December 3rd, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
845455 - T-Mobile Site ID: CTNH211B
85 Quaker Farms Road, Oxford, CT 06478
Latitude: 41° 23′ 2.36″ / Longitude: -73° 8′ 14.54″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 131-foot mount on the existing 149-foot Monopole Tower, located at 85 Quaker Farms Road, Oxford, CT. The tower is owned by Crown Castle and the property is owned by William & Elaine Schiavi. T-Mobile now intends to replace six (6) existing antennas with six (6) new antennas, as well as add three (3) new 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. The new antennas will be installed at the 131-ft level of the tower. T-Mobile is also proposing tower mount modifications, as shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Remove and Replace:
(3) RFS-APXV18-209014-C-A20 Antenna 1900 MHz **(REMOVE)** - (3) RFS-APXVAARR24_43-U-NA20 5G Antenna 600/700 MHz **(REPLACE)**

(3) LNX-6515DS-VTM Antenna **(REMOVE) -** (3) RFS-APX16DWV-S-E-A20 2100 MHz **(REPLACE)**

Install New:
(3) AIR6449 B41 5G Antenna 2500 MHz
(3) 6x12 HCS Fiber Cables (1.54")
(3) Radio 4415 B66A
(3) Radio 4424 B25
(3) Radio 4449 B71-B85
(1) RMQP-496 Platform mount with HRK 12 handrail kit

Remove:
(6) TMA

Ground:

Install New:
(1) 3'x12' concrete pad expansion
(1) 6160 equipment cabinet
(1) B160 battery cabinet
(1) BB 6630
(1) BB 6648
(1) PSU 4813 voltage booster
(1) IXRE router

The facility was approved by the Connecticut Siting Council in Docket No. 261 on December 22, 2003. The approval was given with conditions which this proposed exempt modification is following.

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 George R. Temple, First Selectman for the Town of Oxford, Steven Macary, Zoning Enforcement Official, the property owners and Crown Castle is the tower owner.

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

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

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

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

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

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

For the foregoing reasons, 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,

Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY 14586
(585) 445-5896
richard.zajac@crowncastle.com

cc:

The Honorable George Temple, First Selectman (*via email only to selectman@oxford-ct.gov*)
Oxford Town Hall
486 Oxford Road
Oxford, CT 06478

Steven S. Macary, Zoning Enforcement Official (*via email only to zoningenforce@oxford-ct.gov*)
Oxford Town Hall
486 Oxford Road
Oxford, CT 06478

William & Elaine Schiavi, Property Owners (*via email only to jwsct@yahoo.com)*
85 Quaker Farms Road
Oxford, CT 06478

Crown Castle, Tower Owner

Zajac, Richard

From: Zajac, Richard
Sent: Thursday, December 3, 2020 1:54 PM
To: 'selectman@oxford-ct.gov'
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 85 Quaker Farms Rd.pdf

Good afternoon Mr. Temple,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 85 Quaker Farms Road in Oxford.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Zajac, Richard

From: Zajac, Richard
Sent: Thursday, December 3, 2020 1:57 PM
To: zoningenforce@oxford-ct.gov
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 85 Quaker Farms Rd.pdf

Good afternoon Mr. Macary,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 85 Quaker Farms Road in Oxford.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Zajac, Richard

From: Zajac, Richard
Sent: Thursday, December 3, 2020 2:00 PM
To: jwsct@yahoo.com
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 85 Quaker Farms Rd.pdf

Good afternoon Mr. Schiavi,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 85 Quaker Farms Road in Oxford.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Exhibit A

Original Facility Approval

PLANNING & ZONING COMMISSION
TOWN OF OXFORD
486 Oxford Road
Oxford, CT 06478
(203) 888-2543

Z#:	Z-05-116
Date Rec'd:	4-28-05
Date on Agenda:	
65-Day Expiration:	

ZONING PERMIT APPLICATION

(This permit is hereby applied for in accordance with the requirements of the Oxford Zoning Regulations)

Property Identification

Street Address: 85 QUAKER FARMS RD
Subdivision Name: _____ Date Approved: _____
Map: 23 Block: 7 Lot: 8 Zoning district: R-A

Owner/Applicant

Owner Name: SCHIAVI
Owner Address: 85 QUAKER FARMS RD
Owner Telephone: _____

Applicant Name: NEW CINGULAR WIRELESS PCS, LLC
Applicant Address: 500 ENTERPRISE DR., ROCKY HILL CT 06067
Applicant Telephone: 860-513-7636

Miscellaneous Information

* CT SITING COUNCIL CERTIFICATE

Special Exception: Article _____ Section _____ Yes (No) *
Site Plan Approval: Article _____ Section _____ Yes (No)
Estimated Cost of Construction: $150,000—
Variance Granted: _____ Date Granted: _____

Signatures/Authorization

Application for Zoning Permit approval as described herein is hereby made. The Oxford Planning & Zoning Commission and its technical staff are authorized to enter the property for the purpose of evaluating this application.

Permit Void If: a) Work or activity not commenced within 1 year of the date of issuance or b) Authorized construction not completed within 2 years of the date of issuance.

This permit, if issued, is based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with the conditions of approval of this permit constitute a violation of the Oxford Zoning Regulations.

for Cingular Wireless 4-28-05
Property Owner or (Agent) Date

Purpose
- ___ New Home
- ___ Addition
- ___ Garage
- ___ Cottage Business
- ___ Swimming Pool IG AG
- ___ Sign
- ___ Shed
- ___ Barn
- ___ Change of Use
- ___ Excavating/Filling
- ___ Trailer
- ✓ Other CELL SITE

Use
- ___ Single-Family Residence
- ___ Multi-Family Residence
- ✓ Commercial
- ___ Industrial
- ___ Residential/POD
- ✓ Other CELL SITE

Required Approvals and Dates
- ✓ Inland Wetlands _____
- ___ P.D.D.H. _____
- ___ Fire Marshal _____
- ___ Z.B.A. _____
- ___ W.P.C.A. _____
- ___ Floodplain _____
- ___ Copy of Deed _____
- ✓ Driveway Existing
- ___ Erosion Control Plan
- ✓ Plot Plan * 4-26-05
- ___ Other _____

100.00 Town Fee
20.00 State Fee
120.00 Total Fee

*Draw plot plan of proposed construction and attach. Plan must show property boundaries and dimensions; location of proposed buildings on property with respect to boundaries; location of existing buildings on property; outside dimensions of all buildings proposed or now existing; location of water supply; location of sewage system. All copies must have a complete sketch. Construction and use must be exactly as described in this application. If later changes from this plan are desired prior approval of an amended application is necessary.

Denied (Approved) By: Doug Volk Date: 4-28-05
Title: ZEO
Reason for Denial _____

ZPA-1
(Adopted 5/15/97)

White - P&Z Files / Yellow - Building Department / Pink - Applicant

DOCKET NO. 261 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two sites at 85 Quaker Farms Road, Oxford, Connecticut.	}	Connecticut Siting Council December 22, 2003

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site B, located at 85 Quaker Farms Road, Oxford, Connecticut. The Council denies certification of Site A, also located at 85 Quaker Farms Road, Oxford, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T and other entities, both public and private, but such tower shall not exceed a height of 153 feet above ground level, including appurtenances. Antennas installed on the monopole shall be flush mounted.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) color options for painting the tower, including the color option preferred by the Town of Oxford;
    b) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
    c) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

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

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

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

6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

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

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

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Waterbury Republican-American.

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

The party to this proceeding is:

Applicant	**Its Representative**
AT&T Wireless PCS, LLC d/b/a AT&T Wireless (AT&T)	Christopher B. Fisher, Esq. Cuddy & Feder LLP 90 Maple Avenue White Plains, New York 10601

Exhibit B

Property Card

Town of Oxford
Property Listing Report

Parcel ID 23/57/8/CELL

Account 23578CELL

Property Information

Owner	AT&T
Address	85 QUAKER FARMS RD
Mailing Address	575 MOROSGO DR ATLANTA , GA 30324
Land Use	- Cell Tower
Land Class	I

Census Tract	
Neighborhood	090
Zoning	
Acreage	0
Utilities	
Lot Setting/ Desc	/

Photo

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	0	0
Outbuildings	655600	458900
Improvements	655600	458900
Extras	0	0
Land	0	0
Total	655600	458900
Previous		

Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	
Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

EXTERIOR WALLS:	
Primary	
Secondary	
INTERIOR WALLS:	
Primary	
Secondary	
FLOORS:	
Primary	
Secondary	
HEATING/AC:	
Heating Type	
Heating Fuel	
AC Type	

BUILDING AREA:	
Effective Building Area	
Gross Building Area	
Total Living Area	

SALES HISTORY:	
Sale Date	10/1/2010
Sale Price	0
Book/ Page	000/ 000

Report Created On 6/29/2020

Town of Oxford
Property Listing Report

Parcel ID 23/57/8

Account J0181100

Property Information

Owner	SCHIAVI WILLIAM & ELAINE W
Address	85 QUAKER FARMS RD
Mailing Address	85 QUAKER FARMS RD OXFORD , CT 06478
Land Use	- Res Dwelling
Land Class	R

Census Tract	L 6
Neighborhood	090
Zoning	RESA
Acreage	12.5
Utilities	
Lot Setting/ Desc	/ Clear

Photo

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	206200	144300
Outbuildings	41600	29200
Improvements	247800	173500
Extras	0	0
Land	388300	203000
Total	636100	376500
Previous		

Construction Details

Year Built	
Stories	2
Building Style	Colonial
Building Use	Residential
Building Condition	B-
Total Rooms	
Bedrooms	4 Bedrooms
Full Bathrooms	0
Half Bathrooms	
Bath Style	Average
Kitchen Style	Average
Roof Style	Gable
Roof Cover	Arch Shingles

EXTERIOR WALLS:	
Primary	Clapboard
Secondary	Wood Shingle
INTERIOR WALLS:	
Primary	Drywall
Secondary	
FLOORS:	
Primary	Hardwood
Secondary	Carpet
HEATING/AC:	
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	None

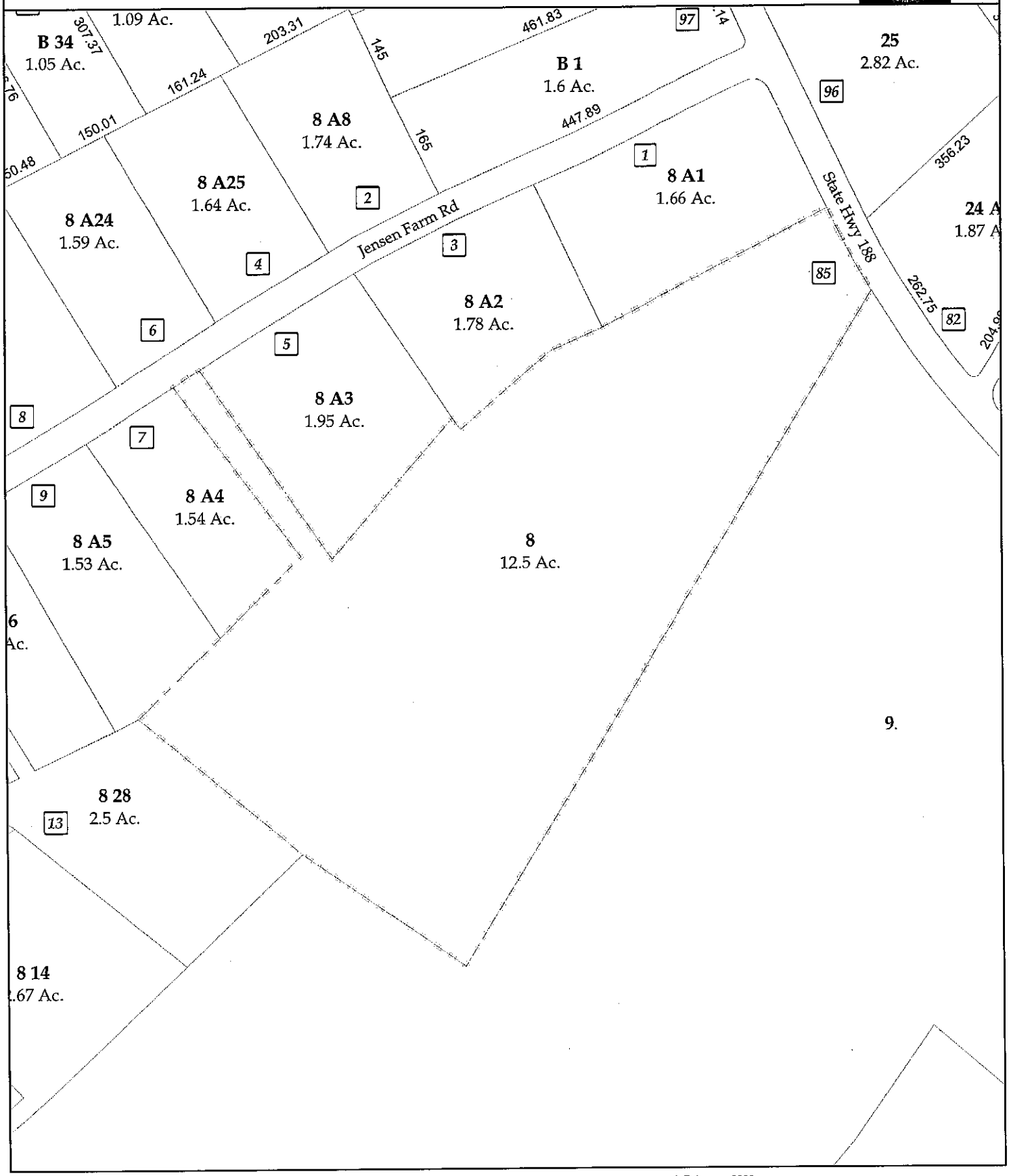
BUILDING AREA:	
Effective Building Area	
Gross Building Area	
Total Living Area	

SALES HISTORY:	
Sale Date	4/1/1996
Sale Price	0
Book/ Page	187/ 390

Report Created On 6/29/2020

Town of Oxford, Connecticut - Assessment Parcel Map

Parcel: 23-57-8 **Location: 85 QUAKER FARMS RD**



Approximate Scale: 1 inch = 200 feet

0 100 200 300 400 Feet

Map Produced: February 2020

Disclaimer: This map is for informational purposes only All Information is subject to verification by any user. The Town of Oxford and its mapping contractors assume no legal responsibility for the information contained herein.

Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CTNH211B
T-MOBILE SITE NAME: NH211/QUAKER FARMS_COLLO
SITE TYPE: MONOPOLE
TOWER HEIGHT: 149'-0"

BUSINESS UNIT #: 845455
SITE ADDRESS: 85 QUAKER FARMS ROAD OXFORD, CT 06478
COUNTY: NEW HAVEN
JURISDICTION: TOWN OF OXFORD

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A998C ODE+6160

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	OXFORD-QUAKER FARMS
SITE ADDRESS:	85 QUAKER FARMS ROAD OXFORD, CT 06478
COUNTY:	NEW HAVEN
MAP/PARCEL #:	23-57-8-CELL
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.383989°
LONGITUDE:	-73.137372°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	609'
CURRENT ZONING:	I
JURISDICTION:	TOWN OF OXFORD
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	AT&T 575 MOROSGO DR ATLANTA, GA 30324
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 12920 SE 38TH STREET BELLEVUE, WA 98006
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

PROJECT TEAM

A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWNAE.APPROVAL@CROWNCASTLE.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277
	PATRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCASTLE.COM
	N/A - CONSTRUCTION MANAGER N/A

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	PLATFORM MOUNT DETAIL
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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

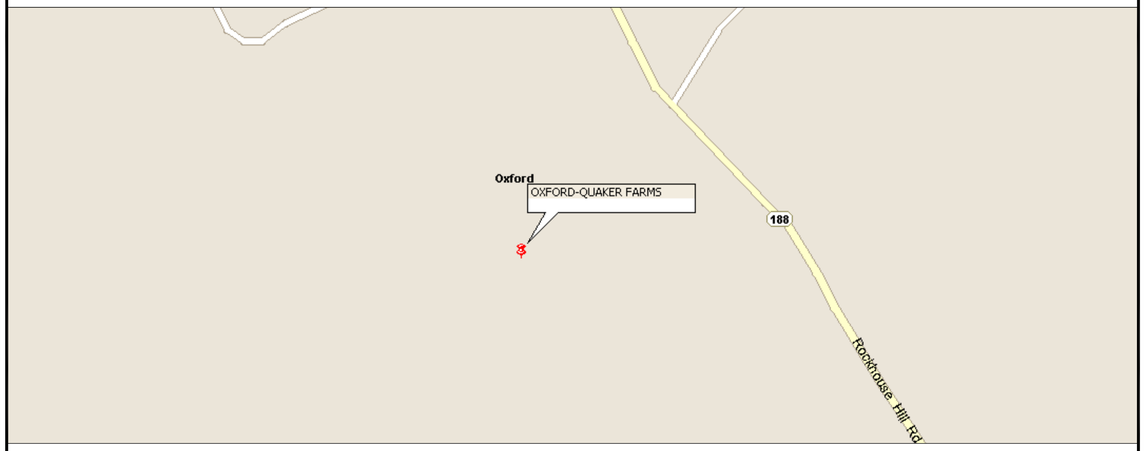
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (6) TMAs
- INSTALL (9) ANTENNAS
- INSTALL (9) RADIOS
- INSTALL (3) FIBER CABLES
- INSTALL (1) PLATFORM MOUNT WITH HANDRAIL KIT

GROUND SCOPE OF WORK:
- INSTALL (1) 6160 CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) BB 6630
- INSTALL (1) BB 6648
- INSTALL (1) PSU4813 VOLTAGE BOOSTER
- INSTALL (1) IXRE ROUTER
- INSTALL CONCRETE PAD EXPANSION

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	2015 IBC / 2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	N/A
DATED:	N/A
MOUNT ANALYSIS:	B+T GROUP
DATED:	15/10/20
RFDS REVISION:	4
DATED:	9/23/20
ORDER ID:	529733
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
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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

T-MOBILE SITE NUMBER:
CTNH211B

BU #: **845455**
OXFORD-QUAKER FARMS

85 QUAKER FARMS ROAD
OXFORD, CT 06478

EXISTING
149'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/16/20	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT * MICHAEL T. JOHNSON * 31627 LICENSED PROFESSIONAL ENGINEER
11/16/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

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.

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

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).

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

T-MOBILE SITE NUMBER:
CTNH211B

BU #: **845455**
OXFORD-QUAKER FARMS

85 QUAKER FARMS ROAD
OXFORD, CT 06478

EXISTING
149'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/16/20	JTS	CONSTRUCTION	MTJ

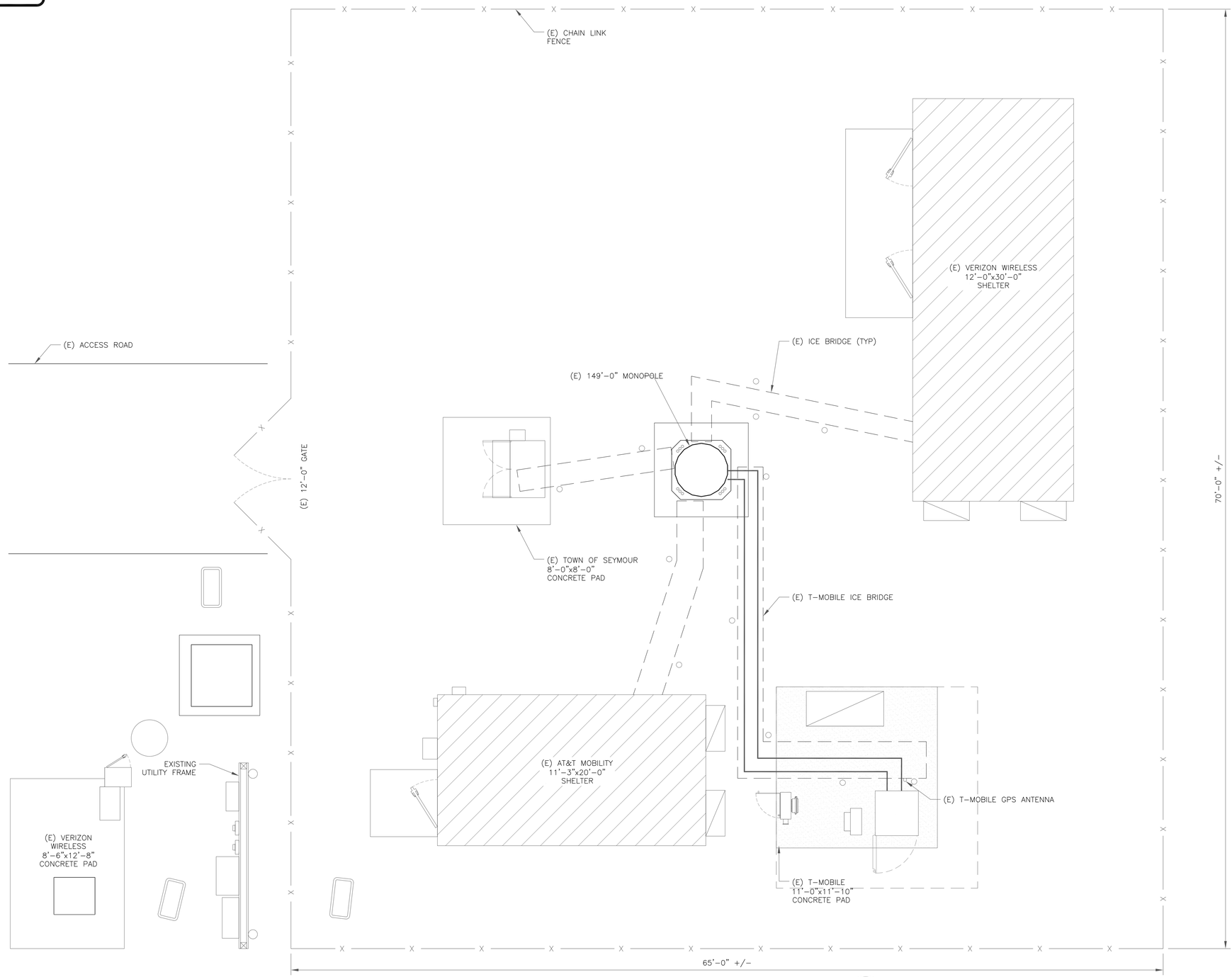
STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER 31627
11/16/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

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

SITE PLAN DISCLAIMER:

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



1 OVERALL SITE PLAN

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

N

136377.011.01_OXFORD-QUAKER FARMS_CC_TMO_NE_CD Upgrades.dwg — Sheet:C-1.1 — User: mjones — Nov 16, 2020 — 1:34pm

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STATE OF CONNECTICUT * MICHAEL T. JONES * 31627 LICENSED PROFESSIONAL ENGINEER

11/16/20

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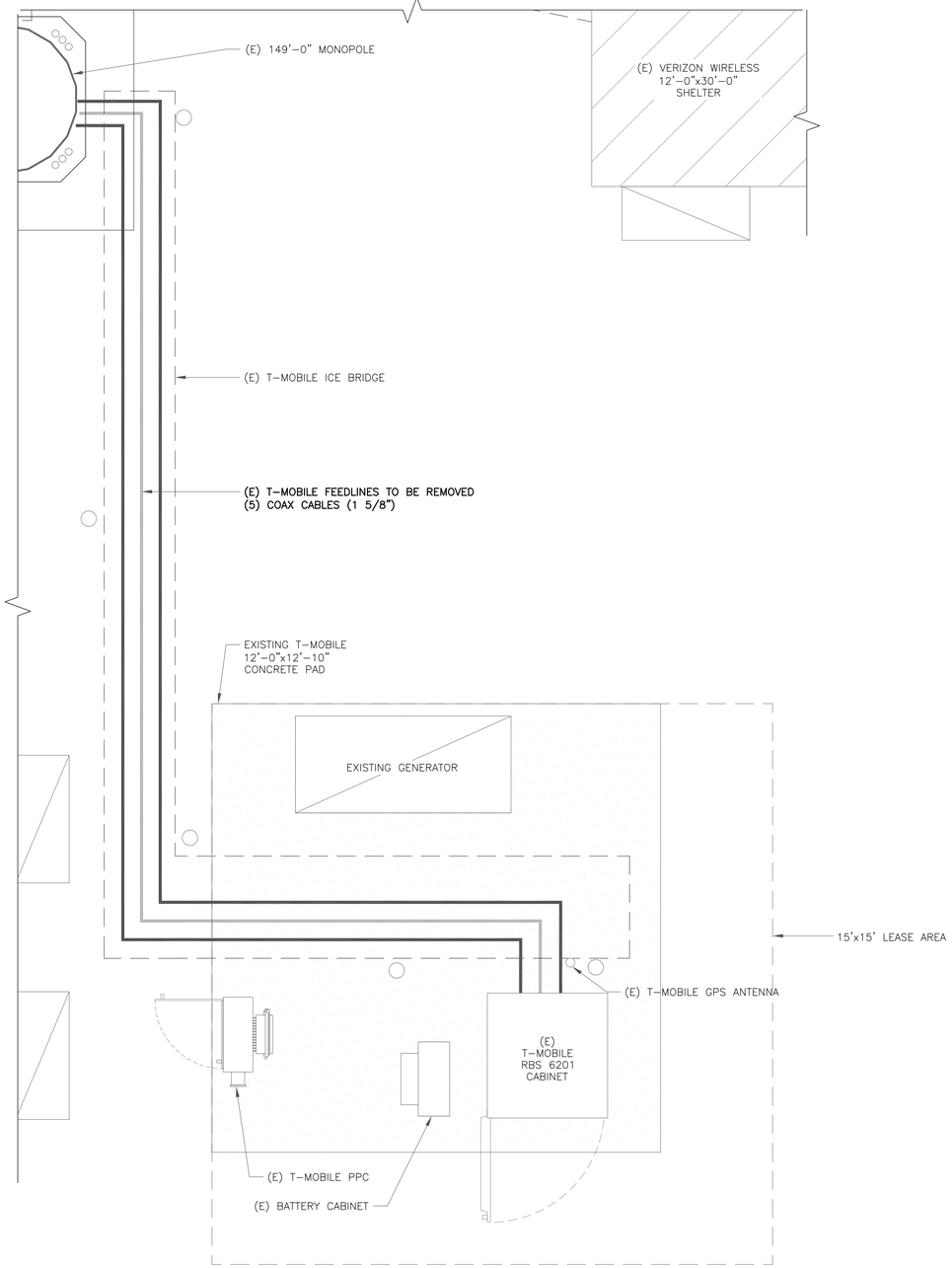
SHEET NUMBER: C-1.1

REVISION: 1

EQUIPMENT LEGEND:

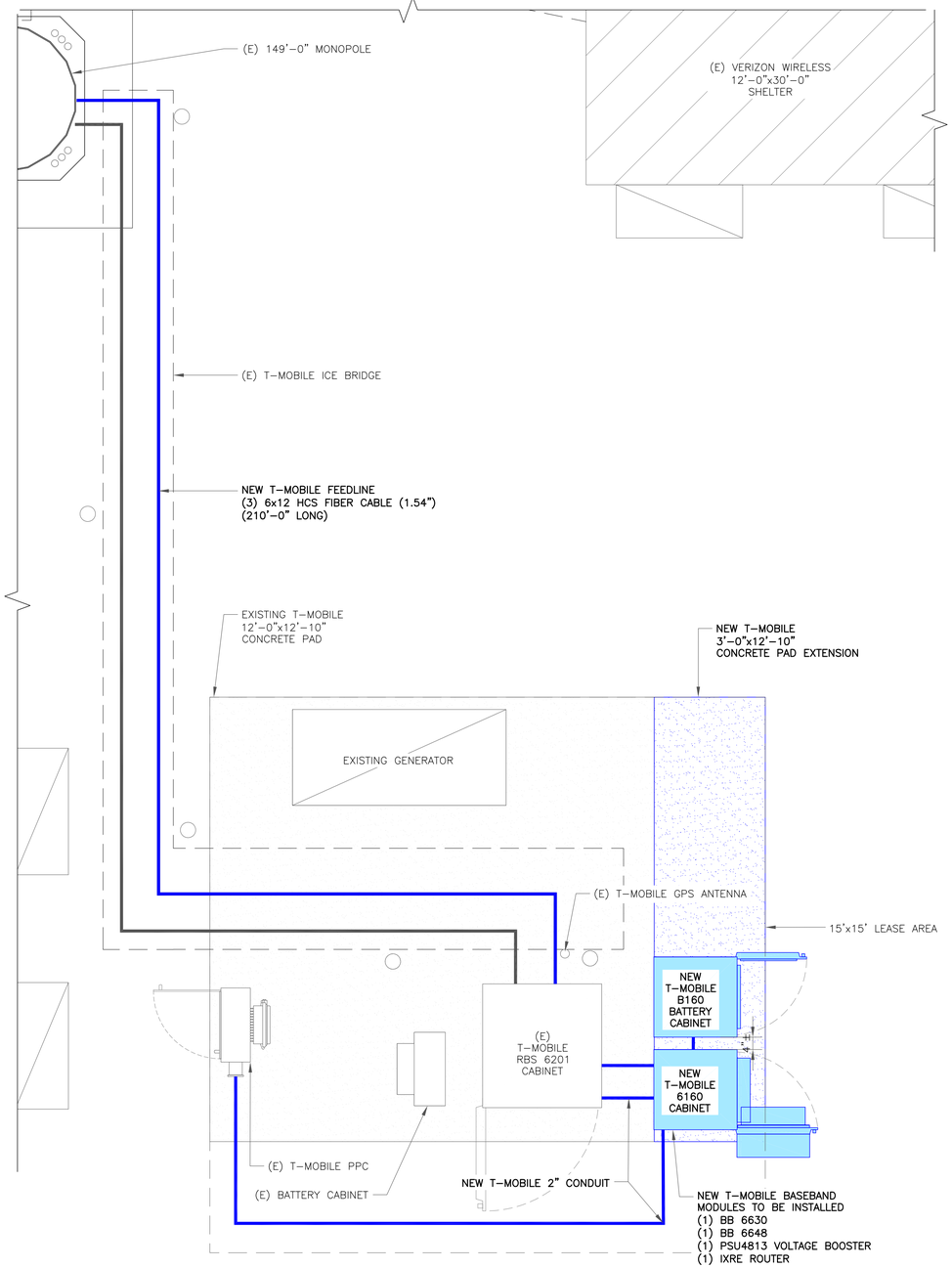
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



1 EXISTING EQUIPMENT PLAN

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

N



2 FINAL EQUIPMENT PLAN

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

N

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BU #: **845455**
OXFORD-QUAKER FARMS

85 QUAKER FARMS ROAD
OXFORD, CT 06478

EXISTING
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SHEET NUMBER: C-1.2

REVISION: 1

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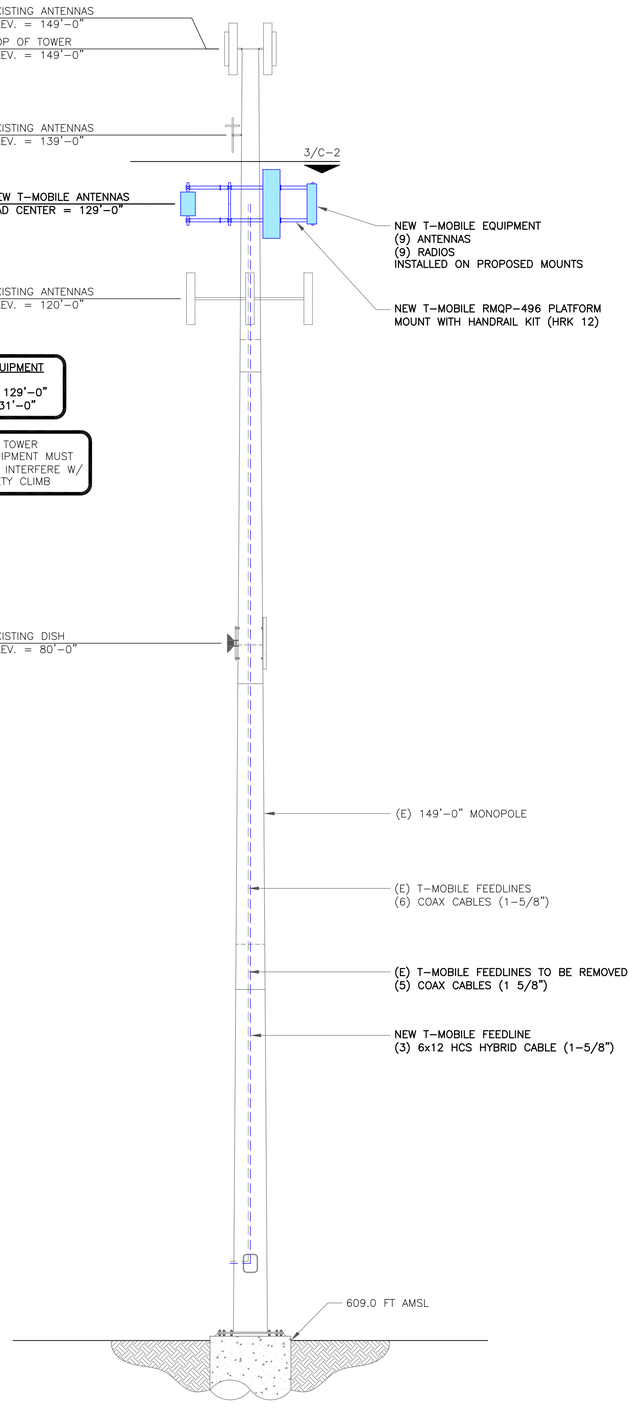
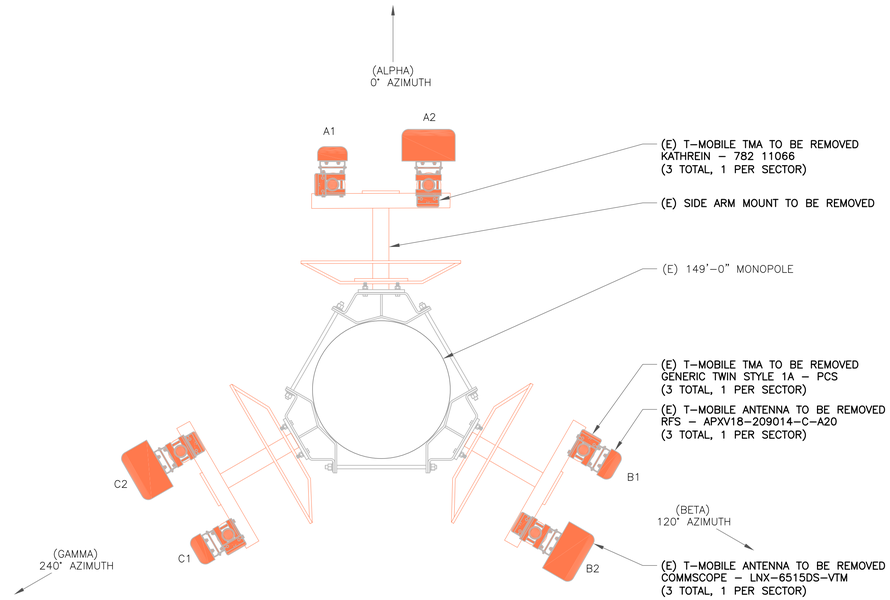
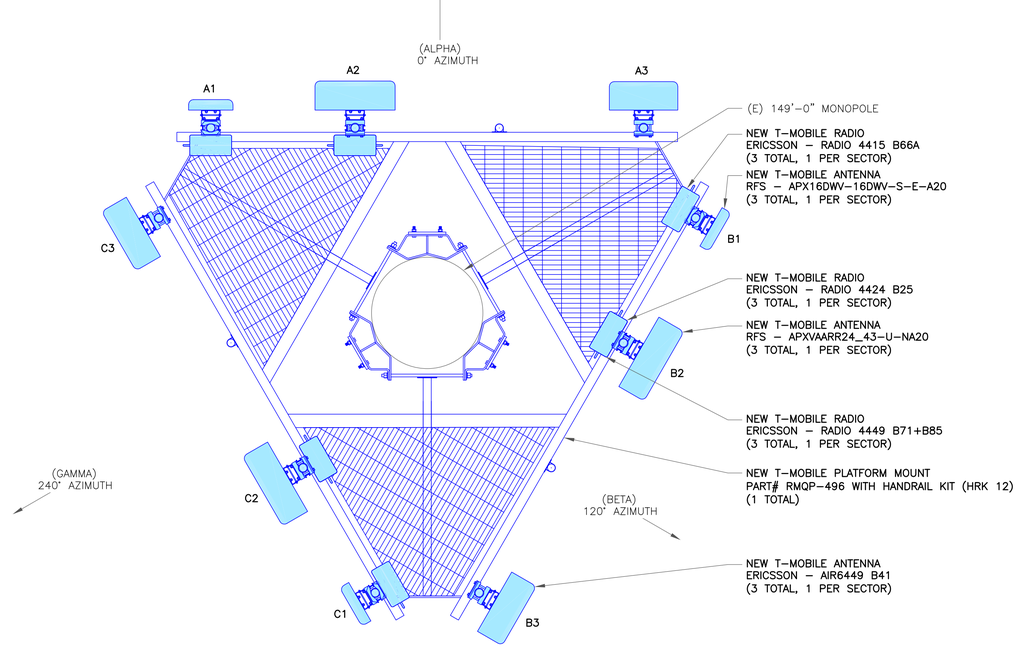


1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE

N



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

N

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SHEET NUMBER: C-2

REVISION: 1

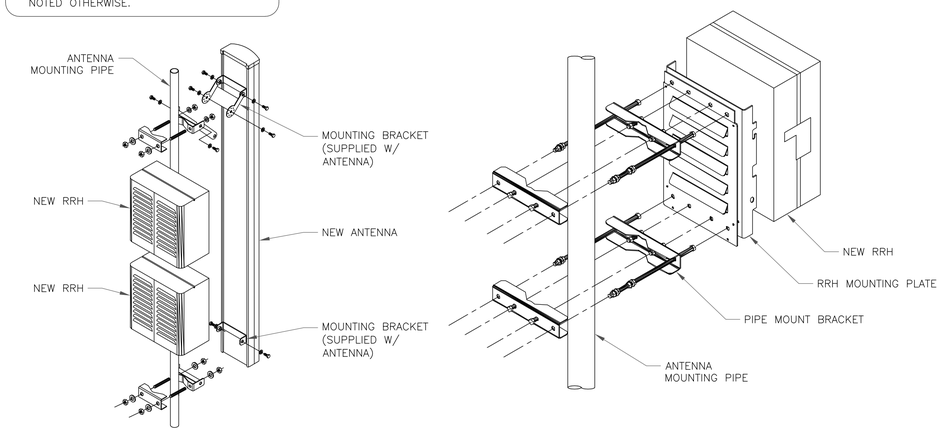
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE DIAMETER	CABLE LENGTH
ALPHA	A-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	0°	0°	–	129'-0"	(1) RADIO 4415 B66A	(6) COAX (3) FIBER	1 5/8" 6x12 HCS	210' 210'
	A-2	L700/L600/ N600/L1900/G1900	RFS	APXVAARR24_43-U-NA20	0°	0°	–	129'-0"	(1) RADIO 4424 B25 (1) RADIO 4449 B71+B85			
	A-3	L2500/N2500	ERICSSON	AIR6449 B41	0°	0°	–	129'-0"	–			
BETA	B-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	120°	0°	–	129'-0"	(1) RADIO 4415 B66A			
	B-2	L700/L600/ N600/L1900/G1900	RFS	APXVAARR24_43-U-NA20	120°	0°	–	129'-0"	(1) RADIO 4424 B25 (1) RADIO 4449 B71+B85			
	B-3	L2500/N2500	ERICSSON	AIR6449 B41	120°	0°	–	129'-0"	–			
GAMMA	C-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	240°	0°	–	129'-0"	(1) RADIO 4415 B66A			
	C-2	L700/L600/ N600/L1900/G1900	RFS	APXVAARR24_43-U-NA20	240°	0°	–	129'-0"	(1) RADIO 4424 B25 (1) RADIO 4449 B71+B85			
	C-3	L2500/N2500	ERICSSON	AIR6449 B41	240°	0°	–	129'-0"	–			

