CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

December 8, 2021

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

RE: **Notice of Exempt Modification for T-Mobile**
Crown Site ID# 806355; T-Mobile Site ID# CTHA578A
281 Wood House Road Fairfield, CT 06824
Latitude: 41.19593200 / Longitude: -73.28136900

Ms. Bachman:

T-Mobile currently maintains eight (8) antennas at the 128-foot mount on the existing 171-foot Monopole Tower located at 281 Wood House Road Fairfield, CT 06824. The property is owned by Laviero Realty LLC and the Tower by Crown Castle. T-Mobile now intends to remove eight (8) existing antennas and replace with six (6) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:
Tower:

Remove and Replace:
(3) Panel Antennas **(REMOVE) –** (3) RFS APXVAALL24_43-U-NA20 Antennas **(REPLACE)**

(3) Panel Antennas **(REMOVE) –** (3) Ericsson AIR6449 B41 Antennas **(REPLACE)**

(3) RRU Radios **(REMOVE) -** (3) Ericsson 4480 B71+B85 RRU Radios **(REPLACE)**

(3) RRU Radios **(REMOVE) -** (3) Ericsson 4460 B25+B66 RRU Radios **(REPLACE)**
Remove:
(2) Panel Antennas

Ground:

Install New:
(4) Hybrid Cables
(1) 6160 Cabinet
(3) BB6648 in 6160 cabinet
(1) DUG20 in 6160 cabinet
(1) CSR IXRE V2 Router in 6160 cabinet
(1) B160 Battery Cabinet

Remove:
(1) Equipment Cabinet
(1) Equipment Cabinet

The facility was approved by Connecticut Siting Council by way of a Certificate of Environmental Compatibility on February 17th, 1988.

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 Ellen Zoppo-Sassu, Mayor of the City of Bristol and Robert M. Flanagan, City Planner for the City of Bristol. A copy will also be sent to the property owner.

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

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

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

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

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

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

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

Sincerely,

Colin Robinson

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive Suite 303
Chelmsford, MA 01824
crobinson@nbcllc.com
(360) 561-3311

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

Brenda L. Kupchick *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3030

Jim Wendt, Planning Director *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3050

J Fernandes Properties LLC *(Via Federal Express)*
281 Wood House Road
Fairfield, CT 06824-1823

TRACK ANOTHER SHIPMENT

775434340580

ADD NICKNAME

Delivered
Thursday, 12/9/2021 at 10:38 am

DELIVERED
Signature release on file

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM
Ersilia Davis
1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO
Brenda L. Kupchick, Selectwoman
Town of Fairfield
725 Old Post Road
FAIRFIELD, CT US 06824
203-256-3030

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Thursday, December 9, 2021		
10:38 AM	FAIRFIELD, CT	Delivered Package delivered to recipient address - release authorized
9:51 AM	STRATFORD, CT	On FedEx vehicle for delivery
9:00 AM	STRATFORD, CT	At local FedEx facility
4:00 AM	NEWARK, NJ	Departed FedEx hub
Wednesday, December 8, 2021		
10:42 PM	NEWARK, NJ	Arrived at FedEx hub

TRACK ANOTHER SHIPMENT

775434398780

ADD NICKNAME

Delivered
Thursday, 12/9/2021 at 10:38 am

DELIVERED
Signature release on file

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM
Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO
Jim Wendt, Planning Director
Town of Fairfield

725 Old Post Road
FAIRFIELD, CT US 06824
203-256-3050

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Thursday, December 9, 2021		
10:38 AM	FAIRFIELD, CT	Delivered Package delivered to recipient address - release authorized
9:52 AM	STRATFORD, CT	On FedEx vehicle for delivery
7:56 AM	STRATFORD, CT	At local FedEx facility
4:00 AM	NEWARK, NJ	Departed FedEx hub
Wednesday, December 8, 2021		
10:42 PM	NEWARK, NJ	Arrived at FedEx hub

TRACK ANOTHER SHIPMENT

775434452678

ADD NICKNAME

Delivered
Thursday, 12/9/2021 at 12:43 pm

DELIVERED

Signature not required

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

J Fernandes Properties LLC

281 Wood House Road
FAIRFIELD, CT US 06824
551-804-0667

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Thursday, December 9, 2021		
12:43 PM	FAIRFIELD, CT	Delivered Package delivered to recipient address - release authorized
9:42 AM	STRATFORD, CT	On FedEx vehicle for delivery
7:59 AM	STRATFORD, CT	At local FedEx facility
4:00 AM	NEWARK, NJ	Departed FedEx hub
Wednesday, December 8, 2021		
10:42 PM	NEWARK, NJ	Arrived at FedEx hub
9:26 PM	NEWBURGH, NY	Left FedEx origin facility

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051
Phone: 827-7682

BK

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

Pursuant to section 16-50k of the General Statutes of Connecticut, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need in Docket No. 86 to Metro Mobile CTS of Fairfield County Inc., for tower sites in Greenwich and Fairfield, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on February 17, 1988.

By order of the Council,

Gloria Dibble Pond

Gloria Dibble Pond, Chairperson

February 17, 1988

1009E

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

August 6, 1992

David S. Malko
Manager, Engineering and
Regulatory Services
Bell Atlantic Metro Mobile
20 Alexander Drive
Wallingford, CT 06492

RE: Metro Mobile CTS of Fairfield County, Inc., notice of intent to allow Springwich Cellular Limited Partnership to install cellular telecommunications antennas and associated equipment on an existing facility site located off Wood House Road, Fairfield, Connecticut.

Dear Mr. Malko:

At a meeting held August 4, 1992, the Connecticut Siting Council acknowledged your notice of an exempt modification for an existing tower site on Wood House Road in Fairfield, Connecticut.

As proposed in your notice dated July 21, 1992, the modification is in compliance with the exception criteria specified in Regulations of State Agencies 16-50j-72 for changes to an existing facility site that would not increase the tower height, extend the boundary of the tower site, increase noise levels at the tower site boundary by 6 decibels, and add radio frequency transmitting capability which increases the total power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Section 22a-162 of the Connecticut General Statutes.

The Council is pleased to acknowledge this first shared use of existing cellular towers by two cellular carriers which meets the Council's long-time goal and the public interest of sharing facilities to avoid the proliferation of additional tower structures.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/TEF/cp

cc: Peter Van Wilgan

5766E-3

Exhibit B

Property Card

281 WOOD HOUSE ROAD

Location	281 WOOD HOUSE ROAD	**Mblu**	118/ 57/ / /
Acct#	06700	**Owner**	J FERNANDES PROPERTIES LLC
Assessment	$563,850	**Appraisal**	$805,500
PID	8854	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$422,600	$382,900	$805,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$295,820	$268,030	$563,850

Owner of Record

Owner	J FERNANDES PROPERTIES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824-1823	**Book & Page**	5620/0132
		Sale Date	12/08/2017
		Instrument	02

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
J FERNANDES PROPERTIES LLC	$0		5620/0132	02	12/08/2017
J FERNANDES HOME IMPROVEMENT	$450,000		5592/0251	25	09/20/2017
GHOSH MOITRAYEE & RANJAN	$172,000		0706/0293		06/13/1983

Building Information

Building 1 : Section 1

Year Built:	1968
Living Area:	2,426
Replacement Cost:	$423,187

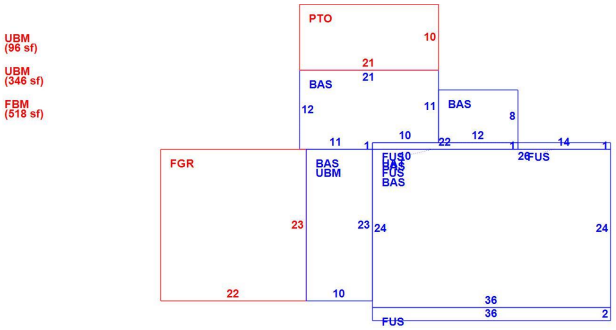
Building Percent Good: 77
Replacement Cost
Less Depreciation: $325,900

Building Attributes	
Field	**Description**
Style:	Colonial
Model	Residential
Grade:	05
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	01
FCPZ	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\0087\IMG_5839_8767

Building Layout



(ParcelSketch.ashx?pid=8854&bid=8636)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,454	1,454
FUS	Upper Story, Finished	972	972
FBM	Basement, Finished	518	0
FGR	Garage	506	0
PTO	Patio	210	0
UAT	Attic, Unfinished	864	0
UBM	Basement, Unfinished	672	0
		5,196	2,426

Extra Features

Extra Features				
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL3	2.0 STORY FIREPLACE	1.00 UNITS	$5,800	1
FPL1	1.0 STORY FIREPLACE	1.00 UNITS	$3,900	1

Land

Land Use

Use Code	1010
Description	Single Fam MDL-01
Zone	AAA
Neighborhood	0057
Alt Land Appr	No
Category	

Land Line Valuation

Size (Sqr Feet)	87188
Depth	0
Assessed Value	$268,030
Appraised Value	$382,900

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC19	EQUIP SHED			1.00 UNIT	$10,000	1
GEN1	GENERATOR			1.00 UNITS	$15,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$422,600	$382,900	$805,500
2019	$387,400	$368,600	$756,000
2018	$387,400	$368,600	$756,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$295,820	$268,030	$563,850
2019	$271,180	$258,020	$529,200
2018	$271,180	$258,020	$529,200

Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CTHA578A
T-MOBILE SITE NAME: CTHA578A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 171'-0"

BUSINESS UNIT #: 806355
SITE ADDRESS: 281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY: FAIRFIELD
JURISDICTION: FAIRFIELD COUNTY

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5998E_1xAIR+1OP

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRG 126 943086
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY:	FAIRFIELD
MAP/PARCEL #:	1180570000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.19593200° (41° 11' 45.40")
LONGITUDE:	-73.28136900° (-73° 16' 52.90")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	357.0 FT
CURRENT ZONING:	AAA
JURISDICTION:	FAIRFIELD COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	J FERNANDES PROPERTIES LLC 281 WOOD HOUSE ROAD FAIRFIELD, CT
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER TRICAIS.PELON@CROWNCASTLE.COM
	CHRISTOPHER P MILLER - CONSTRUCTION MANAGER CHRISP.MILLER@CROWNCASTLE.COM CONTACT : 585-739-1780

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

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

PROJECT DESCRIPTION

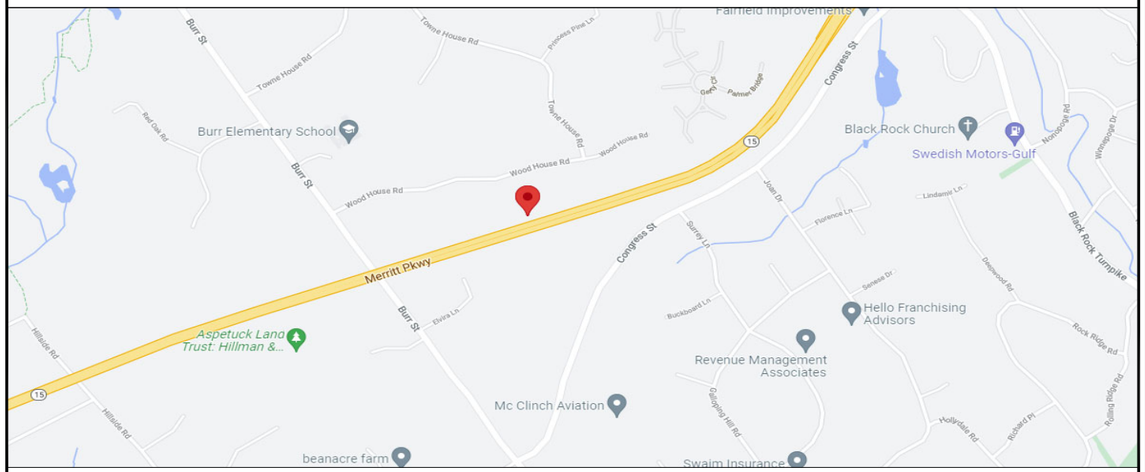
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (8) ANTENNAS
- REMOVE (6) RRHS
- REMOVE (3) HYBRID CABLES
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (3) 1-5/8" HYBRID CABLES INSIDE MONOPOLE
- RETAIN EXISTING MICROWAVE ANTENNA AND ASSOCIATED CABLES

GROUND SCOPE OF WORK:
- REMOVE ALL EXISTING EQUIPMENT
- INSTALL (1) 6160 & (1) B160 BATTERY CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET
- INSTALL (1) DUG20 IN (P) CABINET
- INSTALL (3) BB6648 IN (P) CABINET

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

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	OCTOBER 27, 2021
MOUNT ANALYSIS:	B+T GROUP
DATED:	OCTOBER 20, 2021
RFDS REVISION:	1
DATED:	07/16/2021
ORDER ID:	580031
REVISION:	0

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM CALL 2 WORKING DAYS BEFORE YOU DIG!

APPROVALS

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

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

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTHA578A

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	10/22/21	TJ	FINAL	SS
1	12/02/2021	TJ	SA REFERENCE	SS

STATE OF CONNECTICUT
HUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

12/02/2021

SHEET NUMBER: T-1
REVISION: 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

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1500 CORPORATE DRIVE
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T-MOBILE SITE NUMBER:
CTHA578A

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	10/22/21	TJ	FINAL	SS
1	12/02/2021	TJ	SA REFERENCE	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

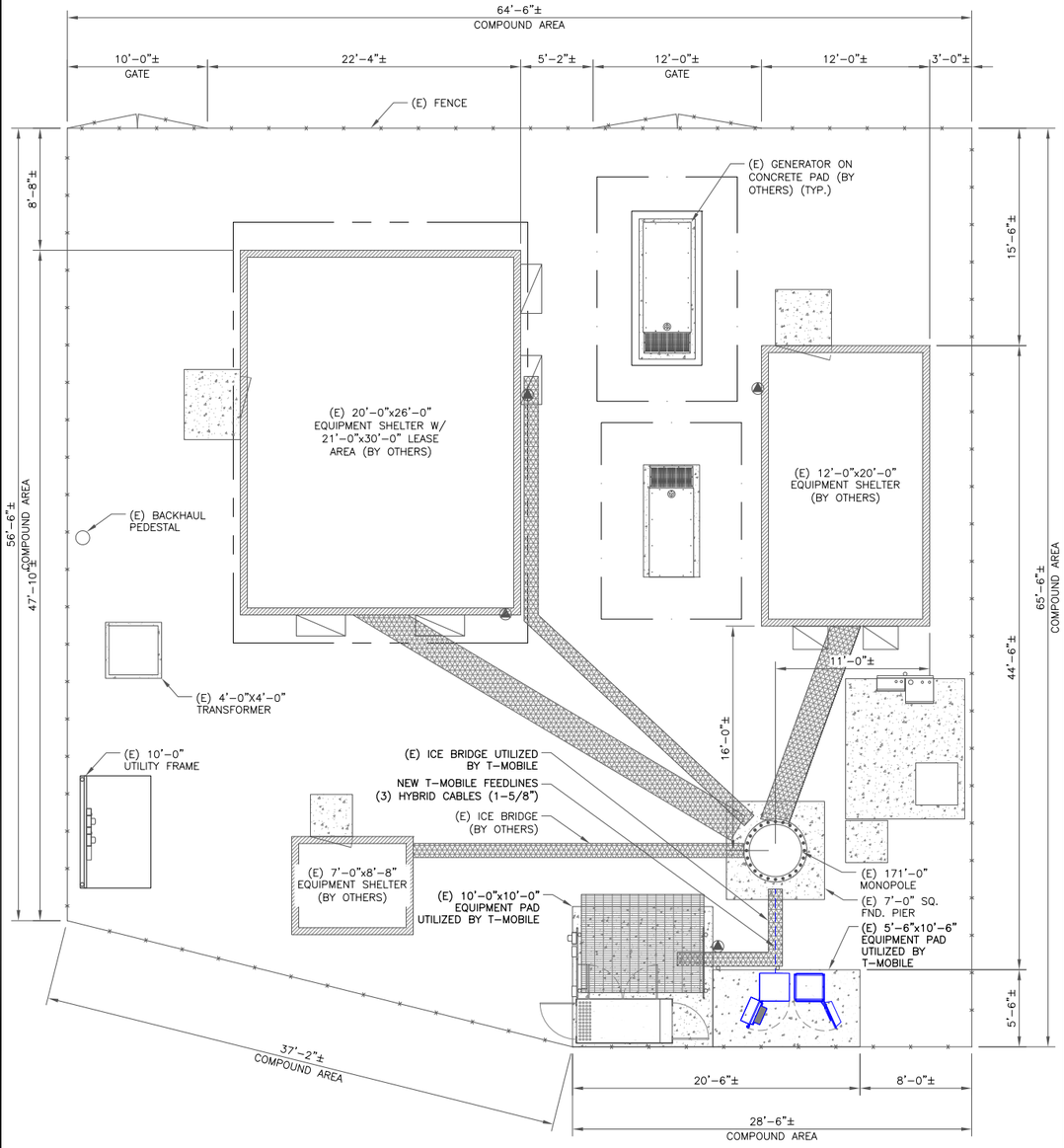
12/02/2021

SHEET NUMBER: T-2

REVISION: 1

NOTE:

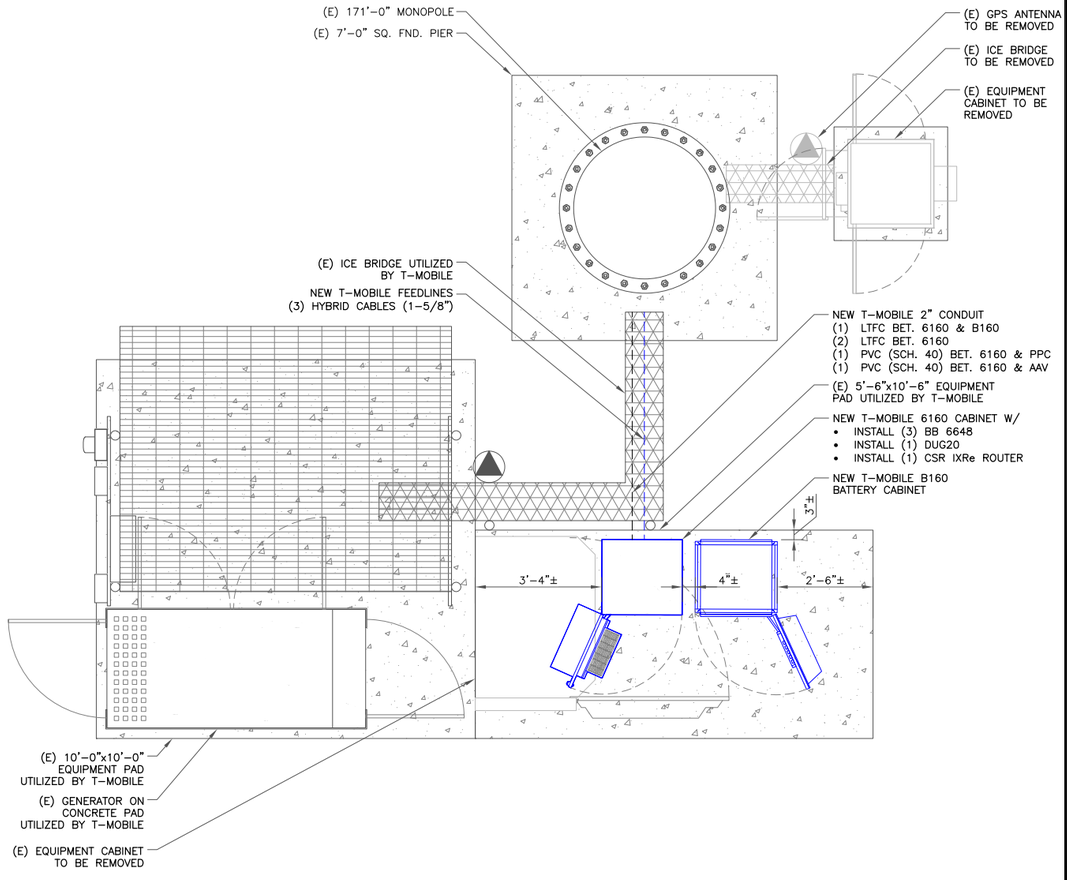
1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.



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

NOTES:

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



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

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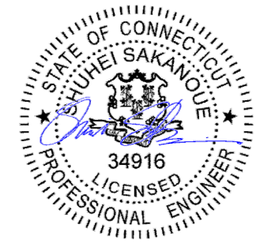
1	12/02/2021	TJ	SA REFERENCE	SS

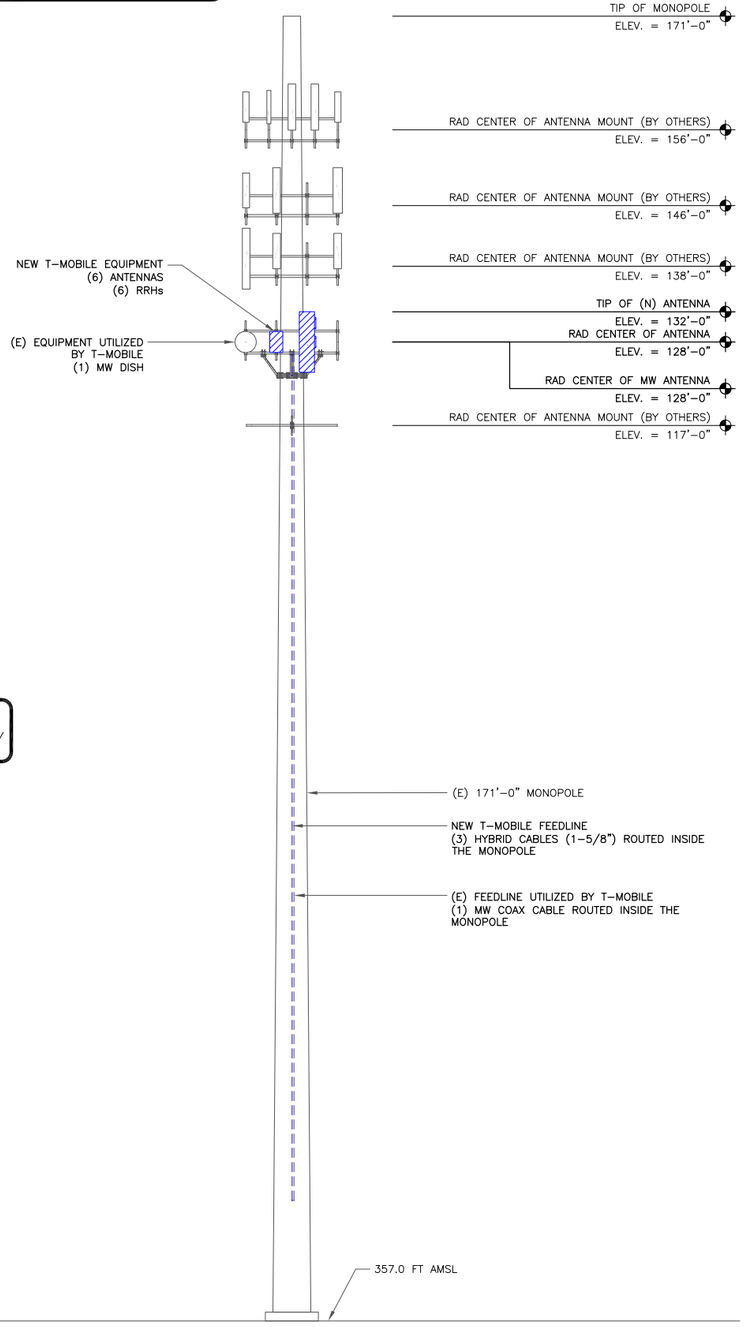


12/02/2021

SHEET NUMBER:	REVISION:
C-1	1

NOTES:

1. ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

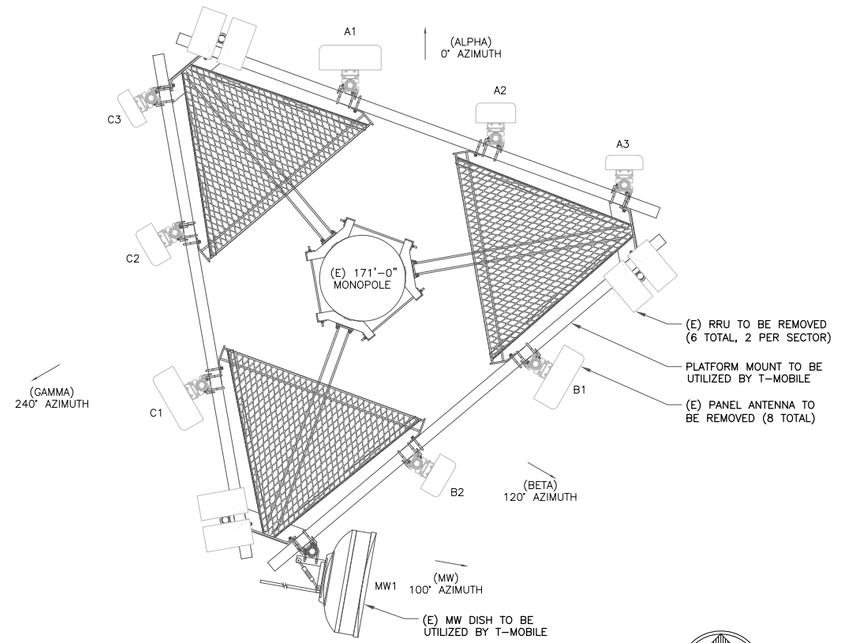


T-MOBILE EQUIPMENT

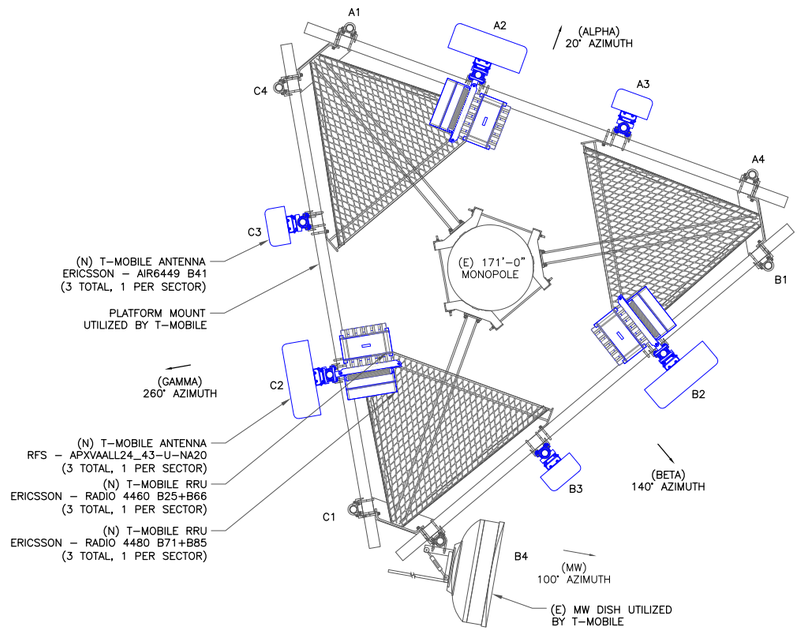
MW ANTENNA CL:128'-0"
ANTENNA CL: 128'-0"
MOUNT CL: 128'-0"

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

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
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BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	10/22/21	TJ	FINAL	SS
1	12/02/2021	TJ	SA REFERENCE	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

