

INDUSTRIAL AVE,  
STATE 3  
MORRIS HWAH NJ 07430  
PHONE: 201.684.0055  
FAX: 201.684.0066



---

August 29, 2022

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

RE: Notice of Exempt Modification  
139 Morris Hubbard Road, Higganum, CT 06441  
Latitude: 41.472239  
Longitude: -72.554567  
T-Mobile Site#: CTHA522A - L600

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 140' level of the 165' tower located at 139 Morris Hubbard Road in Higganum, CT. The tower is owned by American Tower. The property is owned by Joan Baroni Foristall. T-Mobile now intends to add (3) three antennas and replace (3) of its existing antennas with three (3) N600/L600/L700 antennas. The new antennas would be installed at the same 140' level of the tower. The new antennas support 5G services.

**Planned Modifications:**

**Tower:**

Install New:

- (3) APXVAALL24 43-U-NA20 Antennas
- (3) VV-65A-R1 Antennas
- (3) Radio 4460 B25 B66
- (3) Radio 4480 B71 B85
- (3) 1.99" Hybrid Cables

To Be Removed:

- (3) APX18-206517S-C-A20 Antennas
- (3) Generic Twin Style 1A-PCS TMAs
- (6) 1 5/8" Coax Cables

Ground Work:

**Install** (1) Enclosure 6160, (1) RBS 6601 and (1) B160. **Remove** (2) Cabinets.

This tower was originally approved by the Connecticut Siting Council in Docket No. 84 on February 5, 1988. None of the conditions listed will be affected with this exempt modification request.

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

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

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

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

Sincerely,

**Eric Breun**

Transcend Wireless

Cell: 201-658-7728

Email: [ebreun@transcendwireless.com](mailto:ebreun@transcendwireless.com)

Attachments

cc: Robert McGarry - First Selectman of Haddam

Leon Mularski - Zoning Enforcement Officer

American Towers - Tower Owner

Foristall Joann Baroni - Property Owner

ERIC BREUN  
2016587728  
1 INTERNATIONAL BLVD.  
MAHWAH NJ 07495

1 LBS

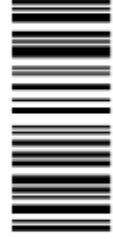
DWT: 18,12,1

1 OF 1

**SHIP TO:**  
FIRST SELECTMAN  
ROBERT MCGARRY  
30 FIELD PARK DRIVE  
**HADDAM CT 06438**



**CT 063 5-02**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9383 5588



BILLING: P/P

Reference #1: CTHA522A

XOL 22.08.10 NV45 35.0A 08/2022\*



TM

ERIC BREUN  
2016587728  
1 INTERNATIONAL BLVD.  
MAHWAH NJ 07495

1 LBS

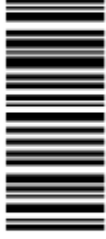
DWT: 18,12,1

1 OF 1

**SHIP TO:**  
AMERICAN TOWER CORPORATION  
10 PRESIDENTIAL WAY  
**WOBURN MA 01801**

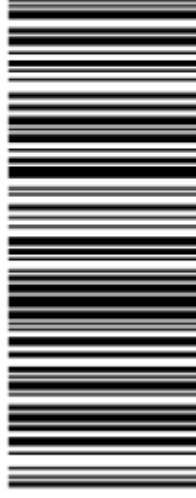


**MA 018 9-04**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9320 1575



BILLING: P/P

Reference #1: CTHA522A

XOL 22.08.10 NV45 35.0A 08/2022\*



TM

ERIC BREUN  
2016587728  
1 INTERNATIONAL BLVD.  
MAHWAH NJ 07495

1 LBS 1 OF 1

DWT: 18.12,1

**SHIP TO:**

ZEO  
LEON MULARSKI  
30 FIELD PARK DRIVE  
**HADDAM CT 06438**

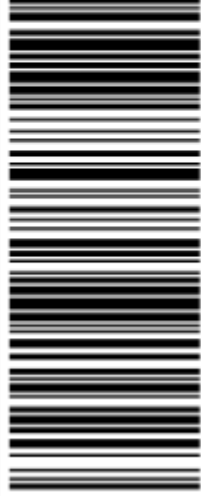


**CT 063 5-02**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9307 3599



BILLING: P/P

Reference #1: CTHA522A

XOL 22.08.10 NV/95 35.0A 08/2022\*



TM



Hello, your package has been delivered.

Delivery Date: Thursday, 08/25/2022

Delivery Time: 10:21 AM

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[Set Delivery Instructions](#)

[Manage Preferences](#)

V

#### TRANSCEND WIRELESS

Tracking Number: [1ZV257420392515603](#)  
FORISTALL JOANN BARONI  
123 MORRIS HUBBARD ROAD  
HADDAM, CT 06441  
US

Ship To:

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CTHA522A

Hello, your package has been delivered.

Delivery Date: Thursday, 08/25/2022

Delivery Time: 11:07 AM

Signed by: REIBOLD

#### TRANSCEND WIRELESS

Tracking Number: [1ZV257420393073599](#)  
LEON MULARSKI  
30 FIELD PARK DRIVE  
HADDAM, CT 06438  
US

Ship To:

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: **CTHA522A**

**Hello, your package has been delivered.**

**Delivery Date:** Thursday, 08/25/2022

**Delivery Time:** 11:07 AM

**Signed by:** REIBOLD

## TRANSCEND WIRELESS

**Tracking Number:** [1ZV257420393835588](#)

**Ship To:** ROBERT MCGARRY  
30 FIELD PARK DRIVE  
HADDAM, CT 06438  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 1.0 LBS

**Reference Number:** CTHA522A

**Hello, your package has been delivered.**

**Delivery Date:** Thursday, 08/25/2022

**Delivery Time:** 11:34 AM

**Signed by:** ANCRI

## TRANSCEND WIRELESS

**Tracking Number:** [1ZV257420393201575](#)

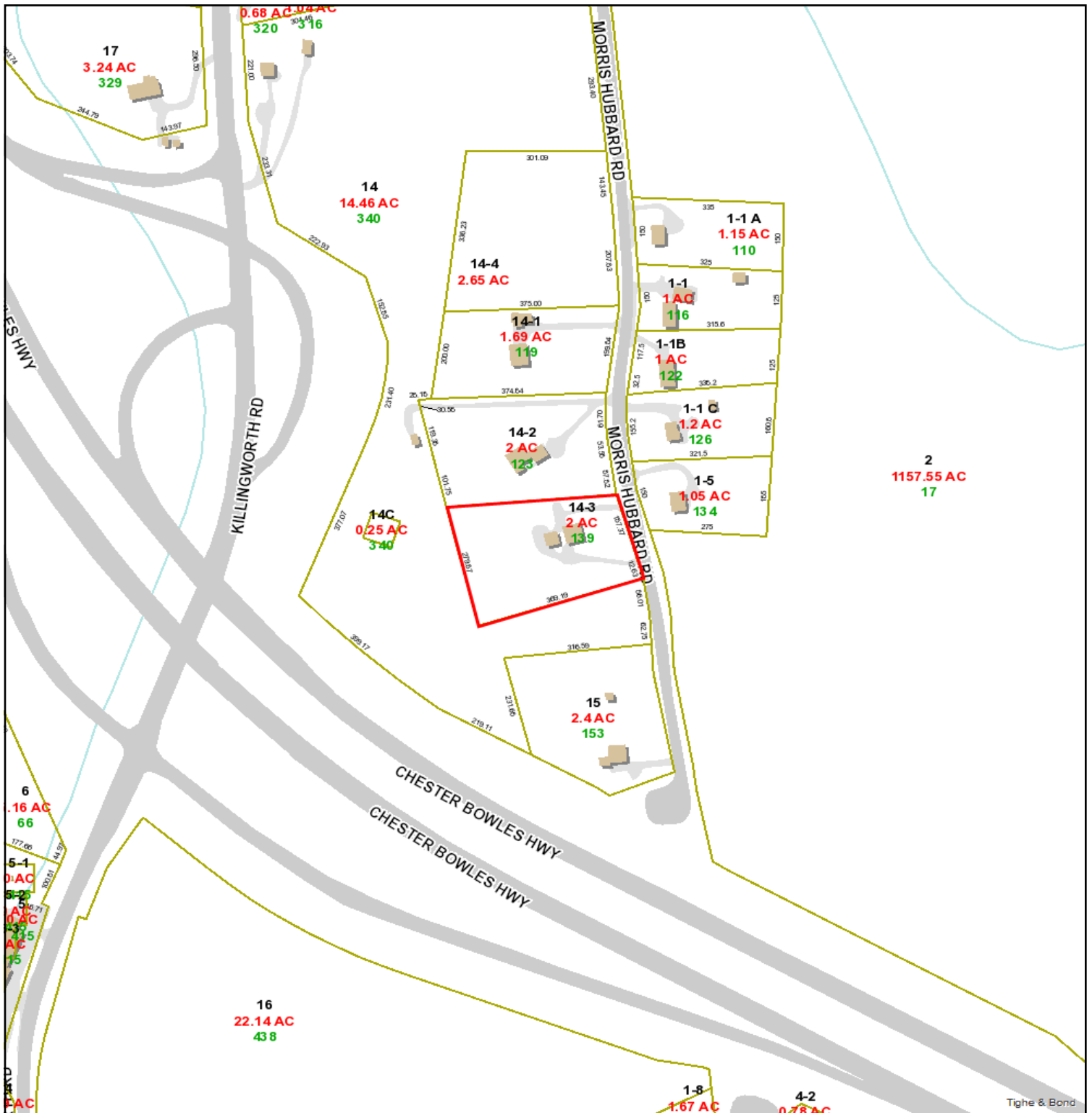
**Ship To:** AMERICAN TOWER CORPORATION  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 1.0 LBS

**Reference Number:** CTHA522A



# 139 MORRIS HUBBARD

8/24/2022 11:52:18

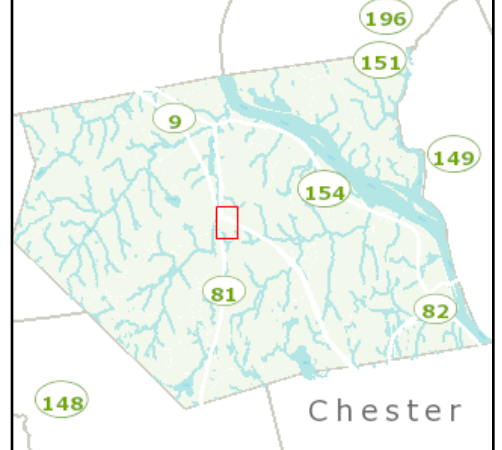
1"=300'

## Property Information

Parcel_ID	34 014 3
Street Address	139 MORRIS HUBBARD
Sale Price	0



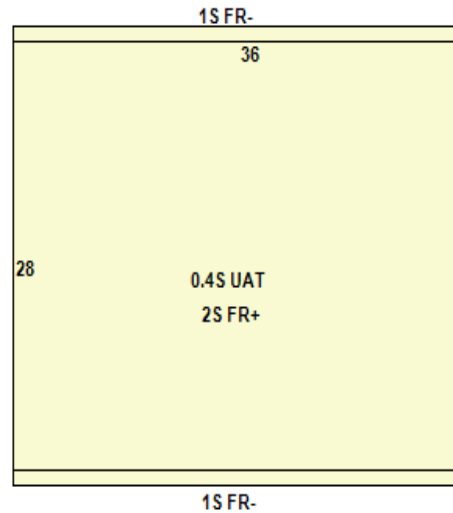
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.



Tighe & Bond

<b>Location:</b>	139 MORRIS HUBBARD RD			<b>Map Id:</b>	34 014 3	<b>Zone:</b>	R-2A	<b>Date Printed:</b>	8/24/2022	
				<b>Neighborhood:</b>	R400		<b>Last Update:</b>	8/23/2022		
<b>Owner Of Record</b>				<b>Volume/Page</b>	<b>Date</b>	<b>Sales Type</b>		<b>Valid</b>	<b>Sale Price</b>	
FORISTALL JOANN M BARONI				0363/0110	7/31/2013			No	0	
123 MORRIS HUBBARD RD, HIGGANUM, CT 06441						Exempt				
<b>Prior Owner History</b>										
BARONI HELEN (EST OF)		C/O JOANN M BARONI FORISTALL		0363/0109	7/31/2013			No	0	
BARONI HELEN S (EST OF)		C/O JOANN M BARONI FORISTALL		0357/0684	12/5/2012			No	0	
BARONI HELEN S				0347/0526	10/13/2011			No	0	
BARONI LEONE (EST OF)+ HELEN		JOANN BARONI FORISTALL (CO-EXECUTRIX)		0342/0279	12/22/2010			No	0	
BARONI LEONE + HELEN				0069/0331				No	0	
<b>Permit Number</b>	<b>Date</b>	<b>Permit Description</b>								
B-21-075	4/27/2021	Re roof house 14 squares								
B-18-048	7/18/2018	Replacing 3 existing antennas with 3 new antennas along with necessary equipment on existing communi								
13857	5/11/2018	Reroof house 16 squares								
13753	2/8/2018	No Description Given								
12418	3/2/2015	No Description Given								
12418	2/25/2015	work assumed to have been completed previously but permit not closed when information switched to m								
<b>Supplemental Data</b>						<b>Appraised Value</b>				
<b>Census/Tract</b>	5901	VisionPID		664		<b>Total Land Value</b>		80,800		
<b>Dev Map ID</b>						<b>Total Building Value</b>		146,610		
						<b>Total Outbidg Value</b>		17,570		
						<b>Total Market Value</b>		244,980		
<b>Utilities</b>										
<b>Acres</b>					<b>State Item Codes</b>					
<b>Land Type</b>	<b>Acres</b>	<b>490</b>	<b>Total Value</b>	<b>Code</b>	<b>Quantity</b>	<b>Value</b>				
House Lot	2.00	0.00								
<b>Total</b>			80,800							
<b>Assessment History (Prior Years as of Oct 1)</b>					<b>490 Appraised Totals</b>					
	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>Type</b>	<b>Acres</b>	<b>Value</b>	<b>Type</b>	<b>Acres</b>	<b>Value</b>
<b>Land</b>	56,560	56,560	65,160	65,160						
<b>Building</b>	102,630	102,630	98,830	98,830						
<b>Outbuilding</b>	12,300	12,300	15,720	15,720						
<b>Total</b>	<b>171,490</b>	<b>171,490</b>	<b>179,710</b>	<b>179,710</b>				<b>Totals</b>	<b>0.00</b>	<b>0</b>
					<b>Application Date:</b>	<b>Expiration Date:</b>				
<b>Comments</b>										

<b>Location:</b>	139 MORRIS HUBBARD RD			
<b>Map Id:</b>	34 014 3			
General Description		Description	Area/Qty	
<b>Building Use</b>	Two Family			
<b>Units</b>		Base Rate		2088
<b>Overall Condition</b>	Average	Basement		1008
<b>Class</b>	C	Fireplace		1
<b>Stories</b>	2.00	Fuel Type - Electric		183159
<b>Design (Style)</b>	Multi Family	Full Baths		2
<b>Construction</b>	Wood Frame	Half Baths		2
<b>Year Built</b>	1967			
<b>Percent Complete</b>	100			
<b>Finished Area</b>	<b>2088</b>			
Foundation				
<b>Basement Area</b>	1008			
<b>Finished Basement</b>	0			
<b>Garage Bays</b>	0			
<b>Outside Entry</b>	No			
<b>Sump Pump</b>	No			
Attached Components				
HVAC		Type	Year	Area
<b>Heating Type</b>	Electric Baseboard	Unfinished Attic	1967	403
<b>Fuel</b>	Electric			
<b>Cooling Type</b>	None			
Interior				
<b>Floors</b>	Linoleum/Hardwood			
<b>Attic Access</b>	No			
<b>Walls</b>	Drywall			
<b>Bath Cond</b>				
<b>Kitchen Cond</b>				
Exterior				
<b>Exterior</b>	Wood Shingles			
<b>Roof Cover</b>	Asphalt			
<b>Roof Type</b>	Gable			
Special Features				
Type	Count/Area			
Fireplace	1			
<b>Total Building Value: 146.610</b>				
Room Summary				
Total	Bedroom	Kitchens	Full Baths	Half Baths
8	4	2	2	2



Detached Component Computations							
Type	Year	Condition	Area/Qty	Type	Year	Condition	Area/Qty
Frame Garage	1984	Average	288				
Frame Shed	1984	No Value	80				
Garage w Loft	1984	Average	624				

DOCKET NO. 84 - AN APPLICATION OF SNET : CONNECTICUT SITING  
CELLULAR, INC., FOR A CERTIFICATE OF :  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC : COUNCIL  
NEED FOR A CELLULAR TELEPHONE ANTENNA :  
TOWER AND ASSOCIATED EQUIPMENT IN THE : February 5, 1988  
TOWN OF HADDAM, CONNECTICUT.

D E C I S I O N A N D O R D E R

Pursuant to the forgoing opinion, the Connecticut Siting Council hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Southern New England Telephone Cellular, Inc., (SNET) for the construction, operation, and maintenance of a cellular telephone tower and associated equipment in the Town of Haddam, Connecticut.

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

1. The monopole tower shall be no taller than necessary to provide the proposed service, and in no event shall exceed a height of 167 feet, including antennas.

2. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

3. Unless necessary to comply with condition number 2, above, no lights shall be installed on this tower.

4. The Certificate Holder shall prepare a development and management (D&M) plan for the Haddam site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall provide for evergreen screening around the outside perimeter of the eight-foot chain link fence which will surround the site and the color the tower will be painted.

5. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to this facility.

6. The Certificate Holder or its successor shall permit public or private entities to share space on the Haddam tower, for due consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. If this facility does not provide or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

8. The Certificate Holder shall comply with any future radio frequency (RF) standards promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF Standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of this Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Middletown Press and the Hartford Courant.

The parties to this proceeding are:

SNET Cellular, Inc.  
555 Long Warf Drive  
New Haven CT 06511

(applicant)

Peter J. Tyrrell  
Senior Attorney  
227 Church Street  
Room 1021  
New Haven, CT 06506

(its representative)

Metro Mobile CTS of Hartford, Inc.  
P.O. Box 1235  
East Granby, Connecticut 06206

(intervenor)

Mr. Howard Slater  
Ms. Jennifer Gaudet  
Byrne, Slater, Sandler,  
Schulman & Rouse, P.C.  
330 Main Street  
P.O. Box 3216  
Hartford, CT 06103

(its representative)

Elizabeth Giurintano  
119 Morris Hubbard Road  
Higganum, CT 06441

(party)

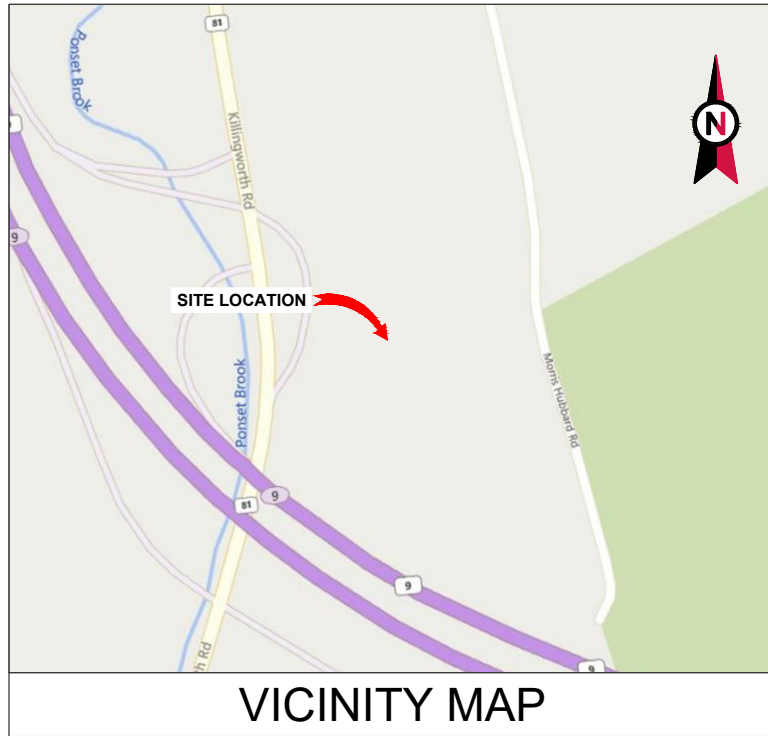


CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 84 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 5th day of February, 1988.

<u>Council Members</u>	<u>Vote Cast</u>
<u><i>Gloria Dibble Pond</i></u> Gloria Dibble Pond Chairperson	Yes
<u><i>Gerald Feinberg</i></u> Commissioner Peter Boucher Designee: Gerald Feinberg	Yes
<u><i>Brian Emerick</i></u> Commissioner Leslie Carothers Designee: Brian Emerick	Yes
<u><i>Owen L. Clark</i></u> Owen L. Clark	Yes
<u><i>Fred J. Doocy</i></u> Fred J. Doocy	Yes
<u><i>Mortimer A. Gelston</i></u> Mortimer A. Gelston	Yes
<u><i>James G. Horsfall</i></u> James G. Horsfall	Yes
<u>William H. Smith</u>	Absent
<u><i>Colin C. Tait</i></u> Colin C. Tait	Yes



VICINITY MAP



**AMERICAN TOWER®**

ATC SITE NAME: HDDM - HADDAM  
 ATC SITE NUMBER: 302494  
 T-MOBILE SITE NAME: ATC HIGGANUM MONOPOLE  
 T-MOBILE SITE NUMBER: CTHA522A  
 SITE ADDRESS: 139 MORRIS HUBBARD RD  
 HIGGANUM, CT 06441



LOCATION MAP

**T-MOBILE L600 ANTENNA AMENDMENT PLAN  
 67E998E 6160 CONFIGURATION**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.  1. 2018 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE IBC 2. 2017 NATIONAL ELECTRIC CODE - NFPA 70 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 139 MORRIS HUBBARD RD HIGGANUM, CT 06441 COUNTY: MIDDLESEX  <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.472239 LONGITUDE: -72.554567 GROUND ELEVATION: 344' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (3) ANTENNA(S) AND (6) COAX CABLE(S)  INSTALL (1) PERFECT VISION PLATFORM MOUNT, (6) ANTENNA(S), (6) RRR(S) AND (3) HYBRID CABLE(S)  <u>GROUND WORK:</u> REMOVE (2) CABINETS  INSTALL (1) ENCLOSURE 6160, (1) RBS 6601 AND (1) B160	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u>  <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801  <u>ENGINEER:</u> COLLIERS ENGINEERING & DESIGN CT, P.C. D/B/A MASER CONSULTING 135 NEW ROAD MADISON, CT 06443  PROJECT #: 21904439A  <u>PROPERTY OWNER:</u> JOANN M BARONI FORISTALL 139 MORRIS HUBBARD RD HIGGANUM, CT 06441	<u>PROJECT NOTES</u>  1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED. 6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).	G-001	TITLE SHEET	1	10/29/21	MLH
<u>UTILITY COMPANIES</u>  POWER COMPANY: C. L. & P. PHONE: (800) 286-2000  TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 921-8102		<u>PROJECT LOCATION DIRECTIONS</u>  FROM HARTFORD - I 91 SOUTH TO RT 9 SOUTH TO EXIT 9 FOR RT 81. TAKE LEFT AT OFF RAMP AND FOLLOW TO AND TAKE RIGHT ONTO MORRIS HUBBARD ROAD AND FOLLOW TO TOWER SITE DOWN ON RIGHT.	G-002	GENERAL NOTES	1	10/29/21	MLH
			C-101	DETAILED SITE PLAN	1	10/29/21	MLH
			C-102	DETAILED GROUND PLAN	1	10/29/21	MLH
			C-201	TOWER ELEVATION	1	10/29/21	MLH
			C-401	ANTENNA INFORMATION & SCHEDULE	1	10/29/21	MLH
			C-501	CONSTRUCTION DETAILS	1	10/29/21	MLH
			E-501	GROUNDING DETAILS	1	10/29/21	MLH
			E-502	ELECTRICAL DETAILS	1	10/29/21	MLH
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
			R-605	SUPPLEMENTAL			
			R-606	SUPPLEMENTAL			



**Colliers Engineering & Design**

www.colliersengineering.com  
 Doing Business as MASER CONSULTING  
 MADISON  
 135 New Road  
 Madison, CT 06443  
 Phone: 860.395.0055  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 DOING BUSINESS AS MASER CONSULTING

REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
302494  
  
 ATC SITE NAME:  
HDDM - HADDAM  
  
 T-MOBILE SITE NAME:  
ATC HIGGANUM MONOPOLE  
  
 SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:  
  
 Digitally signed by Eric Anderson  
 Date: 2021.10.29 18:07:45-04'00'  
  
 COA: JPC.0000131

**T-Mobile**  
  
 DATE DRAWN: 09/15/21  
 ATC JOB NO: 13711904\_D1  
 CUSTOMER ID: ATC HIGGANUM MONOPOLE  
 CUSTOMER #: CTHA522A

**TITLE SHEET**  
  
 SHEET NUMBER: G-001  
 REVISION: 1



**GENERAL CONSTRUCTION NOTES:**

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
  - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - B. AC/TELCO INTERFACE BOX (PPC)
  - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - D. TOWERS, MONOPOLES
  - E. TOWER LIGHTING
  - F. GENERATORS & LIQUID PROPANE TANK
  - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
  - H. ANTENNAS (INSTALLED BY OTHERS)
  - I. TRANSMISSION LINE
  - J. TRANSMISSION LINE JUMPERS
  - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - L. TRANSMISSION LINE GROUND KITS
  - M. HANGERS
  - N. HOISTING GRIPS
  - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

**SPECIAL CONSTRUCTION**

**ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
  - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
  - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
  - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
  - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
  - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
  - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
  - G. ANTENNA AND COAXIAL CABLE GROUNDING:

2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

**ELECTRICAL NOTES:**

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF CONCORDIA. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

**ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.**



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
**302494**

ATC SITE NAME:  
**HDDM - HADDAM**

T-MOBILE SITE NAME:  
**ATC HIGGANUM MONOPOLE**

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:

Digitally signed by Eric Anderson  
Date: 2021.10.29 18:07:47-04'00'

COA: JPC.0000131



DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**GENERAL NOTES**

SHEET NUMBER:  
**G-002**

REVISION:  
**1**

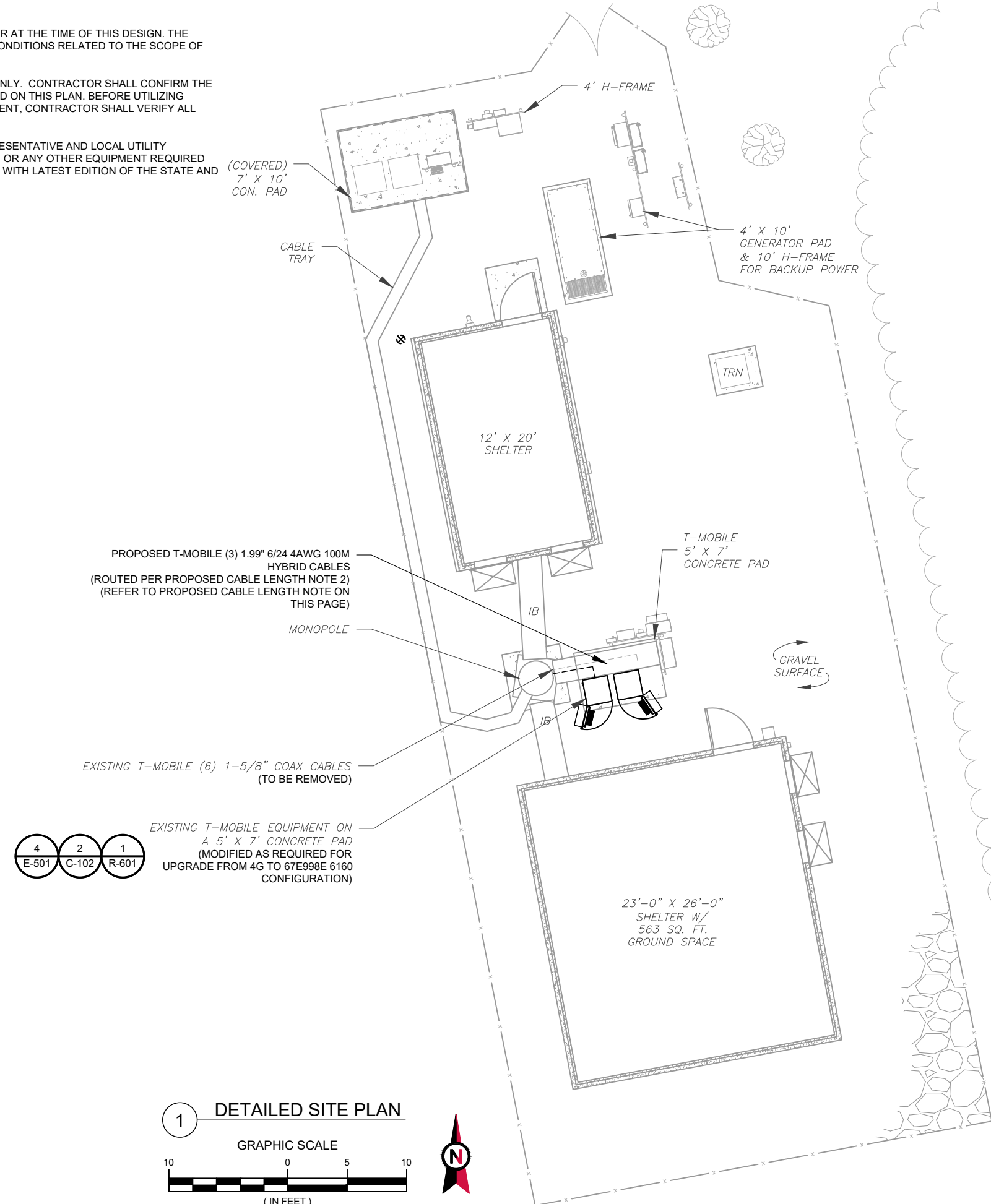
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**SITE PLAN NOTES:**

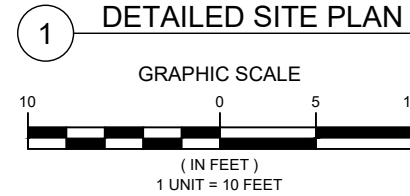
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
— x —	CHAINLINK FENCE



**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **170'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
B	FOR CONSTRUCTION	AMN	09/27/21
C	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
**302494**

ATC SITE NAME:  
**HDDM - HADDAM**

T-MOBILE SITE NAME:  
**ATC HIGGANUM MONOPOLE**

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:

Eric Anderson  
32224  
LICENSED PROFESSIONAL ENGINEER

Digitally signed by Eric Anderson  
Date: 2021.10.29 18:07:49-04'00'

COA: JPC.0000131



DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**DETAILED SITE PLAN**

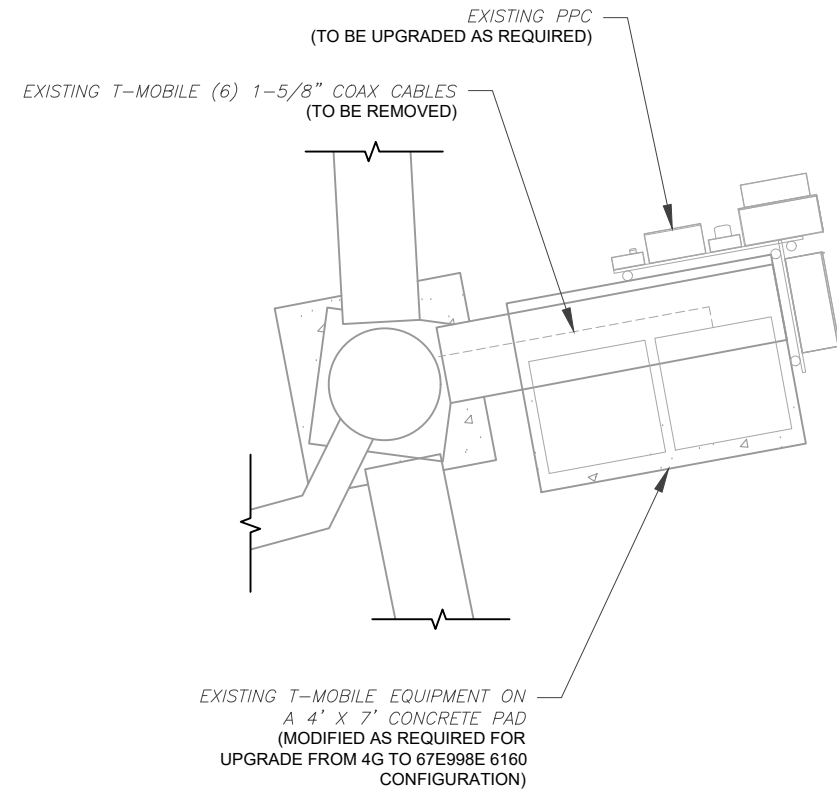
SHEET NUMBER:  
**C-101**

REVISION:  
**1**

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**SITE PLAN NOTES:**

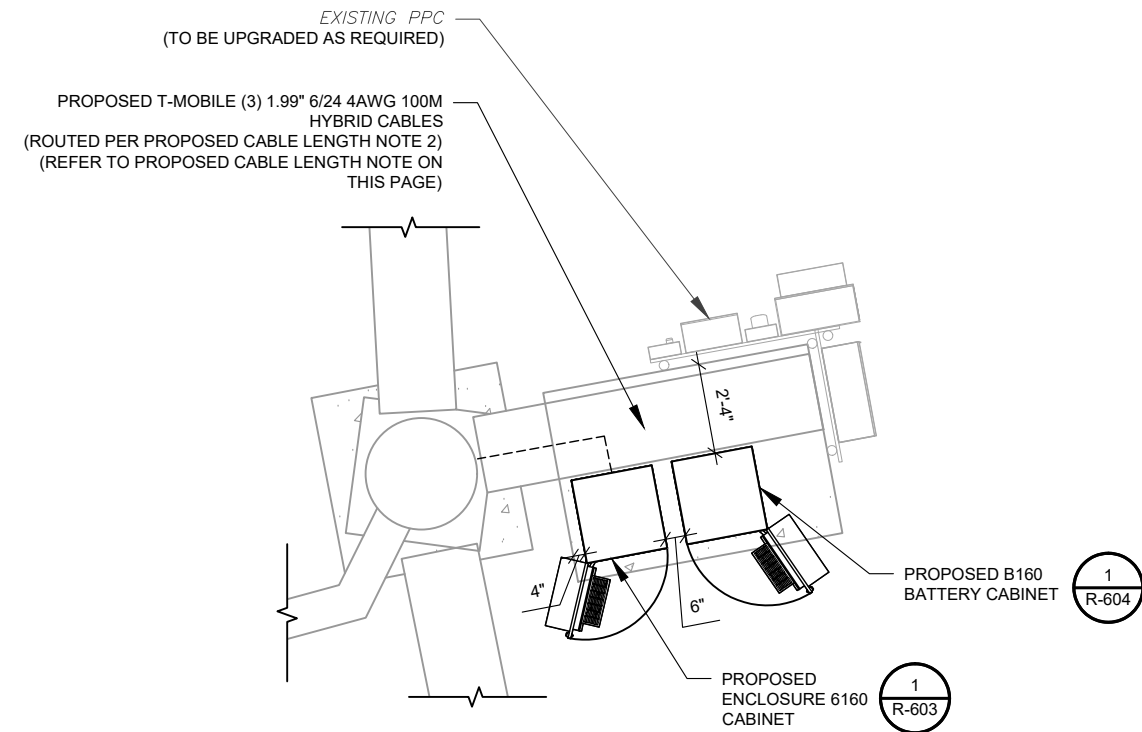
1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.



EXISTING T-MOBILE EQUIPMENT ON A 4' X 7' CONCRETE PAD (MODIFIED AS REQUIRED FOR UPGRADE FROM 4G TO 67E998E 6160 CONFIGURATION)

1 EXISTING GROUND EQUIPMENT LAYOUT

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT



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1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
302494

ATC SITE NAME:  
HDDM - HADDAM

T-MOBILE SITE NAME:  
ATC HIGGANUM MONOPOLE

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:

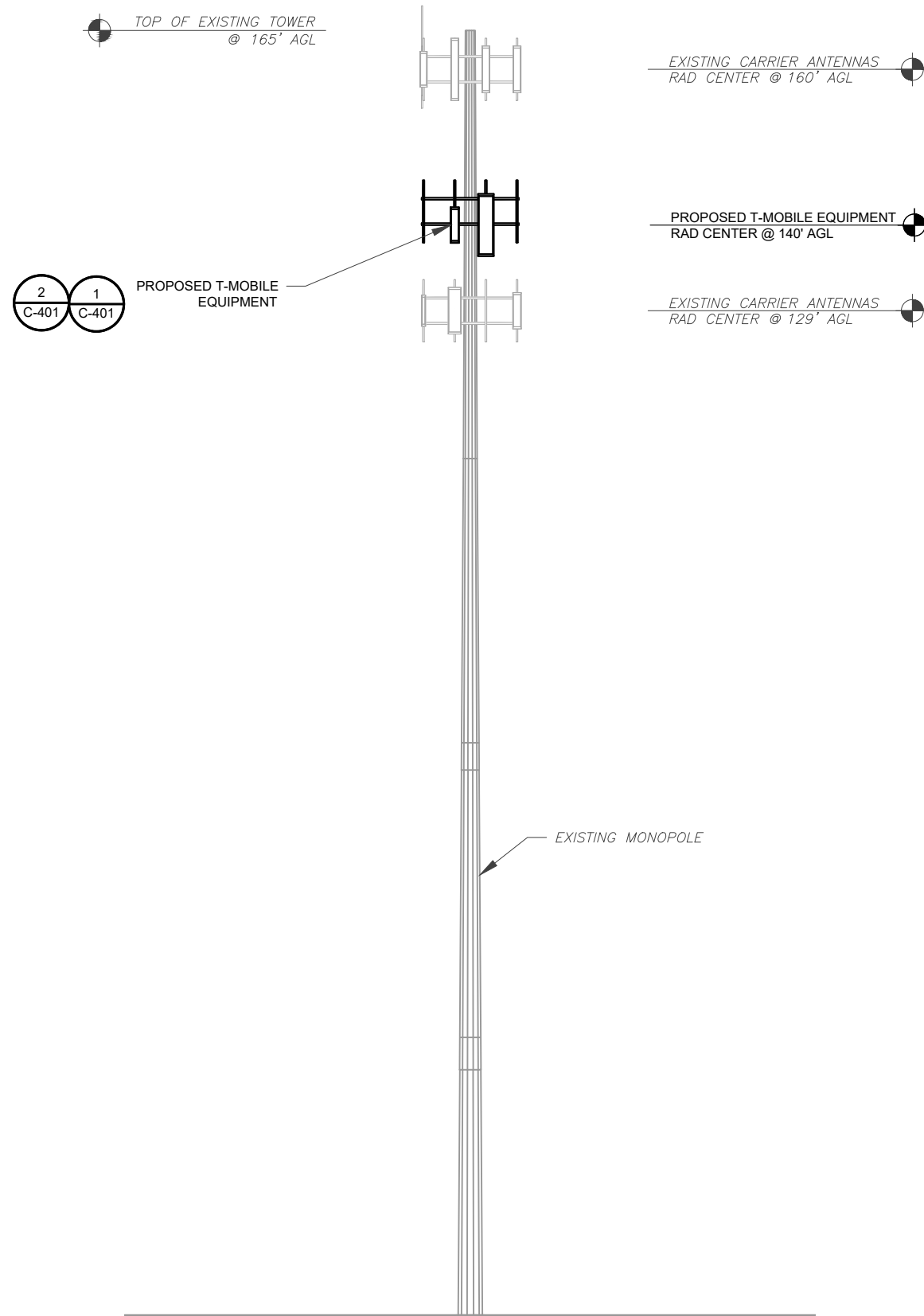
COA: JPC.0000131

DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**DETAILED GROUND PLAN**

SHEET NUMBER: <b>C-102</b>	REVISION: <b>1</b>
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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/25/21, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

**TOWER NOTE:**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

**1 TOWER ELEVATION**  
SCALE: N.T.S.



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0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
**302494**

ATC SITE NAME:  
**HDDM - HADDAM**

T-MOBILE SITE NAME:  
**ATC HIGGANUM MONOPOLE**

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:



COA: JPC.0000131



DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**TOWER ELEVATION**

SHEET NUMBER:	REVISION:
<b>C-201</b>	<b>1</b>



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T-MOBILE SITE NAME:  
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SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:



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Date: 2021.10.29 18:07:55-04'00'

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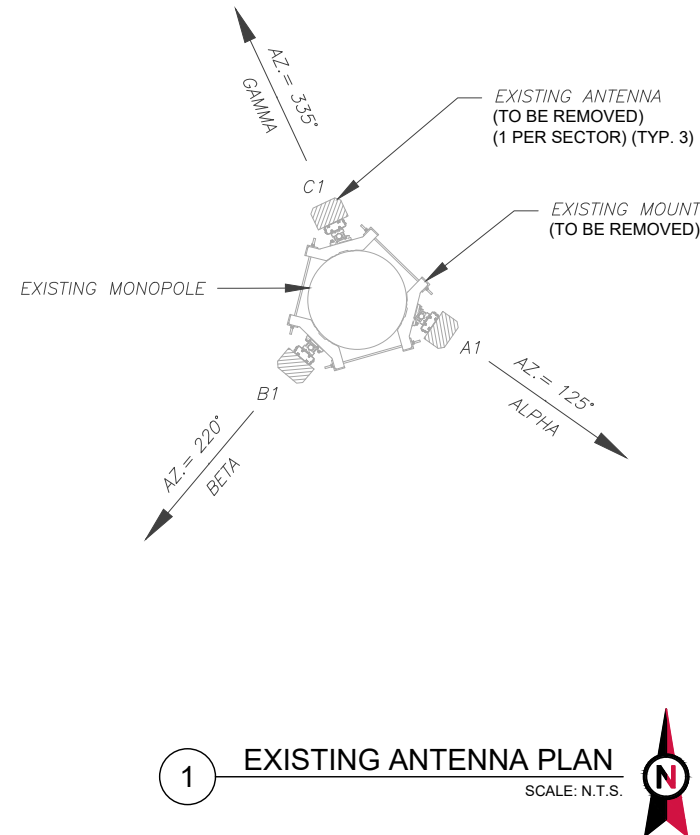
DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**ANTENNA INFORMATION & SCHEDULE**

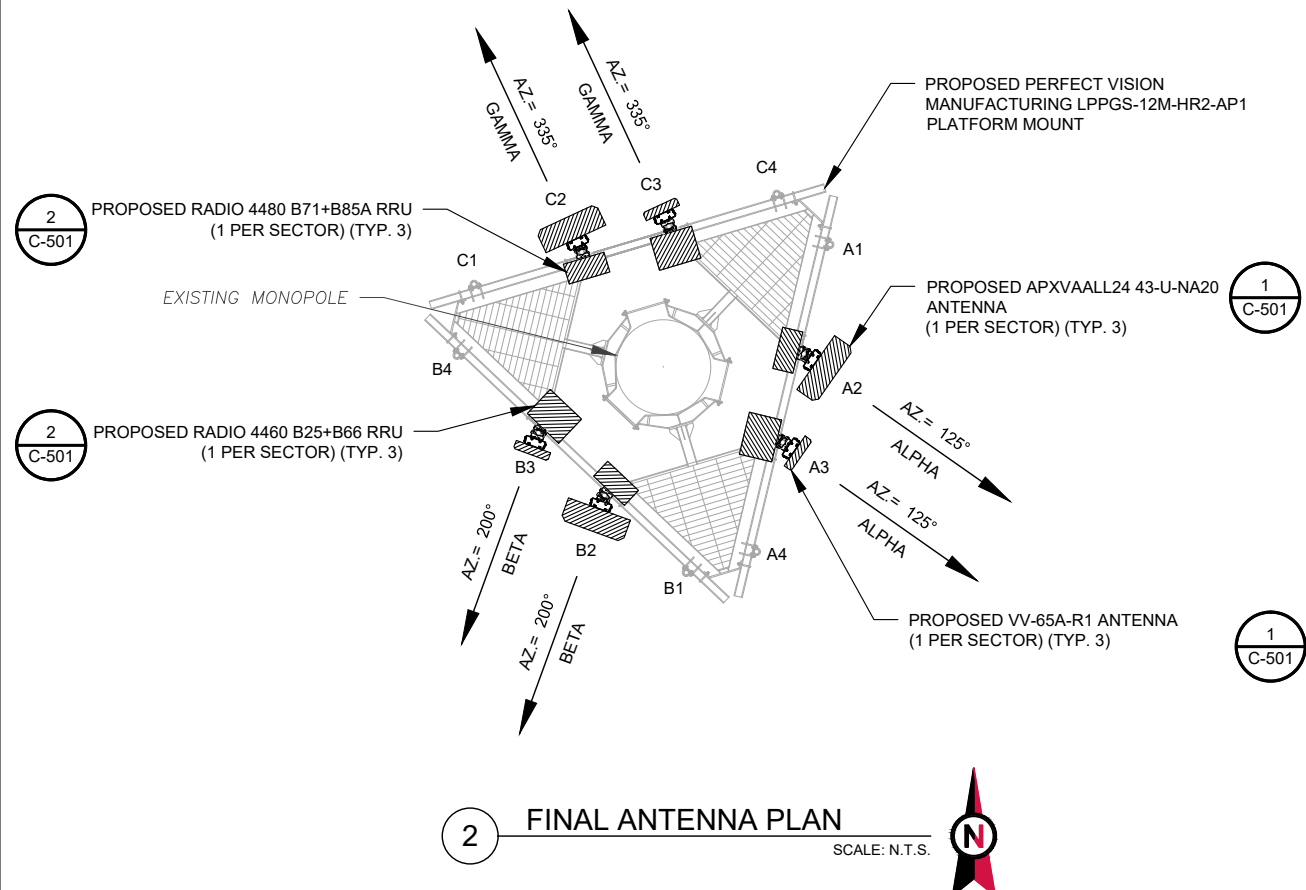
SHEET NUMBER:  
**C-401**

REVISION:  
**1**

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/25/21, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



**1 EXISTING ANTENNA PLAN**  
SCALE: N.T.S.



**2 FINAL ANTENNA PLAN**  
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	125°	A1	APXV18-206517S-C-A20	L1900/G1900	0/2	RMV	GENERIC TWIN STYLE 1A-PCS TMA	RMV
BETA	140'	220°	B1	APXV18-206517S-C-A20	L1900/G1900	0/2	RMV	GENERIC TWIN STYLE 1A-PCS TMA	RMV
GAMMA	140'	335°	C1	APXV18-206517S-C-A20	L1900/G1900	0/2	RMV	GENERIC TWIN STYLE 1A-PCS TMA	RMV

**NOTES**

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

**STATUS ABBREVIATIONS**

RMV: TO BE REMOVED  
 RMN: TO REMAIN  
 REL: TO BE RELOCATED  
 ADD: TO BE ADDED

**CABLE LENGTHS FOR JUMPERS**

JUNCTION BOX TO RRU: 15'  
 RRU TO ANTENNA: 10'

