	
Percent Good	93
RCNLD	270,880
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Cod	Description	Sub	Sub Desc	L/B	Units	Unit Price	Yr Blt	Cond.	% Gd	Grade	Grd A	Appr. Valu

**BUILDING SUB-AREA SUMMARY SECTION**

Code	Description	Living Area	Gross Area
BAS	First Floor	1,488	1,488
FGR	Garage	0	1,008
FOP	Framed Open Porch	0	192
TQS	Three Quarter Story	907	1,008
UBM	Unfin Basement	0	480
UTQ	Unfin Three Qrt St	0	1,008
WOB	Walk Out Bsmt.	0	1,008
Ttl Gross Liv / Lease Area		2,395	6,192



CURRENT OWNER		TOPO	UTILITIES	STRT / ROAD	LOCATION	CURRENT ASSESSMENT				
LANGER KAREN J & RICHARD J		4 Rolling		1 Public		Description	Code	Appraised	Assessed	6005
44 GAVITT RD						RES LAND	1-1	70,810	49,570	
BARKHAMSTED CT 06063						DWELLING	1-3	270,880	189,620	BARKHAMSTED, CT
<b>SUPPLEMENTAL DATA</b>						IND LAND	3-1	235,000	164,500	
Alt Prcl ID 26-33-15A				DV Lot #		IND IMPR	3-3	15,600	10,920	
B.P. Status Census Tr. Interior 100 Yr Flo DV Map # GIS ID				Solar Ener BAA Callback PA490 Dat 3/18/1977 Assoc Pid#		FOREST	6-2	135,560	5,690	
						Total		727,850	420,300	VISION

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	Q/U	V/I	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)									
LANGER KAREN J & RICHARD J		0110	0799	02-14-2001		V	0	Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed	
LANGER KAREN J		0099	1014	09-09-1996		V	41,250	2021	1-1	49,570	2020	1-1	49,570	2019	1-1	49,570	
									1-3	189,620		1-3	189,620		1-3	189,620	
									3-1	164,500		3-1	164,500		3-1	164,500	
									3-3	10,920		3-3	10,920		3-3	10,920	
									6-2	5,690		6-2	5,690		6-2	5,690	
						Total		420,300	Total		420,300	Total		420,300	Total		420,300

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor								
Year	Code	Description	Amount	Code	Description	Number	Amount	Comm Int								
									<b>APPRAISED VALUE SUMMARY</b>							
Total			0.00									Appraised Bldg. Value (Card)				270,880
												Appraised Xf (B) Value (Bldg)				0
												Appraised Ob (B) Value (Bldg)				15,600
												Appraised Land Value (Card)				441,370
												Total Appraised Parcel Value				727,850
												Valuation Method				C
												Total Appraised Parcel Value				727,850

ASSESSING NEIGHBORHOOD					
Nbhd	Nbhd Name	Street Index Name	Tracing	Batch	
0001					

NOTES					
8/2013 VOL 162/832 SBA TOWERS V LLC					
VERIZON=12X30 PRE FAB SHELTER, 12 PANEL ANTENNA & GENERATOR					
AT&T= 12X20 MASONARY SHLTER					
SBA OWNS TOWER, SITE ID# CT11709					
TOWER ASSESSED AS PERS PROP					

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

LAND LINE VALUATION SECTION																	
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj.	Notes	Special Use	Location Adjustment	Adj Unit Pri	Land Value	
2	350	Cell Tower			0.110 AC	73,080.00	1.00000		1.00		1.000	CELL TOWER SITE	0	0.99		235,000	
Total Card Land Units					0.110 AC	Parcel Total Land Area					36,000	AC	Total Land Value				235,000



**CONSTRUCTION DETAIL** **CONSTRUCTION DETAIL (CONTINUED)**

Element	Cd	Description	Element	Cd	Description
Style:	94	Outbuildings			
Model:	00	Vacant			
Grade:					
Occupancy					
Exterior Wall 1					
Exterior Wall 2					
Roof Structure:					
Roof Cover					
Interior Wall 1					
Interior Wall 2					
Interior Flr 1					
Interior Flr 2					
Heat Fuel					
Heat Type:					
AC Type:					
Total Bedrooms					
Total Bthrms:					
Total Half Baths					
Total Rooms:					
Bath Style:					
Kitchen Style:					
Fireplace					
Whirlpool Tubs					
Fin Basement					
Fin Bsmt Qual					
Bsmt. Garages					
<b>MIXED USE</b>					
	Code	Description	Percentage		
	350	Cell Tower	100		
			0		
			0		
<b>COST / MARKET VALUATION</b>					
	RCN				
	Year Built				
	Depreciation Code				
	Remodel Rating				
	Year Remodeled				
	Depreciation %				
	Functional Obsol				
	External Obsol				
	Cost Trend Factor	1			
	Condition				
	Condition %				
	Percent Good				
	RCNLD				
	Dep % Ovr				
	Dep Ovr Comment				
	Misc Imp Ovr				
	Misc Imp Ovr Comment				
	Cost to Cure Ovr				
	Cost to Cure Ovr Comment				

No Sketch

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

Cod	Description	Sub	Sub Desc	L/B	Units	Unit Price	Yr Blt	Cond.	% Gd	Grade	Grd A	Appr. Valu
SHD	Cell Equip	FR	Frame	L	240	26.00	2013		100		0.00	6,240
SHD	Cell Equip	FR	Frame	L	360	26.00	2013		100		0.00	9,360

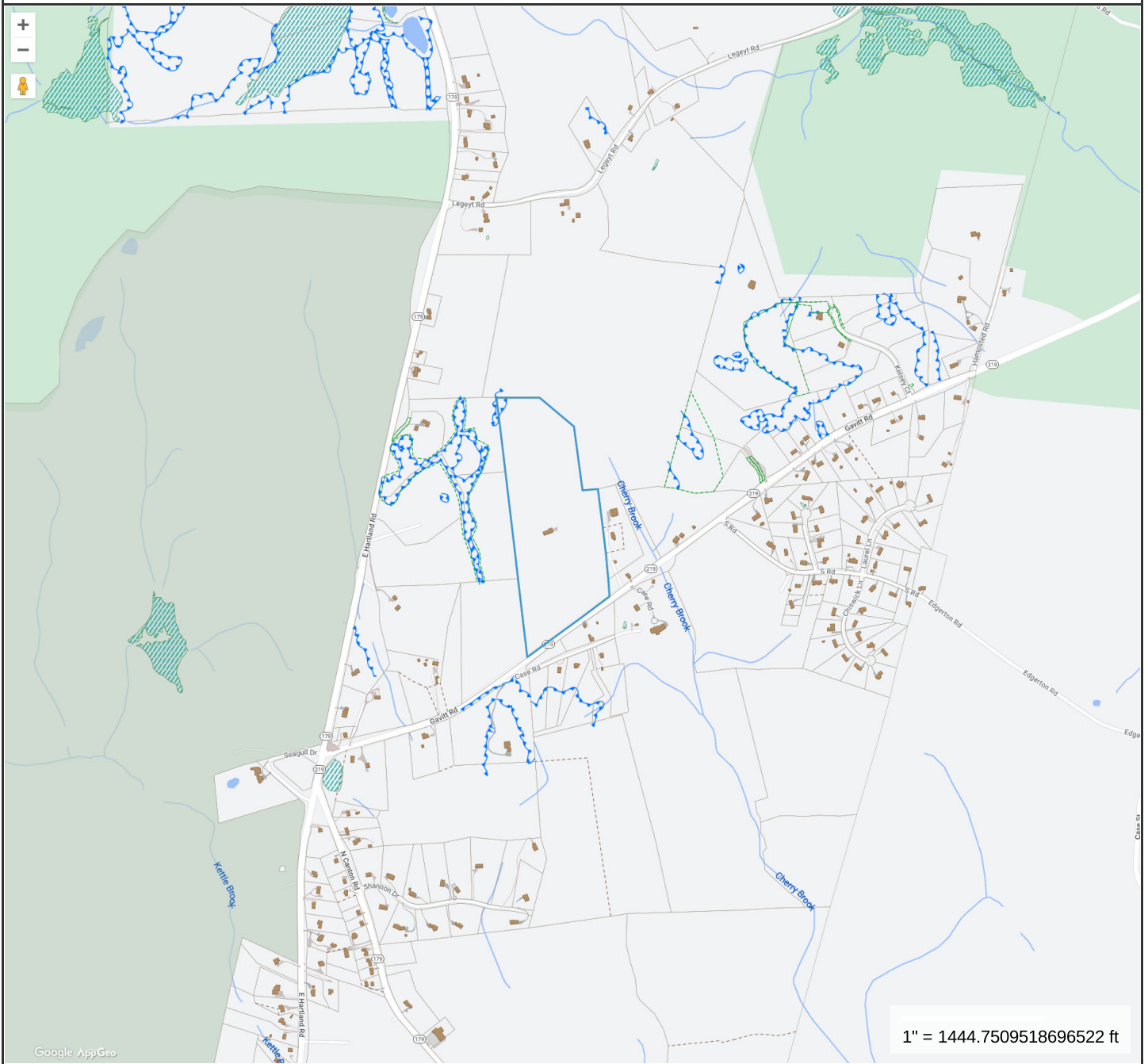
**BUILDING SUB-AREA SUMMARY SECTION**

Code	Description	Living Area	Gross Area
Ttl Gross Liv / Lease Area		0	0





# 44 GAVITT ROAD



**Property Information**

**Property ID** 26-33-15A  
**Location** 44 GAVITT RD  
**Owner** LANGER KAREN J & RICHARD J



**MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT**

Town of Barkhamsted, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 6/2/2021  
Data updated 11/15/2018

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

# Exhibit C

## **Construction Drawings**



# 44 GAVITT ROAD

44 GAVITT ROAD  
BARKHAMSTED, CT 06063  
LITCHFIELD COUNTY

## SITE NO.: CTNH393A

SITE TYPE: 170'± MONOPOLE

RF DESIGN GUIDELINE: 67E5D998E 6160

### APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

### T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

### GENERAL NOTES

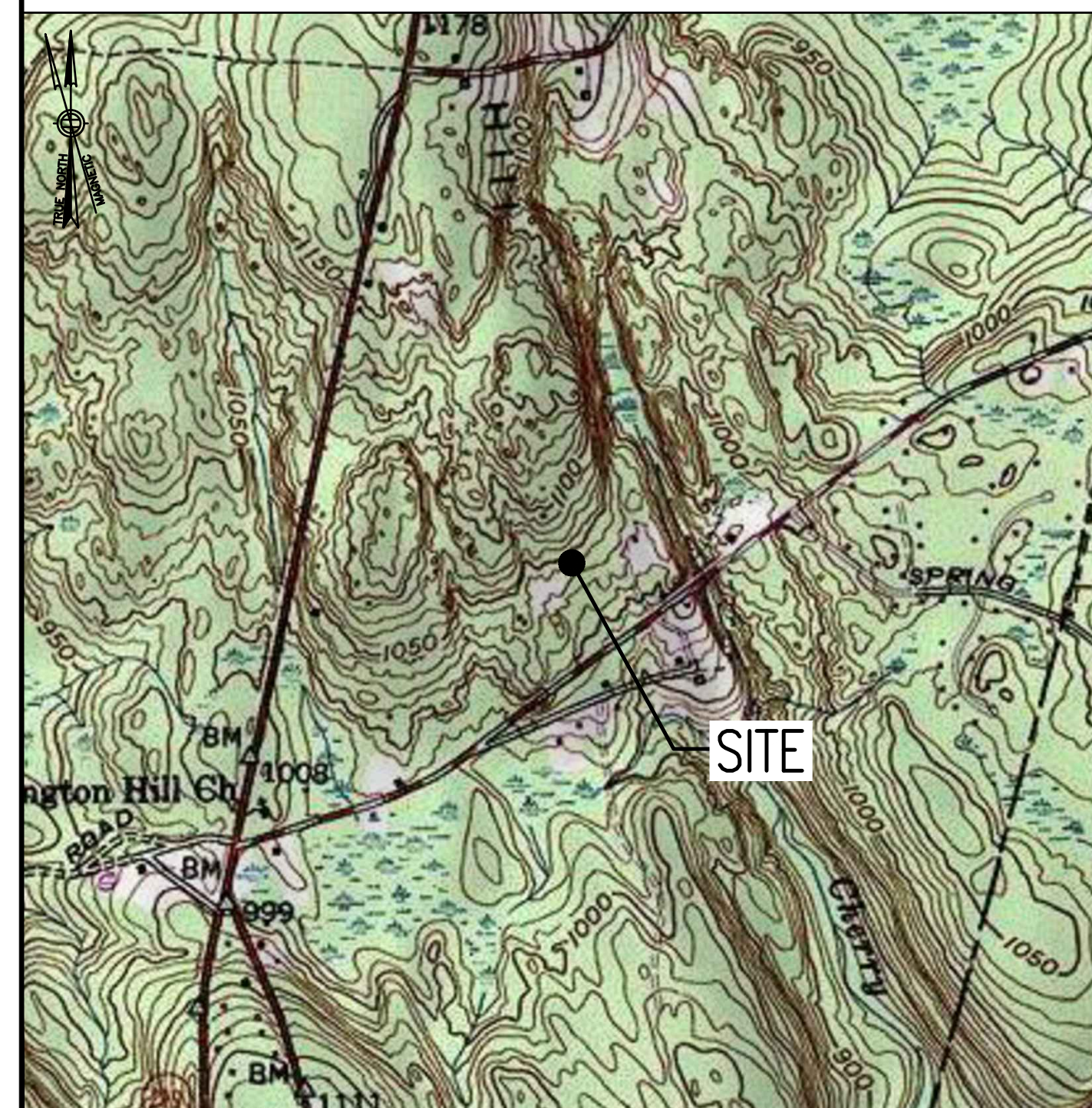
- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMINPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
- THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811



### VICINITY MAP

SCALE: 1" = 1000'-0"



### DIRECTIONS

MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 58 TOWARD I-90 WEST. KEEP LEFT AT FORK & FOLLOW SIGNS FOR I-90 WEST/SPRINGFIELD/ALBANY. MERGE ONTO I-90 WEST. TAKE EXIT 78 TOWARD I-84. CONTINUE ONTO I-84. ENTER CT. TAKE EXIT 61 FOR I-291 WEST TOWARD WINDSOR. TAKE EXIT 2B FOR I-91 NORTH TOWARD SPRINGFIELD. TAKE EXIT 40 FOR CT-20 TOWARD BRADLEY INTERNATIONAL AIRPORT. CONTINUE ONTO CT-20 WEST. TAKE THE CT-20 WEST EXIT TOWARD EAST GRANBY/GRANBY. CONTINUE ONTO CT-20 WEST. TAKE SLIGHT LEFT ONTO CT-20 WEST/WEST GRANBY ROAD. CONTINUE TO FOLLOW CT-20 WEST. TURN LEFT ONTO CT-219 SOUTH/BARKHAMSTED ROAD. CONTINUE ONTO GAVITT ROAD. SITE IS LOCATED ON THE RIGHT HAND SIDE.

### SHEET INDEX

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### DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

### SCOPE OF WORK

- INSTALL:
- 9 ANTENNAS
  - 6 RADIOS
  - 1 6160 EQUIPMENT CABINET
  - 1 6160 BATTERY CABINET
  - 1 PPC
  - 1 PURCELL CABINET
  - 1 SLACKBOX
  - 1 GPS ANTENNA
  - 1 COAX CABLE FOR GPS
  - 3 HYBRID CABLES
  - 1 LOW-PROFILE MOUNT
  - 1 10'x15' CONCRETE PAD
  - 1 10'x15' ICE CANOPY
  - 1 GENERATOR
  - 1 AUTOMATIC TRANSFER SWITCH

### SITE NOTES

- THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
  - ADA COMPLIANCE NOT REQUIRED.
  - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
  - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
  - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
  - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
  - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

### PROJECT SUMMARY

SITE NUMBER: CTNH393A  
 SITE NAME: 44 GAVITT ROAD  
 SBA SITE NUMBER: CT11709-S  
 SBA SITE NAME: BARKHAMSTED, CT  
 SITE ADDRESS: 44 GAVITT ROAD, BARKHAMSTED, CT 06063  
 PROPERTY OWNER: RICHARD J. & KAREN J. LANGER, 44 GAVITT ROAD, BARKHAMSTED, CT 06063  
 TOWER OWNER: SBA TOWERS V, LLC, 8501 CONGRESS AVENUE, BOCA RATON, FL 33487, PHONE: 561-226-9523  
 COUNTY: LITCHFIELD  
 ZONING DISTRICT: RA-2 (RESIDENCE)  
 STRUCTURE TYPE: MONOPOLE  
 STRUCTURE HEIGHT: 170'±  
 APPLICANT: T-MOBILE NORTHEAST LLC, 15 COMMERCE WAY, SUITE B, NORTON, MA 02766  
 ARCHITECT: CHAPPELL ENGINEERING ASSOCIATES, LLC, 201 BOSTON POST ROAD WEST, SUITE 101, MARLBOROUGH, MA 01752  
 STRUCTURAL ENGINEER: CHAPPELL ENGINEERING ASSOCIATES, LLC, 201 BOSTON POST ROAD WEST, SUITE 101, MARLBOROUGH, MA 01752  
 SITE CONTROL POINT: LATITUDE: 41.946080° N41°56'45.89" LONGITUDE: -72.911500° W72°54'41.40"

### SPECIAL ZONING NOTE:

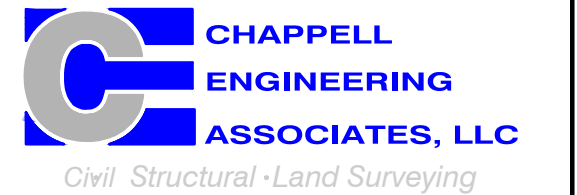
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

### T-MOBILE NORTHEAST LLC

15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
(508) 286-2700



SBA COMMUNICATIONS CORP.  
134 FLANDERS ROAD, SUITE 125  
WESTBOROUGH, MA 01581  
(508) 251-0720



R.K. EXECUTIVE CENTRE  
201 BOSTON POST ROAD WEST, SUITE 101  
MARLBOROUGH, MA 01752  
(508) 481-7400  
www.chappellengineering.com



CHECKED BY: JMT

APPROVED BY: JMT

### SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/12/22	CONSTRUCTION REVISED	CMC
1	05/11/22	ISSUED FOR CONSTRUCTION	CMC
0	03/04/22	ISSUED FOR REVIEW	CMC

SITE NUMBER:  
**CTNH393A**

SITE ADDRESS:  
44 GAVITT ROAD  
BARKHAMSTED, CT 06063

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**



**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR – T-MOBILE  
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER – T-MOBILE  
OEM – ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

**SITE WORK GENERAL NOTES:**

- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

**CONCRETE AND REINFORCING STEEL NOTES:**

- 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.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNDO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST EARTH.....3 IN.  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 AND LARGER .....2 IN.  
#5 AND SMALLER & WWF .....1½ IN.  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:  
SLAB AND WALL .....¾ IN.  
BEAMS AND COLUMNS .....½ IN.
- A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
- CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;  
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.  
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.  
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

**STRUCTURAL STEEL NOTES:**

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T-MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
- ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
- BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

**SOIL COMPACTION NOTES FOR SLAB ON GRADE:**

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
- COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.
- AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

**COMPACTION EQUIPMENT:**

- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

**CONSTRUCTION NOTES:**

- FIELD VERIFICATION:  
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
- COORDINATION OF WORK:  
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
- CABLE LADDER RACK:  
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

**ELECTRICAL INSTALLATION NOTES:**

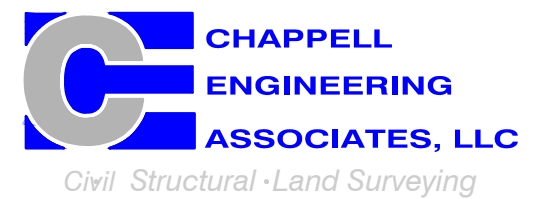
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

**T-MOBILE  
NORTHEAST LLC**

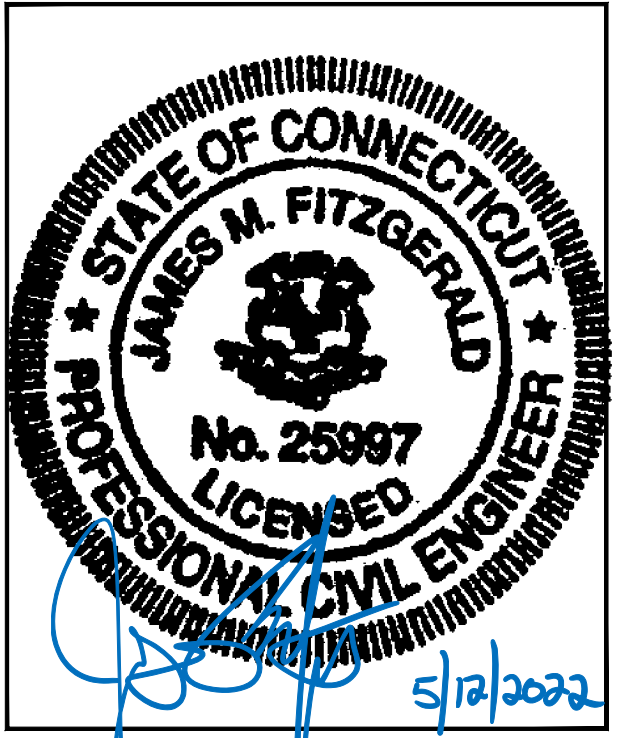
15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
(508) 286-2700



SBA COMMUNICATIONS CORP.  
134 FLANDERS ROAD, SUITE 125  
WESTBOROUGH, MA 01581  
(508) 251-0720



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201 BOSTON POST ROAD WEST, SUITE 101  
MARLBOROUGH, MA 01752  
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APPROVED BY: JMT

SUBMITTALS			
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0	03/04/22	ISSUED FOR REVIEW	CMC

SITE NUMBER:  
**CTNH393A**  
  
SITE ADDRESS:  
44 GAVITT ROAD  
BARKHAMSTED, CT 06063

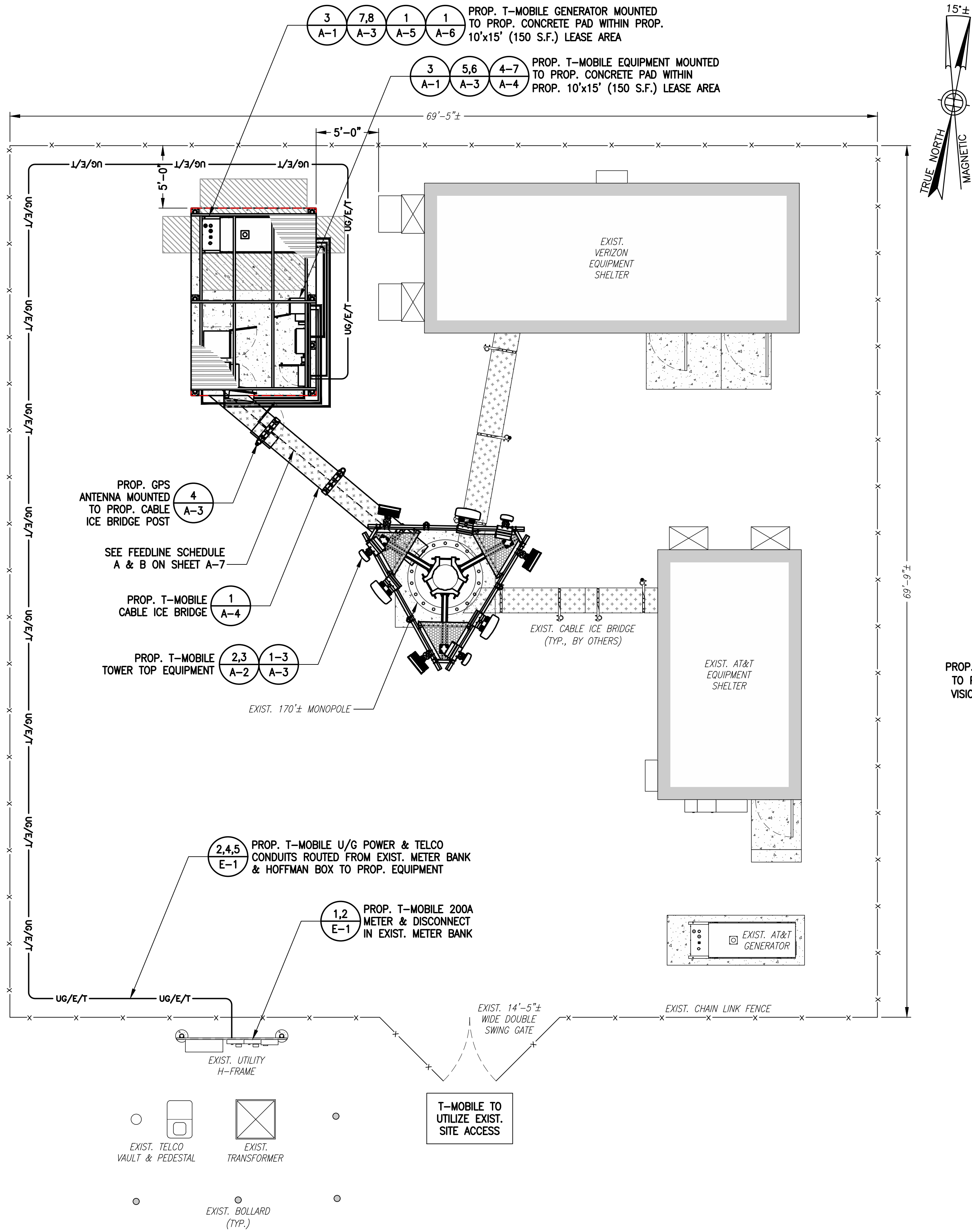
SHEET TITLE  
  
GENERAL NOTES

SHEET NUMBER  
  
**GN-1**



**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

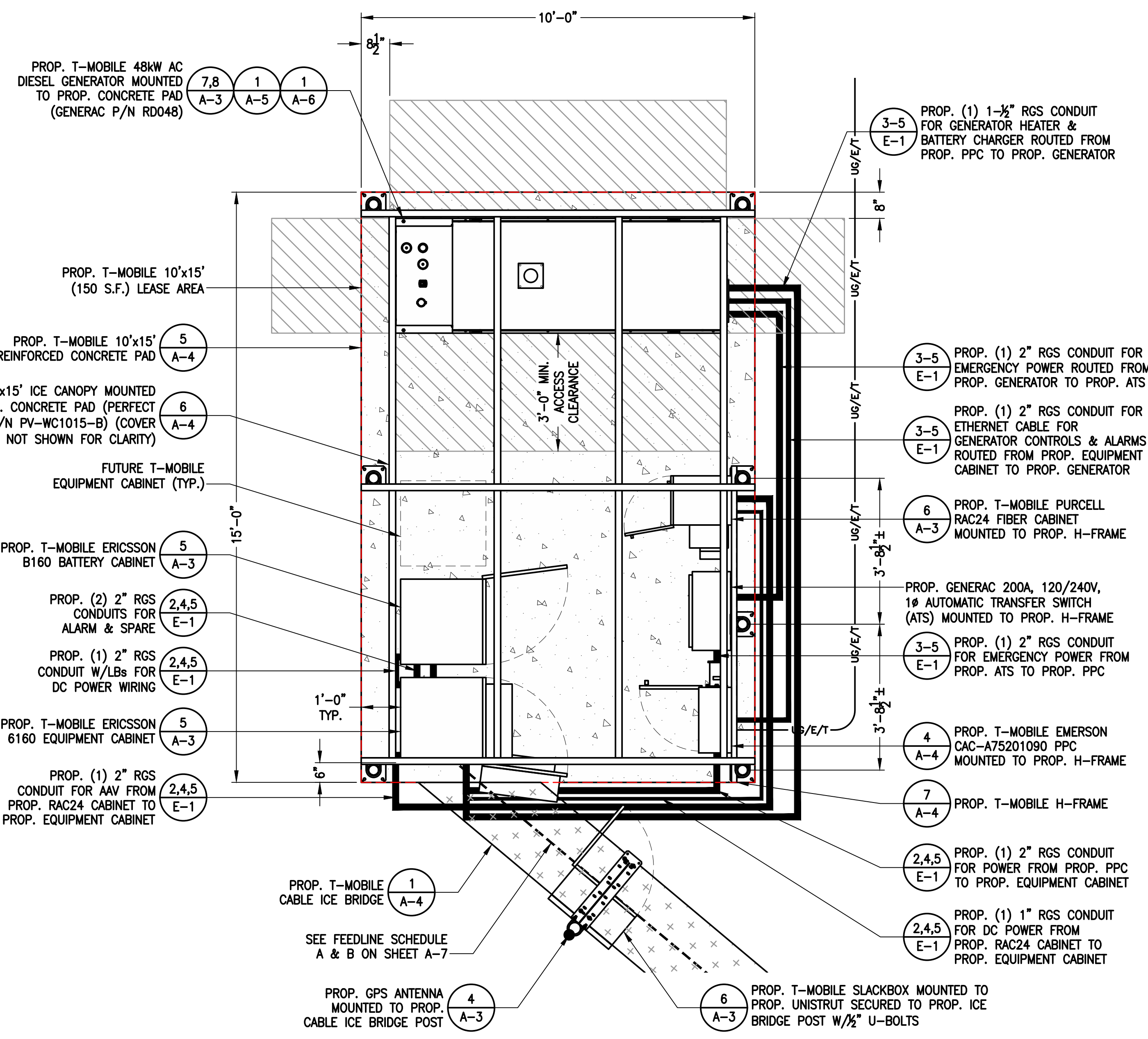
**SPECIAL CONSTRUCTION WORK NOTE (HAND DUG UTILITY TRENCH EXCAVATION REQUIRED):**  
 EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. GENERAL CONTRACTOR SHALL HAND-EXCAVATE TO REQUIRED SUB-GRADE DEPTH SUFFICIENT TEST HOLES OR AS DIRECTED/REQUIRED BY SBA REGIONAL SITE MANAGER SHALL HAND-EXCAVATE ALL PROPOSED UNDERGROUND UTILITY TRENCHES. GENERAL CONTRACTOR RESPONSIBLE FOR ANY REQUIRED SPECIAL TEMPORARY PROTECTION OF EXISTING UNDERGROUND UTILITIES, PHYSICAL DAMAGE REPAIR, AND SERVICE RESTORATION.



**COMPOUND PLAN**  
 SCALE: 3/16" = 1'-0"  
 1  
 A-1



**PROPOSED EQUIPMENT LOCATION PHOTO**  
 SCALE: N.T.S.  
 2  
 A-1



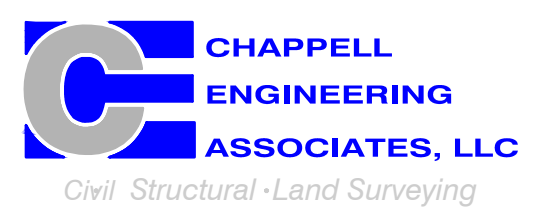
**PROPOSED EQUIPMENT PLAN**  
 SCALE: 1/2" = 1'-0"  
 3  
 A-1

**T-MOBILE  
 NORTHEAST LLC**

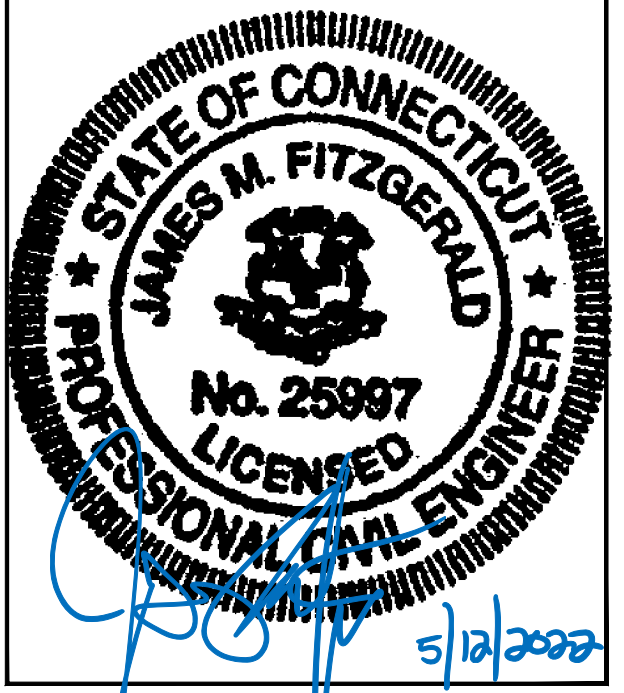
15 COMMERCE WAY, SUITE B  
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SITE NUMBER:  
**CTNH393A**  
 SITE ADDRESS:  
 44 GAVITT ROAD  
 BARKHAMSTED, CT 06063

SHEET TITLE  
**COMPOUND,  
 EQUIPMENT PLAN  
 & PHOTO**

SHEET NUMBER  
**A-1**



**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

**SPECIAL CONSTRUCTION NOTE:**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

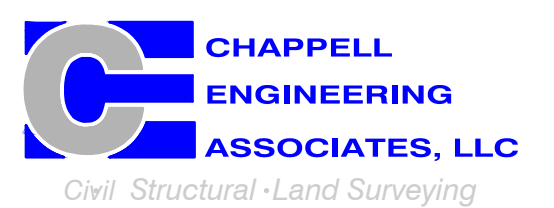
**RAD CENTER NOTE:**  
 T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

**T-MOBILE  
NORTHEAST LLC**

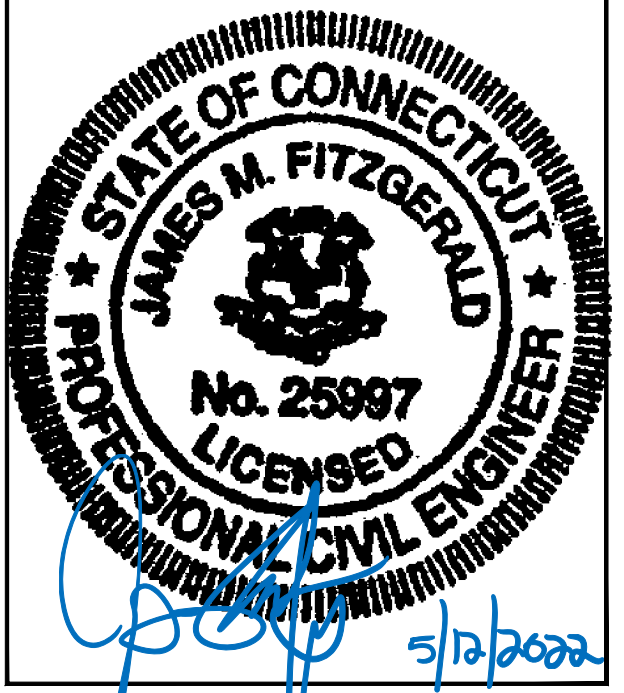
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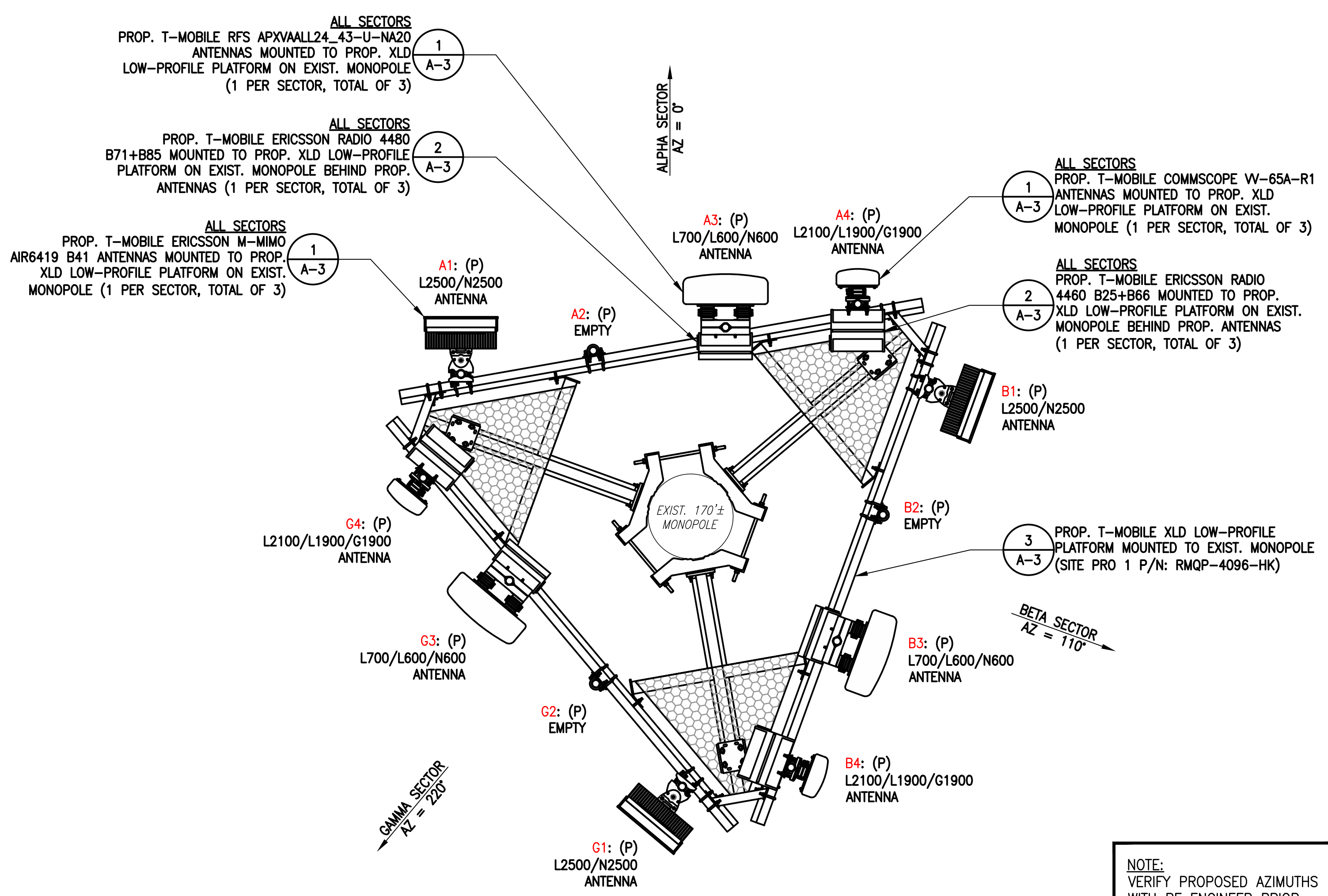
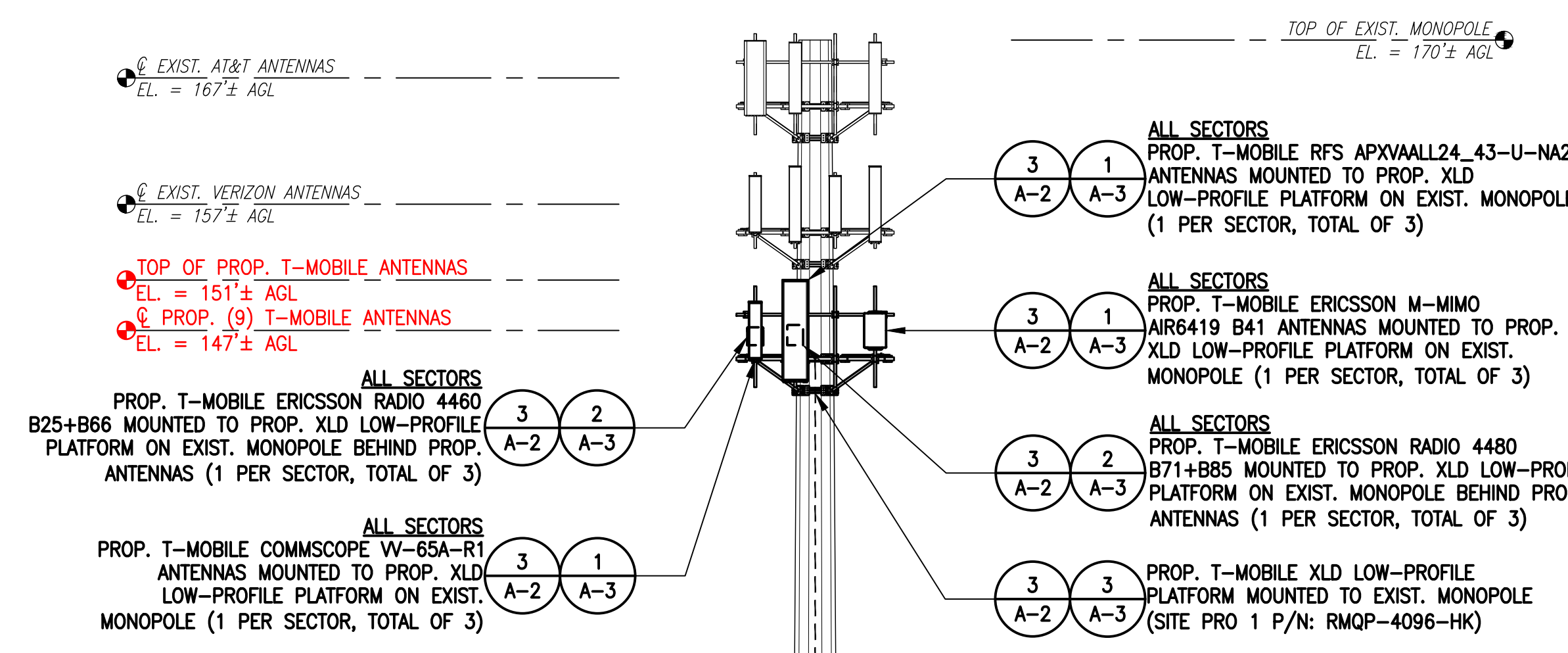
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0	03/04/22	ISSUED FOR REVIEW	CMC

SITE NUMBER:  
**CTNH393A**

SITE ADDRESS:  
 44 GAVITT ROAD  
 BARKHAMSTED, CT 06063

SHEET TITLE  
**TOWER ELEVATION,  
 ANTENNA PLAN &  
 PHOTO**

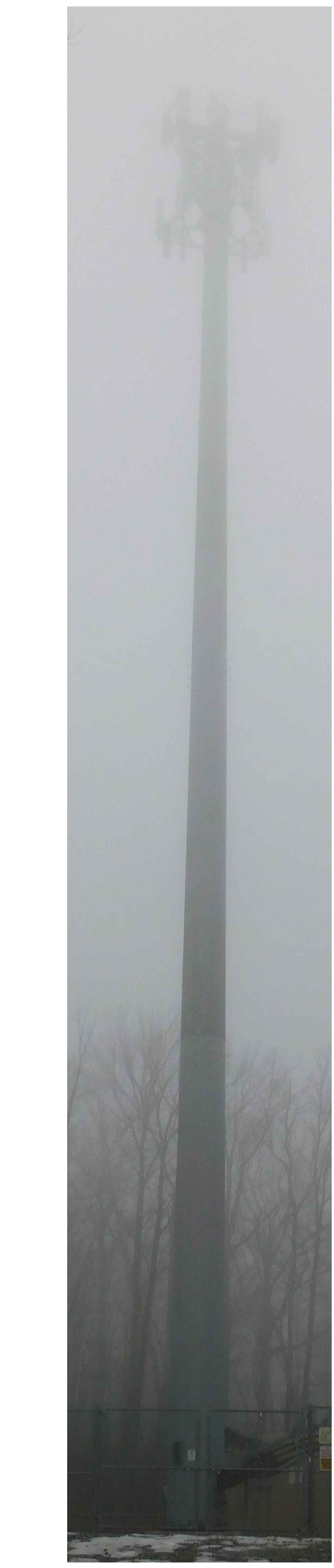
SHEET NUMBER  
**A-2**



NOTE:  
 GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

NOTE:  
 VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

**ANTENNA STATUS LEGEND:**  
 EMPTY - EMPTY PIPE  
 (E) - EXISTING  
 (P) - INSTALL  
 (F) - FUTURE

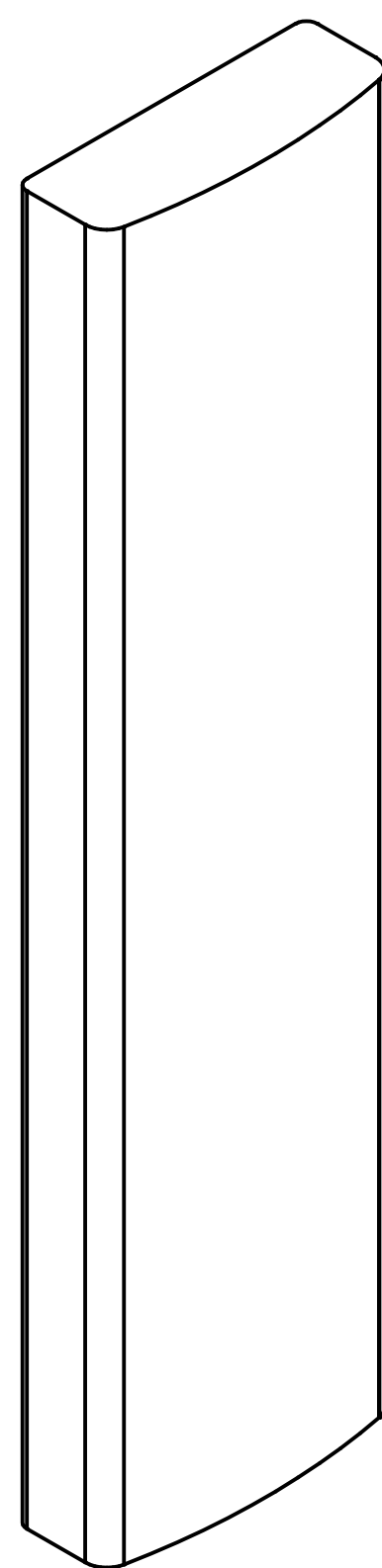


EXISTING TOWER PHOTO 1 A-2  
 SCALE: N.T.S.

TOWER ELEVATION 2 A-2  
 SCALE: 1" = 10'-0"  
 0 10' 20' 30'

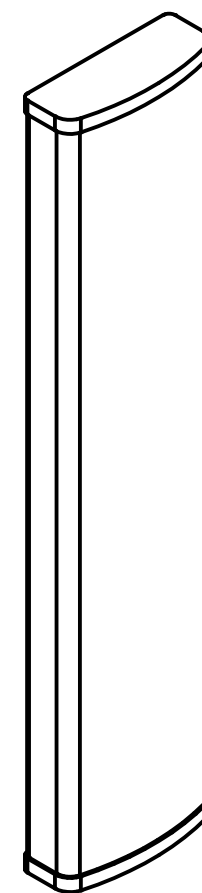
PROPOSED ANTENNA PLAN 3 A-2  
 SCALE: N.T.S.