12/02/2021

SHEET NUMBER: C-2

REVISION: 1

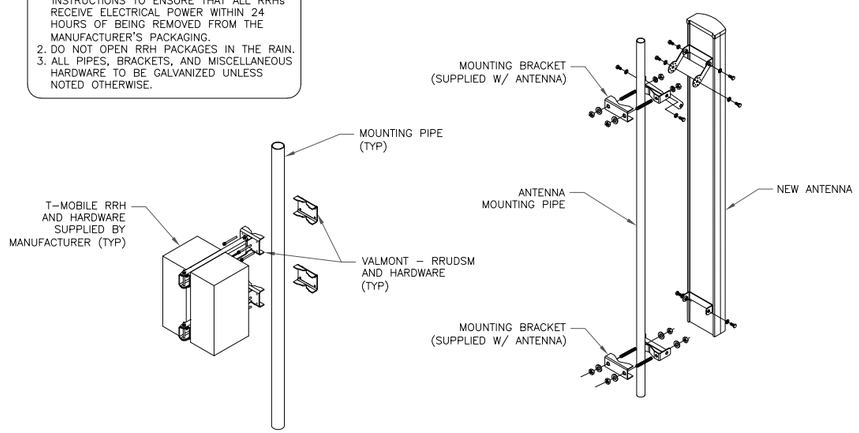
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	–	–	–	–	–	–	–	–	–
ALPHA	A2	LTE 600/700/1900/L2100, N600,G1900	128'–0"	20°	RFS	APXVAALL24_43–U–NA20	–	–	(1) ERICSSON – RRUS 4480 B71+B85 (1) ERICSSON – RRUS 4460 B25+B66	(3) 1–5/8" HYBRID
ALPHA	A3	LTE 2500, N2500	128'–0"	20°	ERICSSON	AIR6449 B41	–	–	–	–
ALPHA	A4	–	–	–	–	–	–	–	–	–
BETA	B1	–	–	–	–	–	–	–	–	–
BETA	B2	LTE 600/700/1900/L2100, N600,G1900	128'–0"	140°	RFS	APXVAALL24_43–U–NA20	–	–	(1) ERICSSON – RRUS 4480 B71+B85 (1) ERICSSON – RRUS 4460 B25+B66	(3) 1–5/8" HYBRID
BETA	B3	LTE 2500, N2500	128'–0"	140°	ERICSSON	AIR6449 B41	–	–	–	–
BETA	B4	MW	128'–0"	100°	ANDREW	VHLP800–11	–	–	–	(1) ELLIPTICAL
GAMMA	C1	–	–	–	–	–	–	–	–	–
GAMMA	C2	LTE 600/700/1900/L2100, N600,G1900	128'–0"	260°	RFS	APXVAALL24_43–U–NA20	–	–	(1) ERICSSON – RRUS 4480 B71+B85 (1) ERICSSON – RRUS 4460 B25+B66	(3) 1–5/8" HYBRID
GAMMA	C3	LTE 2500, N2500	128'–0"	260°	ERICSSON	AIR6449 B41	–	–	–	–
GAMMA	C4	–	–	–	–	–	–	–	–	–

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
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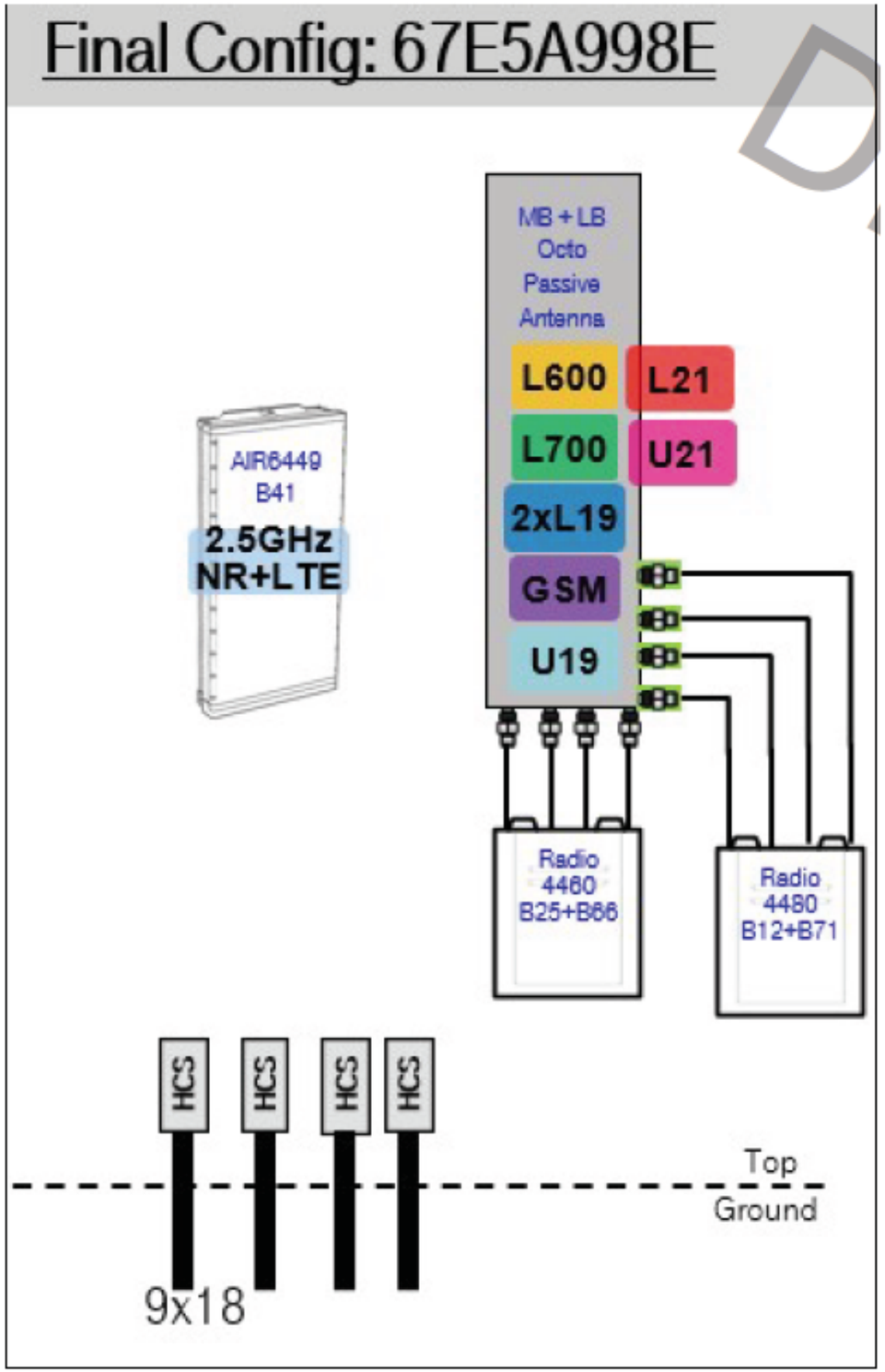
LICENSED PROFESSIONAL ENGINEER

12/02/2021

SHEET NUMBER: C-3

REVISION: 1

Final Config: 67E5A998E



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
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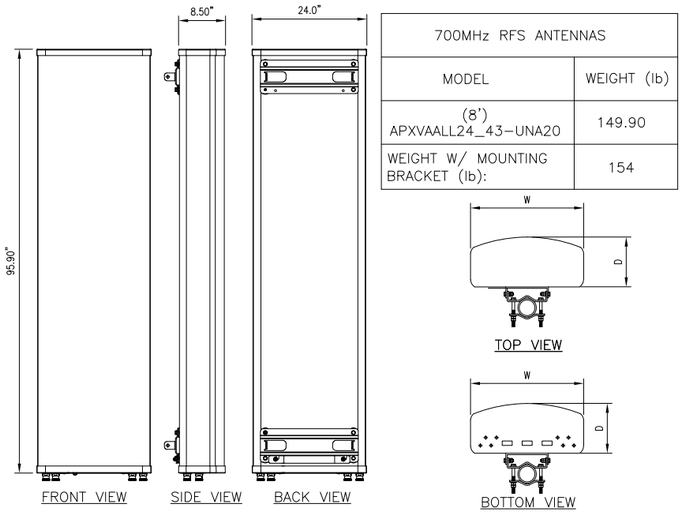
LICENSED PROFESSIONAL ENGINEER

12/02/2021

SHEET NUMBER: C-4

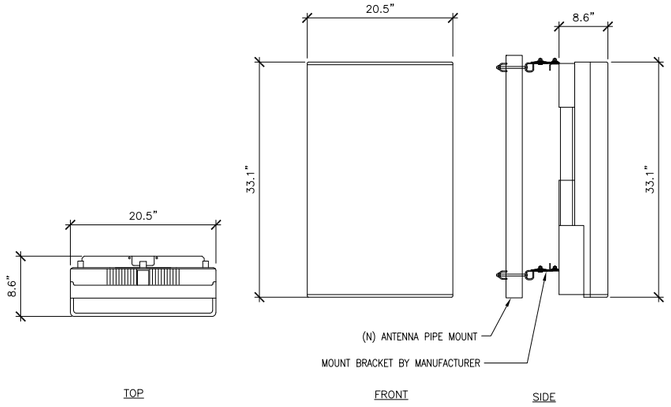
REVISION: 1



700MHz RFS ANTENNAS	
MODEL	WEIGHT (lb)
(8') APXVAALL24_43-UNA20	149.90
WEIGHT W/ MOUNTING BRACKET (lb):	154

1 (N) APXVAALL24_43-UNA20 ANTENNA SPEC
SCALE: NOT TO SCALE

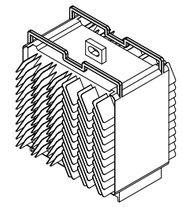
MANUFACTURER: ERICSSON
MODEL: AIR6449 B41
WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
FREQUENCY: REFER TO RF DATA SHEET

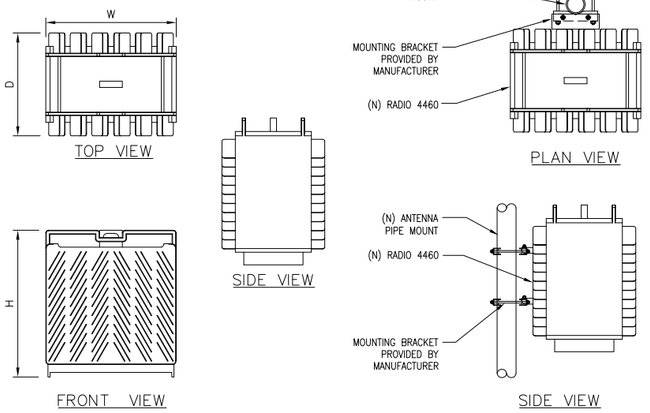


2 (N) AIR6449 B41 ANTENNA SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4460 B25 B66

DIMENSIONS, WxDxH:	17.0"x15.1"x11.9"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	109 lbs
TEMPERATURE:	-40° TO 55° C

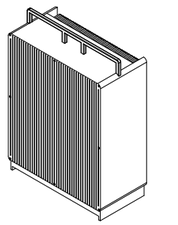


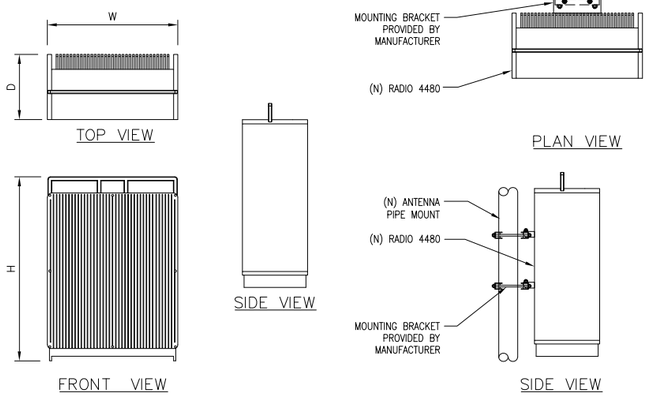


4 (N) RADIO 4460 SPEC
SCALE: NOT TO SCALE

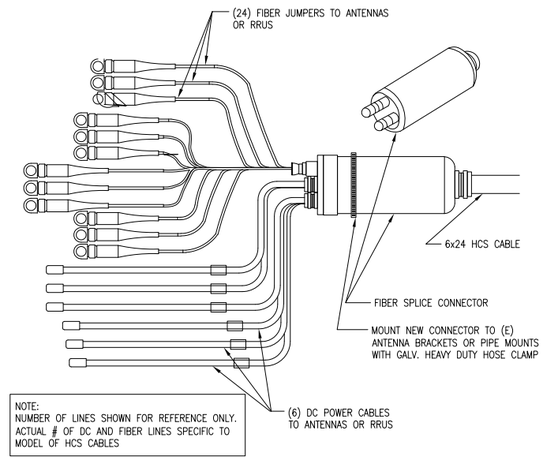
ERICSSON RADIO-4480 B71 B85

DIMENSIONS, WxDxH:	21.8"x15.7"x7.5"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	93 lbs
TEMPERATURE:	-40° TO 55° C





5 (N) RADIO 4480 SPEC
SCALE: NOT TO SCALE



5 (N) 6X24 HCS CABLE DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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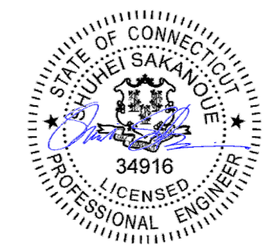
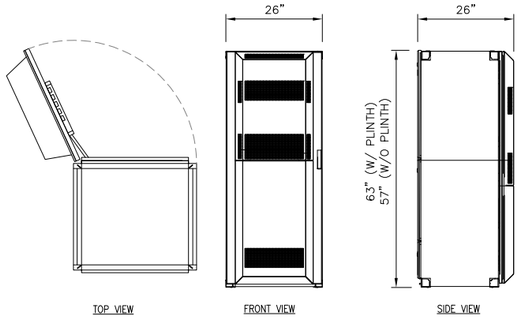


12/02/2021

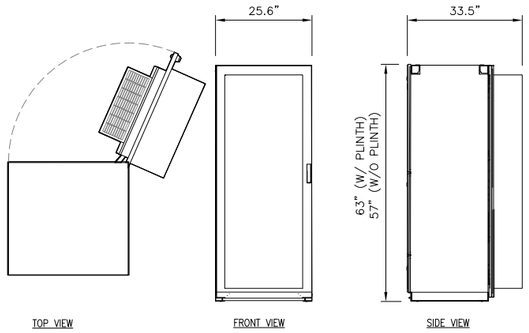
SHEET NUMBER: C-5

REVISION: 1



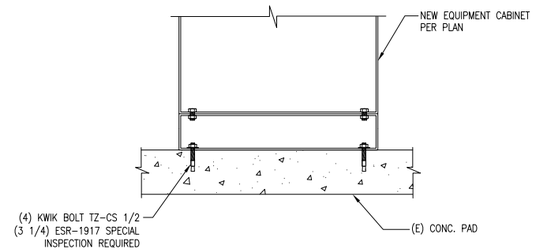
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

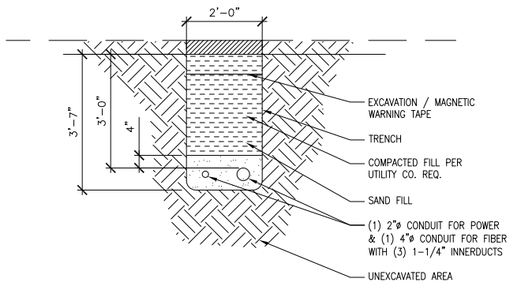


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



4 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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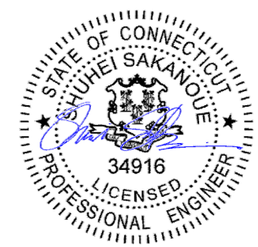


12/02/2021

SHEET NUMBER: C-6

REVISION: 1

T-MOBILE PANEL SCHEDULE

MAIN: 200A MAIN BREAKER			**VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE						**SHORT CIRCUIT CURRENT RATING:** --			
MOUNTING: INSIDE PPC ENCLOSURE			**ENCLOSURE:** NEMA 3R						**SURGE PROTECTION DEVICE:** YES			
					PHASE LOADS (VA)							
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	A	B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
6160 GFI	**180**	**NC**	**20**	**1**	7180		2	**100**	**C**	**7000**	**6160**
				3		7000	4		**C**	**7000**	
				5	200		6	20	C	200	LED SPOTLIGHT
				7		0	8				
				9	0		**10**				
				11		0	**12**				
				13	0		**14**				
BLANK				15		0	16				BLANK
				17	0		18				
				19		0	20				
				21	0		22				
				23		0	24				
				25	0		26				
				27		0	28				
				29	0		30				

BASE LOAD (VA) =	7380	7000
25% OF CONTINUOUS LOAD (VA) =	2125	2125
TOTAL LOAD (VA) =	9505	9125
TOTAL LOAD (A) =	79	76

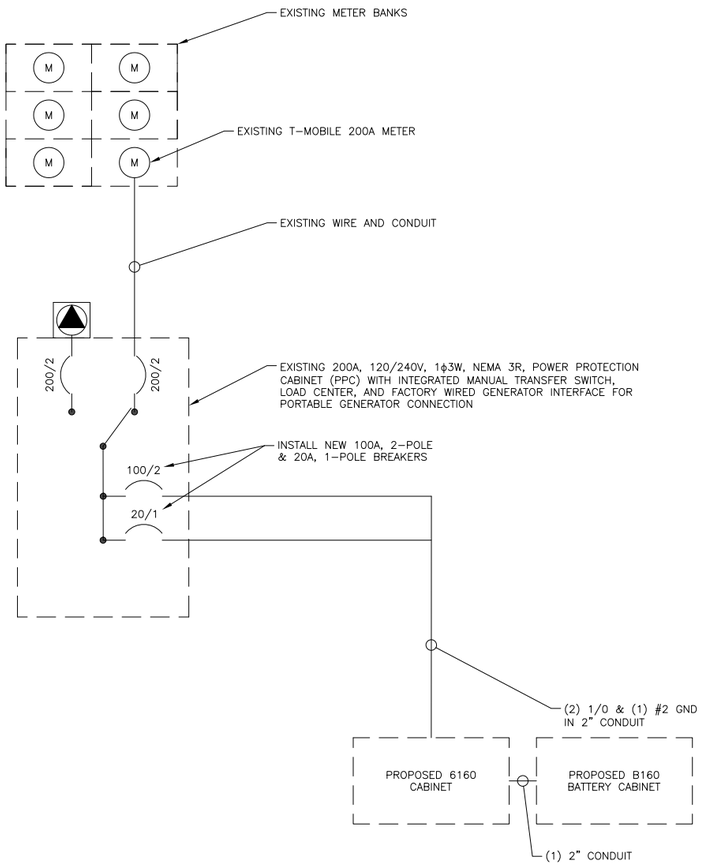
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD

NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

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



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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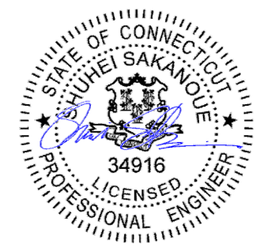
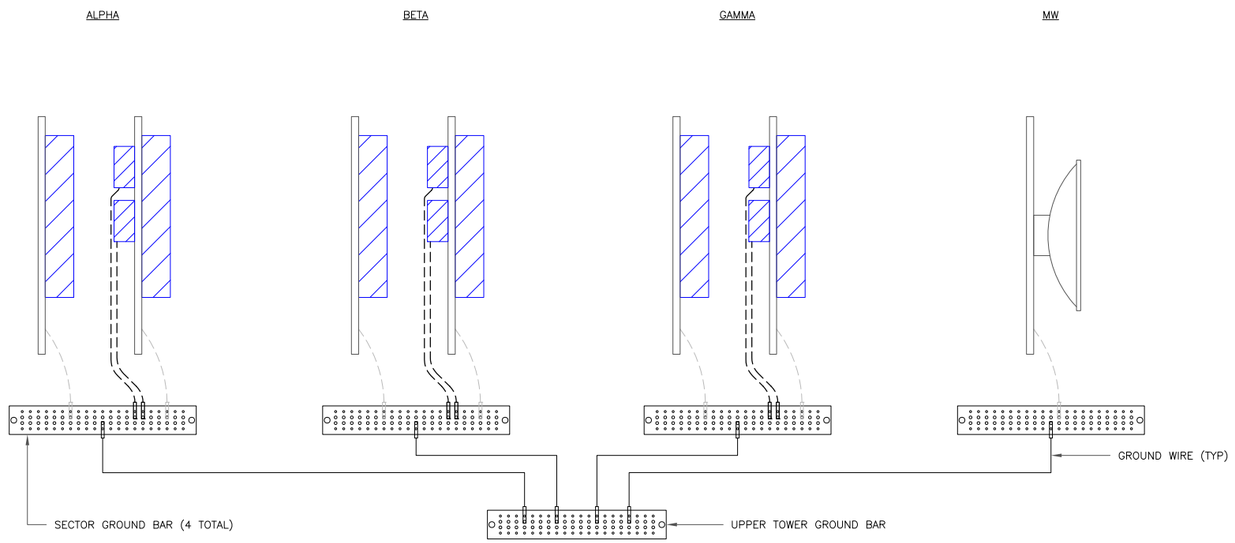


12/02/2021

SHEET NUMBER: E-1

REVISION: 1



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

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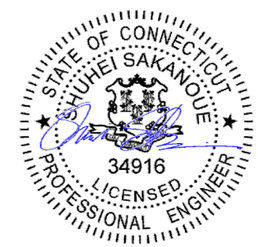
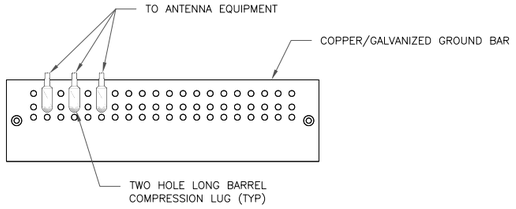


12/02/2021

SHEET NUMBER: G-1

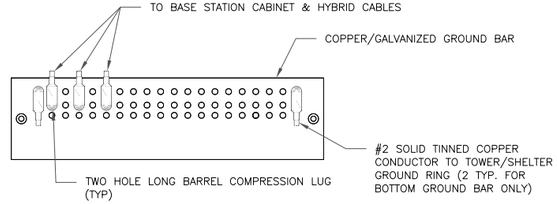
REVISION: 1



NOTES:

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

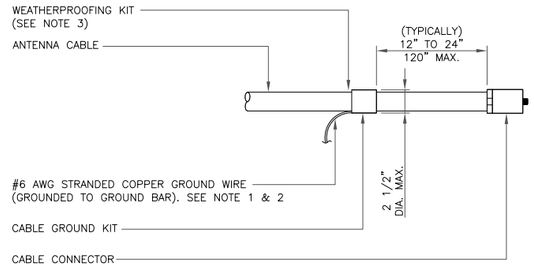
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

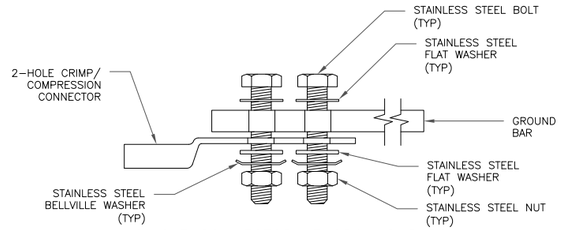
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



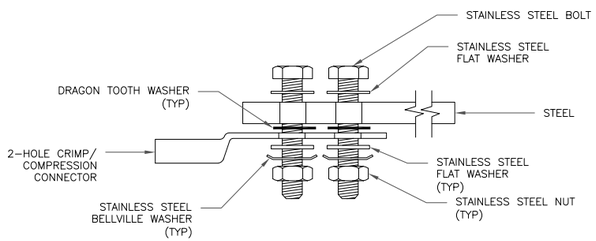
NOTES:

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

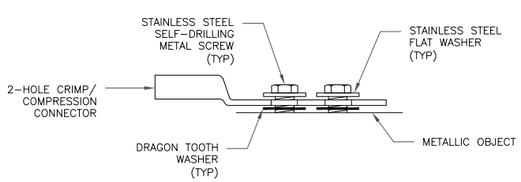
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

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T-MOBILE SITE NUMBER:
CTHA578A

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	10/22/21	TJ	FINAL	SS
1	12/02/2021	TJ	SA REFERENCE	SS

STATE OF CONNECTICUT
HUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

12/02/2021

SHEET NUMBER: G-2
REVISION: 1

Exhibit D

Structural Analysis Report

Date: **October 27, 2021**

MORRISON HERSHFIELD

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Clearwire Corp* Co-Locate**	
	Site Number:	CTHA578A
	Site Name:	CT52XC084
Crown Castle Designation:	**BU Number:**	806355
	Site Name:	BRG 126 943086
	JDE Job Number:	679262
	Work Order Number:	2018361
	Order Number:	580031 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN9-485R1 / 2101398	
Site Data:	**281 Wood House Road, Fairfield, Fairfield County, CT 06824** **Latitude *41° 11' 45.3"*, Longitude *-73° 16' 52.9"*** **170.5 Foot – EEI Monopole Tower**	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity- 62.9%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

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

Digitally signed by G. Lance Cooke
Date: 2021.10.27 07:48:10-07'00'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 170.5 ft monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
128.0	128.0	3	ericsson	AIR6449 B41_T-MOBILE	3 1	1-5/8 ELLIPTICAL
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO		
		1	andrew	VHLP800-11		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		1	Site Pro 1	12.5 ft Platform Mount [#RMQP-4096-HK]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
166.0	166.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	fujitsu	TA08025-B604		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
156.0	160.0	1	gps	GPS_A	12 1	1-5/8 1-1/4
	159.0	6	commscope	SBNHH-1D85B w/ Mount Pipe		
		6	decibel	DB844G65ZAXY w/ Mount Pipe		
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe		
	156.0	6	rfs/celwave	FD9R6004/2C-3L		
		3	alcatel lucent	B13 RRH 4X30		
		3	alcatel lucent	B66A RRH4X45		
		1	raycap	RRFDC-3315-PF-48		
		1	-	Platform Mount [LP 713-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
146.0	148.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 4 2 1	1-5/8 3/4 3/8 2C
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
	146.0	12	powerwave technologies	LGP2140X		
		6	powerwave technologies	7020.00		
		3	kathrein	782 10253		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS-11		
		2	raycap	DC6-48-60-18-8F		
		1	-	Platform Mount [LP 713-1]		
138.0	140.0	3	ericsson	AIR 32 B2A/B66AA	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B2A B4P		
		3	ericsson	KRY 112 144/1		
	139.0	3	rfs/celwave	APXVAARR24_43-U-NA20_CCIV2		
		3	ericsson	RADIO 4449 B12/B71		
	138.0	1	Site pro 1	12.5 ft Platform Mount [#RMQP-4096-HK]		
117.0	117.0	1	-	Side Arm Mount [SO 701-1]	-	-
		1	-	Side Arm Mount [SO 701-1]		
		1	-	T-Arm Mount [TA 602-1]		

3) ANALYSIS PROCEDURE

Table 3 – Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1099974	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1098364	CCISITES
4-TOWER MANUFACTURER DRAWINGS	653293	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.59	393.87	30.9	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.59	393.87	30.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-15.98	868.94	53.9	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.5828x0.375	4	-30.48	2425.22	60.2	Pass
L5	87.09 - 43	Pole	TP43.75x32.7966x0.4375	5	-43.63	3579.81	60.7	Pass
L6	43 - 0	Pole	TP52.5x41.5316x0.5	6	-63.59	5069.03	55.9	Pass
							Summary	
						Pole (L5)	60.7	Pass
						Rating =	60.7	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	156.0	7.50	Pass
1	Flange Plate		17.8	Pass
1	Anchor Rods	0	55.2	Pass
1	Base Plate		62.9	Pass
1	Base Foundation (Structure)	0	62.2	Pass
1	Base Foundation (Soil Interaction)		58.2	Pass