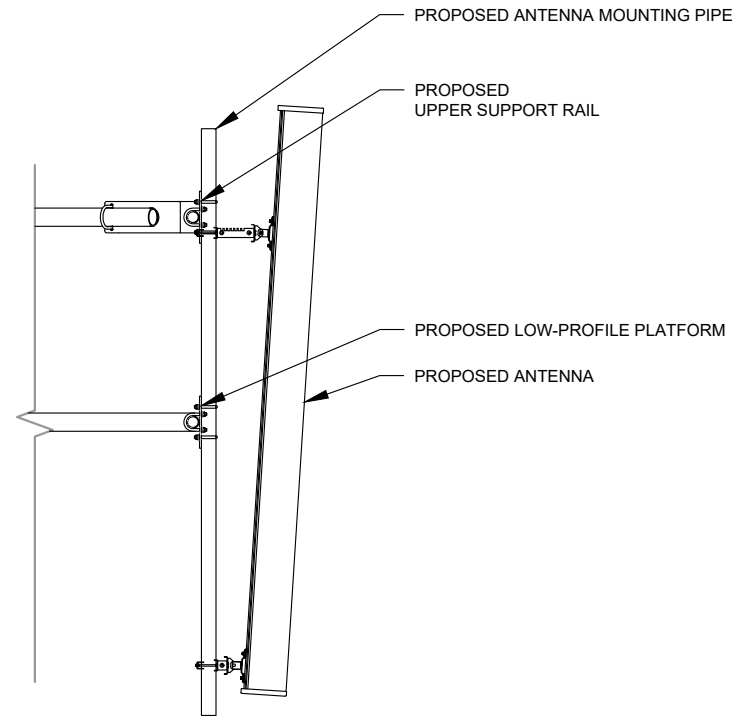
FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	125°	A1	-	-	-	-	-	-
			A2	APXVAALL24 43-U-NA20	L700/L600/N600	4/4	ADD	RADIO 4480 B71+B85	ADD
			A3	VV-65A-R1	L2100/L1900/G1900	2/2	ADD	RADIO 4460 B25+B66	ADD
			A4	-	-	-	-	-	-
BETA	140'	220°	B1	-	-	-	-	-	-
			B2	APXVAALL24 43-U-NA20	L700/L600/N600	4/4	ADD	RADIO 4480 B71+B85	ADD
			B3	VV-65A-R1	L2100/L1900/G1900	2/2	ADD	RADIO 4460 B25+B66	ADD
			B4	-	-	-	-	-	-
GAMMA	140'	335°	C1	-	-	-	-	-	-
			C2	APXVAALL24 43-U-NA20	L700/L600/N600	4/4	ADD	RADIO 4480 B71+B85	ADD
			C3	VV-65A-R1	L2100/L1900/G1900	2/2	ADD	RADIO 4460 B25+B66	ADD
			C4	-	-	-	-	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	-	RMV

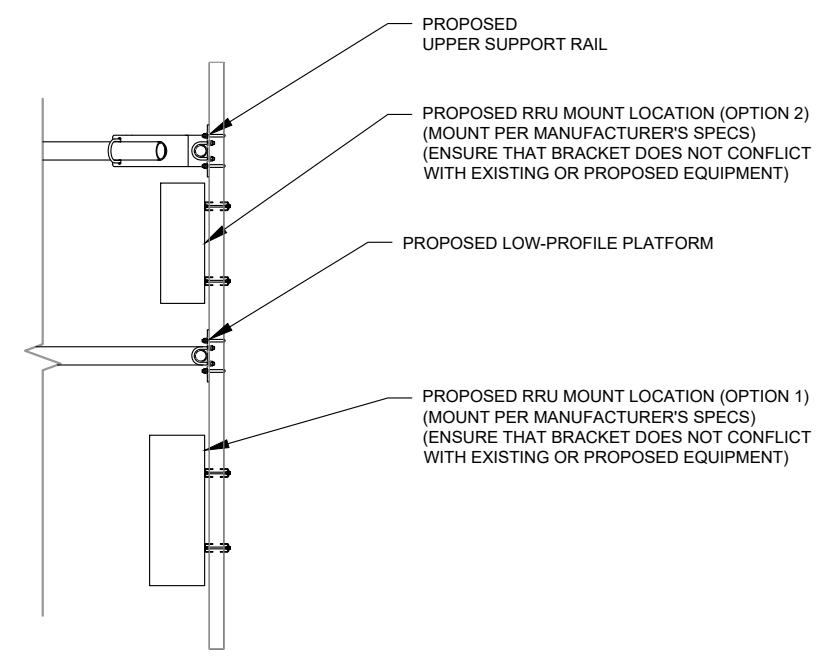
**3 EQUIPMENT SCHEDULES**

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 1.99" 6/24 4AWG 100M	ADD

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1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
302494  
ATC SITE NAME:  
HDDM - HADDAM  
T-MOBILE SITE NAME:  
ATC HIGGANUM MONOPOLE  
SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:  
  
Digitally signed by Eric Anderson  
Date: 2021.10.29 18:07:57-04'00'  
COA: JPC.0000131

**T-Mobile**

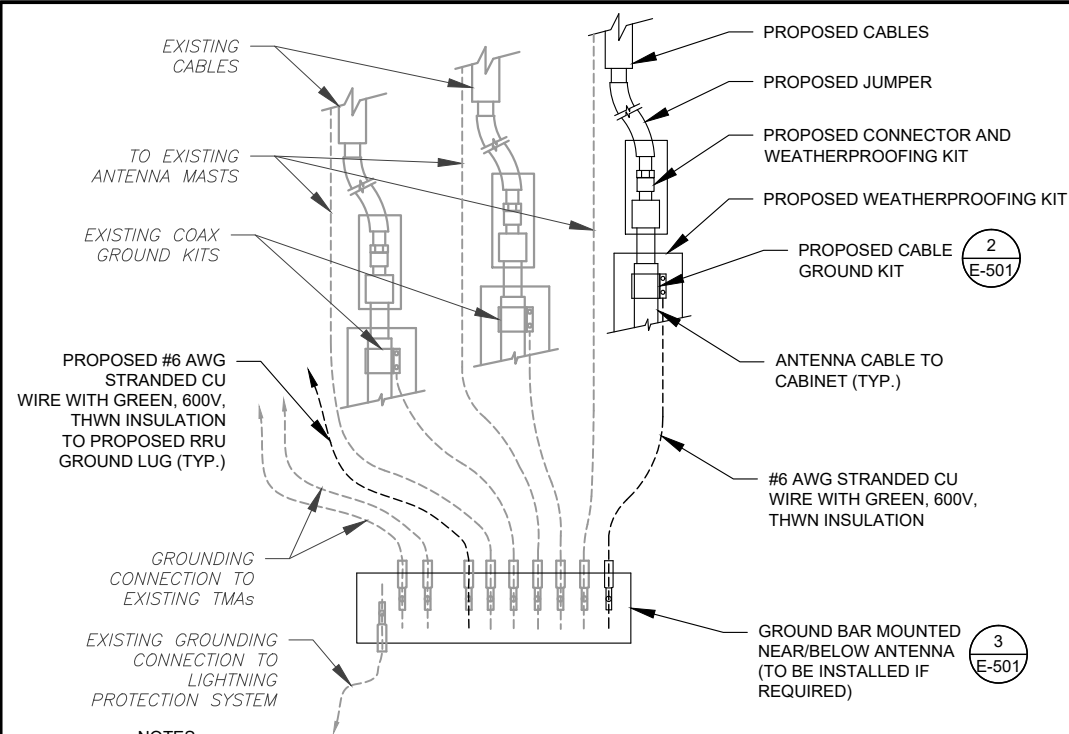
DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

**CONSTRUCTION DETAILS**

SHEET NUMBER: <b>C-501</b>	REVISION: <b>1</b>
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**NOTES:**

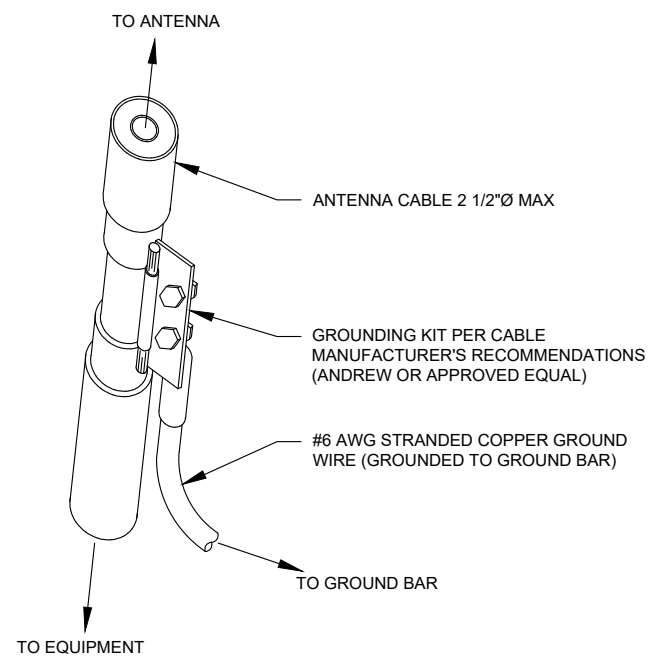
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

**1 TYPICAL ANTENNA GROUNDING DIAGRAM**  
SCALE: N.T.S.

**ELECTRICAL NOTES:**

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

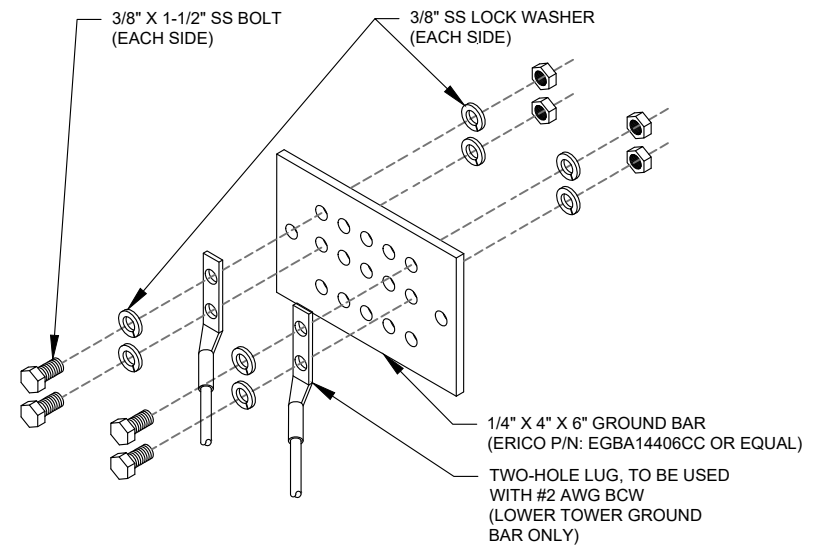
OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



**GROUND KIT NOTES:**

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

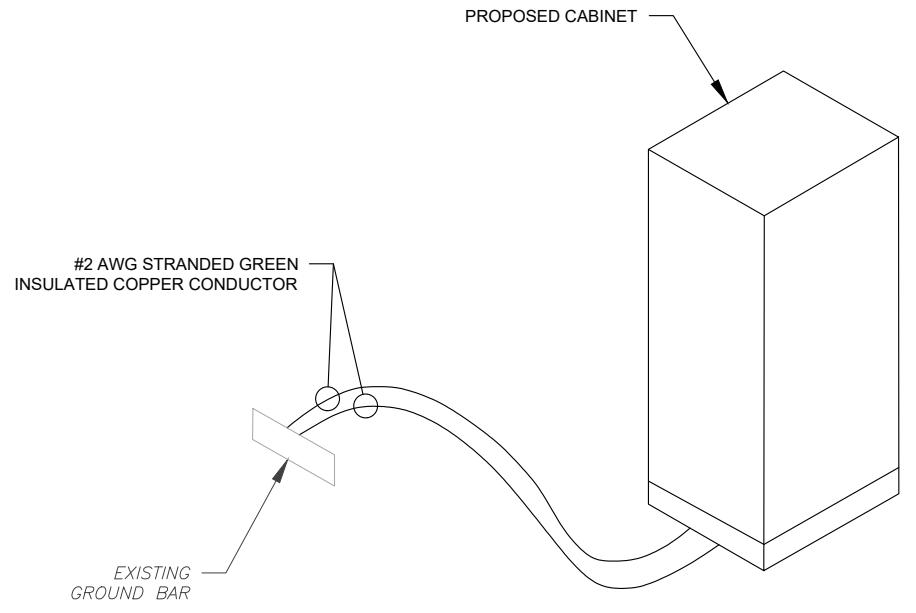
**2 CABLE GROUND KIT CONNECTION DETAIL**  
SCALE: N.T.S.



**GROUND BAR NOTES:**

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

**3 TOWER GROUND BAR DETAIL**  
SCALE: N.T.S.



**4 CABINET GROUNDING DETAIL**  
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
**302494**

ATC SITE NAME:  
**HDDM - HADDAM**

T-MOBILE SITE NAME:  
**ATC HIGGANUM MONOPOLE**

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:



Digitally signed by Eric Anderson  
Date: 2021.10.29 18:07:58-04'00'

COA: JPC.0000131



DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

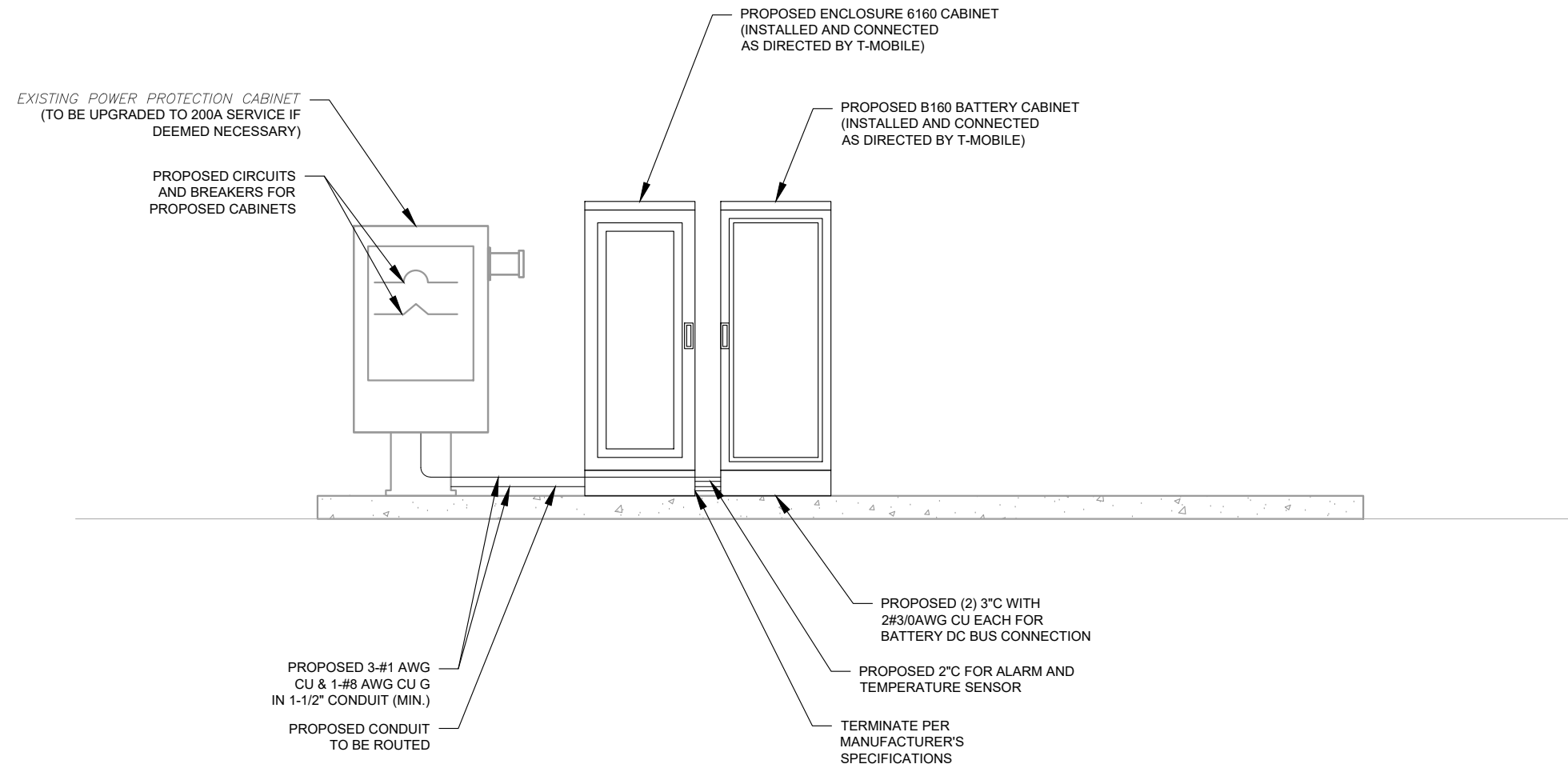
**GROUNDING DETAILS**

SHEET NUMBER:  
**E-501**

REVISION:  
**1**

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- NOTES:
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2017 EDITION OF NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE, NAPA, NETA, OSHA, AND ALL OTHER EXISTING CODES AND REGULATIONS OF AUTHORITIES WHICH WOULD HAVE JURISDICTION.
  2. ALL NEW WIRING SHALL BE WITH THWN-2 OR XHHW-2 INSULATION AND RATED FOR 75 DEG CELSIUS.
  3. ALL UNDERGROUND CONDUIT SHALL BE PVC SCH40. ALL ABOVE GROUND CONDUIT SHALL BE PVC SCH80 OR RMC.



- ELECTRICAL NOTES:
1. THIS DIAGRAM REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
  2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
  3. ATC HAS NOT YET VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.

1 ELECTRICAL UPGRADE DIAGRAM  
SCALE: NOT TO SCALE



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MLH	09/15/21
0	FOR CONSTRUCTION	AMN	09/27/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:  
302494

ATC SITE NAME:  
HDDM - HADDAM

T-MOBILE SITE NAME:  
ATC HIGGANUM MONOPOLE

SITE ADDRESS:  
139 MORRIS HUBBARD RD  
HIGGANUM, CT 06441

SEAL:

COA: JPC.0000131

T-Mobile

DATE DRAWN:	09/15/21
ATC JOB NO:	13711904_D1
CUSTOMER ID:	ATC HIGGANUM MONOPOLE
CUSTOMER #:	CTHA522A

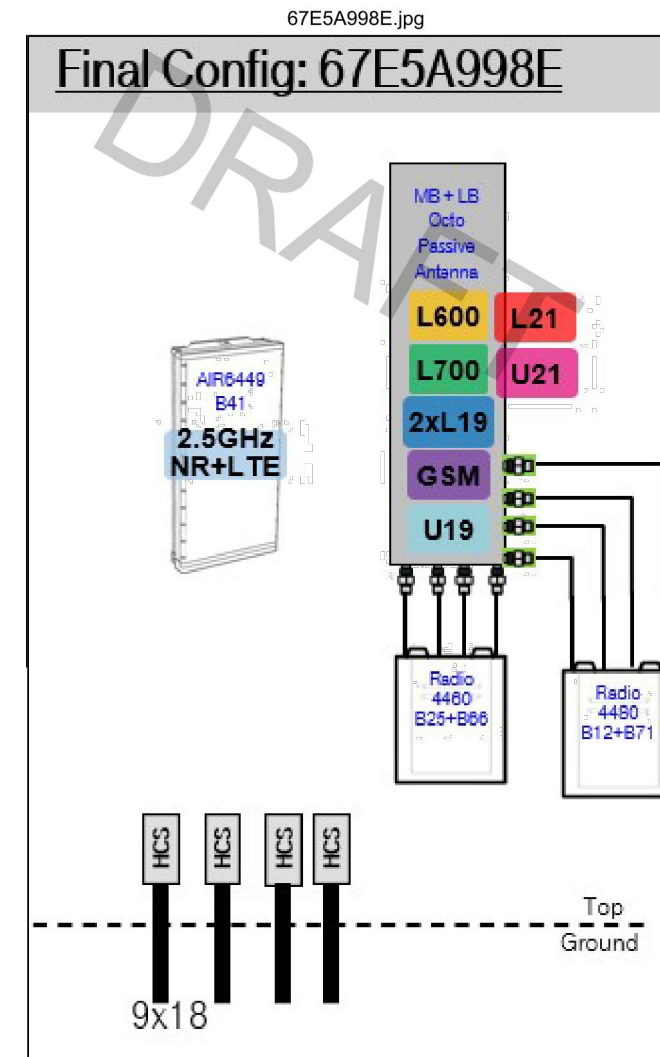
ELECTRICAL DETAILS

SHEET NUMBER: <b>E-502</b>	REVISION: <b>1</b>
-------------------------------	-----------------------

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Proposed RAN Equipment			
Template: 67E998E 6160			
Enclosure	1	2	3
Enclosure Type	Enclosure 6160	RBS 6601	B160
Baseband	BB 6648 L700 L600 N600 BB 6648 L2100 L1900	DUG20 G1900	
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 100m (x 3)		
Transport System	CSR IXRe V2 (Gen2)		
<b>RAN Scope of Work:</b> Gamma changed from 220 to 200, due to terrain issues. Add 200A service No Generator Add New Platform			

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE



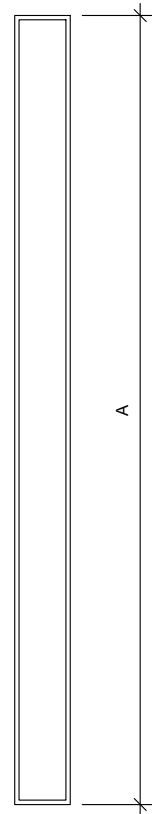
Notes:

2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

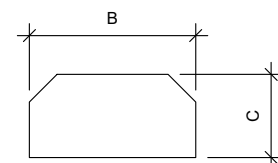
SUPPLEMENTAL

SHEET NUMBER: R-601  
REVISION: -

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.



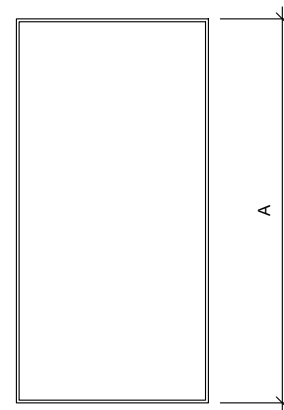
FRONT VIEW



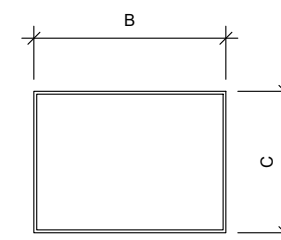
TOP VIEW

**1 ANTENNA SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
APXVAALL24 43-U-NA20	95.9"	24.0"	8.5"	122.8
VV-65A-R1	54.7"	12.1"	4.6"	23.8



FRONT VIEW



TOP VIEW

**2 RRU SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4480 B71+B85A	21.8"	15.7"	7.5"	84.0
RADIO 4460 B25+B66	19.6"	15.7"	12.1"	109.0

SUPPLEMENTAL

SHEET NUMBER:  
**R-602**

REVISION:  
-





# Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such as fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.



## Preliminary technical specification for Enclosure 6160 AC

### CAPACITY

Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option

### MECHANICAL SPECIFICATION

Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder

### POWER SYSTEM

Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

SUPPLEMENTAL

SHEET NUMBER:

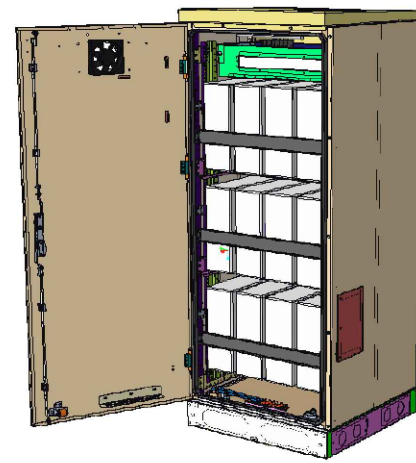
R-603

REVISION:

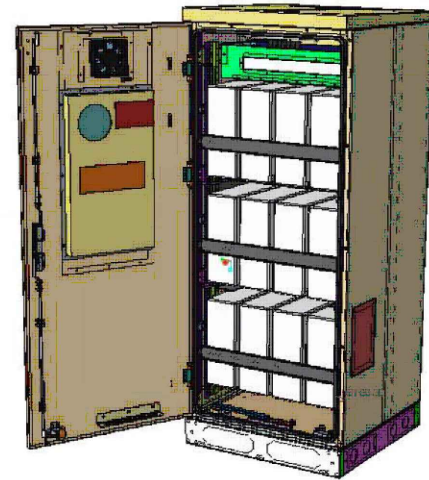
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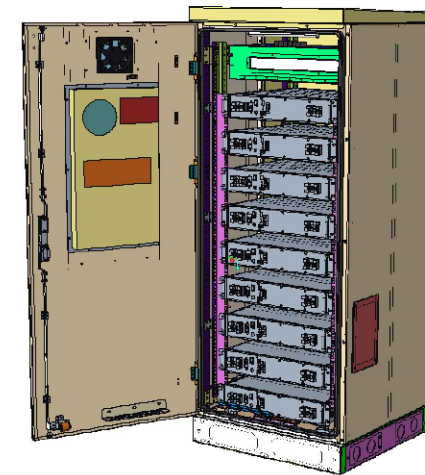
# Enclosure B160



Enclosure B160  
AirCon + VRLA



Enclosure B160  
AirCon + Li-Ion



Enclosure B160  
Convection Cooling  
+ VRLA

PA1 | 2019-02-03 | Ericsson Confidential | Page 1

# Enclosure B160

## Capacity

- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

## Electrical specification

- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

## Mechanical specification

- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m<sup>2</sup>)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

## Environmental specification

- Ingress protection: VRLA/Sodium IP44  
Li-Ion IP55
  - Relative humidity: 15-100%
- ## Climate system
- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
  - Convection cooling
  - Emergency fan

PA1 | 2019-02-03 | Ericsson Confidential | Page 2

SUPPLEMENTAL

SHEET NUMBER:

R-604

REVISION:

-

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.



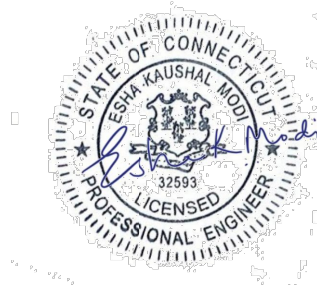
Eng. Number 13711904\_C8\_07  
 October 25, 2021  
 Page 2

### Mount Analysis Report

**ATC Site Name** : Hddm - Haddam, CT  
**ATC Site Number** : 302494  
**Engineering Number** : 13711904\_C8\_07  
**Mount Elevation** : 141.75 ft  
**Carrier** : T-Mobile  
**Carrier Site Name** : ATC Higganum Monopole  
**Carrier Site Number** : CTHA522A  
**Site Location** : 139 Morris Hubbard Rd  
 Higganum, CT 06441-4307  
 41.472239 , -72.554567  
**County** : Middlesex  
**Date** : October 25, 2021  
**Max Usage** : 46%  
**Result** : Pass

Prepared By:  
 Garrett Williams  
 Structural Engineer

Reviewed By:



Authorized by "EOR"  
 26 Oct 2021 04:37:03

COA: PEC.0001553

### Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
141.8	140.0	3	Commscope VV-65A-R1
		3	RFS APXVAALL24 43-U-NA20
		3	Ericsson Radio 4460 B25+B66
		3	Ericsson Radio 4480 B71+B85A

### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	27%	Pass
Mount Pipes	46%	Pass

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

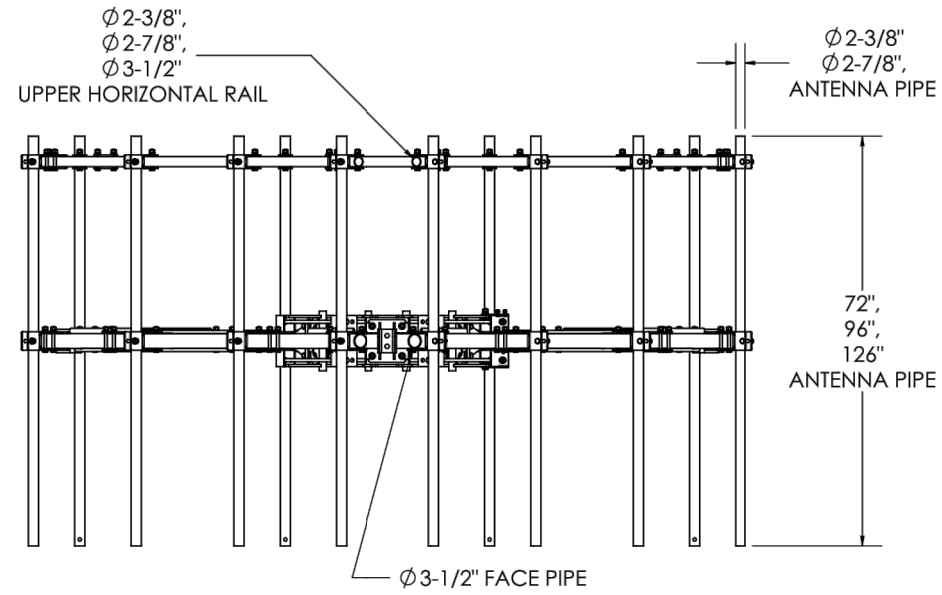
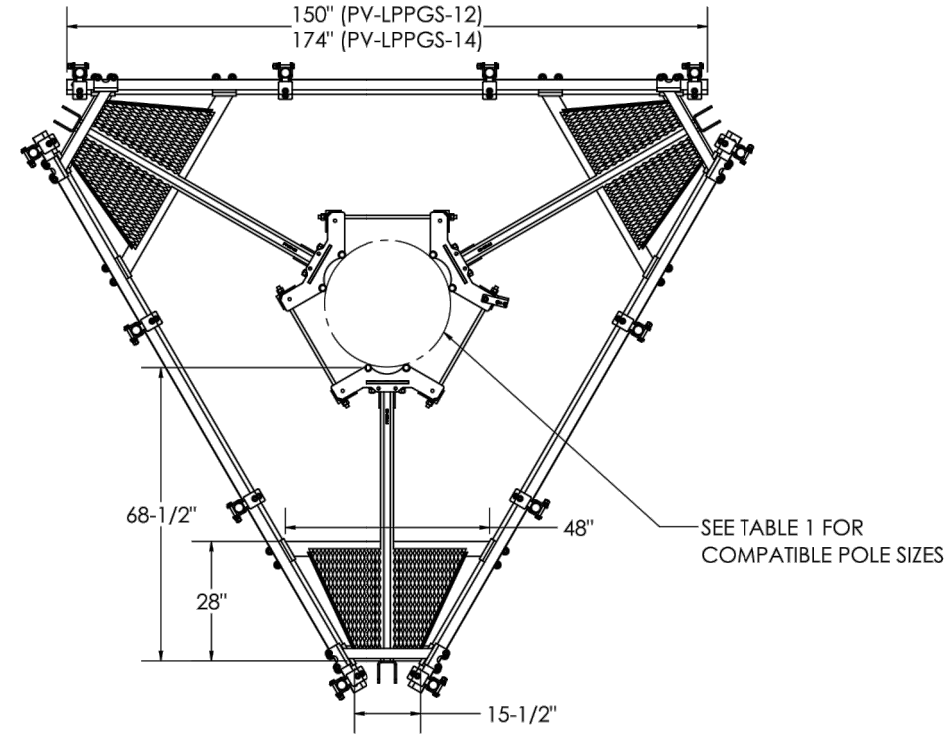
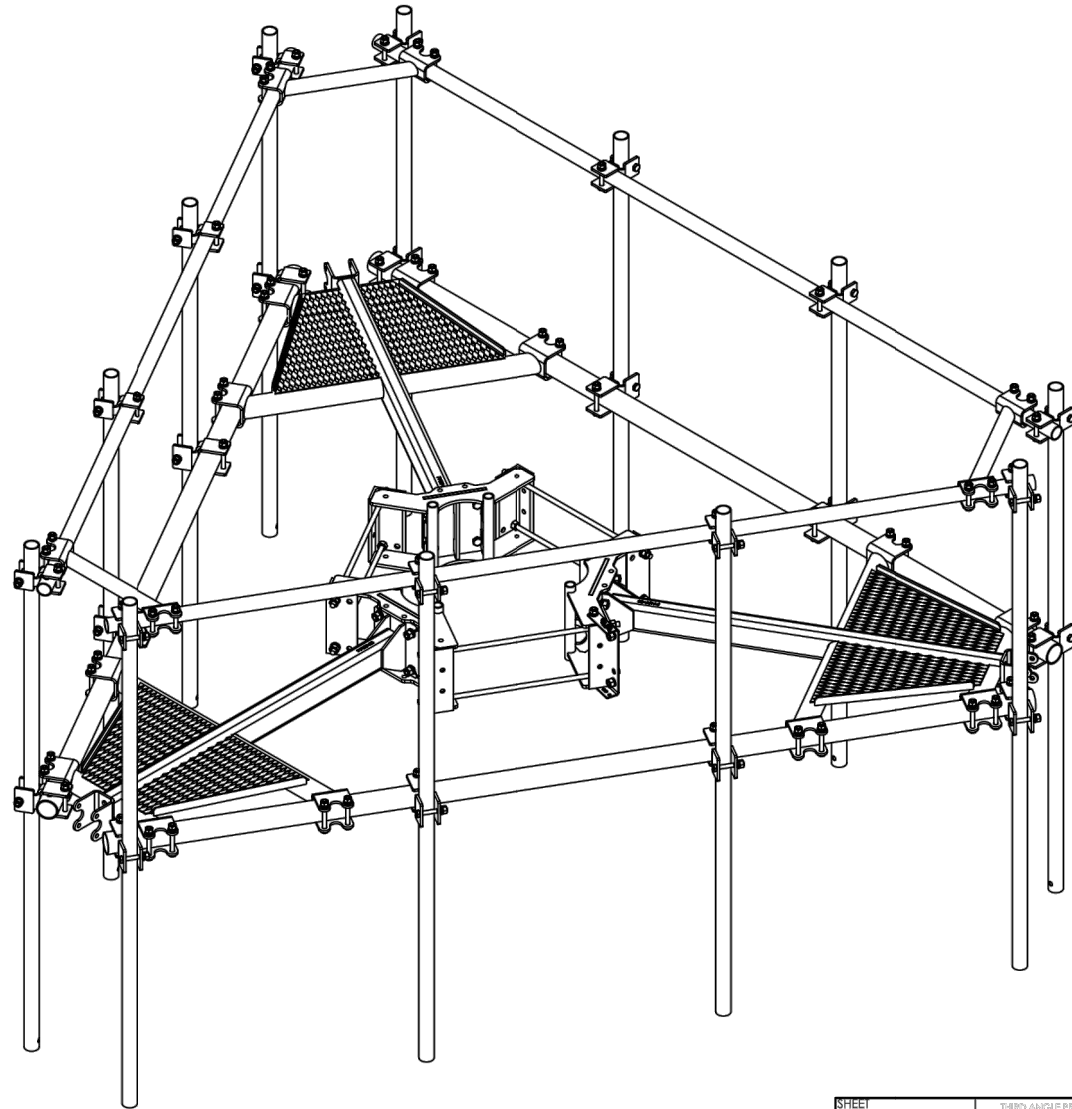
SUPPLEMENTAL

SHEET NUMBER: <b>R-605</b>	REVISION: -
-------------------------------	----------------



# PV-LPPGS MONOPOLE GUARDIAN MOUNT

SEE SHEET 2 - TABLE 1 FOR FULL CONFIGURATION DETAILS



SHEET	TWO-ANGLE PROJECTION	CATEGORY	9	ACC1 REPLACE ACC2, PV-CMX-CG-BO REPLACE 115-242	3/16/21	<b>PERFECT VISION</b>
1 OF 16		02_Monopole	8	KKGS UPDATE	2/2/21	
4/27/2021	SCALE 1:36	SERIES	7	REPLACED PKBK WITH PV-KKRS	11/11/20	MONOPOLE GUARDIAN MOUNT
		01_Triangular	6	ADDED ALL THREAD NOTE TO COLLARS	7/27/20	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		TYPE	5	ADDED HR2-AP3 CONFIGS	1/20/20	DOCUMENT NUMBER
		PV-LPPGS_GUARDIAN	5	ADDED HR2-AP3 CONFIGS	1/20/20	LPPGS-ENG-01-R9
		BY	STATUS	APPROVED	REV	9
		DJN	REV	DESCRIPTION	DATE	

C:\PV\Steel\Catalog\SW Working Files\Engineering Details

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## 1 MOUNT SPECIFICATIONS

SUPPLEMENTAL

SHEET NUMBER:  
**R-606**

REVISION:  
-

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**AMERICAN TOWER®**  
CORPORATION

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## Post-Modification Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : Hddm - Haddam,CT  
**ATC Site Number** : 302494  
**Engineering Number** : 13711904\_C4\_09  
**Proposed Carrier** : T-MOBILE  
**Carrier Site Name** : ATC Higganum Monopole  
**Carrier Site Number** : CTHA522A  
**Site Location** : 139 Morris Hubbard Rd  
Higganum, CT 06441-4307  
41.4722, -72.5546  
**County** : Middlesex  
**Date** : August 12, 2022  
**Max Usage** : 90%  
**Result** : Pass\*

Prepared By:

Tanner Putman  
Structural Engineer

Reviewed By:



Authorized by "EOR"  
12 Aug 2022 02:52:52

**COA : PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a post-modification structural analysis performed on the 150 ft Monopole to reflect the change in loading by T-MOBILE.

## Supporting Documents

<b>Tower Drawings</b>	ITT Meyer Type "B", Mapping by Smith Cullum, Acq. #CT-0027, dated August 23, 2001
<b>Foundation Drawing</b>	Mapping by FDH, Project #01-1004, dated October 12, 2001
<b>Geotechnical Report</b>	GeoTechnologies Project #1-04-0265-EA, dated March 4, 2004
<b>Modifications</b>	VSI Job #MR-311, Rev. 1, dated April 28, 2006 ATC Job #13711904_C6_08, dated July 19, 2022 (Pending)*

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	121 mph (3-second gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-second gust) w/ 1.00" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.21, S_i = 0.06$
<b>Site Class:</b>	D - Stiff Soil - Default

**\*\*Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report. If the pending modifications cited in the Supporting Documents table are not completed, the results of this analysis are no longer valid, and T-MOBILE should contact American Tower's Site Manager for further direction on how to proceed.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
160.0	2	Decibel DB910CE-M	Triangular Platform with Handrails	(2) 1 5/8" Coax	SPRINT NEXTEL
153.0	6	Kaelus DBC0061F1V51-2		(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (2) 3" conduit	AT&T MOBILITY
	2	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 11 (Band 12) (55 lb)			
	3	Ericsson RRUS 32 (50.8 lbs)			
	6	Powerwave Allgon LGP17201			
	3	Ericsson RRUS 32 B2			
	1	Powerwave Allgon P65-17-XLH-RR (50 lbs)			
	3	Powerwave Allgon 7770.00			
	2	KMW AM-X-CD-16-65-00T-RET			
3	Quintel QS66512-2				
140.0	-	-	Triangular Platform with Handrails	-	T-MOBILE

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	RFS APXV18-206517LS-C	-	(6) 1 5/8" Coax	T-MOBILE

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4460 B25+B66	Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson Radio 4480 B71+B85A			
	3	Commscope VV-65A-R1			
	3	RFS APXVAALL24 43-U-NA20			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	83%	Pass
Shaft	90%	Pass
Base Plate	90%	Pass
Flange	25%	Pass
Reinforcement	80%	Pass

### Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1972.7	81%
Shear (Kips)	17.7	10%
Axial (Kips)	41.6	56%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

### Deflection and Sway\*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson Radio 4460 B25+B66	T-MOBILE	2.007	1.910
	RFS APXVAALL24 43-U-NA20			
	Commscope VV-65A-R1			
	Ericsson Radio 4480 B71+B85A			

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

## **Standard Conditions**

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

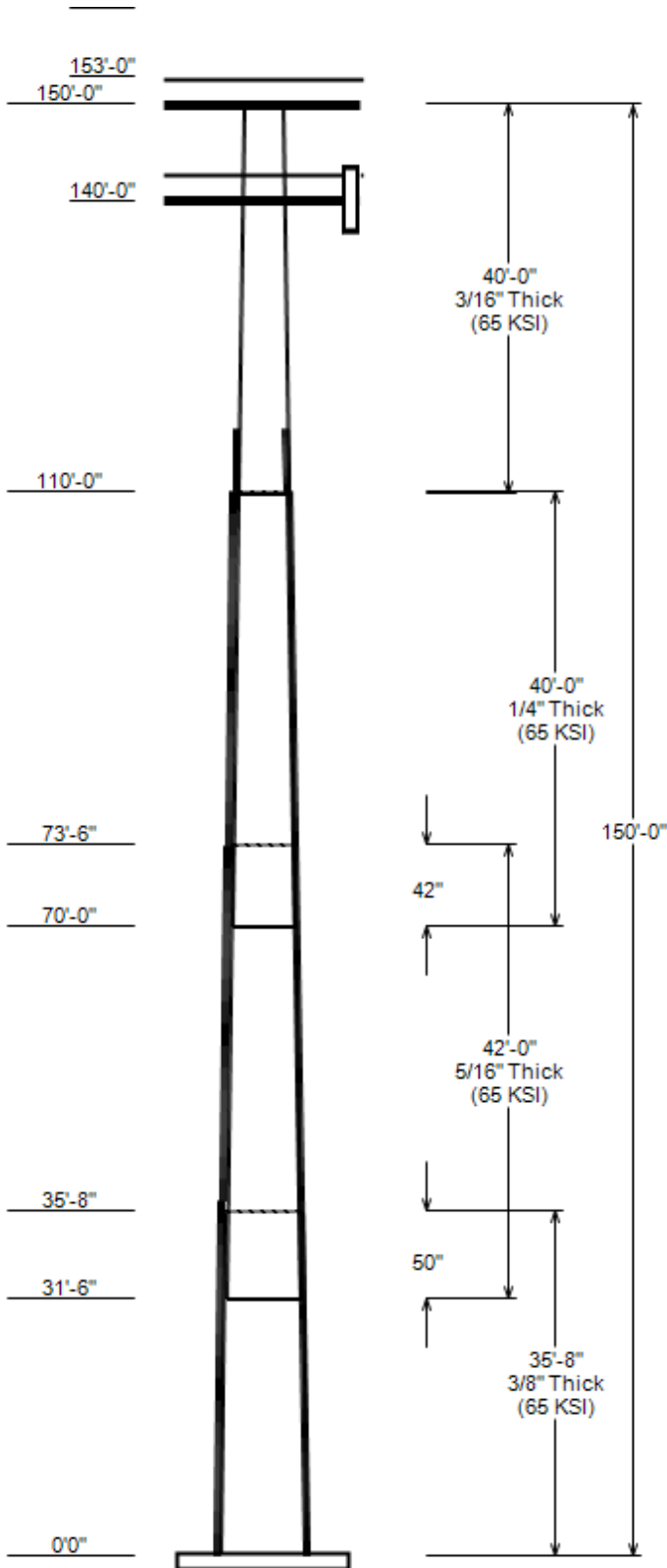
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset : 302494, Hddm - Haddam  
 Client : T-MOBILE  
 Code : ANSI/TIA-222-H

Height : 150 ft  
 Base Width : 37.38  
 Shape : 12 Sides



**SITE PARAMETERS**

Nominal Wind: 117.94 mph wind with no ic **Topo Category:** 1  
 Ice Wind: 48.73 mph wind with 0.850" **Topo Method:** Method 1  
 Base Elev (ft): 0.00 **Taper :** 0.15700 (in/ft) **Topo Feature:**  
**Structure Class:** II **Exposure :** B **S<sub>s</sub> :** 0.214 **S<sub>1</sub> :** 0.055

**SECTION PROPERTIES**

Shaft Section	Length (ft)	Diameter (in) Across Flats		Thick Joint (in) Type	Overlap Length (in) Shape	Steel Grade (ksi)
		Top	Bottom			
1	35.667	31.79	37.38	0.375	0.000 12 Sides	65
2	42.000	26.49	33.07	0.312 Slip Joint	50.000 12 Sides	65
3	40.000	21.27	27.54	0.250 Slip Joint	42.000 12 Sides	65
4	40.000	15.00	21.27	0.188 Butt Joint	0.000 12 Sides	65

**DISCRETE APPURTENANCE**

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.0	170.0	2	Decibel DB910CE-M
153.0	157.0	6	Kaelus DBC0061F1V51-2
153.0	157.0	2	Raycap DC6-48-60-18-8F ("Squid
153.0	154.0	6	Powerwave Allgon LGP17201
153.0	157.0	3	Ericsson RRUS 11 (Band 12) (55
153.0	157.0	3	Ericsson RRUS 32 (50.8 lbs)
153.0	157.0	3	Ericsson RRUS 32 B2
153.0	157.0	3	Powerwave Allgon 7770.00
153.0	157.0	2	KMW AM-X-CD-16-65-00T-RET
153.0	157.0	3	Quintel QS66512-2
153.0	154.0	1	Powerwave Allgon P65-17-XLH-RR
150.0	150.0	1	Generic Flat Platform with Han
140.0	140.0	3	Ericsson Radio 4460 B25+B66
140.0	140.0	3	Ericsson Radio 4480 B71+B85A
140.0	140.0	3	Commscope VV-65A-R1
140.0	140.0	3	RFS APXVAALL24 43-U-NA20
140.0	140.0	1	Generic Flat Platform with Han

**LINEAR APPURTENANCE**

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
8.0	160.0	1 5/8" Coax	No
8.0	153.0	3" conduit	No
8.0	153.0	0.78" (19.7mm) 8 AWG 6	No
8.0	153.0	0.39" (10mm) Fiber Trunk	No
0.0	153.0	1 5/8" Coax	No
0.0	140.0	1.99" (50.7mm) Hybrid	No
0.0	118.0	1.25" Thick Flat Plate	Yes
0.0	118.0	1.25" Thick Flat Plate	Yes
0.0	118.0	1.25" Thick Flat Plate	Yes

**LOAD CASES**

1.2D + 1.0W	117.94 mph wind with no ice
0.9D + 1.0W	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	48.73 mph wind with 0.850" radial
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

JOB INFORMATION

Asset : 302494, Hddm - Haddam  
 Client : T-MOBILE  
 Code : ANSI/TIA-222-H

Height : 150 ft  
 Base Width : 37.38  
 Shape : 12 Sides

**REACTIONS**

<b>Load Case</b>	<b>Moment (kip-ft)</b>	<b>Shear (Kip)</b>	<b>Axial (Kip)</b>
1.2D + 1.0W	1972.72	17.66	41.56
0.9D + 1.0W	1931.39	17.66	31.17
1.2D + 1.0Di + 1.0Wi	447.96	3.93	50.02
1.2D + 1.0Ev + 1.0Eh	140.25	1.03	42.98
0.9D - 1.0Ev + 1.0Eh	136.36	1.04	29.48
1.0D + 1.0W	451.00	4.09	34.63

**DISH DEFLECTIONS**

<b>Load Case</b>	<b>Attach Elev (ft)</b>	<b>Deflection (in)</b>	<b>Rotation (deg)</b>
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ASSET: 302494, Hddm - Haddam  
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
ENG NO: 13711904\_C4\_09

### ANALYSIS PARAMETERS

<b>Location:</b>	Middlesex County,CT	<b>Height:</b>	150 ft
<b>Type and Shape:</b>	Taper, 12 Sides	<b>Base Diameter:</b>	37.38 in
<b>Manufacturer:</b>	ITT Meyer	<b>Top Diameter:</b>	15.00 in
<b>K<sub>d</sub> (non-service):</b>	0.95	<b>Taper:</b>	0.1570 in/ft
<b>K<sub>e</sub>:</b>	0.99	<b>Rotation:</b>	0.000°