**ERICSSON M-MIMO AIR6419 B41 ANTENNA**

DIMENSIONS: 36.3"H x 20.9"W x 9.0"D  
WEIGHT: 83.3 lbs  
QUANTITY: 1 PER SECTOR, TOTAL OF 3



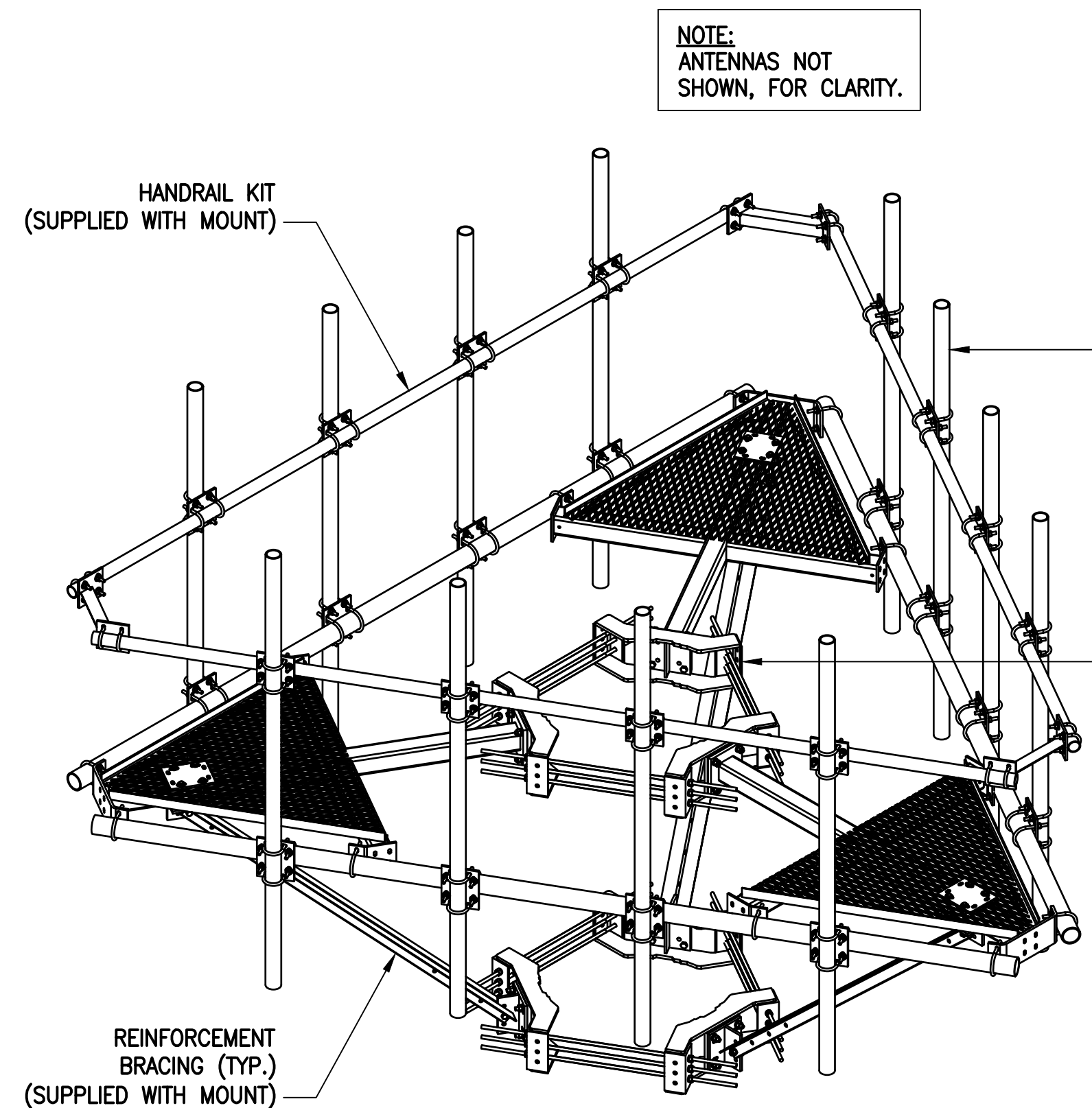
**ERICSSON RADIO 4460 B25+B66**

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D  
WEIGHT: 104.0 lbs  
QUANTITY: 1 PER SECTOR, TOTAL OF 3



**ERICSSON RADIO 4480 B71+B85**

DIMENSIONS: 19.2"H x 15.1"W x 7.5"D  
WEIGHT: 92.6 lbs  
QUANTITY: 1 PER SECTOR, TOTAL OF 3



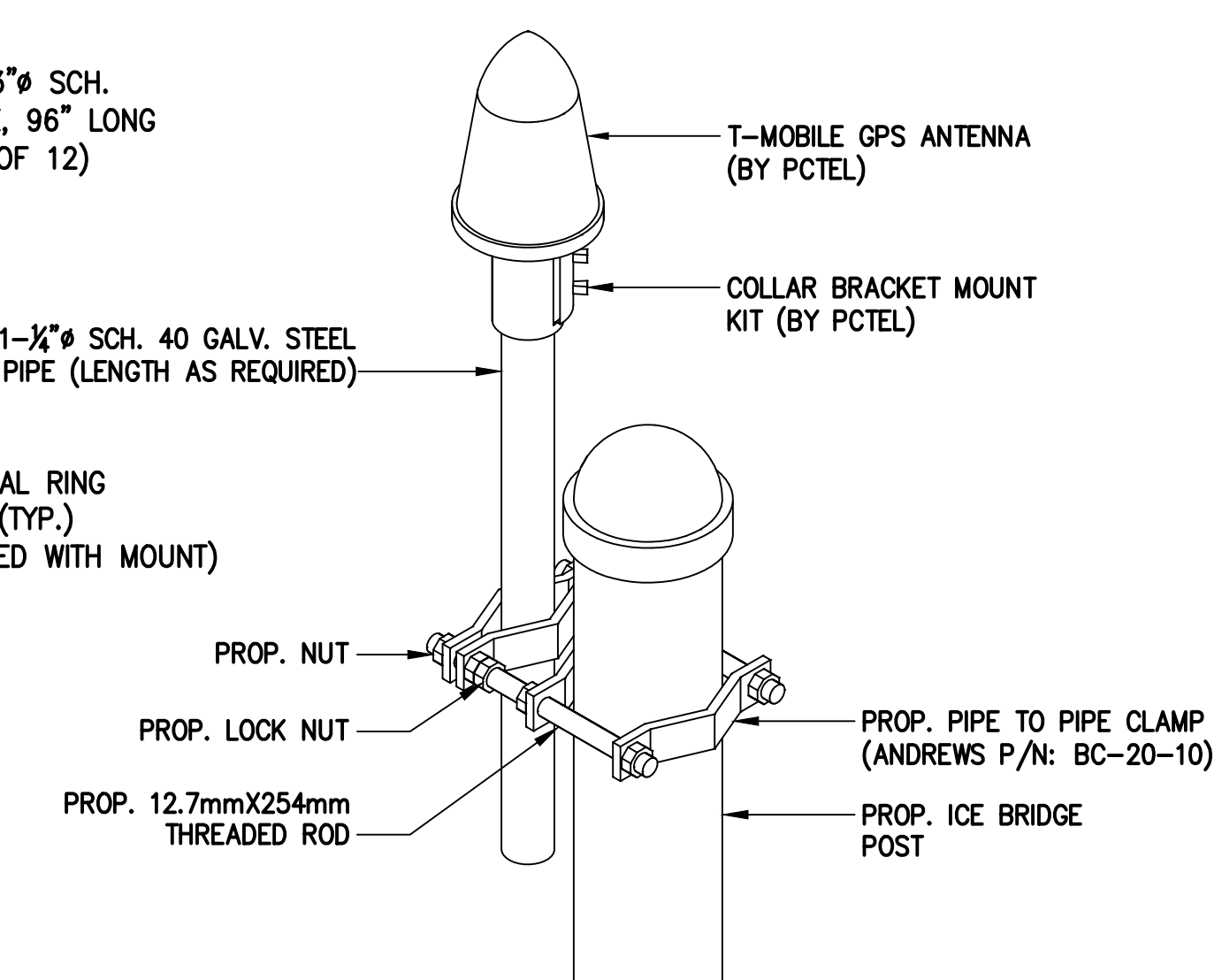
NOTE:  
ANTENNAS NOT  
SHOWN, FOR CLARITY.

**SITE-PRO 1 12'-6" LOW-PROFILE  
CO-LOCATION PLATFORM W/HANDRAIL KIT**

PART NUMBER: RMQP-4096-HK  
(TOTAL OF 1 REQUIRED)

**TYPICAL SITE PRO 1 12'-6"  
LOW-PROFILE PLATFORM MOUNT**

SCALE: N.T.S.



NOTE:  
THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1 1/4" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

**GPS ANTENNA MOUNTING DETAIL**

SCALE: N.T.S.

**RFS APXVAALL24\_43-U-NA20 ANTENNA**

DIMENSIONS: 95.9"H x 24.0"W x 8.5"D  
WEIGHT: 122.8 lbs  
QUANTITY: 1 PER SECTOR, TOTAL OF 3

**COMMSCOPE VW-65A-R1 ANTENNA**

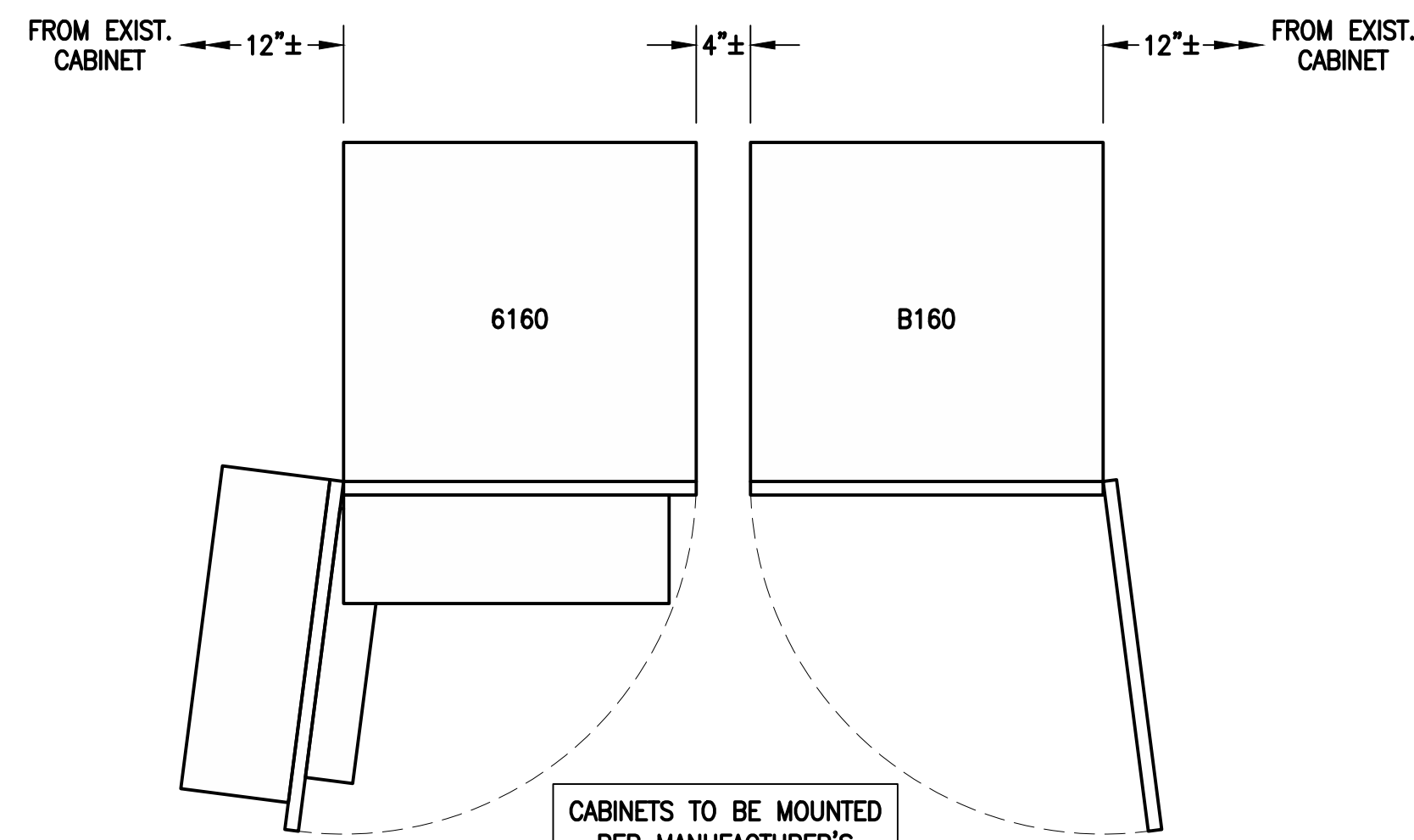
DIMENSIONS: 54.7"H x 12.1"W x 4.6"D  
WEIGHT: 23.8 lbs  
QUANTITY: 1 PER SECTOR, TOTAL OF 3

**ANTENNA DETAILS**

SCALE: N.T.S.

**RADIO DETAILS**

SCALE: N.T.S.



**ERICSSON 6160 SITE  
SUPPORT CABINET**

DIMENSIONS: 63.25"H x 26.0"W x 34.0"D  
WEIGHT: 680.0 lbs  
QUANTITY: TOTAL OF 1

**ERICSSON B160  
BATTERY CABINET**

DIMENSIONS: 63.25"H x 26.0"W x 26.0"D  
WEIGHT: 1771.0 lbs  
QUANTITY: TOTAL OF 1

**EQUIPMENT DETAIL**

SCALE: N.T.S.



**PURCELL SITE SUPPORT  
CABINET RAC24**

DIMENSIONS: 24.0"H x 15.7"W x 20.0"D  
QUANTITY: TOTAL OF 1



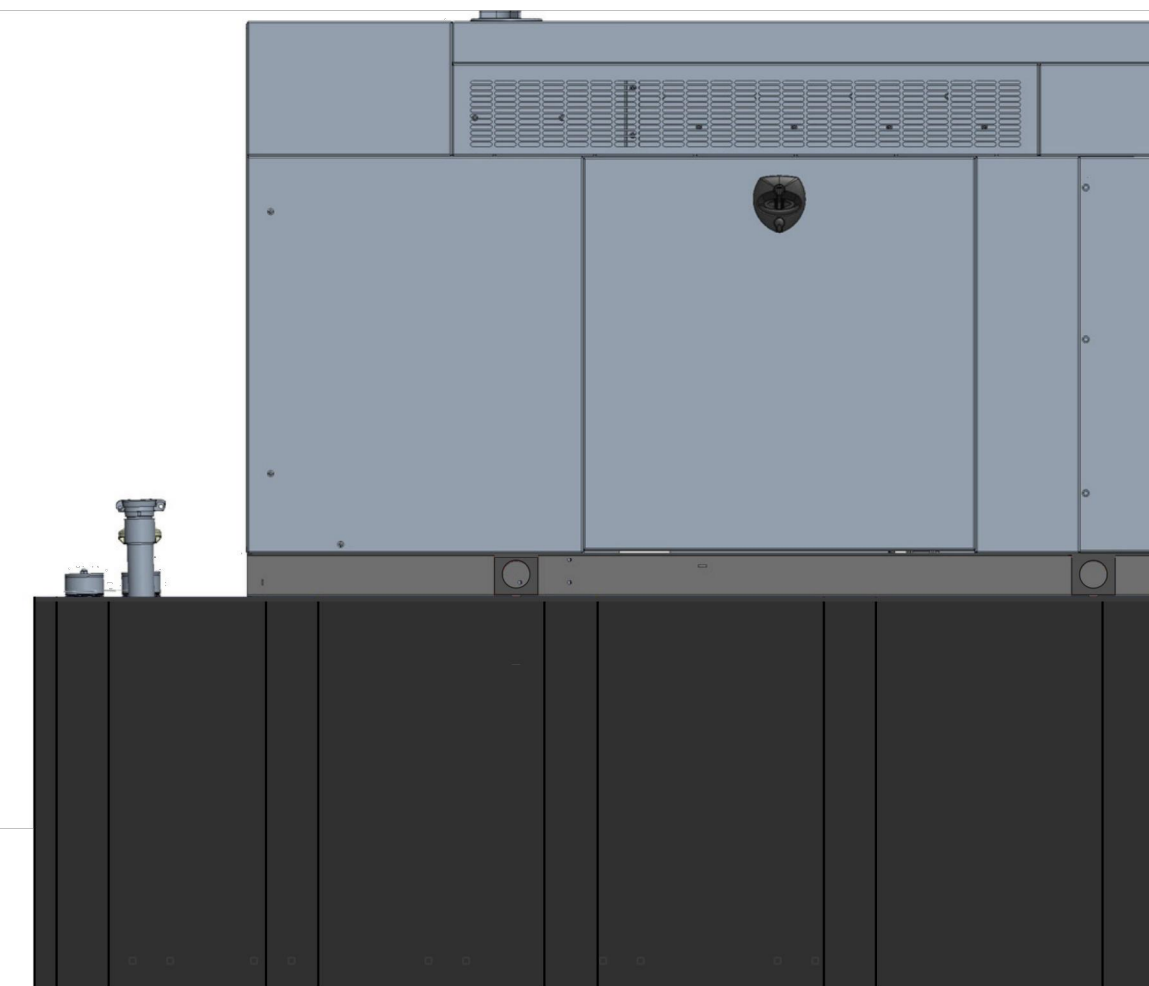
**SLACKBOX -- HOFFMAN 32FH91  
NEMA 3R ENCLOSURE**

DIMENSIONS: 24.0"H x 24.0"W x 12.0"D  
QUANTITY: TOTAL OF 1

**SSC DETAILS**

SCALE: N.T.S.

NOTE:  
GENERATOR DIESEL TANK TO  
BE FILLED BY CONTRACTOR.

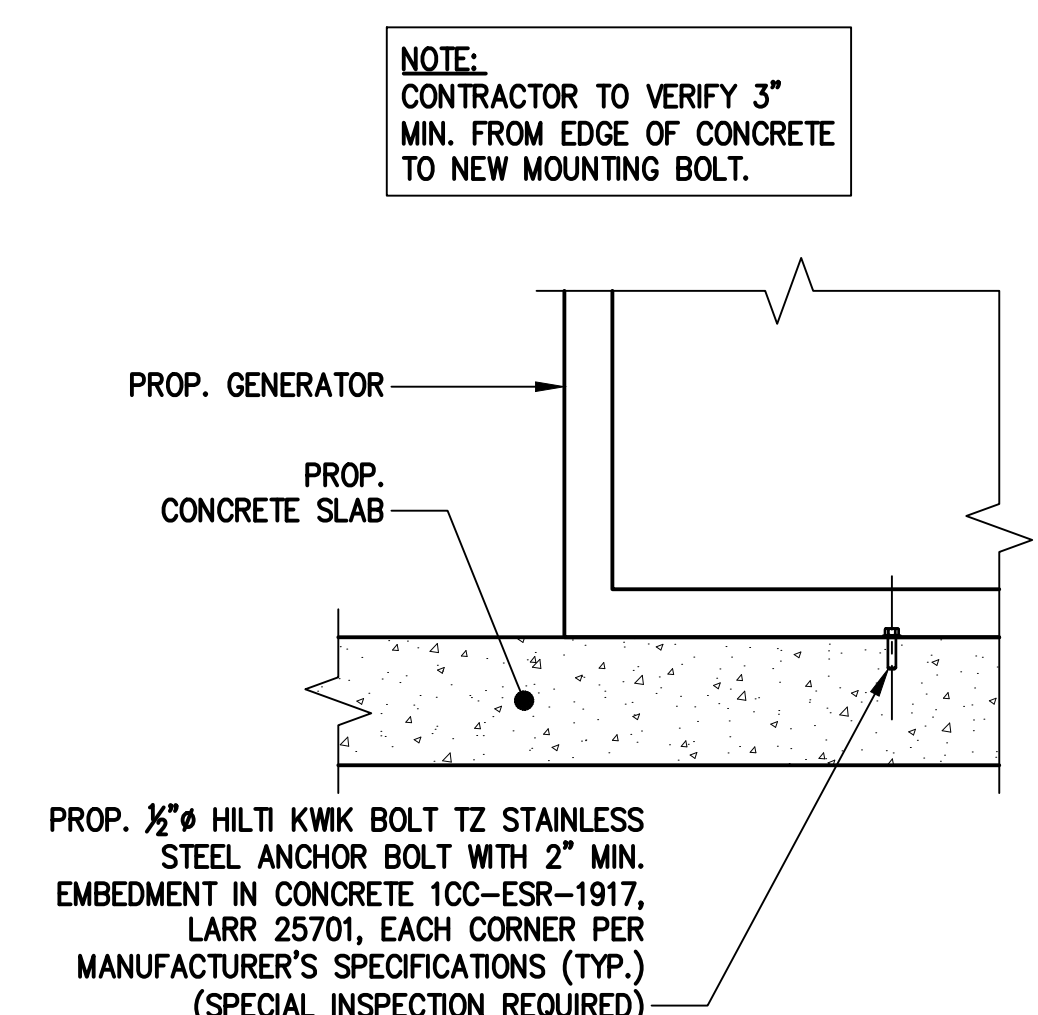


**GENERAC RD048 48kW AC DIESEL GENERATOR**

DIMENSIONS: 103.4"L x 35.0"W x 90.0"H  
WEIGHT: 2,954 lbs  
QUANTITY: TOTAL OF 1

**GENERATOR DETAIL**

SCALE: N.T.S.



**GENERATOR MOUNTING DETAIL**

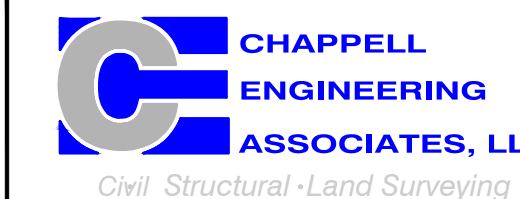
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**T-MOBILE  
NORTHEAST LLC**

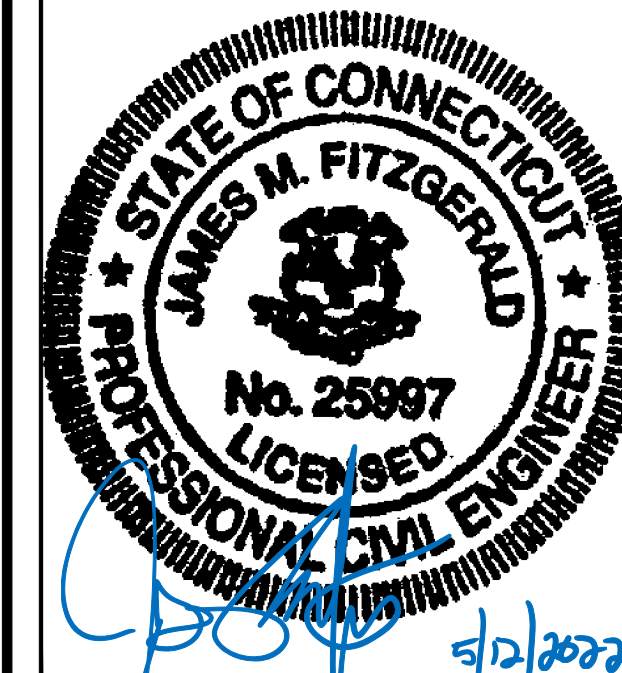
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SITE ADDRESS:  
44 GAVITT ROAD  
BARKHAMSTED, CT 06063

SHEET TITLE  
**SITE DETAILS  
1 OF 2**

SHEET NUMBER  
**A-3**

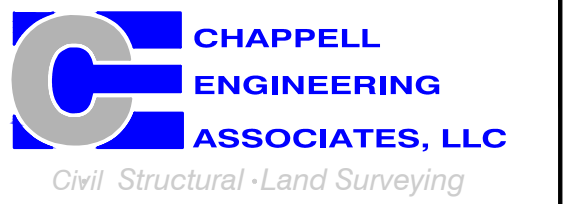


# T-MOBILE NORTHEAST LLC

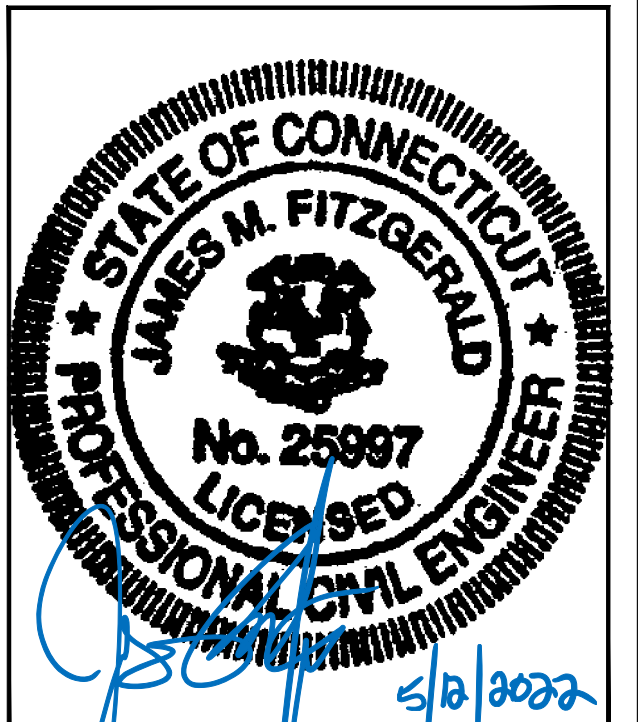
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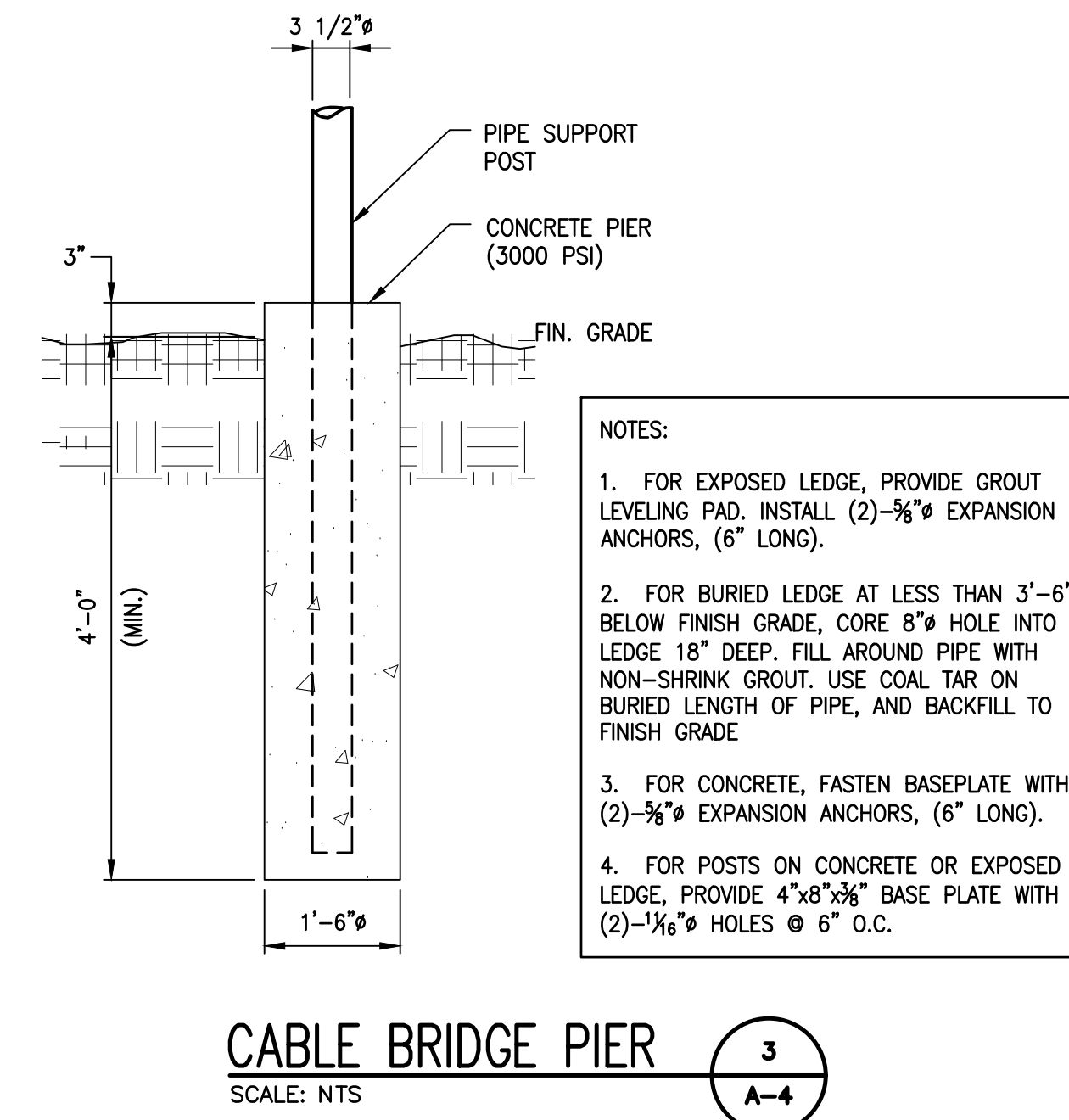
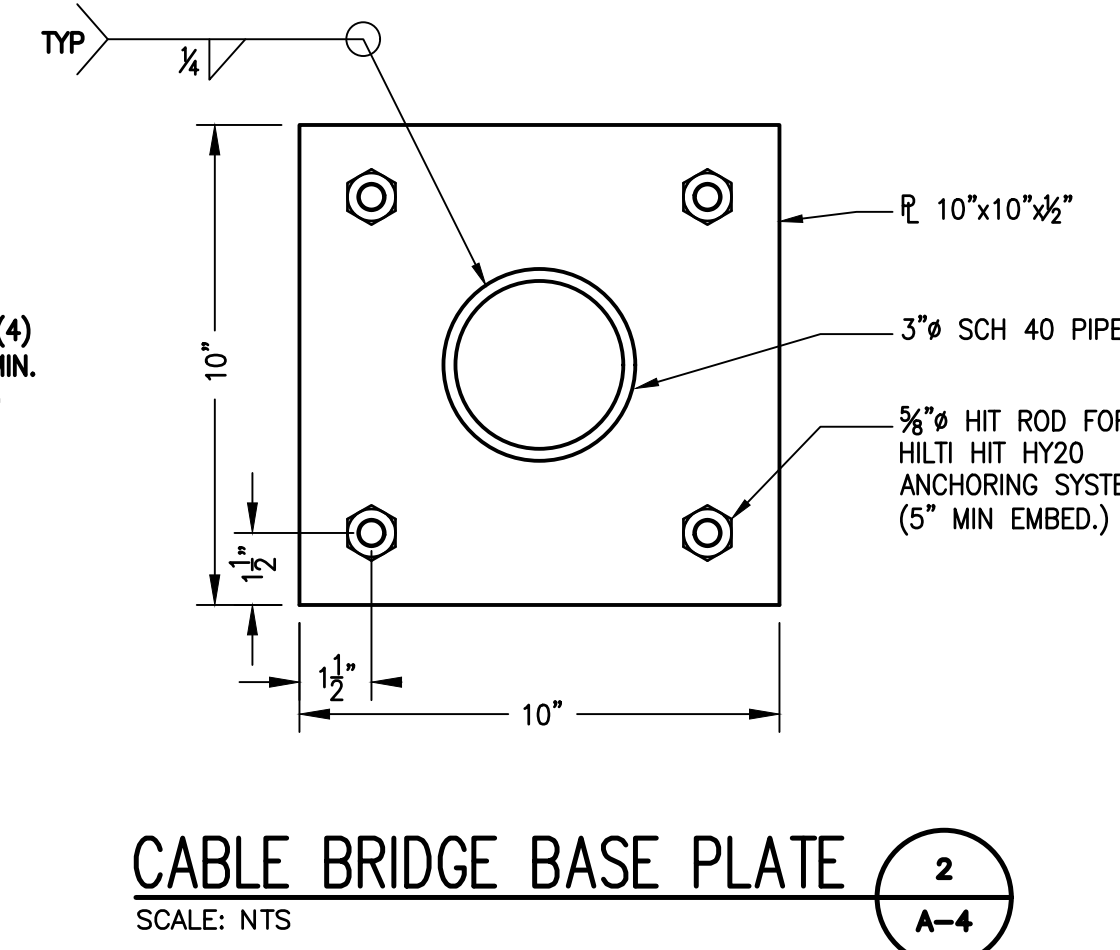
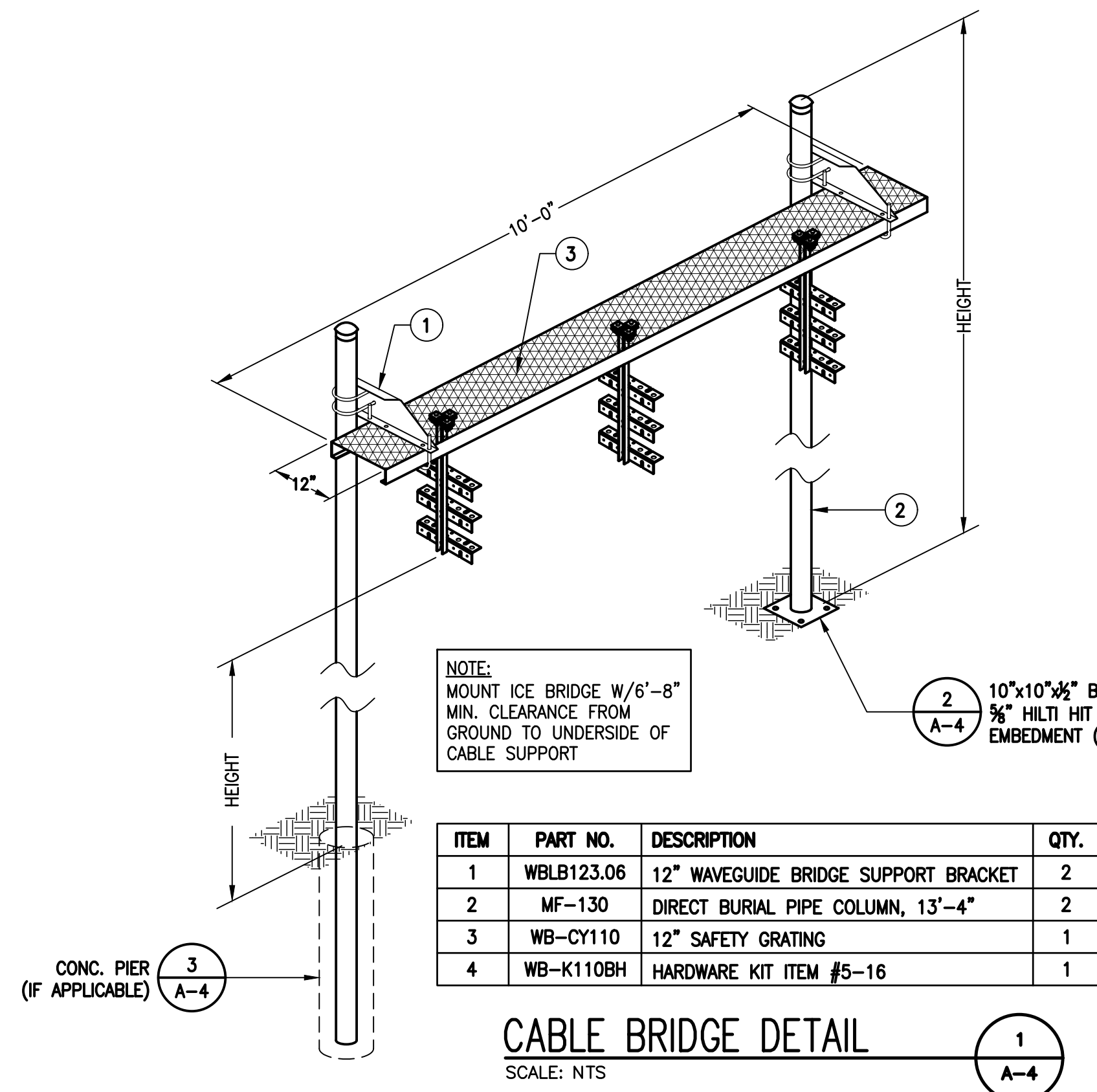
SITE ADDRESS:  
44 GAVITT ROAD  
BARKHAMSTED, CT 06063

SHEET TITLE

SITE DETAILS  
2 OF 2

SHEET NUMBER

**A-4**



**EMERSON CAC-A75201090 PPC**  
DIMENSIONS: 24.0"H x 15.7"W x 20.0"D  
QUANTITY: TOTAL OF 1



## CONCRETE GENERAL NOTES

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND TO THE PROJECT SPECIFICATIONS.
- ALL CONCRETE IS TO BE NORMAL DENSITY CONCRETE WITH A MAXIMUM SLUMP OF 4 INCHES. MAXIMUM AGGREGATE SIZE 3/4 INCH. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
- PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT IN ALL EXPOSED CONCRETE WORK WITH AIR-ENTRAINING ADMIXTURE COMPLYING WITH ASTM C 260. AT TROWEL-FINISHED FLOORS, DO NOT EXCEED AIR-ENTRAINMENT CONTENT OF 3 PERCENT.
- NO HOLES OR SLEEVES SHALL BE MADE THROUGH CONCRETE WORK OTHER THAN THOSE INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- ALL FORMWORK OFFSET TOLERANCES (PER ACI 117) TO BE CLASS A.
- FLOOR SLAB TOLERANCES TO ASTM E1155; SPECIFIED OVERALL MINIMUM VALUE OF FLATNESS F F=25 WITH LOCAL MINIMUM F F=17, AND MINIMUM VALUE OF LEVELNESS F F=20 WITH LOCAL MINIMUM F F AND F F WITHIN 72 HOURS OF SLAB CONSTRUCTION.
- CABINETS ON SLAB (IF APPLICABLE). ALLOWABLE CAPACITY OF CONCRETE USED IN DESIGN MIN. 4000 PSI.

### FOUNDATION NOTES:

#### 1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

- 1.1 CODES**
  - DESIGN CONFORMS TO INTERNATIONAL BUILDING CODE 2012.
  - AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-08.
- 2. EARTHWORK**
  - 2.1 FOUNDATIONS**
    - FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON (UNDISTURBED RESIDUAL SOILS/COMPACTED STRUCTURAL FILL), CAPABLE OF SAFELY SUPPORTING A NET ALLOWABLE BEARING PRESSURE OF 2000 PSF. IF FOUNDATION CONDITIONS PROVE UNACCEPTABLE AT ELEVATIONS SHOWN, EXCAVATION SHALL BE CARRIED DEEPER AND SHALL BE BACKFILLED WITH LEAN CONCRETE TO PLAN FOOTING BOTTOM, OR REDESIGN OF FOUNDATIONS WILL BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
    - DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND DRAINAGE NECESSARY TO MAINTAIN THE EXCAVATION AND PROTECT SURROUNDING STRUCTURES AND UTILITIES.
    - THOROUGHLY COMPACT ALL BOTTOM OF FOOTINGS PRIOR TO PLACING ANY CONCRETE.

### 3.1 FORMWORK

- CONCRETE CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS," (ACI 301-89).
- FORMWORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."

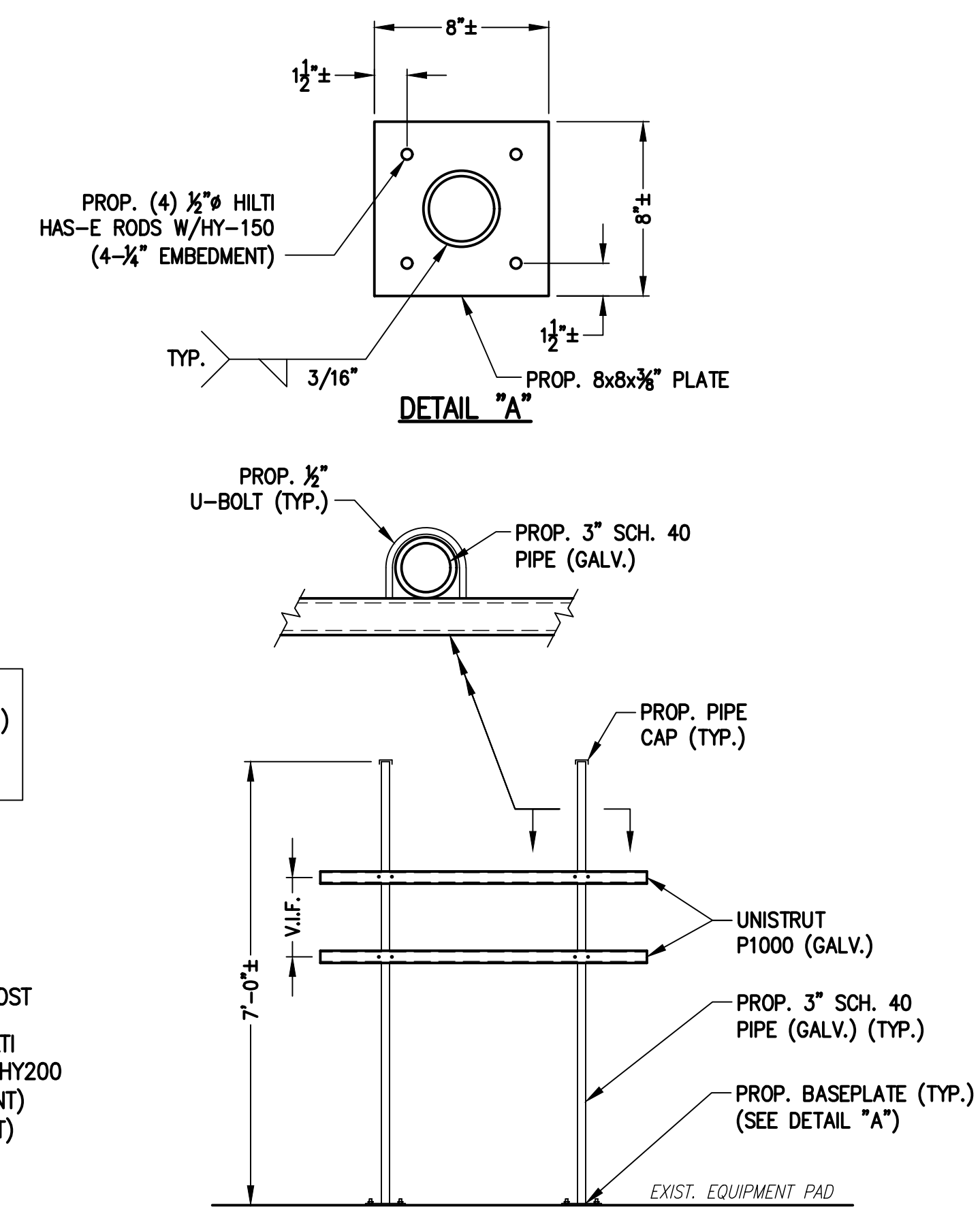
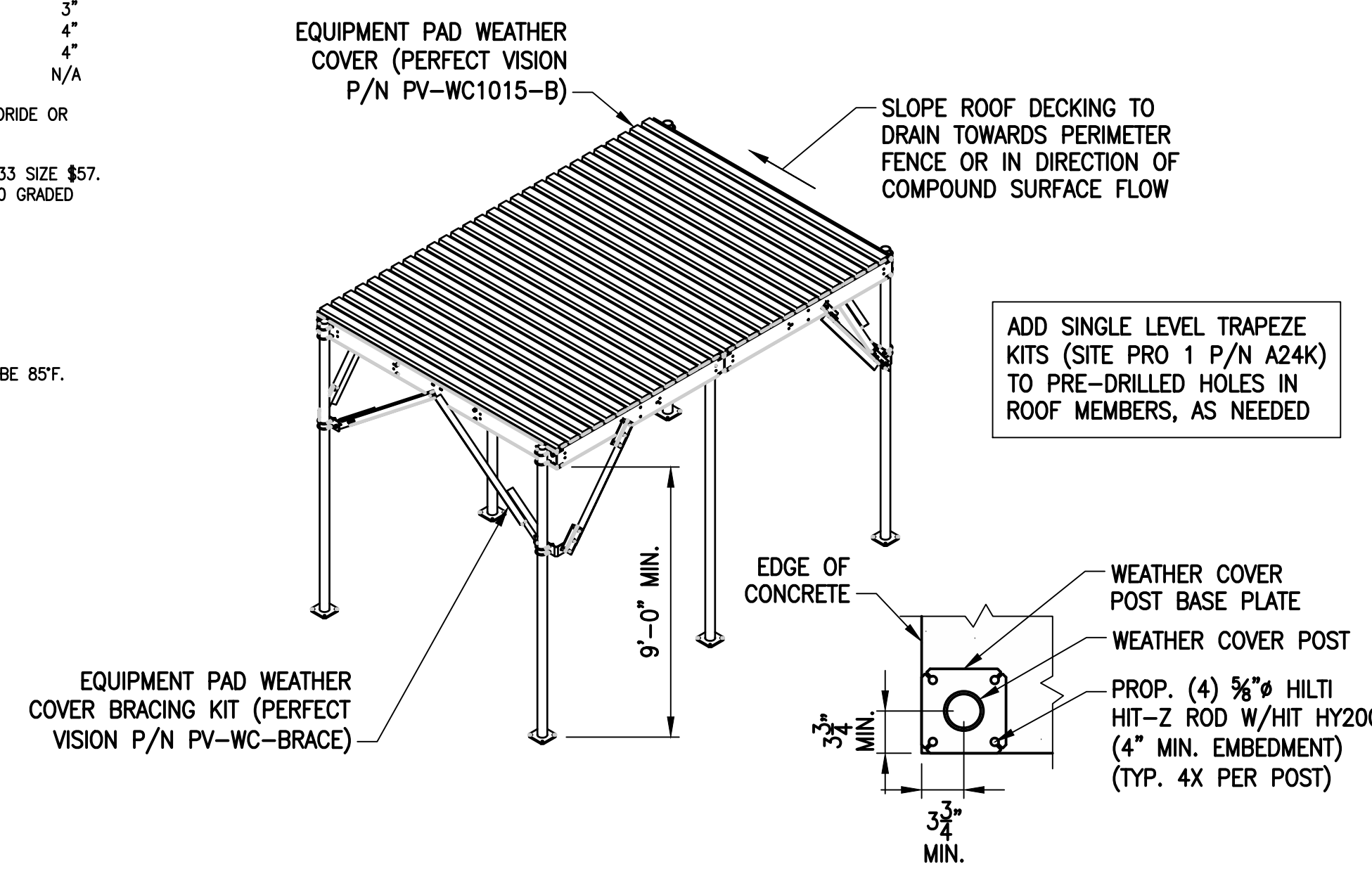
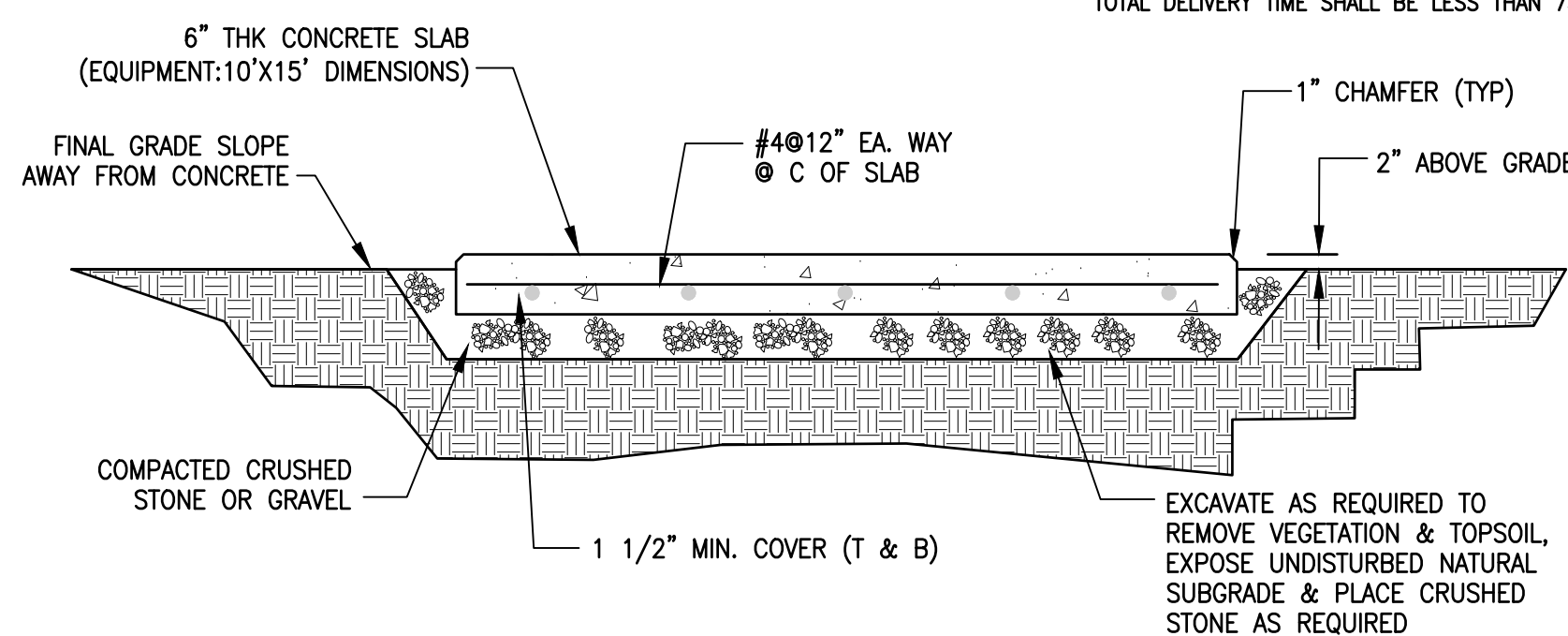
### 3.2 REINFORCEMENT