Structure Rating (max from all components) =	62.9%*

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

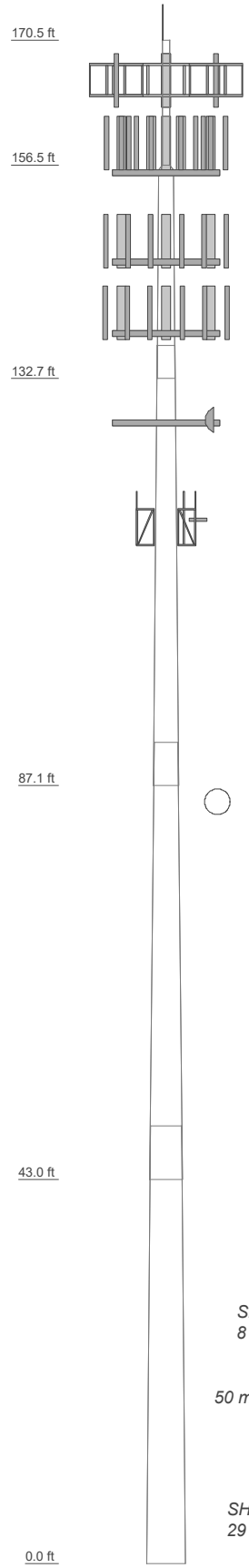
4.1) Recommendations

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

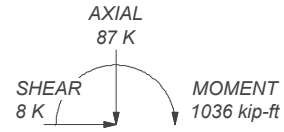
APPENDIX A

TNXTOWER OUTPUT

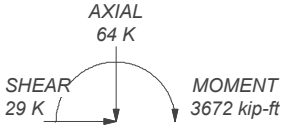
Section	6	5	4	3	2	1
Length (ft)	49.00	48.92	49.25	23.33	0.50	14.00
Number of Sides	18	18	18	18	1	1
Thickness (in)	0.5000	0.4375	0.3750	0.1875	0.3650	0.3650
Socket Length (ft)		6.00	4.83	3.67		
Top Dia (in)	41.5316	32.7966	23.5828	19.5000	10.7500	10.7500
Bot Dia (in)	52.5000	43.7500	34.6300	24.7900	19.5000	10.7500
Grade	A572-65			A53-B-35		
Weight (K) 28.4	12.3	8.7	5.7	1.0	0.0	0.6



ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 1 kip-ft
REACTIONS - 118 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 60.7%

Morrison Hershfield
Consulting Engineers
1455 Lincoln Park, Suite 500
Atlanta, GA 30346
Phone: (770)379-8500
FAX: (770)379-8501

Job: ***CN9-485R1 / 2101398***			
Project: ***806355 / BRG 126 943086***			
Client: Crown Castle USA	Drawn by: CSA	App'd:	
Code: TIA-222-H	Date: 10/27/21	Scale: NTS	
Path: C:\Users\CAsritha\Desktop\CN4-485R1 SA\Analysis\CN4-485R1 BU_806355 WO_2018361.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 334.00 ft.
Basic wind speed of 118 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	170.50-156.50	14.00	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L2	156.50-156.00	0.50	0.00	Round	10.7500	19.5000	0.3650		A53-B-35

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	156.00-132.67	23.33	3.67	18	19.5000	24.7900	0.1875	0.7500	(35 ksi) A572-65 (65 ksi)
L4	132.67-87.09	49.25	4.83	18	23.5828	34.6300	0.3750	1.5000	A572-65 (65 ksi)
L5	87.09-43.00	48.92	6.00	18	32.7966	43.7500	0.4375	1.7500	A572-65 (65 ksi)
L6	43.00-0.00	49.00		18	41.5316	52.5000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L2	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	19.5000	21.9417	1004.6069	6.7665	9.7500	103.0366	2009.2137	10.9643	0.0000	0
L3	19.7719	11.4934	541.5782	6.8559	9.9060	54.6717	1083.8689	5.7478	3.1020	16.544
	25.1435	14.6416	1119.6528	8.7339	12.5933	88.9085	2240.7788	7.3222	4.0330	21.51
L4	24.7247	27.6231	1879.6621	8.2388	11.9801	156.8989	3761.7975	13.8142	3.4906	9.308
	35.1064	40.7720	6044.3215	12.1605	17.5920	343.5828	12096.5963	20.3899	5.4349	14.493
L5	34.3332	44.9346	5944.4470	11.4875	16.6607	356.7952	11896.7159	22.4716	5.0022	11.434
	44.3574	60.1448	14254.8347	15.3759	22.2250	641.3874	28528.4263	30.0781	6.9300	15.84
L6	43.4589	65.1171	13850.6094	14.5662	21.0980	656.4880	27719.4438	32.5647	6.4296	12.859
	53.2328	82.5240	28191.9040	18.4600	26.6700	1057.0643	56420.9036	41.2698	8.3600	16.72

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 170.50-156.50				1	1	1			
L2 156.50-156.00				1	1	1			
L3 156.00-132.67				1	1	1			
L4 132.67-87.09				1	1	1			
L5 87.09-43.00				1	1	1			
L6 43.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8"	B	No	Surface Ar (CaAa)	170.50 - 0.00	1	1	-0.350 -0.350	0.3750		0.22
Climbing Rungs	B	No	Surface Ar (CaAa)	170.50 - 0.00	1	1	-0.400 -0.300	0.7050		1.80
HCS 6X12 4AWG(1-5/8) ****	C	No	Surface Ar (CaAa)	138.00 - 0.00	3	3	-0.400 -0.270	1.6600		2.40

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
****									
CU12PSM6P4XXX (1-3/4)	C	No	No	Inside Pole	166.00 - 0.00	1	No Ice	0.00	2.72
							1/2" Ice	0.00	2.72
							1" Ice	0.00	2.72
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	156.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
MLE HYBRID 3POWER/6FIBER RL 2(1-1/4)	A	No	No	Inside Pole	156.00 - 0.00	1	No Ice	0.00	0.68
							1/2" Ice	0.00	0.68
							1" Ice	0.00	0.68
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	146.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	146.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	146.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	146.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	146.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
CONDUIT (2)	A	No	No	Inside Pole	146.00 - 0.00	1	No Ice	0.00	0.50
							1/2" Ice	0.00	0.50
							1" Ice	0.00	0.50
***									
LCF158-50JA-A0(1-5/8)	C	No	No	Inside Pole	138.00 - 0.00	6	No Ice	0.00	0.80
							1/2" Ice	0.00	0.80
							1" Ice	0.00	0.80
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	No	Inside Pole	138.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
***									
7983A(ELLIPTICAL)	B	No	No	Inside Pole	128.00 - 0.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	128.00 - 0.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.50-156.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.512	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.03
L2	156.50-156.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.054	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	156.00-132.67	A	0.000	0.000	0.000	0.000	0.42
		B	0.000	0.000	2.520	0.000	0.05
		C	0.000	0.000	2.654	0.000	0.13
L4	132.67-87.09	A	0.000	0.000	0.000	0.000	1.06

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	4.923	0.000	0.40
		C	0.000	0.000	22.699	0.000	0.72
L5	87.09-43.00	A	0.000	0.000	0.000	0.000	1.03
		B	0.000	0.000	4.762	0.000	0.42
		C	0.000	0.000	21.957	0.000	0.70
L6	43.00-0.00	A	0.000	0.000	0.000	0.000	1.00
		B	0.000	0.000	4.644	0.000	0.41
		C	0.000	0.000	21.414	0.000	0.68

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.50-156.50	A	0.998	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	7.098	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.03
L2	156.50-156.00	A	0.993	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.253	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	156.00-132.67	A	0.985	0.000	0.000	0.000	0.000	0.42
		B		0.000	0.000	11.710	0.000	0.13
		C		0.000	0.000	4.630	0.000	0.17
L4	132.67-87.09	A	0.958	0.000	0.000	0.000	0.000	1.06
		B		0.000	0.000	22.878	0.000	0.57
		C		0.000	0.000	39.596	0.000	1.00
L5	87.09-43.00	A	0.909	0.000	0.000	0.000	0.000	1.03
		B		0.000	0.000	21.653	0.000	0.58
		C		0.000	0.000	38.003	0.000	0.96
L6	43.00-0.00	A	0.812	0.000	0.000	0.000	0.000	1.00
		B		0.000	0.000	20.281	0.000	0.55
		C		0.000	0.000	36.541	0.000	0.92

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	170.50-156.50	0.2932	-0.9023	0.4969	-1.5294
L2	156.50-156.00	0.3034	-0.9339	0.5521	-1.6992
L3	156.00-132.67	0.8365	-0.0281	1.0520	-1.0651
L4	132.67-87.09	2.2727	1.8069	2.2113	0.6324
L5	87.09-43.00	2.3879	1.8916	2.4079	0.6980
L6	43.00-0.00	2.4631	1.9469	2.5246	0.7693

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8"	156.50 - 170.50	1.0000	1.0000
L1	2	Climbing Rungs	156.50 - 170.50	1.0000	1.0000
L2	1	Safety Line 3/8"	156.00 - 156.50	1.0000	1.0000
L2	2	Climbing Rungs	156.00 - 156.50	1.0000	1.0000
L3	1	Safety Line 3/8"	132.67 - 156.00	1.0000	1.0000
L3	2	Climbing Rungs	132.67 - 156.00	1.0000	1.0000
L3	19	HCS 6X12 4AWG(1-5/8)	132.67 - 138.00	1.0000	1.0000
L4	1	Safety Line 3/8"	87.09 - 132.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L4	2	Climbing Rungs	87.09 - 132.67	1.0000	1.0000
L4	19	HCS 6X12 4AWG(1-5/8)	87.09 - 132.67	1.0000	1.0000
L5	1	Safety Line 3/8"	43.00 - 87.09	1.0000	1.0000
L5	2	Climbing Rungs	43.00 - 87.09	1.0000	1.0000
L5	19	HCS 6X12 4AWG(1-5/8)	43.00 - 87.09	1.0000	1.0000
L6	1	Safety Line 3/8"	0.00 - 43.00	1.0000	1.0000
L6	2	Climbing Rungs	0.00 - 43.00	1.0000	1.0000
L6	19	HCS 6X12 4AWG(1-5/8)	0.00 - 43.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lighting Rod 3/4" x 4'	C	From Leg	0.00 0.00 2.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	0.30 0.71 1.00	0.30 0.71 1.00	0.03 0.03 0.04
**** *****									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37	1.17 1.31 1.46	0.02 0.04 0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Commscope MC-PK8-DSH	C	None		0.0000	166.00	No Ice 1/2" Ice 1" Ice	34.24 62.95 91.66	34.24 62.95 91.66	1.75 2.10 2.45
****									
MG D3-800TV w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	3.57 3.98 4.39	3.42 4.12 4.78	0.04 0.08 0.12
MG D3-800TV w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	3.57 3.98 4.39	3.42 4.12 4.78	0.04 0.08 0.12
MG D3-800TV w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	3.57 3.98 4.39	3.42 4.12 4.78	0.04 0.08 0.12
(2) SBNHH-1D85B w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.21
(2) SBNHH-1D85B w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.21
(2) SBNHH-1D85B w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.21
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.23 4.71 5.21	4.51 5.00 5.50	0.03 0.08 0.13
(2) DB844G65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.23 4.71 5.21	4.51 5.00 5.50	0.03 0.08 0.13
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	4.23 4.71 5.21	4.51 5.00 5.50	0.03 0.08 0.13
GPS_A	A	From Leg	4.00 0.00 4.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
B13 RRH 4X30	A	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	B	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	C	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B66A RRH4X45	A	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.06 0.08 0.10
B66A RRH4X45	B	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.06 0.08 0.10
B66A RRH4X45	C	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.06 0.08 0.10
RRFDC-3315-PF-48	C	From Leg	4.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	3.79 4.04 4.30	2.51 2.73 2.95	0.03 0.06 0.10
Platform Mount [LP 713-1]	C	None		0.0000	156.00	No Ice 1/2" Ice 1" Ice	32.89 35.76 38.76	32.89 35.76 38.76	1.51 2.23 3.03
****									
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
QS66512-2 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	4.04 4.42 4.82	4.18 4.57 4.97	0.14 0.21 0.29
QS66512-2 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	4.04 4.42 4.82	4.18 4.57 4.97	0.14 0.21 0.29
QS66512-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	4.04 4.42 4.82	4.18 4.57 4.97	0.14 0.21 0.29
7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7020.00	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.10 0.15 0.20	0.17 0.24 0.31	0.00 0.01 0.01
(2) 7020.00	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.10 0.15 0.20	0.17 0.24 0.31	0.00 0.01 0.01
(2) 7020.00	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.10 0.15 0.20	0.17 0.24 0.31	0.00 0.01 0.01
(4) LGP2140X	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
(4) LGP2140X	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
(4) LGP2140X	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
RRUS-11	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS 32 B2	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 32 B66	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B66	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B66	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
782 10253	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.11 0.15 0.20	0.06 0.10 0.14	0.00 0.00 0.01
782 10253	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.11 0.15 0.20	0.06 0.10 0.14	0.00 0.00 0.01
782 10253	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.11 0.15 0.20	0.06 0.10 0.14	0.00 0.00 0.01
DC6-48-60-18-8F	A	From Leg	1.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
DC6-48-60-18-8F	B	From Leg	1.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 3' x 2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.58 0.77 0.97	0.58 0.77 0.97	0.01 0.02 0.02
3' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.58 0.77 0.97	0.58 0.77 0.97	0.01 0.02 0.02
(2) 3' x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.58 0.77 0.97	0.58 0.77 0.97	0.01 0.02 0.02
Platform Mount [LP 713-1]	C	None		0.0000	146.00	No Ice 1/2" Ice 1" Ice	32.89 35.76 38.76	32.89 35.76 38.76	1.51 2.23 3.03
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ERICSSON AIR 21 B2A B4P	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.19 3.52 3.85	1.98 2.28 2.59	0.09 0.13 0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ERICSSON AIR 21 B2A B4P	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.19 3.52 3.85	1.98 2.28 2.59	0.09 0.13 0.18
ERICSSON AIR 21 B2A B4P	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.19 3.52 3.85	1.98 2.28 2.59	0.09 0.13 0.18
KRY 112 144/1	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
****									
AIR 32 B2A/B66AA	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.86 4.23 4.61	2.51 2.86 3.22	0.17 0.22 0.27
AIR 32 B2A/B66AA	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.86 4.23 4.61	2.51 2.86 3.22	0.17 0.22 0.27
AIR 32 B2A/B66AA	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	3.86 4.23 4.61	2.51 2.86 3.22	0.17 0.22 0.27
APXVAARR24_43-U-NA20_CCIV2	A	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.15 0.27 0.39
APXVAARR24_43-U-NA20_CCIV2	B	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.15 0.27 0.39
APXVAARR24_43-U-NA20_CCIV2	C	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.15 0.27 0.39
RADIO 4449 B12/B71	A	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
RADIO 4449 B12/B71	C	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
12.5 ft Platform Mount [#RMQP-4096-HK]	C	None		0.0000	138.00	No Ice 1/2" Ice 1" Ice	37.51 48.25 58.99	37.51 48.25 58.99	2.67 3.47 4.27
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AIR6449 B41_T-MOBILE	A	From Leg	4.00 0.00	0.0000	128.00	No Ice 1/2"	5.27 5.70	2.03 2.36	0.11 0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	6.14	2.70	0.20
						1" Ice			
AIR6449 B41_T-MOBILE	B	From Leg	4.00	0.0000	128.00	No Ice	5.27	2.03	0.11
			0.00			1/2"	5.70	2.36	0.15
			0.00			Ice	6.14	2.70	0.20
						1" Ice			
AIR6449 B41_T-MOBILE	C	From Leg	4.00	0.0000	128.00	No Ice	5.27	2.03	0.11
			0.00			1/2"	5.70	2.36	0.15
			0.00			Ice	6.14	2.70	0.20
						1" Ice			
APXVAALL24_43-U-NA20_TMO	A	From Leg	4.00	0.0000	128.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
						1" Ice			
APXVAALL24_43-U-NA20_TMO	B	From Leg	4.00	0.0000	128.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
						1" Ice			
APXVAALL24_43-U-NA20_TMO	C	From Leg	4.00	0.0000	128.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	128.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	128.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	128.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	128.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	128.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	128.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
12.5 ft Platform Mount [#RMQP-4096-HK]	C	None		0.0000	128.00	No Ice	37.51	37.51	2.67
						1/2"	48.25	48.25	3.47
						Ice	58.99	58.99	4.27
						1" Ice			
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(3) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	117.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
(2) 6' x 2" Mount Pipe	B	From Leg	3.00	0.0000	117.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
6' x 2" Mount Pipe	C	From Leg	3.00	0.0000	117.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
T-Arm Mount [TA 602-1]	A	From Leg	2.00	0.0000	117.00	No Ice	8.67	2.50	0.26
			0.00			1/2"	10.50	3.20	0.33

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	12.40	4.02	0.43
						1" Ice			
(2) 4' x 2" Horizontal Face Mount Pipe	B	From Leg	3.00	0.0000	117.00	No Ice	0.87	0.01	0.01
			0.00			1/2"	1.11	0.05	0.02
			0.00			Ice	1.37	0.10	0.03
						1" Ice			
Side Arm Mount [SO 701-1]	B	From Leg	1.50	0.0000	117.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice			
Side Arm Mount [SO 701-1]	C	From Leg	1.50	0.0000	117.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice			
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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11	B	Paraboloid w/o Radome	From Leg	4.00	-20.0000		128.00	2.80	No Ice	6.16	0.05
				0.00					1/2" Ice	6.53	0.08
				0.00					1" Ice	6.90	0.12
****											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	170.5 - 156.5	Pole	Max Tension	48	0.00	-0.00	-0.00
			Max. Compression	26	-5.99	-0.02	0.30
			Max. Mx	20	-3.59	32.06	0.09
			Max. My	2	-3.59	0.02	32.42
			Max. Vy	20	-3.46	32.06	0.09
			Max. Vx	2	-3.49	0.02	32.42
			Max. Torque	9			0.16
L2	156.5 - 156	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.04	-0.02	0.30
			Max. Mx	20	-3.63	33.80	0.10
			Max. My	2	-3.62	0.02	34.16
			Max. Vy	20	-3.48	33.80	0.10
			Max. Vx	2	-3.50	0.02	34.16
			Max. Torque	9			0.16
L3	156 - 132.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.58	0.33	0.20
			Max. Mx	20	-15.98	255.50	-0.24
			Max. My	2	-15.99	-0.14	255.79
			Max. Vy	20	-17.27	255.50	-0.24
			Max. Vx	2	-17.27	-0.14	255.79
			Max. Torque	14			-0.37
L4	132.67 - 87.09	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.24	-0.95	0.80
			Max. Mx	20	-30.48	1230.49	2.88
			Max. My	2	-30.49	5.36	1227.51
			Max. Vy	20	-24.14	1230.49	2.88
			Max. Vx	2	-24.07	5.36	1227.51
			Max. Torque	24			0.87
L5	87.09 - 43	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.07	-1.30	-0.03
			Max. Mx	20	-43.64	2317.74	6.06
			Max. My	2	-43.64	12.81	2311.42
			Max. Vy	20	-26.43	2317.74	6.06
			Max. Vx	2	-26.36	12.81	2311.42
			Max. Torque	17			0.58
L6	43 - 0	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-87.25	-1.78	-1.17
			Max. Mx	20	-63.59	3666.99	9.41
			Max. My	2	-63.59	20.97	3656.91
			Max. Vy	20	-28.53	3666.99	9.41
			Max. Vx	2	-28.47	20.97	3656.91
			Max. Torque	17			0.58

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	87.25	-0.02	-7.80
	Max. H_x	20	63.61	28.49	0.08
	Max. H_z	2	63.61	0.17	28.42
	Max. M_x	2	3656.91	0.17	28.42
	Max. M_z	8	3651.55	-28.36	-0.01
	Max. Torsion	17	0.57	14.39	-24.56
	Min. Vert	7	47.71	-24.52	14.22
	Min. H_x	8	63.61	-28.36	-0.01
	Min. H_z	14	63.61	-0.08	-28.41
	Min. M_x	14	-3656.75	-0.08	-28.41
	Min. M_z	20	-3666.99	28.49	0.08
	Min. Torsion	5	-0.26	-14.18	24.59

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.01	0.00	0.00	0.69	-0.68	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	63.61	-0.17	-28.42	-3656.91	20.97	-0.01
0.9 Dead+1.0 Wind 0 deg - No Ice	47.71	-0.17	-28.42	-3584.58	20.82	-0.01
1.2 Dead+1.0 Wind 30 deg - No Ice	63.61	14.18	-24.59	-3163.24	-1827.37	0.26
0.9 Dead+1.0 Wind 30 deg - No Ice	47.71	14.18	-24.59	-3100.67	-1790.87	0.26
1.2 Dead+1.0 Wind 60 deg - No Ice	63.61	24.52	-14.22	-1830.42	-3156.46	0.19
0.9 Dead+1.0 Wind 60 deg - No Ice	47.71	24.52	-14.22	-1794.29	-3093.59	0.20
1.2 Dead+1.0 Wind 90 deg - No Ice	63.61	28.36	0.01	1.92	-3651.55	-0.02
0.9 Dead+1.0 Wind 90 deg - No Ice	47.71	28.36	0.01	1.71	-3578.88	-0.01
1.2 Dead+1.0 Wind 120 deg - No Ice	63.61	24.56	14.26	1835.92	-3161.88	-0.43
0.9 Dead+1.0 Wind 120 deg - No Ice	47.71	24.56	14.26	1799.33	-3098.93	-0.43
1.2 Dead+1.0 Wind 150 deg - No Ice	63.61	14.17	24.65	3172.06	-1823.50	-0.54
0.9 Dead+1.0 Wind 150 deg - No Ice	47.71	14.17	24.65	3108.96	-1787.11	-0.53
1.2 Dead+1.0 Wind 180 deg - No Ice	63.61	0.08	28.41	3656.75	-11.65	-0.15
0.9 Dead+1.0 Wind 180 deg - No Ice	47.71	0.08	28.41	3584.03	-11.22	-0.15
1.2 Dead+1.0 Wind 210 deg - No Ice	63.61	-14.39	24.56	3161.25	1853.80	-0.57

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 210 deg - No Ice	47.71	-14.39	24.56	3098.34	1817.25	-0.57
1.2 Dead+1.0 Wind 240 deg - No Ice	63.61	-24.73	14.08	1812.98	3183.73	-0.01
0.9 Dead+1.0 Wind 240 deg - No Ice	47.71	-24.73	14.08	1776.79	3120.80	-0.01
1.2 Dead+1.0 Wind 270 deg - No Ice	63.61	-28.49	-0.08	-9.41	3666.99	0.04
0.9 Dead+1.0 Wind 270 deg - No Ice	47.71	-28.49	-0.08	-9.44	3594.48	0.03
1.2 Dead+1.0 Wind 300 deg - No Ice	63.61	-24.73	-14.21	-1827.32	3182.91	-0.27
0.9 Dead+1.0 Wind 300 deg - No Ice	47.71	-24.73	-14.21	-1791.27	3120.00	-0.28
1.2 Dead+1.0 Wind 330 deg - No Ice	63.61	-14.45	-24.61	-3165.16	1860.66	-0.46
0.9 Dead+1.0 Wind 330 deg - No Ice	47.71	-14.45	-24.61	-3102.57	1824.02	-0.47
1.2 Dead+1.0 Ice+1.0 Temp	87.25	0.00	0.00	1.17	-1.78	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	87.25	-0.04	-7.81	-1033.38	2.77	0.01
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	87.25	3.89	-6.75	-893.90	-518.08	0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	87.25	6.73	-3.90	-516.42	-894.39	0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	87.25	7.79	0.00	1.59	-1034.03	-0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	87.25	6.74	3.91	519.89	-895.77	-0.13
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	87.25	3.89	6.77	897.89	-517.68	-0.14
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	87.25	0.02	7.80	1035.25	-4.56	-0.04
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	87.25	-3.93	6.75	895.39	519.90	-0.10
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	87.25	-6.77	3.88	514.66	896.39	0.03
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	87.25	-7.81	-0.02	-1.26	1033.55	0.05
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	87.25	-6.78	-3.90	-516.18	896.46	-0.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	87.25	-3.95	-6.76	-894.55	521.75	-0.06
Dead+Wind 0 deg - Service	53.01	-0.04	-6.95	-885.14	4.53	-0.00
Dead+Wind 30 deg - Service	53.01	3.47	-6.01	-765.60	-443.08	0.06
Dead+Wind 60 deg - Service	53.01	6.00	-3.48	-442.80	-764.98	0.05
Dead+Wind 90 deg - Service	53.01	6.94	0.00	0.96	-884.85	-0.01
Dead+Wind 120 deg - Service	53.01	6.01	3.49	445.12	-766.29	-0.11
Dead+Wind 150 deg - Service	53.01	3.46	6.03	768.71	-442.16	-0.13
Dead+Wind 180 deg - Service	53.01	0.02	6.95	886.08	-3.33	-0.04
Dead+Wind 210 deg - Service	53.01	-3.52	6.01	766.12	448.41	-0.14
Dead+Wind 240 deg - Service	53.01	-6.05	3.44	439.59	770.52	-0.00
Dead+Wind 270 deg - Service	53.01	-6.97	-0.02	-1.78	887.54	0.01
Dead+Wind 300 deg - Service	53.01	-6.05	-3.48	-442.07	770.32	-0.07
Dead+Wind 330 deg - Service	53.01	-3.53	-6.02	-766.08	450.07	-0.11

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-53.01	0.00	0.00	53.01	0.00	0.000%
2	-0.17	-63.61	-28.42	0.17	63.61	28.42	0.000%
3	-0.17	-47.71	-28.42	0.17	47.71	28.42	0.000%
4	14.18	-63.61	-24.59	-14.18	63.61	24.59	0.000%
5	14.18	-47.71	-24.59	-14.18	47.71	24.59	0.000%
6	24.52	-63.61	-14.22	-24.52	63.61	14.22	0.000%
7	24.52	-47.71	-14.22	-24.52	47.71	14.22	0.000%
8	28.36	-63.61	0.01	-28.36	63.61	-0.01	0.000%
9	28.36	-47.71	0.01	-28.36	47.71	-0.01	0.000%
10	24.56	-63.61	14.26	-24.56	63.61	-14.26	0.000%
11	24.56	-47.71	14.26	-24.56	47.71	-14.26	0.000%
12	14.17	-63.61	24.65	-14.17	63.61	-24.65	0.000%
13	14.17	-47.71	24.65	-14.17	47.71	-24.65	0.000%
14	0.08	-63.61	28.41	-0.08	63.61	-28.41	0.000%
15	0.08	-47.71	28.41	-0.08	47.71	-28.41	0.000%
16	-14.39	-63.61	24.56	14.39	63.61	-24.56	0.000%
17	-14.39	-47.71	24.56	14.39	47.71	-24.56	0.000%
18	-24.73	-63.61	14.08	24.73	63.61	-14.08	0.000%
19	-24.73	-47.71	14.08	24.73	47.71	-14.08	0.000%
20	-28.49	-63.61	-0.08	28.49	63.61	0.08	0.000%
21	-28.49	-47.71	-0.08	28.49	47.71	0.08	0.000%
22	-24.73	-63.61	-14.21	24.73	63.61	14.21	0.000%
23	-24.73	-47.71	-14.21	24.73	47.71	14.21	0.000%
24	-14.45	-63.61	-24.61	14.45	63.61	24.61	0.000%
25	-14.45	-47.71	-24.61	14.45	47.71	24.61	0.000%
26	0.00	-87.25	0.00	0.00	87.25	0.00	0.000%
27	-0.04	-87.25	-7.81	0.04	87.25	7.81	0.000%
28	3.89	-87.25	-6.75	-3.89	87.25	6.75	0.000%
29	6.73	-87.25	-3.90	-6.73	87.25	3.90	0.000%
30	7.79	-87.25	0.00	-7.79	87.25	-0.00	0.000%
31	6.74	-87.25	3.91	-6.74	87.25	-3.91	0.000%
32	3.89	-87.25	6.77	-3.89	87.25	-6.77	0.000%
33	0.02	-87.25	7.80	-0.02	87.25	-7.80	0.000%
34	-3.93	-87.25	6.75	3.93	87.25	-6.75	0.000%
35	-6.77	-87.25	3.88	6.77	87.25	-3.88	0.000%
36	-7.81	-87.25	-0.02	7.81	87.25	0.02	0.000%
37	-6.78	-87.25	-3.90	6.78	87.25	3.90	0.000%
38	-3.95	-87.25	-6.76	3.95	87.25	6.76	0.000%
39	-0.04	-53.01	-6.95	0.04	53.01	6.95	0.000%
40	3.47	-53.01	-6.01	-3.47	53.01	6.01	0.000%
41	6.00	-53.01	-3.48	-6.00	53.01	3.48	0.000%
42	6.94	-53.01	0.00	-6.94	53.01	-0.00	0.000%
43	6.01	-53.01	3.49	-6.01	53.01	-3.49	0.000%
44	3.46	-53.01	6.03	-3.46	53.01	-6.03	0.000%
45	0.02	-53.01	6.95	-0.02	53.01	-6.95	0.000%
46	-3.52	-53.01	6.01	3.52	53.01	-6.01	0.000%
47	-6.05	-53.01	3.44	6.05	53.01	-3.44	0.000%
48	-6.97	-53.01	-0.02	6.97	53.01	0.02	0.000%
49	-6.05	-53.01	-3.48	6.05	53.01	3.48	0.000%
50	-3.53	-53.01	-6.02	3.53	53.01	6.02	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00048814
3	Yes	5	0.00000001	0.00023733
4	Yes	7	0.00000001	0.00018070
5	Yes	6	0.00000001	0.00066512
6	Yes	7	0.00000001	0.00018092
7	Yes	6	0.00000001	0.00066617
8	Yes	5	0.00000001	0.00006906
9	Yes	5	0.00000001	0.00002528