1 ANTENNA & FEEDLINE 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

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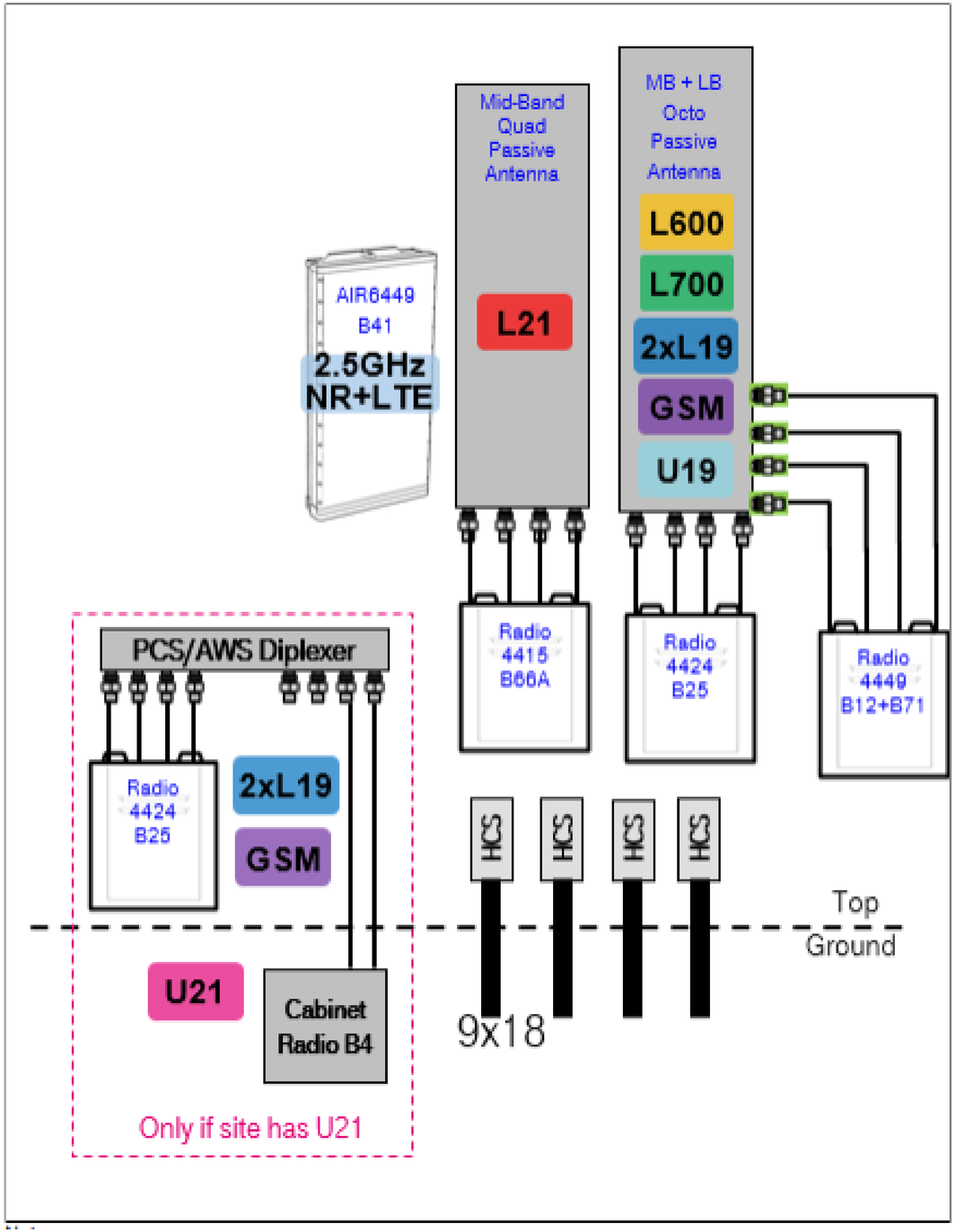
SHEET NUMBER: C-3
REVISION: 1



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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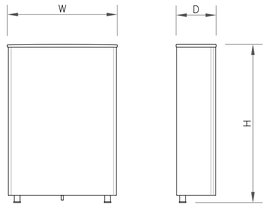
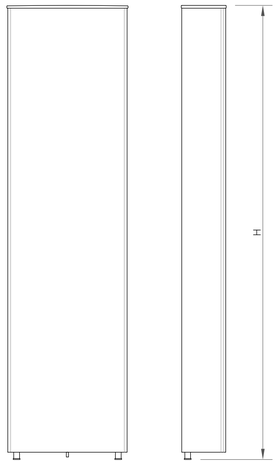
SHEET NUMBER: C-4
REVISION: 1



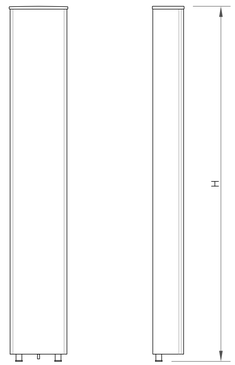
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



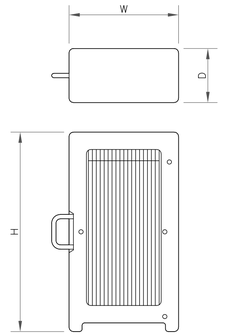
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.00"
DEPTH	8.70"
HEIGHT	95.90"
WEIGHT	128.00 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



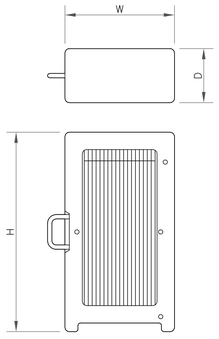
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APX16DWV-16DWV-S-E-A20
WIDTH	13.30"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	40.70 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



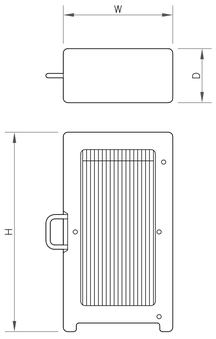
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4449 B71+B85
WIDTH	13.20"
DEPTH	10.63"
HEIGHT	17.91"
WEIGHT	73.21 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4415 B66A
WIDTH	13.20"
DEPTH	5.40"
HEIGHT	14.90"
WEIGHT	46.30 LBS

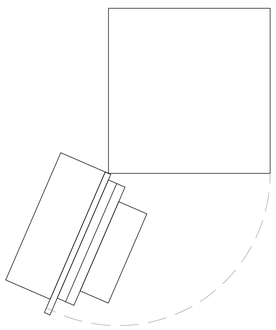
5 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4424 B25
WIDTH	14.40"
DEPTH	11.30"
HEIGHT	17.10"
WEIGHT	86.00 LBS

6 RRU SPECS
SCALE: NOT TO SCALE

ERICSSON 6160 SSC
WEIGHT: 60.0 LBS
SIZE (HxWxD): 63"x25.6"x33.5" IN.



4 ERICSSON 6160 SSC
SCALE: NOT TO SCALE

BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

8 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE

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EXISTING
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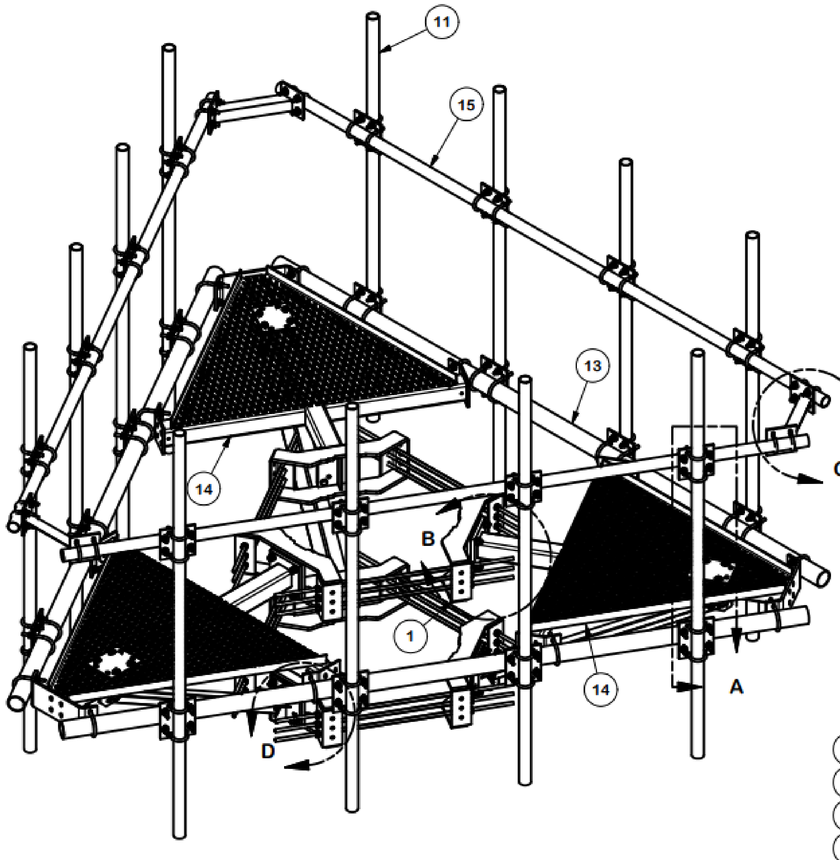
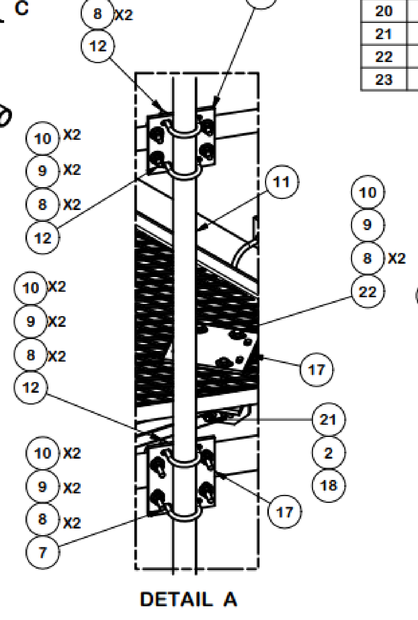
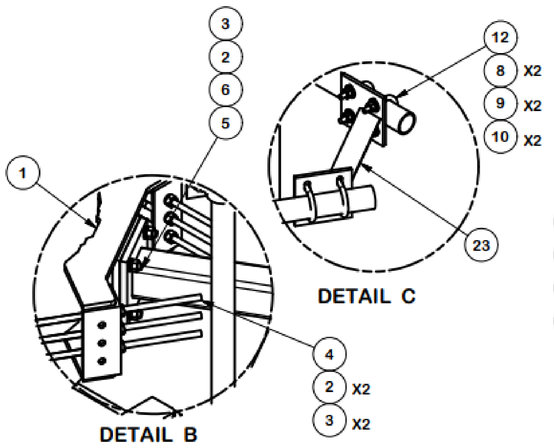
SHEET NUMBER: C-5

REVISION: 1



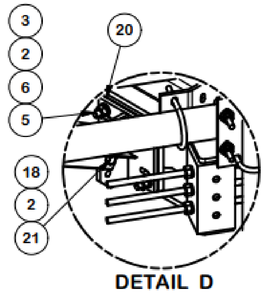


DETAIL A



DETAIL B

DETAIL C



DETAIL D

PARTS LIST

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

1 RMQP-496 PLATFORM MOUNT
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
CTNH211B

BU #: **845455**
OXFORD-QUAKER FARMS

85 QUAKER FARMS ROAD
OXFORD, CT 06478

EXISTING
149'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/16/20	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
11/16/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: C-6
REVISION: 1

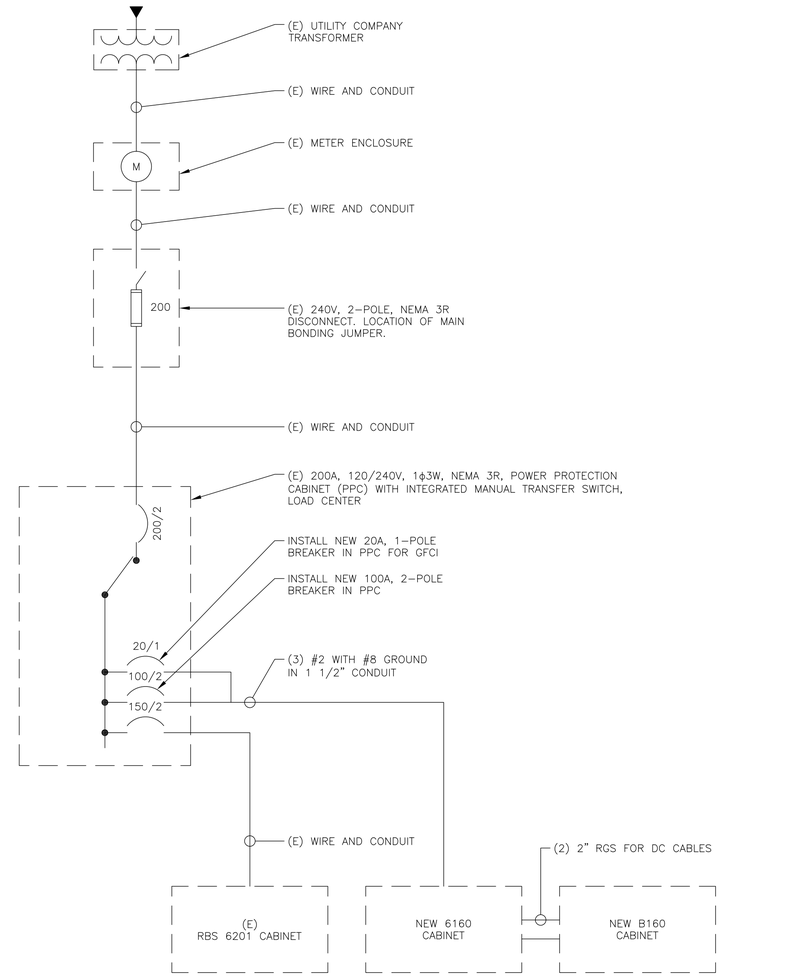
FINAL PANEL SCHEDULE

LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
			1	2	20A	1	LFI RECENT
SURGE	2	60A	3	4	15A	1	LED FLOOD
RBS 6201	2	60A	5	6	100A	2	6160 CABINET
			7	8			
RBS 6160	2	100A	9	10	20A	1	6160 GFCI
			11	12			
6160 GFCI	2	20A	13	14			
			15	16			