- REINFORCING STEEL ASTM A615, GRADE 60. WELDED WIRE ASTM A185 (FLAT SHEET). LAPS 40 BAR DIAMETERS UNLESS NOTED. BARS SHALL BE SECURELY HELD IN ACCURATE POSITION BY SUITABLE ACCESSORIES, THE BARS, SUPPORT BARS, ETC. HOOK LENGTHS SHALL BE 12 BAR DIAMETERS.
- CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:  
FOOTINGS & SLABS CAST AGAINST GROUND . . . . . 3"  
OR WEATHER AT BARS GREATER THAN #5 . . . . . 2"  
AT BARS #5 OR LESS . . . . . 1-1/2"  
CONCRETE NOT TO BE EXPOSED TO GROUND . . . . . 1-1/2"  
OR WEATHER BEAMS, GIRDERS & COLUMNS . . . . . 1-1/2"  
SLABS & WALLS . . . . . 3/4"

### 3.3 CAST-IN-PLACE-CONCRETE

- MINIMUM 28 DAY CYLINDER STRENGTH AND MAXIMUM SLUMP, PRIOR TO ADDITION OF SUPER PLASTICIZERS, AS FOLLOWS:  

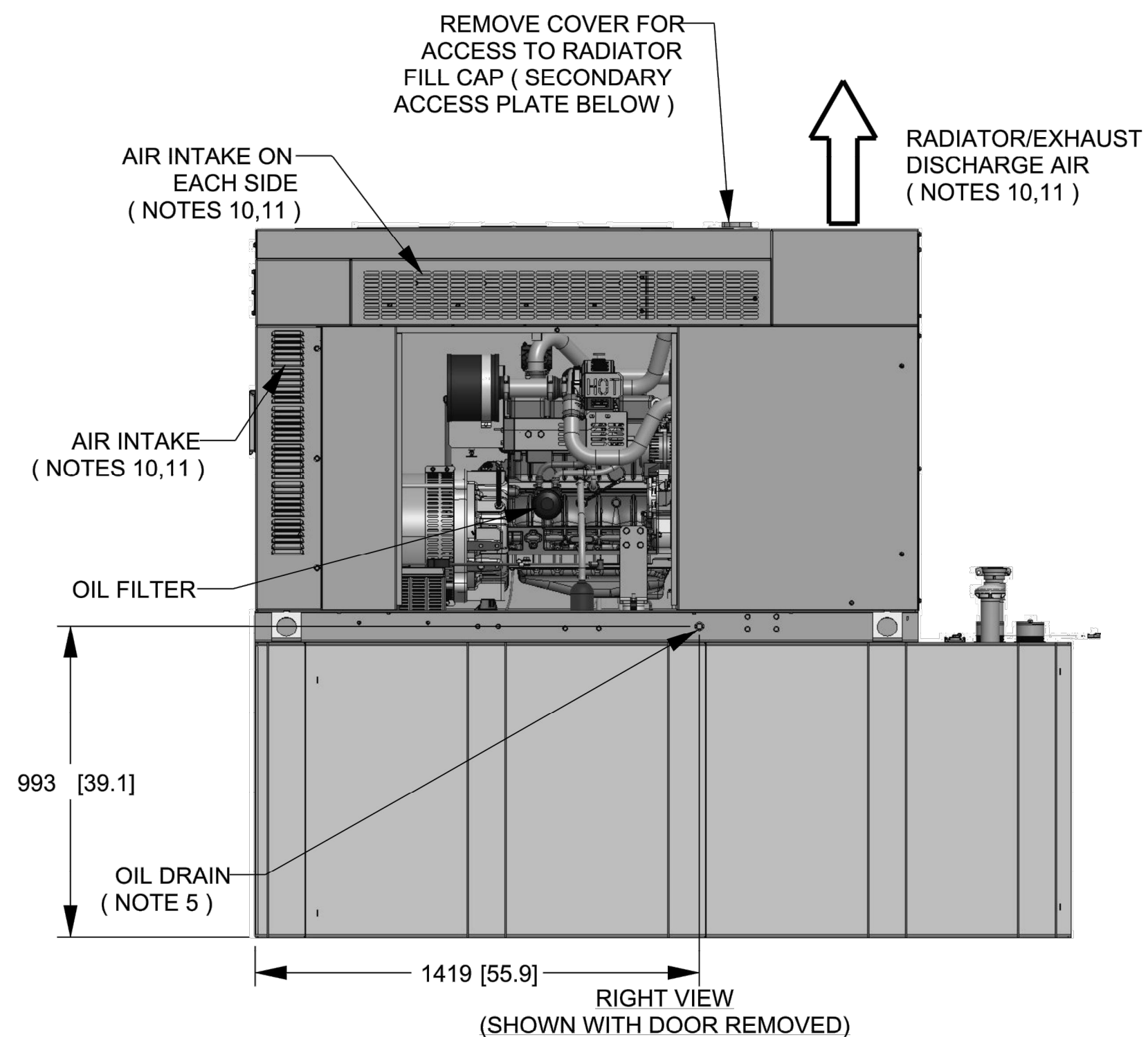
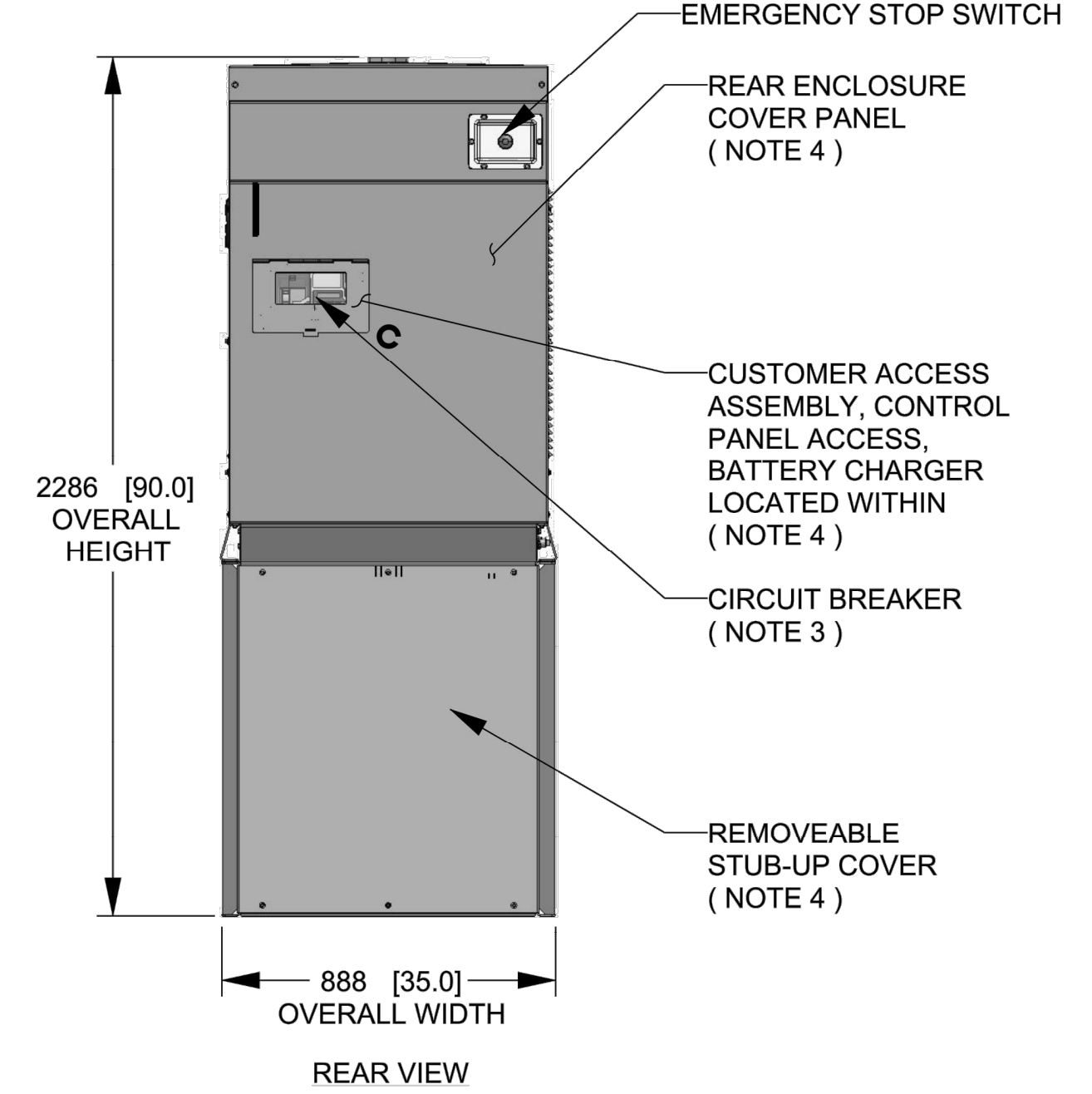
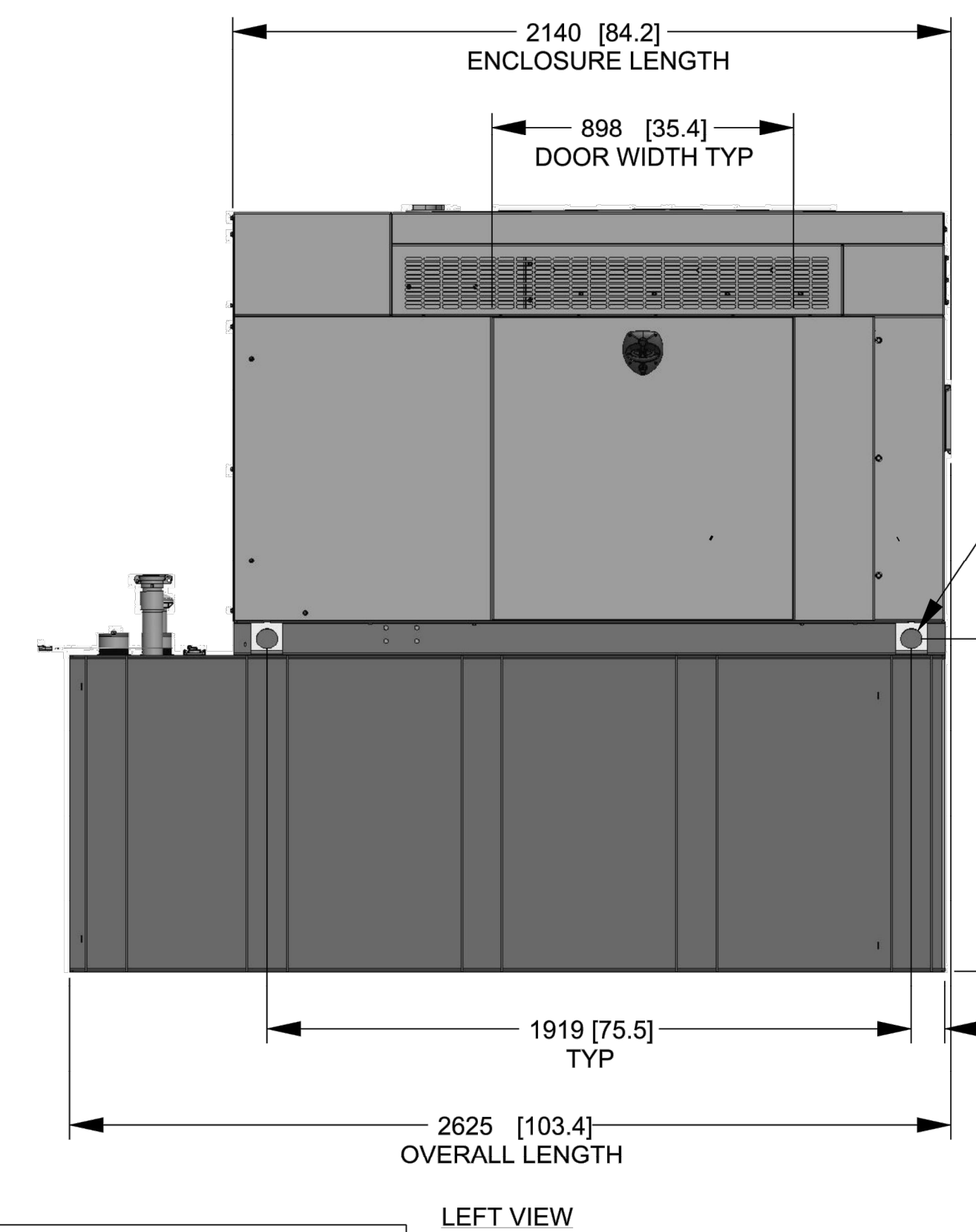
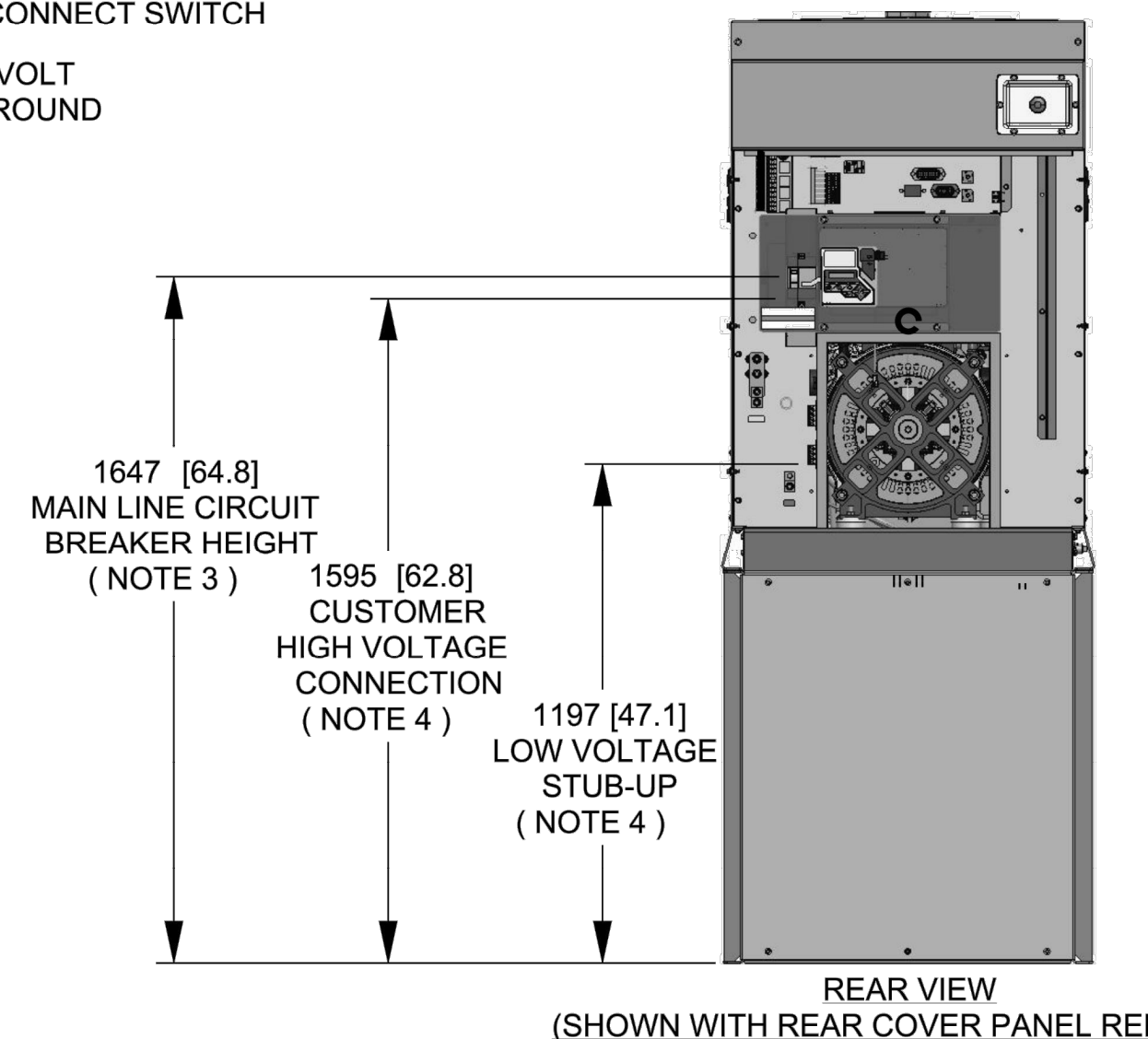
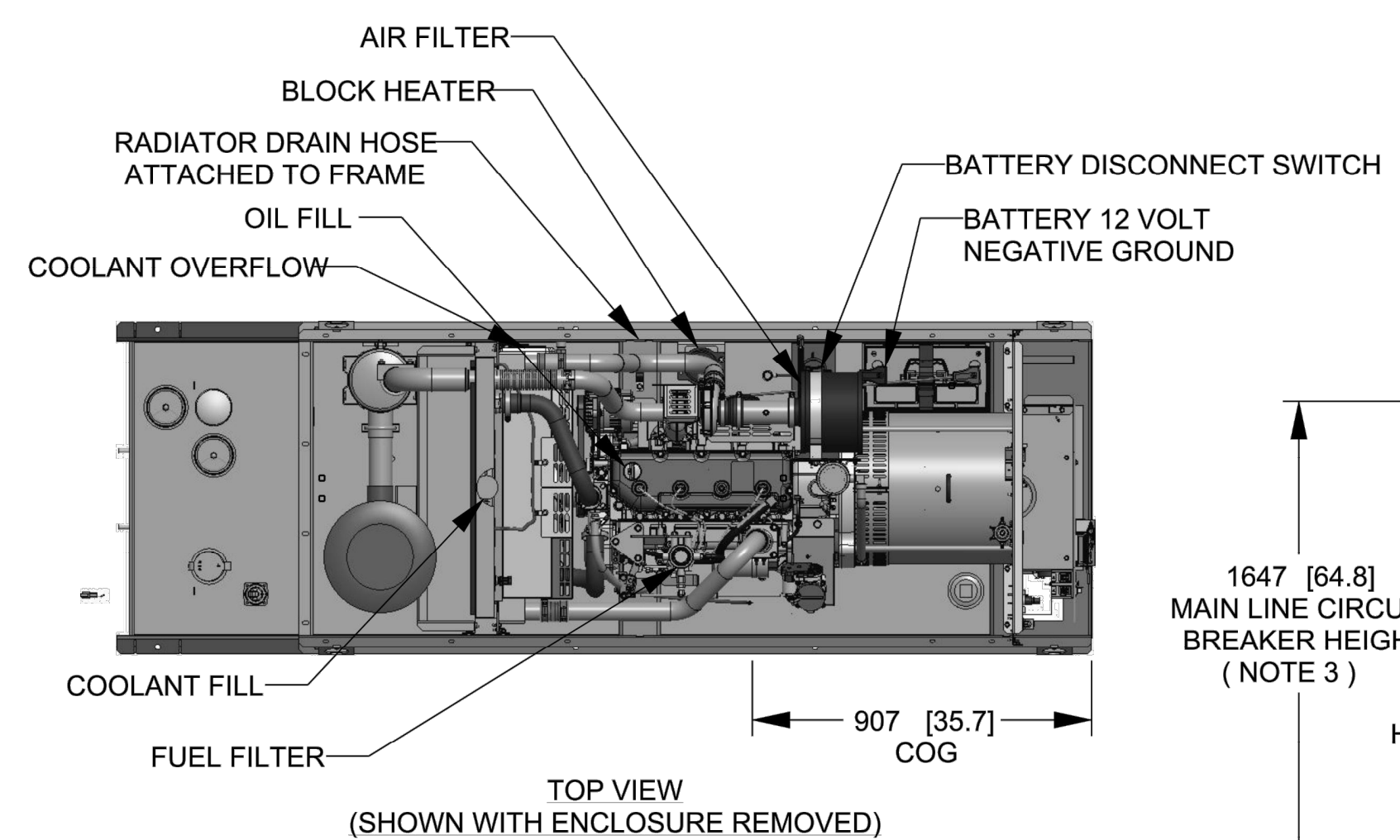
CLASS	F'C (PSI)	SLUMP
CLASS I FOOTINGS	4000	3"
CLASS II FOOTINGS	4000	3"
CLASS III INTERIOR ELEVATED SLABS & WALLS	4000	4"
CLASS V OTHER WORK	4000	4"
CLASS VI LEAN CONCRETE FOR OVER EXCAVATION OF FOUNDATIONS	2000	N/A
- MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 5. NO CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.
- COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE #57. COARSE AGGREGATE FOR LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330 GRADED 3/4" TO 1/4".
- COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1.
- HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R.
- CHAMFER ALL EXPOSED EDGES 3/4".
- THE MAXIMUM TEMPERATURE OF ALL CONCRETE AT DELIVERY TO THE SITE SHALL BE 85F. TOTAL DELIVERY TIME SHALL BE LESS THAN 75 MINUTES.





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

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



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

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ELECTRONICALLY APPROVED INSIDE WINDCHILL

**GENERAC**

TITLE  
INSTALL D3.4L G16  
48KW Y06 EXT

ISSUE DATE: 8/8/18

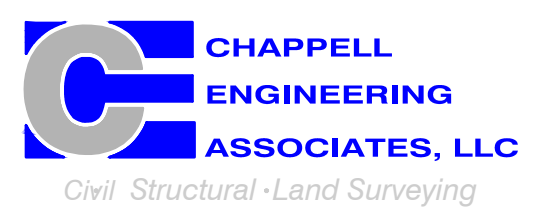
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SCALE	0.035	WT-KG	SEE ABOVE
		SHEET	1 of 2

T-MOBILE  
NORTHEAST LLC

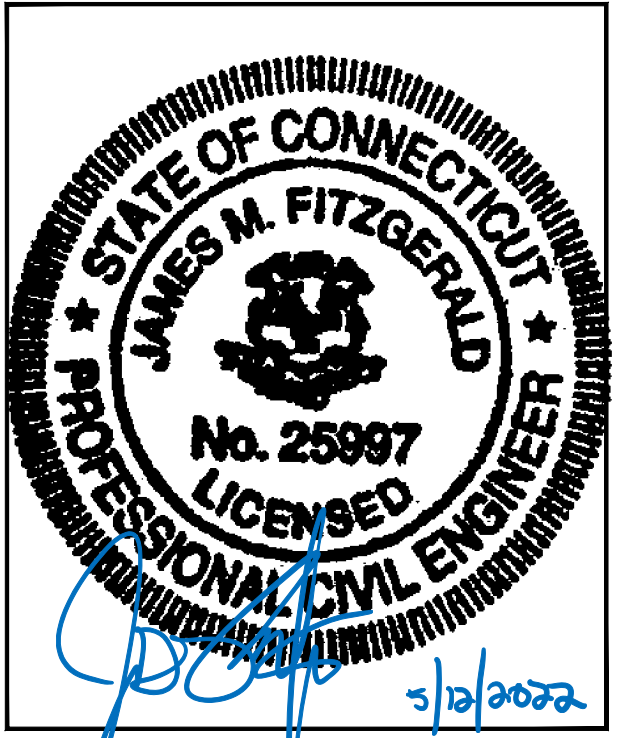
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SUBMITTALS			
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1	05/11/22	ISSUED FOR CONSTRUCTION	CMC
0	03/04/22	ISSUED FOR REVIEW	CMC

SITE NUMBER:  
CTNH393A

SITE ADDRESS:  
44 GAVITT ROAD  
BARKHAMSTED, CT 06063

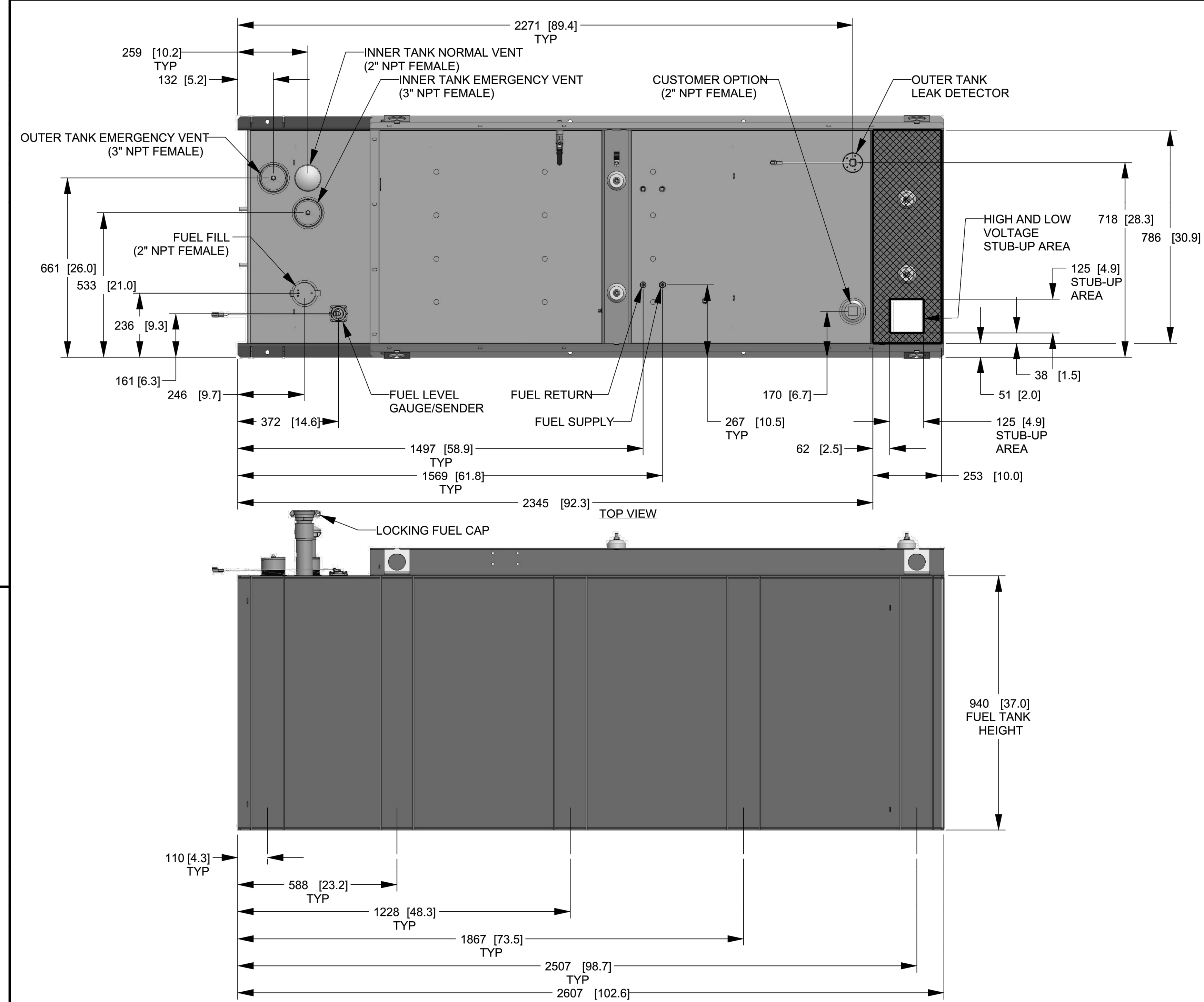
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GENERATOR  
SPECIFICATIONS 1

SHEET NUMBER

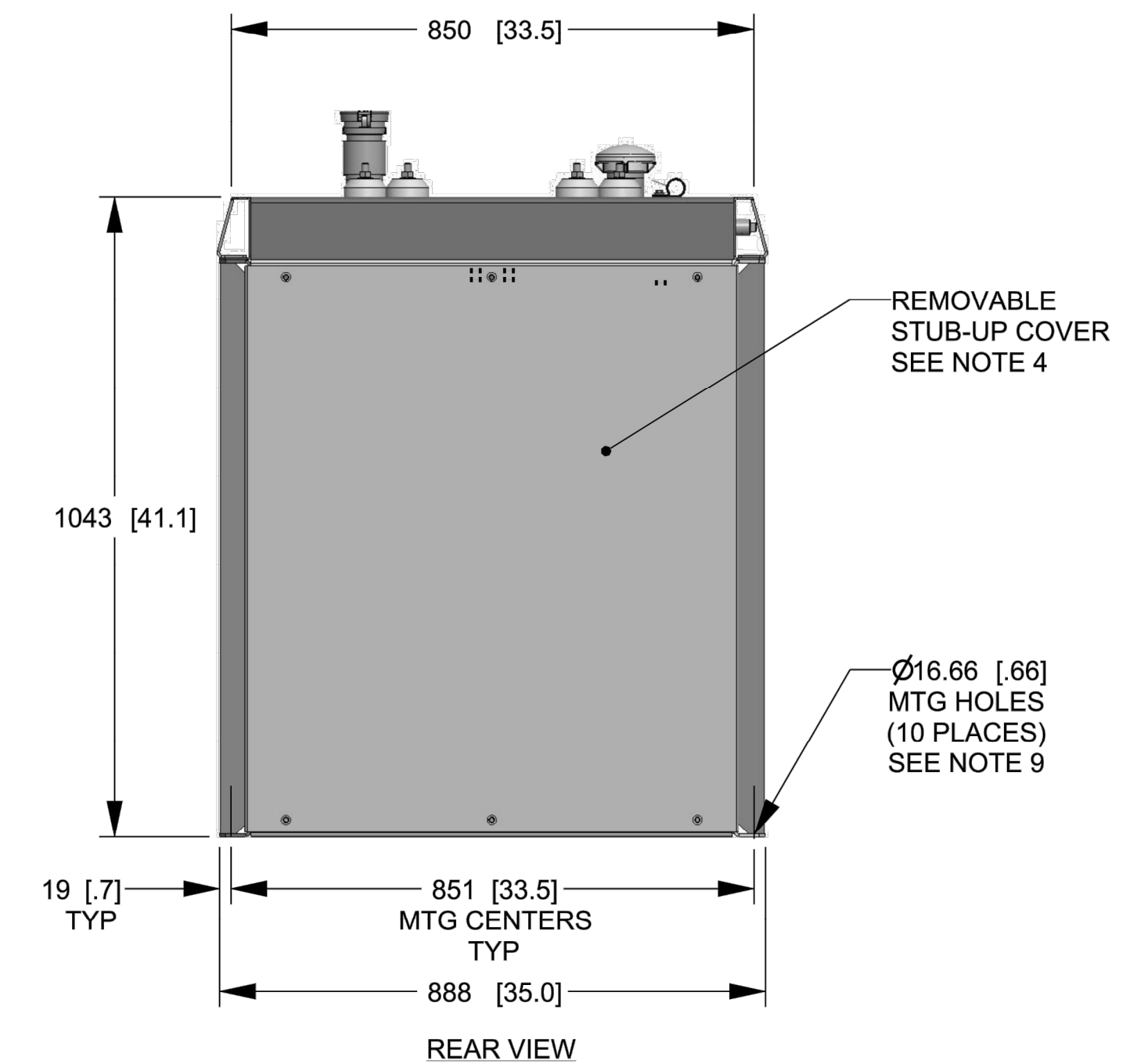
A-5





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

CAPACITY: LITER [GALLON]  
 DIMENSIONS: MM [INCH]  
 TANK IS LISTED TO UL142 AND ULC5601  
 NOTE: STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



**GENERAC**

TITLE  
 INSTALL D3.4L G16  
 48KW Y06 EXT

ISSUE DATE: 8/8/18

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

SCALE 0.060 WT-KG SEE ABOVE SHEET 2 of 2

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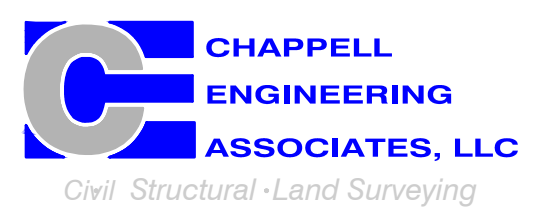
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T-MOBILE  
 NORTHEAST LLC

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SHEET TITLE

GENERATOR  
 SPECIFICATIONS 2

SHEET NUMBER

A-6

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1 ERICSSON M-MIMO AIR6419 B41	147'± AGL	0°	-	-	L2500/N2500	-	PROP. (3) 2" (6x24) HCS FIBER CABLES
	A2 EMPTY PIPE	-	-	-	-	-	-	
	A3 RFS APXVAALL24_43-U-NA20	147'± AGL	0°	-	-	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	A4 COMMSCOPE WV-65A-R1	147'± AGL	0°	-	-	L2100/L1900/G1900	ERICSSON RADIO 4460 B25+B66	
BETA	B1 ERICSSON M-MIMO AIR6419 B41	147'± AGL	110°	-	-	L2500/N2500	-	
	B2 EMPTY PIPE	-	-	-	-	-	-	
	B3 RFS APXVAALL24_43-U-NA20	147'± AGL	110°	-	-	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	B4 COMMSCOPE WV-65A-R1	147'± AGL	110°	-	-	L2100/L1900/G1900	ERICSSON RADIO 4460 B25+B66	
GAMMA	G1 ERICSSON M-MIMO AIR6419 B41	147'± AGL	220°	-	-	L2500/N2500	-	
	G2 EMPTY PIPE	-	-	-	-	-	-	
	G3 RFS APXVAALL24_43-U-NA20	147'± AGL	220°	-	-	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	G4 COMMSCOPE WV-65A-R1	147'± AGL	220°	-	-	L2100/L1900/G1900	ERICSSON RADIO 4460 B25+B66	

CABLE NOTE: SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV1 - 02/22/22

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: NONE EXISTING TO BE REMOVED: NONE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES (1) ½" COAX CABLE FOR GPS ANTENNA	

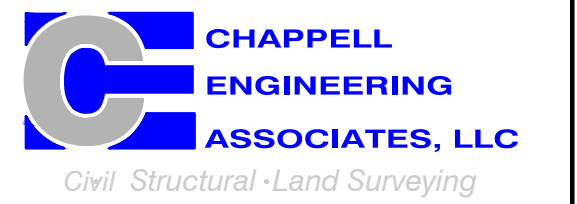
NOTE:  
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

## T-MOBILE NORTHEAST LLC

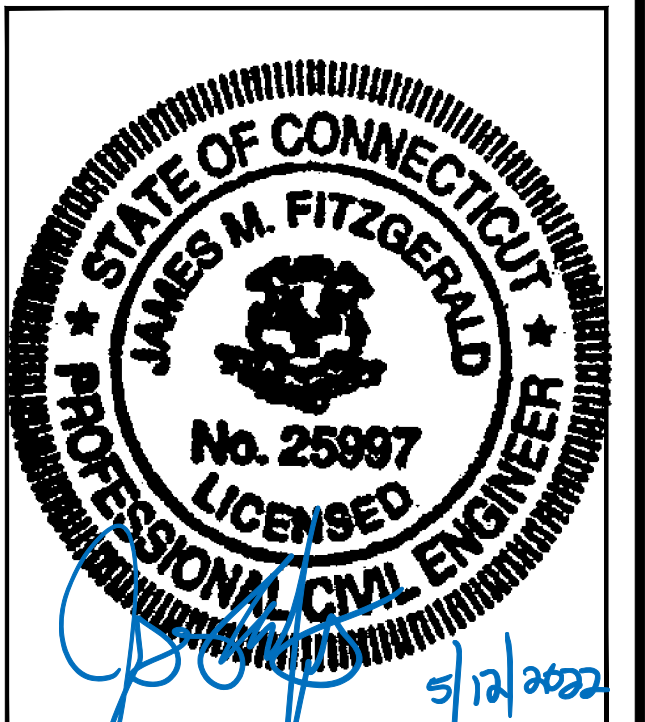
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SITE ADDRESS:  
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BARKHAMSTED, CT 06063

SHEET TITLE  
**ANTENNA &  
FEEDLINE CHARTS**

SHEET NUMBER  
**A-7**



**NOTES TO CONTRACTOR:**

- CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE ENGINEER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS REQUIRED WITH LOCAL AUTHORITY.
- UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES & SPRINT CONSTRUCTION MANAGER.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND LIGHTING AS REQUIRED FOR THE WORK.
- LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
- THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
- PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
- ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
- ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
- ALL WIRE SHALL BE TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE #10 AWG (#8 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C, (167 DEGREES F), 98% CONDUCTIVITY, MINIMUM #12.
- ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
- ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
- CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
- ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.
- INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
- THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
- ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOD NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL LOCATIONS FED FROM (NO EXCEPTIONS.)
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

NOTE: ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY NOT BE CORRECT AS SHOWN ON THESE DRAWINGS). LOCATION OF OUTLETS, BOXES, ETC. AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.

- ALL UNDERGROUND CONDUIT ROUTING SHALL BE COORDINATED IN FIELD BETWEEN SPRINT WIE, CONTRACTOR, AND RESPECTIVE UTILITY COMPANIES.
- ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
- CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH 6" WIDE, 6 MIL THICK ALUMINIZED PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
- ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR TELCO CONNECTION TO THE PRIMARY RADIO CABINET. COORDINATE EXACT CONNECTION TYPE WITH ULICENT.
- ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR POWER CONNECTION TO THE PRIMARY RADIO CABINET. THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL 6"-0" COIL OF WIRE AT THE END OF THE SEALTITE.
- GROUND IN ACCORD W/LOCAL CODE & SHEET E-2.
- PROVIDE (2) 4" GALVANIZED RIGID STEEL CONDUIT RISER WITH 1/4" NYLON DRAG LINE INCLUDING 90° GRC SWEEP AT POLE (UP TO 20'-0" AFG). SECURE TO POLE PER UTILITY COMPANY REQUIREMENTS. PRIMARY CABLES BY UTILITY COMPANY.

**ELECTRICAL SPECIFICATIONS**

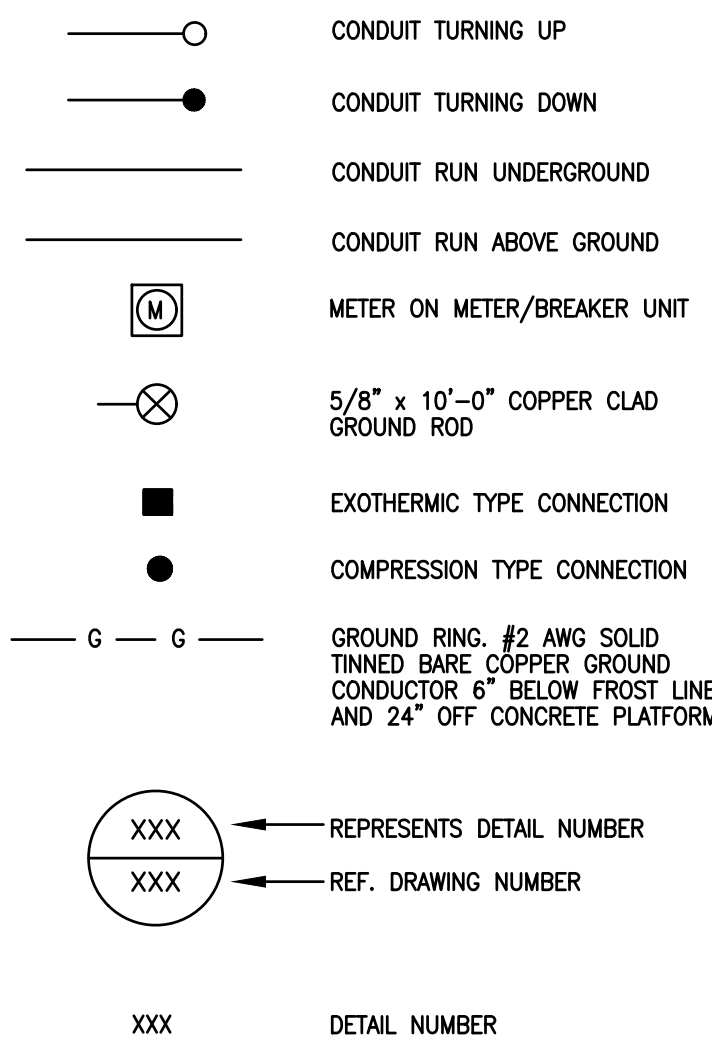
- SECTION 16010 - GENERAL PROVISIONS**
- REQUIREMENTS: FURNISH ALL LABOR, MATERIALS, SERVICE, EQUIPMENT, AND APPLIANCES REQUIRED TO COMPLETE THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS.
  - REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS: INSTALLATION, MATERIAL, EQUIPMENT AND WORKMANSHIP SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) - APPLICABLE STATE ELECTRIC CODES, THE NATIONAL ELECTRICAL SAFETY CODE (NESC), AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE OWNER.
  - UNDERWRITER'S LABORATORIES (UL): ALL MATERIALS, APPLIANCES, EQUIPMENT, OR DEVICES SHALL CONFORM TO THE APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC. THE LABEL OF, OR LISTING BY, UL, IS REQUIRED.
- SECTION 16110 - RACEWAYS, BOXES AND FITTINGS**
- CONDUIT FITTINGS, CONNECTORS AND COUPLINGS, EMT COUPLINGS AND CONNECTORS EITHER STEEL OR MALLEABLE IRON ONLY. "CONCRETE TIGHT" OR "RAIN TIGHT" AND EITHER THE GLAND AND RING COMPRESSION TYPE OR STAINLESS STEEL MULTIPLE POINT LOCKING TYPE. CONDUITORS TO HAVE INSULATED THROATS. EMT FITTINGS USING SET SCREWS OR INDENTATIONS AS A MEANS OF ATTACHMENT ARE NOT PERMITTED.
  - BUSHINGS: INSULATED TYPE, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT GROUNDING SYSTEM, FOR RIGID STEEL CONDUIT, IMC AND RIGID ALUMINUM CONDUIT.
  - CONDUIT INSTALLATIONS: CONDUIT SYSTEMS, EMT, OR RIGID NON-METALLIC CONDUIT UNLESS NOTED. INSTALL CONCEALED CONDUIT AND EMT IN AS DIRECT LINES AS POSSIBLE. INSTALL EXPOSED CONDUITS AND EMT PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. RIGHT ANGLE BENDS IN EXPOSED CONDUIT AND EMT RUNS SHALL BE MADE WITH STANDARD ELBOWS, SCREW JOINTED CONDUIT FITTINGS OR CONDUIT BENT TO RADIUS NO LESS THAN THOSE OF STANDARD ELBOWS.
  - CONDUIT SUPPORTS: PROVIDE SUPPORTS FOR HORIZONTAL CONDUITS AND EMT NOT MORE THAN 8 FEET APART WITH NOT LESS THAN TWO SUPPORTS FOR EACH 10 FOOT STRAIGHT LENGTH AND ONE SUPPORT NEAR EACH ELBOW OR BEND INCLUDING RUNS ABOVE SUSPENDED CEILINGS AND WITHIN 3 FEET OF ALL JUNCTION BOXES, SWITCHES, FITTINGS, ETC. INSTALL ONE HOLE PIPE STRAPS ON CONDUITS 1 INCH OR SMALLER INSTALL INDIVIDUAL PIPE HANGERS FOR CONDUITS LARGER THAN 1 INCH. SPRING STEEL FASTENERS WITH HANGER RODS MAY BE USED IN DRY LOCATIONS IN LIEU OF PIPE STRAPS.
- SECTION 16120 - CONDUCTORS**
- WIRES AND CABLES (600 VOLTS): CONFORM TO THE APPLICABLE UL AND ICEA STANDARDS FOR THE USE INTENDED. USE COPPER CONDUCTORS WITH 600 VOLTS INSULATION UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. USE STRANDED CONDUCTORS FOR NO. 8 OR LARGER WHERE ELSEWHERE SPECIFIED OR NOTED OTHERWISE ON THE DRAWINGS. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED. INSULATION SHALL BE TYPE THHN/THWN, 75°C, FOR ALL CONDUCTORS, UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS.
  - COLOR CODING: PHASE, NEUTRAL, AND GROUND CONDUCTORS COLOR-CODED IN ACCORDANCE WITH NEC: CONNECT ALL CONDUCTORS OF THE SAME COLOR TO THE SAME PHASE CONDUCTOR. COLOR CODING SHALL BE BLACK, RED, BLUE, WHITE (120/208) OR BROWN ORANGE, YELLOW, GRAY (277/480) WITH GREEN FOR ALL GROUND CONDUCTORS.
  - CONNECTORS AND LUGS: FOR COPPER CONDUCTORS NO. 6 AND SMALLER: 3M SCOTCH-LOK OR T & B STA-KON COMPRESSION OR INDENT TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN NO. 6 SOLDERLESS, INDENT, HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPED OR INSULATED.
  - SPLICES: (480 VOLTS AND UNDER): CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES UNLESS APPROVED BY THE BUILDING INSPECTOR.
- SECTION 16220 - CIRCUIT BREAKERS**
- PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. AC RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS.