10	Yes	7	0.00000001	0.00018088
11	Yes	6	0.00000001	0.00066578
12	Yes	7	0.00000001	0.00018086
13	Yes	6	0.00000001	0.00066592
14	Yes	5	0.00000001	0.00010381
15	Yes	5	0.00000001	0.00004570
16	Yes	7	0.00000001	0.00018221
17	Yes	6	0.00000001	0.00067048
18	Yes	7	0.00000001	0.00018036
19	Yes	6	0.00000001	0.00066378
20	Yes	5	0.00000001	0.00013948
21	Yes	5	0.00000001	0.00006327
22	Yes	7	0.00000001	0.00018036
23	Yes	6	0.00000001	0.00066340
24	Yes	7	0.00000001	0.00018486
25	Yes	6	0.00000001	0.00068066
26	Yes	4	0.00000001	0.00000001
27	Yes	6	0.00000001	0.00022245
28	Yes	6	0.00000001	0.00052227
29	Yes	6	0.00000001	0.00052343
30	Yes	6	0.00000001	0.00022219
31	Yes	6	0.00000001	0.00052109
32	Yes	6	0.00000001	0.00052182
33	Yes	6	0.00000001	0.00022189
34	Yes	6	0.00000001	0.00052258
35	Yes	6	0.00000001	0.00051716
36	Yes	6	0.00000001	0.00022189
37	Yes	6	0.00000001	0.00052096
38	Yes	6	0.00000001	0.00052968
39	Yes	4	0.00000001	0.00034506
40	Yes	5	0.00000001	0.00033418
41	Yes	5	0.00000001	0.00033543
42	Yes	4	0.00000001	0.00029653
43	Yes	5	0.00000001	0.00033398
44	Yes	5	0.00000001	0.00033529
45	Yes	4	0.00000001	0.00030651
46	Yes	5	0.00000001	0.00033705
47	Yes	5	0.00000001	0.00033201
48	Yes	4	0.00000001	0.00029814
49	Yes	5	0.00000001	0.00033075
50	Yes	5	0.00000001	0.00035060

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	34.395	50	1.8967	0.0012
L2	156.5 - 156	28.882	50	1.8287	0.0007
L3	156 - 132.67	28.691	50	1.8275	0.0007
L4	136.34 - 87.09	21.543	50	1.6056	0.0004
L5	91.92 - 43	9.130	50	1.0082	0.0002
L6	49 - 0	2.435	50	0.4664	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	Lighting Rod 3/4" x 4'	50	34.395	1.8967	0.0014	14851
166.00	MX08FRO665-21 w/ Mount Pipe	50	32.602	1.8697	0.0015	14851
156.00	MG D3-800TV w/ Mount Pipe	50	28.691	1.8275	0.0017	6675
146.00	HPA-65R-BUU-H6 w/ Mount Pipe	50	24.953	1.7453	0.0015	5661
138.00	ERICSSON AIR 21 B2A B4P	50	22.113	1.6308	0.0011	4618
128.00	VHLP800-11	50	18.795	1.4840	0.0010	4376
117.00	(3) 6' x 2" Mount Pipe	50	15.463	1.3333	0.0009	4321

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	141.934	20	7.8310	0.0059
L2	156.5 - 156	119.248	20	7.5570	0.0028
L3	156 - 132.67	118.460	20	7.5523	0.0028
L4	136.34 - 87.09	89.003	24	6.6436	0.0014
L5	91.92 - 43	37.760	24	4.1744	0.0006
L6	49 - 0	10.072	24	1.9298	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	Lighting Rod 3/4" x 4'	20	141.934	7.8310	0.0071	3809
166.00	MX08FRO665-21 w/ Mount Pipe	20	134.558	7.7222	0.0076	3809
156.00	MG D3-800TV w/ Mount Pipe	20	118.460	7.5523	0.0083	1699
146.00	HPA-65R-BUU-H6 w/ Mount Pipe	20	103.056	7.2162	0.0070	1422
138.00	ERICSSON AIR 21 B2A B4P	24	91.349	6.7468	0.0050	1153
128.00	VHLP800-11	24	77.674	6.1432	0.0034	1086
117.00	(3) 6' x 2" Mount Pipe	24	63.924	5.5213	0.0033	1066

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	14.00	0.00	0.0	11.9083	-3.59	375.11	0.010
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	0.50	0.00	0.0	11.9083	-3.59	375.11	0.010
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	23.33	0.00	0.0	14.1463	-15.98	827.56	0.019
L4	132.67 - 87.09 (4)	TP34.63x23.5828x0.375	49.25	0.00	0.0	39.4825	-30.48	2309.73	0.013
L5	87.09 - 43 (5)	TP43.75x32.7966x0.4375	48.92	0.00	0.0	58.2793	-43.63	3409.34	0.013
L6	43 - 0 (6)	TP52.5x41.5316x0.5	49.00	0.00	0.0	82.5240	-63.59	4827.65	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	32.42	103.38	0.314	0.00	103.38	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	32.42	103.38	0.314	0.00	103.38	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	255.98	472.86	0.541	0.00	472.86	0.000
L4	132.67 - 87.09 (4)	TP34.63x23.5828x0.375	1231.33	1994.08	0.617	0.00	1994.08	0.000
L5	87.09 - 43 (5)	TP43.75x32.7966x0.4375	2320.38	3719.18	0.624	0.00	3719.18	0.000
L6	43 - 0 (6)	TP52.5x41.5316x0.5	3671.55	6397.87	0.574	0.00	6397.87	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	3.49	112.53	0.031	0.01	102.75	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	3.50	207.35	0.017	0.01	102.75	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	17.29	248.27	0.070	0.35	516.82	0.001
L4	132.67 - 87.09 (4)	TP34.63x23.5828x0.375	24.19	692.92	0.035	0.46	2012.93	0.000
L5	87.09 - 43 (5)	TP43.75x32.7966x0.4375	26.48	1022.80	0.026	0.46	3759.25	0.000
L6	43 - 0 (6)	TP52.5x41.5316x0.5	28.58	1448.30	0.020	0.46	6595.39	0.000

Pole Interaction Design Data

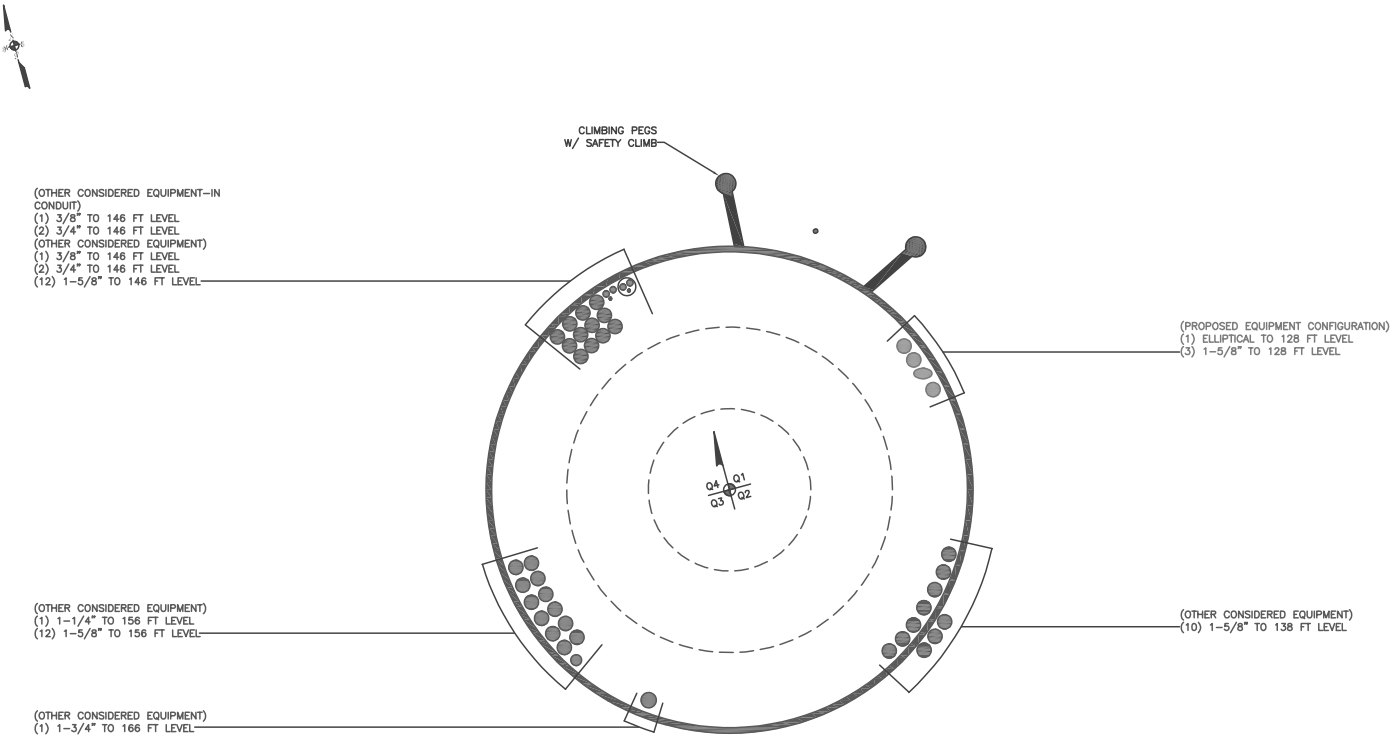
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170.5 - 156.5 (1)	0.010	0.314	0.000	0.031	0.000	0.324	1.050	4.8.2
L2	156.5 - 156 (2)	0.010	0.314	0.000	0.017	0.000	0.323	1.050	4.8.2
L3	156 - 132.67 (3)	0.019	0.541	0.000	0.070	0.001	0.566	1.050	4.8.2
L4	132.67 - 87.09 (4)	0.013	0.617	0.000	0.035	0.000	0.632	1.050	4.8.2
L5	87.09 - 43 (5)	0.013	0.624	0.000	0.026	0.000	0.637	1.050	4.8.2
L6	43 - 0 (6)	0.013	0.574	0.000	0.020	0.000	0.587	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.59	393.87	30.9	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.59	393.87	30.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-15.98	868.94	53.9	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.5828x0.375	4	-30.48	2425.22	60.2	Pass
L5	87.09 - 43	Pole	TP43.75x32.7966x0.4375	5	-43.63	3579.81	60.7	Pass
L6	43 - 0	Pole	TP52.5x41.5316x0.5	6	-63.59	5069.03	55.9	Pass
							Summary	
						Pole (L5)	60.7	Pass
						RATING =	**60.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806355 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

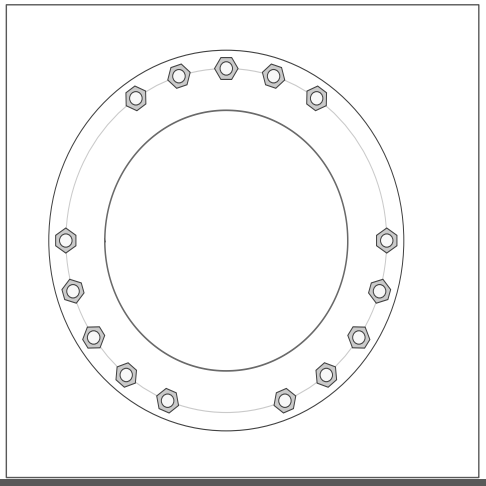
Elevation = 156 ft.

BU #	806355
Site Name	BRG 126 943086
Order #	580031 Rev.0
TIA-222 Revision	H

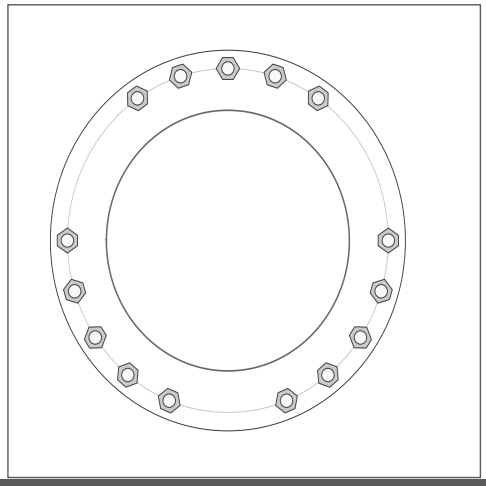
Applied Loads	
Moment (kip-ft)	34.16
Axial Force (kips)	3.62
Shear Force (kips)	3.50

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(15) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25.75" BC

pos. (deg): 0, 55.7, 72.9, 90, 107.1, 124.3, 180, 197.1, 214.3, 231.4, 248.6, 291.4, 308.6, 325.7, 342.9

Top Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Bottom Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

19.5" x 0.365" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

19.5" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	4.28	
Allowable (kips)	54.54	
Stress Rating:	**7.5%**	Pass

Top Plate Capacity

Max Stress (ksi):	10.11	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**17.8%**	Pass
Tension Side Stress Rating:	**13.3%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	10.11	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**17.8%**	Pass
Tension Side Stress Rating:	**13.3%**	Pass

CCIplate

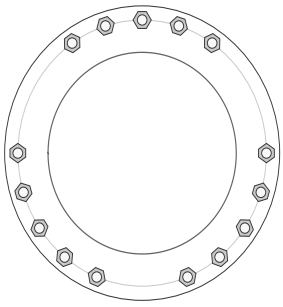
Elevation (ft)	156	*(Flange)*

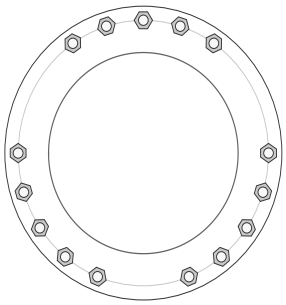
Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending
1	Yes	Yes	Yes

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1	A325	25.75	0.5	0	N-Included		No
2	1	55.714286	1	A325	25.75	0.5	0	N-Included		No
3	1	72.857143	1	A325	25.75	0.5	0	N-Included		No
4	1	90	1	A325	25.75	0.5	0	N-Included		No
5	1	107.14286	1	A325	25.75	0.5	0	N-Included		No
6	1	124.28571	1	A325	25.75	0.5	0	N-Included		No
7	1	180	1	A325	25.75	0.5	0	N-Included		No
8	1	197.14286	1	A325	25.75	0.5	0	N-Included		No
9	1	214.28571	1	A325	25.75	0.5	0	N-Included		No
10	1	231.42857	1	A325	25.75	0.5	0	N-Included		No
11	1	248.57143	1	A325	25.75	0.5	0	N-Included		No
12	1	291.42857	1	A325	25.75	0.5	0	N-Included		No
13	1	308.57143	1	A325	25.75	0.5	0	N-Included		No
14	1	325.71429	1	A325	25.75	0.5	0	N-Included		No
15	1	342.85714	1	A325	25.75	0.5	0	N-Included		No

Plot Graphic





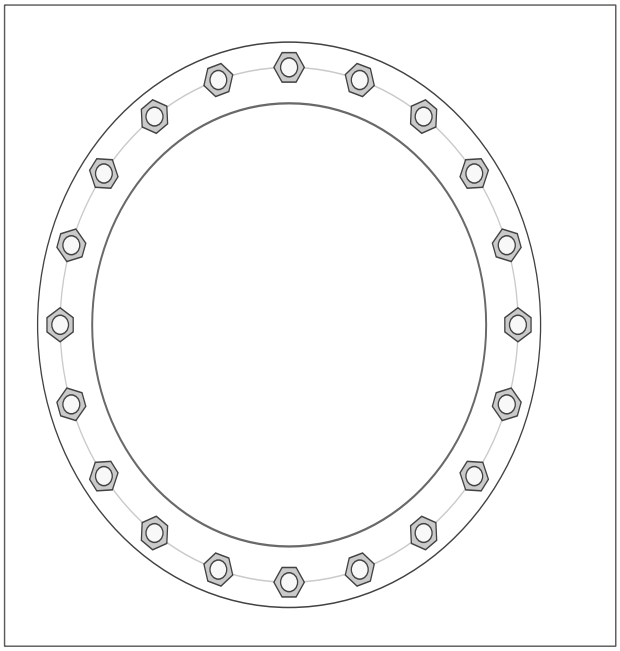
Monopole Base Plate Connection

Site Info	
BU #	806355
Site Name	BRG 126 943086
Order #	580031 Rev.0

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

Applied Loads	
Moment (kip-ft)	3671.55
Axial Force (kips)	63.59
Shear Force (kips)	28.58

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 61" BC

Base Plate Data

67" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

52.5" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 141.19	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.43	ϕVn = 149.1	**55.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	35.66	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**62.9%**	**Pass**

Pier and Pad Foundation

BU # :	806355
Site Name:	BRG 126 943086
App. Number:	580031 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	63.61	kips
Base Shear, Vu_comp:	28.54	kips
Moment, M_u:	3671.55	ft-kips
Tower Height, **H**:	170.5	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	46	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	9	ft
Pad Width, W_1:	22	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	20	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	36	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	135	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:	50	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	6	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	444.14	28.54	**6.1%**	**Pass**
Bearing Pressure (ksf)	18.00	3.08	**17.1%**	**Pass**
*Overturning (kip*ft)*	6819.73	3966.46	**58.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5926.55	3871.33	**62.2%**	**Pass**
Pier Compression (kip)	31187.52	125.35	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	3909.72	1567.64	**38.2%**	**Pass**
Pad Shear - 1-way (kips)	788.93	274.71	**33.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.040	**20.2%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4403.40	2322.80	**50.2%**	**Pass**

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

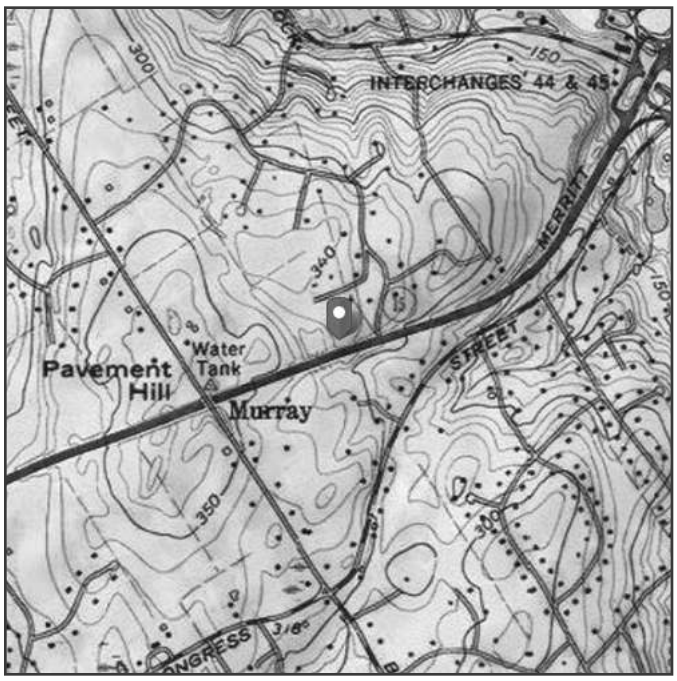
Structural Rating*:	**62.2%**
Soil Rating*:	**58.2%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 333.8 ft (NAVD 88)
Latitude: 41.195917
Longitude: -73.281361



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Oct 27 2021

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

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

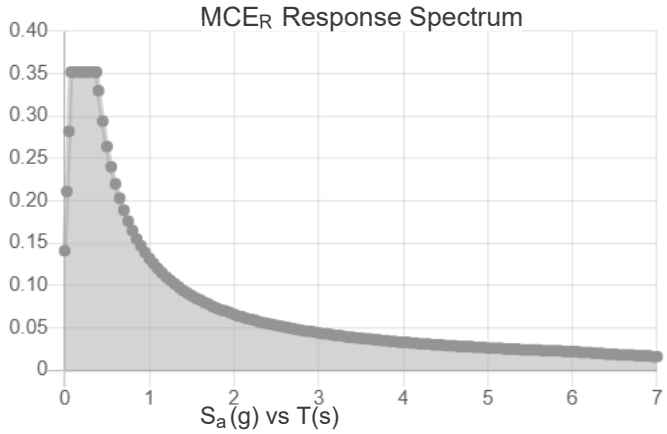
Seismic

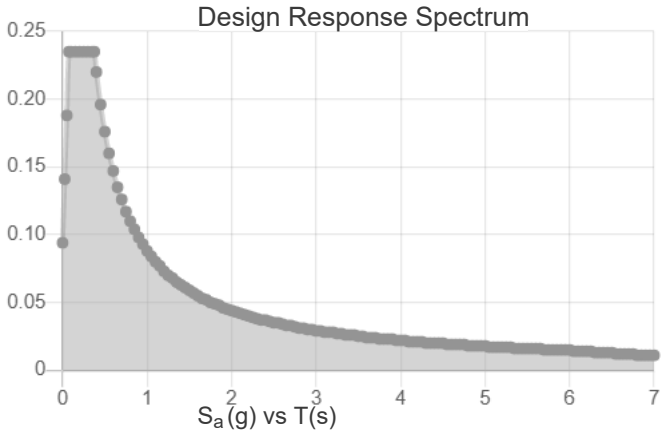
Site Soil Class: D - Stiff Soil

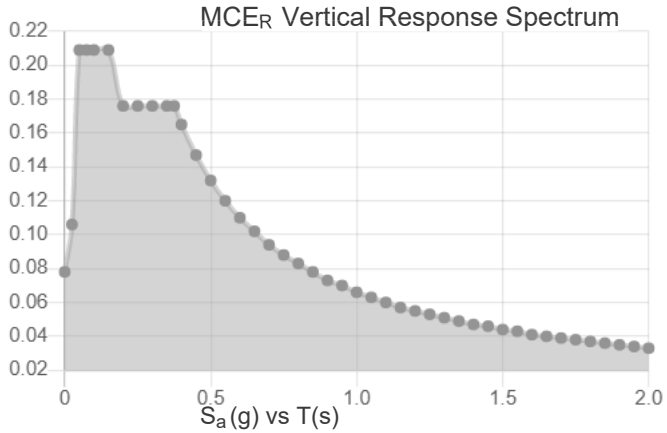
Results:

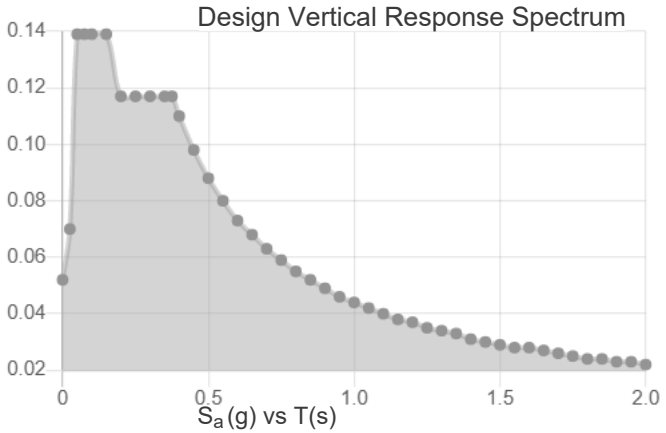
S_S :	0.22	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.127
F_v :	2.4	PGA_M :	0.196
S_{MS} :	0.352	F_{PGA} :	1.546
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.235	C_v :	0.74

Seismic Design Category B









Data Accessed: Wed Oct 27 2021

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

Ice

Results:

Ice Thickness:	1.00 in.	Ice Thickness =1*2=2 in
Concurrent Temperature:	15 F	
Gust Speed:	50 mph	

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

Date Accessed: Wed Oct 27 2021

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

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

Exhibit E

Mount Analysis

Date: October 20, 2021

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CTHA578A
	Carrier Site Name:	CT52XC084
Crown Castle Designation:	**BU Number:**	806355
	Site Name:	BRG 126 943086
	JDE Job Number:	679262
	Order Number:	580031, Rev.0
Engineering Firm Designation:	**B+T Group Report Designation:**	80964.011.01
Site Data:	**281 Wood House Road, Fairfield, Fairfield County, CT, 06824** **Latitude 41° 11' 45.30" Longitude -73° 16' 52.90"**	
Structure Information:	**Tower Height & Type:**	**170.5 ft. Monopole**
	Mount Elevation:	**128 ft.**
	Mount Type:	**12.5 ft. Platform Mount**

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

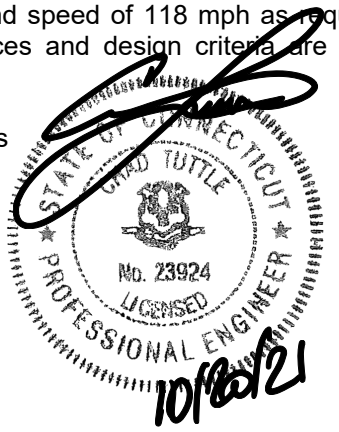
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Platform Mount **Sufficient Capacity – 45%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Michael Harris

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 - Sector 12.5' platform Mount, designed by SitePro1 (Part# RMQP-496-HK) & mapped by B+T Group.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.22
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Qty.	Manufacturer	Model / Type	Mount / Modification Details
128	128	1	Andrew	VHLP800-11	12.5 ft. Platform Mount
		3	Ericsson	AIR6449 B41_T-MOBILE	
		3	RFS	APXVAALL24_43-UNA20_TMO	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	
		3	Ericsson	Radio 4480_TMOV2	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing and Proposed Equipment's	Date: 09/01/2021	Crown Castle
RFDS		Date: 07/16/2021	
Mount Mapping	B+T Group	Date: 10/16/2021	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes, and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

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

Manufacturer's drawings were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft)	Critical Member	% Capacity	Pass / Fail
1,2	Main Horizontals	128	51	13.6	Pass
	Support Rails	128	53	24.4	Pass
	Support Tubes	128	7	23.7	Pass
	Mount Pipes	128	80	45.0	Pass
	Connection Plates	128	16	24.1	Pass
	Support Angles	128	13	22.4	Pass
	Connection Angles	128	110	25.6	Pass
	Kickers	128	104	8.8	Pass
	Kicker Plates	128	103	8.4	Pass
3	Connection Bolts	128	-	21.2	Pass