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

REPLACE EXISTING BREAKER IN POSITION 6 AND 8 WITH A NEW 2P 100A BREAKER
REPLACE EXISTING BREAKER IN POSITION 10 WITH A NEW 2P 20A BREAKER
IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE



NOTES:

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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

T-MOBILE SITE NUMBER:
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BU #: **845455**
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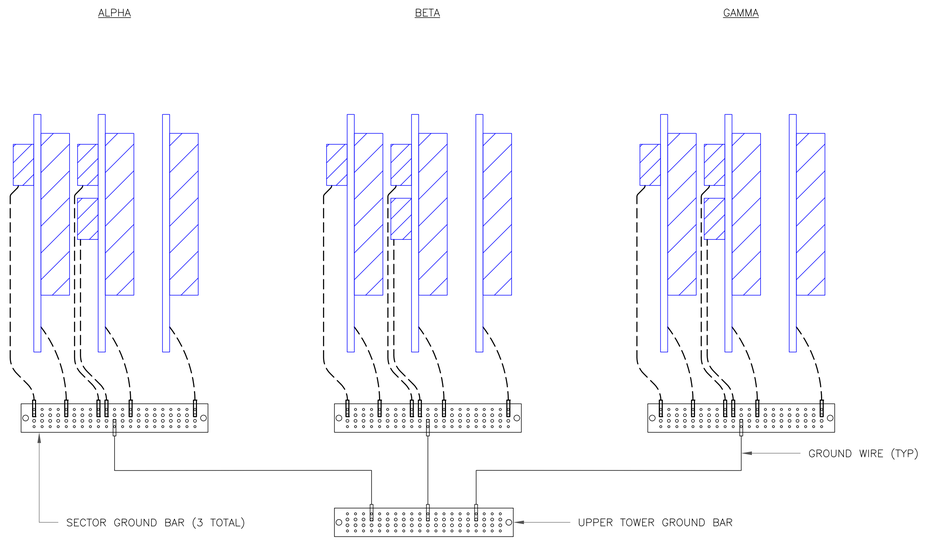
11/16/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

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

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
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STATE OF CONNECTICUT
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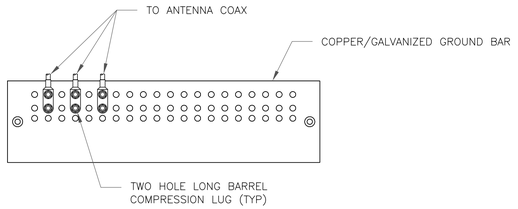
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-1

REVISION: 1

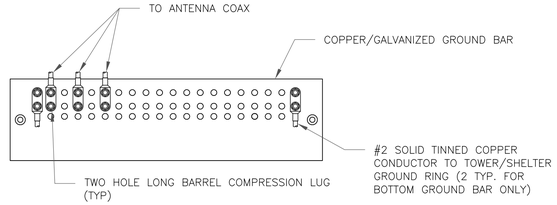
136377.011.01_OXFORD-QUAKER FARMS_CC_TMO_NE_CD Upgrades.dwg – Sheet:G-1 – User: mjones – Nov 16, 2020 – 1:34pm



NOTES:

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

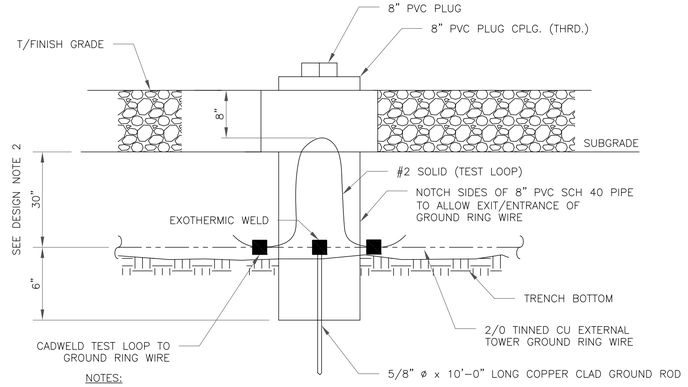
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

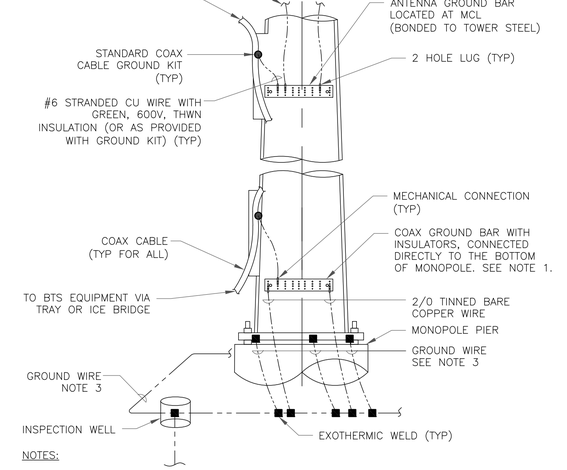
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

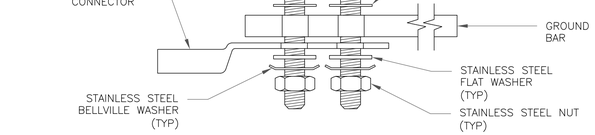
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



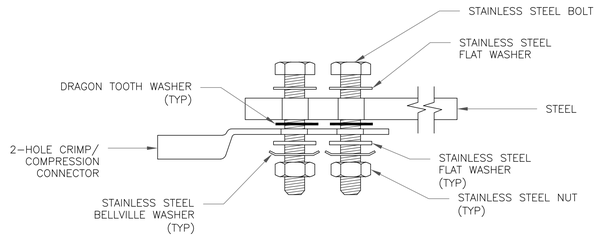
NOTES:

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

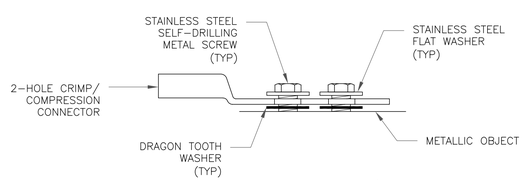
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

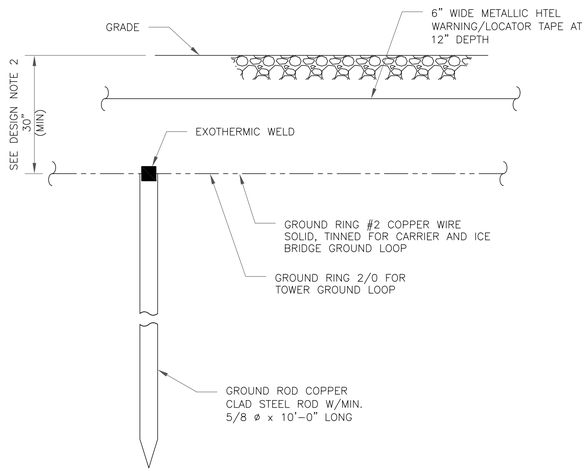


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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149'-0" MONOPOLE

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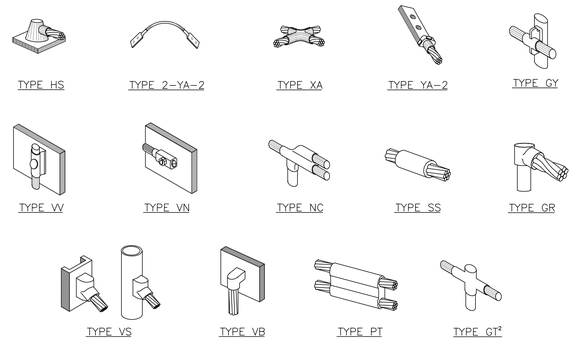
1	11/16/20	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-2
REVISION: 1

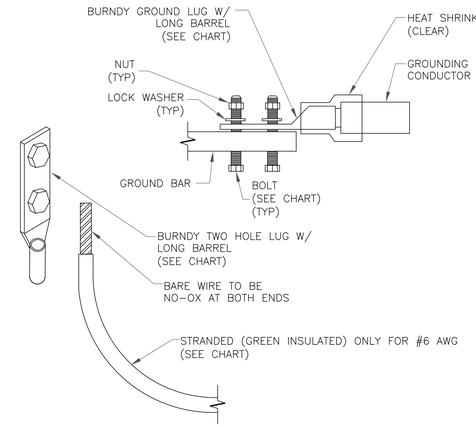


NOTE:

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

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

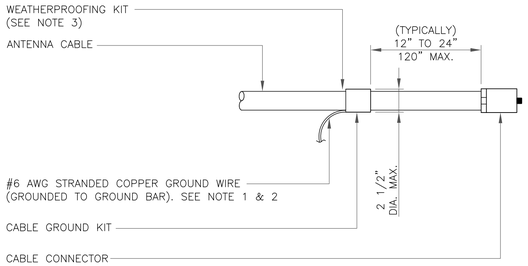
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

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

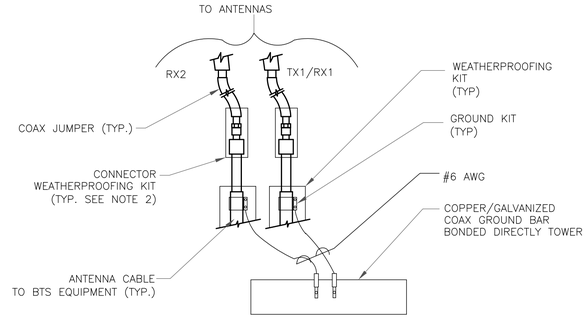
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

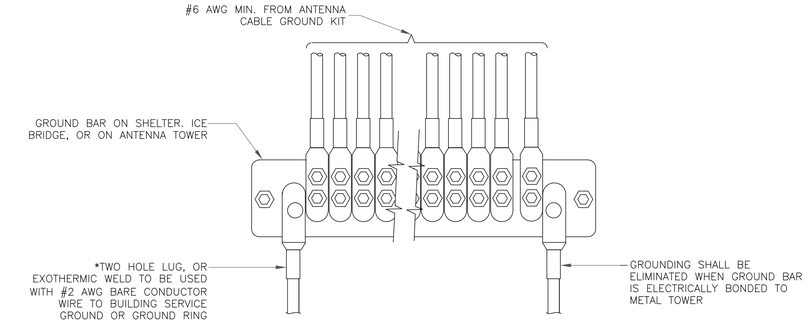
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



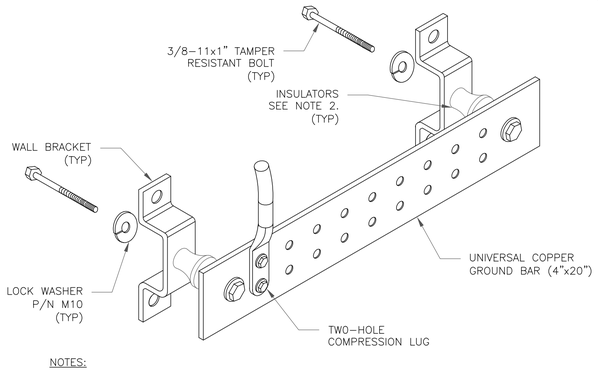
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



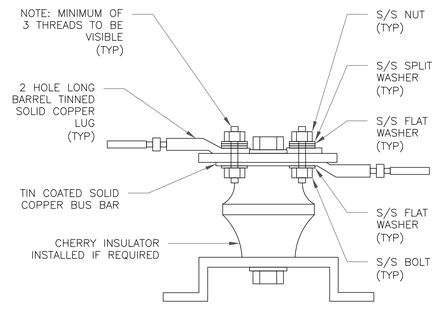
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



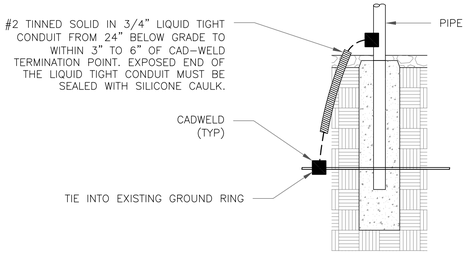
NOTES:

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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STATE OF CONNECTICUT
MICHAEL T. JOHNSON
31627
LICENSED PROFESSIONAL ENGINEER
11/16/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-3
REVISION: 1

Exhibit D

Structural Analysis Report

Date: **November 18, 2020**

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CTNH211B
Crown Castle Designation:	**Crown Castle BU Number:**	845455
	Crown Castle Site Name:	OXFORD-QUAKER FARMS
	Crown Castle JDE Job Number:	620147
	Crown Castle Work Order Number:	1893801
	Crown Castle Order Number:	529733 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1893801
Site Data:	**85 QUAKER FARMS ROAD, OXFORD, New Haven County, CT** **Latitude *41° 23' 2.36"*, Longitude *-73° 8' 14.54"*** **149 Foot - Monopole Tower**	