**EXISTING METER BANK PHOTO** 6 E-1  
SCALE: NOT TO SCALE

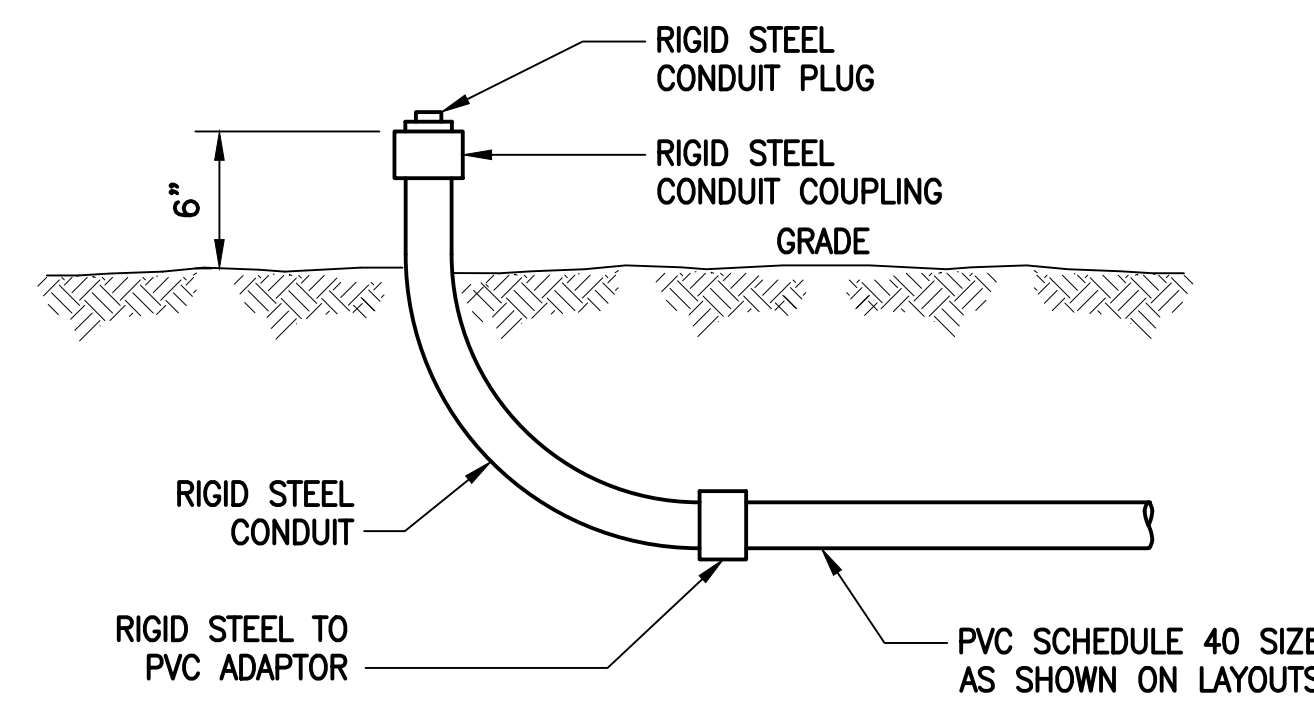
**ELECTRICAL LEGEND**

**SYMBOLS**

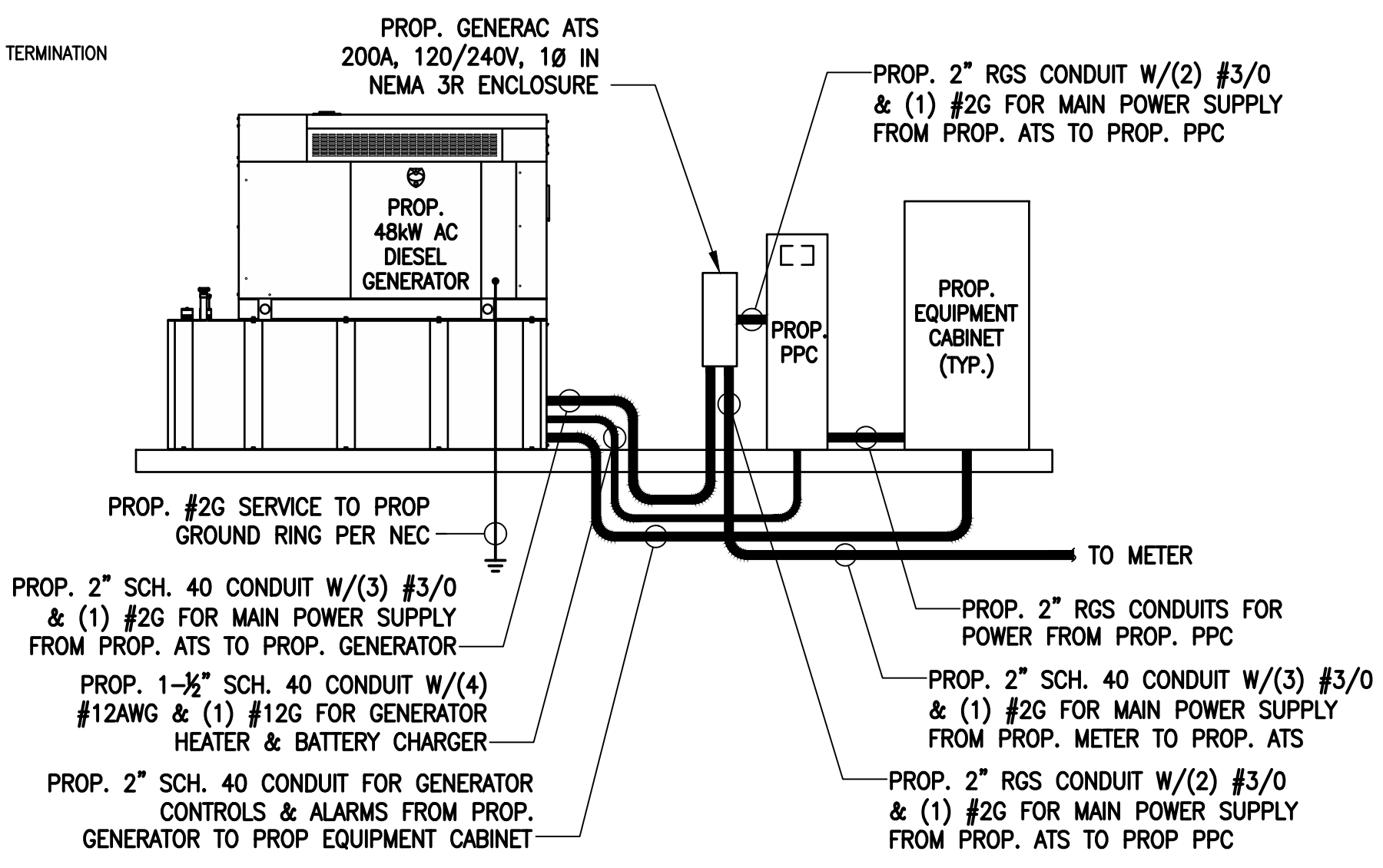


**ABBREVIATIONS**

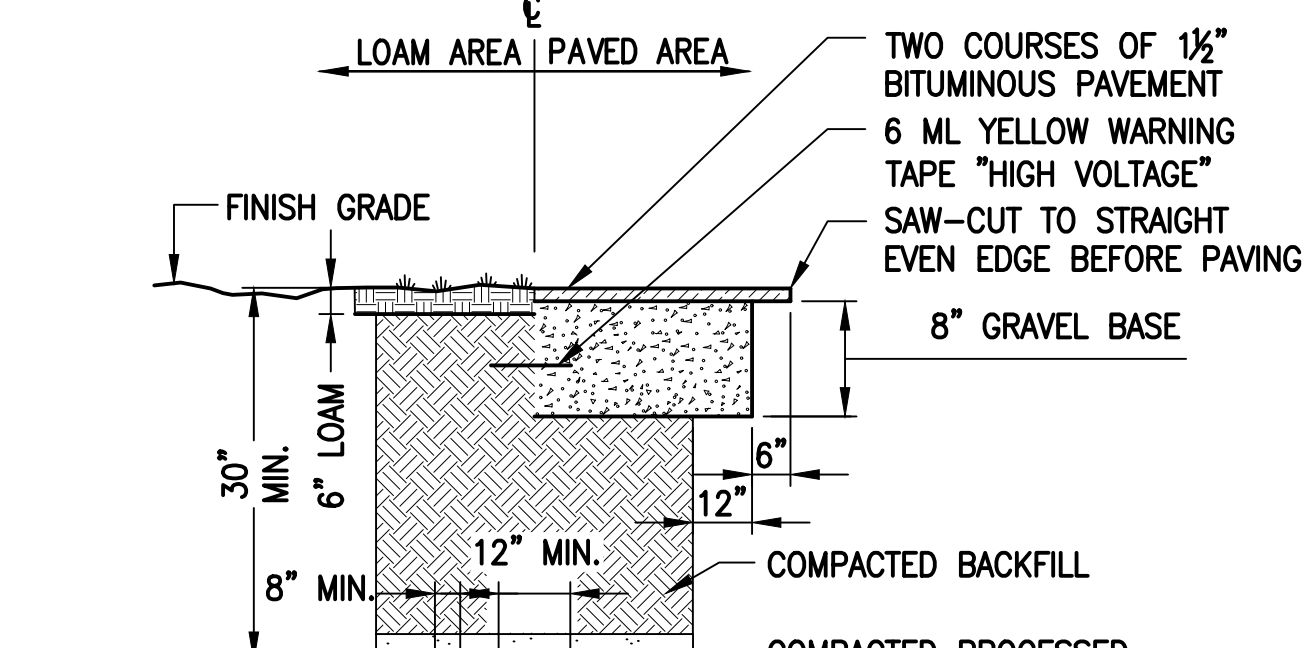
ACCA	ANTENNA CABLE COVER ASSEMBLY
AGB	COPPER ANTENNA GROUND BAR
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BTS	BASE TRANSMISSION SYSTEM
CIBGE	COAX ISOLATED GROUND BAR EXTERNAL
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GR	GROWTH
IGR	INTERIOR GROUND RING (HALO)
LAGB	LOWER ANTENNA COPPER GROUND BAR
MIGB	MASTER ISOLATED GROUND BAR
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
RGS	RIGID GALVANIZED STEEL
RWY	RACEWAY
TYP	TYPICAL
SSLP	SPRINT SPECTRUM LIMITED PARTNERSHIP
UAGB	UPPER ANTENNA COPPER GROUND BAR
EXIST.	EXISTING
PROP.	PROPOSED



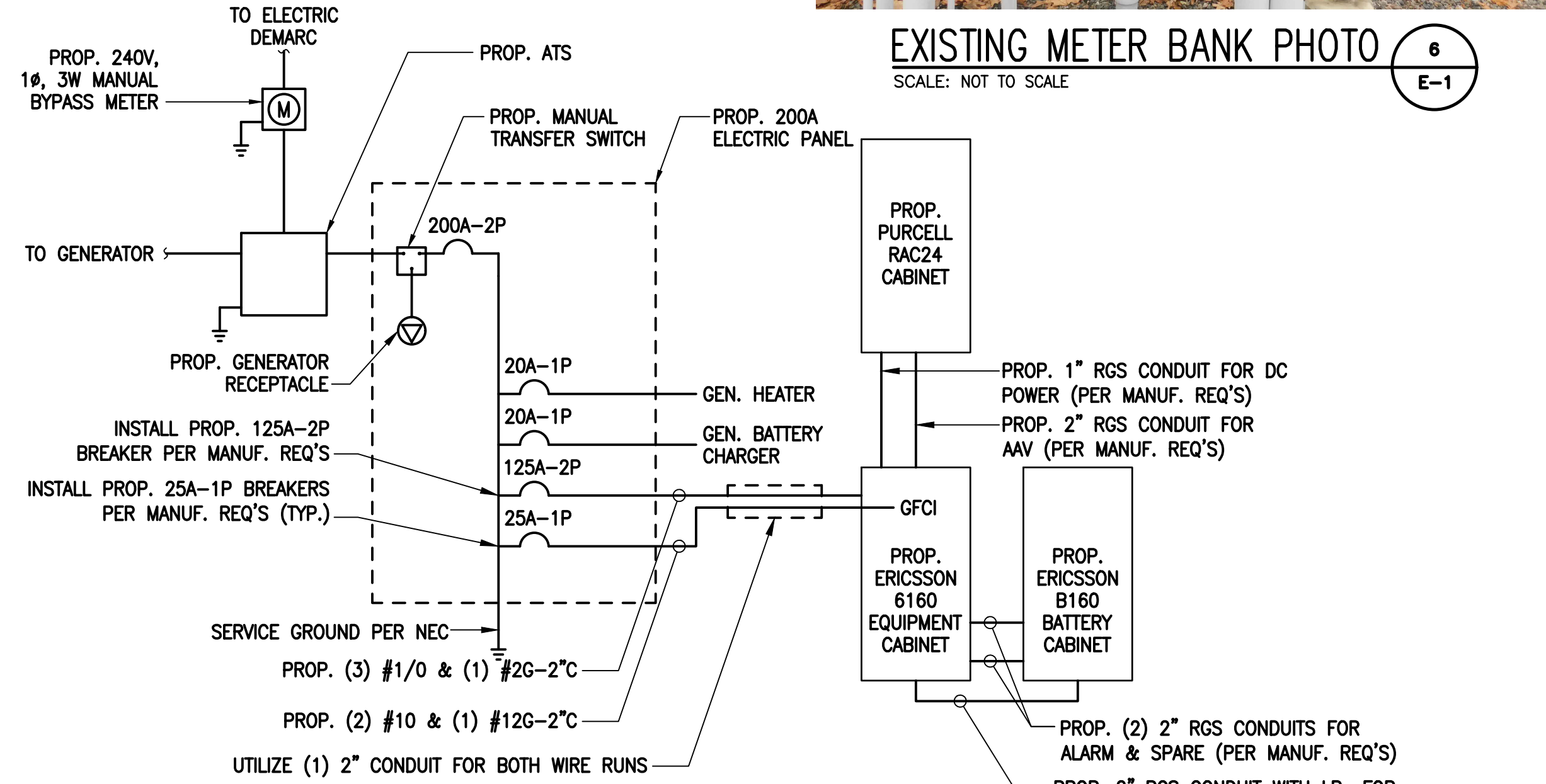
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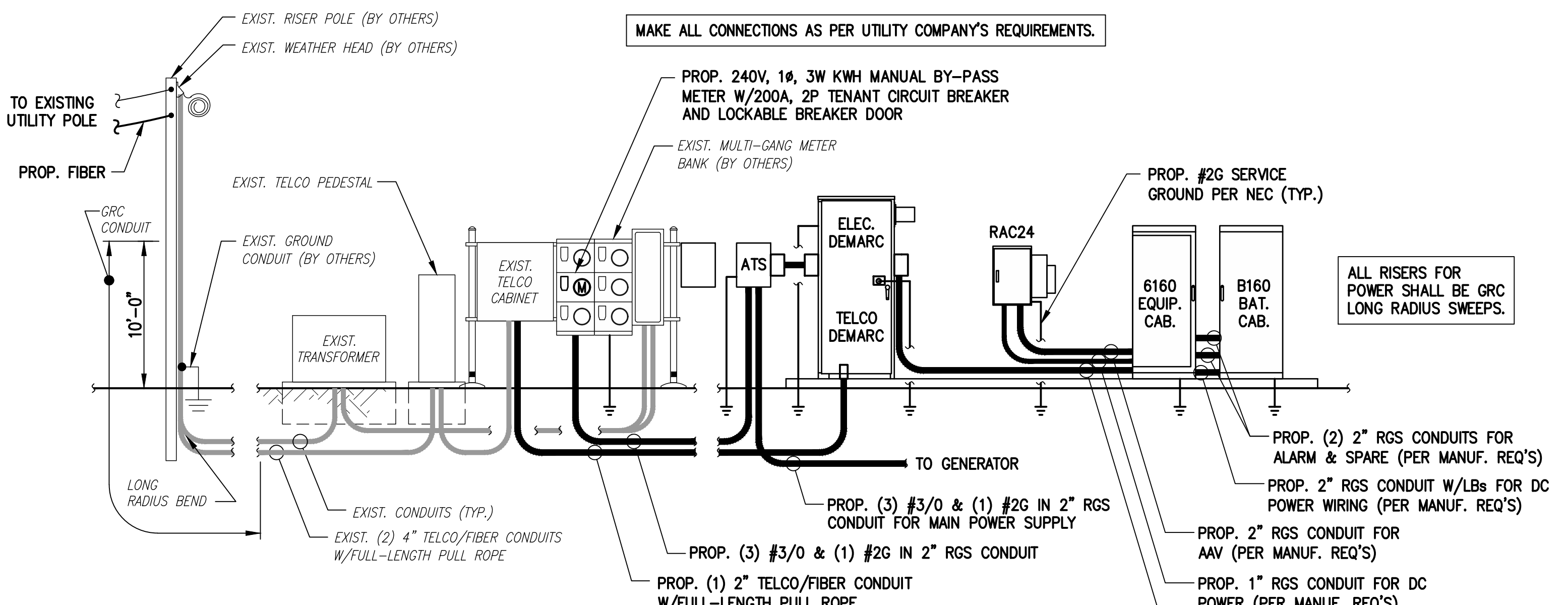
**GENERATOR ONE-LINE POWER DIAGRAM** 3 E-1  
SCALE: NOT TO SCALE



**BURIED CONDUIT DETAIL** 5 E-1  
SCALE: NOT TO SCALE



**ONE LINE DIAGRAM** 1 E-1  
SCALE: NOT TO SCALE



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

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STATE OF CONNECTICUT  
JAMES M. FITZGERALD  
No. 25997  
LICENSED PROFESSIONAL CIVIL ENGINEER

5/12/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
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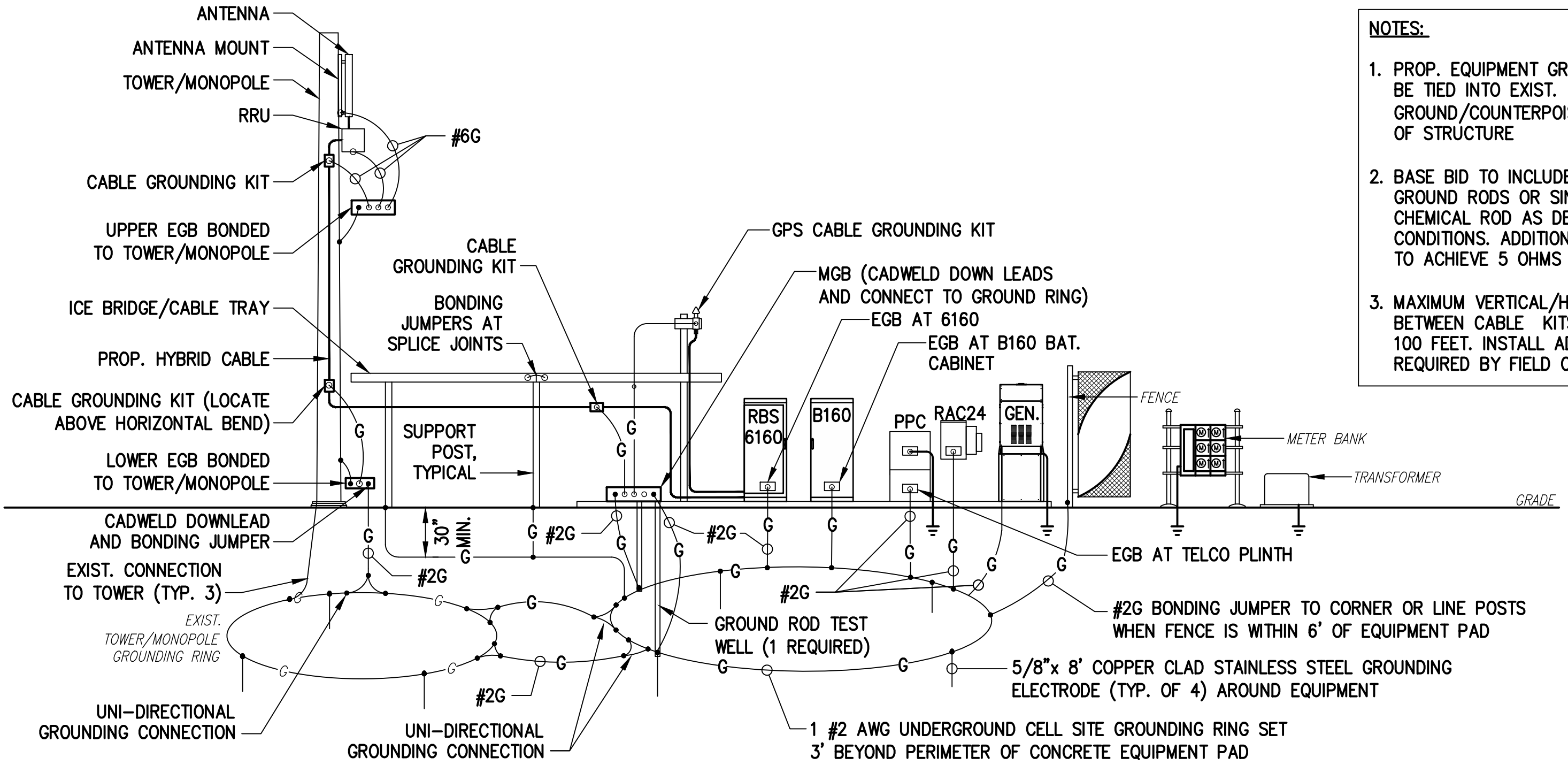
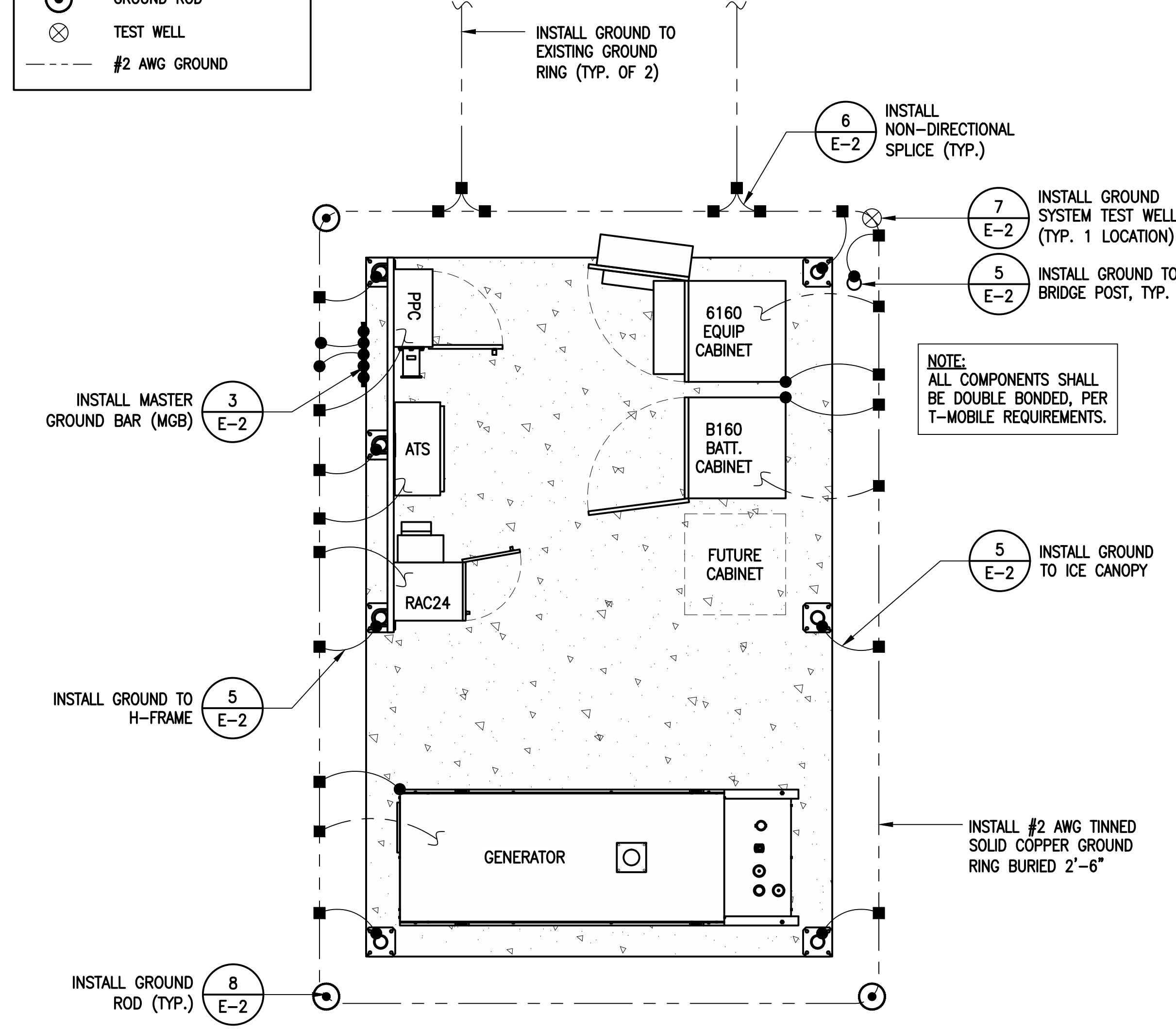
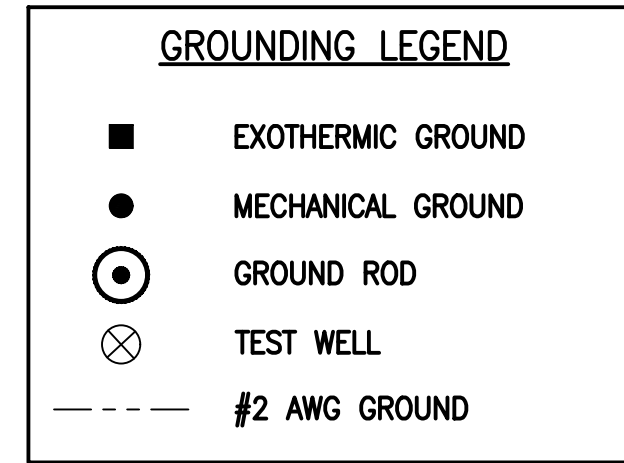
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**SITE ELECTRIC & GROUNDING DETAILS**  
1 OF 2

SHEET NUMBER  
**E-1**

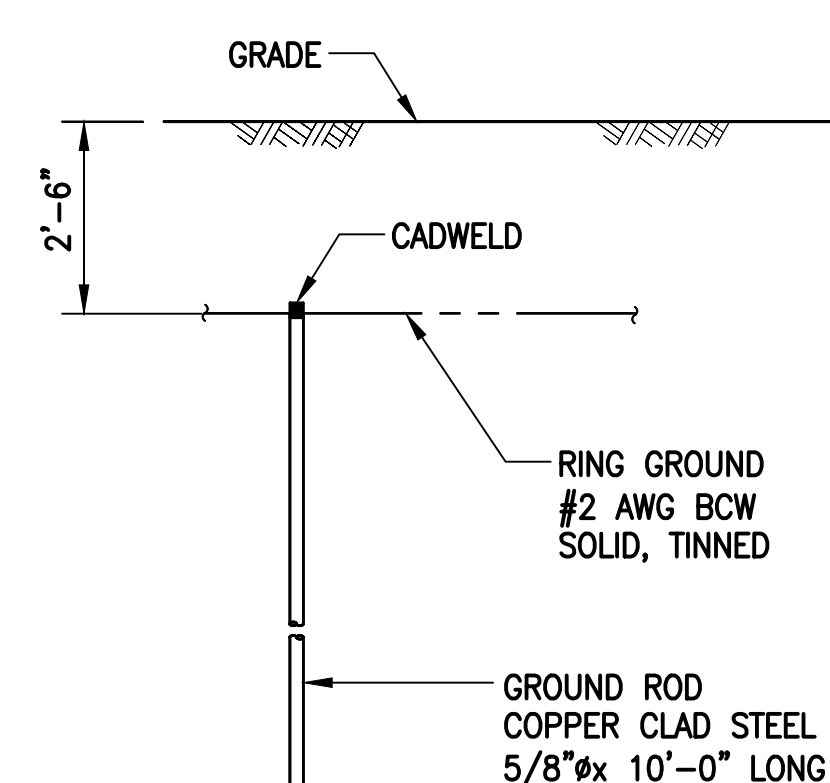
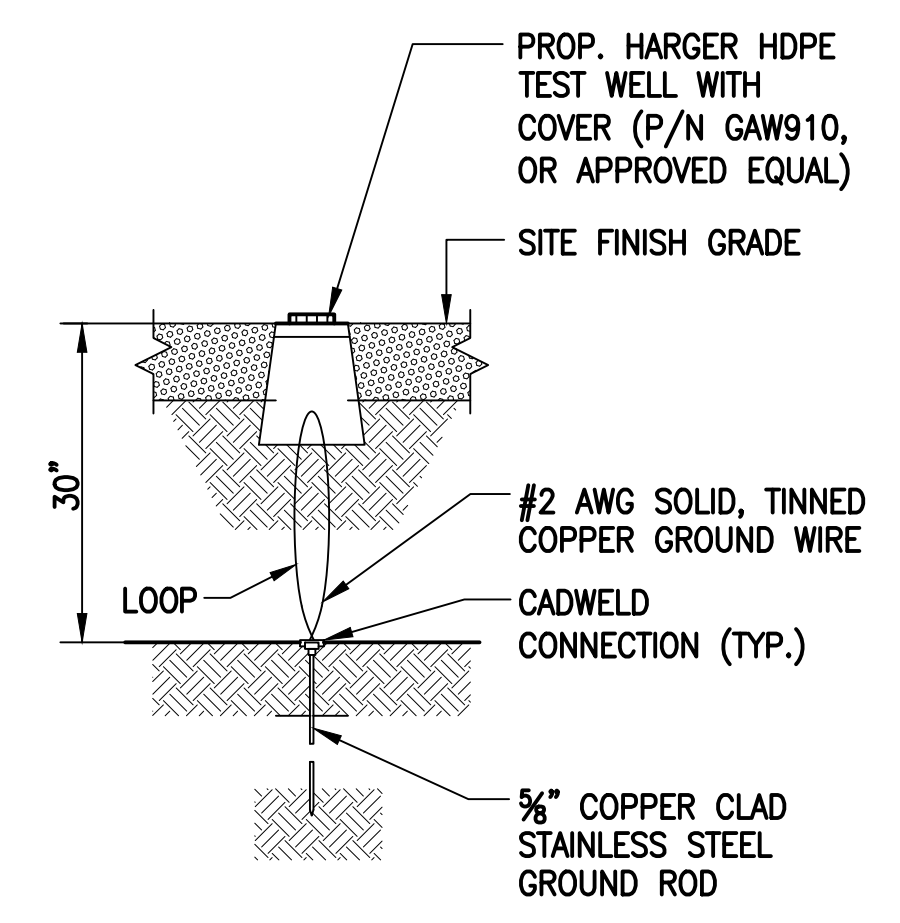
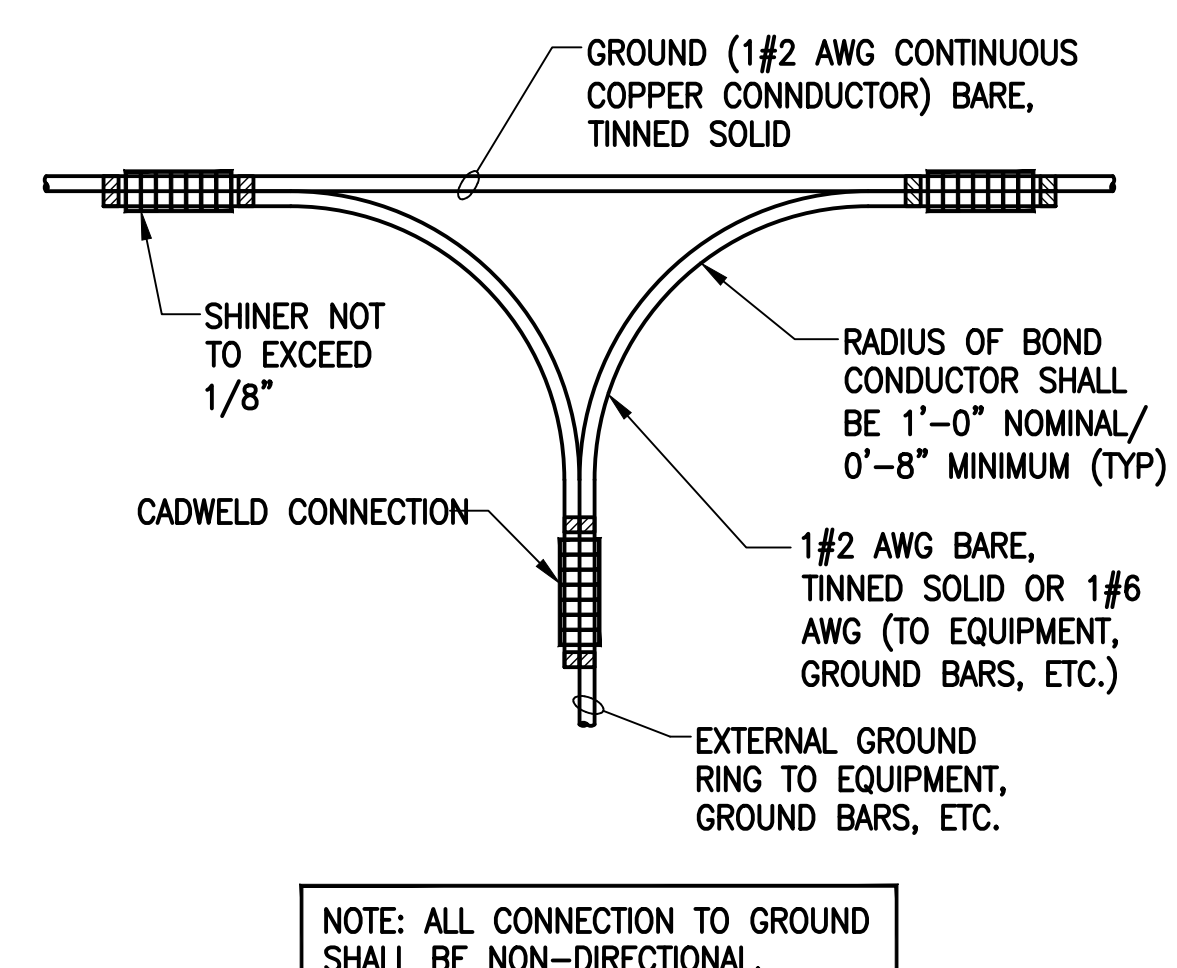
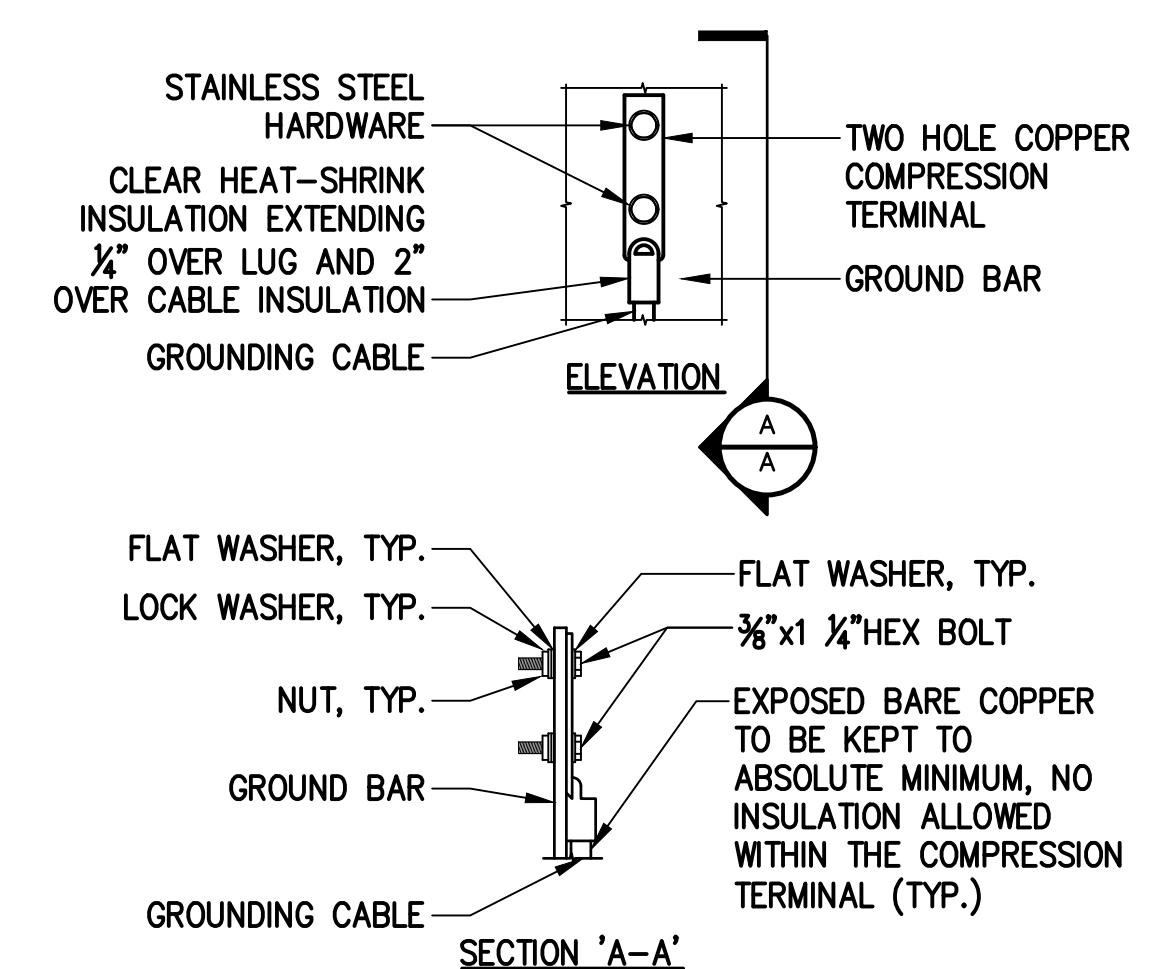
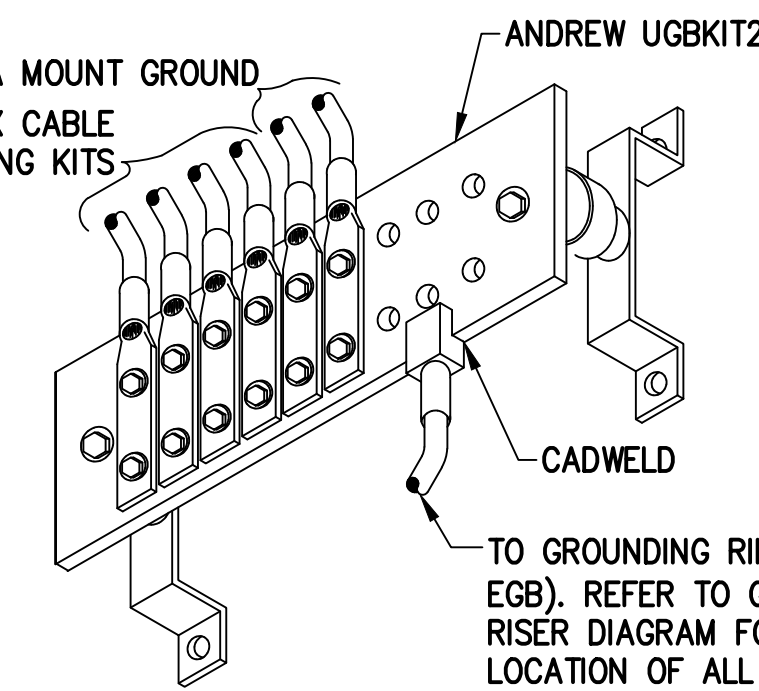
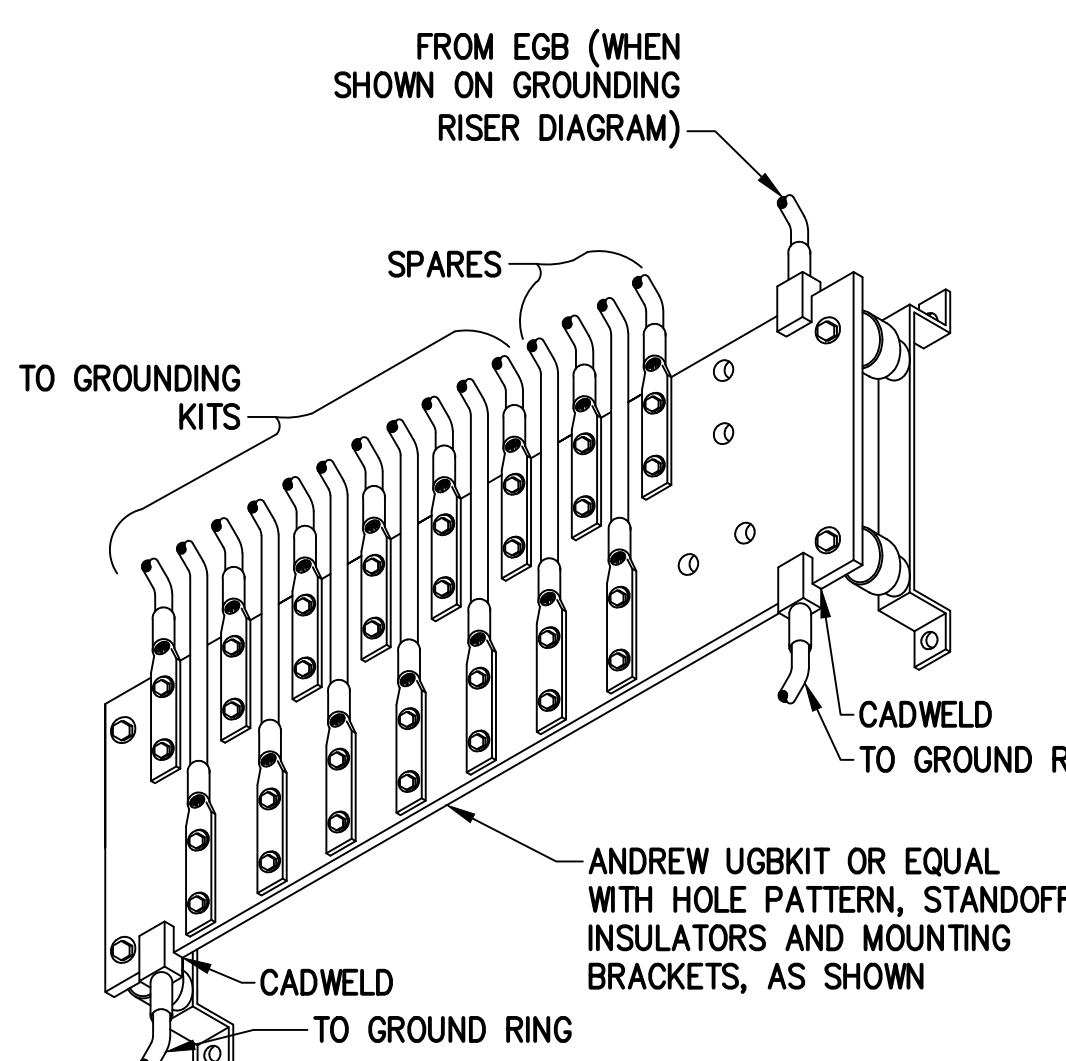


**PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES**

- GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
- GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
- PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
- GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
- ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
- ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
- ALL GROUND WIRES SHALL BE #2 SOLID TINNED COPPER UNLESS NOTED OTHERWISE.
- PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
- GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
- EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED COPPER EQUIPMENT CABINETS SHALL HAVE (2) CONNECTIONS.
- GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
- THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
- EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHIELD) BEFORE MAKING THE CRIMP CONNECTIONS. THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
- AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
- THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
- ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
- ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
- FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):  
-ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12  
-SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12



- NOTES:**
- PROP. EQUIPMENT GROUNDING SYSTEM TO BE TIED INTO EXIST. GROUND/COUNTERPOISE SYSTEM AT BASE OF STRUCTURE
  - BASE BID TO INCLUDE INSTALLATION OF (4) GROUND RODS OR SINGLE XIT HORIZONTAL CHEMICAL ROD AS DETERMINED BY CONDITIONS. ADDITIONAL RODS AS REQUIRED TO ACHIEVE 5 OHMS RESISTANCE.
  - MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.