### ICE & WIND PARAMETERS

<b>Exposure Category:</b>	B	<b>Design Wind Speed w/o Ice:</b>	118 mph
<b>Risk Category:</b>	II	<b>Design Wind Speed w/Ice:</b>	49 mph
<b>Topo Factor Procedure:</b>	Method 1	<b>Operational Wind Speed:</b>	60 mph
<b>Topographic Category:</b>	1	<b>Design Ice Thickness:</b>	0.85 in
<b>Crest Height:</b>	0 ft	<b>HMSL:</b>	344.00 ft

### SEISMIC PARAMETERS

<b>Analysis Method:</b>	Equivalent Lateral Force Method		
<b>Site Class:</b>	D - Stiff Soil	<b>Period Based on Rayleigh Method (sec):</b>	3.15
<b>T<sub>L</sub> (sec):</b>	6	<b>P:</b>	1
<b>S<sub>s</sub>:</b>	0.214	<b>S<sub>1</sub>:</b>	0.055
<b>F<sub>a</sub>:</b>	1.600	<b>F<sub>v</sub>:</b>	2.400
<b>S<sub>ds</sub>:</b>	0.228	<b>S<sub>dt</sub>:</b>	0.088
		<b>C<sub>s</sub>:</b>	0.030
		<b>C<sub>s</sub> Max:</b>	0.030
		<b>C<sub>s</sub> Min:</b>	0.030

### LOAD CASES

1.2D + 1.0W	117.94 mph wind with no ice
0.9D + 1.0W	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	48.73 mph wind with 0.850" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

ASSET: 302494, Hddm - Haddam  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711904\_C4\_09

**SHAFT SECTION PROPERTIES**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-12	35.67	0.3750	65		0.00	5,014	37.38	0.003	44.68	7,810.1	24.03	99.68	31.79	35.67	37.93	4,778.9	20.04	84.78	0.1567	
2-12	42.00	0.3125	65	Slip	50.00	4,237	33.07	31.500	32.96	4,514.2	25.68	105.82	26.49	73.50	26.34	2,303.3	20.03	84.76	0.1567	
3-12	40.00	0.2500	65	Slip	42.00	2,646	27.54	70.000	21.97	2,087.4	26.83	110.14	21.27	110.00	16.92	954.0	20.12	85.07	0.1567	
								110.00								250.5				
4-12	40.00	0.1875	65	Butt	0.00	1,475	21.27	0	12.73	721.9	27.71	113.43	15.00	150.00	8.94		18.76	80.00	0.1567	
Shaft Weight						13,372														

**DISCRETE APPURTENANCE PROPERTIES**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
160.00	Decibel DB910CE-M	2	1.00	10.000	8.00	1.280	1.00	27.83	2.595	1.00
153.00	KMW AM-X-CD-16-65-00T-RET	2	0.75	4.000	48.50	8.024	0.67	140.44	9.608	0.67
153.00	Quintel QS66512-2	3	0.75	4.000	111.00	8.133	0.74	224.14	9.716	0.74
153.00	Powerwave Allgon P65-17-XLH-RR	1	0.75	1.000	50.00	11.460	1.00	172.73	13.296	1.00
153.00	Powerwave Allgon 7770.00	3	0.75	4.000	35.00	5.508	0.50	99.54	6.715	0.50
153.00	Ericsson RRUS 32 B2	3	0.75	4.000	53.00	2.743	0.50	94.76	3.407	0.50
153.00	Ericsson RRUS 32 (50.8 lbs)	3	0.75	4.000	50.80	2.692	0.50	91.41	3.348	0.50
153.00	Ericsson RRUS 11 (Band 12) (55	3	0.75	4.000	55.00	2.522	0.50	93.20	3.113	0.50
153.00	Powerwave Allgon LGP17201	6	0.75	1.000	31.00	1.668	0.50	52.65	2.151	0.50
153.00	Kaelus DBC0061F1V51-2	6	0.75	4.000	25.50	0.433	0.50	35.99	0.688	0.50
153.00	Raycap DC6-48-60-18-8F ("Squid	2	0.75	4.000	31.80	1.470	1.00	66.83	1.867	1.00
150.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3508.57	54.307	1.00
140.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3501.62	54.225	1.00
140.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	342.41	22.334	0.63
140.00	Commscope VV-65A-R1	3	0.75	0.000	23.80	5.928	0.63	90.01	7.123	0.63
140.00	Ericsson Radio 4480 B71+B85A	3	0.75	0.000	84.00	2.852	0.50	126.60	3.482	0.50
140.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.50	158.84	3.158	0.50
Totals	Num Loadings: 17	48			7,498.80			12,147.69		

**LINEAR APPURTENANCE PROPERTIES**

Load Case Azimuth (deg) : \_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Coax/Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
8.00	160.00	2	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	153.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
8.00	153.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
8.00	153.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
8.00	153.00	2	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	140.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	118.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	60	0	Y	
0.00	118.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	180	0	Y	
0.00	118.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	300	0	Y	

**ADDITIONAL STEEL**

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connectors		Len (in)	Connectors	Continuation?
						Description	Spacing (in)			
0.00	36.67	3	PL PL 7 x 1.25	58	0.00	AJAX M20 Class 8.8	18.00		AJAX M20 Class 8.8	N
36.67	73.33	3	PL PL 6 x 1.25	56	0.00	AJAX M20 Class 8.8	18.00		AJAX M20 Class 8.8	Y
73.33	110.00	3	PL PL 5" x 1.25"	52	0.00	AJAX M20 Class 8.8	18.00		AJAX M20 Class 8.8	Y
110.00	116.50	3	PL PL 4 x 1.25	48	0.00	AJAX M20 Class 8.8	18.00	3.00	AJAX M20 Class 8.8	Y

SEGMENT PROPERTIES

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
0.00		0.3750	37.380	44.684	7,810.10	24.03	99.68	78.5	403.6	0.0	0.0	26.250	4,951.80	0.0
0.50		0.3750	37.302	44.589	7,760.60	23.97	99.47	78.6	401.9	0.0	75.9	26.250	4,932.00	44.6
1.00		0.3750	37.223	44.494	7,711.30	23.92	99.26	78.6	400.2	0.0	75.8	26.250	4,912.20	44.6
1.50		0.3750	37.145	44.400	7,662.20	23.86	99.05	78.7	398.5	0.0	75.6	26.250	4,892.40	44.6
2.00		0.3750	37.067	44.305	7,613.30	23.81	98.84	78.8	396.8	0.0	75.5	26.250	4,872.70	44.6
2.50		0.3750	36.988	44.210	7,564.60	23.75	98.64	78.8	395.1	0.0	75.3	26.250	4,853.00	44.6
3.00		0.3750	36.910	44.116	7,516.20	23.69	98.43	78.9	393.4	0.0	75.1	26.250	4,833.30	44.6
3.50		0.3750	36.832	44.021	7,467.90	23.64	98.22	78.9	391.7	0.0	75.0	26.250	4,813.70	44.6
4.00		0.3750	36.753	43.927	7,419.90	23.58	98.01	79	390.0	0.0	74.8	26.250	4,794.20	44.6
4.50		0.3750	36.675	43.832	7,372.00	23.53	97.80	79.1	388.3	0.0	74.7	26.250	4,774.70	44.6
5.00		0.3750	36.597	43.737	7,324.40	23.47	97.59	79.1	386.6	0.0	74.5	26.250	4,755.20	44.6
5.50		0.3750	36.518	43.643	7,277.00	23.41	97.38	79.2	385.0	0.0	74.3	26.250	4,735.70	44.6
6.00		0.3750	36.440	43.548	7,229.80	23.36	97.17	79.2	383.3	0.0	74.2	26.250	4,716.40	44.6
6.50		0.3750	36.361	43.454	7,182.70	23.30	96.96	79.3	381.6	0.0	74.0	26.250	4,697.00	44.6
7.00		0.3750	36.283	43.359	7,135.90	23.25	96.75	79.4	379.9	0.0	73.9	26.250	4,677.70	44.6
7.50		0.3750	36.205	43.264	7,089.30	23.19	96.55	79.4	378.3	0.0	73.7	26.250	4,658.40	44.6
8.00		0.3750	36.126	43.170	7,042.90	23.13	96.34	79.5	376.6	0.0	73.5	26.250	4,639.20	44.6
8.50		0.3750	36.048	43.075	6,996.70	23.08	96.13	79.5	375.0	0.0	73.4	26.250	4,620.00	44.6
9.00		0.3750	35.970	42.981	6,950.70	23.02	95.92	79.6	373.3	0.0	73.2	26.250	4,600.80	44.6
9.50		0.3750	35.891	42.886	6,904.90	22.97	95.71	79.7	371.7	0.0	73.0	26.250	4,581.70	44.6
10.00		0.3750	35.813	42.791	6,859.30	22.91	95.50	79.7	370.0	0.0	72.9	26.250	4,562.60	44.6
10.50		0.3750	35.735	42.697	6,813.90	22.85	95.29	79.8	368.4	0.0	72.7	26.250	4,543.60	44.6
11.00		0.3750	35.656	42.602	6,768.70	22.80	95.08	79.9	366.7	0.0	72.6	26.250	4,524.60	44.6
11.50		0.3750	35.578	42.508	6,723.70	22.74	94.87	79.9	365.1	0.0	72.4	26.250	4,505.60	44.6
12.00		0.3750	35.500	42.413	6,678.90	22.69	94.67	80	363.5	0.0	72.2	26.250	4,486.70	44.6
12.50		0.3750	35.421	42.318	6,634.30	22.63	94.46	80	361.8	0.0	72.1	26.250	4,467.80	44.6
13.00		0.3750	35.343	42.224	6,589.90	22.57	94.25	80.1	360.2	0.0	71.9	26.250	4,449.00	44.6
13.50		0.3750	35.265	42.129	6,545.70	22.52	94.04	80.2	358.6	0.0	71.8	26.250	4,430.20	44.6
14.00		0.3750	35.186	42.035	6,501.70	22.46	93.83	80.2	357.0	0.0	71.6	26.250	4,411.40	44.6
14.50		0.3750	35.108	41.940	6,457.90	22.41	93.62	80.3	355.4	0.0	71.4	26.250	4,392.70	44.6
15.00		0.3750	35.030	41.845	6,414.30	22.35	93.41	80.3	353.7	0.0	71.3	26.250	4,374.10	44.6
15.50		0.3750	34.951	41.751	6,370.90	22.29	93.20	80.4	352.1	0.0	71.1	26.250	4,355.40	44.6
16.00		0.3750	34.873	41.656	6,327.70	22.24	92.99	80.5	350.5	0.0	71.0	26.250	4,336.80	44.6
16.50		0.3750	34.794	41.561	6,284.70	22.18	92.79	80.5	348.9	0.0	70.8	26.250	4,318.30	44.6
17.00		0.3750	34.716	41.467	6,241.90	22.13	92.58	80.6	347.3	0.0	70.6	26.250	4,299.80	44.6
17.50		0.3750	34.638	41.372	6,199.30	22.07	92.37	80.6	345.8	0.0	70.5	26.250	4,281.30	44.6
18.00		0.3750	34.559	41.278	6,156.80	22.01	92.16	80.7	344.2	0.0	70.3	26.250	4,262.90	44.6
18.50		0.3750	34.481	41.183	6,114.60	21.96	91.95	80.8	342.6	0.0	70.1	26.250	4,244.50	44.6
19.00		0.3750	34.403	41.088	6,072.50	21.90	91.74	80.8	341.0	0.0	70.0	26.250	4,226.10	44.6
19.50		0.3750	34.324	40.994	6,030.70	21.85	91.53	80.9	339.4	0.0	69.8	26.250	4,207.80	44.6
20.00		0.3750	34.246	40.899	5,989.00	21.79	91.32	80.9	337.8	0.0	69.7	26.250	4,189.50	44.6
20.50		0.3750	34.168	40.805	5,947.60	21.73	91.11	81	336.3	0.0	69.5	26.250	4,171.30	44.6
21.00		0.3750	34.089	40.710	5,906.30	21.68	90.90	81.1	334.7	0.0	69.3	26.250	4,153.10	44.6
21.50		0.3750	34.011	40.615	5,865.20	21.62	90.70	81.1	333.1	0.0	69.2	26.250	4,135.00	44.6
22.00		0.3750	33.933	40.521	5,824.30	21.57	90.49	81.2	331.6	0.0	69.0	26.250	4,116.80	44.6
22.50		0.3750	33.854	40.426	5,783.60	21.51	90.28	81.3	330.0	0.0	68.9	26.250	4,098.80	44.6
23.00		0.3750	33.776	40.332	5,743.10	21.45	90.07	81.3	328.5	0.0	68.7	26.250	4,080.70	44.6
23.50		0.3750	33.698	40.237	5,702.80	21.40	89.86	81.4	326.9	0.0	68.5	26.250	4,062.80	44.6
24.00		0.3750	33.619	40.142	5,662.70	21.34	89.65	81.4	325.4	0.0	68.4	26.250	4,044.80	44.6
24.50		0.3750	33.541	40.048	5,622.70	21.29	89.44	81.5	323.9	0.0	68.2	26.250	4,026.90	44.6
25.00		0.3750	33.463	39.953	5,583.00	21.23	89.23	81.6	322.3	0.0	68.1	26.250	4,009.00	44.6
25.50		0.3750	33.384	39.859	5,543.40	21.17	89.02	81.6	320.8	0.0	67.9	26.250	3,991.20	44.6
26.00		0.3750	33.306	39.764	5,504.00	21.12	88.82	81.7	319.3	0.0	67.7	26.250	3,973.40	44.6
26.50		0.3750	33.227	39.669	5,464.80	21.06	88.61	81.7	317.7	0.0	67.6	26.250	3,955.70	44.6
27.00		0.3750	33.149	39.575	5,425.80	21.01	88.40	81.8	316.2	0.0	67.4	26.250	3,938.00	44.6
27.50		0.3750	33.071	39.480	5,387.00	20.95	88.19	81.9	314.7	0.0	67.3	26.250	3,920.30	44.6
28.00		0.3750	32.992	39.386	5,348.40	20.89	87.98	81.9	313.2	0.0	67.1	26.250	3,902.70	44.6
28.50		0.3750	32.914	39.291	5,309.90	20.84	87.77	81.9	311.7	0.0	66.9	26.250	3,885.10	44.6
29.00		0.3750	32.836	39.196	5,271.70	20.78	87.56	81.9	310.2	0.0	66.8	26.250	3,867.50	44.6

SEGMENT PROPERTIES

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
29.50		0.3750	32.757	39.102	5,233.60	20.73	87.35	81.9	308.6	0.0	66.6	26.250	3,850.00	44.6
30.00		0.3750	32.679	39.007	5,195.70	20.67	87.14	81.9	307.1	0.0	66.4	26.250	3,832.60	44.6
30.50		0.3750	32.601	38.912	5,158.00	20.61	86.94	81.9	305.7	0.0	66.3	26.250	3,815.10	44.6
31.00		0.3750	32.522	38.818	5,120.40	20.56	86.73	81.9	304.2	0.0	66.1	26.250	3,797.80	44.6
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.10	20.50	86.52	81.9	302.7	0.0	66.0	26.250	3,780.40	44.6
32.00		0.3750	32.366	38.629	5,045.90	20.45	86.31	81.9	301.2	0.0	121.8	26.250	3,902.30	44.6
32.50		0.3750	32.287	38.534	5,008.90	20.39	86.10	81.9	299.7	0.0	121.5	26.250	3,884.70	44.6
33.00		0.3750	32.209	38.439	4,972.10	20.33	85.89	81.9	298.2	0.0	121.2	26.250	3,867.10	44.6
33.50		0.3750	32.131	38.345	4,935.50	20.28	85.68	81.9	296.7	0.0	120.9	26.250	3,849.60	44.6
34.00		0.3750	32.052	38.250	4,899.10	20.22	85.47	81.9	295.3	0.0	120.6	26.250	3,832.20	44.6
34.50		0.3750	31.974	38.156	4,862.80	20.17	85.26	81.9	293.8	0.0	120.3	26.250	3,814.70	44.6
35.00		0.3750	31.896	38.061	4,826.70	20.11	85.05	81.9	292.3	0.0	120.0	26.250	3,797.40	44.6
35.50		0.3750	31.817	37.966	4,790.80	20.05	84.85	81.9	290.9	0.0	119.7	26.250	3,780.00	44.6
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.60	25.12	103.73	77.3	253.3	0.0	39.9	26.250	3,774.20	14.9
36.00		0.3125	32.364	32.252	4,228.90	25.07	103.56	77.4	252.4	0.0	36.6	26.250	3,762.70	29.7
36.50		0.3125	32.285	32.173	4,198.00	25.00	103.31	77.4	251.2	0.0	54.8	26.250	3,745.40	44.6
36.67	Reinf. Top Reinf Bottom	0.3125	32.259	32.146	4,187.50	24.98	103.23	77.5	250.8	0.0	18.6	26.250	3,739.60	15.2
37.00		0.3125	32.207	32.094	4,167.20	24.94	103.06	77.5	250.0	0.0	36.1	22.500	3,183.50	25.2
37.50		0.3125	32.129	32.015	4,136.60	24.87	102.81	77.6	248.7	0.0	54.5	22.500	3,168.70	38.3
38.00		0.3125	32.050	31.936	4,106.10	24.80	102.56	77.7	247.5	0.0	54.4	22.500	3,154.00	38.3
38.50		0.3125	31.972	31.857	4,075.70	24.73	102.31	77.7	246.3	0.0	54.3	22.500	3,139.40	38.3
39.00		0.3125	31.894	31.779	4,045.60	24.67	102.06	77.8	245.0	0.0	54.1	22.500	3,124.80	38.3
39.50		0.3125	31.815	31.700	4,015.50	24.60	101.81	77.9	243.8	0.0	54.0	22.500	3,110.20	38.3
40.00		0.3125	31.737	31.621	3,985.60	24.53	101.56	78	242.6	0.0	53.9	22.500	3,095.60	38.3
40.50		0.3125	31.659	31.542	3,955.90	24.47	101.31	78	241.4	0.0	53.7	22.500	3,081.10	38.3
41.00		0.3125	31.580	31.463	3,926.30	24.40	101.06	78.1	240.2	0.0	53.6	22.500	3,066.60	38.3
41.50		0.3125	31.502	31.384	3,896.90	24.33	100.81	78.2	239.0	0.0	53.5	22.500	3,052.20	38.3
42.00		0.3125	31.424	31.306	3,867.60	24.26	100.56	78.3	237.8	0.0	53.3	22.500	3,037.70	38.3
42.50		0.3125	31.345	31.227	3,838.40	24.20	100.30	78.3	236.6	0.0	53.2	22.500	3,023.40	38.3
43.00		0.3125	31.267	31.148	3,809.40	24.13	100.05	78.4	235.4	0.0	53.1	22.500	3,009.00	38.3
43.50		0.3125	31.189	31.069	3,780.60	24.06	99.80	78.5	234.2	0.0	52.9	22.500	2,994.70	38.3
44.00		0.3125	31.110	30.990	3,751.90	24.00	99.55	78.5	233.0	0.0	52.8	22.500	2,980.40	38.3
44.50		0.3125	31.032	30.911	3,723.30	23.93	99.30	78.6	231.8	0.0	52.7	22.500	2,966.20	38.3
45.00		0.3125	30.954	30.833	3,694.90	23.86	99.05	78.7	230.6	0.0	52.5	22.500	2,952.00	38.3
45.50		0.3125	30.875	30.754	3,666.60	23.79	98.80	78.8	229.4	0.0	52.4	22.500	2,937.80	38.3
46.00		0.3125	30.797	30.675	3,638.50	23.73	98.55	78.8	228.2	0.0	52.3	22.500	2,923.60	38.3
46.50		0.3125	30.718	30.596	3,610.50	23.66	98.30	78.9	227.1	0.0	52.1	22.500	2,909.50	38.3
47.00		0.3125	30.640	30.517	3,582.70	23.59	98.05	79	225.9	0.0	52.0	22.500	2,895.50	38.3
47.50		0.3125	30.562	30.438	3,555.00	23.53	97.80	79.1	224.7	0.0	51.9	22.500	2,881.40	38.3
48.00		0.3125	30.483	30.359	3,527.40	23.46	97.55	79.1	223.5	0.0	51.7	22.500	2,867.40	38.3
48.50		0.3125	30.405	30.281	3,500.00	23.39	97.30	79.2	222.4	0.0	51.6	22.500	2,853.50	38.3
49.00		0.3125	30.327	30.202	3,472.70	23.32	97.05	79.3	221.2	0.0	51.5	22.500	2,839.50	38.3
49.50		0.3125	30.248	30.123	3,445.60	23.26	96.79	79.3	220.1	0.0	51.3	22.500	2,825.60	38.3
50.00		0.3125	30.170	30.044	3,418.60	23.19	96.54	79.4	218.9	0.0	51.2	22.500	2,811.80	38.3
50.50		0.3125	30.092	29.965	3,391.80	23.12	96.29	79.5	217.7	0.0	51.0	22.500	2,797.90	38.3
51.00		0.3125	30.013	29.886	3,365.10	23.06	96.04	79.6	216.6	0.0	50.9	22.500	2,784.10	38.3
51.50		0.3125	29.935	29.808	3,338.50	22.99	95.79	79.6	215.5	0.0	50.8	22.500	2,770.40	38.3
52.00		0.3125	29.857	29.729	3,312.10	22.92	95.54	79.7	214.3	0.0	50.6	22.500	2,756.60	38.3
52.50		0.3125	29.778	29.650	3,285.80	22.85	95.29	79.8	213.2	0.0	50.5	22.500	2,743.00	38.3
53.00		0.3125	29.700	29.571	3,259.70	22.79	95.04	79.9	212.0	0.0	50.4	22.500	2,729.30	38.3
53.50		0.3125	29.622	29.492	3,233.70	22.72	94.79	79.9	210.9	0.0	50.2	22.500	2,715.70	38.3
54.00		0.3125	29.543	29.413	3,207.80	22.65	94.54	80	209.8	0.0	50.1	22.500	2,702.10	38.3
54.50		0.3125	29.465	29.335	3,182.10	22.58	94.29	80.1	208.6	0.0	50.0	22.500	2,688.50	38.3
55.00		0.3125	29.387	29.256	3,156.50	22.52	94.04	80.2	207.5	0.0	49.8	22.500	2,675.00	38.3
55.50		0.3125	29.308	29.177	3,131.10	22.45	93.79	80.2	206.4	0.0	49.7	22.500	2,661.50	38.3
56.00		0.3125	29.230	29.098	3,105.70	22.38	93.54	80.3	205.3	0.0	49.6	22.500	2,648.10	38.3
56.50		0.3125	29.151	29.019	3,080.60	22.32	93.28	80.4	204.1	0.0	49.4	22.500	2,634.70	38.3
57.00		0.3125	29.073	28.940	3,055.50	22.25	93.03	80.4	203.0	0.0	49.3	22.500	2,621.30	38.3
57.50		0.3125	28.995	28.862	3,030.60	22.18	92.78	80.5	201.9	0.0	49.2	22.500	2,607.90	38.3

SEGMENT PROPERTIES

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
58.00		0.3125	28.916	28.783	3,005.90	22.11	92.53	80.6	200.8	0.0	49.0	22.500	2,594.60	38.3
58.50		0.3125	28.838	28.704	2,981.20	22.05	92.28	80.7	199.7	0.0	48.9	22.500	2,581.30	38.3
59.00		0.3125	28.760	28.625	2,956.70	21.98	92.03	80.7	198.6	0.0	48.8	22.500	2,568.10	38.3
59.50		0.3125	28.681	28.546	2,932.40	21.91	91.78	80.8	197.5	0.0	48.6	22.500	2,554.90	38.3
60.00		0.3125	28.603	28.467	2,908.10	21.85	91.53	80.9	196.4	0.0	48.5	22.500	2,541.70	38.3
60.50		0.3125	28.525	28.388	2,884.00	21.78	91.28	81	195.3	0.0	48.4	22.500	2,528.60	38.3
61.00		0.3125	28.446	28.310	2,860.10	21.71	91.03	81	194.2	0.0	48.2	22.500	2,515.50	38.3
61.50		0.3125	28.368	28.231	2,836.20	21.64	90.78	81.1	193.1	0.0	48.1	22.500	2,502.40	38.3
62.00		0.3125	28.290	28.152	2,812.50	21.58	90.53	81.2	192.1	0.0	48.0	22.500	2,489.40	38.3
62.50		0.3125	28.211	28.073	2,789.00	21.51	90.28	81.3	191.0	0.0	47.8	22.500	2,476.40	38.3
63.00		0.3125	28.133	27.994	2,765.60	21.44	90.03	81.3	189.9	0.0	47.7	22.500	2,463.40	38.3
63.50		0.3125	28.055	27.915	2,742.30	21.38	89.77	81.4	188.8	0.0	47.6	22.500	2,450.50	38.3
64.00		0.3125	27.976	27.837	2,719.10	21.31	89.52	81.5	187.8	0.0	47.4	22.500	2,437.60	38.3
64.50		0.3125	27.898	27.758	2,696.00	21.24	89.27	81.5	186.7	0.0	47.3	22.500	2,424.70	38.3
65.00		0.3125	27.820	27.679	2,673.10	21.17	89.02	81.6	185.6	0.0	47.2	22.500	2,411.90	38.3
65.50		0.3125	27.741	27.600	2,650.40	21.11	88.77	81.7	184.6	0.0	47.0	22.500	2,399.10	38.3
66.00		0.3125	27.663	27.521	2,627.70	21.04	88.52	81.8	183.5	0.0	46.9	22.500	2,386.30	38.3
66.50		0.3125	27.584	27.442	2,605.20	20.97	88.27	81.8	182.5	0.0	46.8	22.500	2,373.60	38.3
67.00		0.3125	27.506	27.364	2,582.80	20.91	88.02	81.9	181.4	0.0	46.6	22.500	2,360.90	38.3
67.50		0.3125	27.428	27.285	2,560.50	20.84	87.77	81.9	180.4	0.0	46.5	22.500	2,348.30	38.3
68.00		0.3125	27.349	27.206	2,538.40	20.77	87.52	81.9	179.3	0.0	46.4	22.500	2,335.60	38.3
68.50		0.3125	27.271	27.127	2,516.40	20.70	87.27	81.9	178.3	0.0	46.2	22.500	2,323.00	38.3
69.00		0.3125	27.193	27.048	2,494.50	20.64	87.02	81.9	177.2	0.0	46.1	22.500	2,310.50	38.3
69.50		0.3125	27.114	26.969	2,472.80	20.57	86.77	81.9	176.2	0.0	46.0	22.500	2,298.00	38.3
70.00	Bot - Section 3	0.3125	27.036	26.891	2,451.20	20.50	86.52	81.9	175.1	0.0	45.8	22.500	2,285.50	38.3
70.50		0.3125	26.958	26.812	2,429.70	20.44	86.26	81.9	174.1	0.0	83.0	22.500	2,353.10	38.2
71.00		0.3125	26.879	26.733	2,408.30	20.37	86.01	81.9	173.1	0.0	82.8	22.500	2,340.40	38.3
71.50		0.3125	26.801	26.654	2,387.00	20.30	85.76	81.9	172.1	0.0	82.5	22.500	2,327.80	38.3
72.00		0.3125	26.723	26.575	2,365.90	20.23	85.51	81.9	171.0	0.0	82.3	22.500	2,315.30	38.3
72.50		0.3125	26.644	26.496	2,344.90	20.17	85.26	81.9	170.0	0.0	82.0	22.500	2,302.70	38.3
73.00		0.3125	26.566	26.417	2,324.10	20.10	85.01	81.9	169.0	0.0	81.8	22.500	2,290.20	38.3
73.33	Reinf. Top Reinf Bottom	0.3125	26.514	26.365	2,310.40	20.05	84.85	81.9	168.3	0.0	53.9	22.500	2,282.00	25.2
73.50	Top - Section 2	0.2500	26.988	21.524	1,964.00	26.25	107.95	76.1	140.6	0.0	27.7	18.750	1,889.60	10.9
74.00		0.2500	26.909	21.461	1,946.80	26.16	107.64	76.2	139.8	0.0	36.6	18.750	1,879.20	31.9
74.50		0.2500	26.831	21.398	1,929.70	26.08	107.32	76.3	138.9	0.0	36.5	18.750	1,868.90	32.0
75.00		0.2500	26.753	21.335	1,912.70	25.99	107.01	76.4	138.1	0.0	36.4	18.750	1,858.60	32.0
75.50		0.2500	26.674	21.271	1,895.80	25.91	106.70	76.5	137.3	0.0	36.2	18.750	1,848.30	32.0
76.00		0.2500	26.596	21.208	1,879.00	25.83	106.38	76.5	136.5	0.0	36.1	18.750	1,838.10	32.0
76.50		0.2500	26.517	21.145	1,862.20	25.74	106.07	76.6	135.7	0.0	36.0	18.750	1,827.80	32.0
77.00		0.2500	26.439	21.082	1,845.60	25.66	105.76	76.7	134.9	0.0	35.9	18.750	1,817.70	32.0
77.50		0.2500	26.361	21.019	1,829.10	25.57	105.44	76.8	134.0	0.0	35.8	18.750	1,807.50	32.0
78.00		0.2500	26.282	20.956	1,812.70	25.49	105.13	76.9	133.2	0.0	35.7	18.750	1,797.40	32.0
78.50		0.2500	26.204	20.893	1,796.40	25.41	104.82	77	132.4	0.0	35.6	18.750	1,787.30	32.0
79.00		0.2500	26.126	20.830	1,780.20	25.32	104.50	77.1	131.6	0.0	35.5	18.750	1,777.20	32.0
79.50		0.2500	26.047	20.767	1,764.00	25.24	104.19	77.2	130.8	0.0	35.4	18.750	1,767.20	32.0
80.00		0.2500	25.969	20.704	1,748.00	25.15	103.88	77.3	130.0	0.0	35.3	18.750	1,757.20	32.0
80.50		0.2500	25.891	20.641	1,732.10	25.07	103.56	77.4	129.2	0.0	35.2	18.750	1,747.20	32.0
81.00		0.2500	25.812	20.578	1,716.30	24.99	103.25	77.5	128.4	0.0	35.1	18.750	1,737.20	32.0
81.50		0.2500	25.734	20.515	1,700.50	24.90	102.94	77.6	127.7	0.0	35.0	18.750	1,727.30	32.0
82.00		0.2500	25.656	20.452	1,684.90	24.82	102.62	77.6	126.9	0.0	34.8	18.750	1,717.40	32.0
82.50		0.2500	25.577	20.388	1,669.30	24.73	102.31	77.7	126.1	0.0	34.7	18.750	1,707.50	32.0
83.00		0.2500	25.499	20.325	1,653.90	24.65	102.00	77.8	125.3	0.0	34.6	18.750	1,697.70	32.0
83.50		0.2500	25.421	20.262	1,638.60	24.57	101.68	77.9	124.5	0.0	34.5	18.750	1,687.90	32.0
84.00		0.2500	25.342	20.199	1,623.30	24.48	101.37	78	123.7	0.0	34.4	18.750	1,678.10	32.0
84.50		0.2500	25.264	20.136	1,608.10	24.40	101.06	78.1	123.0	0.0	34.3	18.750	1,668.40	32.0
85.00		0.2500	25.186	20.073	1,593.10	24.31	100.74	78.2	122.2	0.0	34.2	18.750	1,658.60	32.0
85.50		0.2500	25.107	20.010	1,578.10	24.23	100.43	78.3	121.4	0.0	34.1	18.750	1,648.90	32.0
86.00		0.2500	25.029	19.947	1,563.20	24.15	100.12	78.4	120.7	0.0	34.0	18.750	1,639.30	32.0
86.50		0.2500	24.950	19.884	1,548.40	24.06	99.80	78.5	119.9	0.0	33.9	18.750	1,629.60	32.0

SEGMENT PROPERTIES

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
87.00		0.2500	24.872	19.821	1,533.80	23.98	99.49	78.6	119.1	0.0	33.8	18.750	1,620.00	32.0
87.50		0.2500	24.794	19.758	1,519.20	23.89	99.18	78.7	118.4	0.0	33.7	18.750	1,610.50	32.0
88.00		0.2500	24.715	19.695	1,504.70	23.81	98.86	78.7	117.6	0.0	33.6	18.750	1,600.90	32.0
88.50		0.2500	24.637	19.632	1,490.30	23.73	98.55	78.8	116.9	0.0	33.5	18.750	1,591.40	32.0
89.00		0.2500	24.559	19.569	1,475.90	23.64	98.23	78.9	116.1	0.0	33.3	18.750	1,581.90	32.0
89.50		0.2500	24.480	19.505	1,461.70	23.56	97.92	79	115.3	0.0	33.2	18.750	1,572.40	32.0
90.00		0.2500	24.402	19.442	1,447.60	23.47	97.61	79.1	114.6	0.0	33.1	18.750	1,563.00	32.0
90.50		0.2500	24.324	19.379	1,433.50	23.39	97.29	79.2	113.9	0.0	33.0	18.750	1,553.60	32.0
91.00		0.2500	24.245	19.316	1,419.60	23.31	96.98	79.3	113.1	0.0	32.9	18.750	1,544.20	32.0
91.50		0.2500	24.167	19.253	1,405.70	23.22	96.67	79.4	112.4	0.0	32.8	18.750	1,534.90	32.0
92.00		0.2500	24.089	19.190	1,392.00	23.14	96.35	79.5	111.6	0.0	32.7	18.750	1,525.50	32.0
92.50		0.2500	24.010	19.127	1,378.30	23.05	96.04	79.6	110.9	0.0	32.6	18.750	1,516.20	32.0
93.00		0.2500	23.932	19.064	1,364.70	22.97	95.73	79.7	110.2	0.0	32.5	18.750	1,507.00	32.0
93.50		0.2500	23.854	19.001	1,351.20	22.89	95.41	79.8	109.4	0.0	32.4	18.750	1,497.70	32.0
94.00		0.2500	23.775	18.938	1,337.80	22.80	95.10	79.8	108.7	0.0	32.3	18.750	1,488.50	32.0
94.50		0.2500	23.697	18.875	1,324.40	22.72	94.79	79.9	108.0	0.0	32.2	18.750	1,479.40	32.0
95.00		0.2500	23.619	18.812	1,311.20	22.63	94.47	80	107.2	0.0	32.1	18.750	1,470.20	32.0
95.50		0.2500	23.540	18.749	1,298.10	22.55	94.16	80.1	106.5	0.0	32.0	18.750	1,461.10	32.0
96.00		0.2500	23.462	18.685	1,285.00	22.47	93.85	80.2	105.8	0.0	31.8	18.750	1,452.00	32.0
96.50		0.2500	23.383	18.622	1,272.00	22.38	93.53	80.3	105.1	0.0	31.7	18.750	1,442.90	32.0
97.00		0.2500	23.305	18.559	1,259.20	22.30	93.22	80.4	104.4	0.0	31.6	18.750	1,433.90	32.0
97.50		0.2500	23.227	18.496	1,246.40	22.21	92.91	80.5	103.7	0.0	31.5	18.750	1,424.90	32.0
98.00		0.2500	23.148	18.433	1,233.70	22.13	92.59	80.6	103.0	0.0	31.4	18.750	1,415.90	32.0
98.50		0.2500	23.070	18.370	1,221.00	22.05	92.28	80.7	102.2	0.0	31.3	18.750	1,407.00	32.0
99.00		0.2500	22.992	18.307	1,208.50	21.96	91.97	80.8	101.5	0.0	31.2	18.750	1,398.10	32.0
99.50		0.2500	22.913	18.244	1,196.10	21.88	91.65	80.9	100.8	0.0	31.1	18.750	1,389.20	32.0
100.00		0.2500	22.835	18.181	1,183.70	21.79	91.34	80.9	100.1	0.0	31.0	18.750	1,380.30	32.0
100.50		0.2500	22.757	18.118	1,171.40	21.71	91.03	81	99.4	0.0	30.9	18.750	1,371.50	32.0
101.00		0.2500	22.678	18.055	1,159.20	21.63	90.71	81.1	98.7	0.0	30.8	18.750	1,362.70	32.0
101.50		0.2500	22.600	17.992	1,147.10	21.54	90.40	81.2	98.1	0.0	30.7	18.750	1,353.90	32.0
102.00		0.2500	22.522	17.929	1,135.10	21.46	90.09	81.3	97.4	0.0	30.6	18.750	1,345.20	32.0
102.50		0.2500	22.443	17.866	1,123.20	21.38	89.77	81.4	96.7	0.0	30.4	18.750	1,336.50	32.0
103.00		0.2500	22.365	17.802	1,111.30	21.29	89.46	81.5	96.0	0.0	30.3	18.750	1,327.80	32.0
103.50		0.2500	22.287	17.739	1,099.50	21.21	89.15	81.6	95.3	0.0	30.2	18.750	1,319.10	32.0
104.00		0.2500	22.208	17.676	1,087.90	21.12	88.83	81.7	94.6	0.0	30.1	18.750	1,310.50	32.0
104.50		0.2500	22.130	17.613	1,076.30	21.04	88.52	81.8	94.0	0.0	30.0	18.750	1,301.90	32.0
105.00		0.2500	22.052	17.550	1,064.70	20.96	88.21	81.9	93.3	0.0	29.9	18.750	1,293.30	32.0
105.50		0.2500	21.973	17.487	1,053.30	20.87	87.89	81.9	92.6	0.0	29.8	18.750	1,284.80	32.0
106.00		0.2500	21.895	17.424	1,041.90	20.79	87.58	81.9	91.9	0.0	29.7	18.750	1,276.20	32.0
106.50		0.2500	21.816	17.361	1,030.70	20.70	87.27	81.9	91.3	0.0	29.6	18.750	1,267.80	32.0
107.00		0.2500	21.738	17.298	1,019.50	20.62	86.95	81.9	90.6	0.0	29.5	18.750	1,259.30	32.0
107.50		0.2500	21.660	17.235	1,008.40	20.54	86.64	81.9	89.9	0.0	29.4	18.750	1,250.90	32.0
108.00		0.2500	21.581	17.172	997.30	20.45	86.33	81.9	89.3	0.0	29.3	18.750	1,242.50	32.0
108.50		0.2500	21.503	17.109	986.40	20.37	86.01	81.9	88.6	0.0	29.2	18.750	1,234.10	32.0
109.00		0.2500	21.425	17.046	975.50	20.28	85.70	81.9	88.0	0.0	29.1	18.750	1,225.80	32.0
109.50		0.2500	21.346	16.983	964.70	20.20	85.39	81.9	87.3	0.0	28.9	18.750	1,217.40	32.0
110.00	Top - Section 3 Reinf. Top Reinf Bottom	0.2500	21.268	16.919	954.00	20.12	85.07	81.9	86.7	0.0	28.8	18.750	1,209.20	32.0
110.00	Bot - Section 4	0.1875	21.268	12.727	721.90	27.71	113.43	74.5	65.6	0.0		15.000	961.70	
110.50		0.1875	21.190	12.680	713.90	27.60	113.01	74.6	65.1	0.0	21.6	15.000	955.10	25.5
111.00		0.1875	21.111	12.633	705.90	27.49	112.59	74.7	64.6	0.0	21.5	15.000	948.50	25.5
111.50		0.1875	21.033	12.585	698.00	27.38	112.18	74.9	64.1	0.0	21.5	15.000	942.00	25.5
112.00		0.1875	20.955	12.538	690.20	27.27	111.76	75	63.6	0.0	21.4	15.000	935.40	25.5
112.50		0.1875	20.876	12.491	682.40	27.15	111.34	75.1	63.1	0.0	21.3	15.000	928.90	25.5
113.00		0.1875	20.798	12.444	674.70	27.04	110.92	75.2	62.7	0.0	21.2	15.000	922.40	25.5
113.50		0.1875	20.720	12.396	667.00	26.93	110.50	75.3	62.2	0.0	21.1	15.000	916.00	25.5
114.00		0.1875	20.641	12.349	659.40	26.82	110.09	75.5	61.7	0.0	21.1	15.000	909.50	25.5
114.50		0.1875	20.563	12.302	651.90	26.71	109.67	75.6	61.2	0.0	21.0	15.000	903.10	25.5
115.00		0.1875	20.485	12.254	644.40	26.59	109.25	75.7	60.8	0.0	20.9	15.000	896.70	25.5
115.50		0.1875	20.406	12.207	636.90	26.48	108.83	75.8	60.3	0.0	20.8	15.000	890.30	25.5

SEGMENT PROPERTIES

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
116.00		0.1875	20.328	12.160	629.60	26.37	108.41	76	59.8	0.0	20.7	15.000	884.00	25.5
116.50	Reinf. Top	0.1875	20.249	12.112	622.20	26.26	108.00	76.1	59.4	0.0	20.6	15.000	877.70	25.5
117.00		0.1875	20.171	12.065	615.00	26.15	107.58	76.2	58.9	0.0	20.6			
117.50		0.1875	20.093	12.018	607.80	26.03	107.16	76.3	58.4	0.0	20.5			
118.00		0.1875	20.014	11.970	600.60	25.92	106.74	76.4	58.0	0.0	20.4			
118.50		0.1875	19.936	11.923	593.50	25.81	106.33	76.6	57.5	0.0	20.3			
119.00		0.1875	19.858	11.876	586.50	25.70	105.91	76.7	57.1	0.0	20.2			
119.50		0.1875	19.779	11.829	579.50	25.59	105.49	76.8	56.6	0.0	20.2			
120.00		0.1875	19.701	11.781	572.60	25.47	105.07	76.9	56.1	0.0	20.1			
120.50		0.1875	19.623	11.734	565.70	25.36	104.65	77.1	55.7	0.0	20.0			
121.00		0.1875	19.544	11.687	558.90	25.25	104.24	77.2	55.2	0.0	19.9			
121.50		0.1875	19.466	11.639	552.20	25.14	103.82	77.3	54.8	0.0	19.8			
122.00		0.1875	19.388	11.592	545.40	25.03	103.40	77.4	54.4	0.0	19.8			
122.50		0.1875	19.309	11.545	538.80	24.91	102.98	77.5	53.9	0.0	19.7			
123.00		0.1875	19.231	11.497	532.20	24.80	102.56	77.7	53.5	0.0	19.6			
123.50		0.1875	19.153	11.450	525.70	24.69	102.15	77.8	53.0	0.0	19.5			
124.00		0.1875	19.074	11.403	519.20	24.58	101.73	77.9	52.6	0.0	19.4			
124.50		0.1875	18.996	11.356	512.70	24.47	101.31	78	52.1	0.0	19.4			
125.00		0.1875	18.918	11.308	506.40	24.35	100.89	78.2	51.7	0.0	19.3			
125.50		0.1875	18.839	11.261	500.00	24.24	100.48	78.3	51.3	0.0	19.2			
126.00		0.1875	18.761	11.214	493.80	24.13	100.06	78.4	50.8	0.0	19.1			
126.50		0.1875	18.682	11.166	487.50	24.02	99.64	78.5	50.4	0.0	19.0			
127.00		0.1875	18.604	11.119	481.40	23.91	99.22	78.6	50.0	0.0	19.0			
127.50		0.1875	18.526	11.072	475.20	23.79	98.80	78.8	49.6	0.0	18.9			
128.00		0.1875	18.447	11.024	469.20	23.68	98.39	78.9	49.1	0.0	18.8			
128.50		0.1875	18.369	10.977	463.20	23.57	97.97	79	48.7	0.0	18.7			
129.00		0.1875	18.291	10.930	457.20	23.46	97.55	79.1	48.3	0.0	18.6			
129.50		0.1875	18.212	10.883	451.30	23.35	97.13	79.3	47.9	0.0	18.6			
130.00		0.1875	18.134	10.835	445.40	23.24	96.71	79.4	47.5	0.0	18.5			
130.50		0.1875	18.056	10.788	439.60	23.12	96.30	79.5	47.0	0.0	18.4			
131.00		0.1875	17.977	10.741	433.90	23.01	95.88	79.6	46.6	0.0	18.3			
131.50		0.1875	17.899	10.693	428.20	22.90	95.46	79.7	46.2	0.0	18.2			
132.00		0.1875	17.821	10.646	422.50	22.79	95.04	79.9	45.8	0.0	18.2			
132.50		0.1875	17.742	10.599	416.90	22.68	94.63	80	45.4	0.0	18.1			
133.00		0.1875	17.664	10.551	411.30	22.56	94.21	80.1	45.0	0.0	18.0			
133.50		0.1875	17.586	10.504	405.80	22.45	93.79	80.2	44.6	0.0	17.9			
134.00		0.1875	17.507	10.457	400.40	22.34	93.37	80.4	44.2	0.0	17.8			
134.50		0.1875	17.429	10.409	395.00	22.23	92.95	80.5	43.8	0.0	17.8			
135.00		0.1875	17.351	10.362	389.60	22.12	92.54	80.6	43.4	0.0	17.7			
135.50		0.1875	17.272	10.315	384.30	22.00	92.12	80.7	43.0	0.0	17.6			
136.00		0.1875	17.194	10.268	379.00	21.89	91.70	80.8	42.6	0.0	17.5			
136.50		0.1875	17.115	10.220	373.80	21.78	91.28	81	42.2	0.0	17.4			
137.00		0.1875	17.037	10.173	368.60	21.67	90.86	81.1	41.8	0.0	17.3			
137.50		0.1875	16.959	10.126	363.50	21.56	90.45	81.2	41.4	0.0	17.3			
138.00		0.1875	16.880	10.078	358.50	21.44	90.03	81.3	41.0	0.0	17.2			
138.50		0.1875	16.802	10.031	353.40	21.33	89.61	81.4	40.6	0.0	17.1			
139.00		0.1875	16.724	9.984	348.50	21.22	89.19	81.6	40.3	0.0	17.0			
139.50		0.1875	16.645	9.936	343.50	21.11	88.78	81.7	39.9	0.0	16.9			
140.00		0.1875	16.567	9.889	338.60	21.00	88.36	81.8	39.5	0.0	16.9			
140.50		0.1875	16.489	9.842	333.80	20.88	87.94	81.9	39.1	0.0	16.8			
141.00		0.1875	16.410	9.795	329.00	20.77	87.52	81.9	38.7	0.0	16.7			
141.50		0.1875	16.332	9.747	324.30	20.66	87.10	81.9	38.4	0.0	16.6			
142.00		0.1875	16.254	9.700	319.60	20.55	86.69	81.9	38.0	0.0	16.5			
142.50		0.1875	16.175	9.653	314.90	20.44	86.27	81.9	37.6	0.0	16.5			
143.00		0.1875	16.097	9.605	310.30	20.32	85.85	81.9	37.2	0.0	16.4			
143.50		0.1875	16.019	9.558	305.80	20.21	85.43	81.9	36.9	0.0	16.3			
144.00		0.1875	15.940	9.511	301.20	20.10	85.01	81.9	36.5	0.0	16.2			
144.50		0.1875	15.862	9.463	296.80	19.99	84.60	81.9	36.1	0.0	16.1			
145.00		0.1875	15.784	9.416	292.30	19.88	84.18	81.9	35.8	0.0	16.1			

ASSET: 302494, Hddm - Haddam  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711904\_C4\_09