Dear Denice Nicholson,

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 86.6%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code & the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Bernadette Rossmiller

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2020.11.18 10:34:17 -05'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 149 ft Monopole tower designed by PAUL J FORD.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
131.0	132.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	1 8	1-1/4 1-5/8
		3	ericsson	RADIO 4415 B66A_CCIV3		
		3	ericsson	RADIO 4424 B25_TMO		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	131.0	1	tower mounts	SitePro1 RMQP-496-HR		

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)
149.0	150.0	3	cci antennas	DMP65R-BU6D w/ Mount Pipe	2 5 1	3/8 3/4 1 5/8
		3	commscope	NNH4-65B-R6 w/ Mount Pipe		
		3	ericsson	RADIO 4415 B30		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A		
		3	powerwave technologies	1001983		
		6	powerwave technologies	7020.00		
		6	powerwave technologies	LGP21401		
		1	raycap	DC6-48-60-18-8F		
		1	raycap	DC9-48-60-24-PC16-EV		
	149.0	1	tower mounts	T-Arm Mount [TA 702-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
139.0	140.0	3	powerwave technologies	7770.00 w/ Mount Pipe	5	1 5/8
		6	powerwave technologies	TMA DD 1900 with 850 BYPASS		
	139.0	1	tower mounts	Side Arm Mount [SO 104-3]		
120.0	120.0	3	alcatel lucent	RRH2X60-AWS	20	1 5/8
		3	andrew	HBXX-6517DS-A2M w/ Mount Pipe		
		3	andrew	SBNHH-1D65B w/ Mount Pipe		
		3	antel	BXA-80080/6CF w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		1	tower mounts	Side Arm Mount [SO 104-3]		
80.0	80.0	1	pctel	MPRD2449	3	1/2
		1	antenna systems and solutions inc	FO150-3		
		2	tower mounts	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Wilkinson Engineering	4546778	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Wilkinson Engineering (Mapped)	5113091	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PennSummit Tubular, LLC	5110795	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	149 - 111.5	Pole	TP29.487x23x0.1875	1	-9.38	1047.35	47.4	Pass
L2	111.5 - 75.25	Pole	TP35.383x28.4633x0.2188	2	-14.77	1466.49	86.6	Pass
L3	75.25 - 39.75	Pole	TP41.086x34.167x0.2813	3	-21.99	2187.66	86.0	Pass
L4	39.75 - 0	Pole	TP47.4x39.6154x0.375	4	-35.05	3438.05	74.1	Pass
							Summary	
						Pole (L2)	86.6	Pass
						Rating =	86.6	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	75.8	Pass
1	Base Plate	0	65.6	Pass
1	Base Foundation (Structure)	0	37.5	Pass
1	Base Foundation (Soil Interaction)	0	70.8	Pass

Structure Rating (max from all components) =	86.6%

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

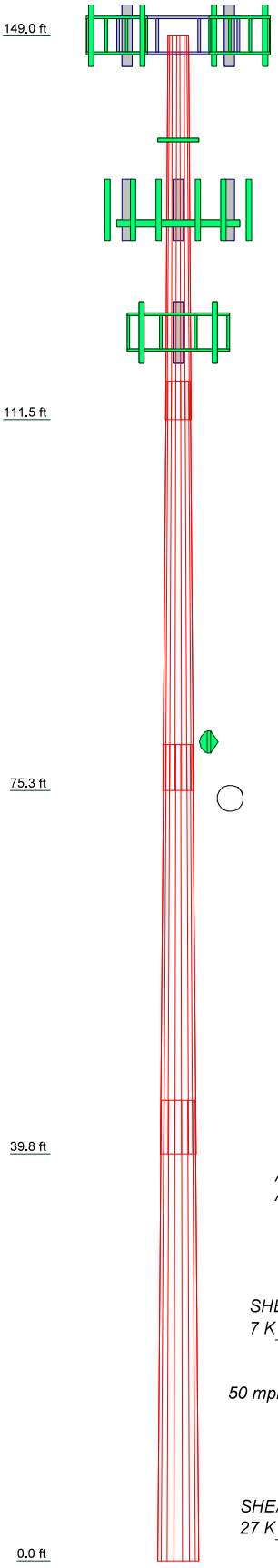
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	37.50	18	0.1875	3.75	23.0000	29.4870	A607-65	2.0
2	40.00	18	0.2188	4.50	28.4633	35.3830		3.0
3	40.00	18	0.2813	5.25	34.1670	41.0860		4.5
4	45.00	18	0.3750		39.6154	47.4000		7.9
								17.4



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86.6%

ALL REACTIONS ARE FACTORED

AXIAL 63 K

SHEAR 7 K *MOMENT 752 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 1.5000 in ICE

AXIAL 35 K

SHEAR 27 K *MOMENT 2846 kip-ft*

TORQUE 1 kip-ft

REACTIONS - 125 mph WIND

CROWN CASTLE
The Pathway to Possible

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

Job: *BU# 845455*			
Project:			
Client: Crown Castle	Drawn by: BRossmiller		App'd:
Code: TIA-222-H	Date: 11/18/20		Scale: NTS
Path: C:\Users\brossmiller\Desktop\temporary\845455\WO 1893801 - SA\Prod\845455_RPA.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:

3) Tower is located in New Haven County, Connecticut.
4) Tower base elevation above sea level: 607.00 ft.
5) Basic wind speed of 125 mph.
6) Risk Category II.
7) Exposure Category C.
8) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
9) Topographic Category: 1.
10) Crest Height: 0.00 ft.
11) Nominal ice thickness of 1.5000 in.
12) Ice thickness is considered to increase with height.
13) Ice density of 56 pcf.
14) A wind speed of 50 mph is used in combination with ice.
15) Temperature drop of 50 °F.
16) Deflections calculated using a wind speed of 60 mph.
17) A non-linear (P-delta) analysis was used.
18) Pressures are calculated at each section.
19) Stress ratio used in pole design is 1.05.
20) Tower analysis based on target reliabilities in accordance with Annex S.
21) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
22) 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	149.00-111.50	37.50	3.75	18	23.0000	29.4870	0.1875	0.7500	A607-65 (65 ksi)
L2	111.50-75.25	40.00	4.50	18	28.4633	35.3830	0.2188	0.8750	A607-65

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	75.25-39.75	40.00	5.25	18	34.1670	41.0860	0.2813	1.1250	(65 ksi) A607-65
L4	39.75-0.00	45.00		18	39.6154	47.4000	0.3750	1.5000	(65 ksi) A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.3259	13.5763	892.6152	8.0984	11.6840	76.3964	1786.4050	6.7894	3.7180	19.829
	29.9130	17.4369	1891.1513	10.4013	14.9794	126.2502	3784.7910	8.7201	4.8597	25.918
L2	29.5274	19.6105	1976.4982	10.0268	14.4594	136.6934	3955.5970	9.8071	4.6245	21.141
	35.8951	24.4150	3814.1390	12.4833	17.9746	212.1965	7633.2967	12.2098	5.8424	26.708
L3	35.4411	30.2494	4388.2314	12.0295	17.3569	252.8241	8782.2369	15.1276	5.5184	19.621
	41.6764	36.4259	7662.4750	14.4857	20.8717	367.1229	15335.0324	18.2164	6.7361	23.951
L4	41.0909	46.7059	9086.0569	13.9303	20.1246	451.4897	18184.0695	23.3574	6.3123	16.833
	48.0734	55.9715	15637.3103	16.6939	24.0792	649.4115	31295.1965	27.9911	7.6824	20.486

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 149.00-111.50				1	1	1			
L2 111.50-75.25				1	1	1			
L3 75.25-39.75				1	1	1			
L4 39.75-0.00				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
** 120 ft **										
HB158-1-08U8-S8J18(1-5/8)	C	No	Surface Ar (CaAa)	120.00 - 0.00	8	8	-0.200 0.000	1.9800		1.30
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	131.00 - 0.00	6	6	0.400 0.500	1.9800		0.82
HB114-U6S12-XXX-LI(1-1/4) ****	B	No	Surface Ar (CaAa)	131.00 - 0.00	1	1	0.400 0.410	1.5400		1.70

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
** 80 ft **								

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4-50A(1/2)	A	No	No	Inside Pole	80.00 - 0.00	3	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
LDF7-50A(1-5/8)	C	No	No	Inside Pole	120.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
** 129 ft **									
AVA7-50(1-5/8)	B	No	No	Inside Pole	131.00 - 0.00	2	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
** 139 **									
AVA7-50(1-5/8)	C	No	No	Inside Pole	139.00 - 0.00	5	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
** 149 **									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	149.00 - 0.00	1	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	149.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	149.00 - 0.00	5	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
****									

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	149.00-111.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	26.169	0.000	0.16
		C	0.000	0.000	13.464	0.000	0.41
L2	111.50-75.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	48.648	0.000	0.29
		C	0.000	0.000	57.420	0.000	1.00
L3	75.25-39.75	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	47.641	0.000	0.28
		C	0.000	0.000	56.232	0.000	0.98
L4	39.75-0.00	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	53.344	0.000	0.32
		C	0.000	0.000	62.964	0.000	1.10

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	149.00-111.50	A	1.462	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	44.789	0.000	0.63
		C		0.000	0.000	19.937	0.000	0.62
L2	111.50-75.25	A	1.414	0.000	0.000	0.000	0.000	0.00

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
		B		0.000	0.000	83.261	0.000	1.18
		C		0.000	0.000	85.024	0.000	1.88
L3	75.25-39.75	A	1.347	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	80.775	0.000	1.12
		C		0.000	0.000	82.841	0.000	1.81
L4	39.75-0.00	A	1.213	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	89.251	0.000	1.20
		C		0.000	0.000	92.094	0.000	1.98

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.00-111.50	3.9846	3.5544	3.5062	2.9008
L2	111.50-75.25	5.4263	7.2448	4.7147	5.7894
L3	75.25-39.75	5.9139	7.8948	5.1809	6.3762
L4	39.75-0.00	6.3525	8.4795	5.6010	6.9166

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	4	HB158-1-08U8-S8J18(1-5/8)	111.50 - 120.00	1.0000	1.0000
L1	8	LDF7-50A(1-5/8)	111.50 - 131.00	1.0000	1.0000
L1	9	HB114-U6S12-XXX-LI(1-1/4)	111.50 - 131.00	1.0000	1.0000
L2	4	HB158-1-08U8-S8J18(1-5/8)	75.25 - 111.50	1.0000	1.0000
L2	8	LDF7-50A(1-5/8)	75.25 - 111.50	1.0000	1.0000
L2	9	HB114-U6S12-XXX-LI(1-1/4)	75.25 - 111.50	1.0000	1.0000
L3	4	HB158-1-08U8-S8J18(1-5/8)	39.75 - 75.25	1.0000	1.0000
L3	8	LDF7-50A(1-5/8)	39.75 - 75.25	1.0000	1.0000
L3	9	HB114-U6S12-XXX-LI(1-1/4)	39.75 - 75.25	1.0000	1.0000
L4	4	HB158-1-08U8-S8J18(1-5/8)	0.00 - 39.75	1.0000	1.0000
L4	8	LDF7-50A(1-5/8)	0.00 - 39.75	1.0000	1.0000
L4	9	HB114-U6S12-XXX-LI(1-1/4)	0.00 - 39.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*** 149 - ATT ***									
T-Arm Mount [TA 702-3]	C	None		0.0000	149.00	No Ice	4.75	4.75	0.34
						1/2" Ice	5.82	5.82	0.43
						1" Ice	6.98	6.98	0.55
						2" Ice	9.72	9.72	0.87
DMP65R-BU6D w/ Mount Pipe	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	11.96	5.97	0.11
						1/2" Ice	12.70	6.63	0.20
						1" Ice	13.46	7.30	0.30
						2" Ice	15.02	8.69	0.53
DMP65R-BU6D w/ Mount Pipe	B	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	11.96	5.97	0.11
						1/2" Ice	12.70	6.63	0.20
						1" Ice	13.46	7.30	0.30
						2" Ice	15.02	8.69	0.53
DMP65R-BU6D w/ Mount Pipe	C	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	11.96	5.97	0.11
						1/2" Ice	12.70	6.63	0.20
						1" Ice	13.46	7.30	0.30
						2" Ice	15.02	8.69	0.53
NNH4-65B-R6 w/ Mount Pipe	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	7.55	4.23	0.12
						1/2" Ice	8.04	4.67	0.21
						1" Ice	8.53	5.12	0.30
						2" Ice	9.56	6.05	0.53
NNH4-65B-R6 w/ Mount Pipe	B	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	7.55	4.23	0.12
						1/2" Ice	8.04	4.67	0.21
						1" Ice	8.53	5.12	0.30
						2" Ice	9.56	6.05	0.53
NNH4-65B-R6 w/ Mount Pipe	C	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	7.55	4.23	0.12
						1/2" Ice	8.04	4.67	0.21
						1" Ice	8.53	5.12	0.30
						2" Ice	9.56	6.05	0.53
DC6-48-60-18-8F	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	1.21	1.21	0.02
						1/2" Ice	1.89	1.89	0.04
						1" Ice	2.11	2.11	0.07
						2" Ice	2.57	2.57	0.13
(2) LGP21401	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	B	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	C	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) 7020.00	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	0.10	0.17	0.00
						1/2" Ice	0.15	0.24	0.01
						1" Ice	0.20	0.31	0.01
						2" Ice	0.33	0.48	0.02
(2) 7020.00	B	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice	0.10	0.17	0.00
						1/2" Ice	0.15	0.24	0.01
						Ice	0.20	0.31	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	0.33	0.48	0.02
						2" Ice			
(2) 7020.00	C	From Leg	3.00	0.0000	149.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice	0.33	0.48	0.02
						2" Ice			
1001983	A	From Leg	3.00	0.0000	149.00	No Ice	0.18	0.08	0.00
			0.00			1/2"	0.23	0.13	0.00
			1.00			Ice	0.30	0.18	0.01
						1" Ice	0.44	0.30	0.01
						2" Ice			
1001983	B	From Leg	3.00	0.0000	149.00	No Ice	0.18	0.08	0.00
			0.00			1/2"	0.23	0.13	0.00
			1.00			Ice	0.30	0.18	0.01
						1" Ice	0.44	0.30	0.01
						2" Ice			
1001983	C	From Leg	3.00	0.0000	149.00	No Ice	0.18	0.08	0.00
			0.00			1/2"	0.23	0.13	0.00
			1.00			Ice	0.30	0.18	0.01
						1" Ice	0.44	0.30	0.01
						2" Ice			
RADIO 4415 B30	A	From Leg	3.00	0.0000	149.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			1.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RADIO 4415 B30	B	From Leg	3.00	0.0000	149.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			1.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RADIO 4415 B30	C	From Leg	3.00	0.0000	149.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			1.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RRUS 8843 B2/B66A	A	From Leg	3.00	0.0000	149.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			1.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
RRUS 8843 B2/B66A	B	From Leg	3.00	0.0000	149.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			1.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
RRUS 8843 B2/B66A	C	From Leg	3.00	0.0000	149.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			1.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	3.00	0.0000	149.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	3.00	0.0000	149.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	3.00	0.0000	149.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11