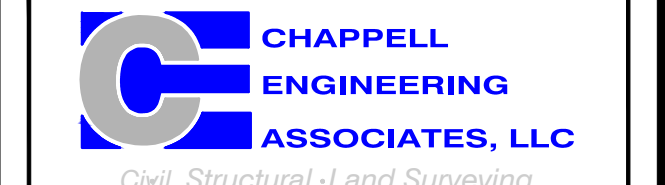


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APPROVED BY: JMT

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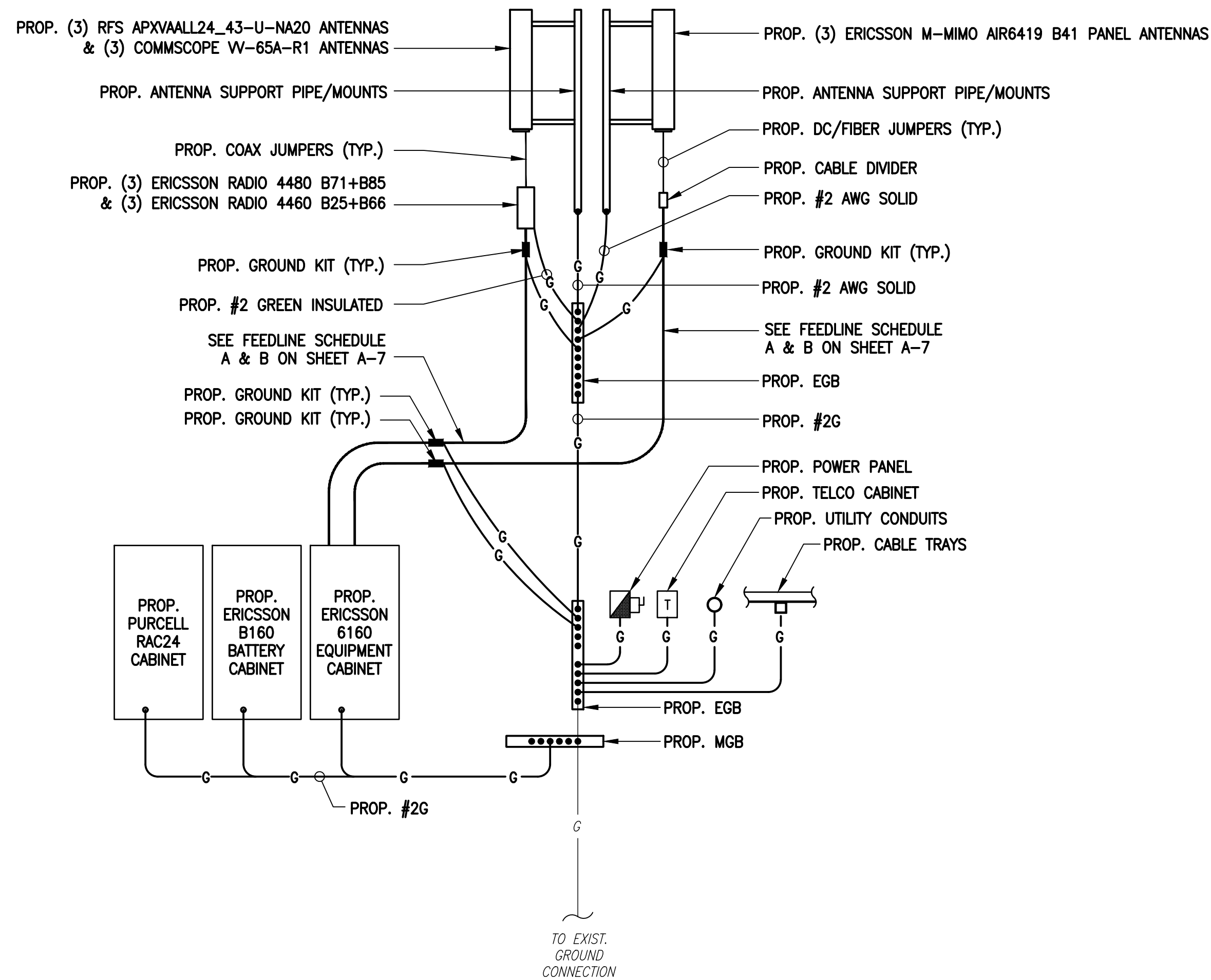
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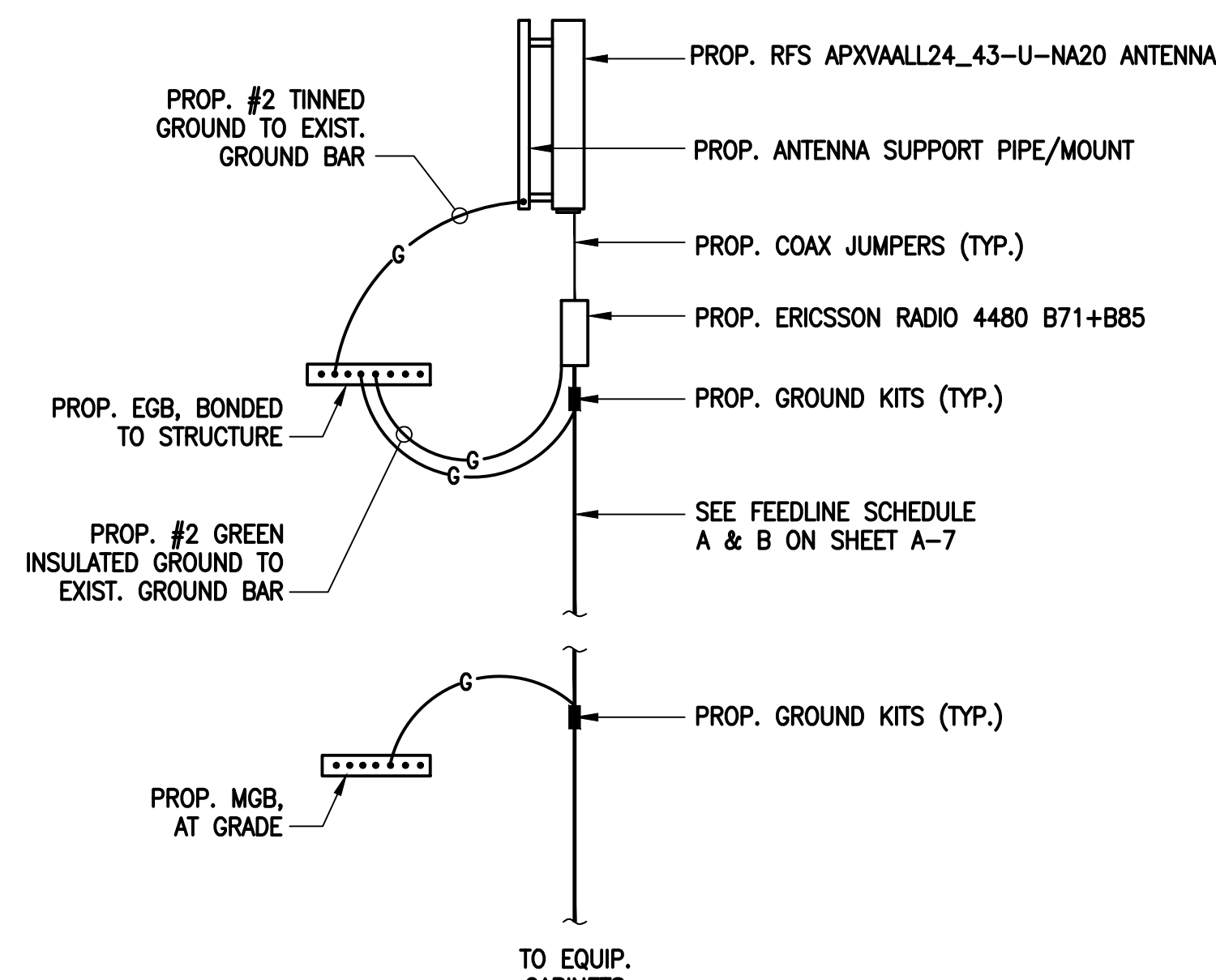
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**SITE ELECTRIC & GROUNDING DETAILS**  
2 OF 2

SHEET NUMBER  
**E-2**

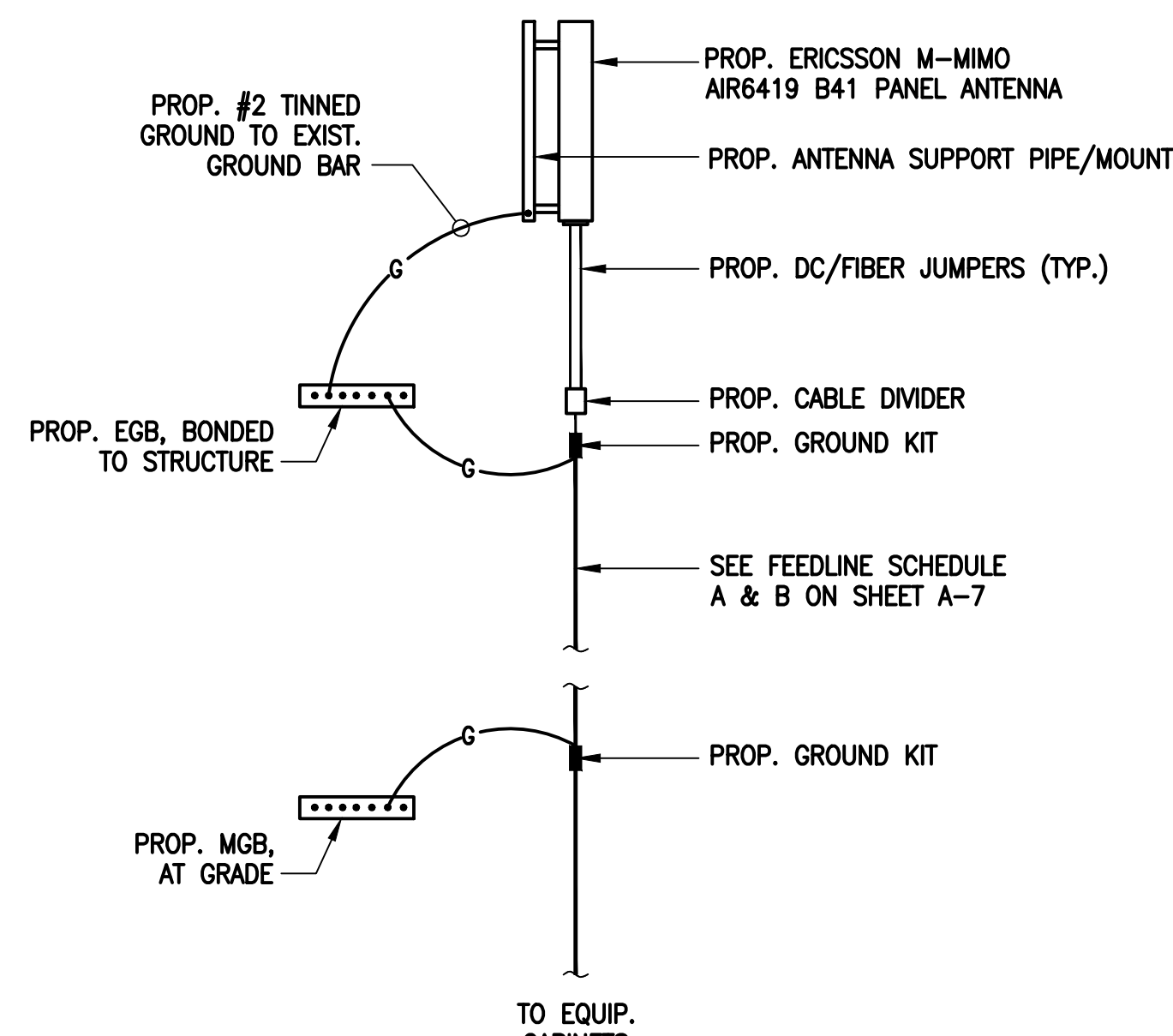




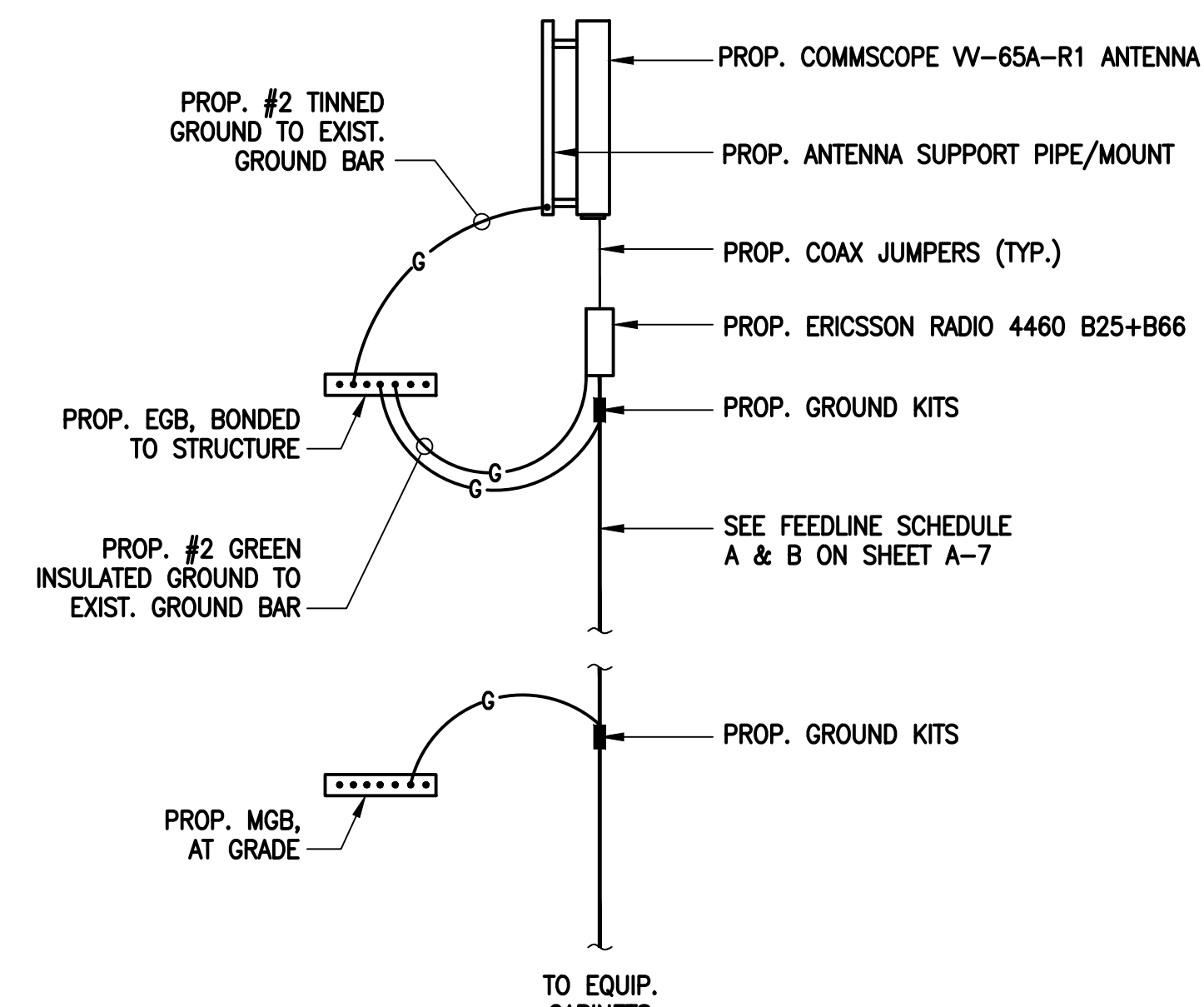
**GROUNDING RISER DIAGRAM** 1  
SCALE: NOT TO SCALE E-3



**L700/L600/N600 ANTENNA**



**L2500/N2500 ANTENNA**



**L2100/L1900/G1900 ANTENNA**

**COAX CABLE CONNECTION AND GROUNDING DETAIL** 2  
SCALE: NOT TO SCALE E-3

**ELECTRICAL AND GROUNDING NOTES**

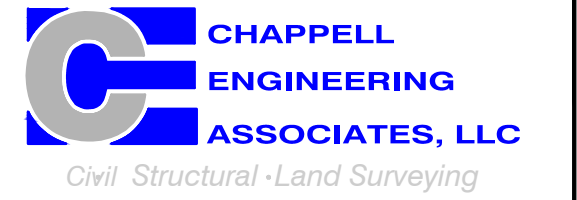
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN PROP. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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SHEET TITLE  
**ANTENNA ELECTRIC & GROUNDING DETAILS**

SHEET NUMBER  
**E-3**

# Exhibit D

## **Structural Analysis Report**



## Structural Analysis Report

### Client: T-Mobile

Client Site ID / Name: CTNH393A / 44 Gavitt Road  
Application #: 189463, v1

SBA Site ID / Name: CT11709-S / Barkhamsted, CT

170 ft Monopole

44 Gavitt Road  
Barkhamsted, Connecticut 06063  
Lat: 41.946083, Long: -72.911472

Project number: CT11709-TMO-051622

### Analysis Results

<b>Tower</b>	67.8%	Pass
<b>Foundation</b>	42.0%	Pass

Change in tower stress due to mount modification / replacement	N/A
--	-----

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May 16, 2022



05/19/22



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    Tower Geometry.....

    Coax Layout.....

    TESPole Report.....

    Foundation Analysis Report.....



## Introduction

The purpose of this report is to summarize the analysis results on the 170 ft Monopole to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
<b>Tower design/drawings</b>	DaVinci, Project # 110-13059, Dated 4/5/2010
<b>Foundation drawings</b>	DaVinci, Project # 110-13059, Dated 4/5/2010
<b>Geotechnical report</b>	TEP, #100484.01, Dated 2/3/2010
<b>Modification drawings</b>	N/A
<b>Latest MA</b>	TES, Project # 128737, Dated 05/10/2022
<b>Latest SA</b>	SBAE, Project # CT11709-VZW-081021, Dated 08/10/2021

## Analysis Criteria

Table 2 Code Related Data

<b>Jurisdiction (State/County/City)</b>	Connecticut / Litchfield / Barkhamsted
<b>Governing Codes</b>	ANSI/TIA/EIA 222-G, 2015 IBC / 2018 CSBC
<b>Ultimate Wind Speed (3-Sec gust)</b>	93.0 mph (Ultimate Wind Speed: 120 mph)
<b>Wind Speed with Ice (3-Sec gust)</b>	50 mph
<b>Service Wind Speed (3-Sec gust)</b>	60 mph
<b>Ice Thickness</b>	1.00"
<b>Structural Class*</b>	II
<b>Exposure Category</b>	B
<b>Topographic Category</b>	1
<b>Crest Height</b>	0 ft
<b>Ground Elevation</b>	1135.58 ft.
<b>Seismic Parameter S<sub>s</sub>**</b>	0.177
<b>Seismic Parameter S<sub>1</sub></b>	0.065

\*This structural analysis is based upon the tower being classified as a structural class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

\*\*Earthquake effects were ignored as per section 2.7.3 of the TIA-222-G code provisions for  $S_s < 1.0$ .

## Appurtenance Loading

### Existing Loading:

Table 3 Existing Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	3	Powerwave P90-15-XLH-RR - Panel	Platform SitePro # RMQP-496-HK	(12) 1 5/8" (2) 1/2" (2) 3" Conduit (4) 3/4" DC* (2) 7/16" Fiber*	AT&T
2		6	Powerwave TT08-19DB111-001 TMA			
3		3	Andrew ABT-DF-DMADBH			
4		2	Raycap DC6-48-60-18-8F			
5		2	CCI HPA-65R-BU6AA - Panel			
6		1	Andrew SBNHH-1D65A - Panel			
7		2	CCI DMP65R-BU6DA - Panel			
8		1	CCI DMP65R-BU4DA - Panel			
9		3	Powerwave 7770 - Panel			
10		3	Ericsson RRUS 8843 B2 B66A			
11		3	Ericsson RRUS 4449 B5/B12			
17	157.0	3	Antel BXA-70063-6CF-EDIN-5 Panel	12' Low Profile Platform	(17) 1 5/8" (1) 1 5/8" Hybrid	Verizon
18		6	Commscope NHH-65B-R2B Panel			
19		3	Samsung 64T64R Panel			
20		3	Samsung RFV01U-D1A RRU			
21		3	Samsung RFV01U-D2A RRU			
22		1	RFS DB-C1-12C-24AB-0Z OVP			

\*Inside conduit

### Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 189463, v1 from T-Mobile and is listed in Table 4.

Table 4 Proposed Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
12	147.0	3	Ericsson AIR6419 B41 Panel	Low-profile platform w/HRK (Site Pro1 RMQP-4096-HK)	(3) 1.9" Fiber	T-Mobile
13		3	RFS APXVAALL24-43-U-NA20 Panel			
15		3	Commscope VV-65A-R1 Panel			
16		3	Ericsson 4480 B71 + B85 RRU			
17		3	Ericsson 4460 B25 + B66 RRU			

## Analysis Results

### Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

*Table 5 Tower Analysis Summary*

	<b>Pole shafts</b>	<b>Anchor Bolts</b>	<b>Base Plate</b>
<b>Max. Usage:</b>	67.8%	59.1%	56.8%
<b>Pass/Fail</b>	Pass	Pass	Pass

### Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

*Table 6 Foundation Analysis Summary*

<b>Structural Component</b>	<b>Max Usage (%)</b>	<b>Analysis Result</b>
<b>Foundation</b>	42.0%	Pass

## Conclusions

Based on the analysis results, the existing tower and foundation were found to be **sufficient** to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

## Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

## Assumptions and Limitations

### Assumptions

This analysis was completed based on the following assumptions:

- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

### Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

## Appendix

## Usage Diagram - Max Ratio 67.83% at 50.0ft

**Structure:** CT11709-S  
**Site Name:** Barkhamsted, CT  
**Height:** 170.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Gh:** 1.1

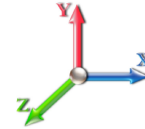
5/16/2022



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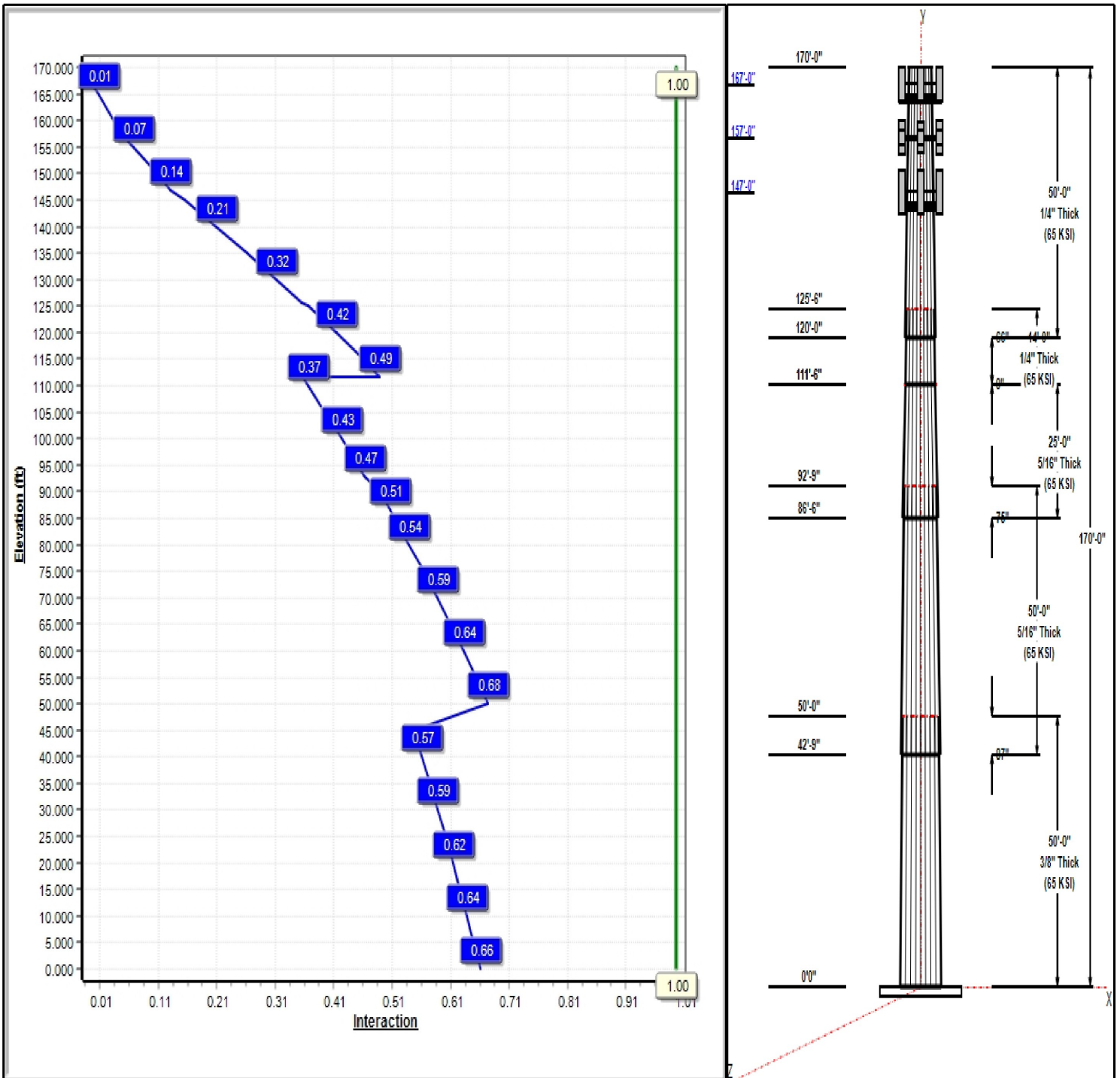
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 93 mph Wind**



**Iterations:** 25

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## Structure: CT11709-S

**Type:** Tapered  
**Site Name:** Barkhamsted, CT  
**Height:** 170.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.17250

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	50.05	58.67	0.375		0.17250	65
2	50.00	43.30	51.92	0.313	Slip	0.17250	65
3	25.00	40.69	45.00	0.313	Slip	0.17250	65
4	14.00	38.27	40.69	0.250	Butt	0.17250	65
5	50.00	31.10	39.72	0.250	Slip	0.17250	65

### Discrete Appurtenances

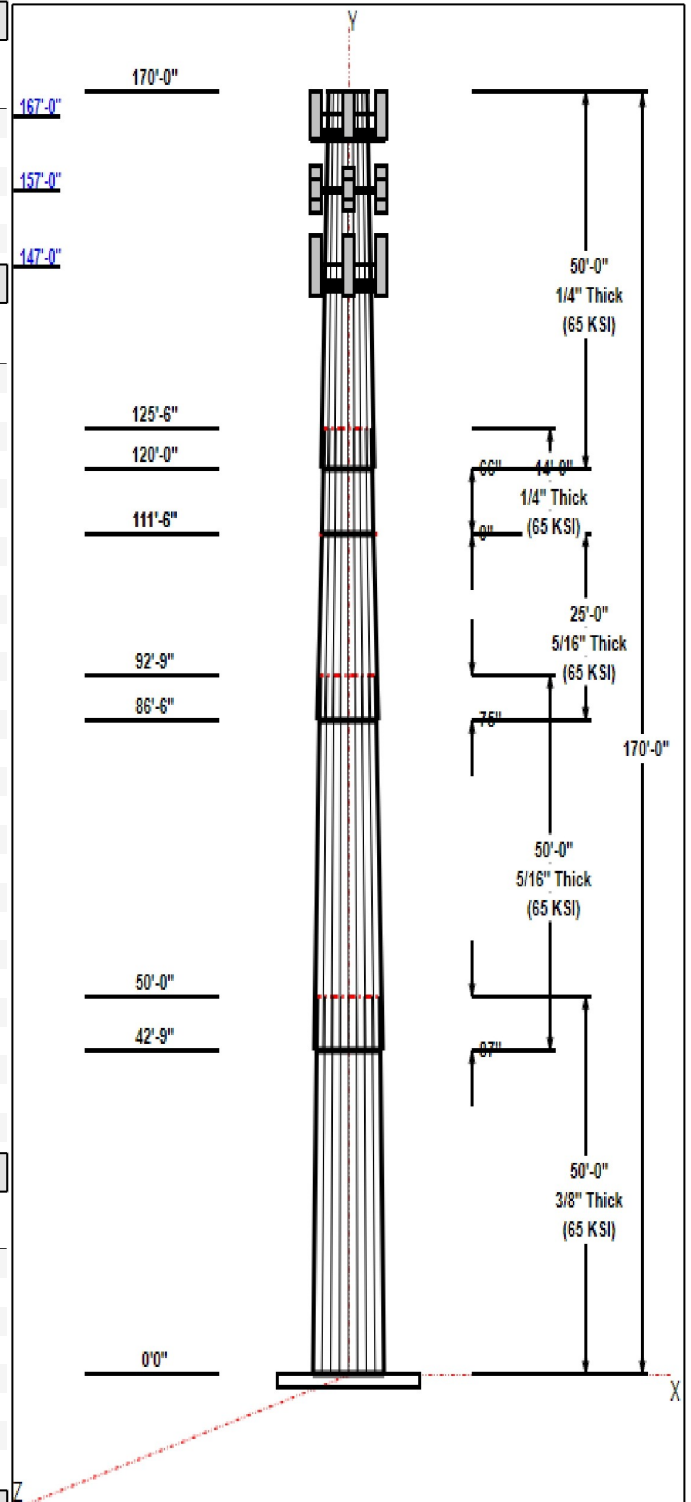
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	3	Andrew ABT-DFDM-ADBH	AT&T
167.00	167.00	2	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	1	RMQP-496-HK	AT&T
167.00	167.00	2	CCI HPA-65R-BU6AA	AT&T
167.00	167.00	1	Andrew SBNHH-1D65A	AT&T
167.00	167.00	2	CCI DMP65R-BU6DA	AT&T
167.00	167.00	1	CCI DMP65R-BU4DA	AT&T
167.00	167.00	3	Powerwave 7770	AT&T
167.00	167.00	3	Ericsson RRUS 8843 B2	AT&T
167.00	167.00	3	Ericsson RRUS 4449	AT&T
167.00	167.00	3	Powerwave	AT&T
157.00	157.00	6	Commscope	Verizon
157.00	157.00	3	Samsung 64T64R	Verizon
157.00	157.00	3	Samsung RFV01U-D1A	Verizon
157.00	157.00	3	Samsung RFV01U-D2A	Verizon
157.00	157.00	1	RFS DB-C1-12C-24AB-0Z	Verizon
157.00	157.00	1	12' Low Profile Platform	Verizon
157.00	157.00	1	Kicker Kit	Verizon
157.00	157.00	3	Antel	Verizon
157.00	157.00	1	Top rail kit	Verizon
147.00	147.00	3	Ericsson AIR6419 B41	T-Mobile
147.00	147.00	3	RFS	T-Mobile
147.00	147.00	3	Commscope VV-65A-R1	T-Mobile
147.00	147.00	3	Ericsson 4480 B71 + B85	T-Mobile
147.00	147.00	3	Ericsson 4460 B25 + B66	T-Mobile
147.00	147.00	1	Platform w/hand rail (Site	T-Mobile

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	167.00	Inside	1 5/8" Coax	AT&T
0.00	167.00	Inside	1/2" Coax	AT&T
0.00	167.00	Inside	3" Conduit	AT&T
0.00	167.00	Inside	3/4" DC	AT&T
0.00	167.00	Inside	7/16" Fiber	AT&T
0.00	157.00	Inside	1 5/8" Coax	Verizon
0.00	157.00	Inside	1 5/8" Hybrid	Verizon
0.00	147.00	Inside	1.9" Fiber	T-Mobile

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial



## Structure: CT11709-S

**Type:** Tapered      **Base Shape:** 18 Sided      5/16/2022  
**Site Name:** Barkhamsted, CT      **Taper:** 0.17250  
**Height:** 170.00 (ft)  
**Base Elev:** 0.00 (ft)      Page: 3



### Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	72.0	50.0	Round

### Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	3454.3	27.2	54.9
0.9D + 1.6W 93 mph Wind	3406.8	27.2	41.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1141.9	8.8	91.9
1.2D + 1.0E	326.4	2.3	54.9
0.9D + 1.0E	321.6	2.3	41.2
1.0D + 1.0W 60 mph Wind	891.2	7.1	45.8

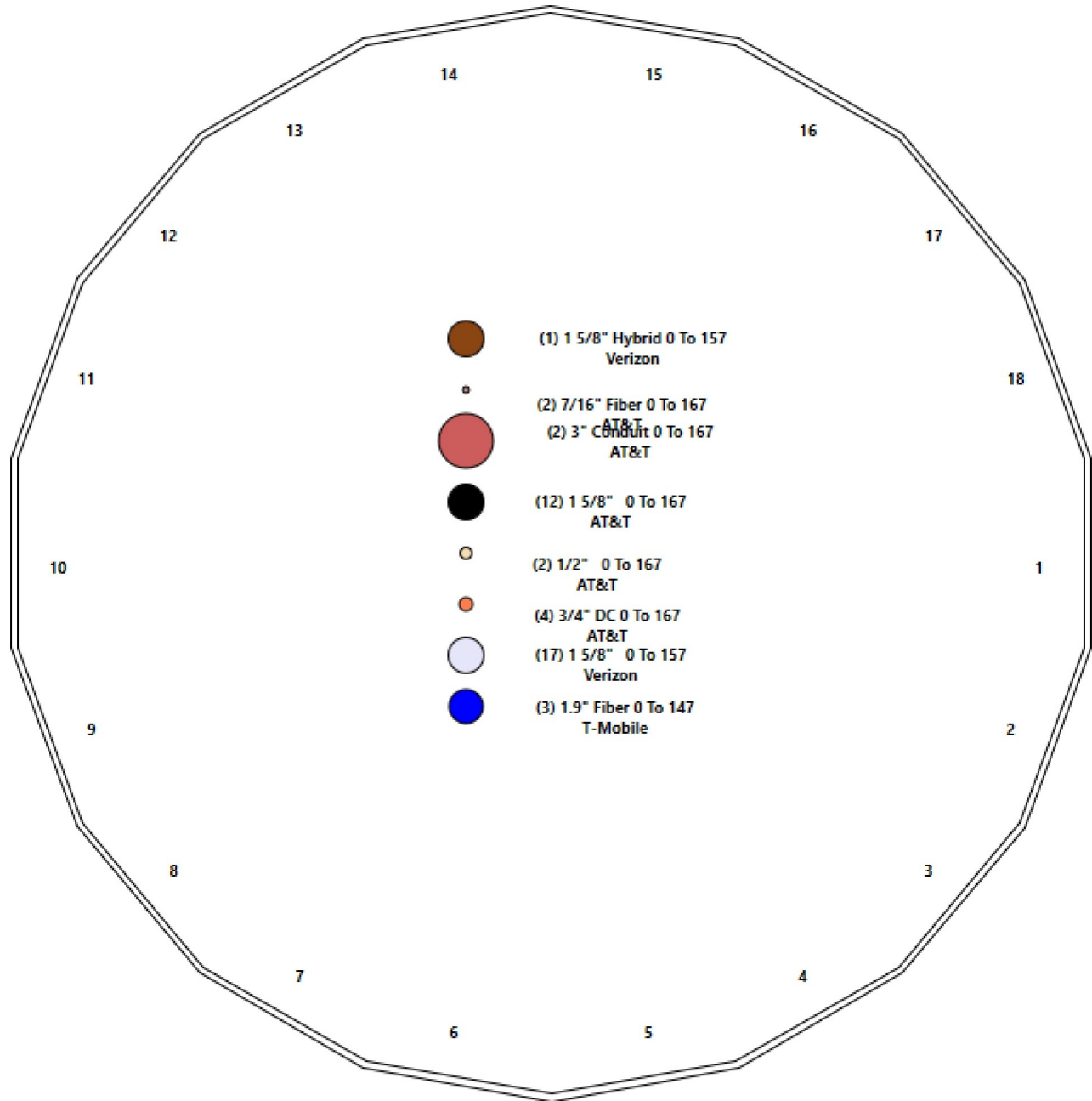
# Structure: CT11709-S - Coax Line Placement

**Type:** Monopole  
**Site Name:** Barkhamsted, CT  
**Height:** 170.00 (ft)

5/16/2022



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## Shaft Properties

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	10,932
2	18	50.000	0.3125	65	Slip	87.00	7,981
3	18	25.000	0.3125	65	Slip	75.00	3,589
4	18	14.000	0.2500	65	Flange	0.00	1,483
5	18	50.000	0.2500	65	Slip	66.00	4,746
<b>Total Shaft Weight:</b>							<b>28,731</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	58.67	0.00	69.38	29791.47	26.18	156.46	50.05	50.00	59.12	18428.2	22.12	133.4	0.172500
2	51.92	42.75	51.19	17225.58	27.89	166.15	43.30	92.75	42.63	9952.19	23.02	138.5	0.172500
3	45.00	86.50	44.32	11182.66	23.98	144.00	40.69	111.50	40.05	8247.53	21.55	130.2	0.172500
4	40.69	111.5	32.09	6628.71	27.29	162.75	38.27	125.50	30.17	5510.59	25.58	153.0	0.172500
5	39.72	120.0	31.32	6164.80	26.60	158.88	31.10	170.00	24.48	2942.26	20.52	124.3	0.172500

## Load Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	167.00	Andrew ABT-DFDM-ADBH Surge Arr	3	1.10	0.05	0.98	4.11	0.309	0.98	0.00	0.00
2	167.00	Raycap DC6-48-60-18-8F Surge A	2	31.80	0.92	1.00	115.12	1.510	1.00	0.00	0.00
3	167.00	RMQP-496-HK	1	2449.00	46.00	1.00	5905.13	89.278	1.00	0.00	0.00
4	167.00	CCI HPA-65R-BU6AA	2	46.90	9.30	0.79	372.89	11.360	0.79	0.00	0.00
5	167.00	Andrew SBNHH-1D65A	1	33.50	5.88	1.00	262.13	7.370	1.00	0.00	0.00
6	167.00	CCI DMP65R-BU6DA	2	79.40	12.71	0.73	486.76	14.747	0.73	0.00	0.00
7	167.00	CCI DMP65R-BU4DA	1	67.90	7.23	1.00	504.47	8.733	1.00	0.00	0.00
8	167.00	Powerwave 7770	3	35.00	5.50	0.73	231.83	6.968	0.73	0.00	0.00
9	167.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.64	0.67	135.13	2.310	0.67	0.00	0.00
10	167.00	Ericsson RRUS 4449 B5/B12	3	71.00	1.97	0.67	142.94	2.708	0.67	0.00	0.00
11	167.00	Powerwave P90-15-XLH-RR	3	53.00	8.16	0.75	275.44	11.937	0.75	0.00	0.00
12	167.00	Powerwave TT08-19DB111-001 TMA	6	22.00	0.92	0.90	57.87	1.916	0.90	0.00	0.00
13	157.00	Commscope NHH-65B-R2B	6	43.70	8.08	0.83	298.26	9.757	0.83	0.00	0.00
14	157.00	Samsung 64T64R	3	87.10	4.70	0.70	237.36	5.909	0.70	0.00	0.00
15	157.00	Samsung RfV01U-D1A	3	97.50	1.88	0.83	165.42	2.610	0.83	0.00	0.00
16	157.00	Samsung RfV01U-D2A	3	82.00	1.88	0.77	146.41	2.610	0.77	0.00	0.00
17	157.00	RFS DB-C1-12C-24AB-0Z	1	32.00	1.73	1.39	136.37	2.435	1.39	0.00	0.00
18	157.00	12' Low Profile Platform	1	1500.00	22.00	1.00	3253.19	45.656	1.00	0.00	0.00
19	157.00	Kicker Kit (VZWSMART-PLKS)	1	91.67	5.59	1.00	198.81	11.601	1.00	0.00	0.00
20	157.00	Antel BXA-70063-6CF-EDIN-5	3	17.00	7.57	0.77	242.56	9.205	0.77	0.00	0.00
21	157.00	Top rail kit	1	255.70	6.36	1.00	554.56	13.199	1.00	0.00	0.00
22	147.00	Ericsson AIR6419 B41	3	83.30	6.32	0.73	287.19	7.659	0.73	0.00	0.00
23	147.00	RFS APXVAALL24-43-U-NA20	3	122.80	20.24	0.72	722.80	22.722	0.72	0.00	0.00
24	147.00	Commscope VV-65A-R1	3	23.81	5.92	0.73	204.18	7.311	0.73	0.00	0.00
25	147.00	Ericsson 4480 B71 + B85	3	93.00	2.42	0.75	174.03	3.240	0.75	0.00	0.00
26	147.00	Ericsson 4460 B25 + B66	3	104.00	2.14	0.85	181.67	2.909	0.85	0.00	0.00
27	147.00	Platform w/hand rail (Site Pro1	1	2669.00	46.00	1.00	6387.86	88.730	1.00	0.00	0.00
<b>Totals:</b>			<b>68</b>	<b>10,637.00</b>			<b>30,742.10</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	167.00	(12) 1 5/8" Coax	0.00	Inside
0.00	167.00	(2) 1/2" Coax	0.00	Inside
0.00	167.00	(2) 3" Conduit	0.00	Inside
0.00	167.00	(4) 3/4" DC	0.00	Inside
0.00	167.00	(2) 7/16" Fiber	0.00	Inside
0.00	157.00	(17) 1 5/8" Coax	0.00	Inside
0.00	157.00	(1) 1 5/8" Hybrid	0.00	Inside
0.00	147.00	(3) 1.9" Fiber	0.00	Inside

## Shaft Section Properties

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	58.671	69.384	29791.5	26.18	156.46	70.6	1000.	0.0
5.00		0.3750	57.809	68.358	28488.6	25.77	154.16	71.1	970.6	1171.8
10.00		0.3750	56.946	67.331	27224.3	25.37	151.86	71.6	941.6	1154.3
15.00		0.3750	56.084	66.305	25998.0	24.96	149.56	72.0	913.0	1136.8
20.00		0.3750	55.221	65.278	24809.1	24.55	147.26	72.5	884.9	1119.4
25.00		0.3750	54.358	64.252	23657.0	24.15	144.96	73.0	857.2	1101.9
30.00		0.3750	53.496	63.225	22541.1	23.74	142.66	73.5	829.9	1084.4
35.00		0.3750	52.633	62.198	21460.8	23.34	140.36	74.0	803.1	1067.0
40.00		0.3750	51.771	61.172	20415.7	22.93	138.06	74.4	776.7	1049.5
42.75	Bot - Section 2	0.3750	51.297	60.607	19855.6	22.71	136.79	74.7	762.4	569.8
45.00		0.3750	50.908	60.145	19405.0	22.53	135.76	74.9	750.8	852.7
50.00	Top - Section 1	0.3125	50.671	49.948	16003.4	27.18	162.15	0.0	0.0	1871.7
55.00		0.3125	49.809	49.092	15195.1	26.69	159.39	70.0	600.9	842.5
60.00		0.3125	48.946	48.237	14414.5	26.21	156.63	70.6	580.0	828.0
65.00		0.3125	48.084	47.381	13661.2	25.72	153.87	71.1	559.6	813.4
70.00		0.3125	47.221	46.526	12934.5	25.23	151.11	71.7	539.5	798.9
75.00		0.3125	46.358	45.670	12234.0	24.75	148.35	72.3	519.8	784.3
80.00		0.3125	45.496	44.815	11559.4	24.26	145.59	72.9	500.4	769.8
85.00		0.3125	44.633	43.959	10910.0	23.77	142.83	73.4	481.4	755.2
86.50	Bot - Section 3	0.3125	44.375	43.703	10720.0	23.63	142.00	73.6	475.8	223.7
90.00		0.3125	43.771	43.104	10285.3	23.29	140.07	74.0	462.8	1041.2
92.75	Top - Section 2	0.3125	43.922	43.253	10392.7	23.37	140.55	0.0	0.0	808.1
95.00		0.3125	43.533	42.868	10117.6	23.15	139.31	74.2	457.8	329.7
100.00		0.3125	42.671	42.013	9523.9	22.67	136.55	74.7	439.6	722.1
105.00		0.3125	41.809	41.157	8953.9	22.18	133.79	75.3	421.8	707.5
110.00		0.3125	40.946	40.302	8407.1	21.69	131.03	75.9	404.4	693.0
111.50	Top - Section 3	0.3125	40.687	40.045	8247.5	21.55	130.20	76.1	399.3	205.1
111.50	Bot - Section 4	0.2500	40.687	32.086	6628.7	26.93	162.75	69.3	320.9	
115.00		0.2500	40.084	31.607	6336.2	26.86	160.33	69.8	311.3	379.3
120.00	Bot - Section 5	0.2500	39.221	30.922	5933.5	26.25	156.88	70.5	298.0	531.9
125.00		0.2500	38.358	30.238	5548.2	25.64	153.43	71.2	284.9	1047.3
125.50	Top - Section 4	0.2500	38.772	30.566	5730.9	25.94	155.09	0.0	0.0	103.5
130.00		0.2500	37.996	29.950	5391.3	25.39	151.98	71.5	279.5	463.3
135.00		0.2500	37.133	29.266	5030.1	24.78	148.53	72.3	266.8	503.8
140.00		0.2500	36.271	28.582	4685.5	24.17	145.08	73.0	254.4	492.1
145.00		0.2500	35.408	27.897	4356.9	23.56	141.63	73.7	242.4	480.5
147.00		0.2500	35.063	27.624	4229.9	23.32	140.25	74.0	237.6	188.9
150.00		0.2500	34.546	27.213	4044.0	22.95	138.18	74.4	230.6	279.9
155.00		0.2500	33.683	26.529	3746.5	22.35	134.73	75.1	219.1	457.2
157.00		0.2500	33.338	26.255	3631.7	22.10	133.35	75.4	214.6	179.6
160.00		0.2500	32.821	25.844	3464.0	21.74	131.28	75.8	207.9	265.9
165.00		0.2500	31.958	25.160	3196.0	21.13	127.83	76.5	197.0	433.9
167.00		0.2500	31.613	24.886	3092.8	20.89	126.45	76.8	192.7	170.3
170.00		0.2500	31.096	24.475	2942.3	20.52	124.38	77.3	186.4	251.9

**28730.9**

## Wind Loading - Shaft

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 8

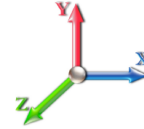


**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	386.30	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	380.62	0.650	0.000	5.00	24.641	16.02	415.1	0.0	1406.1
10.00		1.00	0.70	14.724	16.20	374.94	0.650	0.000	5.00	24.276	15.78	408.9	0.0	1385.2
15.00		1.00	0.70	14.724	16.20	369.26	0.650	0.000	5.00	23.911	15.54	402.8	0.0	1364.2
20.00		1.00	0.70	14.724	16.20	363.58	0.650	0.000	5.00	23.546	15.31	396.6	0.0	1343.2
25.00		1.00	0.70	14.724	16.20	357.90	0.650	0.000	5.00	23.181	15.07	390.5	0.0	1322.3
30.00		1.00	0.70	14.736	16.21	352.37	0.650	0.000	5.00	22.816	14.83	384.6	0.0	1301.3
35.00		1.00	0.73	15.400	16.94	354.41	0.650	0.000	5.00	22.451	14.59	395.5	0.0	1280.4
40.00		1.00	0.76	15.999	17.60	355.32	0.650	0.000	5.00	22.086	14.36	404.2	0.0	1259.4
42.75	Bot - Section 2	1.00	0.78	16.306	17.94	355.42	0.650	0.000	2.75	11.992	7.79	223.7	0.0	683.7
45.00		1.00	0.79	16.546	18.20	355.33	0.650	0.000	2.25	9.849	6.40	186.4	0.0	1023.2
50.00	Top - Section 1	1.00	0.81	17.052	18.76	354.60	0.650	0.000	5.00	21.621	14.05	421.8	0.0	2246.0
55.00		1.00	0.83	17.523	19.28	357.76	0.650	0.000	5.00	21.256	13.82	426.1	0.0	1011.0
60.00		1.00	0.85	17.964	19.76	355.96	0.650	0.000	5.00	20.891	13.58	429.3	0.0	993.6
65.00		1.00	0.87	18.380	20.22	353.71	0.650	0.000	5.00	20.526	13.34	431.6	0.0	976.1
70.00		1.00	0.89	18.773	20.65	351.06	0.650	0.000	5.00	20.161	13.10	433.0	0.0	958.6
75.00		1.00	0.91	19.147	21.06	348.07	0.650	0.000	5.00	19.796	12.87	433.6	0.0	941.2
80.00		1.00	0.93	19.503	21.45	344.75	0.650	0.000	5.00	19.432	12.63	433.5	0.0	923.7
85.00		1.00	0.94	19.844	21.83	341.16	0.650	0.000	5.00	19.067	12.39	432.8	0.0	906.2
86.50	Bot - Section 3	1.00	0.95	19.943	21.94	340.03	0.650	0.000	1.50	5.649	3.67	128.9	0.0	268.5
90.00		1.00	0.96	20.170	22.19	337.31	0.650	0.000	3.50	13.238	8.60	305.5	0.0	1249.5
92.75	Top - Section 2	1.00	0.97	20.345	22.38	335.09	0.650	0.000	2.75	10.276	6.68	239.2	0.0	969.7
95.00		1.00	0.97	20.484	22.53	338.08	0.650	0.000	2.25	8.325	5.41	195.1	0.0	395.6
100.00		1.00	0.99	20.787	22.87	333.82	0.650	0.000	5.00	18.236	11.85	433.7	0.0	866.5
105.00		1.00	1.00	21.079	23.19	329.36	0.650	0.000	5.00	17.871	11.62	430.9	0.0	849.0
110.00		1.00	1.02	21.361	23.50	324.72	0.650	0.000	5.00	17.506	11.38	427.8	0.0	831.6
111.50	Top - Section 3	1.00	1.02	21.443	23.59	323.29	0.650	0.000	1.50	5.181	3.37	127.1	0.0	246.1
115.00		1.00	1.03	21.634	23.80	319.90	0.650	0.000	3.50	11.961	7.77	296.0	0.0	455.1
120.00	Bot - Section 5	1.00	1.04	21.898	24.09	314.93	0.650	0.000	5.00	16.777	10.90	420.3	0.0	638.3
125.00		1.00	1.05	22.155	24.37	309.80	0.650	0.000	5.00	16.623	10.81	421.3	0.0	1256.8
125.50	Top - Section 4	1.00	1.05	22.181	24.40	309.28	0.650	0.000	0.50	1.642	1.07	41.7	0.0	124.1
130.00		1.00	1.07	22.405	24.65	308.60	0.650	0.000	4.50	14.616	9.50	374.6	0.0	556.0
135.00		1.00	1.08	22.648	24.91	303.22	0.650	0.000	5.00	15.893	10.33	411.8	0.0	604.5
140.00		1.00	1.09	22.884	25.17	297.72	0.650	0.000	5.00	15.529	10.09	406.5	0.0	590.5
145.00		1.00	1.10	23.115	25.43	292.11	0.650	0.000	5.00	15.164	9.86	401.0	0.0	576.6
147.00	Appurtenance(s)	1.00	1.10	23.206	25.53	289.83	0.650	0.000	2.00	5.963	3.88	158.3	0.0	226.7
150.00		1.00	1.11	23.340	25.67	286.37	0.650	0.000	3.00	8.835	5.74	235.9	0.0	335.9
155.00		1.00	1.12	23.560	25.92	280.53	0.650	0.000	5.00	14.434	9.38	389.0	0.0	548.6
157.00	Appurtenance(s)	1.00	1.12	23.646	26.01	278.17	0.650	0.000	2.00	5.671	3.69	153.4	0.0	215.5
160.00		1.00	1.13	23.774	26.15	274.59	0.650	0.000	3.00	8.398	5.46	228.4	0.0	319.1
165.00		1.00	1.14	23.984	26.38	268.56	0.650	0.000	5.00	13.704	8.91	376.0	0.0	520.7
167.00	Appurtenance(s)	1.00	1.14	24.067	26.47	266.11	0.650	0.000	2.00	5.379	3.50	148.1	0.0	204.4
170.00		1.00	1.15	24.190	26.61	262.43	0.650	0.000	3.00	7.960	5.17	220.3	0.0	302.3
<b>Totals:</b>									<b>170.00</b>			<b>14,020.9</b>		<b>34,477.0</b>

## Discrete Appurtenance Forces

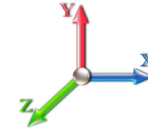
<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	CCI DMP65R-BU6DA	2	24.067	26.474	0.55	0.75	13.92	190.56	0.000	0.000	589.51	0.00	0.00
2	167.00	Andrew ABT-DFDM-ADBH	3	24.067	26.474	0.73	0.75	0.11	3.96	0.000	0.000	4.67	0.00	0.00
3	167.00	Raycap DC6-48-60-18-8F	2	24.067	26.474	0.75	0.75	1.38	76.32	0.000	0.000	58.45	0.00	0.00
4	167.00	RMQP-496-HK	1	24.067	26.474	1.00	1.00	46.00	2938.80	0.000	0.000	1948.46	0.00	0.00
5	167.00	CCI HPA-65R-BU6AA	2	24.067	26.474	0.59	0.75	11.02	112.56	0.000	0.000	466.80	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	24.067	26.474	0.75	0.75	4.41	40.20	0.000	0.000	186.80	0.00	0.00
7	167.00	Powerwave	6	24.067	26.474	0.68	0.75	3.73	158.40	0.000	0.000	157.83	0.00	0.00
8	167.00	CCI DMP65R-BU4DA	1	24.067	26.474	0.75	0.75	5.42	81.48	0.000	0.000	229.69	0.00	0.00
9	167.00	Powerwave 7770	3	24.067	26.474	0.55	0.75	9.03	126.00	0.000	0.000	382.65	0.00	0.00
10	167.00	Ericsson RRUS 8843 B2	3	24.067	26.474	0.50	0.75	2.47	259.20	0.000	0.000	104.72	0.00	0.00
11	167.00	Ericsson RRUS 4449	3	24.067	26.474	0.50	0.75	2.97	255.60	0.000	0.000	125.79	0.00	0.00
12	167.00	Powerwave	3	24.067	26.474	0.56	0.75	13.77	190.80	0.000	0.000	583.27	0.00	0.00
13	157.00	Top rail kit	1	23.646	26.011	1.00	1.00	6.36	306.84	0.000	0.000	264.68	0.00	0.00
14	157.00	Antel	3	23.646	26.011	0.58	0.75	13.12	61.20	0.000	0.000	545.81	0.00	0.00
15	157.00	Samsung RFV01U-D1A	3	23.646	26.011	0.62	0.75	3.51	351.00	0.000	0.000	146.11	0.00	0.00
16	157.00	Commscope	6	23.646	26.011	0.62	0.75	30.18	314.64	0.000	0.000	1255.95	0.00	0.00
17	157.00	Samsung 64T64R	3	23.646	26.011	0.52	0.75	7.40	313.56	0.000	0.000	308.07	0.00	0.00
18	157.00	Kicker Kit	1	23.646	26.011	1.00	1.00	5.59	110.00	0.000	0.000	232.64	0.00	0.00
19	157.00	Samsung RFV01U-D2A	3	23.646	26.011	0.58	0.75	3.26	295.20	0.000	0.000	135.55	0.00	0.00
20	157.00	RFS DB-C1-12C-24AB-OZ	1	23.646	26.011	1.04	0.75	1.80	38.40	0.000	0.000	75.06	0.00	0.00
21	157.00	12' Low Profile Platform	1	23.646	26.011	1.00	1.00	22.00	1800.00	0.000	0.000	915.58	0.00	0.00
22	147.00	Platform w/hand rail (Site	1	23.206	25.526	1.00	1.00	46.00	3202.80	0.000	0.000	1878.73	0.00	0.00
23	147.00	Ericsson 4460 B25 + B66	3	23.206	25.526	0.64	0.75	4.09	374.40	0.000	0.000	167.16	0.00	0.00
24	147.00	Ericsson 4480 B71 + B85	3	23.206	25.526	0.56	0.75	4.08	334.80	0.000	0.000	166.79	0.00	0.00
25	147.00	Commscope VV-65A-R1	3	23.206	25.526	0.55	0.75	9.72	85.72	0.000	0.000	397.13	0.00	0.00
26	147.00	RFS	3	23.206	25.526	0.54	0.75	32.79	442.08	0.000	0.000	1339.16	0.00	0.00
27	147.00	Ericsson AIR6419 B41	3	23.206	25.526	0.55	0.75	10.38	299.88	0.000	0.000	423.96	0.00	0.00
<b>Totals:</b>								<b>12,764.40</b>				<b>13,091.02</b>		