**SEGMENT PROPERTIES**

(Max Len: 0 . 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
145.50		0.1875	15.705	9.369	288.00	19.76	83.76	81.9	35.4	0.0	16.0			
146.00		0.1875	15.627	9.321	283.60	19.65	83.34	81.9	35.1	0.0	15.9			
146.50		0.1875	15.548	9.274	279.30	19.54	82.93	81.9	34.7	0.0	15.8			
147.00		0.1875	15.470	9.227	275.10	19.43	82.51	81.9	34.3	0.0	15.7			
147.50		0.1875	15.392	9.180	270.90	19.32	82.09	81.9	34.0	0.0	15.7			
148.00		0.1875	15.313	9.132	266.70	19.20	81.67	81.9	33.6	0.0	15.6			
148.50		0.1875	15.235	9.085	262.60	19.09	81.25	81.9	33.3	0.0	15.5			
149.00		0.1875	15.157	9.038	258.50	18.98	80.84	81.9	32.9	0.0	15.4			
149.50		0.1875	15.078	8.990	254.40	18.87	80.42	81.9	32.6	0.0	15.3			
150.00		0.1875	15.000	8.943	250.50	18.76	80.00	81.9	32.3	0.0	15.3			
Totals:											13,372.0			8,757.2











ASSET: 302494, Hddm - Haddam  
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
ENG NO: 13711904\_C4\_09

141.50	-4.69	-5.17	0.00	-57.6	0.00	57.64	718.47	171.06	260.58	235.61	108.17	-8.45	0.252
142.00	-4.65	-5.14	0.00	-55.1	0.00	55.06	714.98	170.23	258.06	233.32	109.05	-8.47	0.243
142.50	-4.62	-5.11	0.00	-52.5	0.00	52.49	711.49	169.40	255.55	231.03	109.94	-8.5	0.235
143.00	-4.58	-5.08	0.00	-49.9	0.00	49.94	708.01	168.57	253.05	228.76	110.82	-8.52	0.226
143.50	-4.55	-5.05	0.00	-47.4	0.00	47.40	704.52	167.74	250.56	226.50	111.71	-8.54	0.217
144.00	-4.51	-5.02	0.00	-44.9	0.00	44.87	701.03	166.91	248.09	224.25	112.61	-8.57	0.207
144.50	-4.48	-4.99	0.00	-42.4	0.00	42.36	697.55	166.08	245.63	222.01	113.5	-8.59	0.198
145.00	-4.45	-4.96	0.00	-39.9	0.00	39.87	694.06	165.25	243.18	219.79	114.4	-8.61	0.189
145.50	-4.41	-4.93	0.00	-37.4	0.00	37.39	690.57	164.42	240.74	217.57	115.3	-8.62	0.179
146.00	-4.38	-4.90	0.00	-34.9	0.00	34.92	687.09	163.59	238.32	215.36	116.2	-8.64	0.169
146.50	-4.34	-4.87	0.00	-32.5	0.00	32.47	683.60	162.76	235.91	213.17	117.1	-8.66	0.160
147.00	-4.31	-4.84	0.00	-30.0	0.00	30.04	680.11	161.93	233.51	210.99	118.01	-8.68	0.150
147.50	-4.28	-4.81	0.00	-27.6	0.00	27.62	676.63	161.10	231.12	208.82	118.91	-8.69	0.139
148.00	-4.24	-4.78	0.00	-25.2	0.00	25.21	673.14	160.27	228.75	206.66	119.82	-8.7	0.129
148.50	-4.21	-4.75	0.00	-22.8	0.00	22.82	669.65	159.44	226.38	204.51	120.73	-8.72	0.119
149.00	-4.18	-4.72	0.00	-20.4	0.00	20.45	666.17	158.61	224.03	202.37	121.64	-8.73	0.108
149.50	-4.15	-4.69	0.00	-18.1	0.00	18.09	662.68	157.78	221.70	200.25	122.55	-8.74	0.097
150.00	0.00	-4.01	0.00	-15.7	0.00	15.74	659.19	156.95	219.37	198.13	123.46	-8.75	0.080

ASSET: 302494, Hddm - Haddam  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711904\_C4\_09

Load Case: 0.9D + 1.0W	117.94 mph wind with no ice	41 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

**CALCULATED FORCES**

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 (deg)	Ratio
0.00	-31.17	-17.66	0.00	-1,931.4	0.00	1,931.39	3,157.17	784.20	2,737.77	2,376.61	0	0	0.504
0.50	-31.05	-17.63	0.00	-1,922.6	0.00	1,922.56	3,152.93	782.54	2,726.19	2,368.34	0	-0.02	0.503
1.00	-30.92	-17.60	0.00	-1,913.8	0.00	1,913.75	3,148.69	780.88	2,714.64	2,360.09	0	-0.04	0.502
1.50	-30.80	-17.58	0.00	-1,905.0	0.00	1,904.95	3,144.43	779.21	2,703.11	2,351.83	0.01	-0.06	0.501
2.00	-30.68	-17.55	0.00	-1,896.2	0.00	1,896.16	3,140.17	777.55	2,691.61	2,343.59	0.02	-0.09	0.500
2.50	-30.56	-17.52	0.00	-1,887.4	0.00	1,887.38	3,135.89	775.89	2,680.13	2,335.35	0.03	-0.11	0.499
3.00	-30.44	-17.49	0.00	-1,878.6	0.00	1,878.62	3,131.60	774.23	2,668.68	2,327.12	0.04	-0.13	0.498
3.50	-30.32	-17.47	0.00	-1,869.9	0.00	1,869.88	3,127.31	772.57	2,657.25	2,318.89	0.06	-0.15	0.497
4.00	-30.20	-17.44	0.00	-1,861.1	0.00	1,861.14	3,123.00	770.91	2,645.84	2,310.67	0.07	-0.17	0.496
4.50	-30.07	-17.41	0.00	-1,852.4	0.00	1,852.42	3,118.68	769.25	2,634.46	2,302.45	0.09	-0.19	0.495
5.00	-29.95	-17.38	0.00	-1,843.7	0.00	1,843.72	3,114.35	767.59	2,623.11	2,294.24	0.11	-0.22	0.494
5.50	-29.83	-17.36	0.00	-1,835.0	0.00	1,835.03	3,110.02	765.93	2,611.77	2,286.04	0.14	-0.24	0.493
6.00	-29.71	-17.33	0.00	-1,826.4	0.00	1,826.35	3,105.67	764.27	2,600.47	2,277.85	0.16	-0.26	0.492
6.50	-29.59	-17.30	0.00	-1,817.7	0.00	1,817.69	3,101.31	762.61	2,589.18	2,269.66	0.19	-0.28	0.491
7.00	-29.47	-17.27	0.00	-1,809.0	0.00	1,809.04	3,096.94	760.95	2,577.93	2,261.47	0.22	-0.3	0.490
7.50	-29.35	-17.24	0.00	-1,800.4	0.00	1,800.40	3,092.56	759.29	2,566.69	2,253.30	0.26	-0.32	0.489
8.00	-29.23	-17.22	0.00	-1,791.8	0.00	1,791.78	3,088.17	757.63	2,555.48	2,245.13	0.29	-0.35	0.488
8.50	-29.11	-17.19	0.00	-1,783.2	0.00	1,783.17	3,083.77	755.97	2,544.30	2,236.96	0.33	-0.37	0.486
9.00	-28.98	-17.16	0.00	-1,774.6	0.00	1,774.58	3,079.36	754.31	2,533.14	2,228.81	0.37	-0.39	0.485
9.50	-28.85	-17.13	0.00	-1,766.0	0.00	1,766.00	3,074.94	752.65	2,522.00	2,220.66	0.41	-0.41	0.484
10.00	-28.72	-17.11	0.00	-1,757.4	0.00	1,757.43	3,070.50	750.99	2,510.89	2,212.51	0.46	-0.43	0.483
10.50	-28.59	-17.08	0.00	-1,748.8	0.00	1,748.88	3,066.06	749.33	2,499.81	2,204.38	0.5	-0.45	0.482
11.00	-28.47	-17.05	0.00	-1,740.3	0.00	1,740.34	3,061.61	747.67	2,488.74	2,196.25	0.55	-0.48	0.481
11.50	-28.34	-17.02	0.00	-1,731.8	0.00	1,731.81	3,057.15	746.01	2,477.71	2,188.12	0.6	-0.5	0.480
12.00	-28.21	-17.00	0.00	-1,723.3	0.00	1,723.30	3,052.67	744.35	2,466.69	2,180.01	0.66	-0.52	0.479
12.50	-28.09	-16.97	0.00	-1,714.8	0.00	1,714.80	3,048.19	742.69	2,455.71	2,171.90	0.71	-0.54	0.478
13.00	-27.96	-16.94	0.00	-1,706.3	0.00	1,706.32	3,043.69	741.03	2,444.74	2,163.80	0.77	-0.56	0.477
13.50	-27.83	-16.91	0.00	-1,697.8	0.00	1,697.85	3,039.19	739.37	2,433.80	2,155.70	0.83	-0.59	0.476
14.00	-27.71	-16.88	0.00	-1,689.4	0.00	1,689.39	3,034.67	737.71	2,422.89	2,147.61	0.89	-0.61	0.475
14.50	-27.58	-16.86	0.00	-1,681.0	0.00	1,680.95	3,030.15	736.05	2,412.00	2,139.53	0.96	-0.63	0.474
15.00	-27.45	-16.83	0.00	-1,672.5	0.00	1,672.52	3,025.61	734.39	2,401.13	2,131.46	1.03	-0.65	0.473
15.50	-27.33	-16.80	0.00	-1,664.1	0.00	1,664.11	3,021.07	732.72	2,390.29	2,123.39	1.09	-0.67	0.472
16.00	-27.20	-16.77	0.00	-1,655.7	0.00	1,655.71	3,016.51	731.06	2,379.47	2,115.34	1.17	-0.7	0.470
16.50	-27.08	-16.75	0.00	-1,647.3	0.00	1,647.32	3,011.94	729.40	2,368.68	2,107.28	1.24	-0.72	0.469
17.00	-26.95	-16.72	0.00	-1,639.0	0.00	1,638.95	3,007.37	727.74	2,357.91	2,099.24	1.32	-0.74	0.468
17.50	-26.83	-16.69	0.00	-1,630.6	0.00	1,630.59	3,002.78	726.08	2,347.17	2,091.20	1.4	-0.76	0.467
18.00	-26.70	-16.66	0.00	-1,622.2	0.00	1,622.25	2,998.18	724.42	2,336.45	2,083.18	1.48	-0.78	0.466
18.50	-26.58	-16.63	0.00	-1,613.9	0.00	1,613.92	2,993.57	722.76	2,325.76	2,075.15	1.56	-0.81	0.465
19.00	-26.45	-16.61	0.00	-1,605.6	0.00	1,605.60	2,988.95	721.10	2,315.09	2,067.14	1.65	-0.83	0.464
19.50	-26.33	-16.58	0.00	-1,597.3	0.00	1,597.30	2,984.32	719.44	2,304.44	2,059.13	1.73	-0.85	0.463
20.00	-26.20	-16.55	0.00	-1,589.0	0.00	1,589.01	2,979.68	717.78	2,293.82	2,051.14	1.83	-0.87	0.462
20.50	-26.08	-16.52	0.00	-1,580.7	0.00	1,580.73	2,975.03	716.12	2,283.23	2,043.15	1.92	-0.89	0.461
21.00	-25.95	-16.50	0.00	-1,572.5	0.00	1,572.47	2,970.37	714.46	2,272.66	2,035.16	2.01	-0.92	0.460
21.50	-25.83	-16.47	0.00	-1,564.2	0.00	1,564.22	2,965.70	712.80	2,262.11	2,027.19	2.11	-0.94	0.458
22.00	-25.71	-16.44	0.00	-1,556.0	0.00	1,555.99	2,961.02	711.14	2,251.59	2,019.22	2.21	-0.96	0.457
22.50	-25.58	-16.41	0.00	-1,547.8	0.00	1,547.77	2,956.33	709.48	2,241.09	2,011.26	2.31	-0.98	0.456
23.00	-25.46	-16.38	0.00	-1,539.6	0.00	1,539.56	2,951.63	707.82	2,230.62	2,003.31	2.42	-1.01	0.455
23.50	-25.34	-16.36	0.00	-1,531.4	0.00	1,531.37	2,946.91	706.16	2,220.17	1,995.37	2.52	-1.03	0.454
24.00	-25.21	-16.33	0.00	-1,523.2	0.00	1,523.19	2,942.19	704.50	2,209.74	1,987.44	2.63	-1.05	0.453
24.50	-25.09	-16.30	0.00	-1,515.0	0.00	1,515.03	2,937.46	702.84	2,199.35	1,979.51	2.74	-1.07	0.452
25.00	-24.97	-16.27	0.00	-1,506.9	0.00	1,506.88	2,932.71	701.18	2,188.97	1,971.59	2.86	-1.09	0.451
25.50	-24.85	-16.25	0.00	-1,498.7	0.00	1,498.74	2,927.96	699.52	2,178.62	1,963.68	2.97	-1.12	0.449
26.00	-24.72	-16.22	0.00	-1,490.6	0.00	1,490.62	2,923.19	697.86	2,168.29	1,955.78	3.09	-1.14	0.448
26.50	-24.60	-16.19	0.00	-1,482.5	0.00	1,482.51	2,918.42	696.20	2,157.99	1,947.89	3.21	-1.16	0.447
27.00	-24.48	-16.16	0.00	-1,474.4	0.00	1,474.41	2,913.63	694.54	2,147.72	1,940.01	3.33	-1.18	0.446
27.50	-24.36	-16.13	0.00	-1,466.3	0.00	1,466.33	2,910.08	692.88	2,137.46	1,932.96	3.46	-1.21	0.445
28.00	-24.24	-16.11	0.00	-1,458.3	0.00	1,458.26	2,903.11	691.22	2,127.23	1,923.65	3.59	-1.23	0.444
28.50	-24.11	-16.08	0.00	-1,450.2	0.00	1,450.21	2,896.13	689.56	2,117.03	1,914.37	3.72	-1.25	0.443
29.00	-23.99	-16.05	0.00	-1,442.2	0.00	1,442.17	2,889.16	687.89	2,106.85	1,905.11	3.85	-1.27	0.442
29.50	-23.87	-16.02	0.00	-1,434.1	0.00	1,434.14	2,882.19	686.23	2,096.70	1,895.87	3.98	-1.3	0.441
30.00	-23.75	-16.00	0.00	-1,426.1	0.00	1,426.13	2,875.21	684.57	2,086.57	1,886.65	4.12	-1.32	0.441
30.50	-23.63	-15.97	0.00	-1,418.1	0.00	1,418.14	2,868.24	682.91	2,076.46	1,877.46	4.26	-1.34	0.440









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140.00	-3.45	-5.04	0.00	-63.4	0.00	63.41	728.18	173.55	268.22	242.31	102.55	-8.11	0.267
140.50	-3.43	-5.01	0.00	-60.9	0.00	60.89	725.44	172.72	265.66	240.23	103.39	-8.13	0.259
141.00	-3.40	-4.98	0.00	-58.4	0.00	58.38	721.95	171.89	263.11	237.92	104.24	-8.16	0.251
141.50	-3.38	-4.95	0.00	-55.9	0.00	55.89	718.47	171.06	260.58	235.61	105.1	-8.18	0.243
142.00	-3.35	-4.93	0.00	-53.4	0.00	53.41	714.98	170.23	258.06	233.32	105.95	-8.21	0.234
142.50	-3.32	-4.90	0.00	-51.0	0.00	50.95	711.49	169.40	255.55	231.03	106.81	-8.23	0.226
143.00	-3.30	-4.87	0.00	-48.5	0.00	48.50	708.01	168.57	253.05	228.76	107.67	-8.25	0.218
143.50	-3.27	-4.84	0.00	-46.1	0.00	46.07	704.52	167.74	250.56	226.50	108.53	-8.28	0.209
144.00	-3.25	-4.81	0.00	-43.6	0.00	43.65	701.03	166.91	248.09	224.25	109.4	-8.3	0.200
144.50	-3.22	-4.78	0.00	-41.2	0.00	41.25	697.55	166.08	245.63	222.01	110.27	-8.32	0.191
145.00	-3.20	-4.75	0.00	-38.9	0.00	38.86	694.06	165.25	243.18	219.79	111.14	-8.34	0.182
145.50	-3.17	-4.72	0.00	-36.5	0.00	36.48	690.57	164.42	240.74	217.57	112.01	-8.35	0.173
146.00	-3.15	-4.69	0.00	-34.1	0.00	34.12	687.09	163.59	238.32	215.36	112.88	-8.37	0.164
146.50	-3.12	-4.67	0.00	-31.8	0.00	31.77	683.60	162.76	235.91	213.17	113.75	-8.39	0.154
147.00	-3.10	-4.64	0.00	-29.4	0.00	29.44	680.11	161.93	233.51	210.99	114.63	-8.4	0.145
147.50	-3.07	-4.61	0.00	-27.1	0.00	27.12	676.63	161.10	231.12	208.82	115.51	-8.42	0.135
148.00	-3.05	-4.58	0.00	-24.8	0.00	24.82	673.14	160.27	228.75	206.66	116.39	-8.43	0.125
148.50	-3.03	-4.55	0.00	-22.5	0.00	22.53	669.65	159.44	226.38	204.51	117.27	-8.44	0.115
149.00	-3.00	-4.52	0.00	-20.2	0.00	20.25	666.17	158.61	224.03	202.37	118.15	-8.46	0.105
149.50	-2.98	-4.49	0.00	-18.0	0.00	17.99	662.68	157.78	221.70	200.25	119.03	-8.47	0.095
150.00	0.00	-4.01	0.00	-15.7	0.00	15.74	659.19	156.95	219.37	198.13	119.92	-8.48	0.080

Load Case: 1.2D + 1.0Di + 1.0Wi	48.73 mph wind with 0.850" radial ice		39 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

**CALCULATED FORCES**

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 (deg)	Ratio
0.00	-50.02	-3.93	0.00	-448.0	0.00	447.96	3,157.17	784.20	2,737.77	2,376.61	0	0	0.125
0.50	-49.85	-3.93	0.00	-446.0	0.00	446.00	3,152.93	782.54	2,726.19	2,368.34	0	0	0.125
1.00	-49.68	-3.92	0.00	-444.0	0.00	444.03	3,148.69	780.88	2,714.64	2,360.09	0	-0.01	0.125
1.50	-49.51	-3.92	0.00	-442.1	0.00	442.07	3,144.43	779.21	2,703.11	2,351.83	0	-0.01	0.125
2.00	-49.34	-3.91	0.00	-440.1	0.00	440.11	3,140.17	777.55	2,691.61	2,343.59	0	-0.02	0.124
2.50	-49.17	-3.91	0.00	-438.2	0.00	438.16	3,135.89	775.89	2,680.13	2,335.35	0.01	-0.02	0.124
3.00	-49.00	-3.90	0.00	-436.2	0.00	436.20	3,131.60	774.23	2,668.68	2,327.12	0.01	-0.03	0.124
3.50	-48.83	-3.90	0.00	-434.2	0.00	434.25	3,127.31	772.57	2,657.25	2,318.89	0.01	-0.03	0.124
4.00	-48.66	-3.89	0.00	-432.3	0.00	432.30	3,123.00	770.91	2,645.84	2,310.67	0.02	-0.04	0.123
4.50	-48.49	-3.89	0.00	-430.4	0.00	430.35	3,118.68	769.25	2,634.46	2,302.45	0.02	-0.05	0.123
5.00	-48.32	-3.89	0.00	-428.4	0.00	428.41	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.05	0.123
5.50	-48.15	-3.88	0.00	-426.5	0.00	426.47	3,110.02	765.93	2,611.77	2,286.04	0.03	-0.06	0.123
6.00	-47.98	-3.88	0.00	-424.5	0.00	424.53	3,105.67	764.27	2,600.47	2,277.85	0.04	-0.06	0.122
6.50	-47.81	-3.87	0.00	-422.6	0.00	422.59	3,101.31	762.61	2,589.18	2,269.66	0.04	-0.07	0.122
7.00	-47.64	-3.87	0.00	-420.6	0.00	420.65	3,096.94	760.95	2,577.93	2,261.47	0.05	-0.07	0.122
7.50	-47.47	-3.86	0.00	-418.7	0.00	418.72	3,092.56	759.29	2,566.69	2,253.30	0.06	-0.08	0.122
8.00	-47.30	-3.86	0.00	-416.8	0.00	416.79	3,088.17	757.63	2,555.48	2,245.13	0.07	-0.08	0.121
8.50	-47.12	-3.85	0.00	-414.9	0.00	414.86	3,083.77	755.97	2,544.30	2,236.96	0.08	-0.09	0.121
9.00	-46.94	-3.85	0.00	-412.9	0.00	412.93	3,079.36	754.31	2,533.14	2,228.81	0.09	-0.09	0.121
9.50	-46.75	-3.84	0.00	-411.0	0.00	411.01	3,074.94	752.65	2,522.00	2,220.66	0.1	-0.1	0.121
10.00	-46.57	-3.84	0.00	-409.1	0.00	409.08	3,070.50	750.99	2,510.89	2,212.51	0.11	-0.1	0.120
10.50	-46.39	-3.84	0.00	-407.2	0.00	407.16	3,066.06	749.33	2,499.81	2,204.38	0.12	-0.11	0.120
11.00	-46.21	-3.83	0.00	-405.2	0.00	405.25	3,061.61	747.67	2,488.74	2,196.25	0.13	-0.11	0.120
11.50	-46.03	-3.83	0.00	-403.3	0.00	403.33	3,057.15	746.01	2,477.71	2,188.12	0.14	-0.12	0.120
12.00	-45.85	-3.82	0.00	-401.4	0.00	401.42	3,052.67	744.35	2,466.69	2,180.01	0.15	-0.12	0.119
12.50	-45.67	-3.82	0.00	-399.5	0.00	399.51	3,048.19	742.69	2,455.71	2,171.90	0.17	-0.13	0.119
13.00	-45.49	-3.81	0.00	-397.6	0.00	397.60	3,043.69	741.03	2,444.74	2,163.80	0.18	-0.13	0.119
13.50	-45.31	-3.81	0.00	-395.7	0.00	395.69	3,039.19	739.37	2,433.80	2,155.70	0.19	-0.14	0.119
14.00	-45.13	-3.80	0.00	-393.8	0.00	393.79	3,034.67	737.71	2,422.89	2,147.61	0.21	-0.14	0.118
14.50	-44.95	-3.80	0.00	-391.9	0.00	391.89	3,030.15	736.05	2,412.00	2,139.53	0.22	-0.15	0.118
15.00	-44.77	-3.79	0.00	-390.0	0.00	389.99	3,025.61	734.39	2,401.13	2,131.46	0.24	-0.15	0.118
15.50	-44.59	-3.79	0.00	-388.1	0.00	388.09	3,021.07	732.72	2,390.29	2,123.39	0.25	-0.16	0.118
16.00	-44.41	-3.78	0.00	-386.2	0.00	386.20	3,016.51	731.06	2,379.47	2,115.34	0.27	-0.16	0.117
16.50	-44.23	-3.78	0.00	-384.3	0.00	384.31	3,011.94	729.40	2,368.68	2,107.28	0.29	-0.17	0.117
17.00	-44.05	-3.77	0.00	-382.4	0.00	382.42	3,007.37	727.74	2,357.91	2,099.24	0.31	-0.17	0.117
17.50	-43.87	-3.77	0.00	-380.5	0.00	380.53	3,002.78	726.08	2,347.17	2,091.20	0.32	-0.18	0.117
18.00	-43.70	-3.76	0.00	-378.6	0.00	378.65	2,998.18	724.42	2,336.45	2,083.18	0.34	-0.18	0.116
18.50	-43.52	-3.76	0.00	-376.8	0.00	376.77	2,993.57	722.76	2,325.76	2,075.15	0.36	-0.19	0.116
19.00	-43.34	-3.75	0.00	-374.9	0.00	374.89	2,988.95	721.10	2,315.09	2,067.14	0.38	-0.19	0.116
19.50	-43.16	-3.75	0.00	-373.0	0.00	373.01	2,984.32	719.44	2,304.44	2,059.13	0.4	-0.2	0.116
20.00	-42.98	-3.74	0.00	-371.1	0.00	371.14	2,979.68	717.78	2,293.82	2,051.14	0.42	-0.2	0.115
20.50	-42.81	-3.74	0.00	-369.3	0.00	369.26	2,975.03	716.12	2,283.23	2,043.15	0.45	-0.21	0.115
21.00	-42.63	-3.73	0.00	-367.4	0.00	367.39	2,970.37	714.46	2,272.66	2,035.16	0.47	-0.21	0.115
21.50	-42.45	-3.73	0.00	-365.5	0.00	365.53	2,965.70	712.80	2,262.11	2,027.19	0.49	-0.22	0.114
22.00	-42.27	-3.72	0.00	-363.7	0.00	363.66	2,961.02	711.14	2,251.59	2,019.22	0.51	-0.22	0.114
22.50	-42.10	-3.72	0.00	-361.8	0.00	361.80	2,956.33	709.48	2,241.09	2,011.26	0.54	-0.23	0.114
23.00	-41.92	-3.71	0.00	-359.9	0.00	359.94	2,951.63	707.82	2,230.62	2,003.31	0.56	-0.23	0.114
23.50	-41.74	-3.71	0.00	-358.1	0.00	358.08	2,946.91	706.16	2,220.17	1,995.37	0.59	-0.24	0.113
24.00	-41.57	-3.70	0.00	-356.2	0.00	356.23	2,942.19	704.50	2,209.74	1,987.44	0.61	-0.24	0.113
24.50	-41.39	-3.70	0.00	-354.4	0.00	354.38	2,937.46	702.84	2,199.35	1,979.51	0.64	-0.25	0.113
25.00	-41.21	-3.69	0.00	-352.5	0.00	352.53	2,932.71	701.18	2,188.97	1,971.59	0.66	-0.26	0.113
25.50	-41.04	-3.69	0.00	-350.7	0.00	350.68	2,927.96	699.52	2,178.62	1,963.68	0.69	-0.26	0.112
26.00	-40.86	-3.68	0.00	-348.8	0.00	348.83	2,923.19	697.86	2,168.29	1,955.78	0.72	-0.27	0.112
26.50	-40.69	-3.68	0.00	-347.0	0.00	346.99	2,918.42	696.20	2,157.99	1,947.89	0.75	-0.27	0.112
27.00	-40.51	-3.67	0.00	-345.2	0.00	345.15	2,913.63	694.54	2,147.72	1,940.01	0.78	-0.28	0.111
27.50	-40.34	-3.67	0.00	-343.3	0.00	343.31	2,910.08	692.88	2,137.46	1,932.96	0.81	-0.28	0.111
28.00	-40.16	-3.66	0.00	-341.5	0.00	341.48	2,903.11	691.22	2,127.23	1,923.65	0.83	-0.29	0.111
28.50	-39.99	-3.66	0.00	-339.6	0.00	339.65	2,896.13	689.56	2,117.03	1,914.37	0.87	-0.29	0.111
29.00	-39.81	-3.65	0.00	-337.8	0.00	337.82	2,889.16	687.89	2,106.85	1,905.11	0.9	-0.3	0.111
29.50	-39.64	-3.65	0.00	-336.0	0.00	335.99	2,882.19	686.23	2,096.70	1,895.87	0.93	-0.3	0.110
30.00	-39.46	-3.64	0.00	-334.2	0.00	334.16	2,875.21	684.57	2,086.57	1,886.65	0.96	-0.31	0.110
30.50	-39.29	-3.64	0.00	-332.3	0.00	332.34	2,868.24	682.91	2,076.46	1,877.46	0.99	-0.31	0.110







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140.00	-7.56	-1.24	0.00	-15.3	0.00	15.29	728.18	173.55	268.22	242.31	24.2	-1.93	0.074
140.50	-7.51	-1.23	0.00	-14.7	0.00	14.67	725.44	172.72	265.66	240.23	24.4	-1.93	0.071
141.00	-7.47	-1.23	0.00	-14.1	0.00	14.06	721.95	171.89	263.11	237.92	24.6	-1.94	0.069
141.50	-7.42	-1.22	0.00	-13.4	0.00	13.44	718.47	171.06	260.58	235.61	24.81	-1.94	0.067
142.00	-7.37	-1.21	0.00	-12.8	0.00	12.83	714.98	170.23	258.06	233.32	25.01	-1.95	0.065
142.50	-7.32	-1.21	0.00	-12.2	0.00	12.23	711.49	169.40	255.55	231.03	25.21	-1.96	0.063
143.00	-7.27	-1.20	0.00	-11.6	0.00	11.62	708.01	168.57	253.05	228.76	25.42	-1.96	0.061
143.50	-7.23	-1.19	0.00	-11.0	0.00	11.02	704.52	167.74	250.56	226.50	25.62	-1.97	0.059
144.00	-7.18	-1.18	0.00	-10.4	0.00	10.43	701.03	166.91	248.09	224.25	25.83	-1.97	0.057
144.50	-7.13	-1.18	0.00	-9.8	0.00	9.84	697.55	166.08	245.63	222.01	26.04	-1.98	0.055
145.00	-7.08	-1.17	0.00	-9.2	0.00	9.25	694.06	165.25	243.18	219.79	26.24	-1.98	0.052
145.50	-7.04	-1.16	0.00	-8.7	0.00	8.67	690.57	164.42	240.74	217.57	26.45	-1.98	0.050
146.00	-6.99	-1.15	0.00	-8.1	0.00	8.09	687.09	163.59	238.32	215.36	26.66	-1.99	0.048
146.50	-6.94	-1.15	0.00	-7.5	0.00	7.51	683.60	162.76	235.91	213.17	26.87	-1.99	0.045
147.00	-6.90	-1.14	0.00	-6.9	0.00	6.94	680.11	161.93	233.51	210.99	27.08	-2	0.043
147.50	-6.85	-1.13	0.00	-6.4	0.00	6.37	676.63	161.10	231.12	208.82	27.29	-2	0.041
148.00	-6.80	-1.12	0.00	-5.8	0.00	5.80	673.14	160.27	228.75	206.66	27.5	-2	0.038
148.50	-6.76	-1.12	0.00	-5.2	0.00	5.24	669.65	159.44	226.38	204.51	27.71	-2.01	0.036
149.00	-6.71	-1.11	0.00	-4.7	0.00	4.68	666.17	158.61	224.03	202.37	27.92	-2.01	0.033
149.50	-6.66	-1.10	0.00	-4.1	0.00	4.13	662.68	157.78	221.70	200.25	28.13	-2.01	0.031
150.00	0.00	-0.87	0.00	-3.6	0.00	3.58	659.19	156.95	219.37	198.13	28.34	-2.01	0.018











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140.00	-4.55	-1.19	0.00	-15.0	0.00	14.95	728.18	173.55	268.22	242.31	24.08	-1.91	0.068
140.50	-4.52	-1.19	0.00	-14.4	0.00	14.35	725.44	172.72	265.66	240.23	24.28	-1.91	0.066
141.00	-4.49	-1.18	0.00	-13.8	0.00	13.76	721.95	171.89	263.11	237.92	24.48	-1.92	0.064
141.50	-4.46	-1.17	0.00	-13.2	0.00	13.17	718.47	171.06	260.58	235.61	24.69	-1.92	0.062
142.00	-4.43	-1.17	0.00	-12.6	0.00	12.58	714.98	170.23	258.06	233.32	24.89	-1.93	0.060
142.50	-4.40	-1.16	0.00	-12.0	0.00	12.00	711.49	169.40	255.55	231.03	25.09	-1.94	0.058
143.00	-4.37	-1.15	0.00	-11.4	0.00	11.42	708.01	168.57	253.05	228.76	25.29	-1.94	0.056
143.50	-4.34	-1.15	0.00	-10.8	0.00	10.84	704.52	167.74	250.56	226.50	25.5	-1.95	0.054
144.00	-4.31	-1.14	0.00	-10.3	0.00	10.27	701.03	166.91	248.09	224.25	25.7	-1.95	0.052
144.50	-4.28	-1.13	0.00	-9.7	0.00	9.70	697.55	166.08	245.63	222.01	25.9	-1.96	0.050
145.00	-4.25	-1.13	0.00	-9.1	0.00	9.13	694.06	165.25	243.18	219.79	26.11	-1.96	0.048
145.50	-4.22	-1.12	0.00	-8.6	0.00	8.57	690.57	164.42	240.74	217.57	26.32	-1.96	0.046
146.00	-4.18	-1.11	0.00	-8.0	0.00	8.01	687.09	163.59	238.32	215.36	26.52	-1.97	0.043
146.50	-4.15	-1.11	0.00	-7.4	0.00	7.45	683.60	162.76	235.91	213.17	26.73	-1.97	0.041
147.00	-4.12	-1.10	0.00	-6.9	0.00	6.90	680.11	161.93	233.51	210.99	26.93	-1.98	0.039
147.50	-4.09	-1.09	0.00	-6.4	0.00	6.35	676.63	161.10	231.12	208.82	27.14	-1.98	0.036
148.00	-4.06	-1.09	0.00	-5.8	0.00	5.80	673.14	160.27	228.75	206.66	27.35	-1.98	0.034
148.50	-4.03	-1.08	0.00	-5.3	0.00	5.26	669.65	159.44	226.38	204.51	27.56	-1.99	0.032
149.00	-4.00	-1.07	0.00	-4.7	0.00	4.72	666.17	158.61	224.03	202.37	27.76	-1.99	0.029
149.50	-3.98	-1.07	0.00	-4.2	0.00	4.18	662.68	157.78	221.70	200.25	27.97	-1.99	0.027
150.00	0.00	-0.93	0.00	-3.6	0.00	3.65	659.19	156.95	219.37	198.13	28.18	-1.99	0.018

**EQUIVALENT LATERAL FORCES METHOD ANALYSIS**

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period ( $S_S$ ):	0.214
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.055
Long-Period Transition Period ( $T_L$ – Seconds):	6
Importance Factor ( $I_e$ ):	1.000
Site Coefficient $F_a$ :	1.600
Site Coefficient $F_v$ :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.228
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.088
Seismic Response Coefficient ( $C_s$ ):	0.030
Upper Limit $C_s$ :	0.030
Lower Limit $C_s$ :	0.030
Period based on Rayleigh Method (sec):	3.150
Redundancy Factor ( $\rho$ ):	1.000
Seismic Force Distribution Exponent ( $k$ ):	2.000
Total Unfactored Dead Load:	34.630 k
Seismic Base Shear (E):	1.040 k

**1.2D + 1.0Ev + 1.0Eh Seismic**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
303	149.75	30	669	0.002	2	37
302	149.25	30	666	0.002	2	37
301	148.75	30	663	0.002	2	37
300	148.25	30	661	0.002	2	37
299	147.75	30	658	0.002	2	38
298	147.25	30	655	0.002	2	38
297	146.75	30	653	0.002	2	38
296	146.25	30	650	0.002	2	38
295	145.75	30	647	0.002	2	38
294	145.25	31	644	0.002	2	38
293	144.75	31	642	0.002	2	38
292	144.25	31	639	0.002	2	38
291	143.75	31	636	0.002	2	38
290	143.25	31	633	0.002	2	38
289	142.75	31	631	0.002	2	39
288	142.25	31	628	0.002	2	39
287	141.75	31	625	0.002	2	39
286	141.25	31	622	0.002	2	39
285	140.75	31	619	0.002	2	39
284	140.25	31	617	0.002	2	39
283	139.75	34	669	0.002	2	43
282	139.25	34	666	0.002	2	43
281	138.75	34	663	0.002	2	43
280	138.25	35	660	0.002	2	43
279	137.75	35	656	0.002	2	43
278	137.25	35	653	0.002	2	43
277	136.75	35	650	0.002	2	43
276	136.25	35	647	0.002	2	43
275	135.75	35	643	0.002	2	43
274	135.25	35	640	0.002	2	44
273	134.75	35	637	0.002	2	44
272	134.25	35	634	0.002	2	44
271	133.75	35	630	0.002	2	44
270	133.25	35	627	0.002	2	44

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
269	132.75	35	624	0.002	2	44
268	132.25	35	621	0.002	2	44
267	131.75	36	617	0.002	2	44
266	131.25	36	614	0.002	2	44
265	130.75	36	611	0.002	2	44
264	130.25	36	607	0.002	2	45
263	129.75	36	604	0.002	2	45
262	129.25	36	601	0.002	2	45
261	128.75	36	598	0.002	2	45
260	128.25	36	594	0.002	2	45
259	127.75	36	591	0.002	2	45
258	127.25	36	588	0.002	2	45
257	126.75	36	584	0.002	2	45
256	126.25	36	581	0.002	2	45
255	125.75	37	578	0.002	2	46
254	125.25	37	574	0.002	2	46
253	124.75	37	571	0.002	2	46
252	124.25	37	568	0.002	2	46
251	123.75	37	564	0.002	2	46
250	123.25	37	561	0.002	2	46
249	122.75	37	558	0.002	2	46
248	122.25	37	554	0.002	2	46
247	121.75	37	551	0.002	2	46
246	121.25	37	548	0.002	2	46
245	120.75	37	544	0.002	2	47
244	120.25	37	541	0.002	2	47
243	119.75	37	538	0.002	2	47
242	119.25	38	534	0.002	2	47
241	118.75	38	531	0.002	2	47
240	118.25	38	528	0.002	2	47
239	117.75	38	524	0.002	2	47
238	117.25	38	521	0.002	2	47
237	116.75	38	518	0.002	2	47
236	116.25	64	859	0.003	3	79
235	115.75	64	853	0.003	3	79
234	115.25	64	847	0.003	3	79
233	114.75	64	840	0.003	3	79
232	114.25	64	834	0.003	3	80
231	113.75	64	828	0.003	3	80
230	113.25	64	822	0.003	3	80
229	112.75	64	815	0.003	3	80
228	112.25	64	809	0.003	3	80
227	111.75	64	803	0.003	3	80
226	111.25	64	797	0.003	3	80
225	110.75	64	791	0.003	3	80
224	110.25	65	784	0.003	3	80
223	109.75	78	942	0.003	3	97
222	109.25	78	935	0.003	3	98
221	108.75	78	927	0.003	3	98
220	108.25	79	920	0.003	3	98
219	107.75	79	913	0.003	3	98
218	107.25	79	906	0.003	3	98
217	106.75	79	898	0.003	3	98
216	106.25	79	891	0.003	3	98
215	105.75	79	884	0.003	3	98
214	105.25	79	877	0.003	3	99
213	104.75	79	870	0.003	3	99
212	104.25	79	863	0.003	3	99
211	103.75	79	856	0.003	3	99
210	103.25	80	849	0.003	3	99
209	102.75	80	841	0.003	3	99
208	102.25	80	834	0.003	3	99
207	101.75	80	827	0.003	3	100
206	101.25	80	820	0.003	3	100
205	100.75	80	813	0.003	3	100
204	100.25	80	806	0.003	3	100
203	99.75	80	799	0.003	3	100
202	99.25	80	793	0.003	3	100
201	98.75	81	786	0.003	3	100
200	98.25	81	779	0.003	3	100

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
199	97.75	81	772	0.003	3	101
198	97.25	81	765	0.003	3	101
197	96.75	81	758	0.003	3	101
196	96.25	81	751	0.003	3	101
195	95.75	81	744	0.003	3	101
194	95.25	81	738	0.002	3	101
193	94.75	81	731	0.002	3	101
192	94.25	82	724	0.002	3	102
191	93.75	82	717	0.002	3	102
190	93.25	82	711	0.002	3	102
189	92.75	82	704	0.002	3	102
188	92.25	82	697	0.002	2	102
187	91.75	82	691	0.002	2	102
186	91.25	82	684	0.002	2	102
185	90.75	82	678	0.002	2	102
184	90.25	82	671	0.002	2	103
183	89.75	82	664	0.002	2	103
182	89.25	83	658	0.002	2	103
181	88.75	83	651	0.002	2	103
180	88.25	83	645	0.002	2	103
179	87.75	83	639	0.002	2	103
178	87.25	83	632	0.002	2	103
177	86.75	83	626	0.002	2	104
176	86.25	83	619	0.002	2	104
175	85.75	83	613	0.002	2	104
174	85.25	83	607	0.002	2	104
173	84.75	84	600	0.002	2	104
172	84.25	84	594	0.002	2	104
171	83.75	84	588	0.002	2	104
170	83.25	84	581	0.002	2	104
169	82.75	84	575	0.002	2	105
168	82.25	84	569	0.002	2	105
167	81.75	84	563	0.002	2	105
166	81.25	84	557	0.002	2	105
165	80.75	84	550	0.002	2	105
164	80.25	85	544	0.002	2	105
163	79.75	85	538	0.002	2	105
162	79.25	85	532	0.002	2	106
161	78.75	85	526	0.002	2	106
160	78.25	85	520	0.002	2	106
159	77.75	85	514	0.002	2	106
158	77.25	85	508	0.002	2	106
157	76.75	85	502	0.002	2	106
156	76.25	85	496	0.002	2	106
155	75.75	85	491	0.002	2	106
154	75.25	86	485	0.002	2	107
153	74.75	86	479	0.002	2	107
152	74.25	86	473	0.002	2	107
151	73.75	86	467	0.002	2	107
150	73.415	44	240	0.001	1	55
149	73.165	91	485	0.002	2	113
148	72.75	137	727	0.002	3	171
147	72.25	138	719	0.002	3	172
146	71.75	138	710	0.002	3	172
145	71.25	138	701	0.002	3	172
144	70.75	138	693	0.002	2	172
143	70.25	139	684	0.002	2	173
142	69.75	101	494	0.002	2	126
141	69.25	102	487	0.002	2	127
140	68.75	102	481	0.002	2	127
139	68.25	102	475	0.002	2	127
138	67.75	102	468	0.002	2	127
137	67.25	102	462	0.002	2	127
136	66.75	102	456	0.002	2	127
135	66.25	102	450	0.002	2	128
134	65.75	103	443	0.002	2	128
133	65.25	103	437	0.002	2	128
132	64.75	103	431	0.002	2	128
131	64.25	103	425	0.002	2	128
130	63.75	103	419	0.001	1	128

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
129	63.25	103	413	0.001	1	129
128	62.75	103	407	0.001	1	129
127	62.25	103	401	0.001	1	129
126	61.75	104	395	0.001	1	129
125	61.25	104	389	0.001	1	129
124	60.75	104	383	0.001	1	129
123	60.25	104	378	0.001	1	130
122	59.75	104	372	0.001	1	130
121	59.25	104	366	0.001	1	130
120	58.75	104	360	0.001	1	130
119	58.25	105	355	0.001	1	130
118	57.75	105	349	0.001	1	130
117	57.25	105	344	0.001	1	131
116	56.75	105	338	0.001	1	131
115	56.25	105	333	0.001	1	131
114	55.75	105	327	0.001	1	131
113	55.25	105	322	0.001	1	131
112	54.75	106	316	0.001	1	131
111	54.25	106	311	0.001	1	132
110	53.75	106	306	0.001	1	132
109	53.25	106	300	0.001	1	132
108	52.75	106	295	0.001	1	132
107	52.25	106	290	0.001	1	132
106	51.75	106	285	0.001	1	132
105	51.25	106	280	0.001	1	133
104	50.75	107	274	0.001	1	133
103	50.25	107	269	0.001	1	133
102	49.75	107	264	0.001	1	133
101	49.25	107	259	0.001	1	133
100	48.75	107	255	0.001	1	133
99	48.25	107	250	0.001	1	134
98	47.75	107	245	0.001	1	134
97	47.25	108	240	0.001	1	134
96	46.75	108	235	0.001	1	134
95	46.25	108	231	0.001	1	134
94	45.75	108	226	0.001	1	134
93	45.25	108	221	0.001	1	135
92	44.75	108	217	0.001	1	135
91	44.25	108	212	0.001	1	135
90	43.75	108	208	0.001	1	135
89	43.25	109	203	0.001	1	135
88	42.75	109	199	0.001	1	135
87	42.25	109	194	0.001	1	136
86	41.75	109	190	0.001	1	136
85	41.25	109	186	0.001	1	136
84	40.75	109	181	0.001	1	136
83	40.25	109	177	0.001	1	136
82	39.75	110	173	0.001	1	136
81	39.25	110	169	0.001	1	137
80	38.75	110	165	0.001	1	137
79	38.25	110	161	0.001	1	137
78	37.75	110	157	0.000	1	137
77	37.25	110	153	0.000	1	137
76	36.835	73	99	0.000	0	91
75	36.585	40	53	0.000	0	49
74	36.25	117	154	0.000	1	146
73	35.8334	78	100	0.000	0	97
72	35.5834	61	77	0.000	0	75
71	35.25	182	226	0.001	1	226
70	34.75	182	220	0.001	1	227
69	34.25	182	214	0.001	1	227
68	33.75	183	208	0.001	1	228
67	33.25	183	202	0.001	1	228
66	32.75	183	197	0.001	1	228
65	32.25	184	191	0.001	1	229
64	31.75	184	185	0.001	1	229
63	31.25	128	125	0.000	0	159
62	30.75	128	121	0.000	0	160
61	30.25	128	117	0.000	0	160
60	29.75	128	114	0.000	0	160



Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
59	29.25	129	110	0.000	0	160
58	28.75	129	106	0.000	0	160
57	28.25	129	103	0.000	0	161
56	27.75	129	99	0.000	0	161
55	27.25	129	96	0.000	0	161
54	26.75	129	93	0.000	0	161
53	26.25	130	89	0.000	0	161
52	25.75	130	86	0.000	0	162
51	25.25	130	83	0.000	0	162
50	24.75	130	80	0.000	0	162
49	24.25	130	77	0.000	0	162
48	23.75	130	74	0.000	0	162
47	23.25	131	71	0.000	0	163
46	22.75	131	68	0.000	0	163
45	22.25	131	65	0.000	0	163
44	21.75	131	62	0.000	0	163
43	21.25	131	59	0.000	0	163
42	20.75	131	57	0.000	0	164
41	20.25	132	54	0.000	0	164
40	19.75	132	51	0.000	0	164
39	19.25	132	49	0.000	0	164
38	18.75	132	46	0.000	0	164
37	18.25	132	44	0.000	0	165
36	17.75	132	42	0.000	0	165
35	17.25	133	39	0.000	0	165
34	16.75	133	37	0.000	0	165
33	16.25	133	35	0.000	0	165
32	15.75	133	33	0.000	0	166
31	15.25	133	31	0.000	0	166
30	14.75	133	29	0.000	0	166
29	14.25	133	27	0.000	0	166
28	13.75	134	25	0.000	0	166
27	13.25	134	23	0.000	0	167
26	12.75	134	22	0.000	0	167
25	12.25	134	20	0.000	0	167
24	11.75	134	19	0.000	0	167
23	11.25	134	17	0.000	0	167
22	10.75	135	16	0.000	0	168
21	10.25	135	14	0.000	0	168
20	9.75	135	13	0.000	0	168
19	9.25	135	12	0.000	0	168
18	8.75	135	10	0.000	0	168
17	8.25	135	9	0.000	0	169
16	7.75	126	8	0.000	0	157
15	7.25	126	7	0.000	0	157
14	6.75	126	6	0.000	0	157
13	6.25	126	5	0.000	0	157
12	5.75	127	4	0.000	0	158
11	5.25	127	3	0.000	0	158
10	4.75	127	3	0.000	0	158
9	4.25	127	2	0.000	0	158
8	3.75	127	2	0.000	0	158
7	3.25	127	1	0.000	0	159
6	2.75	128	1	0.000	0	159
5	2.25	128	1	0.000	0	159
4	1.75	128	0	0.000	0	159
3	1.25	128	0	0.000	0	159
2	0.75	128	0	0.000	0	160
1	0.25	128	0	0.000	0	160
Decibel DB910CE-M	150	16	360	0.001	1	20
Kaelus DBC0061F1V51-2	150	153	3,442	0.012	12	191
Raycap DC6-48-60-18-8F ("Squid")	150	64	1,431	0.005	5	79
Powerwave Allgon LGP17201	150	186	4,185	0.014	15	232
Ericsson RRUS 11 (Band 12) (55 lb)	150	165	3,712	0.013	13	206
Ericsson RRUS 32 (50.8 lbs)	150	152	3,429	0.012	12	190
Ericsson RRUS 32 B2	150	159	3,578	0.012	13	198
Powerwave Allgon 7770.00	150	105	2,362	0.008	8	131
KMW AM-X-CD-16-65-00T-RET	150	97	2,182	0.008	8	121
Quintel QS66512-2	150	333	7,492	0.026	27	415
Powerwave Allgon P65-17-XLH-RR (50 lbs)	150	50	1,125	0.004	4	62