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" Ice	2.72	2.07	0.16
DC9-48-60-24-PC16-EV	A	From Leg	3.00 0.00 1.00	0.0000	149.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.26 2.44 2.64 3.05	1.12 1.26 1.40 1.72	0.03 0.05 0.08 0.13
** 139 - ATT **									
7770.00 w/ Mount Pipe	A	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) TMA DD 1900 with 850 BYPASS	A	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.31 0.41 0.51 0.75	0.15 0.21 0.27 0.42	0.02 0.02 0.03 0.05
(2) TMA DD 1900 with 850 BYPASS	B	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.31 0.41 0.51 0.75	0.15 0.21 0.27 0.42	0.02 0.02 0.03 0.05
(2) TMA DD 1900 with 850 BYPASS	C	From Leg	1.00 0.00 1.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.31 0.41 0.51 0.75	0.15 0.21 0.27 0.42	0.02 0.02 0.03 0.05
4.5' x 2" Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.02 1.30 1.58 2.17	1.02 1.30 1.58 2.17	0.00 0.01 0.02 0.05
4.5' x 2" Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.02 1.30 1.58 2.17	1.02 1.30 1.58 2.17	0.00 0.01 0.02 0.05
4.5' x 2" Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.02 1.30 1.58 2.17	1.02 1.30 1.58 2.17	0.00 0.01 0.02 0.05
Side Arm Mount [SO 104-3]	C	None		0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.62 3.30 3.98 5.35	2.62 3.30 3.98 5.35	0.29 0.41 0.53 0.77
** 131 - TMO **									
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29

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
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
RADIO 4415 B66A_CCIV3	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4415 B66A_CCIV3	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4415 B66A_CCIV3	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17

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
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4424 B25_TMO	A	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	B	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	C	From Leg	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
Platform Mount [LP 301-1]	C	None		0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	23.81 30.24 36.33 48.05	23.81 30.24 36.33 48.05	1.59 2.10 2.73 4.34
** 120 - VZW **									
SBNHH-1D65B w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
BXA-80080/6CF w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.57 9.10 10.17	5.60 6.78 7.67 9.48	0.05 0.11 0.18 0.34
BXA-80080/6CF w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.57 9.10 10.17	5.60 6.78 7.67 9.48	0.05 0.11 0.18 0.34
BXA-80080/6CF w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.57 9.10 10.17	5.60 6.78 7.67 9.48	0.05 0.11 0.18 0.34
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.97 8.73 9.51 11.11	5.99 6.72 7.47 9.02	0.08 0.14 0.21 0.40
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.51 11.11	5.99 6.72 7.47 9.02	0.08 0.14 0.21 0.40

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
						2" Ice			
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.97 8.73 9.51 11.11	5.99 6.72 7.47 9.02	0.08 0.14 0.21 0.40
RRH2X60-AWS	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-AWS	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-AWS	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
DB-T1-6Z-8AB-0Z	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
DB-T1-6Z-8AB-0Z	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
(2) 4' x 2" Pipe Mount	A	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.79 1.03 1.28 1.81	0.79 1.03 1.28 1.81	0.03 0.04 0.04 0.07
(2) 4' x 2" Pipe Mount	B	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.79 1.03 1.28 1.81	0.79 1.03 1.28 1.81	0.03 0.04 0.04 0.07
(2) 4' x 2" Pipe Mount	C	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.79 1.03 1.28 1.81	0.79 1.03 1.28 1.81	0.03 0.04 0.04 0.07
(2) 6' x 2" Horizontal Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.14 1.76 2.14 2.90	0.01 0.04 0.09 0.21	0.02 0.03 0.04 0.08
(2) 6' x 2" Horizontal Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.14 1.76 2.14 2.90	0.01 0.04 0.09 0.21	0.02 0.03 0.04 0.08
(2) 6' x 2" Horizontal Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.14 1.76 2.14 2.90	0.01 0.04 0.09 0.21	0.02 0.03 0.04 0.08
Side Arm Mount [SO 104-3]	C	None		0.0000	120.00	No Ice 1/2" Ice Ice 1" Ice	2.62 3.30 3.98 5.35	2.62 3.30 3.98 5.35	0.29 0.41 0.53 0.77

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice			
** 80 - Seymour CT ** FO150-3	B	From Leg	0.50	0.00	0.0000	80.00	No Ice	1.09	1.09	0.00
			0.00				1/2" Ice	1.35	1.35	0.01
			0.00				1" Ice	1.62	1.62	0.02
							2" Ice	2.20	2.20	0.06
6' x 2" Mount Pipe	A	From Leg	0.50	0.00	0.0000	80.00	No Ice	1.43	1.43	0.02
			0.00				1/2" Ice	1.92	1.92	0.03
			0.00				1" Ice	2.29	2.29	0.05
							2" Ice	3.06	3.06	0.09
Pipe Mount [PM 601-1]	A	From Leg	0.50	0.00	0.0000	80.00	No Ice	1.32	1.32	0.07
			0.00				1/2" Ice	1.58	1.58	0.08
			0.00				1" Ice	1.84	1.84	0.09
							2" Ice	2.40	2.40	0.13
6' x 2" Mount Pipe	A	From Leg	0.50	0.00	0.0000	80.00	No Ice	1.43	1.43	0.02
			0.00				1/2" Ice	1.92	1.92	0.03
			0.00				1" Ice	2.29	2.29	0.05
							2" Ice	3.06	3.06	0.09
Pipe Mount [PM 601-1]	A	From Leg	0.50	0.00	0.0000	80.00	No Ice	1.32	1.32	0.07
			0.00				1/2" Ice	1.58	1.58	0.08
			0.00				1" Ice	1.84	1.84	0.09
							2" Ice	2.40	2.40	0.13
****										

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
80 MPRD2449	B	Paraboloid w/Radome	From Leg	1.00	0.00	0.0000		80.00	2.17	No Ice	3.69	0.04
				0.00						1/2" Ice	3.98	0.06
				0.00						1" Ice	4.27	0.08
										2" Ice	4.84	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

Comb. No.	Description
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
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	149 - 111.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.46	-1.40	1.20
			Max. Mx	8	-9.41	-307.97	-0.03
			Max. My	2	-9.38	-0.03	310.46
			Max. Vy	8	16.20	-307.97	-0.03
			Max. Vx	2	-16.32	-0.03	310.46
			Max. Torque	22			-0.74
L2	111.5 - 75.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.71	-3.33	0.85
			Max. Mx	8	-14.79	-943.94	-1.93
			Max. My	2	-14.77	1.38	950.38
			Max. Vy	20	-20.05	942.41	2.36
			Max. Vx	2	-20.14	1.38	950.38
			Max. Torque	22			-1.17
L3	75.25 - 39.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.50	-5.12	-0.33
			Max. Mx	8	-22.00	-1697.05	-4.36
			Max. My	2	-21.99	3.45	1707.27
			Max. Vy	20	-23.28	1696.40	3.85

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-23.37	3.45	1707.27
			Max. Torque	22			-1.17
L4	39.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.06	-7.37	-2.01
			Max. Mx	20	-35.05	2827.72	5.61
			Max. My	2	-35.05	6.03	2842.17
			Max. Vy	20	-26.79	2827.72	5.61
			Max. Vx	2	-26.87	6.03	2842.17
			Max. Torque	22			-1.16

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	63.06	-6.82	-0.01
	Max. H_x	20	35.07	26.75	0.05
	Max. H_z	3	26.30	0.07	26.83
	Max. M_x	2	2842.17	0.07	26.83
	Max. M_z	8	2827.37	-26.70	-0.05
	Max. Torsion	10	1.16	-23.17	-13.46
	Min. Vert	11	26.30	-23.17	-13.46
	Min. H_x	9	26.30	-26.70	-0.05
	Min. H_z	15	26.30	-0.04	-26.79
	Min. M_x	14	-2840.43	-0.04	-26.79
	Min. M_z	20	-2827.72	26.75	0.05
	Min. Torsion	22	-1.16	23.19	13.48

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	29.23	0.00	0.00	0.80	-1.44	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	35.07	-0.07	-26.83	-2842.17	6.03	0.58
0.9 Dead+1.0 Wind 0 deg - No Ice	26.30	-0.07	-26.83	-2806.72	6.40	0.58
1.2 Dead+1.0 Wind 30 deg - No Ice	35.07	13.27	-23.19	-2456.22	-1406.24	-0.02
0.9 Dead+1.0 Wind 30 deg - No Ice	26.30	13.27	-23.19	-2425.61	-1388.14	-0.01
1.2 Dead+1.0 Wind 60 deg - No Ice	35.07	23.07	-13.36	-1413.78	-2442.97	-0.59
0.9 Dead+1.0 Wind 60 deg - No Ice	26.30	23.07	-13.36	-1396.26	-2411.85	-0.58
1.2 Dead+1.0 Wind 90 deg - No Ice	35.07	26.70	0.05	7.56	-2827.37	-1.00
0.9 Dead+1.0 Wind 90 deg - No Ice	26.30	26.70	0.05	7.22	-2791.44	-0.99
1.2 Dead+1.0 Wind 120 deg - No Ice	35.07	23.17	13.46	1428.34	-2453.18	-1.16
0.9 Dead+1.0 Wind 120 deg - No Ice	26.30	23.17	13.46	1410.17	-2421.96	-1.15
1.2 Dead+1.0 Wind 150 deg - No Ice	35.07	13.40	23.25	2465.49	-1420.22	-1.01
0.9 Dead+1.0 Wind 150 deg - No Ice	26.30	13.40	23.25	2434.29	-1401.95	-1.01
1.2 Dead+1.0 Wind 180 deg - No Ice	35.07	0.04	26.79	2840.43	-7.60	-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 180 deg - No Ice	26.30	0.04	26.79	2804.51	-7.05	-0.57
1.2 Dead+1.0 Wind 210 deg - No Ice	35.07	-13.31	23.17	2456.29	1405.90	0.02
0.9 Dead+1.0 Wind 210 deg - No Ice	26.30	-13.31	23.17	2425.19	1388.71	0.01
1.2 Dead+1.0 Wind 240 deg - No Ice	35.07	-23.12	13.36	1415.83	2443.56	0.58
0.9 Dead+1.0 Wind 240 deg - No Ice	26.30	-23.12	13.36	1397.81	2413.35	0.57
1.2 Dead+1.0 Wind 270 deg - No Ice	35.07	-26.75	-0.05	-5.61	2827.72	1.00
0.9 Dead+1.0 Wind 270 deg - No Ice	26.30	-26.75	-0.05	-5.78	2792.70	0.99
1.2 Dead+1.0 Wind 300 deg - No Ice	35.07	-23.19	-13.48	-1427.59	2451.70	1.16
0.9 Dead+1.0 Wind 300 deg - No Ice	26.30	-23.19	-13.48	-1409.91	2421.39	1.16
1.2 Dead+1.0 Wind 330 deg - No Ice	35.07	-13.42	-23.29	-2466.95	1418.63	1.02
0.9 Dead+1.0 Wind 330 deg - No Ice	26.30	-13.42	-23.29	-2436.22	1401.28	1.02
1.2 Dead+1.0 Ice+1.0 Temp	63.06	0.00	-0.00	2.01	-7.37	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	63.06	-0.01	-6.84	-743.43	-6.00	0.12
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	63.06	3.40	-5.92	-642.61	-376.95	-0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	63.06	5.90	-3.41	-369.42	-649.05	-0.19
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	63.06	6.82	0.01	3.25	-749.58	-0.29
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	63.06	5.92	3.43	375.85	-651.01	-0.31
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	63.06	3.42	5.93	648.05	-379.59	-0.25
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	63.06	0.01	6.84	746.75	-8.53	-0.12
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	63.06	-3.40	5.91	646.29	362.66	0.04
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	63.06	-5.91	3.41	373.51	634.95	0.19
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	63.06	-6.83	-0.01	0.81	735.44	0.29
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	63.06	-5.92	-3.43	-372.03	636.50	0.31
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	63.06	-3.42	-5.94	-644.68	365.05	0.25
Dead+Wind 0 deg - Service	29.23	-0.01	-5.82	-612.40	0.18	0.13
Dead+Wind 30 deg - Service	29.23	2.88	-5.03	-529.15	-304.41	-0.00
Dead+Wind 60 deg - Service	29.23	5.01	-2.90	-304.32	-528.00	-0.13
Dead+Wind 90 deg - Service	29.23	5.79	0.01	2.23	-610.91	-0.22
Dead+Wind 120 deg - Service	29.23	5.03	2.92	308.66	-530.21	-0.26
Dead+Wind 150 deg - Service	29.23	2.91	5.05	532.36	-307.43	-0.22
Dead+Wind 180 deg - Service	29.23	0.01	5.81	613.22	-2.75	-0.13
Dead+Wind 210 deg - Service	29.23	-2.89	5.03	530.36	302.11	0.00
Dead+Wind 240 deg - Service	29.23	-5.02	2.90	305.96	525.90	0.13
Dead+Wind 270 deg - Service	29.23	-5.81	-0.01	-0.61	608.75	0.22
Dead+Wind 300 deg - Service	29.23	-5.03	-2.92	-307.30	527.66	0.26
Dead+Wind 330 deg - Service	29.23	-2.91	-5.05	-531.47	304.86	0.22