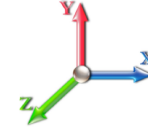
## Total Applied Force Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 10



**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		415.06	1645.16	0.00	0.00
10.00		408.91	1624.20	0.00	0.00
15.00		402.77	1603.24	0.00	0.00
20.00		396.62	1582.28	0.00	0.00
25.00		390.47	1561.32	0.00	0.00
30.00		384.65	1540.36	0.00	0.00
35.00		395.54	1519.40	0.00	0.00
40.00		404.24	1498.45	0.00	0.00
42.75		223.70	815.21	0.00	0.00
45.00		186.42	1130.80	0.00	0.00
50.00		421.78	2485.02	0.00	0.00
55.00		426.11	1250.07	0.00	0.00
60.00		429.33	1232.60	0.00	0.00
65.00		431.59	1215.14	0.00	0.00
70.00		432.99	1197.67	0.00	0.00
75.00		433.62	1180.21	0.00	0.00
80.00		433.54	1162.74	0.00	0.00
85.00		432.83	1145.28	0.00	0.00
86.50		128.88	340.18	0.00	0.00
90.00		305.47	1416.80	0.00	0.00
92.75		239.16	1101.19	0.00	0.00
95.00		195.10	503.19	0.00	0.00
100.00		433.66	1105.53	0.00	0.00
105.00		430.95	1088.07	0.00	0.00
110.00		427.80	1070.60	0.00	0.00
111.50		127.09	317.78	0.00	0.00
115.00		296.02	622.46	0.00	0.00
120.00		420.28	877.36	0.00	0.00
125.00		421.33	1495.83	0.00	0.00
125.50		41.67	148.05	0.00	0.00
130.00		374.63	771.13	0.00	0.00
135.00		411.78	843.54	0.00	0.00
140.00		406.53	829.57	0.00	0.00
145.00		400.98	815.60	0.00	0.00
147.00	(16) attachments	4531.23	5062.00	0.00	0.00
150.00		235.91	468.07	0.00	0.00
155.00		389.02	768.93	0.00	0.00
157.00	(22) attachments	4032.87	3894.50	0.00	0.00
160.00		228.39	383.69	0.00	0.00
165.00		376.01	628.31	0.00	0.00
167.00	(30) attachments	4986.75	4681.29	0.00	0.00
170.00		220.27	302.34	0.00	0.00
	<b>Totals:</b>	<b>27,111.96</b>	<b>54,925.14</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 11



**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-54.89	-27.19	0.00	-3454.3	0.00	3454.34	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.665
5.00	-53.17	-26.92	0.00	-3318.3	0.00	3318.39	4373.55	2186.77	10335.0	5175.19	0.09	-0.162	0.000	0.654
10.00	-51.47	-26.65	0.00	-3183.7	0.00	3183.77	4336.78	2168.39	10093.2	5054.11	0.34	-0.324	0.000	0.642
15.00	-49.79	-26.38	0.00	-3050.5	0.00	3050.51	4299.12	2149.56	9852.03	4933.34	0.77	-0.487	0.000	0.630
20.00	-48.14	-26.11	0.00	-2918.6	0.00	2918.60	4260.58	2130.29	9611.54	4812.91	1.37	-0.650	0.000	0.618
25.00	-46.51	-25.83	0.00	-2788.0	0.00	2788.07	4221.16	2110.58	9371.84	4692.89	2.14	-0.814	0.000	0.605
30.00	-44.90	-25.55	0.00	-2658.9	0.00	2658.93	4180.86	2090.43	9133.04	4573.31	3.08	-0.978	0.000	0.592
35.00	-43.32	-25.25	0.00	-2531.1	0.00	2531.18	4139.68	2069.84	8895.22	4454.22	4.19	-1.141	0.000	0.579
40.00	-41.77	-24.91	0.00	-2404.9	0.00	2404.94	4097.62	2048.81	8658.48	4335.68	5.47	-1.305	0.000	0.565
42.75	-40.93	-24.72	0.00	-2336.4	0.00	2336.45	4074.11	2037.05	8528.77	4270.73	6.25	-1.396	0.000	0.557
45.00	-39.75	-24.59	0.00	-2280.8	0.00	2280.83	4054.67	2027.34	8422.92	4217.72	6.93	-1.470	0.000	0.551
50.00	-37.21	-24.21	0.00	-2157.8	0.00	2157.88	3121.16	1560.58	6469.05	3239.33	8.55	-1.633	0.000	0.678
55.00	-35.90	-23.85	0.00	-2036.8	0.00	2036.85	3092.99	1546.50	6300.19	3154.78	10.35	-1.795	0.000	0.657
60.00	-34.61	-23.49	0.00	-1917.5	0.00	1917.59	3063.94	1531.97	6131.59	3070.35	12.33	-1.980	0.000	0.636
65.00	-33.34	-23.12	0.00	-1800.1	0.00	1800.13	3034.01	1517.01	5963.32	2986.09	14.50	-2.163	0.000	0.614
70.00	-32.09	-22.75	0.00	-1684.5	0.00	1684.50	3003.20	1501.60	5795.50	2902.06	16.86	-2.345	0.000	0.591
75.00	-30.86	-22.36	0.00	-1570.7	0.00	1570.77	2971.51	1485.76	5628.21	2818.29	19.42	-2.524	0.000	0.568
80.00	-29.65	-21.96	0.00	-1458.9	0.00	1458.98	2938.94	1469.47	5461.54	2734.83	22.15	-2.700	0.000	0.544
85.00	-28.48	-21.53	0.00	-1349.1	0.00	1349.17	2905.48	1452.74	5295.59	2651.73	25.07	-2.873	0.000	0.519
86.50	-28.12	-21.43	0.00	-1316.8	0.00	1316.88	2895.27	1447.64	5245.96	2626.88	25.98	-2.925	0.000	0.511
90.00	-26.68	-21.10	0.00	-1241.8	0.00	1241.89	2871.14	1435.57	5130.46	2569.04	28.17	-3.044	0.000	0.493
92.75	-25.56	-20.84	0.00	-1183.8	0.00	1183.87	2877.20	1438.60	5159.24	2583.45	29.95	-3.136	0.000	0.467
95.00	-25.03	-20.66	0.00	-1136.9	0.00	1136.99	2861.53	1430.77	5085.14	2546.35	31.45	-3.211	0.000	0.455
100.00	-23.90	-20.23	0.00	-1033.6	0.00	1033.68	2826.07	1413.04	4921.19	2464.25	34.89	-3.363	0.000	0.428
105.00	-22.79	-19.79	0.00	-932.54	0.00	932.54	2789.73	1394.87	4758.26	2382.67	38.49	-3.510	0.000	0.400
110.00	-21.72	-19.33	0.00	-833.58	0.00	833.58	2752.51	1376.25	4596.46	2301.65	42.24	-3.650	0.000	0.370
111.50	-21.38	-19.21	0.00	-804.59	0.00	804.59	2741.17	1370.58	4548.16	2277.46	43.39	-3.692	0.000	0.361
111.50	-21.38	-19.21	0.00	-804.59	0.00	804.59	2001.40	1000.70	3331.01	1667.98	43.39	-3.692	0.000	0.493
115.00	-20.74	-18.92	0.00	-737.35	0.00	737.35	1985.76	992.88	3255.34	1630.09	46.13	-3.785	0.000	0.463
120.00	-19.85	-18.49	0.00	-642.76	0.00	642.76	1962.68	981.34	3147.40	1576.04	50.18	-3.940	0.000	0.418
125.00	-18.36	-17.99	0.00	-550.30	0.00	550.30	1938.71	969.36	3039.72	1522.12	54.38	-4.083	0.000	0.371
125.50	-18.19	-17.96	0.00	-541.31	0.00	541.31	1950.32	975.16	3091.33	1547.96	54.81	-4.097	0.000	0.359
130.00	-17.42	-17.57	0.00	-460.49	0.00	460.49	1928.38	964.19	2994.57	1499.51	58.73	-4.213	0.000	0.316
135.00	-16.58	-17.12	0.00	-372.66	0.00	372.66	1903.16	951.58	2887.43	1445.86	63.20	-4.323	0.000	0.267
140.00	-15.76	-16.68	0.00	-287.05	0.00	287.05	1877.06	938.53	2780.79	1392.46	67.77	-4.416	0.000	0.215
145.00	-14.96	-16.23	0.00	-203.67	0.00	203.67	1850.08	925.04	2674.74	1339.36	72.44	-4.491	0.000	0.160
147.00	-10.26	-11.32	0.00	-171.22	0.00	171.22	1839.04	919.52	2632.50	1318.21	74.32	-4.515	0.000	0.136
150.00	-9.81	-11.05	0.00	-137.27	0.00	137.27	1822.21	911.11	2569.37	1286.60	77.17	-4.547	0.000	0.112
155.00	-9.07	-10.60	0.00	-82.03	0.00	82.03	1793.47	896.74	2464.78	1234.22	81.95	-4.585	0.000	0.072
157.00	-5.51	-6.27	0.00	-60.82	0.00	60.82	1781.73	890.86	2423.19	1213.40	83.87	-4.596	0.000	0.053
160.00	-5.14	-6.02	0.00	-42.00	0.00	42.00	1763.85	881.92	2361.07	1182.29	86.76	-4.608	0.000	0.038
165.00	-4.55	-5.59	0.00	-11.91	0.00	11.91	1733.34	866.67	2258.33	1130.84	91.59	-4.619	0.000	0.013
167.00	-0.28	-0.24	0.00	-0.73	0.00	0.73	1720.89	860.44	2217.52	1110.41	93.52	-4.620	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	96.42	-4.620	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 12

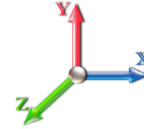


**Load Case:** 0.9D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	386.30	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	380.62	0.650	0.000	5.00	24.641	16.02	415.1	0.0	1054.6
10.00		1.00	0.70	14.724	16.20	374.94	0.650	0.000	5.00	24.276	15.78	408.9	0.0	1038.9
15.00		1.00	0.70	14.724	16.20	369.26	0.650	0.000	5.00	23.911	15.54	402.8	0.0	1023.1
20.00		1.00	0.70	14.724	16.20	363.58	0.650	0.000	5.00	23.546	15.31	396.6	0.0	1007.4
25.00		1.00	0.70	14.724	16.20	357.90	0.650	0.000	5.00	23.181	15.07	390.5	0.0	991.7
30.00		1.00	0.70	14.736	16.21	352.37	0.650	0.000	5.00	22.816	14.83	384.6	0.0	976.0
35.00		1.00	0.73	15.400	16.94	354.41	0.650	0.000	5.00	22.451	14.59	395.5	0.0	960.3
40.00		1.00	0.76	15.999	17.60	355.32	0.650	0.000	5.00	22.086	14.36	404.2	0.0	944.6
42.75	Bot - Section 2	1.00	0.78	16.306	17.94	355.42	0.650	0.000	2.75	11.992	7.79	223.7	0.0	512.8
45.00		1.00	0.79	16.546	18.20	355.33	0.650	0.000	2.25	9.849	6.40	186.4	0.0	767.4
50.00	Top - Section 1	1.00	0.81	17.052	18.76	354.60	0.650	0.000	5.00	21.621	14.05	421.8	0.0	1684.5
55.00		1.00	0.83	17.523	19.28	357.76	0.650	0.000	5.00	21.256	13.82	426.1	0.0	758.3
60.00		1.00	0.85	17.964	19.76	355.96	0.650	0.000	5.00	20.891	13.58	429.3	0.0	745.2
65.00		1.00	0.87	18.380	20.22	353.71	0.650	0.000	5.00	20.526	13.34	431.6	0.0	732.1
70.00		1.00	0.89	18.773	20.65	351.06	0.650	0.000	5.00	20.161	13.10	433.0	0.0	719.0
75.00		1.00	0.91	19.147	21.06	348.07	0.650	0.000	5.00	19.796	12.87	433.6	0.0	705.9
80.00		1.00	0.93	19.503	21.45	344.75	0.650	0.000	5.00	19.432	12.63	433.5	0.0	692.8
85.00		1.00	0.94	19.844	21.83	341.16	0.650	0.000	5.00	19.067	12.39	432.8	0.0	679.7
86.50	Bot - Section 3	1.00	0.95	19.943	21.94	340.03	0.650	0.000	1.50	5.649	3.67	128.9	0.0	201.3
90.00		1.00	0.96	20.170	22.19	337.31	0.650	0.000	3.50	13.238	8.60	305.5	0.0	937.1
92.75	Top - Section 2	1.00	0.97	20.345	22.38	335.09	0.650	0.000	2.75	10.276	6.68	239.2	0.0	727.3
95.00		1.00	0.97	20.484	22.53	338.08	0.650	0.000	2.25	8.325	5.41	195.1	0.0	296.7
100.00		1.00	0.99	20.787	22.87	333.82	0.650	0.000	5.00	18.236	11.85	433.7	0.0	649.9
105.00		1.00	1.00	21.079	23.19	329.36	0.650	0.000	5.00	17.871	11.62	430.9	0.0	636.8
110.00		1.00	1.02	21.361	23.50	324.72	0.650	0.000	5.00	17.506	11.38	427.8	0.0	623.7
111.50	Top - Section 3	1.00	1.02	21.443	23.59	323.29	0.650	0.000	1.50	5.181	3.37	127.1	0.0	184.5
115.00		1.00	1.03	21.634	23.80	319.90	0.650	0.000	3.50	11.961	7.77	296.0	0.0	341.4
120.00	Bot - Section 5	1.00	1.04	21.898	24.09	314.93	0.650	0.000	5.00	16.777	10.90	420.3	0.0	478.7
125.00		1.00	1.05	22.155	24.37	309.80	0.650	0.000	5.00	16.623	10.81	421.3	0.0	942.6
125.50	Top - Section 4	1.00	1.05	22.181	24.40	309.28	0.650	0.000	0.50	1.642	1.07	41.7	0.0	93.1
130.00		1.00	1.07	22.405	24.65	308.60	0.650	0.000	4.50	14.616	9.50	374.6	0.0	417.0
135.00		1.00	1.08	22.648	24.91	303.22	0.650	0.000	5.00	15.893	10.33	411.8	0.0	453.4
140.00		1.00	1.09	22.884	25.17	297.72	0.650	0.000	5.00	15.529	10.09	406.5	0.0	442.9
145.00		1.00	1.10	23.115	25.43	292.11	0.650	0.000	5.00	15.164	9.86	401.0	0.0	432.4
147.00	Appurtenance(s)	1.00	1.10	23.206	25.53	289.83	0.650	0.000	2.00	5.963	3.88	158.3	0.0	170.0
150.00		1.00	1.11	23.340	25.67	286.37	0.650	0.000	3.00	8.835	5.74	235.9	0.0	251.9
155.00		1.00	1.12	23.560	25.92	280.53	0.650	0.000	5.00	14.434	9.38	389.0	0.0	411.5
157.00	Appurtenance(s)	1.00	1.12	23.646	26.01	278.17	0.650	0.000	2.00	5.671	3.69	153.4	0.0	161.6
160.00		1.00	1.13	23.774	26.15	274.59	0.650	0.000	3.00	8.398	5.46	228.4	0.0	239.3
165.00		1.00	1.14	23.984	26.38	268.56	0.650	0.000	5.00	13.704	8.91	376.0	0.0	390.5
167.00	Appurtenance(s)	1.00	1.14	24.067	26.47	266.11	0.650	0.000	2.00	5.379	3.50	148.1	0.0	153.3
170.00		1.00	1.15	24.190	26.61	262.43	0.650	0.000	3.00	7.960	5.17	220.3	0.0	226.8
<b>Totals:</b>									<b>170.00</b>			<b>14,020.9</b>		<b>25,857.8</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	167.00	CCI DMP65R-BU6DA	2	24.067	26.474	0.55	0.75	13.92	142.92	0.000	0.000	589.51	0.00	0.00	
2	167.00	Andrew ABT-DFDM-ADBH	3	24.067	26.474	0.73	0.75	0.11	2.97	0.000	0.000	4.67	0.00	0.00	
3	167.00	Raycap DC6-48-60-18-8F	2	24.067	26.474	0.75	0.75	1.38	57.24	0.000	0.000	58.45	0.00	0.00	
4	167.00	RMQP-496-HK	1	24.067	26.474	1.00	1.00	46.00	2204.10	0.000	0.000	1948.46	0.00	0.00	
5	167.00	CCI HPA-65R-BU6AA	2	24.067	26.474	0.59	0.75	11.02	84.42	0.000	0.000	466.80	0.00	0.00	
6	167.00	Andrew SBNHH-1D65A	1	24.067	26.474	0.75	0.75	4.41	30.15	0.000	0.000	186.80	0.00	0.00	
7	167.00	Powerwave	6	24.067	26.474	0.68	0.75	3.73	118.80	0.000	0.000	157.83	0.00	0.00	
8	167.00	CCI DMP65R-BU4DA	1	24.067	26.474	0.75	0.75	5.42	61.11	0.000	0.000	229.69	0.00	0.00	
9	167.00	Powerwave 7770	3	24.067	26.474	0.55	0.75	9.03	94.50	0.000	0.000	382.65	0.00	0.00	
10	167.00	Ericsson RRUS 8843 B2	3	24.067	26.474	0.50	0.75	2.47	194.40	0.000	0.000	104.72	0.00	0.00	
11	167.00	Ericsson RRUS 4449	3	24.067	26.474	0.50	0.75	2.97	191.70	0.000	0.000	125.79	0.00	0.00	
12	167.00	Powerwave	3	24.067	26.474	0.56	0.75	13.77	143.10	0.000	0.000	583.27	0.00	0.00	
13	157.00	Top rail kit	1	23.646	26.011	1.00	1.00	6.36	230.13	0.000	0.000	264.68	0.00	0.00	
14	157.00	Antel	3	23.646	26.011	0.58	0.75	13.12	45.90	0.000	0.000	545.81	0.00	0.00	
15	157.00	Samsung RFV01U-D1A	3	23.646	26.011	0.62	0.75	3.51	263.25	0.000	0.000	146.11	0.00	0.00	
16	157.00	Commscope	6	23.646	26.011	0.62	0.75	30.18	235.98	0.000	0.000	1255.95	0.00	0.00	
17	157.00	Samsung 64T64R	3	23.646	26.011	0.52	0.75	7.40	235.17	0.000	0.000	308.07	0.00	0.00	
18	157.00	Kicker Kit	1	23.646	26.011	1.00	1.00	5.59	82.50	0.000	0.000	232.64	0.00	0.00	
19	157.00	Samsung RFV01U-D2A	3	23.646	26.011	0.58	0.75	3.26	221.40	0.000	0.000	135.55	0.00	0.00	
20	157.00	RFS DB-C1-12C-24AB-OZ	1	23.646	26.011	1.04	0.75	1.80	28.80	0.000	0.000	75.06	0.00	0.00	
21	157.00	12' Low Profile Platform	1	23.646	26.011	1.00	1.00	22.00	1350.00	0.000	0.000	915.58	0.00	0.00	
22	147.00	Platform w/hand rail (Site	1	23.206	25.526	1.00	1.00	46.00	2402.10	0.000	0.000	1878.73	0.00	0.00	
23	147.00	Ericsson 4460 B25 + B66	3	23.206	25.526	0.64	0.75	4.09	280.80	0.000	0.000	167.16	0.00	0.00	
24	147.00	Ericsson 4480 B71 + B85	3	23.206	25.526	0.56	0.75	4.08	251.10	0.000	0.000	166.79	0.00	0.00	
25	147.00	Commscope VV-65A-R1	3	23.206	25.526	0.55	0.75	9.72	64.29	0.000	0.000	397.13	0.00	0.00	
26	147.00	RFS	3	23.206	25.526	0.54	0.75	32.79	331.56	0.000	0.000	1339.16	0.00	0.00	
27	147.00	Ericsson AIR6419 B41	3	23.206	25.526	0.55	0.75	10.38	224.91	0.000	0.000	423.96	0.00	0.00	
<b>Totals:</b>									<b>9,573.30</b>						<b>13,091.02</b>

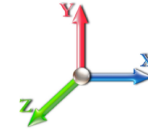
## Total Applied Force Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 14



**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		415.06	1233.87	0.00	0.00
10.00		408.91	1218.15	0.00	0.00
15.00		402.77	1202.43	0.00	0.00
20.00		396.62	1186.71	0.00	0.00
25.00		390.47	1170.99	0.00	0.00
30.00		384.65	1155.27	0.00	0.00
35.00		395.54	1139.55	0.00	0.00
40.00		404.24	1123.83	0.00	0.00
42.75		223.70	611.41	0.00	0.00
45.00		186.42	848.10	0.00	0.00
50.00		421.78	1863.77	0.00	0.00
55.00		426.11	937.55	0.00	0.00
60.00		429.33	924.45	0.00	0.00
65.00		431.59	911.35	0.00	0.00
70.00		432.99	898.25	0.00	0.00
75.00		433.62	885.16	0.00	0.00
80.00		433.54	872.06	0.00	0.00
85.00		432.83	858.96	0.00	0.00
86.50		128.88	255.13	0.00	0.00
90.00		305.47	1062.60	0.00	0.00
92.75		239.16	825.89	0.00	0.00
95.00		195.10	377.39	0.00	0.00
100.00		433.66	829.15	0.00	0.00
105.00		430.95	816.05	0.00	0.00
110.00		427.80	802.95	0.00	0.00
111.50		127.09	238.33	0.00	0.00
115.00		296.02	466.85	0.00	0.00
120.00		420.28	658.02	0.00	0.00
125.00		421.33	1121.87	0.00	0.00
125.50		41.67	111.03	0.00	0.00
130.00		374.63	578.35	0.00	0.00
135.00		411.78	632.66	0.00	0.00
140.00		406.53	622.18	0.00	0.00
145.00		400.98	611.70	0.00	0.00
147.00	(16) attachments	4531.23	3796.50	0.00	0.00
150.00		235.91	351.05	0.00	0.00
155.00		389.02	576.70	0.00	0.00
157.00	(22) attachments	4032.87	2920.88	0.00	0.00
160.00		228.39	287.77	0.00	0.00
165.00		376.01	471.23	0.00	0.00
167.00	(30) attachments	4986.75	3510.97	0.00	0.00
170.00		220.27	226.75	0.00	0.00
	<b>Totals:</b>	<b>27,111.96</b>	<b>41,193.86</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 15



**Load Case:** 0.9D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.16	-27.17	0.00	-3406.7	0.00	3406.79	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.653
5.00	-39.85	-26.86	0.00	-3270.9	0.00	3270.94	4373.55	2186.77	10335.0	5175.19	0.09	-0.159	0.000	0.641
10.00	-38.56	-26.56	0.00	-3136.6	0.00	3136.62	4336.78	2168.39	10093.2	5054.11	0.34	-0.319	0.000	0.630
15.00	-37.28	-26.25	0.00	-3003.8	0.00	3003.83	4299.12	2149.56	9852.03	4933.34	0.76	-0.480	0.000	0.618
20.00	-36.03	-25.94	0.00	-2872.5	0.00	2872.57	4260.58	2130.29	9611.54	4812.91	1.35	-0.641	0.000	0.605
25.00	-34.79	-25.64	0.00	-2742.8	0.00	2742.85	4221.16	2110.58	9371.84	4692.89	2.11	-0.802	0.000	0.593
30.00	-33.57	-25.33	0.00	-2614.6	0.00	2614.67	4180.86	2090.43	9133.04	4573.31	3.03	-0.963	0.000	0.580
35.00	-32.37	-25.00	0.00	-2488.0	0.00	2488.02	4139.68	2069.84	8895.22	4454.22	4.13	-1.124	0.000	0.567
40.00	-31.20	-24.64	0.00	-2363.0	0.00	2363.00	4097.62	2048.81	8658.48	4335.68	5.39	-1.284	0.000	0.553
42.75	-30.56	-24.45	0.00	-2295.2	0.00	2295.23	4074.11	2037.05	8528.77	4270.73	6.16	-1.374	0.000	0.545
45.00	-29.67	-24.30	0.00	-2240.2	0.00	2240.22	4054.67	2027.34	8422.92	4217.72	6.82	-1.447	0.000	0.539
50.00	-27.75	-23.91	0.00	-2118.7	0.00	2118.71	3121.16	1560.58	6469.05	3239.33	8.42	-1.607	0.000	0.663
55.00	-26.75	-23.54	0.00	-1999.1	0.00	1999.16	3092.99	1546.50	6300.19	3154.78	10.19	-1.766	0.000	0.643
60.00	-25.77	-23.16	0.00	-1881.4	0.00	1881.49	3063.94	1531.97	6131.59	3070.35	12.14	-1.947	0.000	0.621
65.00	-24.80	-22.77	0.00	-1765.7	0.00	1765.70	3034.01	1517.01	5963.32	2986.09	14.27	-2.127	0.000	0.600
70.00	-23.85	-22.38	0.00	-1651.8	0.00	1651.84	3003.20	1501.60	5795.50	2902.06	16.60	-2.305	0.000	0.577
75.00	-22.92	-21.98	0.00	-1539.9	0.00	1539.96	2971.51	1485.76	5628.21	2818.29	19.10	-2.481	0.000	0.554
80.00	-22.00	-21.57	0.00	-1430.0	0.00	1430.07	2938.94	1469.47	5461.54	2734.83	21.79	-2.653	0.000	0.531
85.00	-21.13	-21.14	0.00	-1322.2	0.00	1322.22	2905.48	1452.74	5295.59	2651.73	24.66	-2.823	0.000	0.506
86.50	-20.85	-21.03	0.00	-1290.5	0.00	1290.51	2895.27	1447.64	5245.96	2626.88	25.56	-2.874	0.000	0.499
90.00	-19.76	-20.70	0.00	-1216.9	0.00	1216.92	2871.14	1435.57	5130.46	2569.04	27.71	-2.990	0.000	0.481
92.75	-18.92	-20.45	0.00	-1159.9	0.00	1159.98	2877.20	1438.60	5159.24	2583.45	29.46	-3.081	0.000	0.456
95.00	-18.52	-20.27	0.00	-1113.9	0.00	1113.98	2861.53	1430.77	5085.14	2546.35	30.93	-3.154	0.000	0.444
100.00	-17.66	-19.83	0.00	-1012.6	0.00	1012.64	2826.07	1413.04	4921.19	2464.25	34.31	-3.303	0.000	0.417
105.00	-16.83	-19.40	0.00	-913.47	0.00	913.47	2789.73	1394.87	4758.26	2382.67	37.84	-3.447	0.000	0.390
110.00	-16.02	-18.95	0.00	-816.48	0.00	816.48	2752.51	1376.25	4596.46	2301.65	41.53	-3.584	0.000	0.361
111.50	-15.77	-18.82	0.00	-788.06	0.00	788.06	2741.17	1370.58	4548.16	2277.46	42.66	-3.625	0.000	0.352
111.50	-15.77	-18.82	0.00	-788.06	0.00	788.06	2001.40	1000.70	3331.01	1667.98	42.66	-3.625	0.000	0.481
115.00	-15.28	-18.53	0.00	-722.18	0.00	722.18	1985.76	992.88	3255.34	1630.09	45.35	-3.716	0.000	0.451
120.00	-14.61	-18.10	0.00	-629.54	0.00	629.54	1962.68	981.34	3147.40	1576.04	49.32	-3.868	0.000	0.407
125.00	-13.50	-17.62	0.00	-539.02	0.00	539.02	1938.71	969.36	3039.72	1522.12	53.45	-4.008	0.000	0.361
125.50	-13.37	-17.59	0.00	-530.20	0.00	530.20	1950.32	975.16	3091.33	1547.96	53.87	-4.022	0.000	0.350
130.00	-12.78	-17.20	0.00	-451.05	0.00	451.05	1928.38	964.19	2994.57	1499.51	57.71	-4.136	0.000	0.308
135.00	-12.15	-16.76	0.00	-365.05	0.00	365.05	1903.16	951.58	2887.43	1445.86	62.10	-4.244	0.000	0.259
140.00	-11.54	-16.33	0.00	-281.23	0.00	281.23	1877.06	938.53	2780.79	1392.46	66.59	-4.335	0.000	0.208
145.00	-10.95	-15.89	0.00	-199.58	0.00	199.58	1850.08	925.04	2674.74	1339.36	71.17	-4.408	0.000	0.155
147.00	-7.51	-11.08	0.00	-167.80	0.00	167.80	1839.04	919.52	2632.50	1318.21	73.02	-4.432	0.000	0.132
150.00	-7.17	-10.83	0.00	-134.54	0.00	134.54	1822.21	911.11	2569.37	1286.60	75.81	-4.462	0.000	0.109
155.00	-6.62	-10.40	0.00	-80.41	0.00	80.41	1793.47	896.74	2464.78	1234.22	80.50	-4.500	0.000	0.069
157.00	-4.02	-6.15	0.00	-59.62	0.00	59.62	1781.73	890.86	2423.19	1213.40	82.39	-4.511	0.000	0.051
160.00	-3.75	-5.90	0.00	-41.17	0.00	41.17	1763.85	881.92	2361.07	1182.29	85.23	-4.523	0.000	0.037
165.00	-3.31	-5.49	0.00	-11.68	0.00	11.68	1733.34	866.67	2258.33	1130.84	89.96	-4.534	0.000	0.012
167.00	-0.21	-0.24	0.00	-0.71	0.00	0.71	1720.89	860.44	2217.52	1110.41	91.86	-4.535	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	94.71	-4.535	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 16

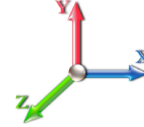


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.656	5.00	26.021	31.23	146.2	616.9	2023.0
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	25.755	30.91	144.7	652.8	2038.0
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	25.451	30.54	143.0	670.7	2034.9
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	25.131	30.16	141.2	680.6	2023.9
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	24.802	29.76	139.3	686.0	2008.3
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	24.467	29.36	137.6	688.3	1989.7
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	24.128	28.95	141.8	688.5	1968.9
40.00		1.00	0.76	4.625	5.09	0.00	1.200	2.039	5.00	23.786	28.54	145.2	687.1	1946.5
42.75	Bot - Section 2	1.00	0.78	4.713	5.18	0.00	1.200	2.052	2.75	12.933	15.52	80.5	377.2	1060.9
45.00		1.00	0.79	4.783	5.26	0.00	1.200	2.063	2.25	10.622	12.75	67.1	311.6	1334.9
50.00	Top - Section 1	1.00	0.81	4.929	5.42	0.00	1.200	2.085	5.00	23.358	28.03	152.0	688.8	2934.8
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	5.00	23.010	27.61	153.8	684.3	1695.4
60.00		1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	22.661	27.19	155.3	679.1	1672.6
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	22.310	26.77	156.5	673.2	1649.3
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	21.958	26.35	157.3	666.7	1625.4
75.00		1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	21.606	25.93	157.8	659.8	1601.0
80.00		1.00	0.93	5.637	6.20	0.00	1.200	2.185	5.00	21.253	25.50	158.1	652.5	1576.2
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	5.00	20.899	25.08	158.2	644.7	1551.0
86.50	Bot - Section 3	1.00	0.95	5.765	6.34	0.00	1.200	2.202	1.50	6.199	7.44	47.2	192.7	461.2
90.00		1.00	0.96	5.830	6.41	0.00	1.200	2.211	3.50	14.528	17.43	111.8	451.7	1701.2
92.75	Top - Section 2	1.00	0.97	5.881	6.47	0.00	1.200	2.218	2.75	11.292	13.55	87.7	352.4	1322.1
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	2.25	9.159	10.99	71.6	286.6	682.3
100.00		1.00	0.99	6.008	6.61	0.00	1.200	2.234	5.00	20.098	24.12	159.4	628.3	1494.8
105.00		1.00	1.00	6.093	6.70	0.00	1.200	2.245	5.00	19.743	23.69	158.8	619.4	1468.4
110.00		1.00	1.02	6.174	6.79	0.00	1.200	2.256	5.00	19.386	23.26	158.0	610.3	1441.8
111.50	Top - Section 3	1.00	1.02	6.198	6.82	0.00	1.200	2.259	1.50	5.746	6.89	47.0	182.2	428.3
115.00		1.00	1.03	6.253	6.88	0.00	1.200	2.266	3.50	13.283	15.94	109.6	420.6	875.7
120.00	Bot - Section 5	1.00	1.04	6.330	6.96	0.00	1.200	2.276	5.00	18.673	22.41	156.0	591.3	1229.6
125.00		1.00	1.05	6.404	7.04	0.00	1.200	2.285	5.00	18.527	22.23	156.6	588.6	1845.4
125.50	Top - Section 4	1.00	1.05	6.411	7.05	0.00	1.200	2.286	0.50	1.833	2.20	15.5	58.8	182.9
130.00		1.00	1.07	6.476	7.12	0.00	1.200	2.294	4.50	16.337	19.60	139.7	520.8	1076.8
135.00		1.00	1.08	6.546	7.20	0.00	1.200	2.303	5.00	17.812	21.37	153.9	568.5	1173.0
140.00		1.00	1.09	6.615	7.28	0.00	1.200	2.311	5.00	17.454	20.95	152.4	558.2	1148.8
145.00		1.00	1.10	6.681	7.35	0.00	1.200	2.319	5.00	17.096	20.52	150.8	547.8	1124.3
147.00	Appurtenance(s)	1.00	1.10	6.708	7.38	0.00	1.200	2.322	2.00	6.737	8.08	59.7	217.4	444.1
150.00		1.00	1.11	6.746	7.42	0.00	1.200	2.327	3.00	9.999	12.00	89.0	322.3	658.2
155.00		1.00	1.12	6.810	7.49	0.00	1.200	2.335	5.00	16.379	19.66	147.2	526.4	1075.0
157.00	Appurtenance(s)	1.00	1.12	6.835	7.52	0.00	1.200	2.338	2.00	6.451	7.74	58.2	208.8	424.4
160.00		1.00	1.13	6.872	7.56	0.00	1.200	2.342	3.00	9.569	11.48	86.8	309.3	628.4
165.00		1.00	1.14	6.933	7.63	0.00	1.200	2.349	5.00	15.662	18.79	143.3	504.5	1025.2
167.00	Appurtenance(s)	1.00	1.14	6.957	7.65	0.00	1.200	2.352	2.00	6.163	7.40	56.6	200.0	404.4
170.00		1.00	1.15	6.992	7.69	0.00	1.200	2.356	3.00	9.138	10.97	84.3	296.1	598.4
<b>Totals:</b>									<b>170.00</b>			<b>5,136.6</b>	<b>55,649.4</b>	



## Discrete Appurtenance Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 17

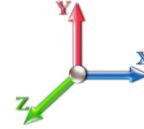


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	CCI DMP65R-BU6DA	2	6.957	7.652	0.55	0.75	16.15	1005.29	0.000	0.000	123.57	0.00	0.00
2	167.00	Andrew ABT-DFDM-ADBH	3	6.957	7.652	0.73	0.75	0.68	10.88	0.000	0.000	5.22	0.00	0.00
3	167.00	Raycap DC6-48-60-18-8F	2	6.957	7.652	0.75	0.75	2.27	207.57	0.000	0.000	17.34	0.00	0.00
4	167.00	RMQP-496-HK	1	6.957	7.652	1.00	1.00	89.28	5604.93	0.000	0.000	683.18	0.00	0.00
5	167.00	CCI HPA-65R-BU6AA	2	6.957	7.652	0.59	0.75	13.46	764.54	0.000	0.000	103.01	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	6.957	7.652	0.75	0.75	5.53	268.83	0.000	0.000	42.30	0.00	0.00
7	167.00	Powerwave	6	6.957	7.652	0.68	0.75	7.76	328.02	0.000	0.000	59.39	0.00	0.00
8	167.00	CCI DMP65R-BU4DA	1	6.957	7.652	0.75	0.75	6.55	505.95	0.000	0.000	50.12	0.00	0.00
9	167.00	Powerwave 7770	3	6.957	7.652	0.55	0.75	11.45	716.49	0.000	0.000	87.58	0.00	0.00
10	167.00	Ericsson RRUS 8843 B2	3	6.957	7.652	0.50	0.75	3.48	412.60	0.000	0.000	26.64	0.00	0.00
11	167.00	Ericsson RRUS 4449	3	6.957	7.652	0.50	0.75	4.08	430.63	0.000	0.000	31.23	0.00	0.00
12	167.00	Powerwave	3	6.957	7.652	0.56	0.75	20.14	716.53	0.000	0.000	154.15	0.00	0.00
13	157.00	Top rail kit	1	6.835	7.518	1.00	1.00	13.20	-938.60	0.000	0.000	99.23	0.00	0.00
14	157.00	Antel	3	6.835	7.518	0.58	0.75	15.95	616.08	0.000	0.000	119.90	0.00	0.00
15	157.00	Samsung RFV01U-D1A	3	6.835	7.518	0.62	0.75	4.87	633.96	0.000	0.000	36.64	0.00	0.00
16	157.00	Commscope	6	6.835	7.518	0.62	0.75	36.44	1758.63	0.000	0.000	274.00	0.00	0.00
17	157.00	Samsung 64T64R	3	6.835	7.518	0.52	0.75	9.31	852.84	0.000	0.000	69.97	0.00	0.00
18	157.00	Kicker Kit	1	6.835	7.518	1.00	1.00	11.60	-1491.18	0.000	0.000	87.22	0.00	0.00
19	157.00	Samsung RFV01U-D2A	3	6.835	7.518	0.58	0.75	4.52	521.12	0.000	0.000	33.99	0.00	0.00
20	157.00	RFS DB-C1-12C-24AB-OZ	1	6.835	7.518	1.04	0.75	2.54	103.67	0.000	0.000	19.09	0.00	0.00
21	157.00	12' Low Profile Platform	1	6.835	7.518	1.00	1.00	45.66	3253.19	0.000	0.000	343.26	0.00	0.00
22	147.00	Platform w/hand rail (Site	1	6.708	7.378	1.00	1.00	88.73	6886.00	0.000	0.000	654.68	0.00	0.00
23	147.00	Ericsson 4460 B25 + B66	3	6.708	7.378	0.64	0.75	5.56	746.61	0.000	0.000	41.05	0.00	0.00
24	147.00	Ericsson 4480 B71 + B85	3	6.708	7.378	0.56	0.75	5.47	684.10	0.000	0.000	40.35	0.00	0.00
25	147.00	Commscope VV-65A-R1	3	6.708	7.378	0.55	0.75	12.01	525.44	0.000	0.000	88.60	0.00	0.00
26	147.00	RFS	3	6.708	7.378	0.54	0.75	36.81	2437.69	0.000	0.000	271.59	0.00	0.00
27	147.00	Ericsson AIR6419 B41	3	6.708	7.378	0.55	0.75	12.58	988.65	0.000	0.000	92.81	0.00	0.00

**Totals: 28,550.44**

**3,656.12**



## Total Applied Force Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 18

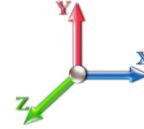


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		146.18	2262.02	0.00	0.00
10.00		144.69	2277.04	0.00	0.00
15.00		142.98	2273.94	0.00	0.00
20.00		141.19	2262.91	0.00	0.00
25.00		139.34	2247.31	0.00	0.00
30.00		137.57	2228.70	0.00	0.00
35.00		141.77	2207.95	0.00	0.00
40.00		145.19	2185.56	0.00	0.00
42.75		80.46	1192.39	0.00	0.00
45.00		67.06	1442.42	0.00	0.00
50.00		151.97	3173.87	0.00	0.00
55.00		153.84	1934.39	0.00	0.00
60.00		155.32	1911.67	0.00	0.00
65.00		156.45	1888.32	0.00	0.00
70.00		157.28	1864.42	0.00	0.00
75.00		157.84	1840.04	0.00	0.00
80.00		158.15	1815.22	0.00	0.00
85.00		158.23	1790.02	0.00	0.00
86.50		47.17	532.88	0.00	0.00
90.00		111.81	1868.52	0.00	0.00
92.75		87.66	1453.61	0.00	0.00
95.00		71.58	789.83	0.00	0.00
100.00		159.40	1733.86	0.00	0.00
105.00		158.78	1707.48	0.00	0.00
110.00		158.00	1680.86	0.00	0.00
111.50		47.01	500.01	0.00	0.00
115.00		109.64	1043.07	0.00	0.00
120.00		156.02	1468.62	0.00	0.00
125.00		156.62	2084.46	0.00	0.00
125.50		15.51	206.81	0.00	0.00
130.00		139.65	1291.93	0.00	0.00
135.00		153.92	1412.07	0.00	0.00
140.00		152.40	1387.80	0.00	0.00
145.00		150.78	1363.37	0.00	0.00
147.00	(16) attachments	1248.74	12808.25	0.00	0.00
150.00		89.04	790.37	0.00	0.00
155.00		147.23	1295.36	0.00	0.00
157.00	(22) attachments	1141.50	5822.19	0.00	0.00
160.00		86.80	693.02	0.00	0.00
165.00		143.32	1132.85	0.00	0.00
167.00	(30) attachments	1440.32	11419.71	0.00	0.00
170.00		84.34	598.39	0.00	0.00
<b>Totals:</b>		<b>8,792.76</b>	<b>91,883.53</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

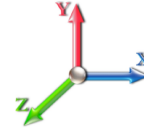
<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	<b>5/16/2022</b>
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



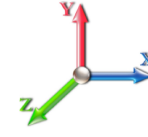
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-91.88	-8.84	0.00	-1141.8	0.00	1141.88	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.236
5.00	-89.61	-8.77	0.00	-1097.7	0.00	1097.70	4373.55	2186.77	10335.0	5175.19	0.03	-0.053	0.000	0.233
10.00	-87.32	-8.71	0.00	-1053.8	0.00	1053.84	4336.78	2168.39	10093.2	5054.11	0.11	-0.107	0.000	0.229
15.00	-85.04	-8.64	0.00	-1010.3	0.00	1010.30	4299.12	2149.56	9852.03	4933.34	0.25	-0.161	0.000	0.225
20.00	-82.77	-8.57	0.00	-967.11	0.00	967.11	4260.58	2130.29	9611.54	4812.91	0.45	-0.215	0.000	0.220
25.00	-80.52	-8.50	0.00	-924.27	0.00	924.27	4221.16	2110.58	9371.84	4692.89	0.71	-0.269	0.000	0.216
30.00	-78.28	-8.42	0.00	-881.79	0.00	881.79	4180.86	2090.43	9133.04	4573.31	1.02	-0.324	0.000	0.212
35.00	-76.07	-8.34	0.00	-839.69	0.00	839.69	4139.68	2069.84	8895.22	4454.22	1.39	-0.378	0.000	0.207
40.00	-73.88	-8.23	0.00	-798.00	0.00	798.00	4097.62	2048.81	8658.48	4335.68	1.81	-0.432	0.000	0.202
42.75	-72.68	-8.18	0.00	-775.36	0.00	775.36	4074.11	2037.05	8528.77	4270.73	2.07	-0.462	0.000	0.199
45.00	-71.23	-8.15	0.00	-756.97	0.00	756.97	4054.67	2027.34	8422.92	4217.72	2.29	-0.487	0.000	0.197
50.00	-68.05	-8.03	0.00	-716.24	0.00	716.24	3121.16	1560.58	6469.05	3239.33	2.83	-0.541	0.000	0.243
55.00	-66.11	-7.92	0.00	-676.09	0.00	676.09	3092.99	1546.50	6300.19	3154.78	3.43	-0.595	0.000	0.236
60.00	-64.19	-7.82	0.00	-636.47	0.00	636.47	3063.94	1531.97	6131.59	3070.35	4.08	-0.656	0.000	0.228
65.00	-62.30	-7.70	0.00	-597.39	0.00	597.39	3034.01	1517.01	5963.32	2986.09	4.80	-0.717	0.000	0.221
70.00	-60.43	-7.58	0.00	-558.88	0.00	558.88	3003.20	1501.60	5795.50	2902.06	5.59	-0.777	0.000	0.213
75.00	-58.58	-7.46	0.00	-520.96	0.00	520.96	2971.51	1485.76	5628.21	2818.29	6.43	-0.837	0.000	0.205
80.00	-56.76	-7.33	0.00	-483.66	0.00	483.66	2938.94	1469.47	5461.54	2734.83	7.34	-0.895	0.000	0.196
85.00	-54.97	-7.18	0.00	-447.00	0.00	447.00	2905.48	1452.74	5295.59	2651.73	8.31	-0.952	0.000	0.188
86.50	-54.44	-7.15	0.00	-436.23	0.00	436.23	2895.27	1447.64	5245.96	2626.88	8.61	-0.970	0.000	0.185
90.00	-52.57	-7.04	0.00	-411.20	0.00	411.20	2871.14	1435.57	5130.46	2569.04	9.34	-1.009	0.000	0.178
92.75	-51.11	-6.95	0.00	-391.84	0.00	391.84	2877.20	1438.60	5159.24	2583.45	9.93	-1.040	0.000	0.169
95.00	-50.32	-6.90	0.00	-376.20	0.00	376.20	2861.53	1430.77	5085.14	2546.35	10.43	-1.064	0.000	0.165
100.00	-48.58	-6.75	0.00	-341.72	0.00	341.72	2826.07	1413.04	4921.19	2464.25	11.57	-1.115	0.000	0.156
105.00	-46.87	-6.59	0.00	-307.98	0.00	307.98	2789.73	1394.87	4758.26	2382.67	12.76	-1.163	0.000	0.146
110.00	-45.19	-6.42	0.00	-275.02	0.00	275.02	2752.51	1376.25	4596.46	2301.65	14.00	-1.210	0.000	0.136
111.50	-44.69	-6.38	0.00	-265.38	0.00	265.38	2741.17	1370.58	4548.16	2277.46	14.39	-1.223	0.000	0.133
111.50	-44.69	-6.38	0.00	-265.38	0.00	265.38	2001.40	1000.70	3331.01	1667.98	14.39	-1.223	0.000	0.181
115.00	-43.65	-6.28	0.00	-243.04	0.00	243.04	1985.76	992.88	3255.34	1630.09	15.30	-1.254	0.000	0.171
120.00	-42.18	-6.13	0.00	-211.62	0.00	211.62	1962.68	981.34	3147.40	1576.04	16.64	-1.305	0.000	0.156
125.00	-40.09	-5.94	0.00	-180.97	0.00	180.97	1938.71	969.36	3039.72	1522.12	18.03	-1.352	0.000	0.140
125.50	-39.88	-5.94	0.00	-178.00	0.00	178.00	1950.32	975.16	3091.33	1547.96	18.17	-1.357	0.000	0.135
130.00	-38.59	-5.79	0.00	-151.28	0.00	151.28	1928.38	964.19	2994.57	1499.51	19.47	-1.395	0.000	0.121
135.00	-37.18	-5.63	0.00	-122.32	0.00	122.32	1903.16	951.58	2887.43	1445.86	20.95	-1.431	0.000	0.104
140.00	-35.79	-5.46	0.00	-94.19	0.00	94.19	1877.06	938.53	2780.79	1392.46	22.47	-1.462	0.000	0.087
145.00	-34.43	-5.28	0.00	-66.92	0.00	66.92	1850.08	925.04	2674.74	1339.36	24.01	-1.486	0.000	0.069
147.00	-21.66	-3.70	0.00	-56.36	0.00	56.36	1839.04	919.52	2632.50	1318.21	24.64	-1.494	0.000	0.055
150.00	-20.87	-3.60	0.00	-45.26	0.00	45.26	1822.21	911.11	2569.37	1286.60	25.58	-1.504	0.000	0.047
155.00	-19.58	-3.42	0.00	-27.28	0.00	27.28	1793.47	896.74	2464.78	1234.22	27.16	-1.517	0.000	0.033
157.00	-13.79	-2.12	0.00	-20.45	0.00	20.45	1781.73	890.86	2423.19	1213.40	27.80	-1.521	0.000	0.025
160.00	-13.10	-2.02	0.00	-14.08	0.00	14.08	1763.85	881.92	2361.07	1182.29	28.75	-1.525	0.000	0.019
165.00	-11.97	-1.84	0.00	-3.99	0.00	3.99	1733.34	866.67	2258.33	1130.84	30.35	-1.529	0.000	0.010
167.00	-0.60	-0.10	0.00	-0.30	0.00	0.30	1720.89	860.44	2217.52	1110.41	30.99	-1.529	0.000	0.001
170.00	0.00	-0.08	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	31.95	-1.529	0.000	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	Page: 20
	<b>Struct Class:</b> II	