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
Generic Flat Platform with Handrails	150	2,500	56,250	0.193	201	3,114
Generic Flat Platform with Handrails	140	2,500	49,000	0.168	175	3,114
Ericsson Radio 4460 B25+B66	140	327	6,409	0.022	23	407
Ericsson Radio 4480 B71+B85A	140	252	4,939	0.017	18	314
Commscope VV-65A-R1	140	71	1,399	0.005	5	89
RFS APXVAALL24 43-U-NA20	140	368	7,221	0.025	26	459
		34,635	291,004	1.000	1,039	43,143

**0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
303	149.75	30	669	0.002	2	25
302	149.25	30	666	0.002	2	26
301	148.75	30	663	0.002	2	26
300	148.25	30	661	0.002	2	26
299	147.75	30	658	0.002	2	26
298	147.25	30	655	0.002	2	26
297	146.75	30	653	0.002	2	26
296	146.25	30	650	0.002	2	26
295	145.75	30	647	0.002	2	26
294	145.25	31	644	0.002	2	26
293	144.75	31	642	0.002	2	26
292	144.25	31	639	0.002	2	26
291	143.75	31	636	0.002	2	26
290	143.25	31	633	0.002	2	26
289	142.75	31	631	0.002	2	26
288	142.25	31	628	0.002	2	27
287	141.75	31	625	0.002	2	27
286	141.25	31	622	0.002	2	27
285	140.75	31	619	0.002	2	27
284	140.25	31	617	0.002	2	27
283	139.75	34	669	0.002	2	29
282	139.25	34	666	0.002	2	29
281	138.75	34	663	0.002	2	29
280	138.25	35	660	0.002	2	29
279	137.75	35	656	0.002	2	30
278	137.25	35	653	0.002	2	30
277	136.75	35	650	0.002	2	30
276	136.25	35	647	0.002	2	30
275	135.75	35	643	0.002	2	30
274	135.25	35	640	0.002	2	30
273	134.75	35	637	0.002	2	30
272	134.25	35	634	0.002	2	30
271	133.75	35	630	0.002	2	30
270	133.25	35	627	0.002	2	30
269	132.75	35	624	0.002	2	30
268	132.25	35	621	0.002	2	30
267	131.75	36	617	0.002	2	30
266	131.25	36	614	0.002	2	30
265	130.75	36	611	0.002	2	31
264	130.25	36	607	0.002	2	31
263	129.75	36	604	0.002	2	31
262	129.25	36	601	0.002	2	31
261	128.75	36	598	0.002	2	31
260	128.25	36	594	0.002	2	31
259	127.75	36	591	0.002	2	31
258	127.25	36	588	0.002	2	31
257	126.75	36	584	0.002	2	31
256	126.25	36	581	0.002	2	31
255	125.75	37	578	0.002	2	31
254	125.25	37	574	0.002	2	31
253	124.75	37	571	0.002	2	31

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
252	124.25	37	568	0.002	2	31
251	123.75	37	564	0.002	2	31
250	123.25	37	561	0.002	2	32
249	122.75	37	558	0.002	2	32
248	122.25	37	554	0.002	2	32
247	121.75	37	551	0.002	2	32
246	121.25	37	548	0.002	2	32
245	120.75	37	544	0.002	2	32
244	120.25	37	541	0.002	2	32
243	119.75	37	538	0.002	2	32
242	119.25	38	534	0.002	2	32
241	118.75	38	531	0.002	2	32
240	118.25	38	528	0.002	2	32
239	117.75	38	524	0.002	2	32
238	117.25	38	521	0.002	2	32
237	116.75	38	518	0.002	2	32
236	116.25	64	859	0.003	3	54
235	115.75	64	853	0.003	3	54
234	115.25	64	847	0.003	3	54
233	114.75	64	840	0.003	3	55
232	114.25	64	834	0.003	3	55
231	113.75	64	828	0.003	3	55
230	113.25	64	822	0.003	3	55
229	112.75	64	815	0.003	3	55
228	112.25	64	809	0.003	3	55
227	111.75	64	803	0.003	3	55
226	111.25	64	797	0.003	3	55
225	110.75	64	791	0.003	3	55
224	110.25	65	784	0.003	3	55
223	109.75	78	942	0.003	3	67
222	109.25	78	935	0.003	3	67
221	108.75	78	927	0.003	3	67
220	108.25	79	920	0.003	3	67
219	107.75	79	913	0.003	3	67
218	107.25	79	906	0.003	3	67
217	106.75	79	898	0.003	3	67
216	106.25	79	891	0.003	3	67
215	105.75	79	884	0.003	3	68
214	105.25	79	877	0.003	3	68
213	104.75	79	870	0.003	3	68
212	104.25	79	863	0.003	3	68
211	103.75	79	856	0.003	3	68
210	103.25	80	849	0.003	3	68
209	102.75	80	841	0.003	3	68
208	102.25	80	834	0.003	3	68
207	101.75	80	827	0.003	3	68
206	101.25	80	820	0.003	3	68
205	100.75	80	813	0.003	3	68
204	100.25	80	806	0.003	3	69
203	99.75	80	799	0.003	3	69
202	99.25	80	793	0.003	3	69
201	98.75	81	786	0.003	3	69
200	98.25	81	779	0.003	3	69
199	97.75	81	772	0.003	3	69
198	97.25	81	765	0.003	3	69
197	96.75	81	758	0.003	3	69
196	96.25	81	751	0.003	3	69
195	95.75	81	744	0.003	3	69
194	95.25	81	738	0.002	3	69
193	94.75	81	731	0.002	3	70
192	94.25	82	724	0.002	3	70
191	93.75	82	717	0.002	3	70
190	93.25	82	711	0.002	3	70
189	92.75	82	704	0.002	3	70
188	92.25	82	697	0.002	2	70
187	91.75	82	691	0.002	2	70
186	91.25	82	684	0.002	2	70
185	90.75	82	678	0.002	2	70
184	90.25	82	671	0.002	2	70
183	89.75	82	664	0.002	2	70

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
182	89.25	83	658	0.002	2	71
181	88.75	83	651	0.002	2	71
180	88.25	83	645	0.002	2	71
179	87.75	83	639	0.002	2	71
178	87.25	83	632	0.002	2	71
177	86.75	83	626	0.002	2	71
176	86.25	83	619	0.002	2	71
175	85.75	83	613	0.002	2	71
174	85.25	83	607	0.002	2	71
173	84.75	84	600	0.002	2	71
172	84.25	84	594	0.002	2	71
171	83.75	84	588	0.002	2	72
170	83.25	84	581	0.002	2	72
169	82.75	84	575	0.002	2	72
168	82.25	84	569	0.002	2	72
167	81.75	84	563	0.002	2	72
166	81.25	84	557	0.002	2	72
165	80.75	84	550	0.002	2	72
164	80.25	85	544	0.002	2	72
163	79.75	85	538	0.002	2	72
162	79.25	85	532	0.002	2	72
161	78.75	85	526	0.002	2	72
160	78.25	85	520	0.002	2	73
159	77.75	85	514	0.002	2	73
158	77.25	85	508	0.002	2	73
157	76.75	85	502	0.002	2	73
156	76.25	85	496	0.002	2	73
155	75.75	85	491	0.002	2	73
154	75.25	86	485	0.002	2	73
153	74.75	86	479	0.002	2	73
152	74.25	86	473	0.002	2	73
151	73.75	86	467	0.002	2	73
150	73.415	44	240	0.001	1	38
149	73.165	91	485	0.002	2	77
148	72.75	137	727	0.002	3	117
147	72.25	138	719	0.002	3	118
146	71.75	138	710	0.002	3	118
145	71.25	138	701	0.002	3	118
144	70.75	138	693	0.002	2	118
143	70.25	139	684	0.002	2	118
142	69.75	101	494	0.002	2	87
141	69.25	102	487	0.002	2	87
140	68.75	102	481	0.002	2	87
139	68.25	102	475	0.002	2	87
138	67.75	102	468	0.002	2	87
137	67.25	102	462	0.002	2	87
136	66.75	102	456	0.002	2	87
135	66.25	102	450	0.002	2	87
134	65.75	103	443	0.002	2	88
133	65.25	103	437	0.002	2	88
132	64.75	103	431	0.002	2	88
131	64.25	103	425	0.002	2	88
130	63.75	103	419	0.001	1	88
129	63.25	103	413	0.001	1	88
128	62.75	103	407	0.001	1	88
127	62.25	103	401	0.001	1	88
126	61.75	104	395	0.001	1	89
125	61.25	104	389	0.001	1	89
124	60.75	104	383	0.001	1	89
123	60.25	104	378	0.001	1	89
122	59.75	104	372	0.001	1	89
121	59.25	104	366	0.001	1	89
120	58.75	104	360	0.001	1	89
119	58.25	105	355	0.001	1	89
118	57.75	105	349	0.001	1	89
117	57.25	105	344	0.001	1	90
116	56.75	105	338	0.001	1	90
115	56.25	105	333	0.001	1	90
114	55.75	105	327	0.001	1	90
113	55.25	105	322	0.001	1	90

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
112	54.75	106	316	0.001	1	90
111	54.25	106	311	0.001	1	90
110	53.75	106	306	0.001	1	90
109	53.25	106	300	0.001	1	90
108	52.75	106	295	0.001	1	91
107	52.25	106	290	0.001	1	91
106	51.75	106	285	0.001	1	91
105	51.25	106	280	0.001	1	91
104	50.75	107	274	0.001	1	91
103	50.25	107	269	0.001	1	91
102	49.75	107	264	0.001	1	91
101	49.25	107	259	0.001	1	91
100	48.75	107	255	0.001	1	92
99	48.25	107	250	0.001	1	92
98	47.75	107	245	0.001	1	92
97	47.25	108	240	0.001	1	92
96	46.75	108	235	0.001	1	92
95	46.25	108	231	0.001	1	92
94	45.75	108	226	0.001	1	92
93	45.25	108	221	0.001	1	92
92	44.75	108	217	0.001	1	92
91	44.25	108	212	0.001	1	93
90	43.75	108	208	0.001	1	93
89	43.25	109	203	0.001	1	93
88	42.75	109	199	0.001	1	93
87	42.25	109	194	0.001	1	93
86	41.75	109	190	0.001	1	93
85	41.25	109	186	0.001	1	93
84	40.75	109	181	0.001	1	93
83	40.25	109	177	0.001	1	93
82	39.75	110	173	0.001	1	94
81	39.25	110	169	0.001	1	94
80	38.75	110	165	0.001	1	94
79	38.25	110	161	0.001	1	94
78	37.75	110	157	0.000	1	94
77	37.25	110	153	0.000	1	94
76	36.835	73	99	0.000	0	62
75	36.585	40	53	0.000	0	34
74	36.25	117	154	0.000	1	100
73	35.8334	78	100	0.000	0	67
72	35.5834	61	77	0.000	0	52
71	35.25	182	226	0.001	1	155
70	34.75	182	220	0.001	1	156
69	34.25	182	214	0.001	1	156
68	33.75	183	208	0.001	1	156
67	33.25	183	202	0.001	1	156
66	32.75	183	197	0.001	1	157
65	32.25	184	191	0.001	1	157
64	31.75	184	185	0.001	1	157
63	31.25	128	125	0.000	0	109
62	30.75	128	121	0.000	0	109
61	30.25	128	117	0.000	0	110
60	29.75	128	114	0.000	0	110
59	29.25	129	110	0.000	0	110
58	28.75	129	106	0.000	0	110
57	28.25	129	103	0.000	0	110
56	27.75	129	99	0.000	0	110
55	27.25	129	96	0.000	0	110
54	26.75	129	93	0.000	0	111
53	26.25	130	89	0.000	0	111
52	25.75	130	86	0.000	0	111
51	25.25	130	83	0.000	0	111
50	24.75	130	80	0.000	0	111
49	24.25	130	77	0.000	0	111
48	23.75	130	74	0.000	0	111
47	23.25	131	71	0.000	0	112
46	22.75	131	68	0.000	0	112
45	22.25	131	65	0.000	0	112
44	21.75	131	62	0.000	0	112
43	21.25	131	59	0.000	0	112

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
42	20.75	131	57	0.000	0	112
41	20.25	132	54	0.000	0	112
40	19.75	132	51	0.000	0	113
39	19.25	132	49	0.000	0	113
38	18.75	132	46	0.000	0	113
37	18.25	132	44	0.000	0	113
36	17.75	132	42	0.000	0	113
35	17.25	133	39	0.000	0	113
34	16.75	133	37	0.000	0	113
33	16.25	133	35	0.000	0	113
32	15.75	133	33	0.000	0	114
31	15.25	133	31	0.000	0	114
30	14.75	133	29	0.000	0	114
29	14.25	133	27	0.000	0	114
28	13.75	134	25	0.000	0	114
27	13.25	134	23	0.000	0	114
26	12.75	134	22	0.000	0	114
25	12.25	134	20	0.000	0	115
24	11.75	134	19	0.000	0	115
23	11.25	134	17	0.000	0	115
22	10.75	135	16	0.000	0	115
21	10.25	135	14	0.000	0	115
20	9.75	135	13	0.000	0	115
19	9.25	135	12	0.000	0	115
18	8.75	135	10	0.000	0	116
17	8.25	135	9	0.000	0	116
16	7.75	126	8	0.000	0	108
15	7.25	126	7	0.000	0	108
14	6.75	126	6	0.000	0	108
13	6.25	126	5	0.000	0	108
12	5.75	127	4	0.000	0	108
11	5.25	127	3	0.000	0	108
10	4.75	127	3	0.000	0	108
9	4.25	127	2	0.000	0	109
8	3.75	127	2	0.000	0	109
7	3.25	127	1	0.000	0	109
6	2.75	128	1	0.000	0	109
5	2.25	128	1	0.000	0	109
4	1.75	128	0	0.000	0	109
3	1.25	128	0	0.000	0	109
2	0.75	128	0	0.000	0	110
1	0.25	128	0	0.000	0	110
Decibel DB910CE-M	150	16	360	0.001	1	14
Kaelus DBC0061F1V51-2	150	153	3,442	0.012	12	131
Raycap DC6-48-60-18-8F ("Squid")	150	64	1,431	0.005	5	54
Powerwave Allgon LGP17201	150	186	4,185	0.014	15	159
Ericsson RRUS 11 (Band 12) (55 lb)	150	165	3,712	0.013	13	141
Ericsson RRUS 32 (50.8 lbs)	150	152	3,429	0.012	12	130
Ericsson RRUS 32 B2	150	159	3,578	0.012	13	136
Powerwave Allgon 7770.00	150	105	2,362	0.008	8	90
KMW AM-X-CD-16-65-00T-RET	150	97	2,182	0.008	8	83
Quintel QS66512-2	150	333	7,492	0.026	27	284
Powerwave Allgon P65-17-XLH-RR (50 lbs)	150	50	1,125	0.004	4	43
Generic Flat Platform with Handrails	150	2,500	56,250	0.193	201	2,136
Generic Flat Platform with Handrails	140	2,500	49,000	0.168	175	2,136
Ericsson Radio 4460 B25+B66	140	327	6,409	0.022	23	279
Ericsson Radio 4480 B71+B85A	140	252	4,939	0.017	18	215
Commscope VV-65A-R1	140	71	1,399	0.005	5	61
RFS APXVAALL24 43-U-NA20	140	368	7,221	0.025	26	315
		34,635	291,004	1.000	1,039	29,590

**1.2D + 1.0Ev + 1.0Eh Seismic**

**CALCULATED FORCES**

Seg Elev	Pu FY (-)	Vu FX (-)	Tu MY	Mu MZ	Mu Mx	Resultant Moment	Phi Pn	Phi Vn	Phi Tn	Phi Mn	Total Deflect	Rotation (deg)	Ratio
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(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(in)		
0.00	-42.98	-1.03	0.00	-140.25	0.00	140.25	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.05
0.50	-42.82	-1.04	0.00	-139.73	0.00	139.73	3,152.93	782.54	2,726	2,368.34	0.00	0.00	0.05
1.00	-42.66	-1.04	0.00	-139.21	0.00	139.21	3,148.69	780.88	2,715	2,360.09	0.00	0.00	0.05
1.50	-42.50	-1.04	0.00	-138.70	0.00	138.70	3,144.43	779.21	2,703	2,351.83	0.00	0.00	0.04
2.00	-42.35	-1.04	0.00	-138.18	0.00	138.18	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.04
2.50	-42.19	-1.04	0.00	-137.66	0.00	137.66	3,135.89	775.89	2,680	2,335.35	0.00	-0.01	0.04
3.00	-42.03	-1.04	0.00	-137.14	0.00	137.14	3,131.60	774.23	2,669	2,327.12	0.00	-0.01	0.04
3.50	-41.87	-1.04	0.00	-136.62	0.00	136.62	3,127.31	772.57	2,657	2,318.89	0.00	-0.01	0.04
4.00	-41.71	-1.04	0.00	-136.09	0.00	136.09	3,123.00	770.91	2,646	2,310.67	0.01	-0.01	0.04
4.50	-41.55	-1.05	0.00	-135.57	0.00	135.57	3,118.68	769.25	2,634	2,302.45	0.01	-0.01	0.04
5.00	-41.40	-1.05	0.00	-135.05	0.00	135.05	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
5.50	-41.24	-1.05	0.00	-134.53	0.00	134.53	3,110.02	765.93	2,612	2,286.04	0.01	-0.02	0.04
6.00	-41.08	-1.05	0.00	-134.00	0.00	134.00	3,105.67	764.27	2,600	2,277.85	0.01	-0.02	0.04
6.50	-40.92	-1.05	0.00	-133.48	0.00	133.48	3,101.31	762.61	2,589	2,269.66	0.01	-0.02	0.04
7.00	-40.77	-1.05	0.00	-132.95	0.00	132.95	3,096.94	760.95	2,578	2,261.47	0.02	-0.02	0.04
7.50	-40.61	-1.05	0.00	-132.43	0.00	132.43	3,092.56	759.29	2,567	2,253.30	0.02	-0.02	0.04
8.00	-40.44	-1.05	0.00	-131.90	0.00	131.90	3,088.17	757.63	2,555	2,245.13	0.02	-0.03	0.04
8.50	-40.27	-1.05	0.00	-131.38	0.00	131.38	3,083.77	755.97	2,544	2,236.96	0.02	-0.03	0.04
9.00	-40.10	-1.05	0.00	-130.85	0.00	130.85	3,079.36	754.31	2,533	2,228.81	0.03	-0.03	0.04
9.50	-39.94	-1.06	0.00	-130.32	0.00	130.32	3,074.94	752.65	2,522	2,220.66	0.03	-0.03	0.04
10.00	-39.77	-1.06	0.00	-129.80	0.00	129.80	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
10.50	-39.60	-1.06	0.00	-129.27	0.00	129.27	3,066.06	749.33	2,500	2,204.38	0.04	-0.03	0.04
11.00	-39.43	-1.06	0.00	-128.74	0.00	128.74	3,061.61	747.67	2,489	2,196.25	0.04	-0.03	0.04
11.50	-39.26	-1.06	0.00	-128.21	0.00	128.21	3,057.15	746.01	2,478	2,188.12	0.04	-0.04	0.04
12.00	-39.10	-1.06	0.00	-127.68	0.00	127.68	3,052.67	744.35	2,467	2,180.01	0.05	-0.04	0.04
12.50	-38.93	-1.06	0.00	-127.15	0.00	127.15	3,048.19	742.69	2,456	2,171.90	0.05	-0.04	0.04
13.00	-38.76	-1.06	0.00	-126.62	0.00	126.62	3,043.69	741.03	2,445	2,163.80	0.06	-0.04	0.04
13.50	-38.60	-1.06	0.00	-126.09	0.00	126.09	3,039.19	739.37	2,434	2,155.70	0.06	-0.04	0.04
14.00	-38.43	-1.06	0.00	-125.56	0.00	125.56	3,034.67	737.71	2,423	2,147.61	0.07	-0.04	0.04
14.50	-38.27	-1.06	0.00	-125.02	0.00	125.02	3,030.15	736.05	2,412	2,139.53	0.07	-0.05	0.04
15.00	-38.10	-1.07	0.00	-124.49	0.00	124.49	3,025.61	734.39	2,401	2,131.46	0.08	-0.05	0.04
15.50	-37.93	-1.07	0.00	-123.96	0.00	123.96	3,021.07	732.72	2,390	2,123.39	0.08	-0.05	0.04
16.00	-37.77	-1.07	0.00	-123.43	0.00	123.43	3,016.51	731.06	2,379	2,115.34	0.09	-0.05	0.04
16.50	-37.60	-1.07	0.00	-122.89	0.00	122.89	3,011.94	729.40	2,369	2,107.28	0.09	-0.05	0.04
17.00	-37.44	-1.07	0.00	-122.36	0.00	122.36	3,007.37	727.74	2,358	2,099.24	0.10	-0.05	0.04
17.50	-37.27	-1.07	0.00	-121.82	0.00	121.82	3,002.78	726.08	2,347	2,091.20	0.10	-0.06	0.04
18.00	-37.11	-1.07	0.00	-121.29	0.00	121.29	2,998.18	724.42	2,336	2,083.18	0.11	-0.06	0.04
18.50	-36.94	-1.07	0.00	-120.75	0.00	120.75	2,993.57	722.76	2,326	2,075.15	0.11	-0.06	0.04
19.00	-36.78	-1.07	0.00	-120.22	0.00	120.22	2,988.95	721.10	2,315	2,067.14	0.12	-0.06	0.04
19.50	-36.62	-1.07	0.00	-119.68	0.00	119.68	2,984.32	719.44	2,304	2,059.13	0.13	-0.06	0.04
20.00	-36.45	-1.07	0.00	-119.15	0.00	119.15	2,979.68	717.78	2,294	2,051.14	0.13	-0.06	0.04
20.50	-36.29	-1.07	0.00	-118.61	0.00	118.61	2,975.03	716.12	2,283	2,043.15	0.14	-0.07	0.04
21.00	-36.12	-1.07	0.00	-118.07	0.00	118.07	2,970.37	714.46	2,273	2,035.16	0.15	-0.07	0.04
21.50	-35.96	-1.08	0.00	-117.54	0.00	117.54	2,965.70	712.80	2,262	2,027.19	0.16	-0.07	0.04
22.00	-35.80	-1.08	0.00	-117.00	0.00	117.00	2,961.02	711.14	2,252	2,019.22	0.16	-0.07	0.04
22.50	-35.64	-1.08	0.00	-116.46	0.00	116.46	2,956.33	709.48	2,241	2,011.26	0.17	-0.07	0.04
23.00	-35.47	-1.08	0.00	-115.92	0.00	115.92	2,951.63	707.82	2,231	2,003.31	0.18	-0.07	0.04
23.50	-35.31	-1.08	0.00	-115.39	0.00	115.39	2,946.91	706.16	2,220	1,995.37	0.19	-0.08	0.04
24.00	-35.15	-1.08	0.00	-114.85	0.00	114.85	2,942.19	704.50	2,210	1,987.44	0.19	-0.08	0.04
24.50	-34.99	-1.08	0.00	-114.31	0.00	114.31	2,937.46	702.84	2,199	1,979.51	0.20	-0.08	0.04
25.00	-34.82	-1.08	0.00	-113.77	0.00	113.77	2,932.71	701.18	2,189	1,971.59	0.21	-0.08	0.04
25.50	-34.66	-1.08	0.00	-113.23	0.00	113.23	2,927.96	699.52	2,179	1,963.68	0.22	-0.08	0.04
26.00	-34.50	-1.08	0.00	-112.69	0.00	112.69	2,923.19	697.86	2,168	1,955.78	0.23	-0.08	0.04
26.50	-34.34	-1.08	0.00	-112.15	0.00	112.15	2,918.42	696.20	2,158	1,947.89	0.24	-0.09	0.04
27.00	-34.18	-1.08	0.00	-111.61	0.00	111.61	2,913.63	694.54	2,148	1,940.01	0.25	-0.09	0.04
27.50	-34.02	-1.08	0.00	-111.07	0.00	111.07	2,908.83	692.88	2,137	1,932.96	0.26	-0.09	0.04
28.00	-33.86	-1.08	0.00	-110.53	0.00	110.53	2,903.11	691.22	2,127	1,923.65	0.26	-0.09	0.04
28.50	-33.70	-1.08	0.00	-109.99	0.00	109.99	2,896.13	689.56	2,117	1,914.37	0.27	-0.09	0.04
29.00	-33.54	-1.08	0.00	-109.45	0.00	109.45	2,889.16	687.89	2,107	1,905.11	0.28	-0.09	0.04
29.50	-33.38	-1.08	0.00	-108.91	0.00	108.91	2,882.19	686.23	2,097	1,895.87	0.29	-0.10	0.04
30.00	-33.22	-1.08	0.00	-108.36	0.00	108.36	2,875.21	684.57	2,087	1,886.65	0.30	-0.10	0.04
30.50	-33.06	-1.08	0.00	-107.82	0.00	107.82	2,868.24	682.91	2,076	1,877.46	0.31	-0.10	0.04
31.00	-32.90	-1.08	0.00	-107.28	0.00	107.28	2,861.26	681.25	2,066	1,868.29	0.33	-0.10	0.04
31.50	-32.67	-1.08	0.00	-106.74	0.00	106.74	2,854.29	679.59	2,056	1,859.14	0.34	-0.10	0.04
32.00	-32.44	-1.08	0.00	-106.20	0.00	106.20	2,847.32	677.93	2,046	1,850.02	0.35	-0.10	0.04
32.50	-32.21	-1.08	0.00	-105.66	0.00	105.66	2,840.34	676.27	2,036	1,840.91	0.36	-0.11	0.04
33.00	-31.98	-1.08	0.00	-105.11	0.00	105.11	2,833.37	674.61	2,026	1,831.83	0.37	-0.11	0.04
33.50	-31.76	-1.08	0.00	-104.57	0.00	104.57	2,826.40	672.95	2,016	1,822.77	0.38	-0.11	0.04
34.00	-31.53	-1.08	0.00	-104.03	0.00	104.03	2,819.42	671.29	2,006	1,813.74	0.39	-0.11	0.04
34.50	-31.30	-1.08	0.00	-103.49	0.00	103.49	2,812.45	669.63	1,996	1,804.72	0.40	-0.11	0.04
35.00	-31.07	-1.08	0.00	-102.95	0.00	102.95	2,805.48	667.97	1,987	1,795.73	0.42	-0.12	0.04
35.50	-31.00	-1.08	0.00	-102.41	0.00	102.41	2,798.50	666.31	1,977	1,786.77	0.43	-0.12	0.04
35.67	-30.90	-1.08	0.00	-102.23	0.00	102.23	2,248.07	566.94	1,717	1,468.70	0.43	-0.12	0.04

ASSET: 302494, Hddm - Haddam  
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
ENG NO: 13711904\_C4\_09

(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(in)	
36.00	-30.76	-1.08	0.00	-101.87	0.00	101.87	2,245.83	566.02	1,711	1,464.83	0.44	-0.12	0.04
36.50	-30.71	-1.08	0.00	-101.33	0.00	101.33	2,242.46	564.63	1,703	1,459.02	0.45	-0.12	0.04
36.67	-30.62	-1.08	0.00	-101.14	0.00	101.14	2,241.31	564.16	1,700	1,457.05	0.46	-0.12	0.04
36.67	-30.62	-1.08	0.00	-101.14	0.00	101.14	2,241.31	564.16	1,700	1,457.05	0.46	-0.12	0.05
37.00	-30.48	-1.08	0.00	-100.79	0.00	100.79	2,239.08	563.25	1,695	1,453.22	0.47	-0.12	0.05
37.50	-30.34	-1.08	0.00	-100.25	0.00	100.25	2,235.69	561.87	1,686	1,447.42	0.48	-0.12	0.05
38.00	-30.20	-1.08	0.00	-99.70	0.00	99.70	2,232.29	560.48	1,678	1,441.62	0.49	-0.13	0.05
38.50	-30.07	-1.08	0.00	-99.16	0.00	99.16	2,228.88	559.10	1,670	1,435.83	0.50	-0.13	0.05
39.00	-29.93	-1.08	0.00	-98.62	0.00	98.62	2,225.46	557.71	1,662	1,430.05	0.52	-0.13	0.05
39.50	-29.80	-1.08	0.00	-98.08	0.00	98.08	2,222.03	556.33	1,653	1,424.27	0.53	-0.13	0.05
40.00	-29.66	-1.08	0.00	-97.54	0.00	97.54	2,218.59	554.95	1,645	1,418.49	0.55	-0.13	0.05
40.50	-29.52	-1.08	0.00	-97.00	0.00	97.00	2,215.14	553.56	1,637	1,412.72	0.56	-0.14	0.05
41.00	-29.39	-1.08	0.00	-96.46	0.00	96.46	2,211.67	552.18	1,629	1,406.95	0.57	-0.14	0.05
41.50	-29.25	-1.08	0.00	-95.92	0.00	95.92	2,208.20	550.80	1,621	1,401.18	0.59	-0.14	0.05
42.00	-29.12	-1.08	0.00	-95.37	0.00	95.37	2,204.72	549.41	1,613	1,395.43	0.60	-0.14	0.05
42.50	-28.98	-1.08	0.00	-94.83	0.00	94.83	2,201.23	548.03	1,604	1,389.67	0.62	-0.14	0.05
43.00	-28.84	-1.08	0.00	-94.29	0.00	94.29	2,197.72	546.65	1,596	1,383.92	0.63	-0.15	0.05
43.50	-28.71	-1.08	0.00	-93.75	0.00	93.75	2,194.21	545.26	1,588	1,378.18	0.65	-0.15	0.05
44.00	-28.57	-1.08	0.00	-93.21	0.00	93.21	2,190.68	543.88	1,580	1,372.44	0.66	-0.15	0.05
44.50	-28.44	-1.08	0.00	-92.67	0.00	92.67	2,187.15	542.49	1,572	1,366.70	0.68	-0.15	0.05
45.00	-28.30	-1.08	0.00	-92.13	0.00	92.13	2,183.60	541.11	1,564	1,360.97	0.70	-0.15	0.05
45.50	-28.17	-1.08	0.00	-91.59	0.00	91.59	2,180.05	539.73	1,556	1,355.24	0.71	-0.16	0.05
46.00	-28.04	-1.08	0.00	-91.05	0.00	91.05	2,176.48	538.34	1,548	1,349.52	0.73	-0.16	0.05
46.50	-27.90	-1.08	0.00	-90.50	0.00	90.50	2,172.91	536.96	1,540	1,343.81	0.75	-0.16	0.05
47.00	-27.77	-1.08	0.00	-89.96	0.00	89.96	2,169.32	535.58	1,532	1,338.10	0.76	-0.16	0.05
47.50	-27.63	-1.08	0.00	-89.42	0.00	89.42	2,165.72	534.19	1,525	1,332.39	0.78	-0.16	0.04
48.00	-27.50	-1.08	0.00	-88.88	0.00	88.88	2,162.12	532.81	1,517	1,326.69	0.80	-0.17	0.04
48.50	-27.37	-1.08	0.00	-88.34	0.00	88.34	2,158.50	531.43	1,509	1,321.00	0.81	-0.17	0.04
49.00	-27.23	-1.08	0.00	-87.80	0.00	87.80	2,154.87	530.04	1,501	1,315.31	0.83	-0.17	0.04
49.50	-27.10	-1.08	0.00	-87.26	0.00	87.26	2,151.23	528.66	1,493	1,309.62	0.85	-0.17	0.04
50.00	-26.97	-1.08	0.00	-86.72	0.00	86.72	2,147.58	527.27	1,485	1,303.95	0.87	-0.17	0.04
50.50	-26.84	-1.08	0.00	-86.18	0.00	86.18	2,143.92	525.89	1,478	1,298.27	0.89	-0.18	0.04
51.00	-26.70	-1.08	0.00	-85.64	0.00	85.64	2,140.25	524.51	1,470	1,292.61	0.90	-0.18	0.04
51.50	-26.57	-1.08	0.00	-85.11	0.00	85.11	2,136.57	523.12	1,462	1,286.94	0.92	-0.18	0.04
52.00	-26.44	-1.08	0.00	-84.57	0.00	84.57	2,132.88	521.74	1,454	1,281.29	0.94	-0.18	0.04
52.50	-26.31	-1.08	0.00	-84.03	0.00	84.03	2,129.18	520.36	1,447	1,275.64	0.96	-0.18	0.04
53.00	-26.17	-1.08	0.00	-83.49	0.00	83.49	2,125.47	518.97	1,439	1,269.99	0.98	-0.18	0.04
53.50	-26.04	-1.08	0.00	-82.95	0.00	82.95	2,121.75	517.59	1,431	1,264.35	1.00	-0.19	0.04
54.00	-25.91	-1.07	0.00	-82.41	0.00	82.41	2,118.01	516.21	1,424	1,258.72	1.02	-0.19	0.04
54.50	-25.78	-1.07	0.00	-81.88	0.00	81.88	2,114.27	514.82	1,416	1,253.09	1.04	-0.19	0.04
55.00	-25.65	-1.07	0.00	-81.34	0.00	81.34	2,110.52	513.44	1,408	1,247.47	1.06	-0.19	0.04
55.50	-25.52	-1.07	0.00	-80.80	0.00	80.80	2,106.75	512.05	1,401	1,241.85	1.08	-0.19	0.04
56.00	-25.39	-1.07	0.00	-80.27	0.00	80.27	2,102.98	510.67	1,393	1,236.24	1.10	-0.20	0.04
56.50	-25.25	-1.07	0.00	-79.73	0.00	79.73	2,099.20	509.29	1,386	1,230.64	1.12	-0.20	0.04
57.00	-25.12	-1.07	0.00	-79.20	0.00	79.20	2,095.40	507.90	1,378	1,225.04	1.14	-0.20	0.04
57.50	-24.99	-1.07	0.00	-78.66	0.00	78.66	2,091.60	506.52	1,371	1,219.45	1.16	-0.20	0.04
58.00	-24.86	-1.07	0.00	-78.13	0.00	78.13	2,087.78	505.14	1,363	1,213.86	1.18	-0.20	0.04
58.50	-24.73	-1.07	0.00	-77.59	0.00	77.59	2,083.96	503.75	1,356	1,208.28	1.21	-0.21	0.04
59.00	-24.60	-1.07	0.00	-77.06	0.00	77.06	2,080.12	502.37	1,348	1,202.71	1.23	-0.21	0.04
59.50	-24.47	-1.07	0.00	-76.53	0.00	76.53	2,076.27	500.99	1,341	1,197.14	1.25	-0.21	0.04
60.00	-24.34	-1.06	0.00	-75.99	0.00	75.99	2,072.42	499.60	1,334	1,191.58	1.27	-0.21	0.04
60.50	-24.21	-1.06	0.00	-75.46	0.00	75.46	2,068.55	498.22	1,326	1,186.03	1.29	-0.21	0.04
61.00	-24.09	-1.06	0.00	-74.93	0.00	74.93	2,064.67	496.83	1,319	1,180.48	1.32	-0.22	0.04
61.50	-23.96	-1.06	0.00	-74.40	0.00	74.40	2,060.78	495.45	1,311	1,174.94	1.34	-0.22	0.04
62.00	-23.83	-1.06	0.00	-73.87	0.00	73.87	2,056.88	494.07	1,304	1,169.41	1.36	-0.22	0.04
62.50	-23.70	-1.06	0.00	-73.34	0.00	73.34	2,052.97	492.68	1,297	1,163.88	1.39	-0.22	0.04
63.00	-23.57	-1.06	0.00	-72.81	0.00	72.81	2,049.05	491.30	1,290	1,158.36	1.41	-0.22	0.04
63.50	-23.44	-1.06	0.00	-72.28	0.00	72.28	2,045.12	489.92	1,282	1,152.85	1.43	-0.23	0.04
64.00	-23.31	-1.06	0.00	-71.75	0.00	71.75	2,041.18	488.53	1,275	1,147.34	1.46	-0.23	0.04
64.50	-23.18	-1.05	0.00	-71.22	0.00	71.22	2,037.23	487.15	1,268	1,141.84	1.48	-0.23	0.04
65.00	-23.06	-1.05	0.00	-70.69	0.00	70.69	2,033.27	485.77	1,261	1,136.35	1.50	-0.23	0.04
65.50	-22.93	-1.05	0.00	-70.17	0.00	70.17	2,029.30	484.38	1,254	1,130.86	1.53	-0.23	0.04
66.00	-22.80	-1.05	0.00	-69.64	0.00	69.64	2,025.32	483.00	1,246	1,125.38	1.55	-0.24	0.04
66.50	-22.67	-1.05	0.00	-69.12	0.00	69.12	2,021.33	481.61	1,239	1,119.91	1.58	-0.24	0.04
67.00	-22.55	-1.05	0.00	-68.59	0.00	68.59	2,016.97	480.23	1,232	1,114.25	1.60	-0.24	0.04
67.50	-22.42	-1.05	0.00	-68.07	0.00	68.07	2,011.16	478.85	1,225	1,107.80	1.63	-0.24	0.04
68.00	-22.29	-1.05	0.00	-67.54	0.00	67.54	2,005.35	477.46	1,218	1,101.37	1.65	-0.24	0.04
68.50	-22.17	-1.04	0.00	-67.02	0.00	67.02	1,999.53	476.08	1,211	1,094.96	1.68	-0.25	0.04
69.00	-22.04	-1.04	0.00	-66.50	0.00	66.50	1,993.72	474.70	1,204	1,088.57	1.71	-0.25	0.04
69.50	-21.91	-1.04	0.00	-65.98	0.00	65.98	1,987.91	473.31	1,197	1,082.20	1.73	-0.25	0.04
70.00	-21.74	-1.04	0.00	-65.46	0.00	65.46	1,982.10	471.93	1,190	1,075.84	1.76	-0.25	0.04
70.50	-21.57	-1.04	0.00	-64.94	0.00	64.94	1,976.29	470.55	1,183	1,069.51	1.79	-0.25	0.04
71.00	-21.40	-1.03	0.00	-64.42	0.00	64.42	1,970.48	469.16	1,176	1,063.19	1.81	-0.26	0.04
71.50	-21.22	-1.03	0.00	-63.91	0.00	63.91	1,964.67	467.78	1,169	1,056.89	1.84	-0.26	0.04



(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(in)		
72.00	-21.05	-1.03	0.00	-63.39	0.00	63.39	1,958.86	466.39	1,162	1,050.61	1.87	-0.26	0.04
72.50	-20.88	-1.03	0.00	-62.88	0.00	62.88	1,953.04	465.01	1,155	1,044.35	1.89	-0.26	0.04
73.00	-20.77	-1.02	0.00	-62.36	0.00	62.36	1,947.23	463.63	1,148	1,038.11	1.92	-0.26	0.04
73.33	-20.71	-1.02	0.00	-62.03	0.00	62.03	1,943.40	462.71	1,144	1,034.00	1.94	-0.26	0.04
73.33	-20.71	-1.02	0.00	-62.03	0.00	62.03	1,943.40	462.71	1,144	1,034.00	1.94	-0.26	0.04
73.50	-20.61	-1.02	0.00	-61.85	0.00	61.85	1,473.96	377.74	953	802.32	1.95	-0.27	0.05
74.00	-20.50	-1.02	0.00	-61.34	0.00	61.34	1,471.41	376.63	947	798.56	1.98	-0.27	0.05
74.50	-20.39	-1.02	0.00	-60.83	0.00	60.83	1,468.85	375.53	942	794.80	2.00	-0.27	0.05
75.00	-20.29	-1.02	0.00	-60.32	0.00	60.32	1,466.28	374.42	936	791.05	2.03	-0.27	0.05
75.50	-20.18	-1.02	0.00	-59.81	0.00	59.81	1,463.70	373.31	931	787.30	2.06	-0.27	0.05
76.00	-20.07	-1.01	0.00	-59.31	0.00	59.31	1,461.11	372.21	925	783.56	2.09	-0.28	0.05
76.50	-19.97	-1.01	0.00	-58.80	0.00	58.80	1,458.51	371.10	920	779.81	2.12	-0.28	0.05
77.00	-19.86	-1.01	0.00	-58.29	0.00	58.29	1,455.89	369.99	914	776.07	2.15	-0.28	0.05
77.50	-19.75	-1.01	0.00	-57.79	0.00	57.79	1,453.27	368.89	909	772.34	2.18	-0.28	0.05
78.00	-19.65	-1.01	0.00	-57.28	0.00	57.28	1,450.64	367.78	903	768.60	2.21	-0.29	0.05
78.50	-19.54	-1.01	0.00	-56.78	0.00	56.78	1,447.99	366.67	898	764.87	2.24	-0.29	0.04
79.00	-19.44	-1.00	0.00	-56.28	0.00	56.28	1,445.34	365.57	892	761.14	2.27	-0.29	0.04
79.50	-19.33	-1.00	0.00	-55.78	0.00	55.78	1,442.68	364.46	887	757.41	2.30	-0.29	0.04
80.00	-19.23	-1.00	0.00	-55.27	0.00	55.27	1,440.00	363.35	882	753.69	2.33	-0.29	0.04
80.50	-19.12	-1.00	0.00	-54.77	0.00	54.77	1,437.32	362.24	876	749.97	2.36	-0.30	0.04
81.00	-19.02	-1.00	0.00	-54.27	0.00	54.27	1,434.62	361.14	871	746.26	2.39	-0.30	0.04
81.50	-18.91	-1.00	0.00	-53.78	0.00	53.78	1,431.91	360.03	866	742.54	2.42	-0.30	0.04
82.00	-18.81	-0.99	0.00	-53.28	0.00	53.28	1,429.20	358.92	860	738.83	2.46	-0.30	0.04
82.50	-18.70	-0.99	0.00	-52.78	0.00	52.78	1,426.47	357.82	855	735.13	2.49	-0.31	0.04
83.00	-18.60	-0.99	0.00	-52.28	0.00	52.28	1,423.73	356.71	850	731.43	2.52	-0.31	0.04
83.50	-18.49	-0.99	0.00	-51.79	0.00	51.79	1,420.98	355.60	844	727.73	2.55	-0.31	0.04
84.00	-18.39	-0.99	0.00	-51.30	0.00	51.30	1,418.23	354.50	839	724.03	2.58	-0.31	0.04
84.50	-18.28	-0.98	0.00	-50.80	0.00	50.80	1,415.46	353.39	834	720.34	2.62	-0.31	0.04
85.00	-18.18	-0.98	0.00	-50.31	0.00	50.31	1,412.68	352.28	829	716.65	2.65	-0.32	0.04
85.50	-18.08	-0.98	0.00	-49.82	0.00	49.82	1,409.89	351.18	824	712.97	2.68	-0.32	0.04
86.00	-17.97	-0.98	0.00	-49.33	0.00	49.33	1,407.09	350.07	818	709.28	2.72	-0.32	0.04
86.50	-17.87	-0.98	0.00	-48.84	0.00	48.84	1,404.28	348.96	813	705.61	2.75	-0.32	0.04
87.00	-17.77	-0.97	0.00	-48.35	0.00	48.35	1,401.46	347.85	808	701.93	2.78	-0.33	0.04
87.50	-17.66	-0.97	0.00	-47.87	0.00	47.87	1,398.63	346.75	803	698.27	2.82	-0.33	0.04
88.00	-17.56	-0.97	0.00	-47.38	0.00	47.38	1,395.79	345.64	798	694.60	2.85	-0.33	0.04
88.50	-17.46	-0.97	0.00	-46.90	0.00	46.90	1,392.93	344.53	793	690.94	2.89	-0.33	0.04
89.00	-17.35	-0.96	0.00	-46.41	0.00	46.41	1,390.07	343.43	788	687.28	2.92	-0.33	0.04
89.50	-17.25	-0.96	0.00	-45.93	0.00	45.93	1,387.20	342.32	783	683.63	2.96	-0.34	0.04
90.00	-17.15	-0.96	0.00	-45.45	0.00	45.45	1,384.32	341.21	778	679.98	2.99	-0.34	0.04
90.50	-17.05	-0.96	0.00	-44.97	0.00	44.97	1,381.42	340.11	772	676.33	3.03	-0.34	0.04
91.00	-16.94	-0.96	0.00	-44.49	0.00	44.49	1,378.52	339.00	767	672.69	3.06	-0.34	0.04
91.50	-16.84	-0.95	0.00	-44.01	0.00	44.01	1,375.61	337.89	762	669.06	3.10	-0.34	0.04
92.00	-16.74	-0.95	0.00	-43.54	0.00	43.54	1,372.68	336.79	757	665.42	3.14	-0.35	0.04
92.50	-16.64	-0.95	0.00	-43.06	0.00	43.06	1,369.75	335.68	752	661.80	3.17	-0.35	0.04
93.00	-16.53	-0.95	0.00	-42.59	0.00	42.59	1,366.80	334.57	748	658.17	3.21	-0.35	0.04
93.50	-16.43	-0.94	0.00	-42.11	0.00	42.11	1,363.85	333.47	743	654.55	3.25	-0.35	0.04
94.00	-16.33	-0.94	0.00	-41.64	0.00	41.64	1,360.88	332.36	738	650.94	3.28	-0.36	0.04
94.50	-16.23	-0.94	0.00	-41.17	0.00	41.17	1,357.90	331.25	733	647.33	3.32	-0.36	0.04
95.00	-16.13	-0.93	0.00	-40.70	0.00	40.70	1,354.92	330.14	728	643.72	3.36	-0.36	0.04
95.50	-16.03	-0.93	0.00	-40.24	0.00	40.24	1,351.92	329.04	723	640.12	3.40	-0.36	0.04
96.00	-15.93	-0.93	0.00	-39.77	0.00	39.77	1,348.91	327.93	718	636.53	3.43	-0.36	0.04
96.50	-15.83	-0.93	0.00	-39.31	0.00	39.31	1,345.89	326.82	713	632.94	3.47	-0.37	0.04
97.00	-15.72	-0.92	0.00	-38.84	0.00	38.84	1,342.86	325.72	708	629.35	3.51	-0.37	0.04
97.50	-15.62	-0.92	0.00	-38.38	0.00	38.38	1,339.83	324.61	704	625.77	3.55	-0.37	0.03
98.00	-15.52	-0.92	0.00	-37.92	0.00	37.92	1,336.78	323.50	699	622.19	3.59	-0.37	0.03
98.50	-15.42	-0.92	0.00	-37.46	0.00	37.46	1,333.72	322.40	694	618.62	3.63	-0.37	0.03
99.00	-15.32	-0.91	0.00	-37.00	0.00	37.00	1,330.65	321.29	689	615.06	3.67	-0.38	0.03
99.50	-15.22	-0.91	0.00	-36.55	0.00	36.55	1,327.57	320.18	685	611.50	3.71	-0.38	0.03
100.00	-15.12	-0.91	0.00	-36.09	0.00	36.09	1,324.47	319.08	680	607.94	3.75	-0.38	0.03
100.50	-15.02	-0.90	0.00	-35.64	0.00	35.64	1,321.37	317.97	675	604.39	3.79	-0.38	0.03
101.00	-14.92	-0.90	0.00	-35.19	0.00	35.19	1,318.26	316.86	671	600.84	3.83	-0.38	0.03
101.50	-14.82	-0.90	0.00	-34.74	0.00	34.74	1,315.14	315.75	666	597.30	3.87	-0.39	0.03
102.00	-14.72	-0.89	0.00	-34.29	0.00	34.29	1,312.01	314.65	661	593.77	3.91	-0.39	0.03
102.50	-14.63	-0.89	0.00	-33.84	0.00	33.84	1,308.86	313.54	657	590.24	3.95	-0.39	0.03
103.00	-14.53	-0.89	0.00	-33.40	0.00	33.40	1,305.71	312.43	652	586.72	3.99	-0.39	0.03
103.50	-14.43	-0.88	0.00	-32.95	0.00	32.95	1,302.55	311.33	647	583.20	4.03	-0.39	0.03
104.00	-14.33	-0.88	0.00	-32.51	0.00	32.51	1,299.37	310.22	643	579.69	4.07	-0.40	0.03
104.50	-14.23	-0.88	0.00	-32.07	0.00	32.07	1,296.19	309.11	638	576.18	4.11	-0.40	0.03
105.00	-14.13	-0.87	0.00	-31.63	0.00	31.63	1,292.99	308.01	634	572.68	4.15	-0.40	0.03
105.50	-14.03	-0.87	0.00	-31.19	0.00	31.19	1,289.88	306.90	629	569.18	4.20	-0.40	0.03
106.00	-13.93	-0.87	0.00	-30.76	0.00	30.76	1,286.73	305.79	624	565.67	4.24	-0.40	0.03
106.50	-13.84	-0.86	0.00	-30.32	0.00	30.32	1,283.58	304.69	620	562.17	4.28	-0.40	0.03
107.00	-13.74	-0.86	0.00	-29.89	0.00	29.89	1,280.43	303.58	616	558.67	4.32	-0.41	0.03
107.50	-13.64	-0.86	0.00	-29.46	0.00	29.46	1,277.28	302.47	611	555.17	4.37	-0.41	0.03