Structure Rating (max from all components) =	45.0%

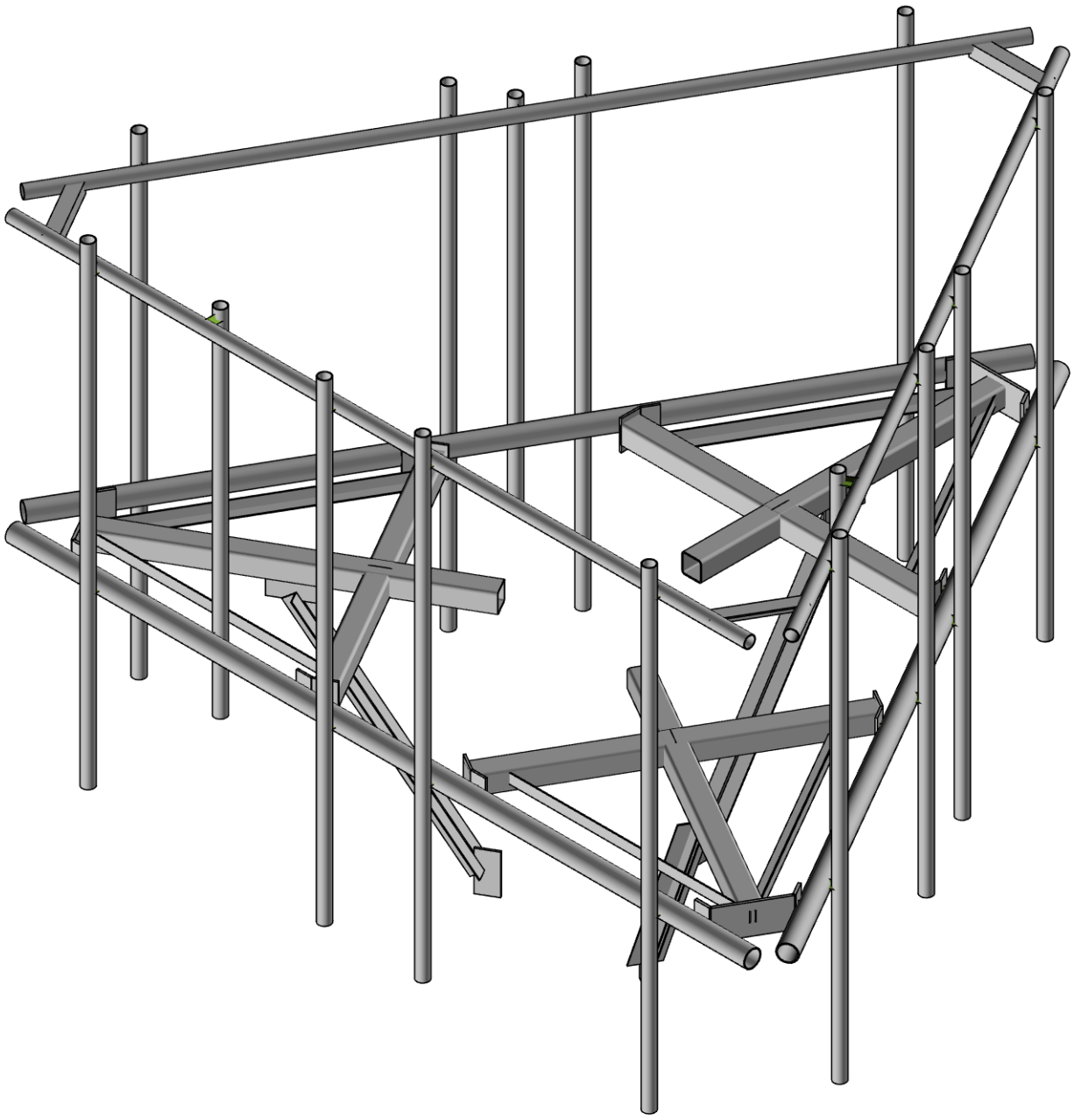
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical
3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

4.1) RECOMMENDATIONS

The SitePro1 (Part# RMQP-496-HK) mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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AK		Oct 20, 2021
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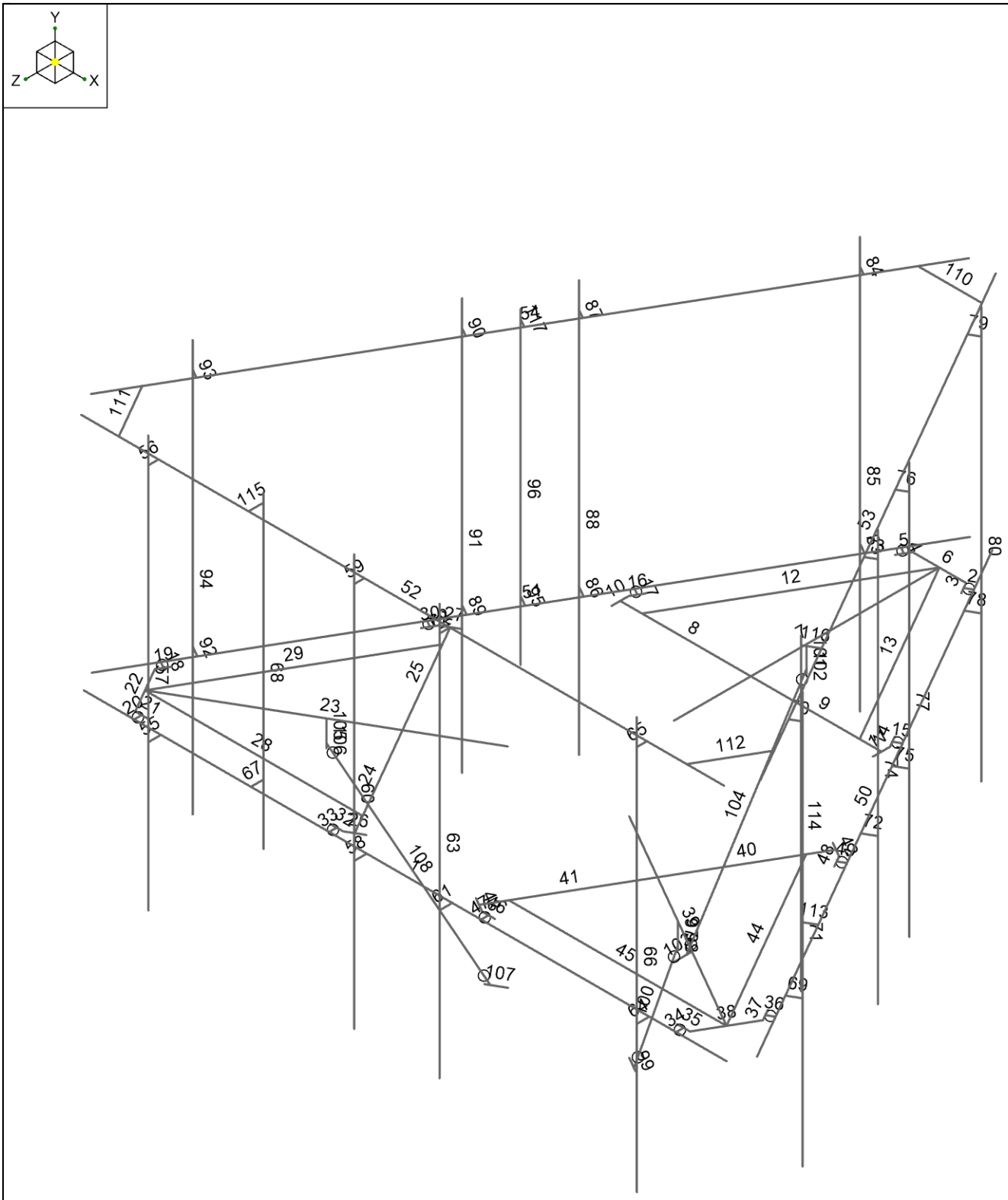

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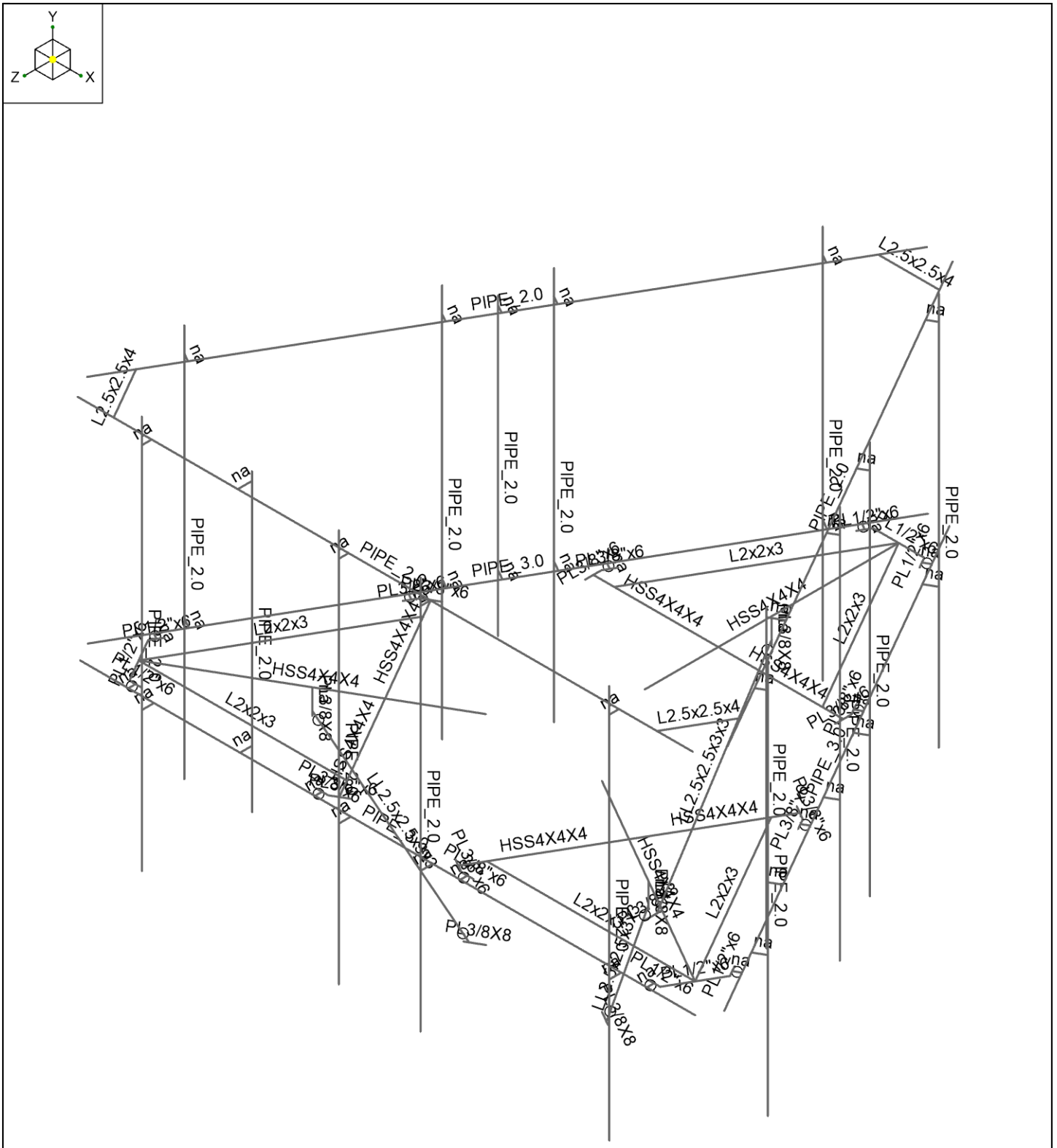

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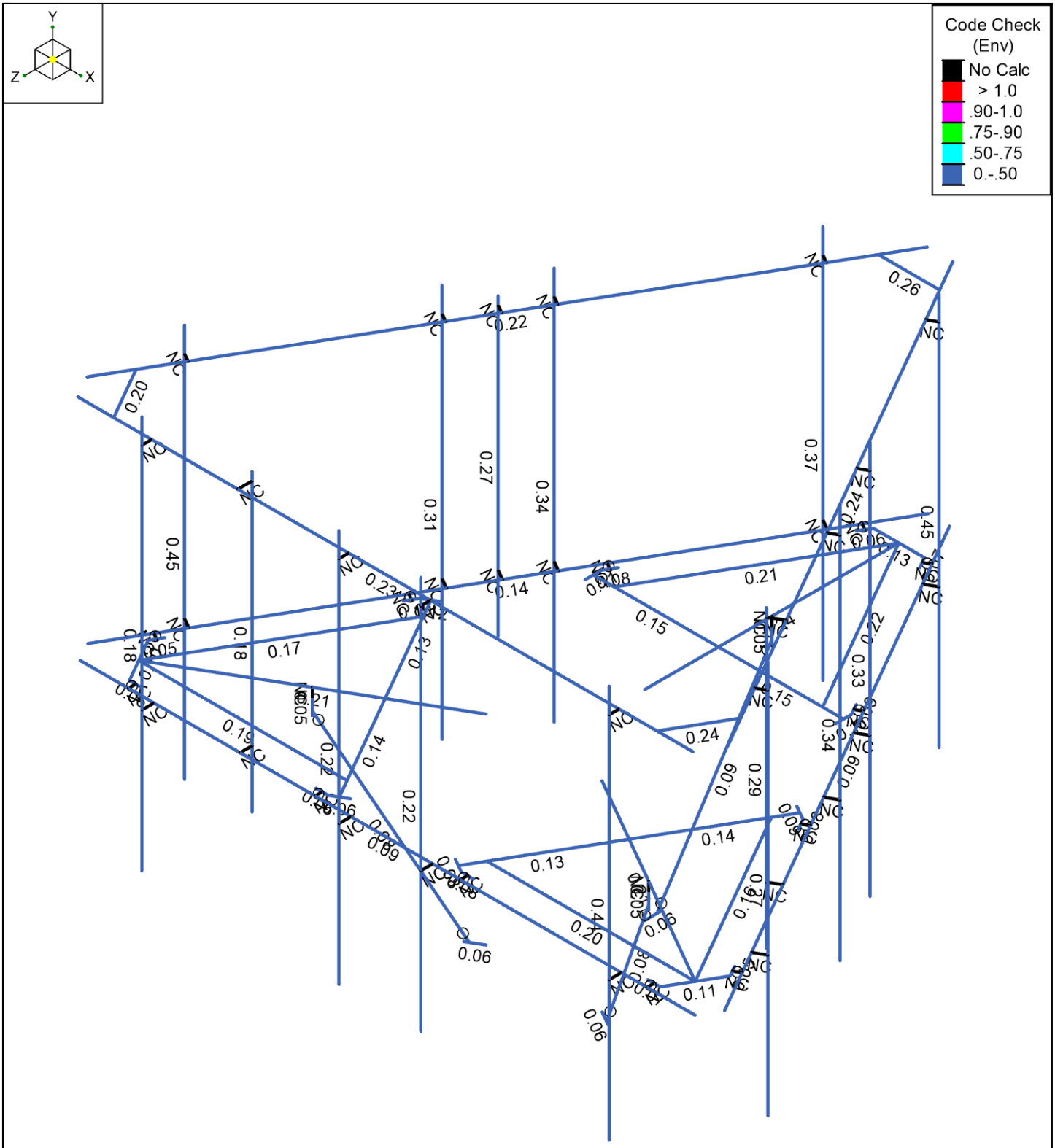

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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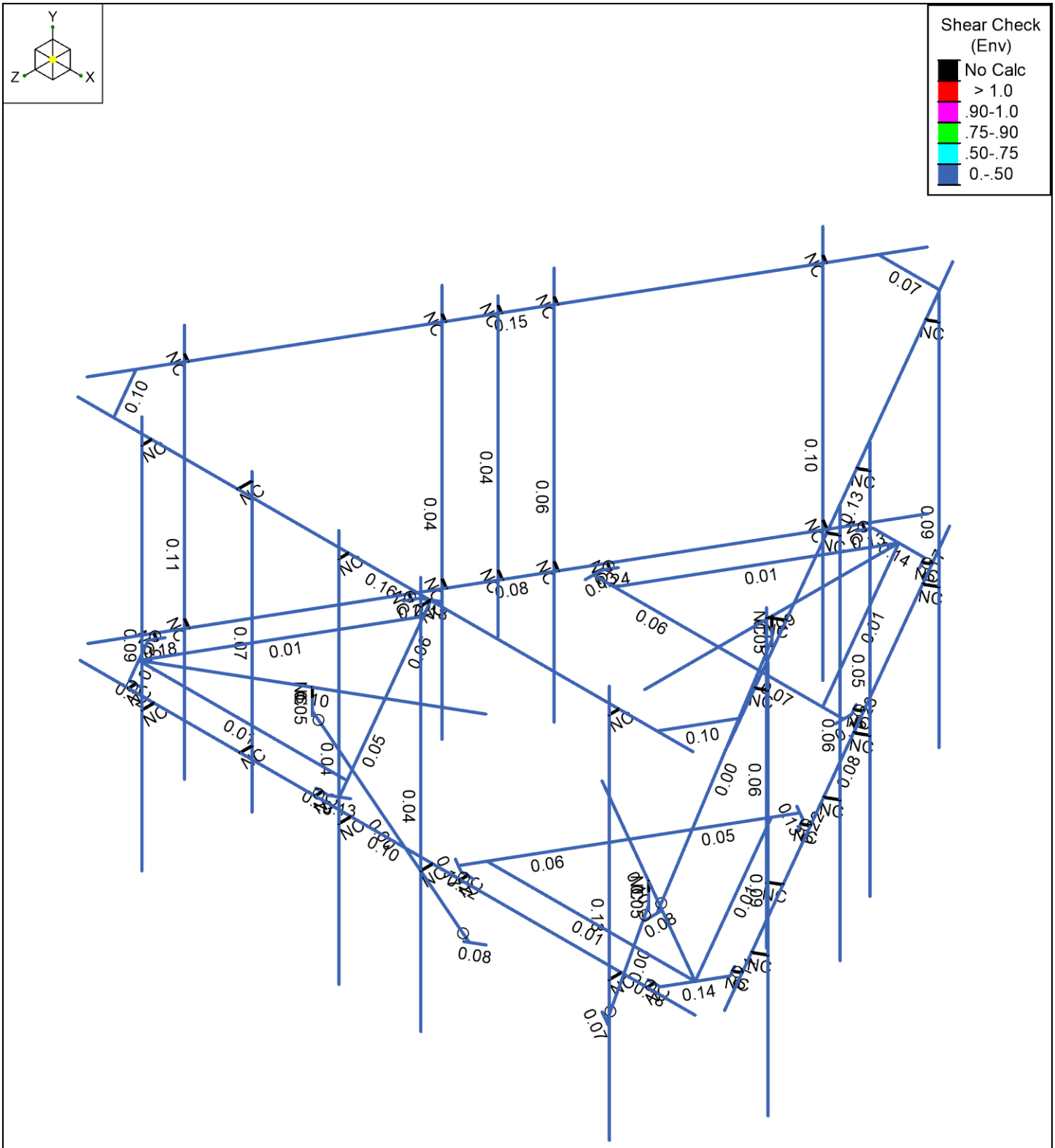

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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AK		Oct 20, 2021
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APPENDIX B

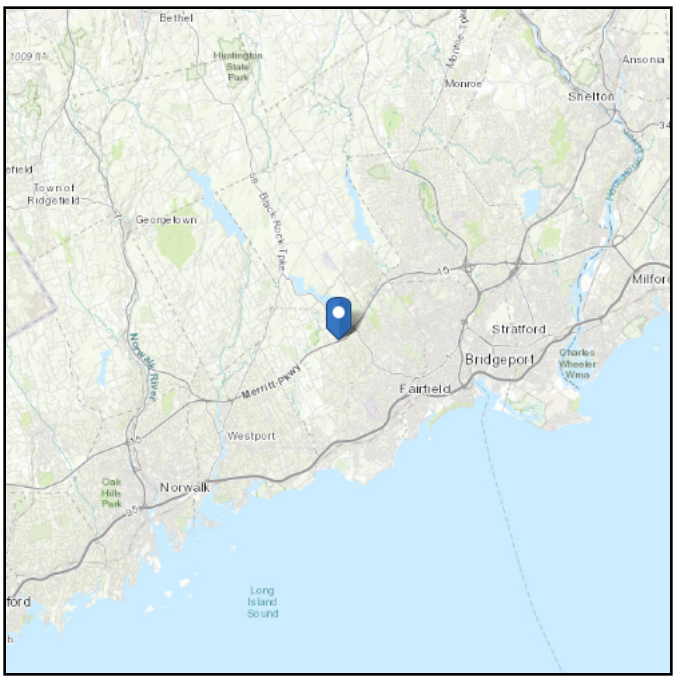
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 333.8 ft (NAVD 88)
Latitude: 41.195917
Longitude: -73.281361



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Oct 19 2021

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

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

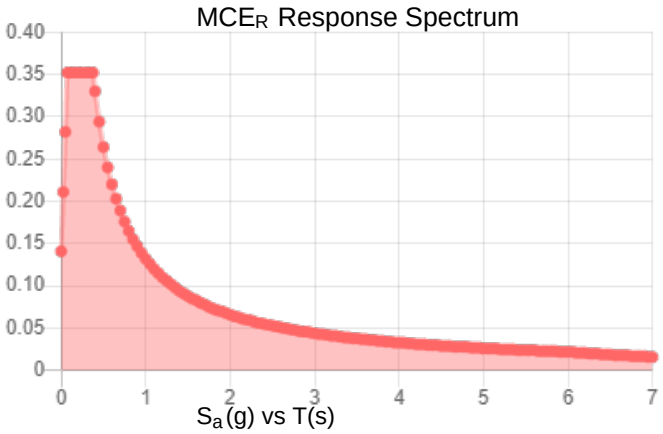
Seismic

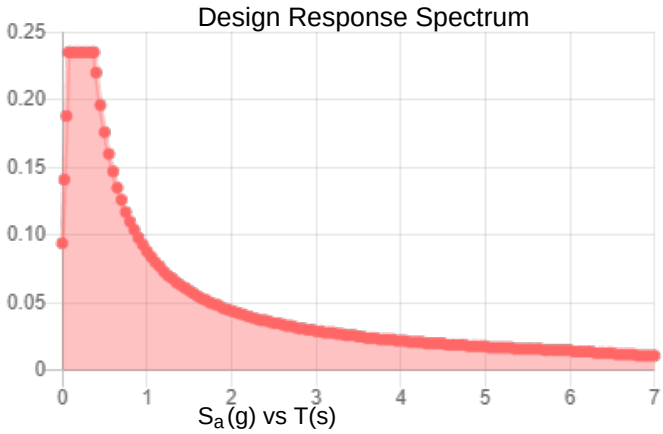
Site Soil Class: D - Default (see Section 11.4.3)

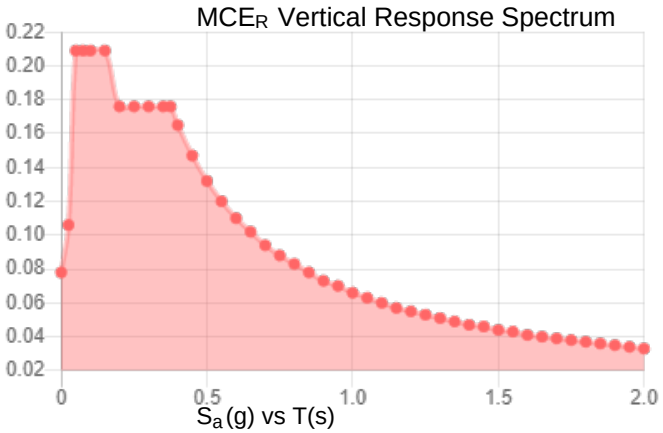
Results:

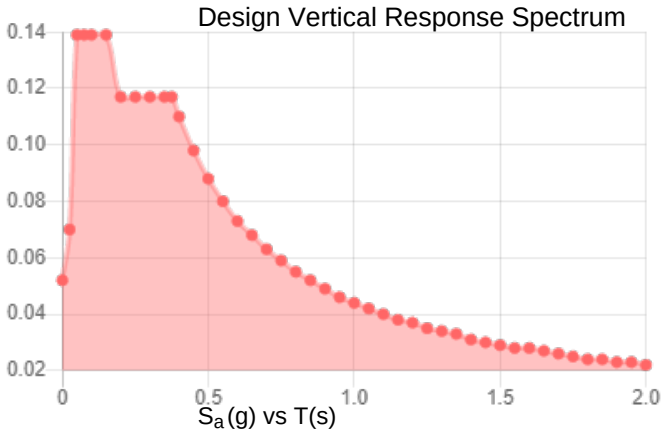
S_S :	0.22	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.127
F_v :	2.4	PGA_M :	0.196
S_{MS} :	0.352	F_{PGA} :	1.546
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.235	C_v :	0.74

Seismic Design Category B









Data Accessed: Tue Oct 19 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Oct 19 2021

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

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

PROJECT	**80964.011.01 - BRG 126 943086, CT**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**10/20/21**	PAGE 1 OF 3	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Tower Type		:	Monopole		
Ground Elevation	z_s	:	334	ft	[ASCE7 Hazard Tool]
Tower Height		:	170.50	ft	
Mount Elevation		:	128.00	ft	
Antenna Elevation		:	128.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	118	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.22		
	S_1	:	0.06		
	S_{DS}	:	0.24		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.06		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.15	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.118		[Sec. 2.7.7.1]
Amplification	A_s	:	2.002933		[Sec. 16.7]

	q_z	:	35.48	psf

PROJECT	**80964.011.01 - BRG 126 943(**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**10/20/21**	PAGE	2	OF	3

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
ERICSSON	RADIO 4460 B2/B25 B66_TMO	1	1.13	1.20	1.78	1.40	2.33	1.90	0.07	0.05	0.01	0.01
ERICSSON	Radio 4480_TMOV2	1	1.40	1.20	2.40	1.15	3.03	1.65	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
ERICSSON	RADIO 4460 B2/B25 B66_TMO	1	1.13	1.20	1.78	1.40	2.33	1.90	0.07	0.05	0.01	0.01
ERICSSON	Radio 4480_TMOV2	1	1.40	1.20	2.40	1.15	3.03	1.65	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20_TMO	0.5	4.00	1.27	7.34	2.66	8.11	3.34	0.26	0.09	0.05	0.02
ERICSSON	RADIO 4460 B2/B25 B66_TMO	1	1.13	1.20	1.78	1.40	2.33	1.90	0.07	0.05	0.01	0.01
ERICSSON	Radio 4480_TMOV2	1	1.40	1.20	2.40	1.15	3.03	1.65	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01
ERICSSON	AIR6449 B41_T-MOBILE	0.5	1.61	1.20	2.64	1.02	3.07	1.35	0.09	0.04	0.02	0.01

PROJECT	**80964.011.01 - BRG 126 943(**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**10/20/21**	PAGE	3	OF	3

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
ANDREW	VHLP800-11	1	1.00	1.20	7.84	4.43	8.95	5.31	0.30	0.17	0.05	0.03