<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.19	<b>Ss</b> 0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b> 0.03
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1171.7	0.00	0.03	0.02	20.63	
10.00		1154.3	0.01	0.05	0.03	29.91	
15.00		1136.8	0.01	0.06	0.04	34.39	
20.00		1119.3	0.03	0.07	0.04	36.50	
25.00		1101.9	0.04	0.07	0.04	37.42	
30.00		1084.4	0.06	0.07	0.04	37.82	
35.00		1066.9	0.08	0.07	0.04	38.03	
40.00		1049.5	0.10	0.07	0.04	38.21	
42.75	Bot - Section 2	569.78	0.12	0.07	0.03	20.99	
45.00		852.69	0.13	0.07	0.03	31.69	
50.00	Top - Section 1	1871.6	0.16	0.07	0.03	70.67	
55.00		842.52	0.20	0.06	0.02	31.97	
60.00		827.97	0.24	0.06	0.02	30.91	
65.00		813.42	0.28	0.05	0.01	28.80	
70.00		798.86	0.32	0.04	0.01	25.23	
75.00		784.31	0.37	0.03	0.01	19.85	
80.00		769.75	0.42	0.01	0.01	12.54	
85.00		755.20	0.47	-0.01	0.01	3.66	
86.50	Bot - Section 3	223.72	0.49	-0.01	0.01	0.25	
90.00		1041.2	0.53	-0.03	0.01	-8.17	
92.75	Top - Section 2	808.10	0.56	-0.04	0.01	-11.91	
95.00		329.68	0.59	-0.05	0.01	-6.61	
100.00		722.08	0.65	-0.07	0.02	-21.67	
105.00		707.52	0.72	-0.09	0.03	-25.85	
110.00		692.97	0.79	-0.11	0.05	-27.10	
111.50	Top - Section 3	205.05	0.81	-0.11	0.06	-8.01	
115.00		379.28	0.86	-0.12	0.07	-14.27	
120.00	Bot - Section 5	531.93	0.94	-0.12	0.10	-17.09	
125.00		1047.3	1.02	-0.10	0.14	-23.84	
125.50	Top - Section 4	103.45	1.03	-0.10	0.15	-2.24	
130.00		463.33	1.11	-0.07	0.19	-4.43	
135.00		503.75	1.19	0.00	0.25	3.74	
140.00		492.11	1.28	0.10	0.32	13.90	
145.00		480.46	1.37	0.24	0.41	25.43	
147.00	Appurtenance(s)	4138.6	1.41	0.31	0.45	264.41	
150.00		279.89	1.47	0.43	0.51	22.82	
155.00		457.18	1.57	0.69	0.63	52.18	
157.00	Appurtenance(s)	3171.9	1.61	0.82	0.69	406.99	
160.00		265.92	1.67	1.03	0.78	40.11	
165.00		433.89	1.78	1.45	0.94	83.17	
167.00	Appurtenance(s)	3865.1	1.82	1.65	1.02	808.67	
170.00		251.95	1.89	1.98	1.14	59.66	
<b>Totals:</b>		<b>39,367.9</b>				<b>2,159.4</b>	<b>Total Wind: 27,112.0</b>

## Calculated Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.0E						<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.19	<b>Ss</b> 0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b>	0.03	<b>Seismic Importance Factor</b> 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-54.92	-2.34	0.00	-326.38	0.00	326.38	4409.44	2204.72	10577.3	5296.53	0.00	0.00	0.00	0.074
5.00	-53.28	-2.33	0.00	-314.70	0.00	314.70	4373.55	2186.77	10335.0	5175.19	0.01	-0.02	0.073	
10.00	-51.65	-2.31	0.00	-303.04	0.00	303.04	4336.78	2168.39	10093.2	5054.11	0.03	-0.03	0.072	
15.00	-50.05	-2.29	0.00	-291.47	0.00	291.47	4299.12	2149.56	9852.03	4933.34	0.07	-0.05	0.071	
20.00	-48.47	-2.27	0.00	-280.01	0.00	280.01	4260.58	2130.29	9611.54	4812.91	0.13	-0.06	0.070	
25.00	-46.91	-2.24	0.00	-268.67	0.00	268.67	4221.16	2110.58	9371.84	4692.89	0.20	-0.08	0.068	
30.00	-45.36	-2.21	0.00	-257.47	0.00	257.47	4180.86	2090.43	9133.04	4573.31	0.29	-0.09	0.067	
35.00	-43.84	-2.19	0.00	-246.40	0.00	246.40	4139.68	2069.84	8895.22	4454.22	0.40	-0.11	0.066	
40.00	-42.35	-2.15	0.00	-235.48	0.00	235.48	4097.62	2048.81	8658.48	4335.68	0.52	-0.13	0.065	
42.75	-41.53	-2.14	0.00	-229.56	0.00	229.56	4074.11	2037.05	8528.77	4270.73	0.60	-0.13	0.064	
45.00	-40.40	-2.11	0.00	-224.75	0.00	224.75	4054.67	2027.34	8422.92	4217.72	0.66	-0.14	0.063	
50.00	-37.91	-2.04	0.00	-214.20	0.00	214.20	3121.16	1560.58	6469.05	3239.33	0.82	-0.16	0.078	
55.00	-36.66	-2.02	0.00	-203.98	0.00	203.98	3092.99	1546.50	6300.19	3154.78	0.99	-0.17	0.077	
60.00	-35.43	-2.00	0.00	-193.89	0.00	193.89	3063.94	1531.97	6131.59	3070.35	1.18	-0.19	0.075	
65.00	-34.21	-1.97	0.00	-183.91	0.00	183.91	3034.01	1517.01	5963.32	2986.09	1.40	-0.21	0.073	
70.00	-33.02	-1.95	0.00	-174.04	0.00	174.04	3003.20	1501.60	5795.50	2902.06	1.63	-0.23	0.071	
75.00	-31.84	-1.94	0.00	-164.27	0.00	164.27	2971.51	1485.76	5628.21	2818.29	1.88	-0.25	0.069	
80.00	-30.67	-1.93	0.00	-154.57	0.00	154.57	2938.94	1469.47	5461.54	2734.83	2.15	-0.27	0.067	
85.00	-29.53	-1.93	0.00	-144.91	0.00	144.91	2905.48	1452.74	5295.59	2651.73	2.44	-0.29	0.065	
86.50	-29.19	-1.93	0.00	-142.02	0.00	142.02	2895.27	1447.64	5245.96	2626.88	2.53	-0.29	0.064	
90.00	-27.77	-1.93	0.00	-135.25	0.00	135.25	2871.14	1435.57	5130.46	2569.04	2.75	-0.30	0.062	
92.75	-26.67	-1.93	0.00	-129.95	0.00	129.95	2877.20	1438.60	5159.24	2583.45	2.92	-0.31	0.060	
95.00	-26.16	-1.93	0.00	-125.61	0.00	125.61	2861.53	1430.77	5085.14	2546.35	3.07	-0.32	0.058	
100.00	-25.06	-1.93	0.00	-115.95	0.00	115.95	2826.07	1413.04	4921.19	2464.25	3.42	-0.34	0.056	
105.00	-23.97	-1.93	0.00	-106.29	0.00	106.29	2789.73	1394.87	4758.26	2382.67	3.78	-0.36	0.053	
110.00	-22.90	-1.93	0.00	-96.62	0.00	96.62	2752.51	1376.25	4596.46	2301.65	4.17	-0.37	0.050	
111.50	-22.58	-1.93	0.00	-93.73	0.00	93.73	2741.17	1370.58	4548.16	2277.46	4.28	-0.38	0.049	
111.50	-22.58	-1.93	0.00	-93.73	0.00	93.73	2001.40	1000.70	3331.01	1667.98	4.28	-0.38	0.067	
115.00	-21.96	-1.93	0.00	-86.97	0.00	86.97	1985.76	992.88	3255.34	1630.09	4.56	-0.39	0.064	
120.00	-21.08	-1.93	0.00	-77.31	0.00	77.31	1962.68	981.34	3147.40	1576.04	4.98	-0.41	0.060	
125.00	-19.58	-1.93	0.00	-67.64	0.00	67.64	1938.71	969.36	3039.72	1522.12	5.41	-0.42	0.055	
125.50	-19.43	-1.93	0.00	-66.68	0.00	66.68	1950.32	975.16	3091.33	1547.96	5.46	-0.43	0.053	
130.00	-18.66	-1.93	0.00	-58.00	0.00	58.00	1928.38	964.19	2994.57	1499.51	5.87	-0.44	0.048	
135.00	-17.82	-1.92	0.00	-48.37	0.00	48.37	1903.16	951.58	2887.43	1445.86	6.33	-0.45	0.043	
140.00	-16.99	-1.90	0.00	-38.77	0.00	38.77	1877.06	938.53	2780.79	1392.46	6.82	-0.47	0.037	
145.00	-16.17	-1.87	0.00	-29.26	0.00	29.26	1850.08	925.04	2674.74	1339.36	7.31	-0.48	0.031	
147.00	-11.11	-1.57	0.00	-25.51	0.00	25.51	1839.04	919.52	2632.50	1318.21	7.51	-0.48	0.025	
150.00	-10.65	-1.54	0.00	-20.81	0.00	20.81	1822.21	911.11	2569.37	1286.60	7.81	-0.48	0.022	
155.00	-9.88	-1.48	0.00	-13.10	0.00	13.10	1793.47	896.74	2464.78	1234.22	8.32	-0.49	0.016	
157.00	-5.99	-1.04	0.00	-10.14	0.00	10.14	1781.73	890.86	2423.19	1213.40	8.53	-0.49	0.012	
160.00	-5.60	-1.00	0.00	-7.01	0.00	7.01	1763.85	881.92	2361.07	1182.29	8.84	-0.49	0.009	
165.00	-4.98	-0.91	0.00	-2.01	0.00	2.01	1733.34	866.67	2258.33	1130.84	9.36	-0.50	0.005	
167.00	-0.30	-0.06	0.00	-0.19	0.00	0.19	1720.89	860.44	2217.52	1110.41	9.57	-0.50	0.000	
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	9.88	-0.50	0.000	

## Seismic Segment Forces (Factored)

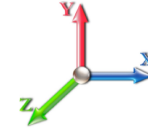
<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	Page: 22
	<b>Struct Class:</b> II	



**Load Case:** 0.9D + 1.0E

**Iterations** 23

<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.19	<b>Ss</b> 0.18	
<b>Dead Load Factor</b> 0.90	<b>Seismic Load Factor</b> 1.00	<b>Sd1</b> 0.10	<b>S1</b> 0.07
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.31	<b>SA</b> 0.03	<b>Seismic Importance Factor</b> 1.00



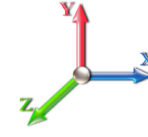
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1171.7	0.00	0.03	0.02	20.63	
10.00		1154.3	0.01	0.05	0.03	29.91	
15.00		1136.8	0.01	0.06	0.04	34.39	
20.00		1119.3	0.03	0.07	0.04	36.50	
25.00		1101.9	0.04	0.07	0.04	37.42	
30.00		1084.4	0.06	0.07	0.04	37.82	
35.00		1066.9	0.08	0.07	0.04	38.03	
40.00		1049.5	0.10	0.07	0.04	38.21	
42.75	Bot - Section 2	569.78	0.12	0.07	0.03	20.99	
45.00		852.69	0.13	0.07	0.03	31.69	
50.00	Top - Section 1	1871.6	0.16	0.07	0.03	70.67	
55.00		842.52	0.20	0.06	0.02	31.97	
60.00		827.97	0.24	0.06	0.02	30.91	
65.00		813.42	0.28	0.05	0.01	28.80	
70.00		798.86	0.32	0.04	0.01	25.23	
75.00		784.31	0.37	0.03	0.01	19.85	
80.00		769.75	0.42	0.01	0.01	12.54	
85.00		755.20	0.47	-0.01	0.01	3.66	
86.50	Bot - Section 3	223.72	0.49	-0.01	0.01	0.25	
90.00		1041.2	0.53	-0.03	0.01	-8.17	
92.75	Top - Section 2	808.10	0.56	-0.04	0.01	-11.91	
95.00		329.68	0.59	-0.05	0.01	-6.61	
100.00		722.08	0.65	-0.07	0.02	-21.67	
105.00		707.52	0.72	-0.09	0.03	-25.85	
110.00		692.97	0.79	-0.11	0.05	-27.10	
111.50	Top - Section 3	205.05	0.81	-0.11	0.06	-8.01	
115.00		379.28	0.86	-0.12	0.07	-14.27	
120.00	Bot - Section 5	531.93	0.94	-0.12	0.10	-17.09	
125.00		1047.3	1.02	-0.10	0.14	-23.84	
125.50	Top - Section 4	103.45	1.03	-0.10	0.15	-2.24	
130.00		463.33	1.11	-0.07	0.19	-4.43	
135.00		503.75	1.19	0.00	0.25	3.74	
140.00		492.11	1.28	0.10	0.32	13.90	
145.00		480.46	1.37	0.24	0.41	25.43	
147.00	Appurtenance(s)	4138.6	1.41	0.31	0.45	264.41	
150.00		279.89	1.47	0.43	0.51	22.82	
155.00		457.18	1.57	0.69	0.63	52.18	
157.00	Appurtenance(s)	3171.9	1.61	0.82	0.69	406.99	
160.00		265.92	1.67	1.03	0.78	40.11	
165.00		433.89	1.78	1.45	0.94	83.17	
167.00	Appurtenance(s)	3865.1	1.82	1.65	1.02	808.67	
170.00		251.95	1.89	1.98	1.14	59.66	
<b>Totals:</b>		<b>39,367.9</b>				<b>2,159.4</b>	<b>Total Wind: 27,112.0</b>

## Calculated Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 0.9D + 1.0E										<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10					<b>Sds</b> 0.19					<b>Ss</b> 0.18
<b>Dead Load Factor</b> 0.90			<b>Seismic Load Factor</b> 1.00			<b>Sd1</b> 0.10			<b>S1</b> 0.07	
<b>Wind Load Factor</b> 0.00		<b>Structure Frequency (f1)</b> 0.31		<b>SA</b> 0.03		<b>Seismic Importance Factor</b> 1.00				



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.19	-2.34	0.00	-321.59	0.00	321.59	4409.44	2204.72	10577.3	5296.53	0.00	0.00	0.00	0.070
5.00	-39.96	-2.33	0.00	-309.92	0.00	309.92	4373.55	2186.77	10335.0	5175.19	0.01	-0.02	0.069	
10.00	-38.74	-2.31	0.00	-298.29	0.00	298.29	4336.78	2168.39	10093.2	5054.11	0.03	-0.03	0.068	
15.00	-37.54	-2.28	0.00	-286.77	0.00	286.77	4299.12	2149.56	9852.03	4933.34	0.07	-0.05	0.067	
20.00	-36.35	-2.25	0.00	-275.37	0.00	275.37	4260.58	2130.29	9611.54	4812.91	0.13	-0.06	0.066	
25.00	-35.18	-2.22	0.00	-264.11	0.00	264.11	4221.16	2110.58	9371.84	4692.89	0.20	-0.08	0.065	
30.00	-34.02	-2.19	0.00	-252.99	0.00	252.99	4180.86	2090.43	9133.04	4573.31	0.29	-0.09	0.063	
35.00	-32.88	-2.16	0.00	-242.03	0.00	242.03	4139.68	2069.84	8895.22	4454.22	0.39	-0.11	0.062	
40.00	-31.76	-2.13	0.00	-231.22	0.00	231.22	4097.62	2048.81	8658.48	4335.68	0.51	-0.12	0.061	
42.75	-31.15	-2.11	0.00	-225.37	0.00	225.37	4074.11	2037.05	8528.77	4270.73	0.59	-0.13	0.060	
45.00	-30.30	-2.08	0.00	-220.62	0.00	220.62	4054.67	2027.34	8422.92	4217.72	0.65	-0.14	0.060	
50.00	-28.43	-2.01	0.00	-210.21	0.00	210.21	3121.16	1560.58	6469.05	3239.33	0.81	-0.15	0.074	
55.00	-27.50	-1.99	0.00	-200.14	0.00	200.14	3092.99	1546.50	6300.19	3154.78	0.98	-0.17	0.072	
60.00	-26.57	-1.96	0.00	-190.20	0.00	190.20	3063.94	1531.97	6131.59	3070.35	1.17	-0.19	0.071	
65.00	-25.66	-1.94	0.00	-180.39	0.00	180.39	3034.01	1517.01	5963.32	2986.09	1.37	-0.21	0.069	
70.00	-24.76	-1.92	0.00	-170.69	0.00	170.69	3003.20	1501.60	5795.50	2902.06	1.60	-0.23	0.067	
75.00	-23.87	-1.90	0.00	-161.10	0.00	161.10	2971.51	1485.76	5628.21	2818.29	1.85	-0.24	0.065	
80.00	-23.00	-1.89	0.00	-151.59	0.00	151.59	2938.94	1469.47	5461.54	2734.83	2.11	-0.26	0.063	
85.00	-22.14	-1.89	0.00	-142.12	0.00	142.12	2905.48	1452.74	5295.59	2651.73	2.40	-0.28	0.061	
86.50	-21.89	-1.89	0.00	-139.29	0.00	139.29	2895.27	1447.64	5245.96	2626.88	2.48	-0.29	0.061	
90.00	-20.82	-1.89	0.00	-132.66	0.00	132.66	2871.14	1435.57	5130.46	2569.04	2.70	-0.30	0.059	
92.75	-20.00	-1.89	0.00	-127.46	0.00	127.46	2877.20	1438.60	5159.24	2583.45	2.87	-0.31	0.056	
95.00	-19.62	-1.89	0.00	-123.21	0.00	123.21	2861.53	1430.77	5085.14	2546.35	3.02	-0.32	0.055	
100.00	-18.79	-1.89	0.00	-113.75	0.00	113.75	2826.07	1413.04	4921.19	2464.25	3.36	-0.33	0.053	
105.00	-17.97	-1.89	0.00	-104.29	0.00	104.29	2789.73	1394.87	4758.26	2382.67	3.72	-0.35	0.050	
110.00	-17.17	-1.89	0.00	-94.83	0.00	94.83	2752.51	1376.25	4596.46	2301.65	4.09	-0.36	0.047	
111.50	-16.93	-1.89	0.00	-91.99	0.00	91.99	2741.17	1370.58	4548.16	2277.46	4.21	-0.37	0.047	
111.50	-16.93	-1.89	0.00	-91.99	0.00	91.99	2001.40	1000.70	3331.01	1667.98	4.21	-0.37	0.064	
115.00	-16.47	-1.89	0.00	-85.37	0.00	85.37	1985.76	992.88	3255.34	1630.09	4.48	-0.38	0.061	
120.00	-15.81	-1.89	0.00	-75.91	0.00	75.91	1962.68	981.34	3147.40	1576.04	4.89	-0.40	0.056	
125.00	-14.68	-1.89	0.00	-66.44	0.00	66.44	1938.71	969.36	3039.72	1522.12	5.32	-0.42	0.051	
125.50	-14.57	-1.89	0.00	-65.50	0.00	65.50	1950.32	975.16	3091.33	1547.96	5.36	-0.42	0.050	
130.00	-13.99	-1.89	0.00	-57.00	0.00	57.00	1928.38	964.19	2994.57	1499.51	5.76	-0.43	0.045	
135.00	-13.36	-1.88	0.00	-47.56	0.00	47.56	1903.16	951.58	2887.43	1445.86	6.22	-0.45	0.040	
140.00	-12.74	-1.87	0.00	-38.15	0.00	38.15	1877.06	938.53	2780.79	1392.46	6.69	-0.46	0.034	
145.00	-12.13	-1.84	0.00	-28.82	0.00	28.82	1850.08	925.04	2674.74	1339.36	7.18	-0.47	0.028	
147.00	-8.33	-1.54	0.00	-25.14	0.00	25.14	1839.04	919.52	2632.50	1318.21	7.38	-0.47	0.024	
150.00	-7.98	-1.52	0.00	-20.52	0.00	20.52	1822.21	911.11	2569.37	1286.60	7.67	-0.48	0.020	
155.00	-7.41	-1.46	0.00	-12.93	0.00	12.93	1793.47	896.74	2464.78	1234.22	8.18	-0.48	0.015	
157.00	-4.49	-1.03	0.00	-10.01	0.00	10.01	1781.73	890.86	2423.19	1213.40	8.38	-0.48	0.011	
160.00	-4.20	-0.99	0.00	-6.92	0.00	6.92	1763.85	881.92	2361.07	1182.29	8.68	-0.49	0.008	
165.00	-3.73	-0.90	0.00	-1.98	0.00	1.98	1733.34	866.67	2258.33	1130.84	9.19	-0.49	0.004	
167.00	-0.23	-0.06	0.00	-0.18	0.00	0.18	1720.89	860.44	2217.52	1110.41	9.40	-0.49	0.000	
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	9.70	-0.49	0.000	

## Wind Loading - Shaft

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 24

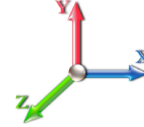


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	249.22	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	245.56	0.650	0.000	5.00	24.641	16.02	108.0	0.0	1171.8
10.00		1.00	0.70	6.129	6.74	241.90	0.650	0.000	5.00	24.276	15.78	106.4	0.0	1154.3
15.00		1.00	0.70	6.129	6.74	238.23	0.650	0.000	5.00	23.911	15.54	104.8	0.0	1136.8
20.00		1.00	0.70	6.129	6.74	234.57	0.650	0.000	5.00	23.546	15.31	103.2	0.0	1119.4
25.00		1.00	0.70	6.129	6.74	230.91	0.650	0.000	5.00	23.181	15.07	101.6	0.0	1101.9
30.00		1.00	0.70	6.134	6.75	227.34	0.650	0.000	5.00	22.816	14.83	100.1	0.0	1084.4
35.00		1.00	0.73	6.410	7.05	228.65	0.650	0.000	5.00	22.451	14.59	102.9	0.0	1067.0
40.00		1.00	0.76	6.659	7.33	229.24	0.650	0.000	5.00	22.086	14.36	105.2	0.0	1049.5
42.75	Bot - Section 2	1.00	0.78	6.787	7.47	229.30	0.650	0.000	2.75	11.992	7.79	58.2	0.0	569.8
45.00		1.00	0.79	6.887	7.58	229.24	0.650	0.000	2.25	9.849	6.40	48.5	0.0	852.7
50.00	Top - Section 1	1.00	0.81	7.098	7.81	228.78	0.650	0.000	5.00	21.621	14.05	109.7	0.0	1871.7
55.00		1.00	0.83	7.294	8.02	230.81	0.650	0.000	5.00	21.256	13.82	110.8	0.0	842.5
60.00		1.00	0.85	7.477	8.22	229.65	0.650	0.000	5.00	20.891	13.58	111.7	0.0	828.0
65.00		1.00	0.87	7.650	8.42	228.20	0.650	0.000	5.00	20.526	13.34	112.3	0.0	813.4
70.00		1.00	0.89	7.814	8.60	226.49	0.650	0.000	5.00	20.161	13.10	112.6	0.0	798.9
75.00		1.00	0.91	7.969	8.77	224.56	0.650	0.000	5.00	19.796	12.87	112.8	0.0	784.3
80.00		1.00	0.93	8.118	8.93	222.42	0.650	0.000	5.00	19.432	12.63	112.8	0.0	769.8
85.00		1.00	0.94	8.260	9.09	220.10	0.650	0.000	5.00	19.067	12.39	112.6	0.0	755.2
86.50	Bot - Section 3	1.00	0.95	8.301	9.13	219.37	0.650	0.000	1.50	5.649	3.67	33.5	0.0	223.7
90.00		1.00	0.96	8.396	9.24	217.62	0.650	0.000	3.50	13.238	8.60	79.5	0.0	1041.2
92.75	Top - Section 2	1.00	0.97	8.468	9.31	216.19	0.650	0.000	2.75	10.276	6.68	62.2	0.0	808.1
95.00		1.00	0.97	8.526	9.38	218.12	0.650	0.000	2.25	8.325	5.41	50.8	0.0	329.7
100.00		1.00	0.99	8.652	9.52	215.37	0.650	0.000	5.00	18.236	11.85	112.8	0.0	722.1
105.00		1.00	1.00	8.774	9.65	212.49	0.650	0.000	5.00	17.871	11.62	112.1	0.0	707.5
110.00		1.00	1.02	8.891	9.78	209.49	0.650	0.000	5.00	17.506	11.38	111.3	0.0	693.0
111.50	Top - Section 3	1.00	1.02	8.925	9.82	208.57	0.650	0.000	1.50	5.181	3.37	33.1	0.0	205.1
115.00		1.00	1.03	9.005	9.91	206.39	0.650	0.000	3.50	11.961	7.77	77.0	0.0	379.3
120.00	Bot - Section 5	1.00	1.04	9.115	10.03	203.18	0.650	0.000	5.00	16.777	10.90	109.3	0.0	531.9
125.00		1.00	1.05	9.222	10.14	199.87	0.650	0.000	5.00	16.623	10.81	109.6	0.0	1047.3
125.50	Top - Section 4	1.00	1.05	9.232	10.16	199.54	0.650	0.000	0.50	1.642	1.07	10.8	0.0	103.5
130.00		1.00	1.07	9.326	10.26	199.10	0.650	0.000	4.50	14.616	9.50	97.5	0.0	463.3
135.00		1.00	1.08	9.427	10.37	195.63	0.650	0.000	5.00	15.893	10.33	107.1	0.0	503.8
140.00		1.00	1.09	9.525	10.48	192.08	0.650	0.000	5.00	15.529	10.09	105.8	0.0	492.1
145.00		1.00	1.10	9.621	10.58	188.46	0.650	0.000	5.00	15.164	9.86	104.3	0.0	480.5
147.00	Appurtenance(s)	1.00	1.10	9.659	10.62	186.98	0.650	0.000	2.00	5.963	3.88	41.2	0.0	188.9
150.00		1.00	1.11	9.715	10.69	184.76	0.650	0.000	3.00	8.835	5.74	61.4	0.0	279.9
155.00		1.00	1.12	9.806	10.79	180.99	0.650	0.000	5.00	14.434	9.38	101.2	0.0	457.2
157.00	Appurtenance(s)	1.00	1.12	9.842	10.83	179.46	0.650	0.000	2.00	5.671	3.69	39.9	0.0	179.6
160.00		1.00	1.13	9.896	10.89	177.16	0.650	0.000	3.00	8.398	5.46	59.4	0.0	265.9
165.00		1.00	1.14	9.983	10.98	173.26	0.650	0.000	5.00	13.704	8.91	97.8	0.0	433.9
167.00	Appurtenance(s)	1.00	1.14	10.017	11.02	171.69	0.650	0.000	2.00	5.379	3.50	38.5	0.0	170.3
170.00		1.00	1.15	10.069	11.08	169.31	0.650	0.000	3.00	7.960	5.17	57.3	0.0	251.9
<b>Totals:</b>									<b>170.00</b>			<b>3,647.5</b>		<b>28,730.9</b>



## Discrete Appurtenance Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	CCI DMP65R-BU6DA	2	10.017	11.019	0.55	0.75	13.92	158.80	0.000	0.000	153.36	0.00	0.00
2	167.00	Andrew ABT-DFDM-ADBH	3	10.017	11.019	0.73	0.75	0.11	3.30	0.000	0.000	1.21	0.00	0.00
3	167.00	Raycap DC6-48-60-18-8F	2	10.017	11.019	0.75	0.75	1.38	63.60	0.000	0.000	15.21	0.00	0.00
4	167.00	RMQP-496-HK	1	10.017	11.019	1.00	1.00	46.00	2449.00	0.000	0.000	506.88	0.00	0.00
5	167.00	CCI HPA-65R-BU6AA	2	10.017	11.019	0.59	0.75	11.02	93.80	0.000	0.000	121.44	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	10.017	11.019	0.75	0.75	4.41	33.50	0.000	0.000	48.59	0.00	0.00
7	167.00	Powerwave	6	10.017	11.019	0.68	0.75	3.73	132.00	0.000	0.000	41.06	0.00	0.00
8	167.00	CCI DMP65R-BU4DA	1	10.017	11.019	0.75	0.75	5.42	67.90	0.000	0.000	59.75	0.00	0.00
9	167.00	Powerwave 7770	3	10.017	11.019	0.55	0.75	9.03	105.00	0.000	0.000	99.54	0.00	0.00
10	167.00	Ericsson RRUS 8843 B2	3	10.017	11.019	0.50	0.75	2.47	216.00	0.000	0.000	27.24	0.00	0.00
11	167.00	Ericsson RRUS 4449	3	10.017	11.019	0.50	0.75	2.97	213.00	0.000	0.000	32.72	0.00	0.00
12	167.00	Powerwave	3	10.017	11.019	0.56	0.75	13.77	159.00	0.000	0.000	151.73	0.00	0.00
13	157.00	Top rail kit	1	9.842	10.827	1.00	1.00	6.36	255.70	0.000	0.000	68.86	0.00	0.00
14	157.00	Antel	3	9.842	10.827	0.58	0.75	13.12	51.00	0.000	0.000	141.99	0.00	0.00
15	157.00	Samsung RFV01U-D1A	3	9.842	10.827	0.62	0.75	3.51	292.50	0.000	0.000	38.01	0.00	0.00
16	157.00	Commscope	6	9.842	10.827	0.62	0.75	30.18	262.20	0.000	0.000	326.73	0.00	0.00
17	157.00	Samsung 64T64R	3	9.842	10.827	0.52	0.75	7.40	261.30	0.000	0.000	80.14	0.00	0.00
18	157.00	Kicker Kit	1	9.842	10.827	1.00	1.00	5.59	91.67	0.000	0.000	60.52	0.00	0.00
19	157.00	Samsung RFV01U-D2A	3	9.842	10.827	0.58	0.75	3.26	246.00	0.000	0.000	35.26	0.00	0.00
20	157.00	RFS DB-C1-12C-24AB-OZ	1	9.842	10.827	1.04	0.75	1.80	32.00	0.000	0.000	19.53	0.00	0.00
21	157.00	12' Low Profile Platform	1	9.842	10.827	1.00	1.00	22.00	1500.00	0.000	0.000	238.18	0.00	0.00
22	147.00	Platform w/hand rail (Site	1	9.659	10.625	1.00	1.00	46.00	2669.00	0.000	0.000	488.74	0.00	0.00
23	147.00	Ericsson 4460 B25 + B66	3	9.659	10.625	0.64	0.75	4.09	312.00	0.000	0.000	43.48	0.00	0.00
24	147.00	Ericsson 4480 B71 + B85	3	9.659	10.625	0.56	0.75	4.08	279.00	0.000	0.000	43.39	0.00	0.00
25	147.00	Commscope VV-65A-R1	3	9.659	10.625	0.55	0.75	9.72	71.43	0.000	0.000	103.31	0.00	0.00
26	147.00	RFS	3	9.659	10.625	0.54	0.75	32.79	368.40	0.000	0.000	348.38	0.00	0.00
27	147.00	Ericsson AIR6419 B41	3	9.659	10.625	0.55	0.75	10.38	249.90	0.000	0.000	110.29	0.00	0.00
<b>Totals:</b>								<b>10,637.00</b>				<b>3,405.57</b>		



## Total Applied Force Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		107.98	1370.96	0.00	0.00
10.00		106.38	1353.50	0.00	0.00
15.00		104.78	1336.03	0.00	0.00
20.00		103.18	1318.57	0.00	0.00
25.00		101.58	1301.10	0.00	0.00
30.00		100.07	1283.64	0.00	0.00
35.00		102.90	1266.17	0.00	0.00
40.00		105.16	1248.70	0.00	0.00
42.75		58.19	679.34	0.00	0.00
45.00		48.50	942.33	0.00	0.00
50.00		109.72	2070.85	0.00	0.00
55.00		110.85	1041.72	0.00	0.00
60.00		111.69	1027.17	0.00	0.00
65.00		112.28	1012.62	0.00	0.00
70.00		112.64	998.06	0.00	0.00
75.00		112.80	983.51	0.00	0.00
80.00		112.78	968.95	0.00	0.00
85.00		112.60	954.40	0.00	0.00
86.50		33.53	283.48	0.00	0.00
90.00		79.47	1180.66	0.00	0.00
92.75		62.22	917.66	0.00	0.00
95.00		50.75	419.32	0.00	0.00
100.00		112.82	921.28	0.00	0.00
105.00		112.11	906.72	0.00	0.00
110.00		111.29	892.17	0.00	0.00
111.50		33.06	264.81	0.00	0.00
115.00		77.01	518.72	0.00	0.00
120.00		109.33	731.13	0.00	0.00
125.00		109.61	1246.53	0.00	0.00
125.50		10.84	123.37	0.00	0.00
130.00		97.46	642.61	0.00	0.00
135.00		107.12	702.95	0.00	0.00
140.00		105.76	691.31	0.00	0.00
145.00		104.31	679.66	0.00	0.00
147.00	(16) attachments	1178.78	4218.33	0.00	0.00
150.00		61.37	390.05	0.00	0.00
155.00		101.20	640.78	0.00	0.00
157.00	(22) attachments	1049.13	3245.42	0.00	0.00
160.00		59.42	319.74	0.00	0.00
165.00		97.82	523.59	0.00	0.00
167.00	(30) attachments	1297.28	3901.07	0.00	0.00
170.00		57.30	251.95	0.00	0.00
Totals:		7,053.06	45,770.95	0.00	0.00

## Calculated Forces

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.0D + 1.0W 60 mph Wind	<b>Iterations</b> 24
<b>Dead Load Factor</b> 1.00	
<b>Wind Load Factor</b> 1.00	

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.77	-7.07	0.00	-891.23	0.00	891.23	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.179
5.00	-44.39	-6.99	0.00	-855.88	0.00	855.88	4373.55	2186.77	10335.0	5175.19	0.02	-0.042	0.000	0.176
10.00	-43.03	-6.92	0.00	-820.91	0.00	820.91	4336.78	2168.39	10093.2	5054.11	0.09	-0.084	0.000	0.172
15.00	-41.69	-6.84	0.00	-786.33	0.00	786.33	4299.12	2149.56	9852.03	4933.34	0.20	-0.126	0.000	0.169
20.00	-40.37	-6.76	0.00	-752.13	0.00	752.13	4260.58	2130.29	9611.54	4812.91	0.35	-0.168	0.000	0.166
25.00	-39.06	-6.69	0.00	-718.31	0.00	718.31	4221.16	2110.58	9371.84	4692.89	0.55	-0.210	0.000	0.162
30.00	-37.78	-6.61	0.00	-684.88	0.00	684.88	4180.86	2090.43	9133.04	4573.31	0.79	-0.252	0.000	0.159
35.00	-36.51	-6.53	0.00	-651.83	0.00	651.83	4139.68	2069.84	8895.22	4454.22	1.08	-0.294	0.000	0.155
40.00	-35.25	-6.44	0.00	-619.20	0.00	619.20	4097.62	2048.81	8658.48	4335.68	1.41	-0.336	0.000	0.151
42.75	-34.57	-6.39	0.00	-601.50	0.00	601.50	4074.11	2037.05	8528.77	4270.73	1.61	-0.360	0.000	0.149
45.00	-33.63	-6.35	0.00	-587.13	0.00	587.13	4054.67	2027.34	8422.92	4217.72	1.79	-0.379	0.000	0.148
50.00	-31.55	-6.25	0.00	-555.39	0.00	555.39	3121.16	1560.58	6469.05	3239.33	2.20	-0.421	0.000	0.182
55.00	-30.51	-6.15	0.00	-524.15	0.00	524.15	3092.99	1546.50	6300.19	3154.78	2.67	-0.462	0.000	0.176
60.00	-29.48	-6.06	0.00	-493.39	0.00	493.39	3063.94	1531.97	6131.59	3070.35	3.18	-0.510	0.000	0.170
65.00	-28.46	-5.96	0.00	-463.11	0.00	463.11	3034.01	1517.01	5963.32	2986.09	3.74	-0.557	0.000	0.164
70.00	-27.46	-5.86	0.00	-433.32	0.00	433.32	3003.20	1501.60	5795.50	2902.06	4.35	-0.604	0.000	0.158
75.00	-26.47	-5.76	0.00	-404.03	0.00	404.03	2971.51	1485.76	5628.21	2818.29	5.00	-0.650	0.000	0.152
80.00	-25.50	-5.65	0.00	-375.25	0.00	375.25	2938.94	1469.47	5461.54	2734.83	5.71	-0.695	0.000	0.146
85.00	-24.54	-5.54	0.00	-347.00	0.00	347.00	2905.48	1452.74	5295.59	2651.73	6.46	-0.740	0.000	0.139
86.50	-24.26	-5.51	0.00	-338.69	0.00	338.69	2895.27	1447.64	5245.96	2626.88	6.70	-0.753	0.000	0.137
90.00	-23.08	-5.43	0.00	-319.40	0.00	319.40	2871.14	1435.57	5130.46	2569.04	7.26	-0.784	0.000	0.132
92.75	-22.16	-5.36	0.00	-304.48	0.00	304.48	2877.20	1438.60	5159.24	2583.45	7.72	-0.807	0.000	0.126
95.00	-21.74	-5.31	0.00	-292.42	0.00	292.42	2861.53	1430.77	5085.14	2546.35	8.10	-0.827	0.000	0.122
100.00	-20.81	-5.20	0.00	-265.84	0.00	265.84	2826.07	1413.04	4921.19	2464.25	8.99	-0.866	0.000	0.115
105.00	-19.90	-5.09	0.00	-239.83	0.00	239.83	2789.73	1394.87	4758.26	2382.67	9.92	-0.904	0.000	0.108
110.00	-19.01	-4.97	0.00	-214.39	0.00	214.39	2752.51	1376.25	4596.46	2301.65	10.88	-0.940	0.000	0.100
111.50	-18.75	-4.94	0.00	-206.93	0.00	206.93	2741.17	1370.58	4548.16	2277.46	11.18	-0.950	0.000	0.098
111.50	-18.75	-4.94	0.00	-206.93	0.00	206.93	2001.40	1000.70	3331.01	1667.98	11.18	-0.950	0.000	0.133
115.00	-18.23	-4.86	0.00	-189.65	0.00	189.65	1985.76	992.88	3255.34	1630.09	11.89	-0.974	0.000	0.126
120.00	-17.49	-4.75	0.00	-165.33	0.00	165.33	1962.68	981.34	3147.40	1576.04	12.93	-1.014	0.000	0.114
125.00	-16.25	-4.63	0.00	-141.56	0.00	141.56	1938.71	969.36	3039.72	1522.12	14.01	-1.051	0.000	0.101
125.50	-16.12	-4.62	0.00	-139.25	0.00	139.25	1950.32	975.16	3091.33	1547.96	14.12	-1.055	0.000	0.098
130.00	-15.48	-4.52	0.00	-118.47	0.00	118.47	1928.38	964.19	2994.57	1499.51	15.13	-1.084	0.000	0.087
135.00	-14.78	-4.40	0.00	-95.88	0.00	95.88	1903.16	951.58	2887.43	1445.86	16.28	-1.113	0.000	0.074
140.00	-14.09	-4.29	0.00	-73.87	0.00	73.87	1877.06	938.53	2780.79	1392.46	17.46	-1.137	0.000	0.061
145.00	-13.41	-4.17	0.00	-52.42	0.00	52.42	1850.08	925.04	2674.74	1339.36	18.66	-1.156	0.000	0.046
147.00	-9.22	-2.91	0.00	-44.07	0.00	44.07	1839.04	919.52	2632.50	1318.21	19.15	-1.162	0.000	0.038
150.00	-8.83	-2.84	0.00	-35.34	0.00	35.34	1822.21	911.11	2569.37	1286.60	19.88	-1.170	0.000	0.032
155.00	-8.19	-2.73	0.00	-21.12	0.00	21.12	1793.47	896.74	2464.78	1234.22	21.11	-1.180	0.000	0.022
157.00	-4.96	-1.61	0.00	-15.66	0.00	15.66	1781.73	890.86	2423.19	1213.40	21.61	-1.183	0.000	0.016
160.00	-4.65	-1.55	0.00	-10.81	0.00	10.81	1763.85	881.92	2361.07	1182.29	22.35	-1.186	0.000	0.012
165.00	-4.12	-1.44	0.00	-3.07	0.00	3.07	1733.34	866.67	2258.33	1130.84	23.60	-1.189	0.000	0.005
167.00	-0.25	-0.06	0.00	-0.19	0.00	0.19	1720.89	860.44	2217.52	1110.41	24.09	-1.189	0.000	0.000
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	24.84	-1.189	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 28



### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	27.2	0.00	54.89	0.00	0.00	3454.34
0.9D + 1.6W 93 mph Wind	27.2	0.00	41.16	0.00	0.00	3406.79
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.8	0.00	91.88	0.00	0.00	1141.88
1.2D + 1.0E	2.3	0.00	54.92	0.00	0.00	326.38
0.9D + 1.0E	2.3	0.00	41.19	0.00	0.00	321.59
1.0D + 1.0W 60 mph Wind	7.1	0.00	45.77	0.00	0.00	891.23

### Max Stresses


Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-37.21	-24.21	0.00	-2157.8	0.00	-2157.8	3121.16	1560.5	6469.05	3239.33	50.00	0.678
0.9D + 1.6W 93 mph Wind	-27.75	-23.91	0.00	-2118.7	0.00	-2118.7	3121.16	1560.5	6469.05	3239.33	50.00	0.663
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-68.05	-8.03	0.00	-716.24	0.00	-716.24	3121.16	1560.5	6469.05	3239.33	50.00	0.243
1.2D + 1.0E	-37.91	-2.04	0.00	-214.20	0.00	-214.20	3121.16	1560.5	6469.05	3239.33	50.00	0.078
0.9D + 1.0E	-28.43	-2.01	0.00	-210.21	0.00	-210.21	3121.16	1560.5	6469.05	3239.33	50.00	0.074
1.0D + 1.0W 60 mph Wind	-31.55	-6.25	0.00	-555.39	0.00	-555.39	3121.16	1560.5	6469.05	3239.33	50.00	0.182

## Base Plate Summary

<b>Structure:</b> CT11709-S	<b>Code:</b> TIA-222-G	5/16/2022
<b>Site Name:</b> Barkhamsted, CT	<b>Exposure:</b> B	
<b>Height:</b> 170.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 29



Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 66.00
<b>Moment (kip-ft):</b> 4200.00	<b>Width (in):</b> 72.00	<b>Number Bolts:</b> 18.00
<b>Axial (kip):</b> 51.00	<b>Style:</b> Round	<b>Bolt Type:</b> 2.00" F1554 105
<b>Shear (kip):</b> 33.00	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.00
Analysis (1.2D + 1.6W)	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 105.00
<b>Moment (kip-ft):</b> 3454.34	<b>Effective Len (in):</b> 13.26	<b>Ultimate (ksi):</b> 125.00
<b>Axial (kip):</b> 54.89	<b>Moment (kip-in):</b> 530.16	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 27.19	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 38.48	<b>Start Angle (deg):</b> 0.00
	<b>Stress Ratio:</b> 0.57	Compression
		<b>Force (kip):</b> 144.67
		<b>Allowable (kip):</b> 250.00
		<b>Ratio:</b> 0.59
		Tension
		<b>Force (kip):</b> 134.46
		<b>Allowable (kip):</b> 250.00
		<b>Ratio:</b> 0.55

	<b>Monopole Mat Foundation Design</b>		<i>Date</i>	
			5/16/2022	
	<b>Customer Name:</b>	T-Mobile	<b>TIA Standard:</b>	TIA-222-G
	<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	170
	<b>Site Number:</b>		<b>Engineer Name:</b>	A. Hagos
<b>Engr. Number:</b>		<b>Engineer Login ID:</b>		

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

Axial Load (Kips):	54.9	Shear Force (Kips):	27.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3454.3
Allowable overstress %:	5.0%		

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	5.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft.):	3.00
Length of Pad (ft.):	29	Width of Pad (ft.):	29
Final Length of pad (ft)	29.0	Final width of pad (ft):	29.0

**Material Properties and Rebar Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	40	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	29	Qty. of Rebar in Pad (W):	29	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	29	Qty. of Rebar in Pad (W):	29	

Apply 1.35 factor for e/w Per G. 1.35

**Soil Design Parameters:**

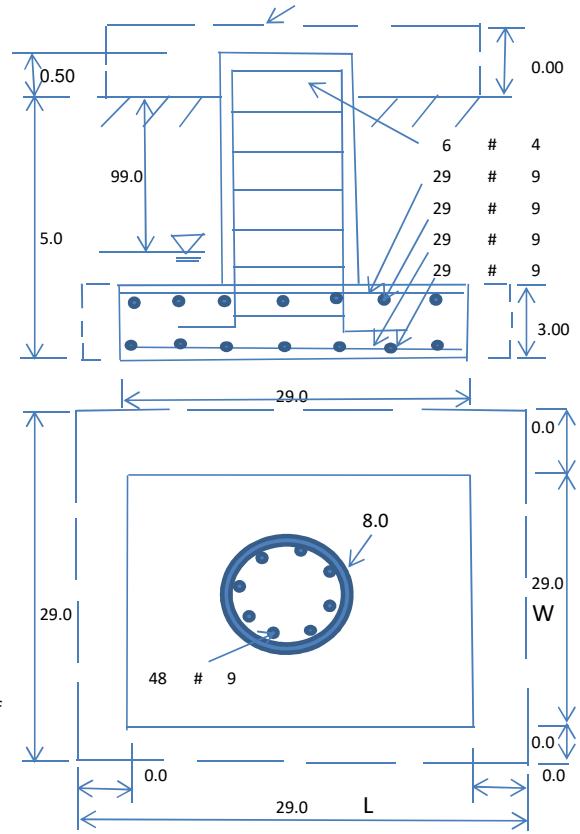
Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	62.6	Pcf	
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad: 25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad: 25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00		

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1581.47	Total Dry Soil Weight (Kips):	197.68
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	197.68	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2648.66	Total Dry Concrete Weight (Kips):	397.30
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	397.30	Total Vertical Load on Base (Kips):	649.87

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	1680	<	Allowable Factored Soil Bearing (psf):	9000	0.19	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	8560.4	>	Design Factored Momont (kips-ft):	3604	0.42	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.38					OK!