(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(in)		
108.00	-13.54	-0.85	0.00	-29.03	0.00	29.03	1,265.73	301.36	607	548.38	4.41	-0.41	0.03
108.50	-13.44	-0.85	0.00	-28.61	0.00	28.61	1,261.08	300.26	602	544.33	4.45	-0.41	0.03
109.00	-13.35	-0.85	0.00	-28.18	0.00	28.18	1,256.43	299.15	598	540.30	4.50	-0.41	0.03
109.50	-13.25	-0.84	0.00	-27.76	0.00	27.76	1,251.78	298.04	593	536.29	4.54	-0.42	0.03
110.00	-13.17	-0.84	0.00	-27.34	0.00	27.34	1,247.14	296.94	589	532.29	4.58	-0.42	0.03
110.50	-13.17	-0.84	0.00	-27.34	0.00	27.34	853.24	223.36	444	366.34	4.58	-0.42	0.00
110.50	-13.09	-0.84	0.00	-26.92	0.00	26.92	851.46	222.53	441	364.21	4.63	-0.42	0.04
111.00	-13.01	-0.83	0.00	-26.50	0.00	26.50	849.67	221.70	438	362.07	4.67	-0.42	0.04
111.50	-12.93	-0.83	0.00	-26.08	0.00	26.08	847.88	220.87	434	359.94	4.71	-0.42	0.04
112.00	-12.85	-0.83	0.00	-25.66	0.00	25.66	846.07	220.04	431	357.81	4.76	-0.43	0.04
112.50	-12.77	-0.83	0.00	-25.25	0.00	25.25	844.25	219.21	428	355.68	4.80	-0.43	0.04
113.00	-12.69	-0.82	0.00	-24.84	0.00	24.84	842.42	218.38	425	353.56	4.85	-0.43	0.04
113.50	-12.61	-0.82	0.00	-24.43	0.00	24.43	840.58	217.55	421	351.43	4.89	-0.43	0.04
114.00	-12.53	-0.82	0.00	-24.02	0.00	24.02	838.73	216.72	418	349.31	4.94	-0.44	0.04
114.50	-12.45	-0.81	0.00	-23.61	0.00	23.61	836.87	215.89	415	347.19	4.99	-0.44	0.04
115.00	-12.37	-0.81	0.00	-23.20	0.00	23.20	835.00	215.06	412	345.06	5.03	-0.44	0.04
115.50	-12.29	-0.81	0.00	-22.80	0.00	22.80	833.11	214.23	409	342.95	5.08	-0.44	0.03
116.00	-12.21	-0.80	0.00	-22.39	0.00	22.39	831.22	213.40	405	340.83	5.12	-0.44	0.03
116.50	-12.16	-0.80	0.00	-21.99	0.00	21.99	829.32	212.57	402	338.71	5.17	-0.45	0.03
116.50	-12.16	-0.80	0.00	-21.99	0.00	21.99	829.32	212.57	402	338.71	5.17	-0.45	0.08
117.00	-12.12	-0.80	0.00	-21.59	0.00	21.59	827.41	211.74	399	336.60	5.22	-0.45	0.08
117.50	-12.07	-0.80	0.00	-21.19	0.00	21.19	825.48	210.91	396	334.49	5.26	-0.45	0.08
118.00	-12.02	-0.80	0.00	-20.79	0.00	20.79	823.55	210.08	393	332.38	5.31	-0.46	0.08
118.50	-11.98	-0.80	0.00	-20.39	0.00	20.39	821.61	209.25	390	330.27	5.36	-0.46	0.08
119.00	-11.93	-0.80	0.00	-19.99	0.00	19.99	819.65	208.42	387	328.17	5.41	-0.47	0.08
119.50	-11.88	-0.79	0.00	-19.59	0.00	19.59	817.69	207.59	384	326.06	5.46	-0.47	0.08
120.00	-11.84	-0.79	0.00	-19.20	0.00	19.20	815.71	206.76	381	323.96	5.51	-0.48	0.07
120.50	-11.79	-0.79	0.00	-18.80	0.00	18.80	813.73	205.93	378	321.87	5.56	-0.48	0.07
121.00	-11.74	-0.79	0.00	-18.40	0.00	18.40	811.73	205.10	375	319.77	5.61	-0.49	0.07
121.50	-11.70	-0.79	0.00	-18.01	0.00	18.01	809.72	204.27	372	317.68	5.66	-0.49	0.07
122.00	-11.65	-0.79	0.00	-17.61	0.00	17.61	807.71	203.44	368	315.58	5.71	-0.50	0.07
122.50	-11.60	-0.79	0.00	-17.22	0.00	17.22	805.68	202.61	366	313.49	5.76	-0.50	0.07
123.00	-11.56	-0.78	0.00	-16.83	0.00	16.83	803.64	201.78	363	311.41	5.82	-0.50	0.07
123.50	-11.51	-0.78	0.00	-16.44	0.00	16.44	801.59	200.95	360	309.32	5.87	-0.51	0.07
124.00	-11.47	-0.78	0.00	-16.04	0.00	16.04	799.54	200.12	357	307.24	5.92	-0.51	0.07
124.50	-11.42	-0.78	0.00	-15.65	0.00	15.65	797.47	199.29	354	305.16	5.98	-0.52	0.07
125.00	-11.37	-0.78	0.00	-15.26	0.00	15.26	795.39	198.46	351	303.09	6.03	-0.52	0.07
125.50	-11.33	-0.78	0.00	-14.87	0.00	14.87	793.30	197.63	348	301.01	6.09	-0.53	0.06
126.00	-11.28	-0.78	0.00	-14.48	0.00	14.48	791.20	196.80	345	298.94	6.14	-0.53	0.06
126.50	-11.24	-0.77	0.00	-14.10	0.00	14.10	789.09	195.97	342	296.88	6.20	-0.53	0.06
127.00	-11.19	-0.77	0.00	-13.71	0.00	13.71	786.97	195.14	339	294.81	6.25	-0.54	0.06
127.50	-11.15	-0.77	0.00	-13.32	0.00	13.32	784.84	194.31	336	292.75	6.31	-0.54	0.06
128.00	-11.10	-0.77	0.00	-12.94	0.00	12.94	782.69	193.48	333	290.69	6.37	-0.55	0.06
128.50	-11.06	-0.77	0.00	-12.56	0.00	12.56	780.54	192.65	330	288.64	6.43	-0.55	0.06
129.00	-11.01	-0.76	0.00	-12.17	0.00	12.17	778.38	191.82	328	286.58	6.48	-0.55	0.06
129.50	-10.97	-0.76	0.00	-11.79	0.00	11.79	776.21	190.99	325	284.53	6.54	-0.56	0.06
130.00	-10.92	-0.76	0.00	-11.41	0.00	11.41	774.02	190.16	322	282.49	6.60	-0.56	0.06
130.50	-10.88	-0.76	0.00	-11.03	0.00	11.03	771.83	189.33	319	280.44	6.66	-0.57	0.05
131.00	-10.84	-0.76	0.00	-10.65	0.00	10.65	769.63	188.50	316	278.40	6.72	-0.57	0.05
131.50	-10.79	-0.76	0.00	-10.27	0.00	10.27	767.41	187.67	314	276.37	6.78	-0.57	0.05
132.00	-10.75	-0.75	0.00	-9.89	0.00	9.89	765.19	186.84	311	274.34	6.84	-0.58	0.05
132.50	-10.70	-0.75	0.00	-9.51	0.00	9.51	762.95	186.01	308	272.31	6.90	-0.58	0.05
133.00	-10.66	-0.75	0.00	-9.14	0.00	9.14	760.71	185.18	305	270.28	6.96	-0.58	0.05
133.50	-10.61	-0.75	0.00	-8.76	0.00	8.76	758.45	184.35	303	268.26	7.02	-0.59	0.05
134.00	-10.57	-0.75	0.00	-8.39	0.00	8.39	756.18	183.52	300	266.24	7.08	-0.59	0.05
134.50	-10.53	-0.74	0.00	-8.02	0.00	8.02	753.91	182.69	297	264.22	7.14	-0.59	0.04
135.00	-10.48	-0.74	0.00	-7.65	0.00	7.65	751.62	181.86	294	262.21	7.21	-0.59	0.04
135.50	-10.44	-0.74	0.00	-7.28	0.00	7.28	749.32	181.03	292	260.20	7.27	-0.60	0.04
136.00	-10.40	-0.74	0.00	-6.91	0.00	6.91	747.02	180.20	289	258.20	7.33	-0.60	0.04
136.50	-10.35	-0.73	0.00	-6.54	0.00	6.54	744.70	179.37	286	256.20	7.39	-0.60	0.04
137.00	-10.31	-0.73	0.00	-6.17	0.00	6.17	742.37	178.54	284	254.20	7.46	-0.60	0.04
137.50	-10.27	-0.73	0.00	-5.81	0.00	5.81	740.03	177.71	281	252.21	7.52	-0.61	0.04
138.00	-10.22	-0.73	0.00	-5.44	0.00	5.44	737.68	176.87	279	250.22	7.58	-0.61	0.04
138.50	-10.18	-0.72	0.00	-5.08	0.00	5.08	735.32	176.04	276	248.24	7.65	-0.61	0.03
139.00	-10.14	-0.72	0.00	-4.72	0.00	4.72	732.95	175.21	273	246.26	7.71	-0.61	0.03
139.50	-10.10	-0.72	0.00	-4.36	0.00	4.36	730.57	174.38	271	244.28	7.78	-0.61	0.03
140.00	-5.68	-0.42	0.00	-4.00	0.00	4.00	728.18	173.55	268	242.31	7.84	-0.62	0.02
140.50	-5.64	-0.42	0.00	-3.78	0.00	3.78	725.44	172.72	266	240.23	7.91	-0.62	0.02
141.00	-5.60	-0.42	0.00	-3.57	0.00	3.57	721.95	171.89	263	237.92	7.97	-0.62	0.02
141.50	-5.56	-0.42	0.00	-3.36	0.00	3.36	718.47	171.06	261	235.61	8.04	-0.62	0.02
142.00	-5.52	-0.41	0.00	-3.16	0.00	3.16	714.98	170.23	258	233.32	8.10	-0.62	0.02
142.50	-5.48	-0.41	0.00	-2.95	0.00	2.95	711.49	169.40	256	231.03	8.17	-0.62	0.02
143.00	-5.44	-0.41	0.00	-2.74	0.00	2.74	708.01	168.57	253	228.76	8.23	-0.63	0.02
143.50	-5.41	-0.41	0.00	-2.54	0.00	2.54	704.52	167.74	251	226.50	8.30	-0.63	0.02

(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(in)		
144.00	-5.37	-0.40	0.00	-2.34	0.00	2.34	701.03	166.91	248	224.25	8.36	-0.63	0.02
144.50	-5.33	-0.40	0.00	-2.13	0.00	2.13	697.55	166.08	246	222.01	8.43	-0.63	0.02
145.00	-5.29	-0.40	0.00	-1.93	0.00	1.93	694.06	165.25	243	219.79	8.49	-0.63	0.02
145.50	-5.25	-0.40	0.00	-1.73	0.00	1.73	690.57	164.42	241	217.57	8.56	-0.63	0.02
146.00	-5.22	-0.39	0.00	-1.54	0.00	1.54	687.09	163.59	238	215.36	8.63	-0.63	0.02
146.50	-5.18	-0.39	0.00	-1.34	0.00	1.34	683.60	162.76	236	213.17	8.69	-0.63	0.01
147.00	-5.14	-0.39	0.00	-1.14	0.00	1.14	680.11	161.93	234	210.99	8.76	-0.63	0.01
147.50	-5.10	-0.39	0.00	-0.95	0.00	0.95	676.63	161.10	231	208.82	8.82	-0.63	0.01
148.00	-5.07	-0.38	0.00	-0.76	0.00	0.76	673.14	160.27	229	206.66	8.89	-0.63	0.01
148.50	-5.03	-0.38	0.00	-0.57	0.00	0.57	669.65	159.44	226	204.51	8.96	-0.63	0.01
149.00	-4.99	-0.38	0.00	-0.38	0.00	0.38	666.17	158.61	224	202.37	9.02	-0.63	0.01
149.50	-4.95	-0.37	0.00	-0.19	0.00	0.19	662.68	157.78	222	200.25	9.09	-0.63	0.01
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	659.19	156.95	219	198.13	9.16	-0.63	0.00

**0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)**

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.48	-1.04	0.00	-136.36	0.00	136.36	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.04
0.50	-29.37	-1.04	0.00	-135.84	0.00	135.84	3,152.93	782.54	2,726	2,368.34	0.00	0.00	0.04
1.00	-29.26	-1.04	0.00	-135.32	0.00	135.32	3,148.69	780.88	2,715	2,360.09	0.00	0.00	0.04
1.50	-29.15	-1.04	0.00	-134.80	0.00	134.80	3,144.43	779.21	2,703	2,351.83	0.00	0.00	0.04
2.00	-29.04	-1.04	0.00	-134.28	0.00	134.28	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.04
2.50	-28.93	-1.04	0.00	-133.76	0.00	133.76	3,135.89	775.89	2,680	2,335.35	0.00	-0.01	0.04
3.00	-28.83	-1.04	0.00	-133.24	0.00	133.24	3,131.60	774.23	2,669	2,327.12	0.00	-0.01	0.04
3.50	-28.72	-1.04	0.00	-132.72	0.00	132.72	3,127.31	772.57	2,657	2,318.89	0.00	-0.01	0.04
4.00	-28.61	-1.04	0.00	-132.20	0.00	132.20	3,123.00	770.91	2,646	2,310.67	0.01	-0.01	0.04
4.50	-28.50	-1.04	0.00	-131.68	0.00	131.68	3,118.68	769.25	2,634	2,302.45	0.01	-0.01	0.04
5.00	-28.39	-1.04	0.00	-131.16	0.00	131.16	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
5.50	-28.28	-1.04	0.00	-130.64	0.00	130.64	3,110.02	765.93	2,612	2,286.04	0.01	-0.02	0.04
6.00	-28.18	-1.04	0.00	-130.12	0.00	130.12	3,105.67	764.27	2,600	2,277.85	0.01	-0.02	0.04
6.50	-28.07	-1.05	0.00	-129.60	0.00	129.60	3,101.31	762.61	2,589	2,269.66	0.01	-0.02	0.04
7.00	-27.96	-1.05	0.00	-129.07	0.00	129.07	3,096.94	760.95	2,578	2,261.47	0.02	-0.02	0.04
7.50	-27.85	-1.05	0.00	-128.55	0.00	128.55	3,092.56	759.29	2,567	2,253.30	0.02	-0.02	0.04
8.00	-27.74	-1.05	0.00	-128.03	0.00	128.03	3,088.17	757.63	2,555	2,245.13	0.02	-0.02	0.04
8.50	-27.62	-1.05	0.00	-127.50	0.00	127.50	3,083.77	755.97	2,544	2,236.96	0.02	-0.03	0.04
9.00	-27.51	-1.05	0.00	-126.98	0.00	126.98	3,079.36	754.31	2,533	2,228.81	0.03	-0.03	0.04
9.50	-27.39	-1.05	0.00	-126.46	0.00	126.46	3,074.94	752.65	2,522	2,220.66	0.03	-0.03	0.04
10.00	-27.27	-1.05	0.00	-125.93	0.00	125.93	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
10.50	-27.16	-1.05	0.00	-125.41	0.00	125.41	3,066.06	749.33	2,500	2,204.38	0.04	-0.03	0.04
11.00	-27.04	-1.05	0.00	-124.88	0.00	124.88	3,061.61	747.67	2,489	2,196.25	0.04	-0.03	0.04
11.50	-26.93	-1.05	0.00	-124.36	0.00	124.36	3,057.15	746.01	2,478	2,188.12	0.04	-0.04	0.04
12.00	-26.82	-1.05	0.00	-123.83	0.00	123.83	3,052.67	744.35	2,467	2,180.01	0.05	-0.04	0.04
12.50	-26.70	-1.05	0.00	-123.30	0.00	123.30	3,048.19	742.69	2,456	2,171.90	0.05	-0.04	0.04
13.00	-26.59	-1.05	0.00	-122.78	0.00	122.78	3,043.69	741.03	2,445	2,163.80	0.05	-0.04	0.04
13.50	-26.47	-1.05	0.00	-122.25	0.00	122.25	3,039.19	739.37	2,434	2,155.70	0.06	-0.04	0.04
14.00	-26.36	-1.05	0.00	-121.72	0.00	121.72	3,034.67	737.71	2,423	2,147.61	0.06	-0.04	0.04
14.50	-26.24	-1.05	0.00	-121.20	0.00	121.20	3,030.15	736.05	2,412	2,139.53	0.07	-0.04	0.04
15.00	-26.13	-1.06	0.00	-120.67	0.00	120.67	3,025.61	734.39	2,401	2,131.46	0.07	-0.05	0.04
15.50	-26.02	-1.06	0.00	-120.14	0.00	120.14	3,021.07	732.72	2,390	2,123.39	0.08	-0.05	0.04
16.00	-25.90	-1.06	0.00	-119.61	0.00	119.61	3,016.51	731.06	2,379	2,115.34	0.08	-0.05	0.04
16.50	-25.79	-1.06	0.00	-119.09	0.00	119.09	3,011.94	729.40	2,369	2,107.28	0.09	-0.05	0.04
17.00	-25.68	-1.06	0.00	-118.56	0.00	118.56	3,007.37	727.74	2,358	2,099.24	0.09	-0.05	0.04
17.50	-25.56	-1.06	0.00	-118.03	0.00	118.03	3,002.78	726.08	2,347	2,091.20	0.10	-0.05	0.04
18.00	-25.45	-1.06	0.00	-117.50	0.00	117.50	2,998.18	724.42	2,336	2,083.18	0.11	-0.06	0.04
18.50	-25.34	-1.06	0.00	-116.97	0.00	116.97	2,993.57	722.76	2,326	2,075.15	0.11	-0.06	0.04
19.00	-25.23	-1.06	0.00	-116.44	0.00	116.44	2,988.95	721.10	2,315	2,067.14	0.12	-0.06	0.04
19.50	-25.11	-1.06	0.00	-115.91	0.00	115.91	2,984.32	719.44	2,304	2,059.13	0.12	-0.06	0.04
20.00	-25.00	-1.06	0.00	-115.38	0.00	115.38	2,979.68	717.78	2,294	2,051.14	0.13	-0.06	0.04
20.50	-24.89	-1.06	0.00	-114.85	0.00	114.85	2,975.03	716.12	2,283	2,043.15	0.14	-0.06	0.04
21.00	-24.78	-1.06	0.00	-114.32	0.00	114.32	2,970.37	714.46	2,273	2,035.16	0.14	-0.07	0.04
21.50	-24.66	-1.06	0.00	-113.79	0.00	113.79	2,965.70	712.80	2,262	2,027.19	0.15	-0.07	0.04
22.00	-24.55	-1.06	0.00	-113.26	0.00	113.26	2,961.02	711.14	2,252	2,019.22	0.16	-0.07	0.04
22.50	-24.44	-1.06	0.00	-112.73	0.00	112.73	2,956.33	709.48	2,241	2,011.26	0.16	-0.07	0.04
23.00	-24.33	-1.06	0.00	-112.20	0.00	112.20	2,951.63	707.82	2,231	2,003.31	0.17	-0.07	0.04
23.50	-24.22	-1.06	0.00	-111.67	0.00	111.67	2,946.91	706.16	2,220	1,995.37	0.18	-0.07	0.04
24.00	-24.11	-1.06	0.00	-111.14	0.00	111.14	2,942.19	704.50	2,210	1,987.44	0.19	-0.08	0.04
24.50	-23.99	-1.06	0.00	-110.61	0.00	110.61	2,937.46	702.84	2,199	1,979.51	0.20	-0.08	0.04
25.00	-23.88	-1.06	0.00	-110.07	0.00	110.07	2,932.71	701.18	2,189	1,971.59	0.20	-0.08	0.04

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
25.50	-23.77	-1.06	0.00	-109.54	0.00	109.54	2,927.96	699.52	2,179	1,963.68	0.21	-0.08	0.04
26.00	-23.66	-1.06	0.00	-109.01	0.00	109.01	2,923.19	697.86	2,168	1,955.78	0.22	-0.08	0.04
26.50	-23.55	-1.06	0.00	-108.48	0.00	108.48	2,918.42	696.20	2,158	1,947.89	0.23	-0.08	0.04
27.00	-23.44	-1.06	0.00	-107.95	0.00	107.95	2,913.63	694.54	2,148	1,940.01	0.24	-0.09	0.04
27.50	-23.33	-1.06	0.00	-107.42	0.00	107.42	2,910.08	692.88	2,137	1,932.96	0.25	-0.09	0.04
28.00	-23.22	-1.06	0.00	-106.88	0.00	106.88	2,903.11	691.22	2,127	1,923.65	0.26	-0.09	0.04
28.50	-23.11	-1.06	0.00	-106.35	0.00	106.35	2,896.13	689.56	2,117	1,914.37	0.27	-0.09	0.04
29.00	-23.00	-1.06	0.00	-105.82	0.00	105.82	2,889.16	687.89	2,107	1,905.11	0.28	-0.09	0.04
29.50	-22.89	-1.06	0.00	-105.29	0.00	105.29	2,882.19	686.23	2,097	1,895.87	0.29	-0.09	0.04
30.00	-22.78	-1.06	0.00	-104.76	0.00	104.76	2,875.21	684.57	2,087	1,886.65	0.30	-0.10	0.04
30.50	-22.67	-1.06	0.00	-104.22	0.00	104.22	2,868.24	682.91	2,076	1,877.46	0.31	-0.10	0.04
31.00	-22.56	-1.06	0.00	-103.69	0.00	103.69	2,861.26	681.25	2,066	1,868.29	0.32	-0.10	0.04
31.50	-22.41	-1.06	0.00	-103.16	0.00	103.16	2,854.29	679.59	2,056	1,859.14	0.33	-0.10	0.04
32.00	-22.25	-1.06	0.00	-102.63	0.00	102.63	2,847.32	677.93	2,046	1,850.02	0.34	-0.10	0.04
32.50	-22.09	-1.06	0.00	-102.10	0.00	102.10	2,840.34	676.27	2,036	1,840.91	0.35	-0.10	0.04
33.00	-21.94	-1.06	0.00	-101.56	0.00	101.56	2,833.37	674.61	2,026	1,831.83	0.36	-0.10	0.04
33.50	-21.78	-1.06	0.00	-101.03	0.00	101.03	2,826.40	672.95	2,016	1,822.77	0.37	-0.11	0.04
34.00	-21.62	-1.06	0.00	-100.50	0.00	100.50	2,819.42	671.29	2,006	1,813.74	0.38	-0.11	0.04
34.50	-21.47	-1.06	0.00	-99.97	0.00	99.97	2,812.45	669.63	1,996	1,804.72	0.39	-0.11	0.04
35.00	-21.31	-1.06	0.00	-99.44	0.00	99.44	2,805.48	667.97	1,987	1,795.73	0.40	-0.11	0.04
35.50	-21.26	-1.06	0.00	-98.91	0.00	98.91	2,798.50	666.31	1,977	1,786.77	0.42	-0.11	0.04
35.67	-21.19	-1.06	0.00	-98.73	0.00	98.73	2,248.07	566.94	1,717	1,468.70	0.42	-0.11	0.04
36.00	-21.09	-1.06	0.00	-98.38	0.00	98.38	2,245.83	566.02	1,711	1,464.83	0.43	-0.11	0.04
36.50	-21.06	-1.06	0.00	-97.85	0.00	97.85	2,242.46	564.63	1,703	1,459.02	0.44	-0.12	0.04
36.67	-21.00	-1.06	0.00	-97.67	0.00	97.67	2,241.31	564.16	1,700	1,457.05	0.44	-0.12	0.04
36.67	-21.00	-1.06	0.00	-97.67	0.00	97.67	2,241.31	564.16	1,700	1,457.05	0.44	-0.12	0.04
37.00	-20.90	-1.06	0.00	-97.32	0.00	97.32	2,239.08	563.25	1,695	1,453.22	0.45	-0.12	0.04
37.50	-20.81	-1.06	0.00	-96.79	0.00	96.79	2,235.69	561.87	1,686	1,447.42	0.46	-0.12	0.04
38.00	-20.72	-1.06	0.00	-96.26	0.00	96.26	2,232.29	560.48	1,678	1,441.62	0.48	-0.12	0.04
38.50	-20.62	-1.06	0.00	-95.73	0.00	95.73	2,228.88	559.10	1,670	1,435.83	0.49	-0.12	0.04
39.00	-20.53	-1.06	0.00	-95.20	0.00	95.20	2,225.46	557.71	1,662	1,430.05	0.50	-0.13	0.04
39.50	-20.43	-1.06	0.00	-94.67	0.00	94.67	2,222.03	556.33	1,653	1,424.27	0.52	-0.13	0.04
40.00	-20.34	-1.06	0.00	-94.14	0.00	94.14	2,218.59	554.95	1,645	1,418.49	0.53	-0.13	0.04
40.50	-20.25	-1.06	0.00	-93.61	0.00	93.61	2,215.14	553.56	1,637	1,412.72	0.54	-0.13	0.04
41.00	-20.15	-1.06	0.00	-93.08	0.00	93.08	2,211.67	552.18	1,629	1,406.95	0.56	-0.13	0.04
41.50	-20.06	-1.06	0.00	-92.55	0.00	92.55	2,208.20	550.80	1,621	1,401.18	0.57	-0.14	0.04
42.00	-19.97	-1.06	0.00	-92.02	0.00	92.02	2,204.72	549.41	1,613	1,395.43	0.59	-0.14	0.04
42.50	-19.88	-1.06	0.00	-91.49	0.00	91.49	2,201.23	548.03	1,604	1,389.67	0.60	-0.14	0.04
43.00	-19.78	-1.06	0.00	-90.96	0.00	90.96	2,197.72	546.65	1,596	1,383.92	0.61	-0.14	0.04
43.50	-19.69	-1.06	0.00	-90.43	0.00	90.43	2,194.21	545.26	1,588	1,378.18	0.63	-0.14	0.04
44.00	-19.60	-1.06	0.00	-89.90	0.00	89.90	2,190.68	543.88	1,580	1,372.44	0.64	-0.14	0.04
44.50	-19.50	-1.06	0.00	-89.37	0.00	89.37	2,187.15	542.49	1,572	1,366.70	0.66	-0.15	0.04
45.00	-19.41	-1.06	0.00	-88.84	0.00	88.84	2,183.60	541.11	1,564	1,360.97	0.68	-0.15	0.04
45.50	-19.32	-1.06	0.00	-88.31	0.00	88.31	2,180.05	539.73	1,556	1,355.24	0.69	-0.15	0.04
46.00	-19.23	-1.06	0.00	-87.78	0.00	87.78	2,176.48	538.34	1,548	1,349.52	0.71	-0.15	0.04
46.50	-19.14	-1.06	0.00	-87.26	0.00	87.26	2,172.91	536.96	1,540	1,343.81	0.72	-0.15	0.04
47.00	-19.04	-1.06	0.00	-86.73	0.00	86.73	2,169.32	535.58	1,532	1,338.10	0.74	-0.16	0.04
47.50	-18.95	-1.05	0.00	-86.20	0.00	86.20	2,165.72	534.19	1,525	1,332.39	0.76	-0.16	0.04
48.00	-18.86	-1.05	0.00	-85.67	0.00	85.67	2,162.12	532.81	1,517	1,326.69	0.77	-0.16	0.04
48.50	-18.77	-1.05	0.00	-85.15	0.00	85.15	2,158.50	531.43	1,509	1,321.00	0.79	-0.16	0.04
49.00	-18.68	-1.05	0.00	-84.62	0.00	84.62	2,154.87	530.04	1,501	1,315.31	0.81	-0.16	0.04
49.50	-18.59	-1.05	0.00	-84.09	0.00	84.09	2,151.23	528.66	1,493	1,309.62	0.82	-0.17	0.04
50.00	-18.50	-1.05	0.00	-83.57	0.00	83.57	2,147.58	527.27	1,485	1,303.95	0.84	-0.17	0.04
50.50	-18.40	-1.05	0.00	-83.04	0.00	83.04	2,143.92	525.89	1,478	1,298.27	0.86	-0.17	0.04
51.00	-18.31	-1.05	0.00	-82.51	0.00	82.51	2,140.25	524.51	1,470	1,292.61	0.88	-0.17	0.04
51.50	-18.22	-1.05	0.00	-81.99	0.00	81.99	2,136.57	523.12	1,462	1,286.94	0.89	-0.17	0.04
52.00	-18.13	-1.05	0.00	-81.46	0.00	81.46	2,132.88	521.74	1,454	1,281.29	0.91	-0.18	0.04
52.50	-18.04	-1.05	0.00	-80.94	0.00	80.94	2,129.18	520.36	1,447	1,275.64	0.93	-0.18	0.04
53.00	-17.95	-1.05	0.00	-80.42	0.00	80.42	2,125.47	518.97	1,439	1,269.99	0.95	-0.18	0.04
53.50	-17.86	-1.05	0.00	-79.89	0.00	79.89	2,121.75	517.59	1,431	1,264.35	0.97	-0.18	0.04
54.00	-17.77	-1.05	0.00	-79.37	0.00	79.37	2,118.01	516.21	1,424	1,258.72	0.99	-0.18	0.04
54.50	-17.68	-1.05	0.00	-78.84	0.00	78.84	2,114.27	514.82	1,416	1,253.09	1.01	-0.18	0.04
55.00	-17.59	-1.04	0.00	-78.32	0.00	78.32	2,110.52	513.44	1,408	1,247.47	1.03	-0.19	0.04
55.50	-17.50	-1.04	0.00	-77.80	0.00	77.80	2,106.75	512.05	1,401	1,241.85	1.05	-0.19	0.04
56.00	-17.41	-1.04	0.00	-77.28	0.00	77.28	2,102.98	510.67	1,393	1,236.24	1.07	-0.19	0.04
56.50	-17.32	-1.04	0.00	-76.76	0.00	76.76	2,099.20	509.29	1,386	1,230.64	1.09	-0.19	0.04
57.00	-17.23	-1.04	0.00	-76.24	0.00	76.24	2,095.40	507.90	1,378	1,225.04	1.11	-0.19	0.04
57.50	-17.14	-1.04	0.00	-75.71	0.00	75.71	2,091.60	506.52	1,371	1,219.45	1.13	-0.20	0.04
58.00	-17.05	-1.04	0.00	-75.19	0.00	75.19	2,087.78	505.14	1,363	1,213.86	1.15	-0.20	0.04
58.50	-16.96	-1.04	0.00	-74.68	0.00	74.68	2,083.96	503.75	1,356	1,208.28	1.17	-0.20	0.04
59.00	-16.87	-1.04	0.00	-74.16	0.00	74.16	2,080.12	502.37	1,348	1,202.71	1.19	-0.20	0.04
59.50	-16.78	-1.04	0.00	-73.64	0.00	73.64	2,076.27	500.99	1,341	1,197.14	1.21	-0.20	0.04

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
60.00	-16.70	-1.03	0.00	-73.12	0.00	73.12	2,072.42	499.60	1,334	1,191.58	1.23	-0.21	0.04
60.50	-16.61	-1.03	0.00	-72.60	0.00	72.60	2,068.55	498.22	1,326	1,186.03	1.25	-0.21	0.04
61.00	-16.52	-1.03	0.00	-72.09	0.00	72.09	2,064.67	496.83	1,319	1,180.48	1.27	-0.21	0.04
61.50	-16.43	-1.03	0.00	-71.57	0.00	71.57	2,060.78	495.45	1,311	1,174.94	1.30	-0.21	0.04
62.00	-16.34	-1.03	0.00	-71.05	0.00	71.05	2,056.88	494.07	1,304	1,169.41	1.32	-0.21	0.04
62.50	-16.25	-1.03	0.00	-70.54	0.00	70.54	2,052.97	492.68	1,297	1,163.88	1.34	-0.21	0.04
63.00	-16.16	-1.03	0.00	-70.02	0.00	70.02	2,049.05	491.30	1,290	1,158.36	1.36	-0.22	0.04
63.50	-16.08	-1.03	0.00	-69.51	0.00	69.51	2,045.12	489.92	1,282	1,152.85	1.39	-0.22	0.04
64.00	-15.99	-1.03	0.00	-69.00	0.00	69.00	2,041.18	488.53	1,275	1,147.34	1.41	-0.22	0.04
64.50	-15.90	-1.02	0.00	-68.48	0.00	68.48	2,037.23	487.15	1,268	1,141.84	1.43	-0.22	0.04
65.00	-15.81	-1.02	0.00	-67.97	0.00	67.97	2,033.27	485.77	1,261	1,136.35	1.46	-0.22	0.04
65.50	-15.73	-1.02	0.00	-67.46	0.00	67.46	2,029.30	484.38	1,254	1,130.86	1.48	-0.23	0.04
66.00	-15.64	-1.02	0.00	-66.95	0.00	66.95	2,025.32	483.00	1,246	1,125.38	1.50	-0.23	0.04
66.50	-15.55	-1.02	0.00	-66.44	0.00	66.44	2,021.33	481.61	1,239	1,119.91	1.53	-0.23	0.04
67.00	-15.46	-1.02	0.00	-65.93	0.00	65.93	2,016.97	480.23	1,232	1,114.25	1.55	-0.23	0.04
67.50	-15.38	-1.02	0.00	-65.42	0.00	65.42	2,011.16	478.85	1,225	1,107.80	1.58	-0.23	0.04
68.00	-15.29	-1.01	0.00	-64.92	0.00	64.92	2,005.35	477.46	1,218	1,101.37	1.60	-0.24	0.04
68.50	-15.20	-1.01	0.00	-64.41	0.00	64.41	1,999.53	476.08	1,211	1,094.96	1.63	-0.24	0.04
69.00	-15.11	-1.01	0.00	-63.90	0.00	63.90	1,993.72	474.70	1,204	1,088.57	1.65	-0.24	0.04
69.50	-15.03	-1.01	0.00	-63.40	0.00	63.40	1,987.91	473.31	1,197	1,082.20	1.68	-0.24	0.03
70.00	-14.91	-1.01	0.00	-62.89	0.00	62.89	1,982.10	471.93	1,190	1,075.84	1.70	-0.24	0.03
70.50	-14.79	-1.00	0.00	-62.39	0.00	62.39	1,976.29	470.55	1,183	1,069.51	1.73	-0.25	0.03
71.00	-14.67	-1.00	0.00	-61.89	0.00	61.89	1,970.48	469.16	1,176	1,063.19	1.75	-0.25	0.03
71.50	-14.56	-1.00	0.00	-61.39	0.00	61.39	1,964.67	467.78	1,169	1,056.89	1.78	-0.25	0.03
72.00	-14.44	-1.00	0.00	-60.89	0.00	60.89	1,958.86	466.39	1,162	1,050.61	1.81	-0.25	0.03
72.50	-14.32	-0.99	0.00	-60.39	0.00	60.39	1,953.04	465.01	1,155	1,044.35	1.83	-0.25	0.03
73.00	-14.24	-0.99	0.00	-59.90	0.00	59.90	1,947.23	463.63	1,148	1,038.11	1.86	-0.25	0.03
73.33	-14.20	-0.99	0.00	-59.57	0.00	59.57	1,943.40	462.71	1,144	1,034.00	1.88	-0.26	0.03
73.33	-14.20	-0.99	0.00	-59.57	0.00	59.57	1,943.40	462.71	1,144	1,034.00	1.88	-0.26	0.04
73.50	-14.13	-0.99	0.00	-59.40	0.00	59.40	1,473.96	377.74	953	802.32	1.89	-0.26	0.04
74.00	-14.06	-0.99	0.00	-58.91	0.00	58.91	1,471.41	376.63	947	798.56	1.91	-0.26	0.04
74.50	-13.98	-0.99	0.00	-58.41	0.00	58.41	1,468.85	375.53	942	794.80	1.94	-0.26	0.04
75.00	-13.91	-0.98	0.00	-57.92	0.00	57.92	1,466.28	374.42	936	791.05	1.97	-0.26	0.04
75.50	-13.84	-0.98	0.00	-57.43	0.00	57.43	1,463.70	373.31	931	787.30	1.99	-0.26	0.04
76.00	-13.77	-0.98	0.00	-56.93	0.00	56.93	1,461.11	372.21	925	783.56	2.02	-0.27	0.04
76.50	-13.69	-0.98	0.00	-56.44	0.00	56.44	1,458.51	371.10	920	779.81	2.05	-0.27	0.04
77.00	-13.62	-0.98	0.00	-55.95	0.00	55.95	1,455.89	369.99	914	776.07	2.08	-0.27	0.04
77.50	-13.55	-0.98	0.00	-55.46	0.00	55.46	1,453.27	368.89	909	772.34	2.11	-0.27	0.04
78.00	-13.47	-0.98	0.00	-54.98	0.00	54.98	1,450.64	367.78	903	768.60	2.14	-0.28	0.04
78.50	-13.40	-0.97	0.00	-54.49	0.00	54.49	1,447.99	366.67	898	764.87	2.16	-0.28	0.04
79.00	-13.33	-0.97	0.00	-54.00	0.00	54.00	1,445.34	365.57	892	761.14	2.19	-0.28	0.04
79.50	-13.26	-0.97	0.00	-53.52	0.00	53.52	1,442.68	364.46	887	757.41	2.22	-0.28	0.04
80.00	-13.19	-0.97	0.00	-53.03	0.00	53.03	1,440.00	363.35	882	753.69	2.25	-0.28	0.04
80.50	-13.11	-0.97	0.00	-52.55	0.00	52.55	1,437.32	362.24	876	749.97	2.28	-0.29	0.04
81.00	-13.04	-0.96	0.00	-52.06	0.00	52.06	1,434.62	361.14	871	746.26	2.31	-0.29	0.04
81.50	-12.97	-0.96	0.00	-51.58	0.00	51.58	1,431.91	360.03	866	742.54	2.34	-0.29	0.04
82.00	-12.90	-0.96	0.00	-51.10	0.00	51.10	1,429.20	358.92	860	738.83	2.37	-0.29	0.04
82.50	-12.83	-0.96	0.00	-50.62	0.00	50.62	1,426.47	357.82	855	735.13	2.41	-0.29	0.04
83.00	-12.75	-0.96	0.00	-50.14	0.00	50.14	1,423.73	356.71	850	731.43	2.44	-0.30	0.04
83.50	-12.68	-0.95	0.00	-49.66	0.00	49.66	1,420.98	355.60	844	727.73	2.47	-0.30	0.04
84.00	-12.61	-0.95	0.00	-49.19	0.00	49.19	1,418.23	354.50	839	724.03	2.50	-0.30	0.04
84.50	-12.54	-0.95	0.00	-48.71	0.00	48.71	1,415.46	353.39	834	720.34	2.53	-0.30	0.04
85.00	-12.47	-0.95	0.00	-48.23	0.00	48.23	1,412.68	352.28	829	716.65	2.56	-0.31	0.04
85.50	-12.40	-0.95	0.00	-47.76	0.00	47.76	1,409.89	351.18	824	712.97	2.59	-0.31	0.04
86.00	-12.33	-0.94	0.00	-47.29	0.00	47.29	1,407.09	350.07	818	709.28	2.63	-0.31	0.04
86.50	-12.25	-0.94	0.00	-46.81	0.00	46.81	1,404.28	348.96	813	705.61	2.66	-0.31	0.04
87.00	-12.18	-0.94	0.00	-46.34	0.00	46.34	1,401.46	347.85	808	701.93	2.69	-0.31	0.04
87.50	-12.11	-0.94	0.00	-45.87	0.00	45.87	1,398.63	346.75	803	698.27	2.73	-0.32	0.04
88.00	-12.04	-0.94	0.00	-45.40	0.00	45.40	1,395.79	345.64	798	694.60	2.76	-0.32	0.04
88.50	-11.97	-0.93	0.00	-44.94	0.00	44.94	1,392.93	344.53	793	690.94	2.79	-0.32	0.04
89.00	-11.90	-0.93	0.00	-44.47	0.00	44.47	1,390.07	343.43	788	687.28	2.83	-0.32	0.04
89.50	-11.83	-0.93	0.00	-44.00	0.00	44.00	1,387.20	342.32	783	683.63	2.86	-0.32	0.04
90.00	-11.76	-0.93	0.00	-43.54	0.00	43.54	1,384.32	341.21	778	679.98	2.89	-0.33	0.04
90.50	-11.69	-0.92	0.00	-43.08	0.00	43.08	1,381.42	340.11	772	676.33	2.93	-0.33	0.04
91.00	-11.62	-0.92	0.00	-42.62	0.00	42.62	1,378.52	339.00	767	672.69	2.96	-0.33	0.04
91.50	-11.55	-0.92	0.00	-42.15	0.00	42.15	1,375.61	337.89	762	669.06	3.00	-0.33	0.03
92.00	-11.48	-0.92	0.00	-41.70	0.00	41.70	1,372.68	336.79	757	665.42	3.03	-0.33	0.03
92.50	-11.41	-0.91	0.00	-41.24	0.00	41.24	1,369.75	335.68	752	661.80	3.07	-0.34	0.03
93.00	-11.34	-0.91	0.00	-40.78	0.00	40.78	1,366.80	334.57	748	658.17	3.10	-0.34	0.03
93.50	-11.27	-0.91	0.00	-40.32	0.00	40.32	1,363.85	333.47	743	654.55	3.14	-0.34	0.03
94.00	-11.20	-0.91	0.00	-39.87	0.00	39.87	1,360.88	332.36	738	650.94	3.17	-0.34	0.03
94.50	-11.13	-0.90	0.00	-39.42	0.00	39.42	1,357.90	331.25	733	647.33	3.21	-0.34	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
95.00	-11.06	-0.90	0.00	-38.97	0.00	38.97	1,354.92	330.14	728	643.72	3.25	-0.35	0.03
95.50	-10.99	-0.90	0.00	-38.51	0.00	38.51	1,351.92	329.04	723	640.12	3.28	-0.35	0.03
96.00	-10.92	-0.90	0.00	-38.07	0.00	38.07	1,348.91	327.93	718	636.53	3.32	-0.35	0.03
96.50	-10.85	-0.89	0.00	-37.62	0.00	37.62	1,345.89	326.82	713	632.94	3.36	-0.35	0.03
97.00	-10.78	-0.89	0.00	-37.17	0.00	37.17	1,342.86	325.72	708	629.35	3.39	-0.35	0.03
97.50	-10.71	-0.89	0.00	-36.73	0.00	36.73	1,339.83	324.61	704	625.77	3.43	-0.36	0.03
98.00	-10.65	-0.88	0.00	-36.28	0.00	36.28	1,336.78	323.50	699	622.19	3.47	-0.36	0.03
98.50	-10.58	-0.88	0.00	-35.84	0.00	35.84	1,333.72	322.40	694	618.62	3.51	-0.36	0.03
99.00	-10.51	-0.88	0.00	-35.40	0.00	35.40	1,330.65	321.29	689	615.06	3.54	-0.36	0.03
99.50	-10.44	-0.88	0.00	-34.96	0.00	34.96	1,327.57	320.18	685	611.50	3.58	-0.36	0.03
100.00	-10.37	-0.87	0.00	-34.52	0.00	34.52	1,324.47	319.08	680	607.94	3.62	-0.37	0.03
100.50	-10.30	-0.87	0.00	-34.09	0.00	34.09	1,321.37	317.97	675	604.39	3.66	-0.37	0.03
101.00	-10.23	-0.87	0.00	-33.65	0.00	33.65	1,318.26	316.86	671	600.84	3.70	-0.37	0.03
101.50	-10.17	-0.86	0.00	-33.22	0.00	33.22	1,315.14	315.75	666	597.30	3.74	-0.37	0.03
102.00	-10.10	-0.86	0.00	-32.79	0.00	32.79	1,312.01	314.65	661	593.77	3.77	-0.37	0.03
102.50	-10.03	-0.86	0.00	-32.36	0.00	32.36	1,308.86	313.54	657	590.24	3.81	-0.38	0.03
103.00	-9.96	-0.85	0.00	-31.93	0.00	31.93	1,305.71	312.43	652	586.72	3.85	-0.38	0.03
103.50	-9.89	-0.85	0.00	-31.50	0.00	31.50	1,302.55	311.33	647	583.20	3.89	-0.38	0.03
104.00	-9.83	-0.85	0.00	-31.07	0.00	31.07	1,299.37	310.22	643	579.69	3.93	-0.38	0.03
104.50	-9.76	-0.84	0.00	-30.65	0.00	30.65	1,296.19	309.11	638	576.18	3.97	-0.38	0.03
105.00	-9.69	-0.84	0.00	-30.23	0.00	30.23	1,292.99	308.01	634	572.68	4.01	-0.38	0.03
105.50	-9.62	-0.84	0.00	-29.81	0.00	29.81	1,288.98	306.90	629	568.82	4.05	-0.39	0.03
106.00	-9.56	-0.84	0.00	-29.39	0.00	29.39	1,284.33	305.79	624	564.70	4.09	-0.39	0.03
106.50	-9.49	-0.83	0.00	-28.97	0.00	28.97	1,279.68	304.69	620	560.60	4.13	-0.39	0.03
107.00	-9.42	-0.83	0.00	-28.55	0.00	28.55	1,275.03	303.58	616	556.51	4.18	-0.39	0.03
107.50	-9.35	-0.82	0.00	-28.14	0.00	28.14	1,270.38	302.47	611	552.44	4.22	-0.39	0.03
108.00	-9.29	-0.82	0.00	-27.73	0.00	27.73	1,265.73	301.36	607	548.38	4.26	-0.40	0.03
108.50	-9.22	-0.82	0.00	-27.32	0.00	27.32	1,261.08	300.26	602	544.33	4.30	-0.40	0.03
109.00	-9.15	-0.81	0.00	-26.91	0.00	26.91	1,256.43	299.15	598	540.30	4.34	-0.40	0.03
109.50	-9.09	-0.81	0.00	-26.50	0.00	26.50	1,251.78	298.04	593	536.29	4.38	-0.40	0.03
110.00	-9.03	-0.81	0.00	-26.10	0.00	26.10	1,247.14	296.94	589	532.29	4.42	-0.40	0.03
110.00	-9.03	-0.81	0.00	-26.10	0.00	26.10	853.24	223.36	444	366.34	4.42	-0.40	0.00
110.50	-8.98	-0.81	0.00	-25.69	0.00	25.69	851.46	222.53	441	364.21	4.47	-0.40	0.04
111.00	-8.92	-0.80	0.00	-25.29	0.00	25.29	849.67	221.70	438	362.07	4.51	-0.41	0.04
111.50	-8.87	-0.80	0.00	-24.89	0.00	24.89	847.88	220.87	434	359.94	4.55	-0.41	0.03
112.00	-8.81	-0.80	0.00	-24.49	0.00	24.49	846.07	220.04	431	357.81	4.59	-0.41	0.03
112.50	-8.76	-0.79	0.00	-24.09	0.00	24.09	844.25	219.21	428	355.68	4.64	-0.41	0.03
113.00	-8.70	-0.79	0.00	-23.69	0.00	23.69	842.42	218.38	425	353.56	4.68	-0.41	0.03
113.50	-8.65	-0.79	0.00	-23.30	0.00	23.30	840.58	217.55	421	351.43	4.72	-0.42	0.03
114.00	-8.59	-0.78	0.00	-22.90	0.00	22.90	838.73	216.72	418	349.31	4.77	-0.42	0.03
114.50	-8.54	-0.78	0.00	-22.51	0.00	22.51	836.87	215.89	415	347.19	4.81	-0.42	0.03
115.00	-8.48	-0.78	0.00	-22.12	0.00	22.12	835.00	215.06	412	345.06	4.86	-0.42	0.03
115.50	-8.43	-0.78	0.00	-21.73	0.00	21.73	833.11	214.23	409	342.95	4.90	-0.42	0.03
116.00	-8.37	-0.77	0.00	-21.34	0.00	21.34	831.22	213.40	405	340.83	4.95	-0.43	0.03
116.50	-8.34	-0.77	0.00	-20.96	0.00	20.96	829.32	212.57	402	338.71	4.99	-0.43	0.03
116.50	-8.34	-0.77	0.00	-20.96	0.00	20.96	829.32	212.57	402	338.71	4.99	-0.43	0.07
117.00	-8.31	-0.77	0.00	-20.57	0.00	20.57	827.41	211.74	399	336.60	5.04	-0.43	0.07
117.50	-8.28	-0.77	0.00	-20.19	0.00	20.19	825.48	210.91	396	334.49	5.08	-0.44	0.07
118.00	-8.24	-0.77	0.00	-19.81	0.00	19.81	823.55	210.08	393	332.38	5.13	-0.44	0.07
118.50	-8.21	-0.76	0.00	-19.42	0.00	19.42	821.61	209.25	390	330.27	5.17	-0.44	0.07
119.00	-8.18	-0.76	0.00	-19.04	0.00	19.04	819.65	208.42	387	328.17	5.22	-0.45	0.07
119.50	-8.15	-0.76	0.00	-18.66	0.00	18.66	817.69	207.59	384	326.06	5.27	-0.45	0.07
120.00	-8.12	-0.76	0.00	-18.28	0.00	18.28	815.71	206.76	381	323.96	5.32	-0.46	0.07
120.50	-8.08	-0.76	0.00	-17.90	0.00	17.90	813.73	205.93	378	321.87	5.36	-0.46	0.07
121.00	-8.05	-0.76	0.00	-17.52	0.00	17.52	811.73	205.10	375	319.77	5.41	-0.47	0.07
121.50	-8.02	-0.76	0.00	-17.14	0.00	17.14	809.72	204.27	372	317.68	5.46	-0.47	0.06
122.00	-7.99	-0.75	0.00	-16.76	0.00	16.76	807.71	203.44	368	315.58	5.51	-0.48	0.06
122.50	-7.96	-0.75	0.00	-16.39	0.00	16.39	805.68	202.61	366	313.49	5.56	-0.48	0.06
123.00	-7.93	-0.75	0.00	-16.01	0.00	16.01	803.64	201.78	363	311.41	5.61	-0.48	0.06
123.50	-7.89	-0.75	0.00	-15.64	0.00	15.64	801.59	200.95	360	309.32	5.66	-0.49	0.06
124.00	-7.86	-0.75	0.00	-15.26	0.00	15.26	799.54	200.12	357	307.24	5.71	-0.49	0.06
124.50	-7.83	-0.75	0.00	-14.89	0.00	14.89	797.47	199.29	354	305.16	5.77	-0.50	0.06
125.00	-7.80	-0.74	0.00	-14.52	0.00	14.52	795.39	198.46	351	303.09	5.82	-0.50	0.06
125.50	-7.77	-0.74	0.00	-14.14	0.00	14.14	793.30	197.63	348	301.01	5.87	-0.51	0.06
126.00	-7.74	-0.74	0.00	-13.77	0.00	13.77	791.20	196.80	345	298.94	5.92	-0.51	0.06
126.50	-7.71	-0.74	0.00	-13.40	0.00	13.40	789.09	195.97	342	296.88	5.98	-0.51	0.06
127.00	-7.68	-0.74	0.00	-13.03	0.00	13.03	786.97	195.14	339	294.81	6.03	-0.52	0.05
127.50	-7.64	-0.73	0.00	-12.67	0.00	12.67	784.84	194.31	336	292.75	6.09	-0.52	0.05
128.00	-7.61	-0.73	0.00	-12.30	0.00	12.30	782.69	193.48	333	290.69	6.14	-0.52	0.05
128.50	-7.58	-0.73	0.00	-11.93	0.00	11.93	780.54	192.65	330	288.64	6.20	-0.53	0.05
129.00	-7.55	-0.73	0.00	-11.57	0.00	11.57	778.38	191.82	328	286.58	6.25	-0.53	0.05
129.50	-7.52	-0.73	0.00	-11.20	0.00	11.20	776.21	190.99	325	284.53	6.31	-0.54	0.05