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-6.24964	0	3.860745	
2	2	6.25036	0	3.860745	
3	3	0.708152	0	-6.494934	
4	4	0.581858	0	-6.422018	
5	5	0.644358	0	-6.313765	
6	6	0.519358	0	-6.530271	
7	7	-0.708152	0	-6.494934	
8	8	-0.581858	0	-6.422018	
9	9	-0.644358	0	-6.313765	
10	10	-0.519358	0	-6.530271	
11	11	0	0	-6.530271	
12	12	0	0	-1.363571	
13	13	0	0	-2.863571	
14	14	-2.54129	0	-2.863571	
15	15	2.54129	0	-2.863571	
16	16	-2.54129	0	-2.696871	
17	17	2.54129	0	-2.696871	
18	18	-2.11697	0	-2.863571	
19	19	2.11697	0	-2.863571	
20	20	2.54129	0	-3.028181	
21	21	-2.54129	0	-3.028181	
22	22	2.41629	0	-3.244687	
23	23	2.47879	0	-3.136434	
24	24	2.605085	0	-3.20935	
25	25	-2.41629	0	-3.244687	
26	26	-2.47879	0	-3.136434	
27	27	-2.605085	0	-3.20935	
28	28	-0.	0	0.	
29	29	-5.978854	0	2.634189	
30	30	-5.85256	0	2.707106	
31	31	-5.79006	0	2.598853	
32	32	-5.91506	0	2.815359	
33	33	-5.270702	0	3.860745	
34	34	-5.270702	0	3.714913	
35	35	-5.145702	0	3.714913	
36	36	-5.395702	0	3.714913	
37	37	-5.655381	0	3.265136	
38	38	-1.180887	0	0.681786	
39	39	-2.479926	0	1.431786	
40	40	-1.20928	0	3.632608	
41	41	-3.750571	0	-0.769036	
42	42	-1.064914	0	3.549258	
43	43	-3.606204	0	-0.852386	
44	44	-1.42144	0	3.265136	
45	45	-3.538411	0	-0.401564	
46	46	-3.893127	0	-0.686732	
47	47	-1.351836	0	3.714913	
48	48	-4.018127	0	-0.470225	
49	49	-3.955627	0	-0.578478	
50	50	-4.081921	0	-0.651395	
51	51	-1.601836	0	3.714913	
52	52	-1.476836	0	3.714913	
53	53	-1.476836	0	3.860745	
54	54	5.270702	0	3.860745	
55	55	5.270702	0	3.714913	
56	56	5.145702	0	3.714913	
57	57	5.395702	0	3.714913	
58	58	5.978854	0	2.634189	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
59	59	5.85256	0	2.707106	
60	60	5.79006	0	2.598853	
61	61	5.91506	0	2.815359	
62	62	5.655381	0	3.265136	
63	63	1.180887	0	0.681786	
64	64	2.479926	0	1.431786	
65	65	3.750571	0	-0.769036	
66	66	1.20928	0	3.632608	
67	67	3.606204	0	-0.852386	
68	68	1.064914	0	3.549258	
69	69	3.538411	0	-0.401564	
70	70	1.42144	0	3.265136	
71	71	1.351836	0	3.714913	
72	72	3.893127	0	-0.686732	
73	73	1.601836	0	3.714913	
74	74	1.476836	0	3.714913	
75	75	1.476836	0	3.860745	
76	76	4.018127	0	-0.470225	
77	77	3.955627	0	-0.578478	
78	78	4.081921	0	-0.651395	
79	79	6.468323	0	3.481975	
80	80	0.218323	0	-7.343343	
81	81	-0.218683	0	-7.34272	
82	82	-6.468683	0	3.482598	
83	83	6.25036	4.666667	3.907417	
84	84	-6.24964	4.666667	3.907417	
85	85	0.258742	4.666667	-7.366679	
86	86	6.508742	4.666667	3.458639	
87	87	-6.509102	4.666667	3.459262	
88	88	-0.259102	4.666667	-7.366056	
89	89	-4.74964	0	3.860745	
90	90	-4.74964	0	4.10575	
91	91	-4.74964	4.666667	4.10575	
92	92	-4.74964	4.666667	3.907417	
93	93	-4.74964	5.166667	4.10575	
94	94	-4.74964	-2.833333	4.10575	
95	95	-0.74631	0	3.860745	
96	96	-0.74631	0	4.10575	
97	97	-0.74631	4.666667	4.10575	
98	98	-0.74631	4.666667	3.907417	
99	99	-0.74631	5.166667	4.10575	
100	100	-0.74631	-2.833333	4.10575	
101	101	0.917027	0	3.860745	
102	102	0.917027	0	4.10575	
103	103	0.917027	4.666667	4.10575	
104	104	0.917027	4.666667	3.907417	
105	105	0.917027	5.166667	4.10575	
106	106	0.917027	-2.833333	4.10575	
107	107	4.750359	0	3.860745	
108	108	4.750359	0	4.10575	
109	109	4.750359	4.666667	4.10575	
110	110	4.750359	4.666667	3.907417	
111	111	4.750359	5.166667	4.10575	
112	112	4.750359	-2.833333	4.10575	
113	113	-2.99964	0	3.860745	
114	114	-2.99964	0	3.61575	
115	115	-2.99964	4.833333	3.61575	
116	116	-2.99964	-1.166667	3.61575	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
117	117	5.718323	0	2.182936	
118	118	5.930504	0	2.060434	
119	119	5.930504	4.666667	2.060434	
120	120	5.758742	4.666667	2.1596	
121	121	5.930504	5.166667	2.060434	
122	122	5.930504	-2.833333	2.060434	
123	135	0.968324	0	-6.044304	
124	136	1.180504	0	-6.166807	
125	137	1.180504	4.666667	-6.166807	
126	138	1.008743	4.666667	-6.06764	
127	139	1.180504	5.166667	-6.166807	
128	140	1.180504	-2.833333	-6.166807	
129	145	-0.968683	0	-6.043681	
130	146	-1.180864	0.	-6.166184	
131	147	-1.180864	4.666667	-6.166184	
132	148	-1.009102	4.666667	-6.067017	
133	149	-1.180864	5.166667	-6.166184	
134	150	-1.180864	-2.833333	-6.166184	
135	151	-2.968503	0	-2.579892	
136	152	-3.180684	0.	-2.702394	
137	153	-3.180684	4.666667	-2.702394	
138	154	-3.008922	4.666667	-2.603228	
139	155	-3.180684	5.166667	-2.702394	
140	156	-3.180684	-2.833333	-2.702394	
141	157	-3.801837	0	-1.136516	
142	158	-4.014017	0.	-1.259018	
143	159	-4.014017	4.666667	-1.259018	
144	160	-3.842256	4.666667	-1.159852	
145	161	-4.014017	5.166667	-1.259018	
146	162	-4.014017	-2.833333	-1.259018	
147	163	-5.718683	0	2.183559	
148	164	-5.930863	0.	2.061057	
149	165	-5.930863	4.666667	2.061057	
150	166	-5.759102	4.666667	2.160223	
151	167	-5.930863	5.166667	2.061057	
152	168	-5.930863	-2.833333	2.061057	
153	169	-3.597344	-0.	-1.980703	
154	170	-3.38517	0	-1.858204	
155	171	-3.597344	4.833333	-1.980703	
156	172	-3.597344	-1.166667	-1.980703	
157	173	3.418138	0	1.973463	
158	174	3.418136	-0.166667	1.973462	
159	175	3.418136	-0.5	1.973462	
160	176	1.18089	-4.068116	0.681786	
161	177	1.469565	-4.068116	0.848453	
162	178	3.418136	-0.416667	1.973462	
163	179	1.397396	-4.068116	0.806786	
164	180	0	0	-3.946923	
165	181	0	-0.166667	-3.946923	
166	182	0	-0.5	-3.946923	
167	183	0	-4.068116	-1.363571	
168	184	-0.000001	-4.068116	-1.696907	
169	185	0	-0.416667	-3.946923	
170	186	0	-4.068116	-1.613574	
171	187	-3.418133	0	1.97346	
172	188	-3.418136	-0.166667	1.973462	
173	189	-3.418136	-0.5	1.973462	
174	190	-1.180889	-4.068116	0.681788	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
175	191	-1.469564	-4.068116	0.848454	
176	192	-3.418136	-0.416667	1.973462	
177	193	-1.397395	-4.068116	0.806788	
178	196	-0.6225	4.666667	-6.736632	
179	197	0.6225	4.666667	-6.736632	
180	198	-5.522845	4.666667	3.907417	
181	199	-6.145345	4.666667	2.829215	
182	200	6.145345	4.666667	2.829215	
183	201	5.522845	4.666667	3.907417	
184	202	2.88499	0	-2.724541	
185	203	3.09717	0	-2.847043	
186	204	3.09717	4.666667	-2.847043	
187	205	2.925409	4.666667	-2.747877	
188	206	3.09717	5.166667	-2.847043	
189	207	3.09717	-2.833333	-2.847043	
190	208	3.928839	5.166667	-1.406552	
191	209	3.928839	-2.833333	-1.406552	
192	210	3.928839	4.666667	-1.406552	
193	211	3.757077	4.666667	-1.307385	
194	212	3.716658	0	-1.284049	
195	213	3.928839	0	-1.406552	
196	214	4.843323	0	0.667392	
197	215	4.631151	0	0.789889	
198	216	4.631151	4.833333	0.789889	
199	217	4.631151	-1.166667	0.789889	
200	220	-2.99964	4.666667	3.907417	
201	221	-2.99964	4.666667	3.61575	
202	218	4.883742	4.666667	0.644056	
203	219	4.631151	4.666667	0.789889	
204	222	-3.597344	4.666667	-1.980703	
205	223	-3.425589	4.666667	-1.88154	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	190	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	183	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	176	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	MF-H2	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
3	SF-H1	HSS4X4X4	Beam	Tube	A53 Gr.B	Typical	3.37	7.8	7.8	12.8
4	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
5	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
6	MF-CP2	PL1/2"x6	Beam	RECT	A36 Gr.36	Typical	3	0.063	9	0.237
7	SF-H2	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
8	SF-H3	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
9	Kickers	LL2.5x2.5x3x3	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical	1.8	2.46	1.07	0.023
10	K-CP1	PL3/8X8	Beam	RECT	A36 Gr.36	Typical	3.04	0.037	16.213	0.142
11	K-CP2	PL3/8X8	Column	RECT	A36 Gr.36	Typical	3.04	0.037	16.213	0.142

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	2	1		MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	2	3	4		RIGID	None	None	RIGID	Typical
3	3	5	6		MF-CP2	Beam	RECT	A36 Gr.36	Typical
4	4	7	8		RIGID	None	None	RIGID	Typical
5	5	9	10		MF-CP2	Beam	RECT	A36 Gr.36	Typical
6	6	10	6		MF-CP2	Beam	RECT	A36 Gr.36	Typical
7	7	12	11		SF-H1	Beam	Tube	A53 Gr.B	Typical
8	8	14	13		SF-H1	Beam	Tube	A53 Gr.B	Typical
9	9	13	15		SF-H1	Beam	Tube	A53 Gr.B	Typical
10	10	16	21		MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	17	20		MF-CP1	Beam	RECT	A36 Gr.36	Typical
12	12	18	11		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
13	13	11	19		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
14	14	20	22		MF-CP1	Beam	RECT	A36 Gr.36	Typical
15	15	23	24		RIGID	None	None	RIGID	Typical
16	16	21	25		MF-CP1	Beam	RECT	A36 Gr.36	Typical
17	17	26	27		RIGID	None	None	RIGID	Typical
18	18	29	30		RIGID	None	None	RIGID	Typical
19	19	31	32		MF-CP2	Beam	RECT	A36 Gr.36	Typical
20	20	33	34		RIGID	None	None	RIGID	Typical
21	21	35	36		MF-CP2	Beam	RECT	A36 Gr.36	Typical
22	22	36	32		MF-CP2	Beam	RECT	A36 Gr.36	Typical
23	23	38	37		SF-H1	Beam	Tube	A53 Gr.B	Typical
24	24	40	39		SF-H1	Beam	Tube	A53 Gr.B	Typical
25	25	39	41		SF-H1	Beam	Tube	A53 Gr.B	Typical
26	26	42	47		MF-CP1	Beam	RECT	A36 Gr.36	Typical
27	27	43	46		MF-CP1	Beam	RECT	A36 Gr.36	Typical
28	28	44	37		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
29	29	37	45		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
30	30	46	48		MF-CP1	Beam	RECT	A36 Gr.36	Typical
31	31	49	50		RIGID	None	None	RIGID	Typical
32	32	47	51		MF-CP1	Beam	RECT	A36 Gr.36	Typical
33	33	52	53		RIGID	None	None	RIGID	Typical
34	34	54	55		RIGID	None	None	RIGID	Typical
35	35	56	57		MF-CP2	Beam	RECT	A36 Gr.36	Typical
36	36	58	59		RIGID	None	None	RIGID	Typical
37	37	60	61		MF-CP2	Beam	RECT	A36 Gr.36	Typical
38	38	61	57		MF-CP2	Beam	RECT	A36 Gr.36	Typical
39	39	63	62		SF-H1	Beam	Tube	A53 Gr.B	Typical
40	40	65	64		SF-H1	Beam	Tube	A53 Gr.B	Typical
41	41	64	66		SF-H1	Beam	Tube	A53 Gr.B	Typical
42	42	67	72		MF-CP1	Beam	RECT	A36 Gr.36	Typical
43	43	68	71		MF-CP1	Beam	RECT	A36 Gr.36	Typical
44	44	69	62		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
45	45	62	70		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
46	46	71	73		MF-CP1	Beam	RECT	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
47	47	74	75		RIGID	None	None	RIGID	Typical
48	48	72	76		MF-CP1	Beam	RECT	A36 Gr.36	Typical
49	49	77	78		RIGID	None	None	RIGID	Typical
50	50	80	79		MF-H1	Beam	Pipe	A53 Gr.B	Typical
51	51	82	81		MF-H1	Beam	Pipe	A53 Gr.B	Typical
52	52	83	84		MF-H2	Beam	Pipe	A53 Gr.B	Typical
53	53	85	86		MF-H2	Beam	Pipe	A53 Gr.B	Typical
54	54	87	88		MF-H2	Beam	Pipe	A53 Gr.B	Typical
55	55	89	90		RIGID	None	None	RIGID	Typical
56	56	91	92		RIGID	None	None	RIGID	Typical
57	57	93	94		MF-P1	Column	Pipe	A53 Gr.B	Typical
58	58	95	96		RIGID	None	None	RIGID	Typical
59	59	97	98		RIGID	None	None	RIGID	Typical
60	60	99	100		MF-P1	Column	Pipe	A53 Gr.B	Typical
61	61	101	102		RIGID	None	None	RIGID	Typical
62	62	103	104		RIGID	None	None	RIGID	Typical
63	63	105	106		MF-P1	Column	Pipe	A53 Gr.B	Typical
64	64	107	108		RIGID	None	None	RIGID	Typical
65	65	109	110		RIGID	None	None	RIGID	Typical
66	66	111	112		MF-P1	Column	Pipe	A53 Gr.B	Typical
67	67	113	114		RIGID	None	None	RIGID	Typical
68	68	115	116		MF-P1	Column	Pipe	A53 Gr.B	Typical
69	69	117	118		RIGID	None	None	RIGID	Typical
70	70	119	120		RIGID	None	None	RIGID	Typical
71	71	121	122		MF-P1	Column	Pipe	A53 Gr.B	Typical
72	78	135	136		RIGID	None	None	RIGID	Typical
73	79	137	138		RIGID	None	None	RIGID	Typical
74	80	139	140		MF-P1	Column	Pipe	A53 Gr.B	Typical
75	83	145	146		RIGID	None	None	RIGID	Typical
76	84	147	148		RIGID	None	None	RIGID	Typical
77	85	149	150		MF-P1	Column	Pipe	A53 Gr.B	Typical
78	86	151	152		RIGID	None	None	RIGID	Typical
79	87	153	154		RIGID	None	None	RIGID	Typical
80	88	155	156		MF-P1	Column	Pipe	A53 Gr.B	Typical
81	89	157	158		RIGID	None	None	RIGID	Typical
82	90	159	160		RIGID	None	None	RIGID	Typical
83	91	161	162		MF-P1	Column	Pipe	A53 Gr.B	Typical
84	92	163	164		RIGID	None	None	RIGID	Typical
85	93	165	166		RIGID	None	None	RIGID	Typical
86	94	167	168		MF-P1	Column	Pipe	A53 Gr.B	Typical
87	95	169	170		RIGID	None	None	RIGID	Typical
88	96	171	172		MF-P1	Column	Pipe	A53 Gr.B	Typical
89	97	173	174		RIGID	None	None	RIGID	Typical
90	98	174	175	30	K-CP2	Column	RECT	A36 Gr.36	Typical
91	99	176	177		K-CP1	Beam	RECT	A36 Gr.36	Typical
92	100	178	179		Kickers	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
93	101	180	181		RIGID	None	None	RIGID	Typical
94	102	181	182	90	K-CP2	Column	RECT	A36 Gr.36	Typical
95	103	183	184		K-CP1	Beam	RECT	A36 Gr.36	Typical
96	104	185	186		Kickers	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
97	105	187	188		RIGID	None	None	RIGID	Typical
98	106	188	189	150	K-CP2	Column	RECT	A36 Gr.36	Typical
99	107	190	191		K-CP1	Beam	RECT	A36 Gr.36	Typical
100	108	192	193		Kickers	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
101	110	196	197	180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
102	111	198	199	180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
103	112	200	201	180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
104	75	202	203		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
105	76	204	205		RIGID	None	None	RIGID	Typical
106	77	206	207		MF-P1	Column	Pipe	A53 Gr.B	Typical
107	74	208	209		MF-P1	Column	Pipe	A53 Gr.B	Typical
108	73	210	211		RIGID	None	None	RIGID	Typical
109	72	212	213		RIGID	None	None	RIGID	Typical
110	113	214	215		RIGID	None	None	RIGID	Typical
111	114	216	217		MF-P1	Column	Pipe	A53 Gr.B	Typical
112	115	220	221		RIGID	None	None	RIGID	Typical
113	116	218	219		RIGID	None	None	RIGID	Typical
114	117	222	223		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	Default	None
2	2	OOOOOX		Yes	** NA **	None
3	3			Yes		None
4	4	OOOOOX		Yes	** NA **	None
5	5			Yes		None
6	6			Yes		None
7	7			Yes		None
8	8			Yes		None
9	9			Yes		None
10	10			Yes	Default	None
11	11			Yes	Default	None
12	12			Yes		None
13	13			Yes		None
14	14			Yes		None
15	15		OOOOOX	Yes	** NA **	None
16	16			Yes		None
17	17		OOOOOX	Yes	** NA **	None
18	18	OOOOOX		Yes	** NA **	None
19	19			Yes		None
20	20	OOOOOX		Yes	** NA **	None
21	21			Yes		None
22	22			Yes		None
23	23			Yes		None
24	24			Yes		None
25	25			Yes		None
26	26			Yes	Default	None
27	27			Yes	Default	None
28	28			Yes		None
29	29			Yes		None
30	30			Yes		None
31	31		OOOOOX	Yes	** NA **	None
32	32			Yes		None
33	33		OOOOOX	Yes	** NA **	None
34	34	OOOOOX		Yes	** NA **	None
35	35			Yes		None
36	36	OOOOOX		Yes	** NA **	None
37	37			Yes		None
38	38			Yes		None
39	39			Yes		None
40	40			Yes		None
41	41			Yes		None
42	42			Yes	Default	None
43	43			Yes	Default	None
44	44			Yes		None
45	45			Yes		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
46	46			Yes		None
47	47		OOOOOX	Yes	** NA **	None
48	48			Yes		None
49	49		OOOOOX	Yes	** NA **	None
50	50			Yes		None
51	51			Yes		None
52	52			Yes		None
53	53			Yes		None
54	54			Yes		None
55	55			Yes	** NA **	None
56	56			Yes	** NA **	None
57	57			Yes	** NA **	None
58	58			Yes	** NA **	None
59	59			Yes	** NA **	None
60	60			Yes	** NA **	None
61	61			Yes	** NA **	None
62	62			Yes	** NA **	None
63	63			Yes	** NA **	None
64	64			Yes	** NA **	None
65	65			Yes	** NA **	None
66	66			Yes	** NA **	None
67	67			Yes	** NA **	None
68	68			Yes	** NA **	None
69	69			Yes	** NA **	None
70	70			Yes	** NA **	None
71	71			Yes	** NA **	None
72	78			Yes	** NA **	None
73	79			Yes	** NA **	None
74	80			Yes	** NA **	None
75	83			Yes	** NA **	None
76	84			Yes	** NA **	None
77	85			Yes	** NA **	None
78	86			Yes	** NA **	None
79	87			Yes	** NA **	None
80	88			Yes	** NA **	None
81	89			Yes	** NA **	None
82	90			Yes	** NA **	None
83	91			Yes	** NA **	None
84	92			Yes	** NA **	None
85	93			Yes	** NA **	None
86	94			Yes	** NA **	None
87	95			Yes	** NA **	None
88	96			Yes	** NA **	None
89	97			Yes	** NA **	None
90	98			Yes	** NA **	None
91	99			Yes		None
92	100	BenPIN	BenPIN	Yes	** NA **	None
93	101			Yes	** NA **	None
94	102			Yes	** NA **	None
95	103			Yes		None
96	104	BenPIN	BenPIN	Yes	** NA **	None
97	105			Yes	** NA **	None
98	106			Yes	** NA **	None
99	107			Yes		None
100	108	BenPIN	BenPIN	Yes	** NA **	None
101	110			Yes		None
102	111			Yes		None
103	112			Yes		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
104	75			Yes	** NA **	None
105	76			Yes	** NA **	None
106	77			Yes	** NA **	None
107	74			Yes	** NA **	None
108	73			Yes	** NA **	None
109	72			Yes	** NA **	None
110	113			Yes	** NA **	None
111	114			Yes	** NA **	None
112	115			Yes	** NA **	None
113	116			Yes	** NA **	None
114	117			Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-H1	12.5	Lbyy	Lateral
2	3	MF-CP2	0.25	Lbyy	Lateral
3	5	MF-CP2	0.25	Lbyy	Lateral
4	6	MF-CP2	1.039	Lbyy	Lateral
5	7	SF-H1	5.167	Lbyy	Lateral
6	8	SF-H1	2.541	Lbyy	Lateral
7	9	SF-H1	2.541	Lbyy	Lateral
8	10	MF-CP1	0.331	Lbyy	Lateral
9	11	MF-CP1	0.331	Lbyy	Lateral
10	12	SF-H2	4.234	Lbyy	Lateral
11	13	SF-H2	4.234	Lbyy	Lateral
12	14	MF-CP1	0.25	Lbyy	Lateral
13	16	MF-CP1	0.25	Lbyy	Lateral
14	19	MF-CP2	0.25	Lbyy	Lateral
15	21	MF-CP2	0.25	Lbyy	Lateral
16	22	MF-CP2	1.039	Lbyy	Lateral
17	23	SF-H1	5.167	Lbyy	Lateral
18	24	SF-H1	2.541	Lbyy	Lateral
19	25	SF-H1	2.541	Lbyy	Lateral
20	26	MF-CP1	0.331	Lbyy	Lateral
21	27	MF-CP1	0.331	Lbyy	Lateral
22	28	SF-H2	4.234	Lbyy	Lateral
23	29	SF-H2	4.234	Lbyy	Lateral
24	30	MF-CP1	0.25	Lbyy	Lateral
25	32	MF-CP1	0.25	Lbyy	Lateral
26	35	MF-CP2	0.25	Lbyy	Lateral
27	37	MF-CP2	0.25	Lbyy	Lateral
28	38	MF-CP2	1.039	Lbyy	Lateral
29	39	SF-H1	5.167	Lbyy	Lateral
30	40	SF-H1	2.541	Lbyy	Lateral
31	41	SF-H1	2.541	Lbyy	Lateral
32	42	MF-CP1	0.331	Lbyy	Lateral
33	43	MF-CP1	0.331	Lbyy	Lateral
34	44	SF-H2	4.234	Lbyy	Lateral
35	45	SF-H2	4.234	Lbyy	Lateral
36	46	MF-CP1	0.25	Lbyy	Lateral
37	48	MF-CP1	0.25	Lbyy	Lateral
38	50	MF-H1	12.5	Lbyy	Lateral
39	51	MF-H1	12.5	Lbyy	Lateral
40	52	MF-H2	12.5	Lbyy	Lateral
41	53	MF-H2	12.5	Lbyy	Lateral
42	54	MF-H2	12.5	Lbyy	Lateral
43	57	MF-P1	8	Lbyy	Lateral
44	60	MF-P1	8	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
45	63	MF-P1	8	Lbyy	Lateral
46	66	MF-P1	8	Lbyy	Lateral
47	68	MF-P1	6	Lbyy	Lateral
48	71	MF-P1	8	Lbyy	Lateral
49	80	MF-P1	8	Lbyy	Lateral
50	85	MF-P1	8	Lbyy	Lateral
51	88	MF-P1	8	Lbyy	Lateral
52	91	MF-P1	8	Lbyy	Lateral
53	94	MF-P1	8	Lbyy	Lateral
54	96	MF-P1	6	Lbyy	Lateral
55	98	K-CP2	0.333	Lbyy	Lateral
56	99	K-CP1	0.333	Lbyy	Lateral
57	100	Kickers	4.333	Lbyy	Lateral
58	102	K-CP2	0.333	Lbyy	Lateral
59	103	K-CP1	0.333	Lbyy	Lateral
60	104	Kickers	4.333	Lbyy	Lateral
61	106	K-CP2	0.333	Lbyy	Lateral
62	107	K-CP1	0.333	Lbyy	Lateral
63	108	Kickers	4.333	Lbyy	Lateral
64	110	SF-H3	1.245	Lbyy	Lateral
65	111	SF-H3	1.245	Lbyy	Lateral
66	112	SF-H3	1.245	Lbyy	Lateral
67	77	MF-P1	8	Lbyy	Lateral
68	74	MF-P1	8	Lbyy	Lateral
69	114	MF-P1	6	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.075	%5
2	66	Y	-0.075	%95
3	66	Y	-0.109	%85
4	66	Y	-0.081	%35
5	66	Y	0	0
6	60	Y	-0.057	%5
7	60	Y	-0.057	%35
8	60	Y	0	0
9	60	Y	0	0
10	60	Y	0	0
11	94	Y	-0.075	%5
12	94	Y	-0.075	%95
13	94	Y	-0.109	%85
14	94	Y	-0.081	%35
15	94	Y	0	0
16	88	Y	-0.057	%5
17	88	Y	-0.057	%35
18	88	Y	0	0
19	88	Y	0	0
20	88	Y	0	0
21	80	Y	-0.075	%5
22	80	Y	-0.075	%95
23	80	Y	-0.109	%85
24	80	Y	-0.081	%35
25	80	Y	0	0
26	74	Y	-0.057	%5
27	74	Y	-0.057	%35
28	74	Y	0	0
29	74	Y	0	0
30	74	Y	0	0

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
31	85	Y	-0.049	%25
32	85	Y	0	0
33	85	Y	0	0
34	85	Y	0	0
35	85	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.26	%5
2	66	Z	-0.26	%95
3	66	Z	-0.068	%85
4	66	Z	-0.092	%35
5	66	Z	0	0
6	60	Z	-0.094	%5
7	60	Z	-0.094	%35
8	60	Z	0	0
9	60	Z	0	0
10	60	Z	0	0
11	94	Z	-0.26	%5
12	94	Z	-0.26	%95
13	94	Z	-0.068	%85
14	94	Z	-0.092	%35
15	94	Z	0	0
16	88	Z	-0.094	%5
17	88	Z	-0.094	%35
18	88	Z	0	0
19	88	Z	0	0
20	88	Z	0	0
21	80	Z	-0.26	%5
22	80	Z	-0.26	%95
23	80	Z	-0.068	%85
24	80	Z	-0.092	%35
25	80	Z	0	0
26	74	Z	-0.094	%5
27	74	Z	-0.094	%35
28	74	Z	0	0
29	74	Z	0	0
30	74	Z	0	0
31	85	Z	-0.3	%25
32	85	Z	0	0
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.094	%5
2	66	X	-0.094	%95
3	66	X	-0.054	%85
4	66	X	-0.044	%35
5	66	X	0	0
6	60	X	-0.036	%5
7	60	X	-0.036	%35
8	60	X	0	0
9	60	X	0	0
10	60	X	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
11	94	X	-0.094	%5
12	94	X	-0.094	%95
13	94	X	-0.054	%85
14	94	X	-0.044	%35
15	94	X	0	0
16	88	X	-0.036	%5
17	88	X	-0.036	%35
18	88	X	0	0
19	88	X	0	0
20	88	X	0	0
21	80	X	-0.094	%5
22	80	X	-0.094	%95
23	80	X	-0.054	%85
24	80	X	-0.044	%35
25	80	X	0	0
26	74	X	-0.036	%5
27	74	X	-0.036	%35
28	74	X	0	0
29	74	X	0	0
30	74	X	0	0
31	85	X	-0.17	%25
32	85	X	0	0
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.052	%5
2	66	Z	-0.052	%95
3	66	Z	-0.012	%85
4	66	Z	-0.017	%35
5	66	Z	0	0
6	60	Z	-0.02	%5
7	60	Z	-0.02	%35
8	60	Z	0	0
9	60	Z	0	0
10	60	Z	0	0
11	94	Z	-0.052	%5
12	94	Z	-0.052	%95
13	94	Z	-0.012	%85
14	94	Z	-0.017	%35
15	94	Z	0	0
16	88	Z	-0.02	%5
17	88	Z	-0.02	%35
18	88	Z	0	0
19	88	Z	0	0
20	88	Z	0	0
21	80	Z	-0.052	%5
22	80	Z	-0.052	%95
23	80	Z	-0.012	%85
24	80	Z	-0.017	%35
25	80	Z	0	0
26	74	Z	-0.02	%5
27	74	Z	-0.02	%35
28	74	Z	0	0
29	74	Z	0	0
30	74	Z	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
31	85	Z	-0.054	%25
32	85	Z	0	0
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.021	%5
2	66	X	-0.021	%95
3	66	X	-0.01	%85
4	66	X	-0.008	%35
5	66	X	0	0
6	60	X	-0.009	%5
7	60	X	-0.009	%35
8	60	X	0	0
9	60	X	0	0
10	60	X	0	0
11	94	X	-0.021	%5
12	94	X	-0.021	%95
13	94	X	-0.01	%85
14	94	X	-0.008	%35
15	94	X	0	0
16	88	X	-0.009	%5
17	88	X	-0.009	%35
18	88	X	0	0
19	88	X	0	0
20	88	X	0	0
21	80	X	-0.021	%5
22	80	X	-0.021	%95
23	80	X	-0.01	%85
24	80	X	-0.008	%35
25	80	X	0	0
26	74	X	-0.009	%5
27	74	X	-0.009	%35
28	74	X	0	0
29	74	X	0	0
30	74	X	0	0
31	85	X	-0.031	%25
32	85	X	0	0
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.017	%5
2	66	Z	-0.017	%95
3	66	Z	-0.004	%85
4	66	Z	-0.006	%35
5	66	Z	0	0
6	60	Z	-0.006	%5
7	60	Z	-0.006	%35
8	60	Z	0	0
9	60	Z	0	0
10	60	Z	0	0