**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	9280.8	>	Design Factored Moment (Mu, Kips-Ft)	3522.3	0.38 OK!
Calculated Shear Capacity (Kips):	789.1	>	Design Factored Shear (Kips):	27.2	0.03 OK!
Calculated Tension Capacity (Tn, Kips):	2592.0	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	12712.3	>	Design Factored Axial Load (Pu Kips):	54.9	0.00 OK!
Moment & Axial Strength Combination:	0.38	OK!	Check Tie Spacing (Design/Required):	1	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1070.9	>	One-Way Factored Shear (L-D. Kips):	220.2	0.21 OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1070.9	>	One-Way Factored Shear (W-D., Kips)	220.2	0.21 OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1019.4	>	One-Way Factored Shear (C-C, Kips):	212.5	0.21 OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0026	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0026	
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	4137.1	>	Moment at Bottom ( L-Dir. K-Ft):	1379.4	0.33 OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	4137.1	>	Moment at Bottom ( W-Dir. K-Ft):	1379.4	0.33 OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5817.9	>	Moment at Bottom ( C-C Dir. K-Ft):	1950.8	0.34 OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0026	OK!	Upper Steel Reinf. Ratio (W-Dir. ):	0.0026	
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	4137.1	>	Moment at the top (L-Dir K-Ft):	565.3	0.14 OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	4137.1	>	Moment at the top (W-Dir K-Ft):	565.3	0.14 OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5817.9	>	Moment at the top (C-C Dir. K-Ft):	530.1	0.09 OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1381.7	k-ft.	Max. factored shear stress $v_{u,cb}$ :	1.6	Psi
Max. factored shear stress $v_{u,AB}$ :	8.3	Psi	Factored shear Strength $\phi_v$ :	189.7	Psi
Max. factored shear stress $v_u$ :	8.3	Psi	Check Usage of Punching Shear Capacity:	0.04	OK!

# Exhibit E

## **Mount Analysis**



**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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## Antenna Mount Analysis Report

**Existing Monopole Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT11709-S-SBA**

**Customer Site Name: Barkhamsted, CT**

**Carrier Name: T-Mobile Northeast LLC (App#: 189463, V1)**

**Carrier Site ID / Name: CTNH393A / 44 Gavitt Road**

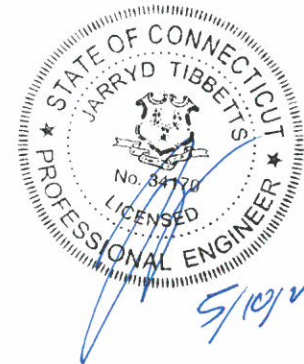
**Site Location: 44 Gavitt Road**

**Barkhamsted, Connecticut**

**Litchfield County**

**Latitude: 41.946083**

**Longitude: -72.911472**



**Analysis Result:**

**Max Structural Usage: 36.9% [Pass]**

**Report Prepared By: Venkata Annamreddy**

**NOTE: The proposed mount (1) SitePro RMQP-4096-HK was assumed to be installed properly to the existing tower per the manufacturer's instructions. Tower Engineering Solutions, LLC is not liable for any fit-up issues during installation.**





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## **Introduction**

The purpose of this report is to summarize the analysis results on the (1) SitePro RMQP-4096-HK at 147.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## **Sources of Information**

Mount Drawings	Mount info provided by SBA; Application #:189463, v1; dated:5/4/2022 Site Pro 1 RMQP-4096-HK; Structural Drawing provided by Site Pro
Antenna Loading	SBA, Application #:189463, v1; dated:5/4/2022
Modification Drawings	N/A

## **Analysis Criteria**

Basic Wind Speed Used in the Analysis:  $V_{ULT} = 120$  mph (3-Sec. Gust) / Equivalent to  
 $V_{ASD} = 93$  mph (3-Sec. Gust)

Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent

Operational Wind Speed: 60 mph +0" Radial ice

Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC

Exposure Category: B

Structure Class: II

Topographic Category: 1

Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

## **Mount Information**

(1) SitePro RMQP-4096-HK at 147.00' elevation

## **Final Antenna Configuration**

- 3 Ericsson AIR6419 B41
- 3 RFS APXVAALL24-43-U-NA20
- 3 Commscope VV-65A-R1
- 3 Ericsson 4480 B71 + B85
- 3 Ericsson 4460 B25 + B66

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

## **Analysis Results**

Our calculations have determined that under design wind load the proposed mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 36.9%, which occurs in the mount pipe. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

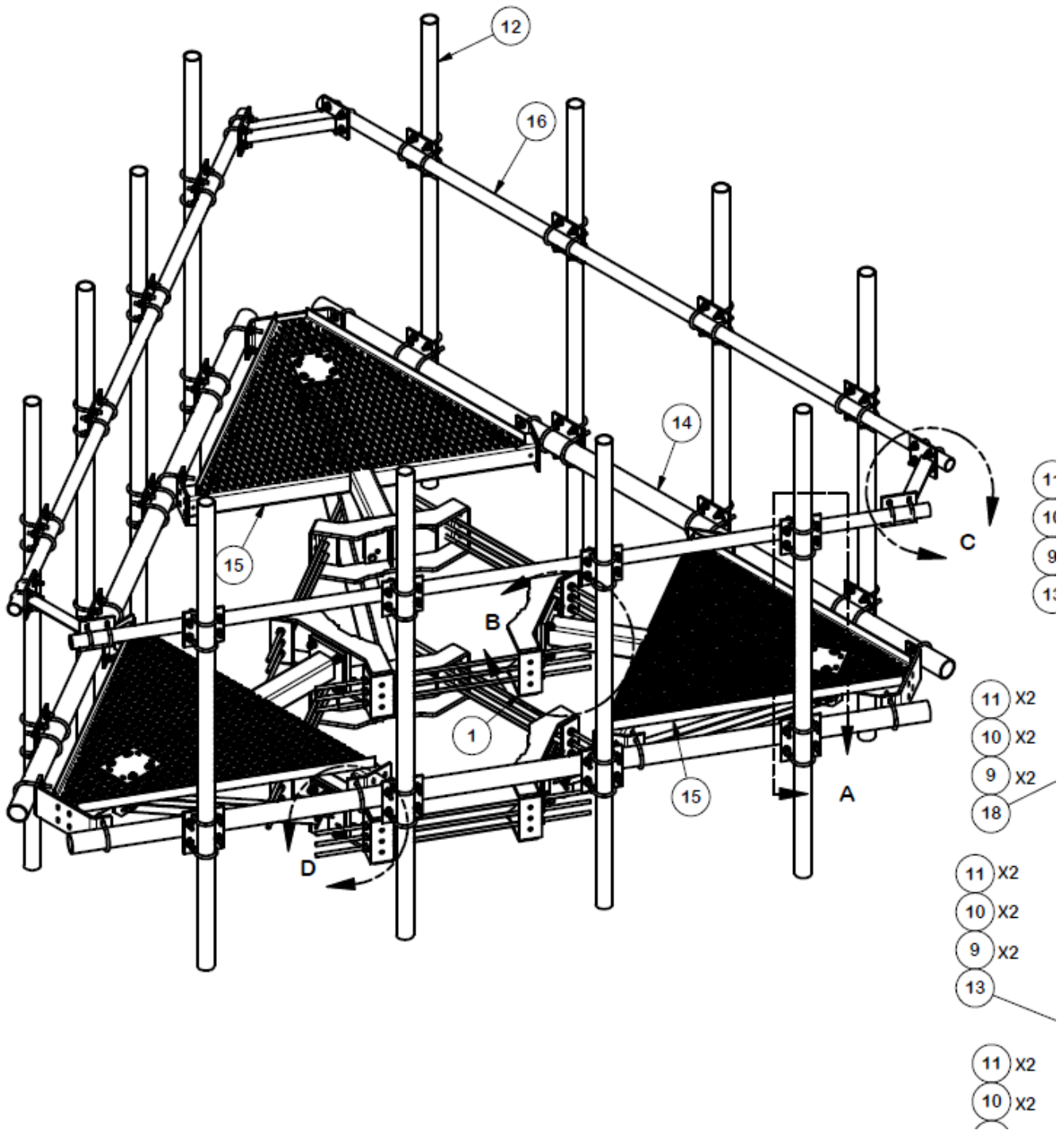
**NOTE: The proposed mount (1) SitePro RMQP-4096-HK was assumed to be installed properly to the existing tower per the manufacturer's instructions. Tower Engineering Solutions, LLC is not liable for any fit-up issues during installation.**

## **Attachments**

1. Mount Assembly Drawing
2. Antenna Placement Diagram
3. Analysis Calculations

## **Standard Conditions**

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.
2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.
4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.
6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.
7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.
8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.
9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.



Structure: CT11709-S-SBA - Barkhamsted, CT

Sector: **A**

5/10/2022

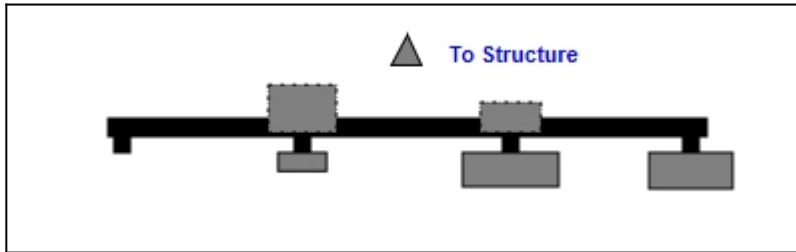
Structure Type: Monopole

Mount Elev: 147.00

Page: 1

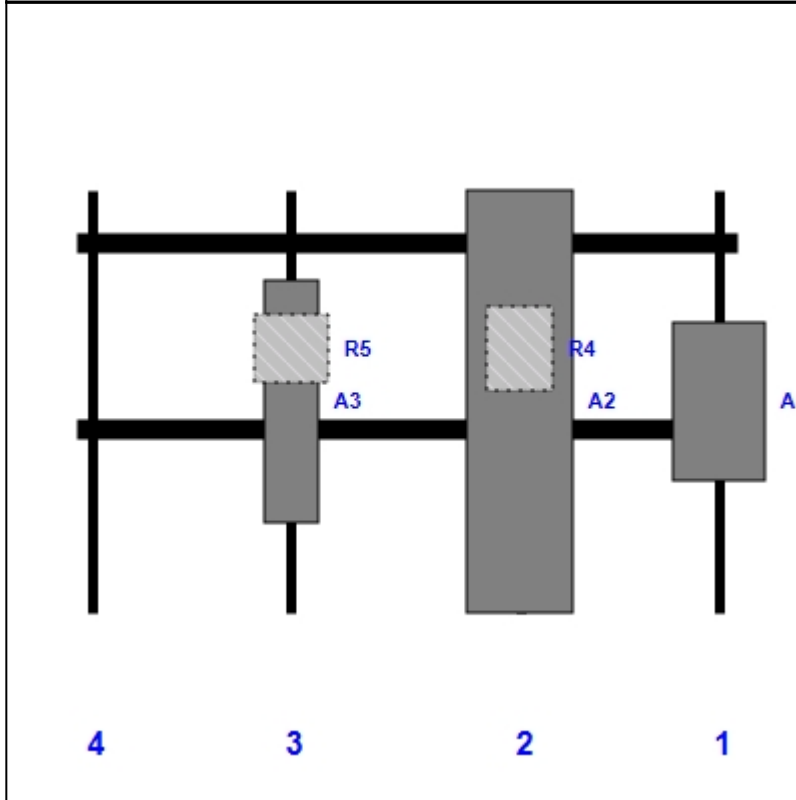


Plan View



Front View

Looking Toward Structure



Ref	Model	Height (in)	Width (in)	H Dist Left	Pipe	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	AIR6419 B41	36.30	20.90	146.00	1	a	Front	48.00		Added	
A2	APXVAALL24-43-U-NA20	95.90	24.00	101.00	2	a	Front	48.00		Added	
R4	4480 B71 + B85	19.20	15.10	101.00	2	b	Behind	36.00		Added	
A3	VV-65A-R1	54.72	12.08	49.00	3	a	Front	48.00		Added	
R5	4460 B25 + B66	15.10	17.00	49.00	3	b	Behind	36.00		Added	

Structure: CT11709-S-SBA - Barkhamsted, CT

Sector: **B**

5/10/2022

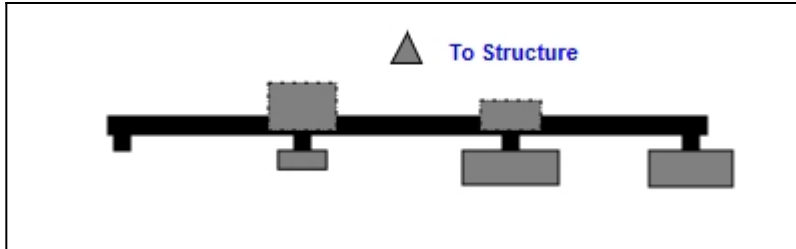
Structure Type: Monopole



Mount Elev: 147.00

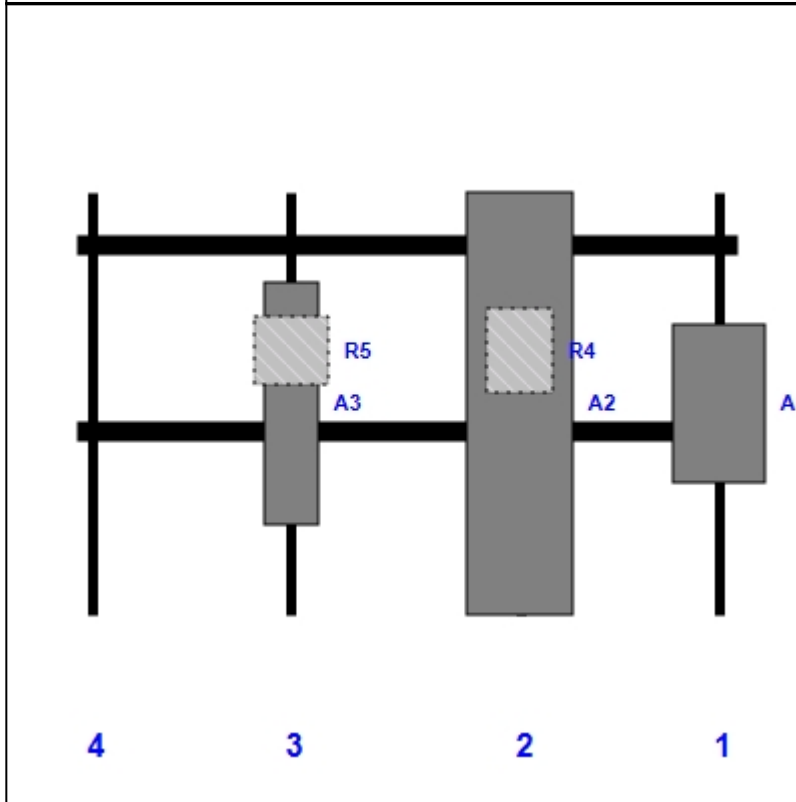
Page: 2

Plan View



Front View

Looking Toward Structure



Ref	Model	Height (in)	Width (in)	H Dist Left	Pipe	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	AIR6419 B41	36.30	20.90	146.00	1	a	Front	48.00		Added	
A2	APXVAALL24-43-U-NA20	95.90	24.00	101.00	2	a	Front	48.00		Added	
R4	4480 B71 + B85	19.20	15.10	101.00	2	b	Behind	36.00		Added	
A3	VV-65A-R1	54.72	12.08	49.00	3	a	Front	48.00		Added	
R5	4460 B25 + B66	15.10	17.00	49.00	3	b	Behind	36.00		Added	

Structure: CT11709-S-SBA - Barkhamsted, CT

Sector: C

5/10/2022

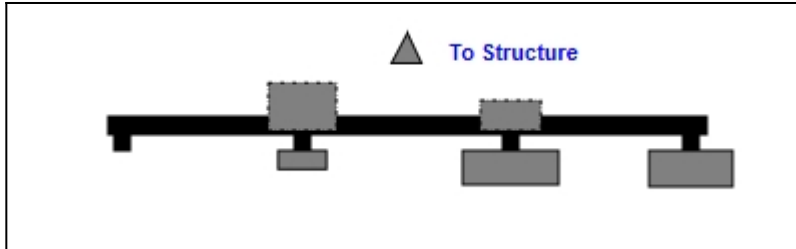
Structure Type: Monopole



Mount Elev: 147.00

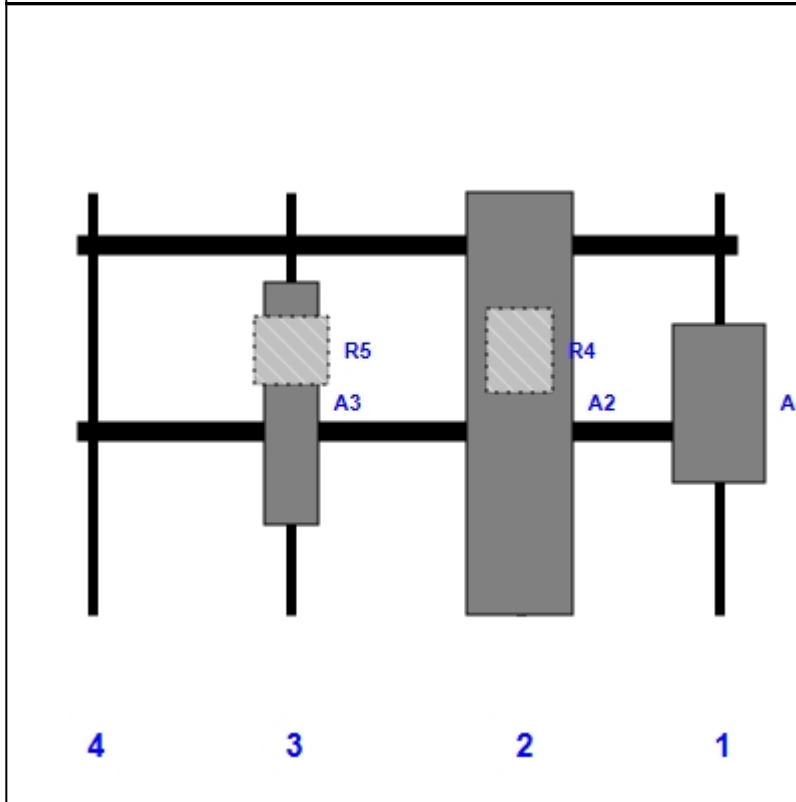
Page: 3

Plan View



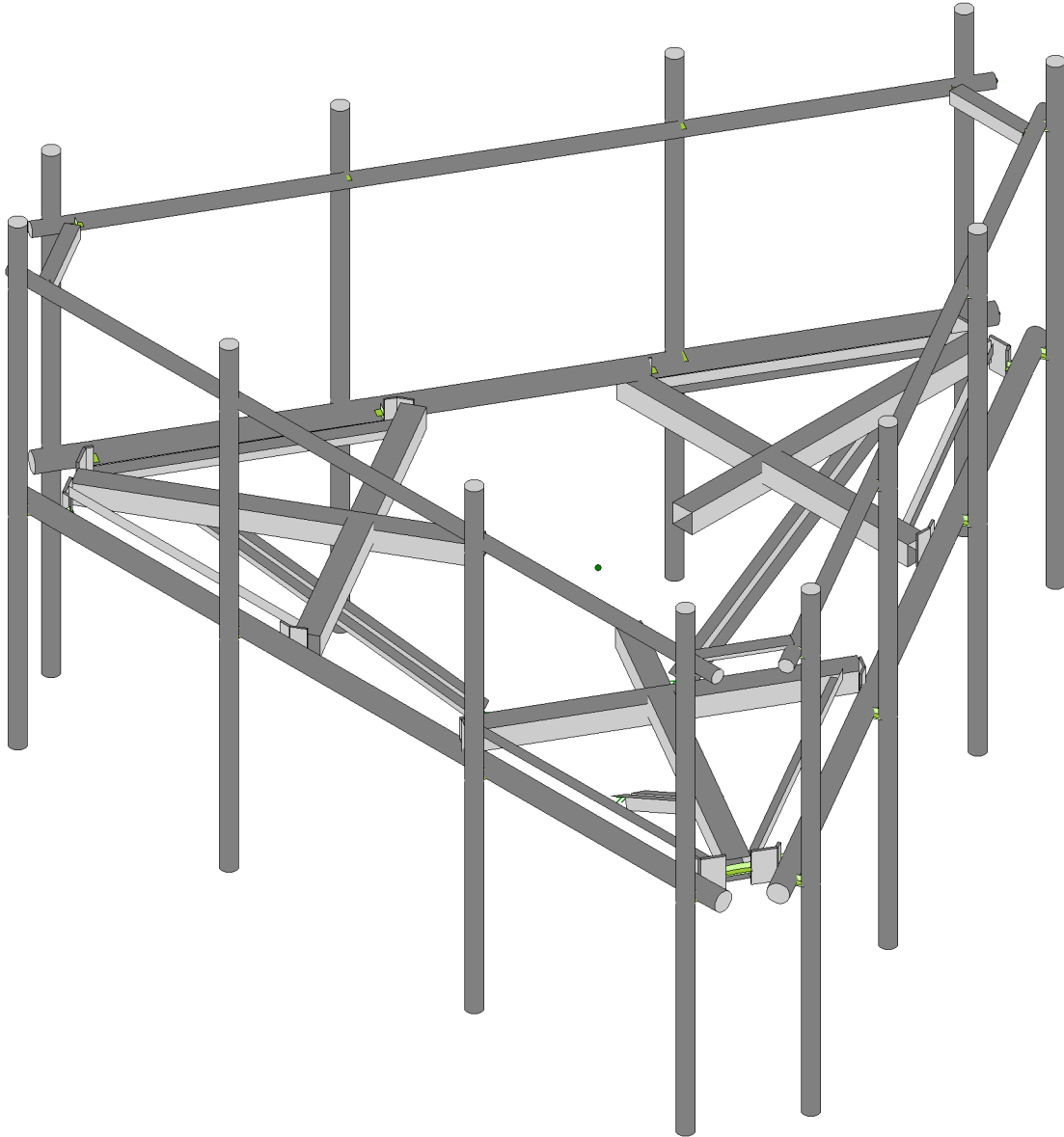
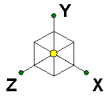
Front View

Looking Toward Structure



Ref	Model	Height (in)	Width (in)	H Dist Left	Pipe	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	AIR6419 B41	36.30	20.90	146.00	1	a	Front	48.00		Added	
A2	APXVAALL24-43-U-NA20	95.90	24.00	101.00	2	a	Front	48.00		Added	
R4	4480 B71 + B85	19.20	15.10	101.00	2	b	Behind	36.00		Added	
A3	VV-65A-R1	54.72	12.08	49.00	3	a	Front	48.00		Added	
R5	4460 B25 + B66	15.10	17.00	49.00	3	b	Behind	36.00		Added	





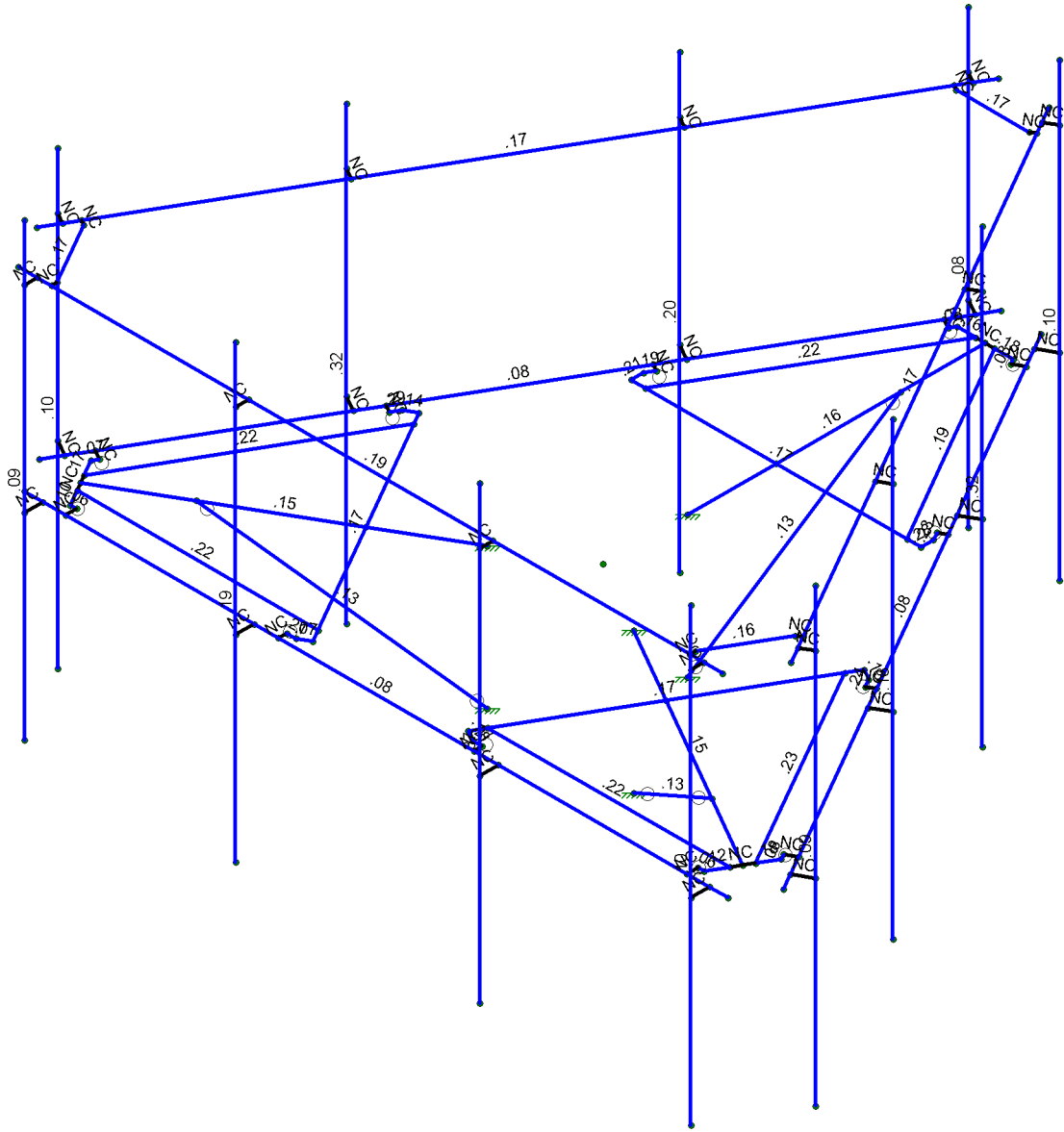
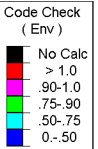
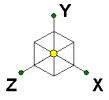
Tower Engineering Solutio...  
KW  
TES Project No. 128737

CT11709-S-SBA\_MT\_LO\_Loads Only\_G

SK - 1

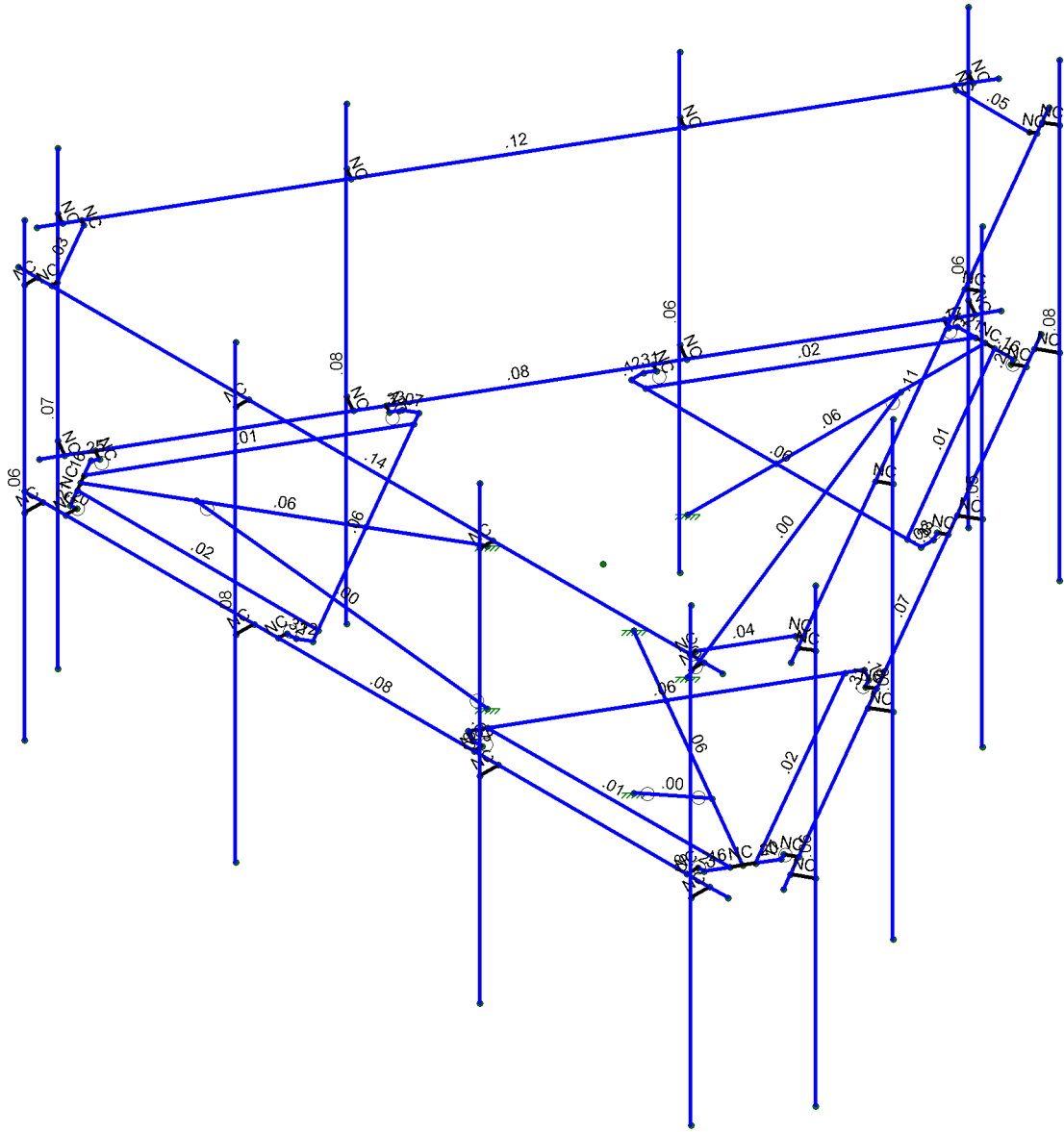
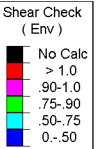
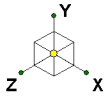
May 10, 2022 at 8:59 AM

CT11709-S-SBA\_128737\_G\_RISA\_...



Member Code Checks Displayed (Enveloped)  
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT11709-S-SBA_MT_LO_Loads Only_G	SK - 2
KW		May 10, 2022 at 9:03 AM
TES Project No. 128737		CT11709-S-SBA_128737_G_RISA_...



Member Shear Checks Displayed (Enveloped)  
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT11709-S-SBA_MT_LO_Loads Only_G	SK - 3
KW		May 10, 2022 at 9:03 AM
TES Project No. 128737		CT11709-S-SBA_128737_G_RISA_...





















































**9bj YcdYA Ya Vyf GYV|cb: cfWg fT cb|pi YXL**

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# Exhibit F

## **Power Density/RF Emissions Report**



# Radio Frequency Exposure Analysis Report

June 8, 2022

Centerline on behalf of T-Mobile  
Centerline Communications Project Number: N/A

T-Mobile Site Name: 44 Gavitt Road  
Site Number: CTNH393A

Site Address: 44 Gavitt Road, Barkhamstead, CT 06063

## Site Compliance Summary

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<b>T-Mobile Compliance Status:</b>	Compliant
<b>Cumulative Calculated Power Density (Ground Level):</b>	3.09470 $\mu\text{W}/\text{cm}^2$
<b>Cumulative General Population % MPE (Ground Level):</b>	0.36622%



June 8, 2022

Centerline  
Attn: Ryan Clark, Site Acquisition  
750 W Center St, Suite 301  
West Bridgewater, MA 02379

#### RF Exposure Analysis for Site: **44 Gavitt Road**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed T-Mobile facility at **44 Gavitt Road, Barkhamstead, CT 06063** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.



## **Calculation Methodology**

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.





## **Data & Results**

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the Ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



**Maximum Calculated Cumulative Power Density (Location: approximately 10' SW of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	ERICSSON SON_AIR6419 NR	3400	22.85	147.00	2.00	80.00	30840.40	0.00058	1000.00	0.00006
T-Mobile A 1	ERICSSON SON_AIR6419 LTE	3400	22.85	147.00	2.00	80.00	30840.40	0.00058	1000.00	0.00006
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	700	13.65	147.00	2.00	40.00	1853.92	0.00002	466.67	0.00000
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	4.00	60.00	4733.81	0.00014	400.00	0.00003
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	2.00	40.00	1577.94	0.00005	400.00	0.00001
T-Mobile A 3	COMMSCOPE VV-65A-R1	1900	15.77	147.00	2.00	140.00	10572.02	0.00004	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1	2100	16.47	147.00	2.00	140.00	12421.04	0.00010	1000.00	0.00001
T-Mobile A 3	COMMSCOPE VV-65A-R1	1900	15.77	147.00	1.00	15.00	566.36	0.00000	1000.00	0.00000
T-Mobile B 4	ERICSSON SON_AIR6419 NR	3400	22.85	147.00	2.00	80.00	30840.40	0.00378	1000.00	0.00038
T-Mobile B 4	ERICSSON SON_AIR6419 LTE	3400	22.85	147.00	2.00	80.00	30840.40	0.00378	1000.00	0.00038
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	700	13.65	147.00	2.00	40.00	1853.92	0.00002	466.67	0.00000
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65A-R1	1900	15.77	147.00	2.00	140.00	10572.02	0.00008	1000.00	0.00001
T-Mobile B 6	COMMSCOPE VV-65A-R1	2100	16.47	147.00	2.00	140.00	12421.04	0.00005	1000.00	0.00001
T-Mobile B 6	COMMSCOPE VV-65A-R1	1900	15.77	147.00	1.00	15.00	566.36	0.00000	1000.00	0.00000
T-Mobile C 7	ERICSSON SON_AIR6419 NR	3400	22.85	147.00	2.00	80.00	30840.40	0.96140	1000.00	0.09614
T-Mobile C 7	ERICSSON SON_AIR6419 LTE	3400	22.85	147.00	2.00	80.00	30840.40	0.96140	1000.00	0.09614
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	700	13.65	147.00	2.00	40.00	1853.92	0.02247	466.67	0.00481
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	4.00	60.00	4733.81	0.07516	400.00	0.01879
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	600	12.95	147.00	2.00	40.00	1577.94	0.02505	400.00	0.00626
T-Mobile C 9	COMMSCOPE VV-65A-R1	1900	15.77	147.00	2.00	140.00	10572.02	0.11633	1000.00	0.01163
T-Mobile C 9	COMMSCOPE VV-65A-R1	2100	16.47	147.00	2.00	140.00	12421.04	0.12981	1000.00	0.01298
T-Mobile C 9	COMMSCOPE VV-65A-R1	1900	15.77	147.00	1.00	15.00	566.36	0.00623	1000.00	0.00062
AT&T A 10	POWERWAVE P90-15-XLH-RR	700	11.40	167.00	2.00	40.00	1104.31	0.00005	466.67	0.00001
AT&T A 11	CCI DMP65R-BU6D	700	11.75	167.00	4.00	40.00	2393.98	0.00004	466.67	0.00001
AT&T A 11	CCI DMP65R-BU6D	1900	14.05	167.00	4.00	40.00	4065.56	0.00014	1000.00	0.00001
AT&T A 11	CCI DMP65R-BU6D	2100	14.75	167.00	4.00	40.00	4776.61	0.00005	1000.00	0.00001
AT&T A 12	CCI HPA-65R-BUU-H6	850	12.74	167.00	4.00	40.00	3006.91	0.00032	566.67	0.00006
AT&T A 12	CCI HPA-65R-BUU-H6-	2300	14.77	167.00	4.00	25.00	2999.16	0.00021	1000.00	0.00002
AT&T A 13	POWERWAVE 7770 00	850	11.35	167.00	1.00	40.00	545.83	0.00010	566.67	0.00002
AT&T B 14	POWERWAVE P90-15-XLH-RR	700	11.40	167.00	2.00	40.00	1104.31	0.00033	466.67	0.00007
AT&T B 15	CCI DMP65R-BU6D	700	11.75	167.00	4.00	40.00	2393.98	0.00015	466.67	0.00003
AT&T B 15	CCI DMP65R-BU6D	1900	14.05	167.00	4.00	40.00	4065.56	0.00001	1000.00	0.00000
AT&T B 15	CCI DMP65R-BU6D	2100	14.75	167.00	4.00	40.00	4776.61	0.00005	1000.00	0.00001



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
AT&T B 16	CCI HPA-65R-BUU-H6	850	12.74	167.00	4.00	40.00	3006.91	0.00027	566.67	0.00005
AT&T B 16	CCI HPA-65R-BUU-H6-	2300	14.77	167.00	4.00	25.00	2999.16	0.00001	1000.00	0.00000
AT&T B 17	POWERWAVE 7770 00	850	11.35	167.00	1.00	40.00	545.83	0.00021	566.67	0.00004
AT&T C 18	POWERWAVE P90-15-XLH-RR	700	11.40	167.00	2.00	40.00	1104.31	0.02605	466.67	0.00558
AT&T C 19	COMMSCOPE SBNHH-1D65A	700	11.21	167.00	4.00	40.00	2114.07	0.08388	466.67	0.01797
AT&T C 19	COMMSCOPE SBNHH-1D65A	1900	14.70	167.00	4.00	40.00	4721.93	0.08320	1000.00	0.00832
AT&T C 19	COMMSCOPE SBNHH-1D65A	2100	14.70	167.00	4.00	40.00	4721.93	0.08723	1000.00	0.00872
AT&T C 20	CCI DMP65R-BU4D	850	10.25	167.00	4.00	40.00	1694.81	0.07277	566.67	0.01284
AT&T C 20	CCI DMP65R-BU4D	2300	14.65	167.00	4.00	25.00	2917.43	0.05397	1000.00	0.00540
AT&T C 21	POWERWAVE 7770 00	850	11.35	167.00	1.00	40.00	545.83	0.01596	566.67	0.00282
Verizon A 22	ANTEL BXA-70063-6CF-EDIN-0	850	14.50	157.00	7.00	20.00	3945.74	0.00001	566.67	0.00000
Verizon A 23	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.00009	466.67	0.00002
Verizon A 23	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.00000	566.67	0.00000
Verizon A 23	COMMSCOPE NHH-65B-R2B	1900	15.65	157.00	4.00	40.00	5876.52	0.00001	1000.00	0.00000
Verizon A 24	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.00009	466.67	0.00002
Verizon A 24	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.00000	566.67	0.00000
Verizon A 24	COMMSCOPE NHH-65B-R2B	2100	16.22	157.00	4.00	40.00	6700.70	0.00000	1000.00	0.00000
Verizon B 25	ANTEL BXA-70063-6CF-EDIN-0	850	14.50	157.00	7.00	20.00	3945.74	0.00002	566.67	0.00000
Verizon B 26	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.00020	466.67	0.00004
Verizon B 26	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.00002	566.67	0.00000
Verizon B 26	COMMSCOPE NHH-65B-R2B	1900	15.65	157.00	4.00	40.00	5876.52	0.00012	1000.00	0.00001
Verizon B 27	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.00020	466.67	0.00004
Verizon B 27	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.00002	566.67	0.00000
Verizon B 27	COMMSCOPE NHH-65B-R2B	2100	16.22	157.00	4.00	40.00	6700.70	0.00008	1000.00	0.00001
Verizon C 28	ANTEL BXA-70063-6CF-EDIN-0	850	14.50	157.00	7.00	20.00	3945.74	0.06588	566.67	0.01163
Verizon C 29	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.03682	466.67	0.00789
Verizon C 29	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.03991	566.67	0.00704
Verizon C 29	COMMSCOPE NHH-65B-R2B	1900	15.65	157.00	4.00	40.00	5876.52	0.07100	1000.00	0.00710
Verizon C 30	COMMSCOPE NHH-65B-R2B	700	12.29	157.00	2.00	40.00	1355.47	0.03682	466.67	0.00789
Verizon C 30	COMMSCOPE NHH-65B-R2B	850	12.70	157.00	2.00	40.00	1489.67	0.03991	566.67	0.00704
Verizon C 30	COMMSCOPE NHH-65B-R2B	2100	16.22	157.00	4.00	40.00	6700.70	0.07144	1000.00	0.00714
							<b>Cumulative Power Density:</b>	<b>3.09470 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>0.36622%</b>



## Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at Ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

*Michelle Stone*

Michelle Stone  
RF EME Technical Writer II  
Centerline Communications, LLC



# Exhibit G

## **Letter of Authorization**

## SBA Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Melanie A. Bachman

Executive Director

Connecticut Siting Council

10 Franklin Square

New Britain, CT 06051

Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier

Site Development Manager


SBA COMMUNICATIONS CORPORATION

134 Flanders Road, Suite 125

Westboro, MA 01581

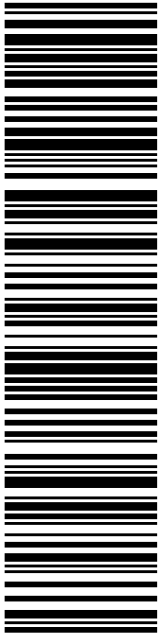
# Exhibit H

## Recipient Mailings



DONALD S STEIN  
FIRST SELECTMAN  
67 RIPLEY HILL RD  
BARKHAMSTED CT 06063-3329

**USPS TRACKING #**



**9405 5036 9930 0274 9657 14**

**P**

USPS.com  
**US POSTAGE**  
Flat Rate Env

9405 5036 9930 0274 9657 14 0000 0000 0010 6063

U.S. POSTAGE PAID  
click-n-ship®

06/16/2022 Mailed from 01566


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

**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 06/18/22  
Ref#: SBCT-NH393  
**0006**

**R022**

Electronic Rate Approved #038555749





Cut on dotted line.

### Instructions

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

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0274 9657 14**

Trans. #: 565744063	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 06/16/2022	Total: <b>\$8.95</b>
Ship Date: 06/16/2022	
Expected Delivery Date: 06/18/2022	

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

Ref#: SBCT-NH393


**To:** DONALD S STEIN  
FIRST SELECTMAN  
67 RIPLEY HILL RD  
BARKHAMSTED CT 06063-3329

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



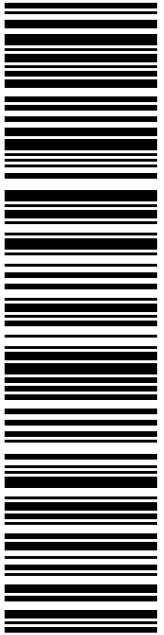
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Check the status of your shipment on the USPS Tracking® page at usps.com





DEBRA BRYDON  
ADMINISTRATOR ZONING & INLANDS  
67 RIPLEY HILL RD  
BARKHAMSTED CT 06063-3329

**USPS TRACKING #**



**9405 5036 9930 0274 9657 21**

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

**R022**

Expected Delivery Date: 06/18/22  
Ref#: SBCT-NH393  
**0006**


06/16/2022 Mailed from 01566

**P**

usps.com 9405 5036 9930 0274 9657 21 0000 0000 0010 6063  
**US POSTAGE**  
Flat Rate Env  
**U.S. POSTAGE PAID**  
click-n-ship®

**UNITED STATES POSTAL SERVICE®** **Click-N-Ship®**

Electronic Rate Approved #038555749





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**USPS TRACKING # :**  
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Trans. #:	565744063	Priority Mail® Postage:	<b>\$8.95</b>
Print Date:	06/16/2022	Total:	<b>\$8.95</b>
Ship Date:	06/16/2022		
Expected			
Delivery Date:	06/18/2022		

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

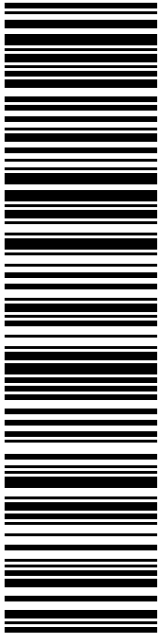
Ref#: SBCT-NH393

**To:** DEBRA BRYDON  
ADMINISTRATOR ZONING & INLANDS WETLANDS  
OFFICER  
67 RIPLEY HILL RD  
BARKHAMSTED CT 06063-3329

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**9405 5036 9930 0274 9657 38**

Electronic Rate Approved #038555749

**USPS TRACKING #**



SBA COMMUNICATIONS CORPORATION  
13 FLANDERS RD  
STE 125  
WESTBOROUGH MA 01581

**P**


06/16/2022 Mailed from 01566

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 06/17/22  
Ref#: SBCT-NH393  
**0006**

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

**R005**



**Click-N-Ship®**

usps.com  
**\$8.95**  
US POSTAGE  
Flat Rate Env  
**U.S. POSTAGE PAID**  
click-n-ship®

9405 5036 9930 0274 9657 38 0000 0000 0010 1581

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### Click-N-Ship® Label Record


**USPS TRACKING # :**  
**9405 5036 9930 0274 9657 38**


Trans. #: 565744063	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 06/16/2022	Total: <b>\$8.95</b>
Ship Date: 06/16/2022	
Expected Delivery Date: 06/17/2022	

**From:** DEBORAH CHASE      Ref#: SBCT-NH393  
NORTHEAST SITE SOLUTIONS  
420 MAIN ST  
STE 1  
STURBRIDGE MA 01566-1359

**To:** SBA COMMUNICATIONS CORPORATION  
13 FLANDERS RD  
STE 125  
WESTBOROUGH MA 01581

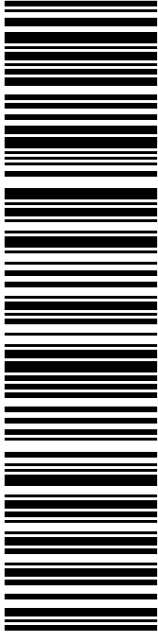
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RICHARD & KAREN LANGER  
44 GAVITT RD  
BARKHAMSTED CT 06063-1114

**USPS TRACKING #**



**9405 5036 9930 0274 9657 45**

**P**

06/16/2022 Mailed from 01566

**U.S. POSTAGE PAID**  
click-n-ship®

usps.com 9405 5036 9930 0274 9657 45 0000 0000 0010 6063  
**US POSTAGE**  
Flat Rate Env  
**\$8.95**


**PRIORITY MAIL 2-DAY™**

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

Expected Delivery Date: 06/18/22  
Ref#: SBCT-NH393  
**0006**

R021

Electronic Rate Approved #038555749



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Ship Date: 06/16/2022	
Expected Delivery Date: 06/18/2022	

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

Ref#: SBCT-NH393

**To:** RICHARD & KAREN LANGER  
44 GAVITT RD  
BARKHAMSTED CT 06063-1114

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CTNA 393A DBA TMLW



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

06/21/2022 09:30 AM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 1.90 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0274 9657 38	1		\$0.00
Prepaid Mail Barkhamsted, CT 06063 Weight: 0 lb 9.10 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0274 9657 45	1		\$0.00
Prepaid Mail Barkhamsted, CT 06063 Weight: 1 lb 2.10 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0274 9657 21	1		\$0.00
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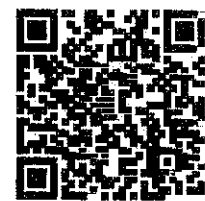
Grand Total: \$0.00

\*\*\*\*\*  
Every household in the U.S. is now eligible to receive a third set of 8 free test kits.  
Go to [www.covidtests.gov](http://www.covidtests.gov)  
\*\*\*\*\*

Preview your Mail  
Track your Packages  
Sign up for FREE @  
<https://informedelivery.usps.com>

All sales final on stamps and postage.  
Refunds for guaranteed services only.  
Thank you for your business.

Tell us about your experience.  
Go to: <https://postalexperience.com/Pos>  
or scan this code with your mobile device,



or call 1-800-410-7420.