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
130.00	-7.49	-0.72	0.00	-10.84	0.00	10.84	774.02	190.16	322	282.49	6.36	-0.54	0.05
130.50	-7.46	-0.72	0.00	-10.48	0.00	10.48	771.83	189.33	319	280.44	6.42	-0.54	0.05
131.00	-7.43	-0.72	0.00	-10.12	0.00	10.12	769.63	188.50	316	278.40	6.48	-0.55	0.05
131.50	-7.40	-0.72	0.00	-9.76	0.00	9.76	767.41	187.67	314	276.37	6.54	-0.55	0.05
132.00	-7.37	-0.72	0.00	-9.40	0.00	9.40	765.19	186.84	311	274.34	6.59	-0.55	0.04
132.50	-7.34	-0.71	0.00	-9.04	0.00	9.04	762.95	186.01	308	272.31	6.65	-0.56	0.04
133.00	-7.31	-0.71	0.00	-8.68	0.00	8.68	760.71	185.18	305	270.28	6.71	-0.56	0.04
133.50	-7.28	-0.71	0.00	-8.33	0.00	8.33	758.45	184.35	303	268.26	6.77	-0.56	0.04
134.00	-7.25	-0.71	0.00	-7.97	0.00	7.97	756.18	183.52	300	266.24	6.83	-0.56	0.04
134.50	-7.22	-0.71	0.00	-7.62	0.00	7.62	753.91	182.69	297	264.22	6.89	-0.57	0.04
135.00	-7.19	-0.70	0.00	-7.26	0.00	7.26	751.62	181.86	294	262.21	6.95	-0.57	0.04
135.50	-7.16	-0.70	0.00	-6.91	0.00	6.91	749.32	181.03	292	260.20	7.01	-0.57	0.04
136.00	-7.13	-0.70	0.00	-6.56	0.00	6.56	747.02	180.20	289	258.20	7.07	-0.57	0.04
136.50	-7.10	-0.70	0.00	-6.21	0.00	6.21	744.70	179.37	286	256.20	7.13	-0.58	0.03
137.00	-7.07	-0.69	0.00	-5.86	0.00	5.86	742.37	178.54	284	254.20	7.19	-0.58	0.03
137.50	-7.04	-0.69	0.00	-5.52	0.00	5.52	740.03	177.71	281	252.21	7.25	-0.58	0.03
138.00	-7.01	-0.69	0.00	-5.17	0.00	5.17	737.68	176.87	279	250.22	7.31	-0.58	0.03
138.50	-6.98	-0.69	0.00	-4.82	0.00	4.82	735.32	176.04	276	248.24	7.37	-0.59	0.03
139.00	-6.95	-0.68	0.00	-4.48	0.00	4.48	732.95	175.21	273	246.26	7.43	-0.59	0.03
139.50	-6.92	-0.68	0.00	-4.14	0.00	4.14	730.57	174.38	271	244.28	7.49	-0.59	0.03
140.00	-3.89	-0.40	0.00	-3.80	0.00	3.80	728.18	173.55	268	242.31	7.56	-0.59	0.02
140.50	-3.87	-0.40	0.00	-3.60	0.00	3.60	725.44	172.72	266	240.23	7.62	-0.59	0.02
141.00	-3.84	-0.40	0.00	-3.40	0.00	3.40	721.95	171.89	263	237.92	7.68	-0.59	0.02
141.50	-3.81	-0.40	0.00	-3.20	0.00	3.20	718.47	171.06	261	235.61	7.74	-0.60	0.02
142.00	-3.79	-0.39	0.00	-3.00	0.00	3.00	714.98	170.23	258	233.32	7.80	-0.60	0.02
142.50	-3.76	-0.39	0.00	-2.80	0.00	2.80	711.49	169.40	256	231.03	7.87	-0.60	0.02
143.00	-3.73	-0.39	0.00	-2.61	0.00	2.61	708.01	168.57	253	228.76	7.93	-0.60	0.02
143.50	-3.71	-0.39	0.00	-2.41	0.00	2.41	704.52	167.74	251	226.50	7.99	-0.60	0.02
144.00	-3.68	-0.38	0.00	-2.22	0.00	2.22	701.03	166.91	248	224.25	8.06	-0.60	0.02
144.50	-3.65	-0.38	0.00	-2.03	0.00	2.03	697.55	166.08	246	222.01	8.12	-0.60	0.01
145.00	-3.63	-0.38	0.00	-1.84	0.00	1.84	694.06	165.25	243	219.79	8.18	-0.60	0.01
145.50	-3.60	-0.38	0.00	-1.65	0.00	1.65	690.57	164.42	241	217.57	8.24	-0.60	0.01
146.00	-3.58	-0.37	0.00	-1.46	0.00	1.46	687.09	163.59	238	215.36	8.31	-0.61	0.01
146.50	-3.55	-0.37	0.00	-1.27	0.00	1.27	683.60	162.76	236	213.17	8.37	-0.61	0.01
147.00	-3.52	-0.37	0.00	-1.09	0.00	1.09	680.11	161.93	234	210.99	8.43	-0.61	0.01
147.50	-3.50	-0.37	0.00	-0.90	0.00	0.90	676.63	161.10	231	208.82	8.50	-0.61	0.01
148.00	-3.47	-0.36	0.00	-0.72	0.00	0.72	673.14	160.27	229	206.66	8.56	-0.61	0.01
148.50	-3.45	-0.36	0.00	-0.54	0.00	0.54	669.65	159.44	226	204.51	8.63	-0.61	0.01
149.00	-3.42	-0.36	0.00	-0.36	0.00	0.36	666.17	158.61	224	202.37	8.69	-0.61	0.01
149.50	-3.40	-0.36	0.00	-0.18	0.00	0.18	662.68	157.78	222	200.25	8.75	-0.61	0.01
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	659.19	156.95	219	198.13	8.82	-0.61	0.00

**ANALYSIS SUMMARY**

Load Case	Reactions						Max Usage	
	Shear FX	Shear FZ	Axial FY	Moment MX	Moment MY	Moment MZ	Elev (ft)	Interaction Ratio
	(kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)		
1.2D + 1.0W	17.66	0.00	41.56	0.00	0.00	1972.72	116.50	0.9
0.9D + 1.0W	17.66	0.00	31.17	0.00	0.00	1931.39	116.50	0.86
1.2D + 1.0Di + 1.0Wi	3.93	0.00	50.02	0.00	0.00	447.96	116.50	0.22
1.2D + 1.0Ev + 1.0Eh	1.08	0.00	42.98	0.00	0.00	140.25	116.50	0.08
0.9D - 1.0Ev + 1.0Eh	1.06	0.00	29.48	0.00	0.00	136.36	116.50	0.07
1.0D + 1.0W	4.09	0.00	34.63	0.00	0.00	451.00	116.50	0.21

**ADDITIONAL STEEL SUMMARY**

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors				Max member			
			VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio	
0.00	36.67	PL PL 7 x 1.25	292.7	5.3	38.3	0.1377	318.6	431.2	0.7390	
36.67	73.33	PL PL 6 x 1.25	311.8	5.6	38.3	0.1467	281.3	356.2	0.7897	
73.33	110.00	PL PL 5" x 1.25"	355.2	6.4	38.3	0.1671	226.0	281.0	0.8040	
110.00	116.50	PL PL 4 x 1.25	375.5	6.8	38.3	0.1766	148.3	206.4	0.7185	

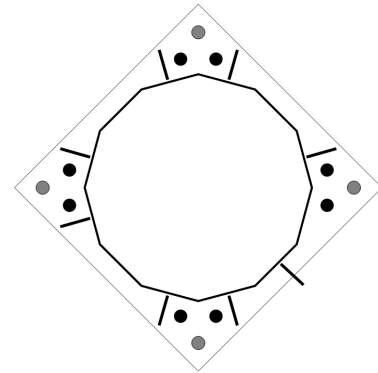
Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors					Lower Termination Connectors				
			MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	36.67	PL PL 7 x 1.25	0	38.27	0	0	0.0000	0	38.27	0	0	0.0000
36.67	73.33	PL PL 6 x 1.25	0	38.27	0	0	0.0000	0	38.27	0	0	0.0000
73.33	110.00	PL PL 5" x 1.25"	0	38.27	0	0	0.0000	0	38.27	0	0	0.0000
110.00	116.50	PL PL 4 x 1.25	128.2247	38.27	4	6	0.5584	0	38.27	0	0	0.0000



**BASE PLATE ANALYSIS @ 0 FT**

**PLATE PARAMETERS (ID# 16823)**

Width: 44 in  
 Shape: Square  
 Thickness: 2.5 in  
 Grade: A633 Gr. E  
 Yield Strength: 60 ksi  
 Tensile Strength: 80 ksi  
 Clip Length: in  
 Rod Detail Type: d  
 Clear Distance: 3 in  
 Base Weld Size: 0.125 in  
 Orientation Offset: 45 °  
 Analysis Type: Elastic  
 Neutral Axis: 266 °

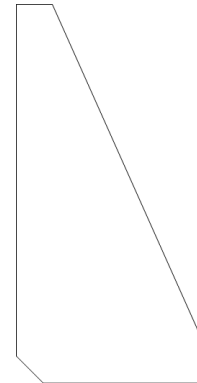


**ANCHOR ROD PARAMETERS**

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 17217]	Cluster	8	2.25	44	A615-75	75	100	6	45
Additional [ID# 17218]	Radial	4	2.25	52.67	A615-75	75	100	-	-

**STIFFENER PARAMETERS**

Arrangement: Cluster  
 Quantity: 8  
 Height: 10.5 in  
 Width: 5.25 in  
 Thickness: 0.5 in  
 Notch: 0.75 in  
 Grade: A572-50  
 Yield Strength: 50 ksi  
 Tensile Strength: 65 ksi  
 Horizontal Weld Type: Fillet  
 Horizontal Weld Fillet Size: 0.5 in  
 Vertical Weld Fillet Size: 0.25 in  
 Weld Strength: 70 ksi  
 Orientation Offset: 45 °



**ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (8) 2.25"Ø [ID 17217]**

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)	Shear Load (k)
1	1.434	2.99	21.80	1.376	6.986	13.37	2.91
2	1.707	-2.99	21.80	-4.235	59.091	-29.45	2.85
3	3.005	-21.80	2.99	-20.642	1384.615	-154.65	0.19
4	3.278	-21.80	-2.99	-20.249	1332.510	-151.66	0.60
5	4.576	-2.99	-21.80	-1.376	6.986	-7.63	2.91
6	4.849	2.99	-21.80	4.235	59.091	35.19	2.85
7	6.147	21.80	-2.99	20.642	1384.615	160.39	0.19
8	0.136	21.80	2.99	20.249	1332.510	157.40	0.60

**ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ADDITIONAL (4) 2.25"Ø [ID 17218]**

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)	Shear Load (k)
1	1.571	0.00	26.34	-1.837	11.799	-12.47	2.02
2	3.142	-26.34	0.00	-26.271	2242.257	-198.93	0.14
3	4.712	0.00	-26.34	1.837	11.799	15.57	2.02
4	6.283	26.34	0.00	26.271	2242.257	202.03	0.14

**STIFFENER GEOMETRY AND APPLIED LOADS**

Position	Radians	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)	Shear Load (k)
1	1.295	4.359	44.253	21.05	1.15
2	1.847	-7.227	111.113	-30.56	1.10
3	2.866	-20.865	881.911	-91.30	0.24
4	3.418	-20.050	814.784	-87.67	0.40
5	4.436	-4.373	44.509	-17.85	1.15
6	4.988	7.217	110.808	33.78	1.10
7	5.536	16.609	561.033	75.61	0.74
8	0.276	20.054	815.089	90.95	0.40

**REACTION DISTRIBUTION**

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	37.38"Ø x 0.375" (12 Sides)	1972.7	41.56	17.66	1.000
Bolt Group	Original (8) 2.25"Ø	1090.0	-	13.10	0.553
Bolt Group	Additional (4) 2.25"Ø	882.8	-	4.56	0.447
Stiffeners	(8) 10.5"H x 5.25"W x 0.5"T	620.2	-	5.55	0.314
<b>TOTALS</b>		<b>1972.72</b>	<b>41.56</b>	<b>17.66</b>	

**COMPONENT PROPERTIES**

Component	ID	Gross Area (in <sup>2</sup> )	Net Area (in <sup>2</sup> )	Individual Inertia (in <sup>4</sup> )	Moment of Inertia (in <sup>4</sup> )	Threads/in
Pole	37.38"Ø x 0.375" (12 Sides)	43.0992	-	-	7379.37	-
Bolt Group	Original (8) 2.25"Ø	3.9761	3.2477	0.8393	5566.40	4.5
Bolt Group	Additional (4) 2.25"Ø	3.9761	3.2477	0.8393	4508.11	4.5
Stiffeners	(8) 10.5"H x 5.25"W x 0.5"T	2.2500	2.0250	24.1172	3383.50	-

ASSET: 302494, Hddm - Haddam  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711904

**EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT**

**POLE PROPERTIES**

Flat-to-Flat Diameter: 37.50 in  
 Point-to-Point Diameter: 38.83 in  
 Flat Width: 10.049 in  
 Flat Radians: 0.524 rad

**PLATE PROPERTIES**

Neutral Axis: 266 °  
 Bend Line Lower Limit: rad  
 Bend Line Upper Limit: -0.179 rad

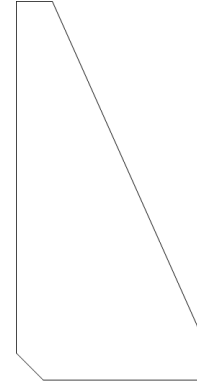
Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in <sup>3</sup> )	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	24.720	2.37	42.323	2057.5	2285.4	0.900
Corner	23.397	1.42	38.773	1713.7	2093.7	0.818

**ELASTIC ANCHOR ROD ANALYSIS**

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio	Interaction
Original	8	2.25	160.4	0.2	243.6	0.658	0.660
Additional	4	2.25	202.0	0.1	243.6	0.829	0.831

**BASE PLATE STIFFENER ANALYSIS**

Quantity:	8	
Height:	10.5	in
Width:	5.25	in
Effective Width:	5.250	in
Thickness:	0.5	in
Notch:	0.75	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.5	in
Horizontal Weld Bevel Size:		in
Vertical Weld Fillet Size:	0.25	in
Weld Strength:	70	ksi
Electrode Coefficient:	1.000	



**PLATE COMPRESSION**

Radius of Gyration:	0.144	in <sup>3</sup>
kl/r:	43.65	
4.71 √(E/Fy):	113.43	
Buckling Stress, Fe:	150.24	ksi
Crit. Buckling Stress, Fcr:	131.76	ksi
Applied Compression, Pu:	90.95	k
Compressive Capacity, φPn:	266.81	k
<b>Pu/φPn:</b>	<b>0.170</b>	

**PLATE TENSION**

Gross Cross Section:	2.2500	in <sup>2</sup>
Net Cross Section:	2.0250	in <sup>2</sup>
Applied Tension, Tu:	91.30	k
Tensile Capacity, φTn:	98.72	k
<b>Tu/φTn:</b>	<b>0.462</b>	

**VERTICAL WELD TO POLE**

Vertical Eccentricity Ratio, a=e <sub>x</sub> /l:	0.167	
Spacing Ratio, k:	0.048	
Weld Coefficient, C:	3.670	
Applied Compression, Pu:	90.95	k
Compressive Capacity, φPn:	115.61	k
Horizontal Eccentricity Ratio, a=e <sub>x</sub> /l:	0.333	
Weld Coefficient, C:	2.940	
Applied Shear, Vu:	0.24	k
Shear Capacity, φVn:	92.61	k
<b>Pu/φPn + Vu/φVn:</b>	<b>0.789</b>	

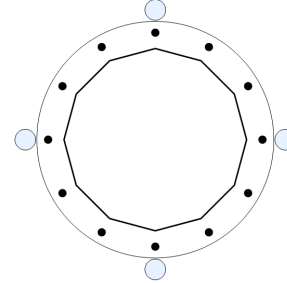
**HORIZONTAL WELD TO PLATE**

Horizontal Eccentricity Ratio, a=e <sub>x</sub> /l:	0.167	
Spacing Ratio, k:	0.095	
Weld Coefficient, C:	3.900	
Effective Fillet Size:	0.500	in
Applied Compression, Pu:	90.95	k
Compressive Capacity, φPn:	122.85	k
Vertical Eccentricity Ratio, a=e <sub>x</sub> /l:	0.333	
Weld Coefficient, C:	3.090	
Applied Shear, Vu:	0.24	k
Shear Capacity, φVn:	97.34	k
<b>Pu/φPn + Vu/φVn:</b>	<b>0.743</b>	

**UPPER FLANGE PLATE ANALYSIS @ 110 FT**

**PLATE PARAMETERS (ID# 16824)**

Diameter:	28.5	in
Shape:	Round	
Thickness:	1	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Pole Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	150	°



**FLANGE BOLT PARAMETERS**

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 17219]	Radial	12	1	25.78	A325	92	120	-	-

**DYWIDAG BAR PARAMETERS**

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1102]	#20	2.5	80	100	Not Listed	3.75	31.27	-

**FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (12) 1"Ø [ID 17219]**

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)	Shear Load (k)
1	0.524	11.16	6.44	-10.622	68.371	-11.24	0.73
2	1.047	6.44	11.16	-12.265	91.152	-13.02	0.00
3	1.571	0.00	12.89	-10.622	68.371	-11.24	0.73
4	2.094	-6.44	11.16	-6.133	22.810	-6.40	1.27
5	2.618	-11.16	6.44	0.000	0.029	0.22	1.46
6	3.142	-12.89	0.00	6.133	22.810	6.83	1.27
7	3.665	-11.16	-6.44	10.622	68.371	11.68	0.73
8	4.189	-6.44	-11.16	12.265	91.152	13.45	0.00
9	4.712	0.00	-12.89	10.622	68.371	11.68	0.73
10	5.236	6.44	-11.16	6.133	22.810	6.83	1.27
11	5.760	11.16	-6.44	0.000	0.029	0.22	1.46
12	6.283	12.89	0.00	-6.133	22.810	-6.40	1.27

ASSET: 302494, Hddm - Haddam  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711904

**DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 1102]**

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)
1	1.571	0.00	15.63	-13.539	901.770	-92.67
2	3.142	-15.63	0.00	7.817	301.868	57.12
3	4.712	0.00	-15.63	13.539	901.770	97.25
4	6.283	15.63	0.00	-7.817	301.868	-52.54

**REACTION DISTRIBUTION**

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	21.268"ø x 0.1875" (12 Sides)	81.2	11.76	10.92	0.221
Bolt Group	Original (12) 1"ø	81.2	-	10.92	0.221
Dywidag Group	(4) #20	286.6	-	-	0.779
<b>TOTALS</b>		<b>367.84</b>	<b>11.76</b>	<b>10.92</b>	

**COMPONENT PROPERTIES**

Component	ID	Gross Area (in <sup>2</sup> )	Net Area (in <sup>2</sup> )	Individual Inertia (in <sup>4</sup> )	Moment of Inertia (in <sup>4</sup> )	Threads/in
Pole	21.268"ø x 0.1875" (12 Sides)	12.2761	-	-	682.06	-
Bolt Group	Original (12) 1"ø	0.7854	0.6057	0.0292	547.08	8.0
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	2407.28	-

**EXTERNAL UPPER FLANGE PLATE BEND LINE ANALYSIS @ 110 FT**

**POLE PROPERTIES**

Flat-to-Flat Diameter: 21.39 in  
 Point-to-Point Diameter: 22.15 in  
 Flat Width: 5.732 in  
 Flat Radians: 0.524 rad

**PLATE PROPERTIES**

Neutral Axis: 150 °  
 Bend Line Lower Limit: 3.881 rad  
 Bend Line Upper Limit: 4.497 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in <sup>3</sup> )	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	17.048	0.00	4.262	21.1	230.1	0.092
Corner	16.055	0.00	4.014	16.0	216.7	0.074
Circumferential	15.357	0.00	3.839	16.0	207.3	0.077

**ELASTIC FLANGE BOLT ANALYSIS**

Class	Group Quantity	Bolt Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio	Interaction
Original	12	1	13.5	0.0	54.5	0.247	0.247

**DYWIDAG BAR ANALYSIS**

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity φPn (k)	Ratio
4	#20	31.27	97.3	368.2	0.264

## Monolithic Mat Foundation Analysis (ANSI/TIA-222-H)

### Foundation & Tower Parameters

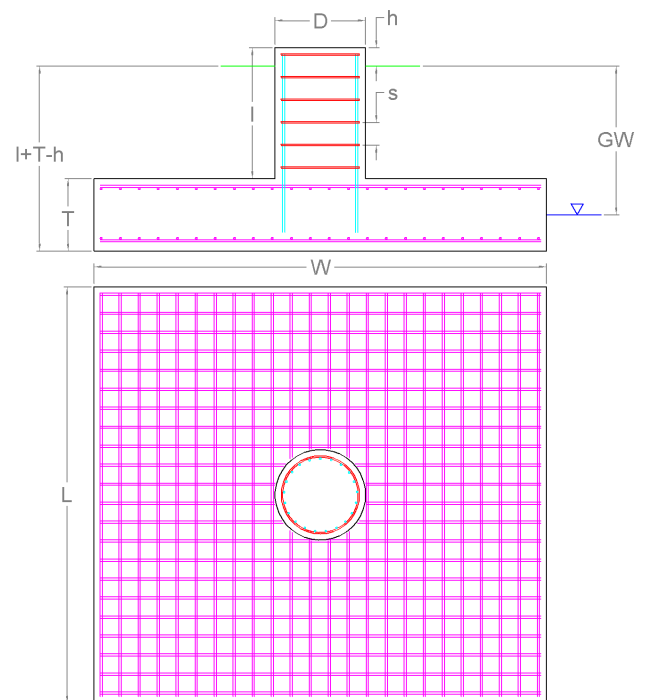
Ignore Mat Rebar?		Y	
Ignore Pier Rebar?		Y	
Foundation has Pier(s)?		Y	
Pier Shape		Square	
Pier Diameter	<i>D</i>	5	ft
Pier Height Above Ground	<i>h</i>	1.8	ft
Pier Length	<i>l</i>	4	ft
Mat Base Depth	<i>l+T-h</i>	4.4	ft
Mat Length	<i>L</i>	20	ft
Mat Width	<i>W</i>	19.4	ft
Mat Thickness	<i>T</i>	2.2	ft
Unit Weight of Concrete		150	pcf
Tower Eccentricity	<i>ecc</i>	0	ft
Tower Face Width	<i>FW</i>	3.12	ft
Tower Leg Count		1	

### Reactions

Moment, $M_u$	1,972.72	k-ft
Shear, $V_u$	17.66	k
Axial, $P_u$	41.56	k
Uplift, $T_u$	0	k
Tower Weight	41.56	k
Tower Dead Load Factor	0.9	

### Soil Parameters

Water Table Depth [BGL]	<i>GW</i>	8	ft
Unit Weight of Soil		128	pcf
Unit Weight of Soil [Submerged]		65.6	pcf
Shear Friction Coefficient		0.75	
Ultimate Bearing Pressure		7,610	psf
Bearing Pressure Type		Gross	
Conical Failure Angle		15	°
Capacity Increase (Transient Loads)		1.00	
Soil Strength Reduction Factor, $\phi_s$		0.75	
Dead Load Factor		1.2	



### Soil Capacities

Design Moment, $M_u$	2,082.21	k-ft
Nominal Moment Capacity, $\phi_m M_n$	2,557.38	k-ft
$M_u / \phi_s M_n$	81.4%	
Net Bearing Pressure	3,195	k
Nominal Bearing Capacity, $\phi_b P_n$	5,708	k
Bearing Pressure Controlling Load Direction	Parallel to Pad Edge	
$P_u / \phi_s P_n$	56.0%	
Ultimate Friction Resistance	209.92	k
Ultimate Passive Pressure Resistance	18.59	k
Nominal Shear Capacity, $\phi_s V_n$	171.38	k
$V_u / \phi_s V_n$	10.0%	





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## Mount Analysis Report

**ATC Site Name** : Hddm - Haddam, CT  
**ATC Site Number** : 302494  
**Engineering Number** : 13711904\_C8\_07  
**Mount Elevation** : 141.75 ft  
**Carrier** : T-Mobile  
**Carrier Site Name** : ATC Higganum Monopole  
**Carrier Site Number** : CTHA522A  
**Site Location** : 139 Morris Hubbard Rd  
Higganum, CT 06441-4307  
41.472239 , -72.554567  
**County** : Middlesex  
**Date** : October 25, 2021  
**Max Usage** : 46%  
**Result** : Pass

Prepared By:  
Garrett Williams  
Structural Engineer

*Garrett Williams*

Reviewed By:



Authorized by "EOR"  
26 Oct 2021 04:37:03

**cosign**

**COA: PEC.0001553**





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Equipment Layout ..... 4

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Calculations ..... Attached



## Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 141.75 ft.

## Supporting Documents

<b>Specifications Sheet</b>	Perfect Vision Manufacturing LPPGS-12M-HR2-AP1, dated August 14, 2019
<b>Radio Frequency Data Sheet</b>	RFDS ID #CTHA522A, dated 10/707/2021
<b>Reference Photos</b>	Site photos from 2016

## Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

<b>Basic Wind Speed:</b>	121 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-H
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 2
<b>Feature:</b>	Flat
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.214$ , $S_1 = 0.055$
<b>Site Class:</b>	D - Stiff Soil
<b>Live Loads:</b>	$L_m = 500$ lbs

\* Based on experience, it has been determined that the  $L_v$  load cases will not control over  $L_m$  load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

- Analysis is based on new Perfect Vision Manufacturing LPPGS-12M-HR2-AP1 platform mount.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



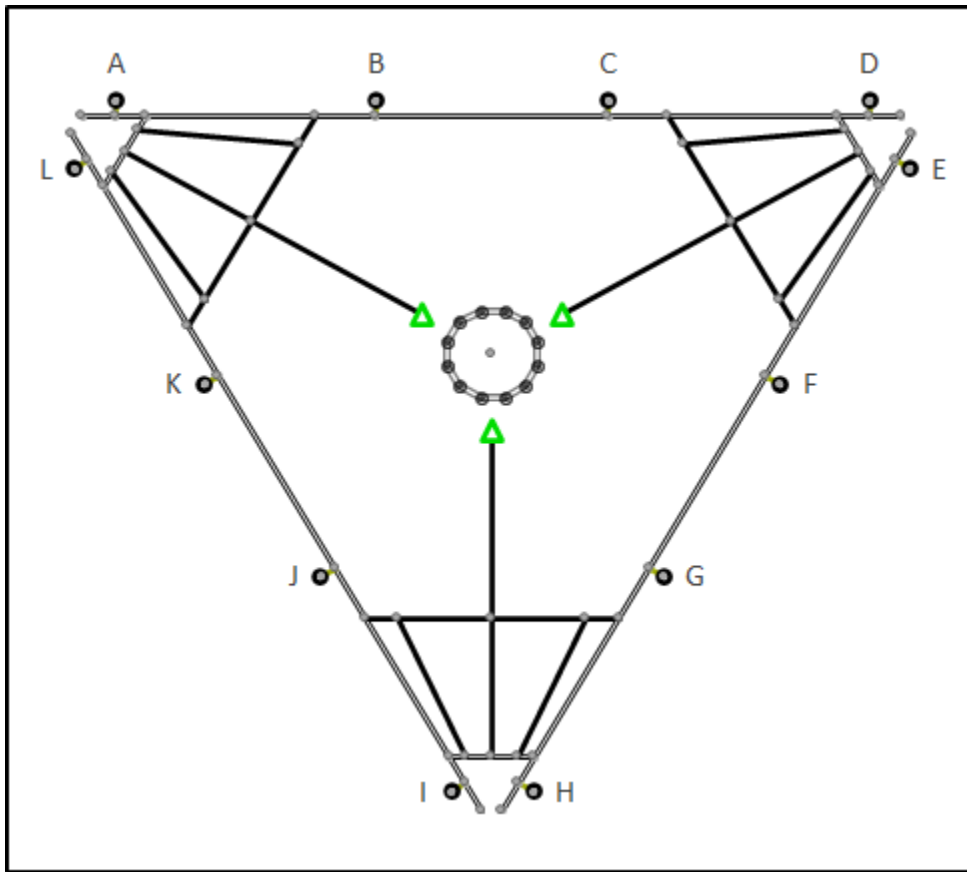
**Application Loading**

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
141.8	140.0	3	Commscope VV-65A-R1
		3	RFS APXVAALL24 43-U-NA20
		3	Ericsson Radio 4460 B25+B66
		3	Ericsson Radio 4480 B71+B85A

**Structure Usages**

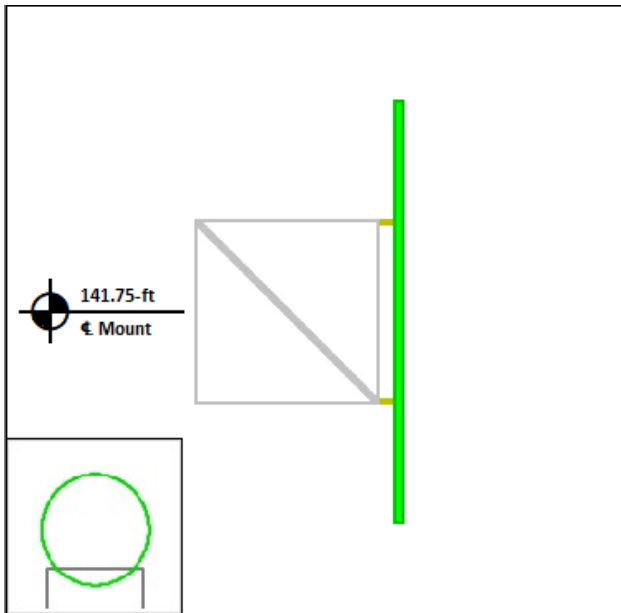
Structural Component	Controlling Usage	Pass/Fail
Horizontals	27%	Pass
Mount Pipes	46%	Pass

**Mount Layout**

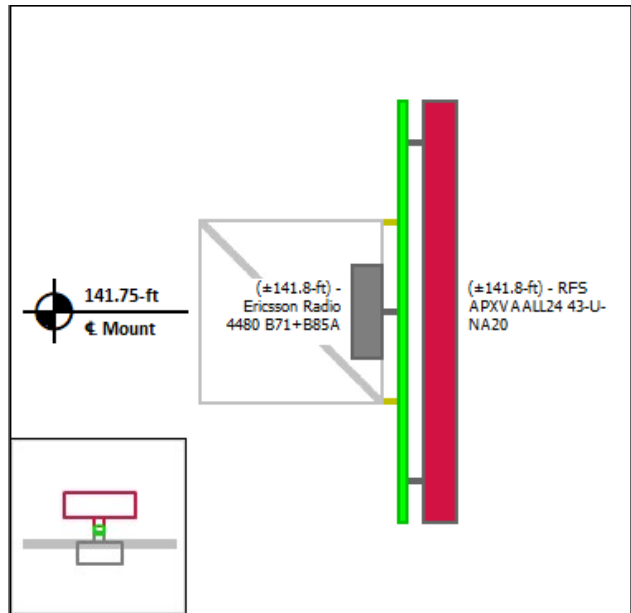


**Equipment Layout**

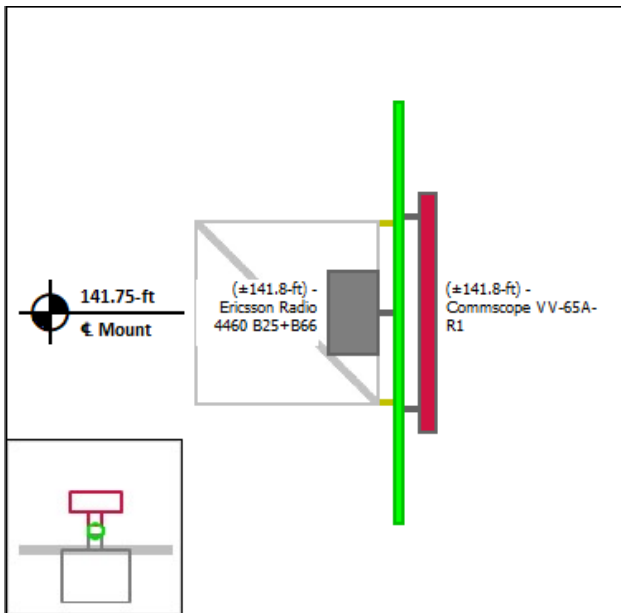
**Mount Pipe A**



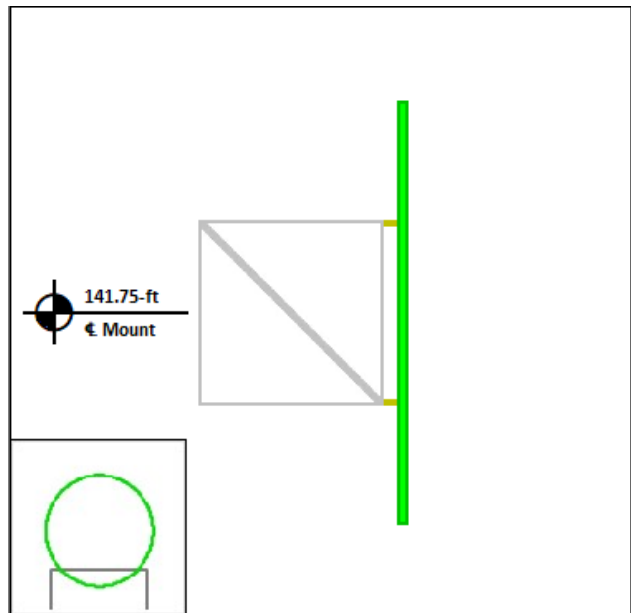
**Mount Pipe B**



**Mount Pipe C**

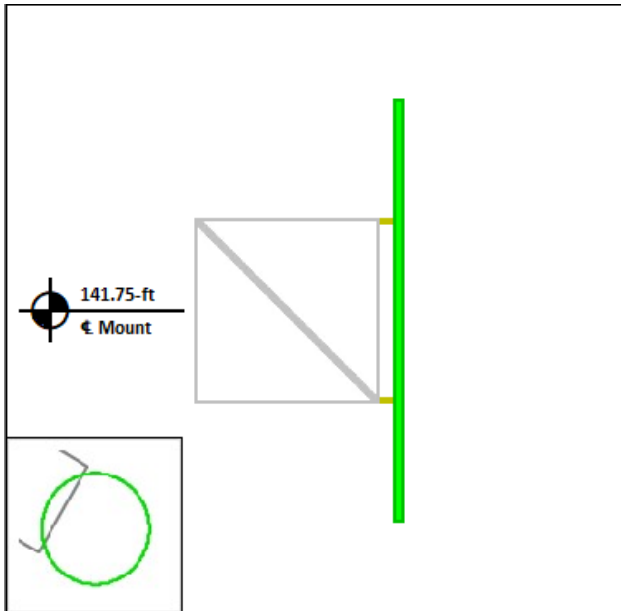


**Mount Pipe D**

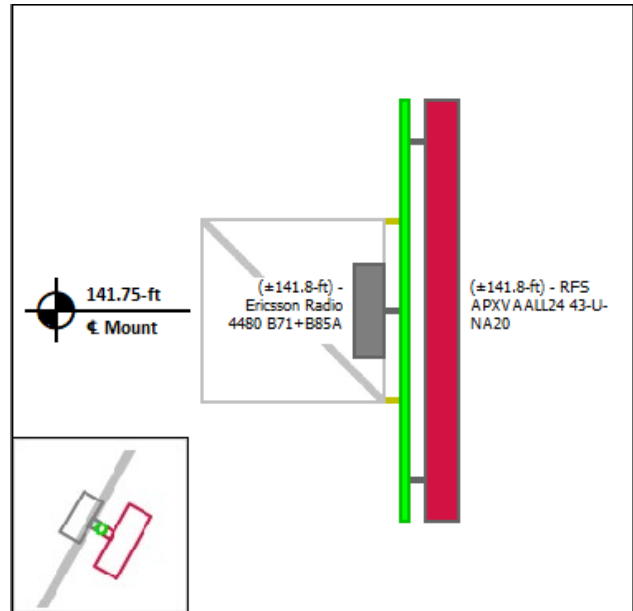


**Equipment Layout Cont'd.**

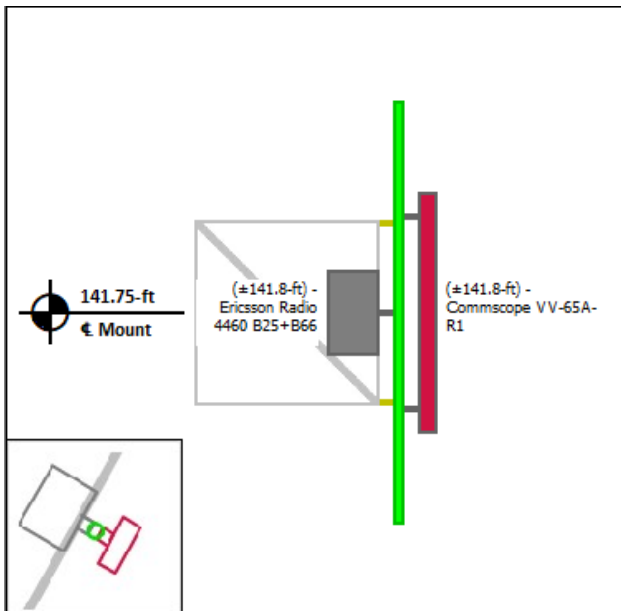
**Mount Pipe E**



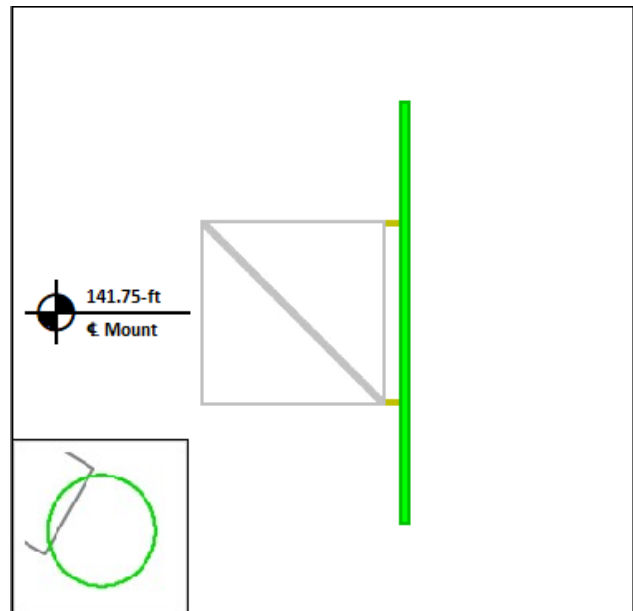
**Mount Pipe F**



**Mount Pipe G**

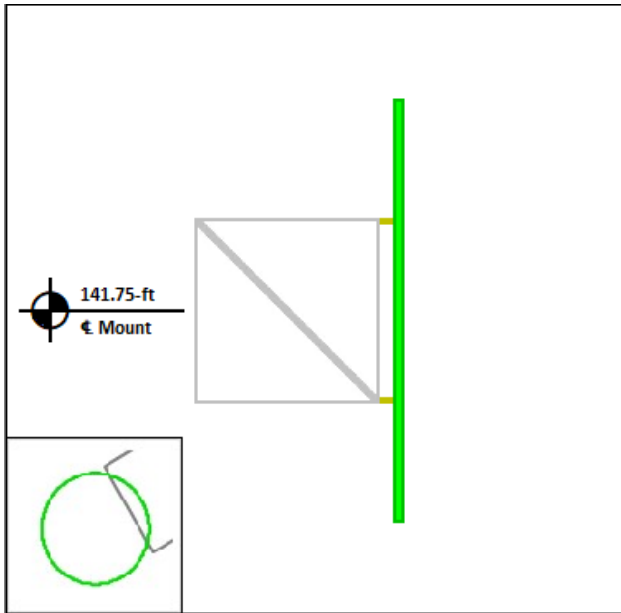


**Mount Pipe H**

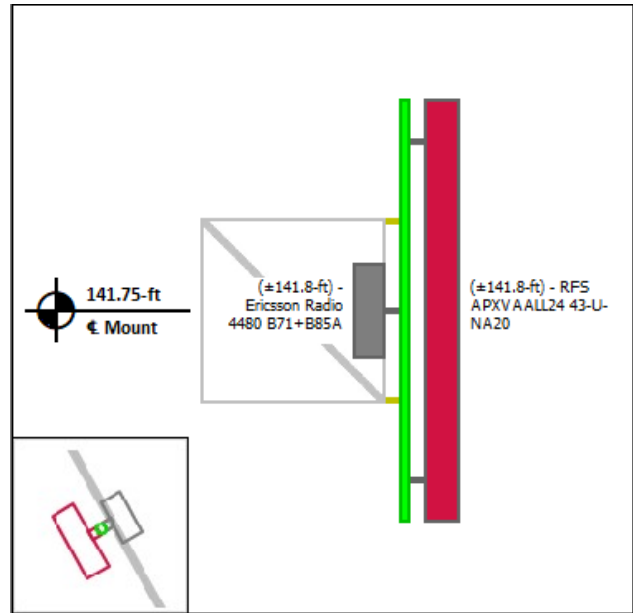


**Equipment Layout Cont'd.**

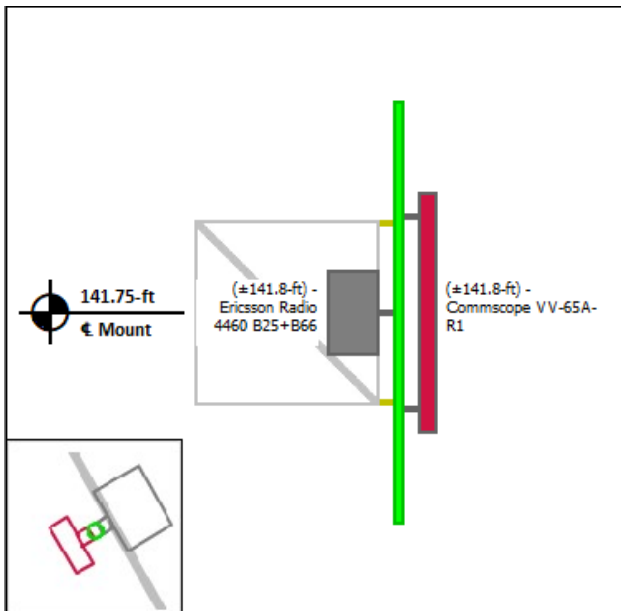
**Mount Pipe I**



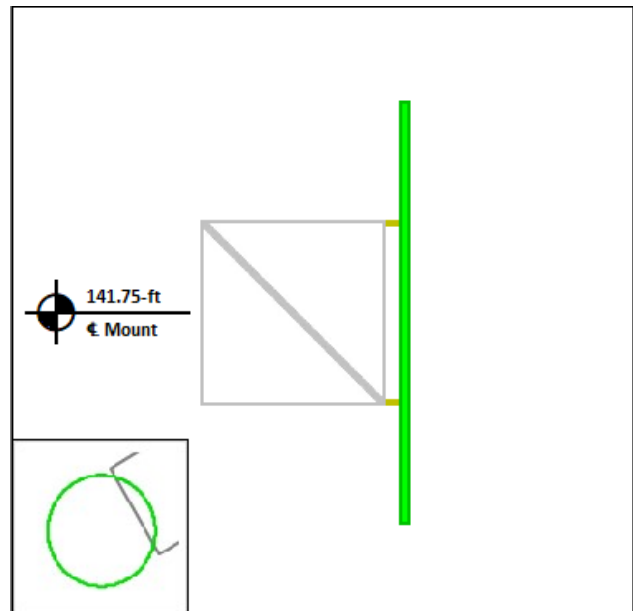
**Mount Pipe J**



**Mount Pipe K**



**Mount Pipe L**





### **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding equipment, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.