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
11	94	Z	-0.017	%5
12	94	Z	-0.017	%95
13	94	Z	-0.004	%85
14	94	Z	-0.006	%35
15	94	Z	0	0
16	88	Z	-0.006	%5
17	88	Z	-0.006	%35
18	88	Z	0	0
19	88	Z	0	0
20	88	Z	0	0
21	80	Z	-0.017	%5
22	80	Z	-0.017	%95
23	80	Z	-0.004	%85
24	80	Z	-0.006	%35
25	80	Z	0	0
26	74	Z	-0.006	%5
27	74	Z	-0.006	%35
28	74	Z	0	0
29	74	Z	0	0
30	74	Z	0	0
31	85	Z	-0.019	%25
32	85	Z	0	0
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.006	%5
2	66	X	-0.006	%95
3	66	X	-0.004	%85
4	66	X	-0.003	%35
5	66	X	0	0
6	60	X	-0.002	%5
7	60	X	-0.002	%35
8	60	X	0	0
9	60	X	0	0
10	60	X	0	0
11	94	X	-0.006	%5
12	94	X	-0.006	%95
13	94	X	-0.004	%85
14	94	X	-0.003	%35
15	94	X	0	0
16	88	X	-0.002	%5
17	88	X	-0.002	%35
18	88	X	0	0
19	88	X	0	0
20	88	X	0	0
21	80	X	-0.006	%5
22	80	X	-0.006	%95
23	80	X	-0.004	%85
24	80	X	-0.003	%35
25	80	X	0	0
26	74	X	-0.002	%5
27	74	X	-0.002	%35
28	74	X	0	0
29	74	X	0	0
30	74	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
31	85	X	-0.011	%25
32	85	X	0	0
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.191	%5
2	66	Y	-0.191	%95
3	66	Y	-0.04	%85
4	66	Y	-0.048	%35
5	66	Y	0	0
6	60	Y	-0.098	%5
7	60	Y	-0.098	%35
8	60	Y	0	0
9	60	Y	0	0
10	60	Y	0	0
11	94	Y	-0.191	%5
12	94	Y	-0.191	%95
13	94	Y	-0.04	%85
14	94	Y	-0.048	%35
15	94	Y	0	0
16	88	Y	-0.098	%5
17	88	Y	-0.098	%35
18	88	Y	0	0
19	88	Y	0	0
20	88	Y	0	0
21	80	Y	-0.191	%5
22	80	Y	-0.191	%95
23	80	Y	-0.04	%85
24	80	Y	-0.048	%35
25	80	Y	0	0
26	74	Y	-0.098	%5
27	74	Y	-0.098	%35
28	74	Y	0	0
29	74	Y	0	0
30	74	Y	0	0
31	85	Y	-0.156	%25
32	85	Y	0	0
33	85	Y	0	0
34	85	Y	0	0
35	85	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.035	%5
2	66	Z	-0.035	%95
3	66	Z	-0.026	%85
4	66	Z	-0.019	%35
5	66	Z	0	0
6	60	Z	-0.027	%5
7	60	Z	-0.027	%35
8	60	Z	0	0
9	60	Z	0	0
10	60	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
11	94	Z	-0.035	%5
12	94	Z	-0.035	%95
13	94	Z	-0.026	%85
14	94	Z	-0.019	%35
15	94	Z	0	0
16	88	Z	-0.027	%5
17	88	Z	-0.027	%35
18	88	Z	0	0
19	88	Z	0	0
20	88	Z	0	0
21	80	Z	-0.035	%5
22	80	Z	-0.035	%95
23	80	Z	-0.026	%85
24	80	Z	-0.019	%35
25	80	Z	0	0
26	74	Z	-0.027	%5
27	74	Z	-0.027	%35
28	74	Z	0	0
29	74	Z	0	0
30	74	Z	0	0
31	85	Z	-0.012	%25
32	85	Z	0	0
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.035	%5
2	66	X	-0.035	%95
3	66	X	-0.026	%85
4	66	X	-0.019	%35
5	66	X	0	0
6	60	X	-0.027	%5
7	60	X	-0.027	%35
8	60	X	0	0
9	60	X	0	0
10	60	X	0	0
11	94	X	-0.035	%5
12	94	X	-0.035	%95
13	94	X	-0.026	%85
14	94	X	-0.019	%35
15	94	X	0	0
16	88	X	-0.027	%5
17	88	X	-0.027	%35
18	88	X	0	0
19	88	X	0	0
20	88	X	0	0
21	80	X	-0.035	%5
22	80	X	-0.035	%95
23	80	X	-0.026	%85
24	80	X	-0.019	%35
25	80	X	0	0
26	74	X	-0.027	%5
27	74	X	-0.027	%35
28	74	X	0	0
29	74	X	0	0
30	74	X	0	0

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
31	85	X	-0.012	%25
32	85	X	0	0
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	52	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	52	Y	-0.25	%95

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	54	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	54	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Y	-0.25	%5

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%5

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	23	Y	-0.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	7	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.011	-0.011	0	%100
2	3	Z	-0.019	-0.019	0	%100
3	5	Z	-0.019	-0.019	0	%100
4	6	Z	-0.019	-0.019	0	%100
5	7	Z	-0.018	-0.018	0	%100
6	8	Z	-0.015	-0.015	0	%100
7	9	Z	-0.015	-0.015	0	%100
8	10	Z	-0.019	-0.019	0	%100
9	11	Z	-0.019	-0.019	0	%100
10	12	Z	-0.011	-0.011	0	%100
11	13	Z	-0.011	-0.011	0	%100
12	14	Z	-0.019	-0.019	0	%100
13	16	Z	-0.019	-0.019	0	%100
14	19	Z	-0.019	-0.019	0	%100
15	21	Z	-0.019	-0.019	0	%100
16	22	Z	-0.019	-0.019	0	%100
17	23	Z	-0.018	-0.018	0	%100
18	24	Z	-0.015	-0.015	0	%100
19	25	Z	-0.015	-0.015	0	%100
20	26	Z	-0.019	-0.019	0	%100
21	27	Z	-0.019	-0.019	0	%100
22	28	Z	-0.011	-0.011	0	%100
23	29	Z	-0.011	-0.011	0	%100
24	30	Z	-0.019	-0.019	0	%100
25	32	Z	-0.019	-0.019	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	35	Z	-0.019	-0.019	0	%100
27	37	Z	-0.019	-0.019	0	%100
28	38	Z	-0.019	-0.019	0	%100
29	39	Z	-0.018	-0.018	0	%100
30	40	Z	-0.015	-0.015	0	%100
31	41	Z	-0.015	-0.015	0	%100
32	42	Z	-0.019	-0.019	0	%100
33	43	Z	-0.019	-0.019	0	%100
34	44	Z	-0.011	-0.011	0	%100
35	45	Z	-0.011	-0.011	0	%100
36	46	Z	-0.019	-0.019	0	%100
37	48	Z	-0.019	-0.019	0	%100
38	50	Z	-0.011	-0.011	0	%100
39	51	Z	-0.011	-0.011	0	%100
40	52	Z	-0.008	-0.008	0	%100
41	53	Z	-0.008	-0.008	0	%100
42	54	Z	-0.008	-0.008	0	%100
43	57	Z	-0.008	-0.008	0	%100
44	60	Z	-0.008	-0.008	0	%100
45	63	Z	-0.008	-0.008	0	%100
46	66	Z	-0.008	-0.008	0	%100
47	68	Z	-0.008	-0.008	0	%100
48	71	Z	-0.008	-0.008	0	%100
49	80	Z	-0.008	-0.008	0	%100
50	85	Z	-0.008	-0.008	0	%100
51	88	Z	-0.008	-0.008	0	%100
52	91	Z	-0.008	-0.008	0	%100
53	94	Z	-0.008	-0.008	0	%100
54	96	Z	-0.008	-0.008	0	%100
55	98	Z	-0.026	-0.026	0	%100
56	99	Z	-0.026	-0.026	0	%100
57	100	Z	-0.02	-0.02	0	%100
58	102	Z	-0.026	-0.026	0	%100
59	103	Z	-0.026	-0.026	0	%100
60	104	Z	-0.02	-0.02	0	%100
61	106	Z	-0.026	-0.026	0	%100
62	107	Z	-0.026	-0.026	0	%100
63	108	Z	-0.02	-0.02	0	%100
64	110	Z	-0.009	-0.009	0	%100
65	111	Z	-0.009	-0.009	0	%100
66	112	Z	-0.009	-0.009	0	%100
67	114	Z	-0.008	-0.008	0	%100
68	74	Z	-0.008	-0.008	0	%100
69	77	Z	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.011	-0.011	0	%100
2	3	X	-0.019	-0.019	0	%100
3	5	X	-0.019	-0.019	0	%100
4	6	X	-0.019	-0.019	0	%100
5	7	X	-0.018	-0.018	0	%100
6	8	X	-0.015	-0.015	0	%100
7	9	X	-0.015	-0.015	0	%100
8	10	X	-0.019	-0.019	0	%100
9	11	X	-0.019	-0.019	0	%100
10	12	X	-0.011	-0.011	0	%100
11	13	X	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
12	14	X	-0.019	-0.019	0	%100
13	16	X	-0.019	-0.019	0	%100
14	19	X	-0.019	-0.019	0	%100
15	21	X	-0.019	-0.019	0	%100
16	22	X	-0.019	-0.019	0	%100
17	23	X	-0.018	-0.018	0	%100
18	24	X	-0.015	-0.015	0	%100
19	25	X	-0.015	-0.015	0	%100
20	26	X	-0.019	-0.019	0	%100
21	27	X	-0.019	-0.019	0	%100
22	28	X	-0.011	-0.011	0	%100
23	29	X	-0.011	-0.011	0	%100
24	30	X	-0.019	-0.019	0	%100
25	32	X	-0.019	-0.019	0	%100
26	35	X	-0.019	-0.019	0	%100
27	37	X	-0.019	-0.019	0	%100
28	38	X	-0.019	-0.019	0	%100
29	39	X	-0.018	-0.018	0	%100
30	40	X	-0.015	-0.015	0	%100
31	41	X	-0.015	-0.015	0	%100
32	42	X	-0.019	-0.019	0	%100
33	43	X	-0.019	-0.019	0	%100
34	44	X	-0.011	-0.011	0	%100
35	45	X	-0.011	-0.011	0	%100
36	46	X	-0.019	-0.019	0	%100
37	48	X	-0.019	-0.019	0	%100
38	50	X	-0.011	-0.011	0	%100
39	51	X	-0.011	-0.011	0	%100
40	52	X	-0.008	-0.008	0	%100
41	53	X	-0.008	-0.008	0	%100
42	54	X	-0.008	-0.008	0	%100
43	57	X	-0.008	-0.008	0	%100
44	60	X	-0.008	-0.008	0	%100
45	63	X	-0.008	-0.008	0	%100
46	66	X	-0.008	-0.008	0	%100
47	68	X	-0.008	-0.008	0	%100
48	71	X	-0.008	-0.008	0	%100
49	80	X	-0.008	-0.008	0	%100
50	85	X	-0.008	-0.008	0	%100
51	88	X	-0.008	-0.008	0	%100
52	91	X	-0.008	-0.008	0	%100
53	94	X	-0.008	-0.008	0	%100
54	96	X	-0.008	-0.008	0	%100
55	98	X	-0.026	-0.026	0	%100
56	99	X	-0.026	-0.026	0	%100
57	100	X	-0.02	-0.02	0	%100
58	102	X	-0.026	-0.026	0	%100
59	103	X	-0.026	-0.026	0	%100
60	104	X	-0.02	-0.02	0	%100
61	106	X	-0.026	-0.026	0	%100
62	107	X	-0.026	-0.026	0	%100
63	108	X	-0.02	-0.02	0	%100
64	110	X	-0.009	-0.009	0	%100
65	111	X	-0.009	-0.009	0	%100
66	112	X	-0.009	-0.009	0	%100
67	114	X	-0.008	-0.008	0	%100
68	74	X	-0.008	-0.008	0	%100
69	77	X	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	3	Z	-0.008	-0.008	0	%100
3	5	Z	-0.008	-0.008	0	%100
4	6	Z	-0.006	-0.006	0	%100
5	7	Z	-0.005	-0.005	0	%100
6	8	Z	-0.005	-0.005	0	%100
7	9	Z	-0.005	-0.005	0	%100
8	10	Z	-0.008	-0.008	0	%100
9	11	Z	-0.008	-0.008	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.004	-0.004	0	%100
12	14	Z	-0.008	-0.008	0	%100
13	16	Z	-0.008	-0.008	0	%100
14	19	Z	-0.008	-0.008	0	%100
15	21	Z	-0.008	-0.008	0	%100
16	22	Z	-0.006	-0.006	0	%100
17	23	Z	-0.005	-0.005	0	%100
18	24	Z	-0.005	-0.005	0	%100
19	25	Z	-0.005	-0.005	0	%100
20	26	Z	-0.008	-0.008	0	%100
21	27	Z	-0.008	-0.008	0	%100
22	28	Z	-0.004	-0.004	0	%100
23	29	Z	-0.004	-0.004	0	%100
24	30	Z	-0.008	-0.008	0	%100
25	32	Z	-0.008	-0.008	0	%100
26	35	Z	-0.008	-0.008	0	%100
27	37	Z	-0.008	-0.008	0	%100
28	38	Z	-0.006	-0.006	0	%100
29	39	Z	-0.005	-0.005	0	%100
30	40	Z	-0.005	-0.005	0	%100
31	41	Z	-0.005	-0.005	0	%100
32	42	Z	-0.008	-0.008	0	%100
33	43	Z	-0.008	-0.008	0	%100
34	44	Z	-0.004	-0.004	0	%100
35	45	Z	-0.004	-0.004	0	%100
36	46	Z	-0.008	-0.008	0	%100
37	48	Z	-0.008	-0.008	0	%100
38	50	Z	-0.002	-0.002	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	52	Z	-0.001	-0.001	0	%100
41	53	Z	-0.001	-0.001	0	%100
42	54	Z	-0.001	-0.001	0	%100
43	57	Z	-0.001	-0.001	0	%100
44	60	Z	-0.001	-0.001	0	%100
45	63	Z	-0.001	-0.001	0	%100
46	66	Z	-0.001	-0.001	0	%100
47	68	Z	-0.001	-0.001	0	%100
48	71	Z	-0.001	-0.001	0	%100
49	80	Z	-0.001	-0.001	0	%100
50	85	Z	-0.001	-0.001	0	%100
51	88	Z	-0.001	-0.001	0	%100
52	91	Z	-0.001	-0.001	0	%100
53	94	Z	-0.001	-0.001	0	%100
54	96	Z	-0.001	-0.001	0	%100
55	98	Z	-0.009	-0.009	0	%100
56	99	Z	-0.009	-0.009	0	%100
57	100	Z	-0.005	-0.005	0	%100
58	102	Z	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
59	103	Z	-0.009	-0.009	0	%100
60	104	Z	-0.005	-0.005	0	%100
61	106	Z	-0.009	-0.009	0	%100
62	107	Z	-0.009	-0.009	0	%100
63	108	Z	-0.005	-0.005	0	%100
64	110	Z	-0.004	-0.004	0	%100
65	111	Z	-0.004	-0.004	0	%100
66	112	Z	-0.004	-0.004	0	%100
67	114	Z	-0.001	-0.001	0	%100
68	74	Z	-0.001	-0.001	0	%100
69	77	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	3	X	-0.008	-0.008	0	%100
3	5	X	-0.008	-0.008	0	%100
4	6	X	-0.006	-0.006	0	%100
5	7	X	-0.005	-0.005	0	%100
6	8	X	-0.005	-0.005	0	%100
7	9	X	-0.005	-0.005	0	%100
8	10	X	-0.008	-0.008	0	%100
9	11	X	-0.008	-0.008	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.004	-0.004	0	%100
12	14	X	-0.008	-0.008	0	%100
13	16	X	-0.008	-0.008	0	%100
14	19	X	-0.008	-0.008	0	%100
15	21	X	-0.008	-0.008	0	%100
16	22	X	-0.006	-0.006	0	%100
17	23	X	-0.005	-0.005	0	%100
18	24	X	-0.005	-0.005	0	%100
19	25	X	-0.005	-0.005	0	%100
20	26	X	-0.008	-0.008	0	%100
21	27	X	-0.008	-0.008	0	%100
22	28	X	-0.004	-0.004	0	%100
23	29	X	-0.004	-0.004	0	%100
24	30	X	-0.008	-0.008	0	%100
25	32	X	-0.008	-0.008	0	%100
26	35	X	-0.008	-0.008	0	%100
27	37	X	-0.008	-0.008	0	%100
28	38	X	-0.006	-0.006	0	%100
29	39	X	-0.005	-0.005	0	%100
30	40	X	-0.005	-0.005	0	%100
31	41	X	-0.005	-0.005	0	%100
32	42	X	-0.008	-0.008	0	%100
33	43	X	-0.008	-0.008	0	%100
34	44	X	-0.004	-0.004	0	%100
35	45	X	-0.004	-0.004	0	%100
36	46	X	-0.008	-0.008	0	%100
37	48	X	-0.008	-0.008	0	%100
38	50	X	-0.002	-0.002	0	%100
39	51	X	-0.002	-0.002	0	%100
40	52	X	-0.001	-0.001	0	%100
41	53	X	-0.001	-0.001	0	%100
42	54	X	-0.001	-0.001	0	%100
43	57	X	-0.001	-0.001	0	%100
44	60	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
45	63	X	-0.001	-0.001	0	%100
46	66	X	-0.001	-0.001	0	%100
47	68	X	-0.001	-0.001	0	%100
48	71	X	-0.001	-0.001	0	%100
49	80	X	-0.001	-0.001	0	%100
50	85	X	-0.001	-0.001	0	%100
51	88	X	-0.001	-0.001	0	%100
52	91	X	-0.001	-0.001	0	%100
53	94	X	-0.001	-0.001	0	%100
54	96	X	-0.001	-0.001	0	%100
55	98	X	-0.009	-0.009	0	%100
56	99	X	-0.009	-0.009	0	%100
57	100	X	-0.005	-0.005	0	%100
58	102	X	-0.009	-0.009	0	%100
59	103	X	-0.009	-0.009	0	%100
60	104	X	-0.005	-0.005	0	%100
61	106	X	-0.009	-0.009	0	%100
62	107	X	-0.009	-0.009	0	%100
63	108	X	-0.005	-0.005	0	%100
64	110	X	-0.004	-0.004	0	%100
65	111	X	-0.004	-0.004	0	%100
66	112	X	-0.004	-0.004	0	%100
67	114	X	-0.001	-0.001	0	%100
68	77	X	-0.001	-0.001	0	%100
69	74	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0004	-0.0004	0	%100
2	3	Z	-0.001	-0.001	0	%100
3	5	Z	-0.001	-0.001	0	%100
4	6	Z	-0.001	-0.001	0	%100
5	7	Z	-0.001	-0.001	0	%100
6	8	Z	-0.001	-0.001	0	%100
7	9	Z	-0.001	-0.001	0	%100
8	10	Z	-0.001	-0.001	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.0007	-0.0007	0	%100
11	13	Z	-0.0007	-0.0007	0	%100
12	14	Z	-0.001	-0.001	0	%100
13	16	Z	-0.001	-0.001	0	%100
14	19	Z	-0.001	-0.001	0	%100
15	21	Z	-0.001	-0.001	0	%100
16	22	Z	-0.001	-0.001	0	%100
17	23	Z	-0.001	-0.001	0	%100
18	24	Z	-0.001	-0.001	0	%100
19	25	Z	-0.001	-0.001	0	%100
20	26	Z	-0.001	-0.001	0	%100
21	27	Z	-0.001	-0.001	0	%100
22	28	Z	-0.0007	-0.0007	0	%100
23	29	Z	-0.0007	-0.0007	0	%100
24	30	Z	-0.001	-0.001	0	%100
25	32	Z	-0.001	-0.001	0	%100
26	35	Z	-0.001	-0.001	0	%100
27	37	Z	-0.001	-0.001	0	%100
28	38	Z	-0.001	-0.001	0	%100
29	39	Z	-0.001	-0.001	0	%100
30	40	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
31	41	Z	-0.001	-0.001	0	%100
32	42	Z	-0.001	-0.001	0	%100
33	43	Z	-0.001	-0.001	0	%100
34	44	Z	-0.0007	-0.0007	0	%100
35	45	Z	-0.0007	-0.0007	0	%100
36	46	Z	-0.001	-0.001	0	%100
37	48	Z	-0.001	-0.001	0	%100
38	50	Z	-0.0004	-0.0004	0	%100
39	51	Z	-0.0004	-0.0004	0	%100
40	52	Z	-0.0002	-0.0002	0	%100
41	53	Z	-0.0002	-0.0002	0	%100
42	54	Z	-0.0002	-0.0002	0	%100
43	57	Z	-0.0002	-0.0002	0	%100
44	60	Z	-0.0002	-0.0002	0	%100
45	63	Z	-0.0002	-0.0002	0	%100
46	66	Z	-0.0002	-0.0002	0	%100
47	68	Z	-0.0002	-0.0002	0	%100
48	71	Z	-0.0002	-0.0002	0	%100
49	80	Z	-0.0002	-0.0002	0	%100
50	85	Z	-0.0002	-0.0002	0	%100
51	88	Z	-0.0002	-0.0002	0	%100
52	91	Z	-0.0002	-0.0002	0	%100
53	94	Z	-0.0002	-0.0002	0	%100
54	96	Z	-0.0002	-0.0002	0	%100
55	98	Z	-0.002	-0.002	0	%100
56	99	Z	-0.002	-0.002	0	%100
57	100	Z	-0.001	-0.001	0	%100
58	102	Z	-0.002	-0.002	0	%100
59	103	Z	-0.002	-0.002	0	%100
60	104	Z	-0.001	-0.001	0	%100
61	106	Z	-0.002	-0.002	0	%100
62	107	Z	-0.002	-0.002	0	%100
63	108	Z	-0.001	-0.001	0	%100
64	110	Z	-0.0006	-0.0006	0	%100
65	111	Z	-0.0006	-0.0006	0	%100
66	112	Z	-0.0006	-0.0006	0	%100
67	114	Z	-0.0002	-0.0002	0	%100
68	74	Z	-0.0002	-0.0002	0	%100
69	77	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0004	-0.0004	0	%100
2	3	X	-0.001	-0.001	0	%100
3	5	X	-0.001	-0.001	0	%100
4	6	X	-0.001	-0.001	0	%100
5	7	X	-0.001	-0.001	0	%100
6	8	X	-0.001	-0.001	0	%100
7	9	X	-0.001	-0.001	0	%100
8	10	X	-0.001	-0.001	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.0007	-0.0007	0	%100
11	13	X	-0.0007	-0.0007	0	%100
12	14	X	-0.001	-0.001	0	%100
13	16	X	-0.001	-0.001	0	%100
14	19	X	-0.001	-0.001	0	%100
15	21	X	-0.001	-0.001	0	%100
16	22	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
17	23	X	-0.001	-0.001	0	%100
18	24	X	-0.001	-0.001	0	%100
19	25	X	-0.001	-0.001	0	%100
20	26	X	-0.001	-0.001	0	%100
21	27	X	-0.001	-0.001	0	%100
22	28	X	-0.0007	-0.0007	0	%100
23	29	X	-0.0007	-0.0007	0	%100
24	30	X	-0.001	-0.001	0	%100
25	32	X	-0.001	-0.001	0	%100
26	35	X	-0.001	-0.001	0	%100
27	37	X	-0.001	-0.001	0	%100
28	38	X	-0.001	-0.001	0	%100
29	39	X	-0.001	-0.001	0	%100
30	40	X	-0.001	-0.001	0	%100
31	41	X	-0.001	-0.001	0	%100
32	42	X	-0.001	-0.001	0	%100
33	43	X	-0.001	-0.001	0	%100
34	44	X	-0.0007	-0.0007	0	%100
35	45	X	-0.0007	-0.0007	0	%100
36	46	X	-0.001	-0.001	0	%100
37	48	X	-0.001	-0.001	0	%100
38	50	X	-0.0004	-0.0004	0	%100
39	51	X	-0.0004	-0.0004	0	%100
40	52	X	-0.0002	-0.0002	0	%100
41	53	X	-0.0002	-0.0002	0	%100
42	54	X	-0.0002	-0.0002	0	%100
43	57	X	-0.0002	-0.0002	0	%100
44	60	X	-0.0002	-0.0002	0	%100
45	63	X	-0.0002	-0.0002	0	%100
46	66	X	-0.0002	-0.0002	0	%100
47	68	X	-0.0002	-0.0002	0	%100
48	71	X	-0.0002	-0.0002	0	%100
49	80	X	-0.0002	-0.0002	0	%100
50	85	X	-0.0002	-0.0002	0	%100
51	88	X	-0.0002	-0.0002	0	%100
52	91	X	-0.0002	-0.0002	0	%100
53	94	X	-0.0002	-0.0002	0	%100
54	96	X	-0.0002	-0.0002	0	%100
55	98	X	-0.002	-0.002	0	%100
56	99	X	-0.002	-0.002	0	%100
57	100	X	-0.001	-0.001	0	%100
58	102	X	-0.002	-0.002	0	%100
59	103	X	-0.002	-0.002	0	%100
60	104	X	-0.001	-0.001	0	%100
61	106	X	-0.002	-0.002	0	%100
62	107	X	-0.002	-0.002	0	%100
63	108	X	-0.001	-0.001	0	%100
64	110	X	-0.0006	-0.0006	0	%100
65	111	X	-0.0006	-0.0006	0	%100
66	112	X	-0.0006	-0.0006	0	%100
67	114	X	-0.0002	-0.0002	0	%100
68	74	X	-0.0002	-0.0002	0	%100
69	77	X	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.006	-0.006	0	%100
2	3	Y	-0.01	-0.01	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
3	5	Y	-0.01	-0.01	0	%100
4	6	Y	-0.01	-0.01	0	%100
5	7	Y	-0.01	-0.01	0	%100
6	8	Y	-0.01	-0.01	0	%100
7	9	Y	-0.01	-0.01	0	%100
8	10	Y	-0.01	-0.01	0	%100
9	11	Y	-0.01	-0.01	0	%100
10	12	Y	-0.006	-0.006	0	%100
11	13	Y	-0.006	-0.006	0	%100
12	14	Y	-0.01	-0.01	0	%100
13	16	Y	-0.01	-0.01	0	%100
14	19	Y	-0.01	-0.01	0	%100
15	21	Y	-0.01	-0.01	0	%100
16	22	Y	-0.01	-0.01	0	%100
17	23	Y	-0.01	-0.01	0	%100
18	24	Y	-0.01	-0.01	0	%100
19	25	Y	-0.01	-0.01	0	%100
20	26	Y	-0.01	-0.01	0	%100
21	27	Y	-0.01	-0.01	0	%100
22	28	Y	-0.006	-0.006	0	%100
23	29	Y	-0.006	-0.006	0	%100
24	30	Y	-0.01	-0.01	0	%100
25	32	Y	-0.01	-0.01	0	%100
26	35	Y	-0.01	-0.01	0	%100
27	37	Y	-0.01	-0.01	0	%100
28	38	Y	-0.01	-0.01	0	%100
29	39	Y	-0.01	-0.01	0	%100
30	40	Y	-0.01	-0.01	0	%100
31	41	Y	-0.01	-0.01	0	%100
32	42	Y	-0.01	-0.01	0	%100
33	43	Y	-0.01	-0.01	0	%100
34	44	Y	-0.006	-0.006	0	%100
35	45	Y	-0.006	-0.006	0	%100
36	46	Y	-0.01	-0.01	0	%100
37	48	Y	-0.01	-0.01	0	%100
38	50	Y	-0.006	-0.006	0	%100
39	51	Y	-0.006	-0.006	0	%100
40	52	Y	-0.005	-0.005	0	%100
41	53	Y	-0.005	-0.005	0	%100
42	54	Y	-0.005	-0.005	0	%100
43	57	Y	-0.005	-0.005	0	%100
44	60	Y	-0.005	-0.005	0	%100
45	63	Y	-0.005	-0.005	0	%100
46	66	Y	-0.005	-0.005	0	%100
47	68	Y	-0.005	-0.005	0	%100
48	71	Y	-0.005	-0.005	0	%100
49	80	Y	-0.005	-0.005	0	%100
50	85	Y	-0.005	-0.005	0	%100
51	88	Y	-0.005	-0.005	0	%100
52	91	Y	-0.005	-0.005	0	%100
53	94	Y	-0.005	-0.005	0	%100
54	96	Y	-0.005	-0.005	0	%100
55	98	Y	-0.013	-0.013	0	%100
56	99	Y	-0.013	-0.013	0	%100
57	100	Y	-0.01	-0.01	0	%100
58	102	Y	-0.013	-0.013	0	%100
59	103	Y	-0.013	-0.013	0	%100
60	104	Y	-0.01	-0.01	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
61	106	Y	-0.013	-0.013	0	%100
62	107	Y	-0.013	-0.013	0	%100
63	108	Y	-0.01	-0.01	0	%100
64	110	Y	-0.007	-0.007	0	%100
65	111	Y	-0.007	-0.007	0	%100
66	112	Y	-0.007	-0.007	0	%100
67	114	Y	-0.005	-0.005	0	%100
68	74	Y	-0.005	-0.005	0	%100
69	77	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	3	Z	-0.002	-0.002	0	%100
3	5	Z	-0.002	-0.002	0	%100
4	6	Z	-0.002	-0.002	0	%100
5	7	Z	-0.003	-0.003	0	%100
6	8	Z	-0.003	-0.003	0	%100
7	9	Z	-0.003	-0.003	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.0006	-0.0006	0	%100
11	13	Z	-0.0006	-0.0006	0	%100
12	14	Z	-0.002	-0.002	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	19	Z	-0.002	-0.002	0	%100
15	21	Z	-0.002	-0.002	0	%100
16	22	Z	-0.002	-0.002	0	%100
17	23	Z	-0.003	-0.003	0	%100
18	24	Z	-0.003	-0.003	0	%100
19	25	Z	-0.003	-0.003	0	%100
20	26	Z	-0.002	-0.002	0	%100
21	27	Z	-0.002	-0.002	0	%100
22	28	Z	-0.0006	-0.0006	0	%100
23	29	Z	-0.0006	-0.0006	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	32	Z	-0.002	-0.002	0	%100
26	35	Z	-0.002	-0.002	0	%100
27	37	Z	-0.002	-0.002	0	%100
28	38	Z	-0.002	-0.002	0	%100
29	39	Z	-0.003	-0.003	0	%100
30	40	Z	-0.003	-0.003	0	%100
31	41	Z	-0.003	-0.003	0	%100
32	42	Z	-0.002	-0.002	0	%100
33	43	Z	-0.002	-0.002	0	%100
34	44	Z	-0.0006	-0.0006	0	%100
35	45	Z	-0.0006	-0.0006	0	%100
36	46	Z	-0.002	-0.002	0	%100
37	48	Z	-0.002	-0.002	0	%100
38	50	Z	-0.002	-0.002	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	52	Z	-0.0009	-0.0009	0	%100
41	53	Z	-0.0009	-0.0009	0	%100
42	54	Z	-0.0009	-0.0009	0	%100
43	57	Z	-0.0009	-0.0009	0	%100
44	60	Z	-0.0009	-0.0009	0	%100
45	63	Z	-0.0009	-0.0009	0	%100
46	66	Z	-0.0009	-0.0009	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
47	68	Z	-0.0009	-0.0009	0	%100
48	71	Z	-0.0009	-0.0009	0	%100
49	80	Z	-0.0009	-0.0009	0	%100
50	85	Z	-0.0009	-0.0009	0	%100
51	88	Z	-0.0009	-0.0009	0	%100
52	91	Z	-0.0009	-0.0009	0	%100
53	94	Z	-0.0009	-0.0009	0	%100
54	96	Z	-0.0009	-0.0009	0	%100
55	98	Z	-0.002	-0.002	0	%100
56	99	Z	-0.002	-0.002	0	%100
57	100	Z	-0.001	-0.001	0	%100
58	102	Z	-0.002	-0.002	0	%100
59	103	Z	-0.002	-0.002	0	%100
60	104	Z	-0.001	-0.001	0	%100
61	106	Z	-0.002	-0.002	0	%100
62	107	Z	-0.002	-0.002	0	%100
63	108	Z	-0.001	-0.001	0	%100
64	110	Z	-0.001	-0.001	0	%100
65	111	Z	-0.001	-0.001	0	%100
66	112	Z	-0.001	-0.001	0	%100
67	114	Z	-0.0009	-0.0009	0	%100
68	74	Z	-0.0009	-0.0009	0	%100
69	77	Z	-0.0009	-0.0009	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	3	X	-0.002	-0.002	0	%100
3	5	X	-0.002	-0.002	0	%100
4	6	X	-0.002	-0.002	0	%100
5	7	X	-0.003	-0.003	0	%100
6	8	X	-0.003	-0.003	0	%100
7	9	X	-0.003	-0.003	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.0006	-0.0006	0	%100
11	13	X	-0.0006	-0.0006	0	%100
12	14	X	-0.002	-0.002	0	%100
13	16	X	-0.002	-0.002	0	%100
14	19	X	-0.002	-0.002	0	%100
15	21	X	-0.002	-0.002	0	%100
16	22	X	-0.002	-0.002	0	%100
17	23	X	-0.003	-0.003	0	%100
18	24	X	-0.003	-0.003	0	%100
19	25	X	-0.003	-0.003	0	%100
20	26	X	-0.002	-0.002	0	%100
21	27	X	-0.002	-0.002	0	%100
22	28	X	-0.0006	-0.0006	0	%100
23	29	X	-0.0006	-0.0006	0	%100
24	30	X	-0.002	-0.002	0	%100
25	32	X	-0.002	-0.002	0	%100
26	35	X	-0.002	-0.002	0	%100
27	37	X	-0.002	-0.002	0	%100
28	38	X	-0.002	-0.002	0	%100
29	39	X	-0.003	-0.003	0	%100
30	40	X	-0.003	-0.003	0	%100
31	41	X	-0.003	-0.003	0	%100
32	42	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
33	43	X	-0.002	-0.002	0	%100
34	44	X	-0.0006	-0.0006	0	%100
35	45	X	-0.0006	-0.0006	0	%100
36	46	X	-0.002	-0.002	0	%100
37	48	X	-0.002	-0.002	0	%100
38	50	X	-0.002	-0.002	0	%100
39	51	X	-0.002	-0.002	0	%100
40	52	X	-0.0009	-0.0009	0	%100
41	53	X	-0.0009	-0.0009	0	%100
42	54	X	-0.0009	-0.0009	0	%100
43	57	X	-0.0009	-0.0009	0	%100
44	60	X	-0.0009	-0.0009	0	%100
45	63	X	-0.0009	-0.0009	0	%100
46	66	X	-0.0009	-0.0009	0	%100
47	68	X	-0.0009	-0.0009	0	%100
48	71	X	-0.0009	-0.0009	0	%100
49	80	X	-0.0009	-0.0009	0	%100
50	85	X	-0.0009	-0.0009	0	%100
51	88	X	-0.0009	-0.0009	0	%100
52	91	X	-0.0009	-0.0009	0	%100
53	94	X	-0.0009	-0.0009	0	%100
54	96	X	-0.0009	-0.0009	0	%100
55	98	X	-0.002	-0.002	0	%100
56	99	X	-0.002	-0.002	0	%100
57	100	X	-0.001	-0.001	0	%100
58	102	X	-0.002	-0.002	0	%100
59	103	X	-0.002	-0.002	0	%100
60	104	X	-0.001	-0.001	0	%100
61	106	X	-0.002	-0.002	0	%100
62	107	X	-0.002	-0.002	0	%100
63	108	X	-0.001	-0.001	0	%100
64	110	X	-0.001	-0.001	0	%100
65	111	X	-0.001	-0.001	0	%100
66	112	X	-0.001	-0.001	0	%100
67	114	X	-0.0009	-0.0009	0	%100
68	74	X	-0.0009	-0.0009	0	%100
69	77	X	-0.0009	-0.0009	0	%100

Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	7	Y	-0.011	-0.011	2.424	4.115
2	8	Y	-0.009	-0.009	1.573	2.541
3	9	Y	-0.009	-0.009	0	0.969
4	12	Y	-0.009	-0.005	0	2.117
5	12	Y	-0.005	-0.001	2.117	4.234
6	13	Y	-0.001	-0.005	0	2.117
7	13	Y	-0.005	-0.008	2.117	4.234
8	23	Y	-0.011	-0.011	2.424	4.115
9	24	Y	-0.009	-0.009	1.573	2.541
10	25	Y	-0.009	-0.009	0	0.969
11	28	Y	-0.009	-0.005	0	2.117
12	28	Y	-0.005	-0.001	2.117	4.234
13	29	Y	-0.001	-0.005	0	2.117
14	29	Y	-0.005	-0.008	2.117	4.234
15	39	Y	-0.011	-0.011	2.424	4.115
16	40	Y	-0.009	-0.009	1.573	2.541
17	41	Y	-0.009	-0.009	0	0.969
18	44	Y	-0.009	-0.005	0	2.117

Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
19	44	Y	-0.005	-0.001	2.117	4.234
20	45	Y	-0.001	-0.005	0	2.117
21	45	Y	-0.005	-0.008	2.117	4.234

Member Distributed Loads (BLC 40 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	7	Y	-0.006	-0.006	2.426	4.111
2	8	Y	-0.005	-0.005	1.573	2.541
3	9	Y	-0.005	-0.005	0	0.969
4	12	Y	-0.005	-0.003	0	2.117
5	12	Y	-0.003	-0.0007985	2.117	4.234
6	13	Y	-0.0007985	-0.003	0	2.117
7	13	Y	-0.003	-0.005	2.117	4.234
8	23	Y	-0.006	-0.006	2.426	4.111
9	24	Y	-0.004	-0.004	1.573	2.541
10	25	Y	-0.004	-0.004	0	0.969
11	28	Y	-0.004	-0.002	0	2.117
12	28	Y	-0.002	-0.0007283	2.117	4.234
13	29	Y	-0.0007283	-0.002	0	2.117
14	29	Y	-0.002	-0.004	2.117	4.234
15	39	Y	-0.006	-0.006	2.426	4.111
16	40	Y	-0.004	-0.004	1.573	2.541
17	41	Y	-0.004	-0.004	0	0.969
18	44	Y	-0.004	-0.002	0	2.117
19	44	Y	-0.002	-0.0007283	2.117	4.234
20	45	Y	-0.0007283	-0.002	0	2.117
21	45	Y	-0.002	-0.004	2.117	4.234

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		35		3
2	0 Wind - No Ice	WLZ			35	69	
3	90 Wind - No Ice	WLX			35	69	
4	0 Wind - Ice	WLZ			35	69	
5	90 Wind - Ice	WLX			35	69	
6	0 Wind - Service	WLZ			35	69	
7	90 Wind - Service	WLX			35	69	
8	Ice	OL1			35	69	3
9	0 Seismic	ELZ			35	69	
10	90 Seismic	ELX			35	69	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL		3			
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	Maint LL 16	LL					
31	Maint LL 17	LL					
32	Maint LL 18	LL					
33	Maint LL 19	LL					
34	Maint LL 20	LL					
35	Maint LL 21	LL					
36	Maint LL 22	LL					
37	Maint LL 23	LL					
38	Maint LL 24	LL					
39	BLC 1 Transient Area Loads	None				21	
40	BLC 8 Transient Area Loads	None				21	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	12	max	0.849	5	0.152	67	4.365	2	0.236	66	0.904	11	0.269	4
2		min	-0.851	11	-0.53	49	-2.779	8	-0.291	48	-0.902	5	-0.175	10
3	38	max	2.934	6	0.227	11	1.405	13	0.359	6	0.883	2	0.285	39
4		min	-1.642	12	-0.494	77	-2.153	7	-0.224	12	-0.882	8	-0.327	69
5	63	max	1.673	4	0.361	3	1.553	3	0.232	42	0.791	8	0.312	3
6		min	-2.933	10	-0.576	9	-2.28	9	-0.302	72	-0.793	2	-0.402	9
7	190	max	-0.193	12	2.959	18	0.924	18	-0.036	12	0.012	3	-0.062	12
8		min	-1.599	18	0.288	12	0.111	12	-0.369	18	-0.012	9	-0.64	18
9	183	max	0.051	5	3.308	14	-0.113	8	0.826	14	0.012	11	0	77
10		min	-0.051	11	0.117	8	-2.07	14	0.029	8	-0.012	5	0	47
11	176	max	1.573	21	2.903	21	0.9	22	-0.019	3	0.012	7	0.628	21
12		min	0.1	3	0.155	3	0.087	3	-0.363	21	-0.012	13	0.033	3
13	Totals:	max	4.089	5	7.629	20	5.747	2						
14		min	-4.089	11	3.648	2	-5.747	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE_3.0	0.086	1.563	8	0.098	4.818		2	28.251	65.205	5.749	5.749	2.634	H1-1b
2	3	PL1/2"x6	0.074	0.125	7	0.175	0.25	y	85	95.014	97.2	1.012	12.15	1.473	H1-1b
3	5	PL1/2"x6	0.062	0.25	2	0.13	0.25	y	38	95.014	97.2	1.012	12.15	1.96	H1-1b
4	6	PL1/2"x6	0.134	0.519	2	0.142	0.519	y	76	65.639	97.2	1.012	12.15	1.246	H1-1b
5	7	HSS4X4X4	0.237	2.583	14	0.094	2.583	y	74	97.504	106.155	12.311	12.311	1.515	H1-1b
6	8	HSS4X4X4	0.151	2.541	14	0.059	2.541	y	14	103.994	106.155	12.311	12.311	1.712	H1-1b
7	9	HSS4X4X4	0.146	0	2	0.069	2.118	z	2	103.994	106.155	12.311	12.311	1.732	H1-1b
8	10	PL3/8"x6	0.108	0.169	13	0.13	0.169	y	67	67.903	72.9	0.57	9.113	2.469	H1-1b
9	11	PL3/8"x6	0.108	0.169	3	0.171	0.169	y	74	67.903	72.9	0.57	9.113	2.449	H1-1b
10	12	L2x2x3	0.21	4.234	2	0.008	4.234	y	14	9.529	23.393	0.558	1.136	1.5	H2-1
11	13	L2x2x3	0.224	0	2	0.007	4.234	y	21	9.529	23.393	0.558	1.136	1.5	H2-1
12	14	PL3/8"x6	0.091	0	2	0.227	0	y	62	70.011	72.9	0.57	9.113	1.577	H1-1b
13	16	PL3/8"x6	0.085	0.125	12	0.241	0	y	14	70.011	72.9	0.57	9.113	1.653	H1-1b
14	19	PL1/2"x6	0.052	0.25	7	0.177	0.25	y	77	95.014	97.2	1.012	12.15	1.784	H1-1b
15	21	PL1/2"x6	0.058	0.25	7	0.117	0.25	y	43	95.014	97.2	1.012	12.15	1.762	H1-1b
16	22	PL1/2"x6	0.105	0.519	7	0.145	0.519	y	79	65.639	97.2	1.012	12.15	1.237	H1-1b
17	23	HSS4X4X4	0.207	2.583	18	0.096	2.583	y	78	97.504	106.155	12.311	12.311	1.523	H1-1b
18	24	HSS4X4X4	0.145	2.541	20	0.053	2.541	y	19	103.994	106.155	12.311	12.311	1.705	H1-1b
19	25	HSS4X4X4	0.133	0	67	0.06	0	y	19	103.994	106.155	12.311	12.311	1.697	H1-1b
20	26	PL3/8"x6	0.058	0.169	4	0.127	0.169	y	41	67.903	72.9	0.57	9.113	2.453	H1-1b
21	27	PL3/8"x6	0.118	0.169	7	0.181	0.169	y	7	67.903	72.9	0.57	9.113	2.427	H1-1b
22	28	L2x2x3	0.187	4.234	7	0.009	4.234	y	23	9.529	23.393	0.558	1.136	1.5	H2-1
23	29	L2x2x3	0.167	0	6	0.008	4.234	y	14	9.529	23.393	0.558	1.136	1.5	H2-1
24	30	PL3/8"x6	0.098	0.125	8	0.224	0	y	67	70.011	72.9	0.57	9.113	1.559	H1-1b
25	32	PL3/8"x6	0.063	0.125	3	0.228	0	y	56	70.011	72.9	0.57	9.113	1.613	H1-1b
26	35	PL1/2"x6	0.074	0.125	3	0.176	0.25	y	80	95.014	97.2	1.012	12.15	1.472	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
27	37	PL1/2"x6	0.048	0.25	10	0.115	0.25	y	45	95.014	97.2	1.012	12.15	1.835	H1-1b
28	38	PL1/2"x6	0.113	0.519	9	0.144	0.519	y	81	65.639	97.2	1.012	12.15	1.284	H1-1b
29	39	HSS4X4X4	0.206	2.583	21	0.096	2.583	y	80	97.504	106.155	12.311	12.311	1.518	H1-1b
30	40	HSS4X4X4	0.136	2.541	24	0.051	2.541	y	22	103.994	106.155	12.311	12.311	1.709	H1-1b
31	41	HSS4X4X4	0.13	0	69	0.06	2.118	z	9	103.994	106.155	12.311	12.311	1.7	H1-1b
32	42	PL3/8"x6	0.088	0.169	9	0.126	0.169	y	63	67.903	72.9	0.57	9.113	2.448	H1-1b
33	43	PL3/8"x6	0.078	0.331	9	0.167	0.169	y	81	67.903	72.9	0.57	9.113	2.413	H1-1b
34	44	L2x2x3	0.161	4.234	11	0.009	4.234	y	15	9.529	23.393	0.558	1.136	1.5	H2-1
35	45	L2x2x3	0.202	0	9	0.008	4.234	y	18	9.529	23.393	0.558	1.136	1.5	H2-1
36	46	PL3/8"x6	0.078	0	9	0.217	0	y	70	70.011	72.9	0.57	9.113	1.501	H1-1b
37	48	PL3/8"x6	0.075	0.125	8	0.223	0	y	59	70.011	72.9	0.57	9.113	1.581	H1-1b
38	50	PIPE_3.0	0.086	5.208	9	0.075	4.687		7	28.251	65.205	5.749	5.749	2.798	H1-1b
39	51	PIPE_3.0	0.136	7.031	13	0.081	4.818		9	28.251	65.205	5.749	5.749	2.599	H1-1b
40	52	PIPE_2.0	0.229	1.432	13	0.16	0.781		2	6.295	32.13	1.872	1.872	3	H1-1b
41	53	PIPE_2.0	0.244	1.562	9	0.128	11.068		13	6.295	32.13	1.872	1.872	2.683	H1-1b
42	54	PIPE_2.0	0.222	1.432	9	0.152	0.781		9	6.295	32.13	1.872	1.872	2.734	H1-1b
43	57	PIPE_2.0	0.183	0.5	10	0.092	5.167		9	14.916	32.13	1.872	1.872	2.219	H1-1b
44	60	PIPE_2.0	0.224	5.167	5	0.041	5.167		6	14.916	32.13	1.872	1.872	2.298	H1-1b
45	63	PIPE_2.0	0.224	5.167	5	0.039	5.167		4	14.916	32.13	1.872	1.872	2.255	H1-1b
46	66	PIPE_2.0	0.437	5.167	8	0.125	5.167		8	14.916	32.13	1.872	1.872	2.543	H1-1b
47	68	PIPE_2.0	0.184	4.812	10	0.071	4.812		8	20.867	32.13	1.872	1.872	1.761	H1-1b
48	71	PIPE_2.0	0.272	5.167	3	0.093	5.167		13	14.916	32.13	1.872	1.872	2.308	H1-1b
49	80	PIPE_2.0	0.45	5.167	2	0.087	5.167		12	14.916	32.13	1.872	1.872	2.343	H1-1b
50	85	PIPE_2.0	0.373	5.167	7	0.097	0.5		4	14.916	32.13	1.872	1.872	2.225	H1-1b
51	88	PIPE_2.0	0.338	5.167	13	0.056	5.167		2	14.916	32.13	1.872	1.872	2.38	H1-1b
52	91	PIPE_2.0	0.311	5.167	13	0.044	5.167		12	14.916	32.13	1.872	1.872	2.256	H1-1b
53	94	PIPE_2.0	0.449	5.167	2	0.108	5.167		3	14.916	32.13	1.872	1.872	2.35	H1-1b
54	96	PIPE_2.0	0.274	4.812	13	0.043	4.812		13	20.867	32.13	1.872	1.872	1.76	H1-1b
55	98	PL3/8X8	0.047	0	8	0.047	0	y	21	91.837	98.496	0.78	16.416	2.143	H1-1b
56	99	PL3/8X8	0.057	0	20	0.074	0	y	21	91.837	98.496	0.78	16.416	2.143	H1-1b
57	100	LL2.5x2.5x3x3	0.077	4.333	21	0.003	4.333	y	10	44.521	58.32	3.954	2.55	1.136	H1-1b*
58	102	PL3/8X8	0.052	0	16	0.053	0	y	14	91.837	98.496	0.78	16.416	2.143	H1-1b
59	103	PL3/8X8	0.063	0	24	0.084	0	y	14	91.837	98.496	0.78	16.416	2.143	H1-1b
60	104	LL2.5x2.5x3x3	0.088	4.333	14	0.003	4.333	z	5	44.521	58.32	3.954	2.55	1	H1-1b*
61	106	PL3/8X8	0.047	0	20	0.048	0	y	18	91.837	98.496	0.78	16.416	2.143	H1-1b
62	107	PL3/8X8	0.057	0	20	0.075	0	y	18	91.837	98.496	0.78	16.416	2.143	H1-1b
63	108	LL2.5x2.5x3x3	0.078	4.333	18	0.003	4.333	y	6	44.521	58.32	3.954	2.55	1	H1-1b*
64	110	L2.5x2.5x4	0.256	1.245	3	0.065	1.245	z	5	36.654	38.556	1.114	2.537	1.345	H2-1
65	111	L2.5x2.5x4	0.203	0	5	0.097	0	y	9	36.654	38.556	1.114	2.537	1.483	H2-1
66	112	L2.5x2.5x4	0.24	0	9	0.099	0	y	13	36.654	38.556	1.114	2.537	1.5	H2-1
67	77	PIPE_2.0	0.331	5.167	9	0.055	5.167		8	14.916	32.13	1.872	1.872	2.218	H1-1b
68	74	PIPE_2.0	0.343	5.167	9	0.056	5.167		9	14.916	32.13	1.872	1.872	2.236	H1-1b
69	114	PIPE_2.0	0.287	4.812	3	0.059	4.812		12	20.867	32.13	1.872	1.872	1.758	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**80964.011.01 - BRG 126 943086, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**10/20/21**	PAGE	1	OF	1

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	4.365	k
Vertical Shear	:	0.152	k
Horizontal Shear	:	0.849	k
Torsion	:	0.269	k.ft
Moment from Horizontal Forces	:	0.903	k.ft
Moment from Vertical Forces	:	0.236	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1	in
Bolt edge distance, plate width	:	1	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	0.86	k
Force from Horz. Moment	:	1.64	k
Force from Vert. Moment	:	0.43	k
Shear Load / Bolt	:	0.22	k
Tension Load / Bolt	:	1.09	k
Resultant from Moments / Bolt	:	0.85	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**9.35%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**11.82%**		**OKAY**
Unity Check, Combined	:	**21.17%**		**OKAY**
Available Bearing Strength, ΦR_n	:	18.35	k/bolt	
Unity Check, Bolt Bearing	:	**1.17%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA578A

806355
281 Wood House Road
Fairfield, Connecticut 06824

December 3, 2021

EBI Project Number: 6221007359

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**23.21%**

December 3, 2021

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

Emissions Analysis for Site: CTHA578A - 806355

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **281 Wood House Road** in **Fairfield, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 281 Wood House Road in Fairfield, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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

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

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

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

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

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 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.

14) The antenna mounting height centerline of the proposed antennas is 128 feet above ground level (AGL).

15) 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.

16) 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 / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	128 feet	Height (AGL):	128 feet	Height (AGL):	128 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**5.70%**	Antenna B1 MPE %:	**5.70%**	Antenna C1 MPE %:	**5.70%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	128 feet	Height (AGL):	128 feet	Height (AGL):	128 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**8.78%**	Antenna B2 MPE %:	**8.78%**	Antenna C2 MPE %:	**8.78%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	14.48%
AT&T	2.77%
PageNet	0.19%
T-Mobile (Existing)	2.24%
Verizon	1.5%
XM Radio	2.03%
Metricom	0%
Site Total MPE % :	23.21%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	14.48%
T-Mobile Sector B Total:	14.48%
T-Mobile Sector C Total:	14.48%
Site Total MPE % :	23.21%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	128.0	2.86	600 MHz LTE	400	0.71%
T-Mobile 600 MHz NR	1	1577.94	128.0	3.81	600 MHz NR	400	0.95%
T-Mobile 700 MHz LTE	2	695.22	128.0	3.36	700 MHz LTE	467	0.72%
T-Mobile 1900 MHz GSM	4	1052.26	128.0	10.17	1900 MHz GSM	1000	1.02%
T-Mobile 1900 MHz LTE	2	2104.51	128.0	10.17	1900 MHz LTE	1000	1.02%
T-Mobile 2100 MHz LTE	2	2649.42	128.0	12.80	2100 MHz LTE	1000	1.28%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	128.0	26.68	2500 MHz LTE 1C & 2C Traffic	1000	2.67%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	128.0	2.59	2500 MHz LTE 1C & 2C Broadcast	1000	0.26%
T-Mobile 2500 MHz NR Traffic	1	22089.26	128.0	53.36	2500 MHz NR Traffic	1000	5.34%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	128.0	5.19	2500 MHz NR Broadcast	1000	0.52%
						Total:	**14.48%**

• 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:	14.48%
Sector B:	14.48%
Sector C:	14.48%
T-Mobile Maximum MPE % (Sector A):	14.48%
Site Total:	23.21%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **23.21%** 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.

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