**Site Number:** 302494  
**Project Number:** 13711904\_C8\_07  
**Carrier:** T-Mobile  
**Mount Elevation:** 141.75 ft  
**Date:** 10/25/2021

## Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	$K_z$	1.09	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	0.99	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	121	mph
Velocity Pressure	$q_z$	38.4	psf
Height Escalation Factor	$K_{iz}$	1.16	
Thickness of Radial Glaze Ice	$T_{iz}$	1.16	in

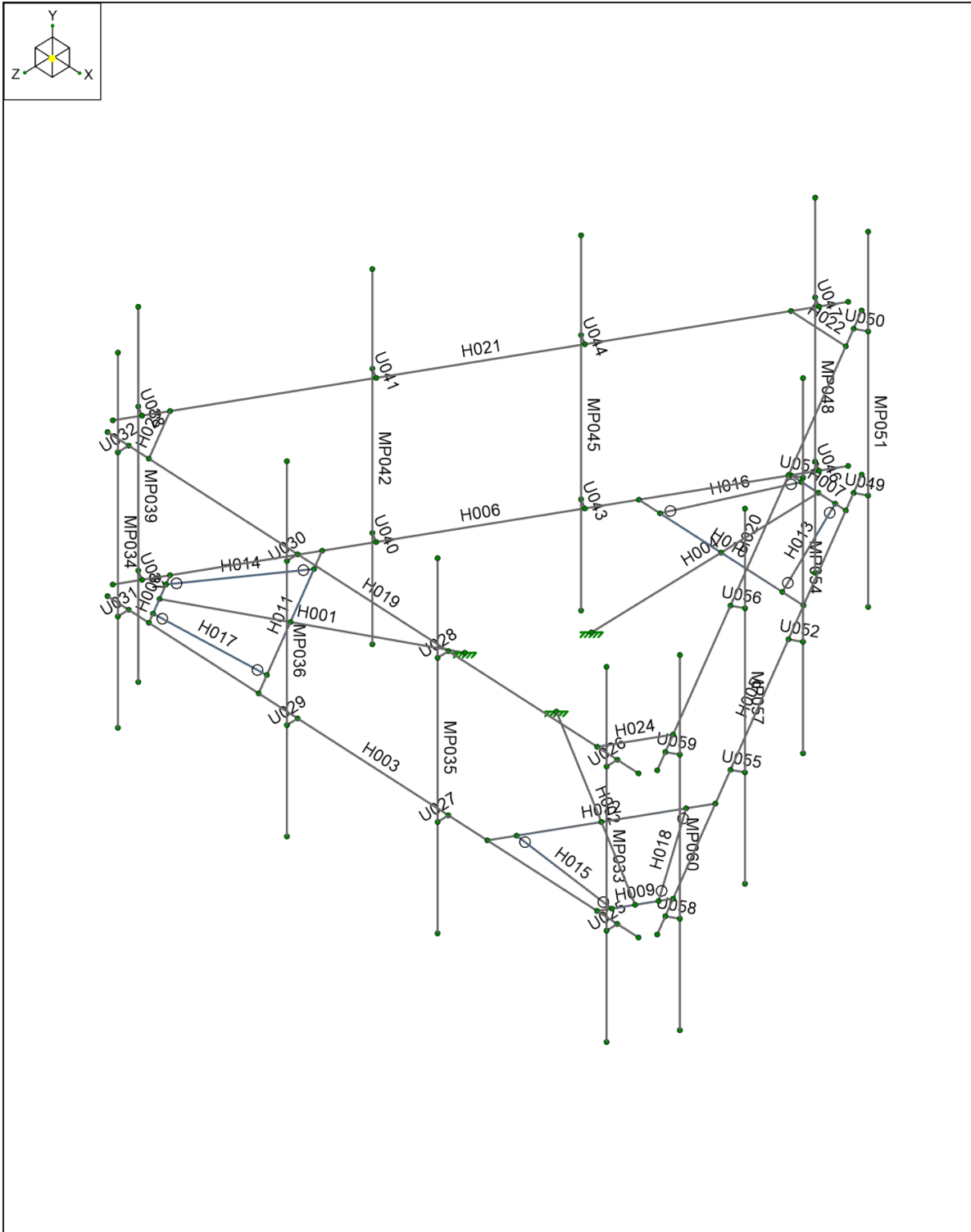
Seismic Load Calculations			
Short Period DSRAP	$S_{Ds}$	0.228	
1 Second DSRAP	$S_{D1}$	0.088	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.114	
Amplification Factor	$A$	1.0	
Total Weight	$W$	2334.6	lbs
Total Shear Force	$V_s$	266.5	lbs
Horizontal Seismic Load	$E_h$	266.5	lbs
Vertical Seismic Load	$E_v$	106.6	lbs

Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	$EPA_N$	$EPA_T$	$EPA_{Ni}$	$EPA_{Ti}$
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Commscope VV-65A-R1	54.7	12.1	4.6	23.8	5.93	1.40	7.36	2.19
RFS APXVAALL24 43-U-NA20	95.9	24.0	8.5	122.8	20.24	3.40	22.73	4.43
Ericsson Radio 4460 B25+B66	19.6	15.7	12.1	109.0	2.56	1.98	3.29	2.63
Ericsson Radio 4480 B71+B85A	21.8	15.7	7.5	84.0	2.85	1.38	3.62	2.00

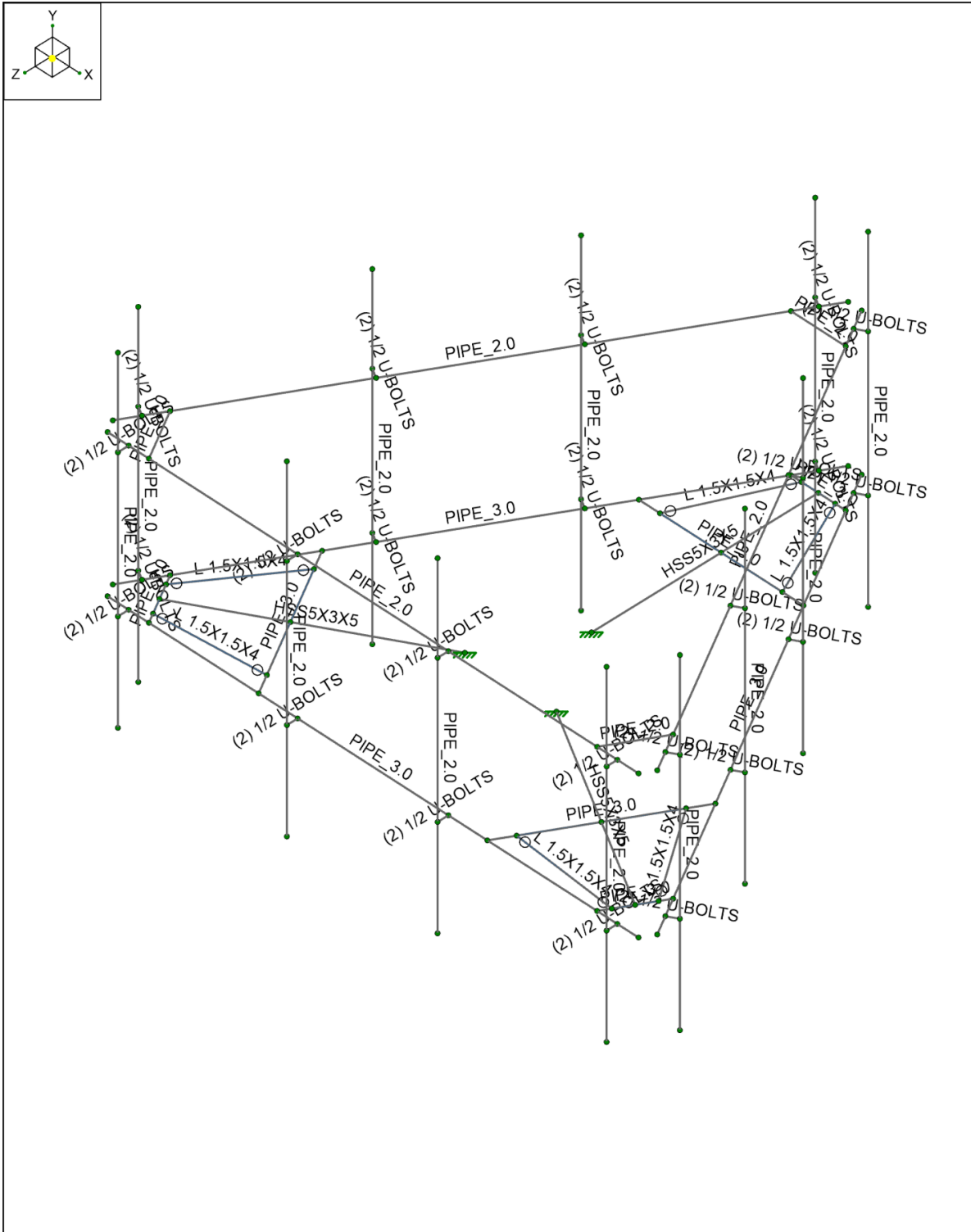
\* Equipment with EPA values N/A were not considered in the mount analysis



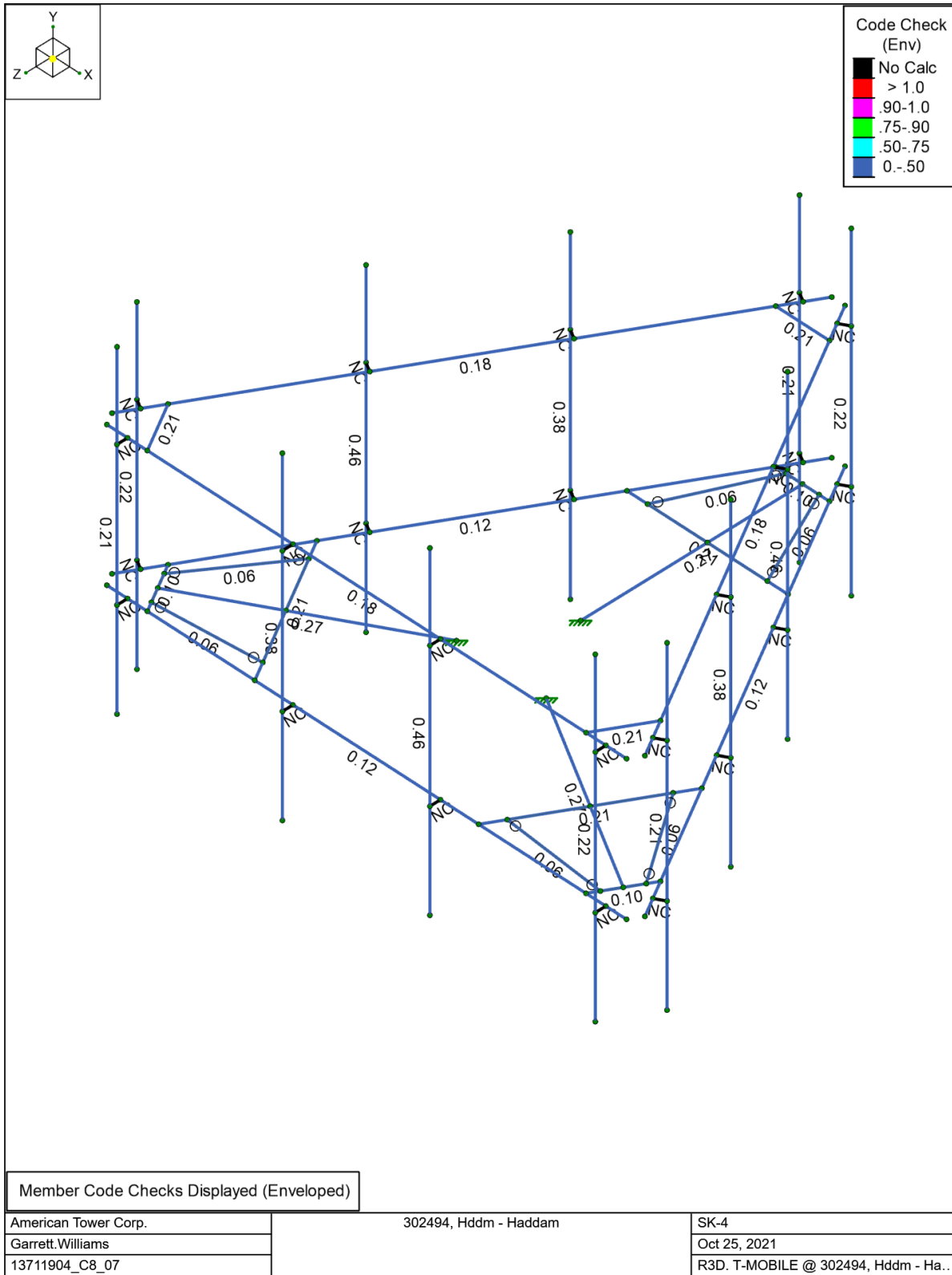
American Tower Corp.	302494, Hddm - Haddam	SK-1
Garrett.Williams		Oct 25, 2021
13711904_C8_07		R3D. T-MOBILE @ 302494, Hddm - Ha...

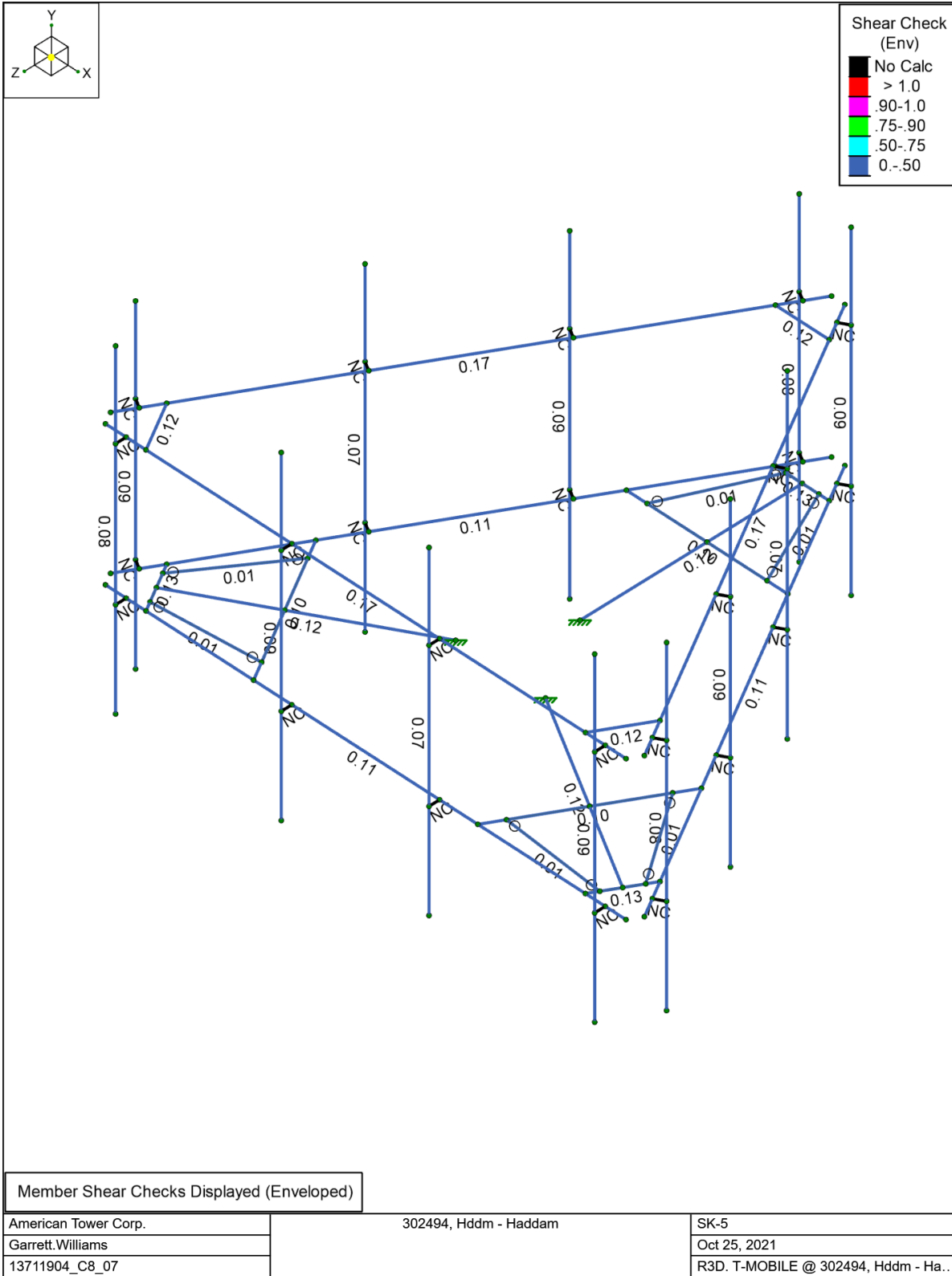


American Tower Corp.	302494, Hddm - Haddam	SK-2
Garrett.Williams		Oct 25, 2021
13711904_C8_07		R3D. T-MOBILE @ 302494, Hddm - Ha...



American Tower Corp.	302494, Hddm - Haddam	SK-3
Garrett.Williams		Oct 25, 2021
13711904_C8_07		R3D. T-MOBILE @ 302494, Hddm - Ha...







Company : American Tower Corp.  
 Designer : Garrett.Williams  
 Job Number : 13711904\_C8\_07  
 Model Name : 302494, Hddm - Haddam

10/25/2021  
 6:41:24 PM  
 Checked By : -

**Node Boundary Conditions**

Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1 N002	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2 N003	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3 N004	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

**Member Primary Data**

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1 H001	N003	N005		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
2 H002	N004	N006		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
3 H003	N009	N010		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
4 H004	N002	N015		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
5 H005	N011	N013		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
6 H006	N012	N014		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
7 H007	N019	N017		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
8 H008	N021	N023		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
9 H009	N022	N024		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
10 H010	N018	N020		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
11 H011	N025	N027		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
12 H012	N026	N028		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
13 H013	N037	N029	270	L 1.5X1.5X4	Beam	None	A36	Typical
14 H014	N038	N030	270	L 1.5X1.5X4	Beam	None	A36	Typical
15 H015	N039	N040	270	L 1.5X1.5X4	Beam	None	A36	Typical
16 H016	N034	N031		L 1.5X1.5X4	Beam	None	A36	Typical
17 H017	N035	N032		L 1.5X1.5X4	Beam	None	A36	Typical
18 H018	N036	N033		L 1.5X1.5X4	Beam	None	A36	Typical
19 H019	N041	N042		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
20 H020	N043	N045		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
21 H021	N044	N046		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
22 H022	N048	N047		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
23 H023	N049	N051		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
24 H024	N050	N052		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
25 U025	N053	N057		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
26 U026	N058	N059		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
27 U027	N055	N060		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
28 U028	N061	N062		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
29 U029	N056	N063		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
30 U030	N064	N065		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
31 U031	N054	N066		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
32 U032	N067	N068		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
33 MP033	N069	N070		PIPE 2.0	Column	None	A53 Gr. B	Typical
34 MP034	N071	N072		PIPE 2.0	Column	None	A53 Gr. B	Typical
35 MP035	N073	N074		PIPE 2.0	Column	None	A53 Gr. B	Typical
36 MP036	N075	N076		PIPE 2.0	Column	None	A53 Gr. B	Typical
37 U037	N078	N085		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
38 U038	N086	N087		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
39 MP039	N088	N089		PIPE 2.0	Column	None	A53 Gr. B	Typical
40 U040	N080	N090		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
41 U041	N091	N092		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
42 MP042	N093	N094		PIPE 2.0	Column	None	A53 Gr. B	Typical
43 U043	N082	N095		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
44 U044	N096	N097		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
45 MP045	N098	N099		PIPE 2.0	Column	None	A53 Gr. B	Typical
46 U046	N084	N100		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
47 U047	N101	N102		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
48 MP048	N103	N104		PIPE 2.0	Column	None	A53 Gr. B	Typical
49 U049	N077	N105		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
50 U050	N106	N107		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
51 MP051	N108	N109		PIPE 2.0	Column	None	A53 Gr. B	Typical
52 U052	N079	N110		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
53 U053	N111	N112		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
54 MP054	N113	N114		PIPE 2.0	Column	None	A53 Gr. B	Typical
55 U055	N081	N115		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
56 U056	N116	N117		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
57 MP057	N118	N119		PIPE 2.0	Column	None	A53 Gr. B	Typical
58 U058	N083	N120		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
59 U059	N121	N122		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
60 MP060	N123	N124		PIPE 2.0	Column	None	A53 Gr. B	Typical



**Member Advanced Data**

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001			Yes	N/A		None
2	H002			Yes	N/A		None
3	H003			Yes	N/A		None
4	H004			Yes	N/A		None
5	H005			Yes	N/A		None
6	H006			Yes	N/A		None
7	H007			Yes	N/A		None
8	H008			Yes	N/A		None
9	H009			Yes	N/A		None
10	H010			Yes	N/A		None
11	H011			Yes	N/A		None
12	H012			Yes	N/A		None
13	H013	BenPIN	BenPIN	Yes	N/A		None
14	H014	BenPIN	BenPIN	Yes	N/A		None
15	H015	BenPIN	BenPIN	Yes	N/A		None
16	H016	BenPIN	BenPIN	Yes	N/A		None
17	H017	BenPIN	BenPIN	Yes	N/A		None
18	H018	BenPIN	BenPIN	Yes	N/A		None
19	H019			Yes	N/A		None
20	H020			Yes	N/A		None
21	H021			Yes	N/A		None
22	H022			Yes	N/A		None
23	H023			Yes	N/A		None
24	H024			Yes	N/A		None
25	U025			Yes	N/A	Exclude	None
26	U026			Yes	N/A	Exclude	None
27	U027			Yes	N/A	Exclude	None
28	U028			Yes	N/A	Exclude	None
29	U029			Yes	N/A	Exclude	None
30	U030			Yes	N/A	Exclude	None
31	U031			Yes	N/A	Exclude	None
32	U032			Yes	N/A	Exclude	None
33	MP033			Yes	** NA **		None
34	MP034			Yes	** NA **		None
35	MP035			Yes	** NA **		None
36	MP036			Yes	** NA **		None
37	U037			Yes	N/A	Exclude	None
38	U038			Yes	N/A	Exclude	None
39	MP039			Yes	** NA **		None
40	U040			Yes	N/A	Exclude	None
41	U041			Yes	N/A	Exclude	None
42	MP042			Yes	** NA **		None
43	U043			Yes	N/A	Exclude	None
44	U044			Yes	N/A	Exclude	None
45	MP045			Yes	** NA **		None
46	U046			Yes	N/A	Exclude	None
47	U047			Yes	N/A	Exclude	None
48	MP048			Yes	** NA **		None
49	U049			Yes	N/A	Exclude	None
50	U050			Yes	N/A	Exclude	None
51	MP051			Yes	** NA **		None
52	U052			Yes	N/A	Exclude	None
53	U053			Yes	N/A	Exclude	None
54	MP054			Yes	** NA **		None
55	U055			Yes	N/A	Exclude	None
56	U056			Yes	N/A	Exclude	None
57	MP057			Yes	** NA **		None
58	U058			Yes	N/A	Exclude	None
59	U059			Yes	N/A	Exclude	None
60	MP060			Yes	** NA **		None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	HSS5X3X5	63			Lbyy		1	1	Lateral
2	H002	HSS5X3X5	63			Lbyy		1	1	Lateral
3	H003	PIPE 3.0	150.804			Lbyy		1	1	Lateral
4	H004	HSS5X3X5	63			Lbyy		1	1	Lateral





**Hot Rolled Steel Design Parameters (Continued)**

Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
5	H005	PIPE 3.0	150.804			Lbyy	1	1	Lateral
6	H006	PIPE 3.0	150.804			Lbyy	1	1	Lateral
7	H007	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral
8	H008	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral
9	H009	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral
10	H010	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral
11	H011	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral
12	H012	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral
13	H013	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
14	H014	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
15	H015	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
16	H016	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
17	H017	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
18	H018	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral
19	H019	PIPE 2.0	150.804			Lbyy	1	1	Lateral
20	H020	PIPE 2.0	150.804			Lbyy	1	1	Lateral
21	H021	PIPE 2.0	150.804			Lbyy	1	1	Lateral
22	H022	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral
23	H023	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral
24	H024	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral
25	U025	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
26	U026	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
27	U027	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
28	U028	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
29	U029	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
30	U030	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
31	U031	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
32	U032	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
33	MP033	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
34	MP034	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
35	MP035	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
36	MP036	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
37	U037	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
38	U038	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
39	MP039	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
40	U040	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
41	U041	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
42	MP042	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
43	U043	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
44	U044	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
45	MP045	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
46	U046	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
47	U047	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
48	MP048	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
49	U049	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
50	U050	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
51	MP051	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
52	U052	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
53	U053	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
54	MP054	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
55	U055	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
56	U056	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
57	MP057	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral
58	U058	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
59	U059	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral
60	MP060	PIPE 2.0	96	Segment	Segment	Lbyy	2.1	2.1	Lateral

**Hot Rolled Steel Properties**

Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e <sup>-6</sup> F <sup>-1</sup> ]	Density [lb/ft <sup>3</sup> ]	Yield [psi]	Ry	Fu [psi]	Rt
1 A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	527	46000	1.4	58000	1.3
2 A500 Gr. B [RND]	2.9e+07	1.115e+07	0.3	0.65	527	42000	1.4	58000	1.3
3 A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2
4 A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2



**Envelope Node Reactions**

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N002	max	1374.372	17	1938.278	26	1974.293	14	6007.35	158	2378.268	23	1089.953	11
2		min	-1374.243	23	37.245	20	-2031.04	8	-801.969	20	-2377.525	17	-1046.674	17
3	N003	max	1731.601	18	1938.232	30	1165.723	3	560.322	14	2378.229	15	692.925	24
4		min	-1780.753	12	37.257	24	-1138.381	21	-3121.999	80	-2377.486	21	-5290.747	114
5	N004	max	1737.045	4	1938.232	34	1353.313	2	552.411	14	2378.223	19	5265.535	202
6		min	-1687.908	22	37.257	16	-1324.78	20	-3165.505	68	-2377.481	25	-696.029	16
7	Totals:	max	4196.257	17	5364.009	34	4465.893	14						
8		min	-4196.257	11	2007.162	16	-4465.893	8						

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks**

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn	
1	H001	HSS5X3X5	0.274	0	117	0.116	0	z	3	139602.037	169740	15456	22149	2.297	H1-1b
2	H002	HSS5X3X5	0.274	0	73	0.116	0	z	7	139602.037	169740	15456	22149	2.297	H1-1b
3	H003	PIPE 3.0	0.116	106.819	5	0.107	106.819		2	28311.303	78246	6898.5	6898.5	2.536	H1-1b
4	H004	HSS5X3X5	0.274	0	161	0.116	0	z	11	139602.037	169740	15456	22149	2.297	H1-1b
5	H005	PIPE 3.0	0.116	106.819	9	0.107	106.819		6	28311.303	78246	6898.5	6898.5	2.536	H1-1b
6	H006	PIPE 3.0	0.116	106.819	13	0.107	106.819		10	28311.303	78246	6898.5	6898.5	2.536	H1-1b
7	H007	PIPE 3.0	0.1	7.794	3	0.129	0		6	77888.459	78246	6898.5	6898.5	1.187	H1-1b
8	H008	PIPE 3.0	0.1	7.794	7	0.129	0		10	77888.459	78246	6898.5	6898.5	1.187	H1-1b
9	H009	PIPE 3.0	0.1	7.794	11	0.129	0		2	77888.459	78246	6898.5	6898.5	1.187	H1-1b
10	H010	PIPE 3.0	0.211	23.383	37	0.097	23.383		11	75086.325	78246	6898.5	6898.5	1.369	H1-1b
11	H011	PIPE 3.0	0.211	23.383	29	0.097	23.383		3	75086.325	78246	6898.5	6898.5	1.369	H1-1b
12	H012	PIPE 3.0	0.211	23.383	33	0.097	23.383		7	75086.325	78246	6898.5	6898.5	1.369	H1-1b
13	H013	L 1.5X1.5X4	0.061	15.206	17	0.009	29.79	z	28	8987.293	22469.4	217.337	862.417	1.136	H2-1
14	H014	L 1.5X1.5X4	0.061	15.206	21	0.009	29.79	z	32	8987.293	22469.4	217.337	862.417	1.136	H2-1
15	H015	L 1.5X1.5X4	0.061	15.206	25	0.009	29.79	z	36	8987.293	22469.4	217.337	862.417	1.136	H2-1
16	H016	L 1.5X1.5X4	0.064	15.206	23	0.009	29.79	y	36	8987.293	22469.4	217.337	862.417	1.136	H2-1
17	H017	L 1.5X1.5X4	0.064	15.206	15	0.009	29.79	y	28	8987.293	22469.4	217.337	862.417	1.136	H2-1
18	H018	L 1.5X1.5X4	0.064	15.206	19	0.009	29.79	y	32	8987.293	22469.4	217.337	862.417	1.136	H2-1
19	H019	PIPE 2.0	0.182	53.41	8	0.172	12.567		8	6228.487	38556	2245.95	2245.95	3	H1-1b
20	H020	PIPE 2.0	0.182	53.41	12	0.172	12.567		12	6228.487	38556	2245.95	2245.95	3	H1-1b
21	H021	PIPE 2.0	0.182	53.41	4	0.172	12.567		4	6228.487	38556	2245.95	2245.95	3	H1-1b
22	H022	PIPE 2.0	0.21	0	6	0.116	15.588		5	38162.512	38556	2245.95	2245.95	2.129	H1-1b
23	H023	PIPE 2.0	0.21	0	10	0.116	15.588		9	38162.512	38556	2245.95	2245.95	2.129	H1-1b
24	H024	PIPE 2.0	0.21	0	2	0.116	15.588		13	38162.512	38556	2245.95	2245.95	2.129	H1-1b
25	MP033	PIPE 2.0	0.221	67	2	0.086	67		2	16811.605	32130	1871.625	1871.625	2.265	H1-1b
26	MP034	PIPE 2.0	0.209	67	2	0.076	67		9	16811.605	32130	1871.625	1871.625	3	H1-1b
27	MP035	PIPE 2.0	0.463	67	2	0.073	67		9	16811.605	32130	1871.625	1871.625	2.282	H1-1b
28	MP036	PIPE 2.0	0.384	67	3	0.087	67		7	16811.605	32130	1871.625	1871.625	2.151	H1-1b
29	MP039	PIPE 2.0	0.221	67	10	0.086	67		10	16811.605	32130	1871.625	1871.625	3	H1-1b
30	MP042	PIPE 2.0	0.463	67	10	0.073	67		5	16811.605	32130	1871.625	1871.625	1.694	H1-1b
31	MP045	PIPE 2.0	0.384	67	11	0.087	67		3	16811.605	32130	1871.625	1871.625	3	H1-1b
32	MP048	PIPE 2.0	0.209	67	10	0.076	67		5	16811.605	32130	1871.625	1871.625	3	H1-1b
33	MP051	PIPE 2.0	0.221	67	6	0.086	67		6	16811.605	32130	1871.625	1871.625	2.289	H1-1b
34	MP054	PIPE 2.0	0.463	67	6	0.073	67		13	16811.605	32130	1871.625	1871.625	1.738	H1-1b
35	MP057	PIPE 2.0	0.384	67	7	0.087	67		11	16811.605	32130	1871.625	1871.625	1.924	H1-1b
36	MP060	PIPE 2.0	0.209	67	6	0.076	67		13	16811.605	32130	1871.625	1871.625	2.306	H1-1b

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_1OP+1QP
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### Section 1 - Site Information

**Site ID:** CTHA522A  
**Status:** Draft  
**Version:** 3  
**Project Type:** L600  
**Approved:** Not Approved  
**Approved By:** Not Approved  
**Last Modified:** 10/7/2021 8:35:10 AM  
**Last Modified By:** Scott.Clemons@T-Mobile.com

**Site Name:** ATC Higganum Monopole  
**Site Class:** Monopole  
**Site Type:** Structure Non Building  
**Plan Year:**  
**Market:** CONNECTICUT CT  
**Vendor:** Ericsson  
**Landlord:** <undefined>

**Latitude:** 41.47250000  
**Longitude:** -72.55530000  
**Address:** 426 Killingworth Rd  
**City, State:** Higganum, CT  
**Region:** NORTHEAST

<b>RAN Template:</b> 67E998E 6160		<b>AL Template:</b> 67E998E_1OP+1QP		
<b>Sector Count:</b> 3	<b>Antenna Count:</b> 6	<b>Coax Line Count:</b> 0	<b>TMA Count:</b> 0	<b>RRU Count:</b> 6

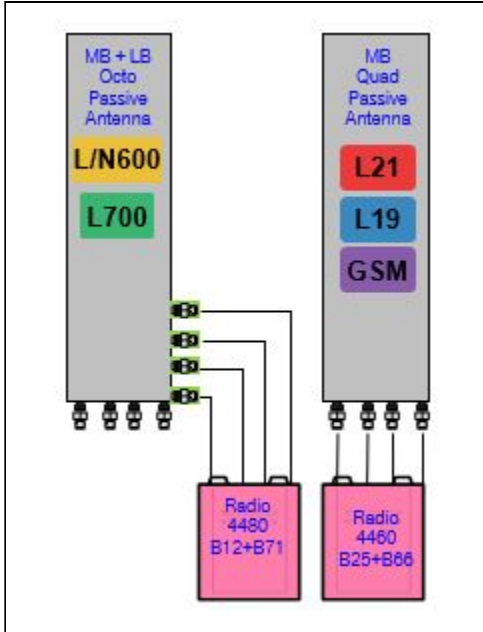
### Section 2 - Existing Template Images

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

Section 3 - Proposed Template Images

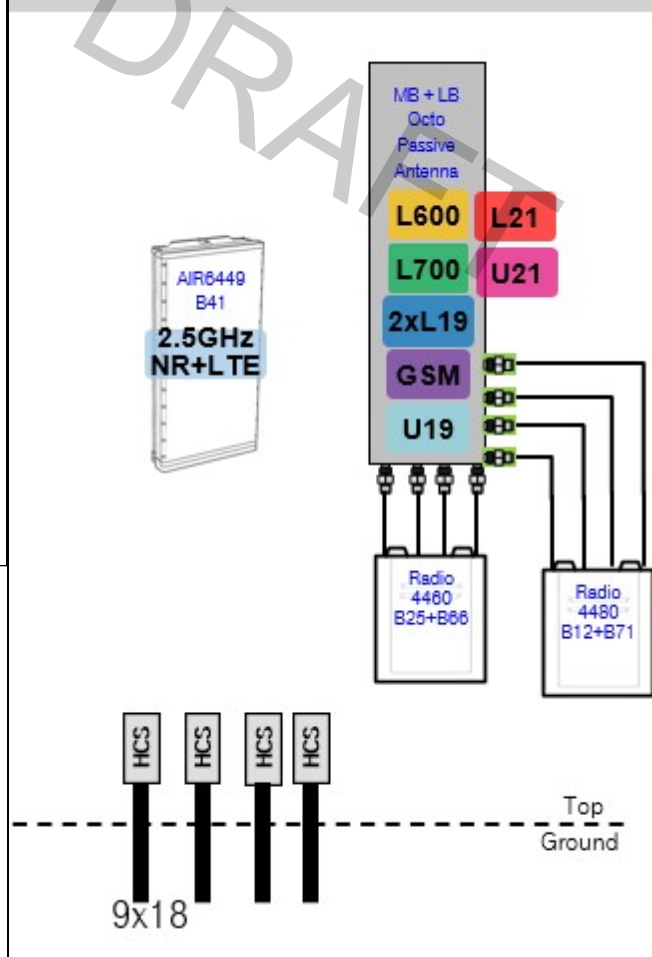
67E998E.JPG

67E5A998E.jpg



Notes:

### Final Config: 67E5A998E



Notes:

Section 4 - Siteplan Images

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

DRAFT

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 4G

<b>Enclosure</b>	1				
<b>Enclosure Type</b>	RBS 6201				
<b>Baseband</b>	<table border="1"> <tr> <td>DUG20</td> <td>BB 5216</td> </tr> <tr> <td>G1900</td> <td>L1900</td> </tr> </table>	DUG20	BB 5216	G1900	L1900
DUG20	BB 5216				
G1900	L1900				
<b>Radio</b>	<table border="1"> <tr> <td>RUS01 B2 (x 6)</td> </tr> <tr> <td>L1900</td> </tr> <tr> <td>G1900</td> </tr> </table>	RUS01 B2 (x 6)	L1900	G1900	
RUS01 B2 (x 6)					
L1900					
G1900					

Proposed RAN Equipment

Template: 67E998E 6160

	1	2	3										
<b>Enclosure Type</b>	Enclosure 6160	RBS 6601	B160										
<b>Baseband</b>	<table border="1"> <tr> <td>BB 6648</td> <td>BB 6648</td> </tr> <tr> <td>L700</td> <td>L2100</td> </tr> <tr> <td>L600</td> <td>L1900</td> </tr> <tr> <td>N600</td> <td></td> </tr> </table>	BB 6648	BB 6648	L700	L2100	L600	L1900	N600		<table border="1"> <tr> <td>DUG20</td> </tr> <tr> <td>G1900</td> </tr> </table>	DUG20	G1900	
BB 6648	BB 6648												
L700	L2100												
L600	L1900												
N600													
DUG20													
G1900													
<b>Hybrid Cable System</b>	Ericsson Hybrid Trunk 6/24 4AWG 100m (x 3 )												
<b>Transport System</b>	CSR IXRe V2 (Gen2)												

RAN Scope of Work:

Gamma changed from 220 to 200, due to terrain issues.  
Add 200A service  
No Generator  
Add New Platform

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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### Section 6 - A&L Equipment

Existing Template:  
Proposed Template: 67E998E\_10P+1QP

#### Sector 1 (Existing) view from behind

<b>Coverage Type</b>	A - Outdoor Macro
<b>Antenna</b>	1
<b>Antenna Model</b>	RFS - APXV18-206517S-C-A20 (Dual)
<b>Azimuth</b>	125
<b>M. Tilt</b>	0
<b>Height</b>	140
<b>Ports</b>	P1
<b>Active Tech.</b>	L1900 G1900
<b>Dark Tech.</b>	
<b>Restricted Tech.</b>	
<b>Decomm. Tech.</b>	
<b>E. Tilt</b>	2
<b>Cables</b>	7/8" Coax - 120 ft.
<b>TMA's</b>	Generic Twin Style 1A - PCS (AtAntenna)
<b>Diplexers / Combiners</b>	
<b>Radio</b>	
<b>Sector Equipment</b>	

Unconnected Equipment:

Scope of Work:

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Sector 1 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	RFS - APXVAALL24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)		
<b>Azimuth</b>	125			125		
<b>M. Tilt</b>						
<b>Height</b>	140			140		
<b>Ports</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>
<b>Active Tech.</b>	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	4	4			2	2
<b>Cables</b>	Coax Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2)	Coax Jumper (x2)
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						
<b>Unconnected Equipment:</b>						
<b>Scope of Work:</b>						

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



<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Sector 2 (Existing) view from behind	
<b>Coverage Type</b>	A - Outdoor Macro
<b>Antenna</b>	1
<b>Antenna Model</b>	RFS - APXV18-206517S-C-A20 (Dual)
<b>Azimuth</b>	220
<b>M. Tilt</b>	0
<b>Height</b>	140
<b>Ports</b>	P1
<b>Active Tech.</b>	L1900 G1900
<b>Dark Tech.</b>	
<b>Restricted Tech.</b>	
<b>Decomm. Tech.</b>	
<b>E. Tilt</b>	2
<b>Cables</b>	7/8" Coax - 120 ft.
<b>TMA's</b>	Generic Twin Style 1A - PCS (AtAntenna)
<b>Diplexers / Combiners</b>	
<b>Radio</b>	
<b>Sector Equipment</b>	
<b>Unconnected Equipment:</b>	
<b>Scope of Work:</b>	

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Sector 2 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	RFS - APXVAALL24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)		
<b>Azimuth</b>	200			200		
<b>M. Tilt</b>						
<b>Height</b>	140			140		
<b>Ports</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>
<b>Active Tech.</b>	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	4	4			2	2
<b>Cables</b>	Coax Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2)	Coax Jumper (x2)
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						

**Unconnected Equipment:**

**Scope of Work:**

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

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Sector 3 (Existing) view from behind	
<b>Coverage Type</b>	A - Outdoor Macro
<b>Antenna</b>	1
<b>Antenna Model</b>	RFS - APXV18-206517S-C-A20 (Dual)
<b>Azimuth</b>	335
<b>M. Tilt</b>	0
<b>Height</b>	140
<b>Ports</b>	P1
<b>Active Tech.</b>	L1900 G1900
<b>Dark Tech.</b>	
<b>Restricted Tech.</b>	
<b>Decomm. Tech.</b>	
<b>E. Tilt</b>	2
<b>Cables</b>	7/8" Coax - 120 ft.
<b>TMA's</b>	Generic Twin Style 1A - PCS (AtAntenna)
<b>Diplexers / Combiners</b>	
<b>Radio</b>	
<b>Sector Equipment</b>	
<b>Unconnected Equipment:</b>	
<b>Scope of Work:</b>	

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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Sector 3 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	RFS - APXVAALL24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)		
<b>Azimuth</b>	335			335		
<b>M. Tilt</b>						
<b>Height</b>	140			140		
<b>Ports</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>
<b>Active Tech.</b>	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	4	4			2	2
<b>Cables</b>	Coax Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2)	Coax Jumper (x2)
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						

**Unconnected Equipment:**

**Scope of Work:**

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

<b>RAN Template:</b> 67E998E 6160	<b>A&amp;L Template:</b> 67E998E_10P+1QP
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**Section 7 - Power Systems Equipment**

**Existing Power Systems Equipment**

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**Proposed Power Systems Equipment**

<b>Enclosure</b>	1
<b>Enclosure Type</b>	Enclosure 6160

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

T-Mobile Existing Facility

Site ID: CTHA522A

ATC Higganum Monopole  
139 Morris Hubbard Road  
Higganum, Connecticut 06441

**August 24, 2022**

**EBI Project Number: 6222005248**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>5.59%</b>

August 24, 2022

T-Mobile

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

Emissions Analysis for Site: CTHA522A - ATC Higganum Monopole

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **139 Morris Hubbard Road in Higganum, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 139 Morris Hubbard Road in Higganum, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts per Channel.
- 4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.
- 5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.
- 6) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.



- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts
ERP (W):	3,293.87	ERP (W):	3,293.87	ERP (W):	3,293.87
Antenna A1 MPE %:	<b>1.58%</b>	Antenna B1 MPE %:	<b>1.58%</b>	Antenna C1 MPE %:	<b>1.58%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope VV-65A- RI	Make / Model:	Commscope VV-65A- RI	Make / Model:	Commscope VV-65A- RI
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts
ERP (W):	12,545.15	ERP (W):	12,545.15	ERP (W):	12,545.15
Antenna A2 MPE %:	<b>2.51%</b>	Antenna B2 MPE %:	<b>2.51%</b>	Antenna C2 MPE %:	<b>2.51%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	4.09%
AT&T	1.5%
<b>Site Total MPE % :</b>	<b>5.59%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.09%
T-Mobile Sector B Total:	4.09%
T-Mobile Sector C Total:	4.09%
<b>Site Total MPE % :</b>	<b>5.59%</b>

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 600 MHz LTE	1	788.97	140.0	1.58	600 MHz LTE	400	0.39%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	1	926.96	140.0	1.86	700 MHz LTE	467	0.40%
T-Mobile 1900 MHz GSM	1	358.92	140.0	0.72	1900 MHz GSM	1000	0.07%
T-Mobile 1900 MHz LTE	1	5742.75	140.0	11.50	1900 MHz LTE	1000	1.15%
T-Mobile 2100 MHz LTE	1	6443.47	140.0	12.90	2100 MHz LTE	1000	1.29%
						<b>Total:</b>	<b>4.09%</b>

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

## Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	4.09%
Sector B:	4.09%
Sector C:	4.09%
T-Mobile Maximum MPE % (Sector A):	4.09%
Site Total:	5.59%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **5.59%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.