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	-29.23	0.00	0.00	29.23	0.00	0.000%
2	-0.07	-35.07	-26.83	0.07	35.07	26.83	0.000%
3	-0.07	-26.30	-26.83	0.07	26.30	26.83	0.000%
4	13.27	-35.07	-23.19	-13.27	35.07	23.19	0.000%
5	13.27	-26.30	-23.19	-13.27	26.30	23.19	0.000%
6	23.07	-35.07	-13.36	-23.07	35.07	13.36	0.000%
7	23.07	-26.30	-13.36	-23.07	26.30	13.36	0.000%
8	26.70	-35.07	0.05	-26.70	35.07	-0.05	0.000%
9	26.70	-26.30	0.05	-26.70	26.30	-0.05	0.000%
10	23.17	-35.07	13.46	-23.17	35.07	-13.46	0.000%
11	23.17	-26.30	13.46	-23.17	26.30	-13.46	0.000%
12	13.40	-35.07	23.25	-13.40	35.07	-23.25	0.000%
13	13.40	-26.30	23.25	-13.40	26.30	-23.25	0.000%
14	0.04	-35.07	26.79	-0.04	35.07	-26.79	0.000%
15	0.04	-26.30	26.79	-0.04	26.30	-26.79	0.000%
16	-13.31	-35.07	23.17	13.31	35.07	-23.17	0.000%
17	-13.31	-26.30	23.17	13.31	26.30	-23.17	0.000%
18	-23.12	-35.07	13.36	23.12	35.07	-13.36	0.000%
19	-23.12	-26.30	13.36	23.12	26.30	-13.36	0.000%
20	-26.75	-35.07	-0.05	26.75	35.07	0.05	0.000%
21	-26.75	-26.30	-0.05	26.75	26.30	0.05	0.000%
22	-23.19	-35.07	-13.48	23.19	35.07	13.48	0.000%
23	-23.19	-26.30	-13.48	23.19	26.30	13.48	0.000%
24	-13.42	-35.07	-23.29	13.42	35.07	23.29	0.000%
25	-13.42	-26.30	-23.29	13.42	26.30	23.29	0.000%
26	0.00	-63.06	0.00	-0.00	63.06	0.00	0.000%
27	-0.01	-63.06	-6.84	0.01	63.06	6.84	0.000%
28	3.40	-63.06	-5.92	-3.40	63.06	5.92	0.000%
29	5.90	-63.06	-3.41	-5.90	63.06	3.41	0.000%
30	6.82	-63.06	0.01	-6.82	63.06	-0.01	0.000%
31	5.92	-63.06	3.43	-5.92	63.06	-3.43	0.000%
32	3.42	-63.06	5.93	-3.42	63.06	-5.93	0.000%
33	0.01	-63.06	6.84	-0.01	63.06	-6.84	0.000%
34	-3.40	-63.06	5.91	3.40	63.06	-5.91	0.000%
35	-5.91	-63.06	3.41	5.91	63.06	-3.41	0.000%
36	-6.83	-63.06	-0.01	6.83	63.06	0.01	0.000%
37	-5.92	-63.06	-3.43	5.92	63.06	3.43	0.000%
38	-3.42	-63.06	-5.94	3.42	63.06	5.94	0.000%
39	-0.01	-29.23	-5.82	0.01	29.23	5.82	0.000%
40	2.88	-29.23	-5.03	-2.88	29.23	5.03	0.000%
41	5.01	-29.23	-2.90	-5.01	29.23	2.90	0.000%
42	5.79	-29.23	0.01	-5.79	29.23	-0.01	0.000%
43	5.03	-29.23	2.92	-5.03	29.23	-2.92	0.000%
44	2.91	-29.23	5.05	-2.91	29.23	-5.05	0.000%
45	0.01	-29.23	5.81	-0.01	29.23	-5.81	0.000%
46	-2.89	-29.23	5.03	2.89	29.23	-5.03	0.000%
47	-5.02	-29.23	2.90	5.02	29.23	-2.90	0.000%
48	-5.81	-29.23	-0.01	5.81	29.23	0.01	0.000%
49	-5.03	-29.23	-2.92	5.03	29.23	2.92	0.000%
50	-2.91	-29.23	-5.05	2.91	29.23	5.05	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	0.00003302
3	Yes	4	0.00000001	0.00043607
4	Yes	6	0.00000001	0.00020373
5	Yes	6	0.00000001	0.00005888
6	Yes	6	0.00000001	0.00020603
7	Yes	6	0.00000001	0.00005971
8	Yes	5	0.00000001	0.00007387
9	Yes	4	0.00000001	0.00084782
10	Yes	6	0.00000001	0.00020168
11	Yes	6	0.00000001	0.00005793
12	Yes	6	0.00000001	0.00020876
13	Yes	6	0.00000001	0.00006036
14	Yes	5	0.00000001	0.00007654
15	Yes	4	0.00000001	0.00084403
16	Yes	6	0.00000001	0.00020414
17	Yes	6	0.00000001	0.00005907
18	Yes	6	0.00000001	0.00020154
19	Yes	6	0.00000001	0.00005819
20	Yes	5	0.00000001	0.00011884
21	Yes	5	0.00000001	0.00005202
22	Yes	6	0.00000001	0.00020891
23	Yes	6	0.00000001	0.00006049
24	Yes	6	0.00000001	0.00020219
25	Yes	6	0.00000001	0.00005812
26	Yes	4	0.00000001	0.00008049
27	Yes	5	0.00000001	0.00092170
28	Yes	6	0.00000001	0.00020802
29	Yes	6	0.00000001	0.00020880
30	Yes	5	0.00000001	0.00092794
31	Yes	6	0.00000001	0.00020675
32	Yes	6	0.00000001	0.00021093
33	Yes	5	0.00000001	0.00092049
34	Yes	6	0.00000001	0.00020142
35	Yes	6	0.00000001	0.00020039
36	Yes	5	0.00000001	0.00090760
37	Yes	6	0.00000001	0.00020522
38	Yes	6	0.00000001	0.00020156
39	Yes	4	0.00000001	0.00010404
40	Yes	5	0.00000001	0.00005572
41	Yes	5	0.00000001	0.00005749
42	Yes	4	0.00000001	0.00013272
43	Yes	4	0.00000001	0.00099356
44	Yes	5	0.00000001	0.00005952
45	Yes	4	0.00000001	0.00010962
46	Yes	5	0.00000001	0.00005554
47	Yes	4	0.00000001	0.00098818
48	Yes	4	0.00000001	0.00013991
49	Yes	5	0.00000001	0.00005922
50	Yes	4	0.00000001	0.00099110

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 111.5	27.613	44	1.5869	0.0026
L2	115.25 - 75.25	16.783	44	1.4198	0.0016
L3	79.75 - 39.75	7.758	44	0.9529	0.0009
L4	45 - 0	2.400	44	0.4883	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	T-Arm Mount [TA 702-3]	44	27.613	1.5869	0.0026	37738
139.00	7770.00 w/ Mount Pipe	44	24.295	1.5560	0.0023	18869
131.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	44	21.682	1.5245	0.0020	10482
120.00	SBNHH-1D65B w/ Mount Pipe	44	18.216	1.4592	0.0017	6505
80.00	MPRD2449	44	7.810	0.9565	0.0009	4090

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 111.5	127.789	2	7.3621	0.0118
L2	115.25 - 75.25	77.667	2	6.5852	0.0072
L3	79.75 - 39.75	35.928	24	4.4183	0.0039
L4	45 - 0	11.115	24	2.2628	0.0015

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	T-Arm Mount [TA 702-3]	2	127.789	7.3621	0.0120	8407
139.00	7770.00 w/ Mount Pipe	2	112.432	7.2198	0.0105	4202
131.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	2	100.342	7.0720	0.0094	2332
120.00	SBNHH-1D65B w/ Mount Pipe	2	84.300	6.7680	0.0079	1444
80.00	MPRD2449	24	36.167	4.4352	0.0040	893

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	149 - 111.5 (1)	TP29.487x23x0.1875	37.50	0.00	0.0	17.0508	-9.38	997.47	0.009
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	40.00	0.00	0.0	23.8745	-14.77	1396.66	0.011
L3	75.25 - 39.75 (3)	TP41.086x34.167x0.2813	40.00	0.00	0.0	35.6152	-21.99	2083.49	0.011
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	45.00	0.00	0.0	55.9715	-35.05	3274.33	0.011

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	149 - 111.5 (1)	TP29.487x23x0.1875	310.46	639.10	0.486	0.00	639.10	0.000
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	950.41	1060.37	0.896	0.00	1060.37	0.000
L3	75.25 - 39.75 (3)	TP41.086x34.167x0.2813	1708.68	1917.64	0.891	0.00	1917.64	0.000
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	2845.76	3714.79	0.766	0.00	3714.79	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	149 - 111.5 (1)	TP29.487x23x0.1875	16.32	299.24	0.055	0.29	750.83	0.000
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	20.14	419.00	0.048	1.02	1261.74	0.001
L3	75.25 - 39.75 (3)	TP41.086x34.167x0.2813	23.42	625.05	0.037	1.02	2183.88	0.000
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	26.92	982.30	0.027	1.02	4045.32	0.000

Pole Interaction Design Data

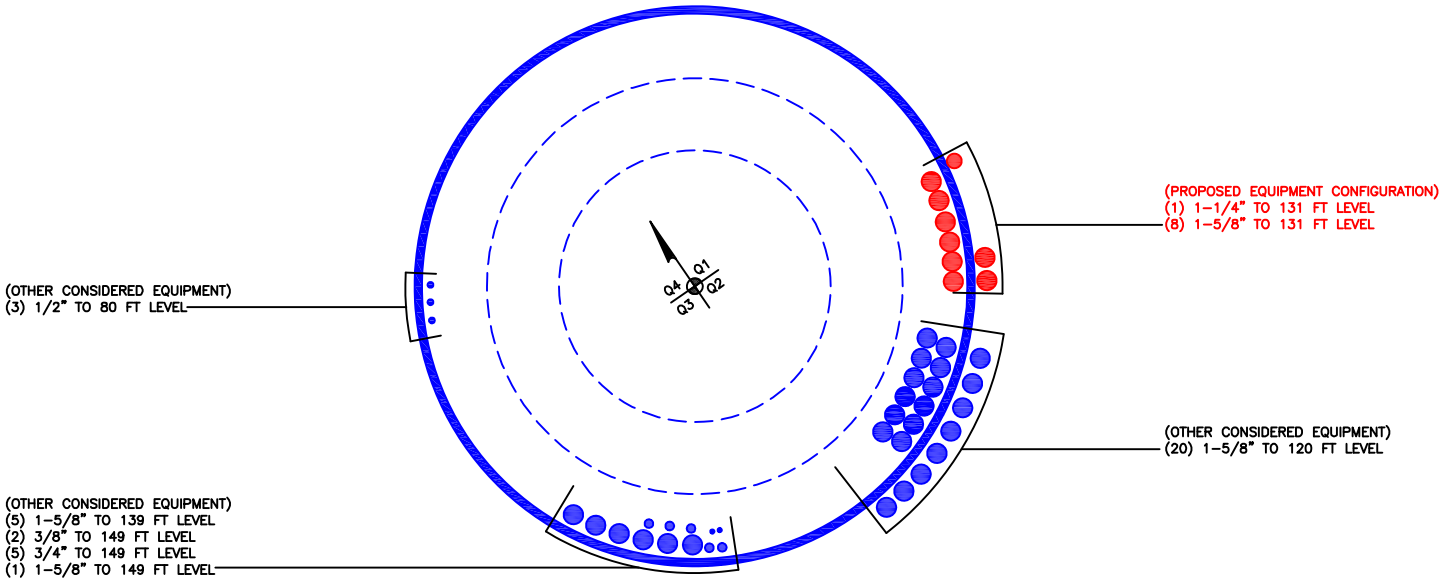
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 111.5 (1)	0.009	0.486	0.000	0.055	0.000	0.498	1.050	4.8.2
L2	111.5 - 75.25 (2)	0.011	0.896	0.000	0.048	0.001	0.909	1.050	4.8.2
L3	75.25 - 39.75 (3)	0.011	0.891	0.000	0.037	0.000	0.903	1.050	4.8.2
L4	39.75 - 0 (4)	0.011	0.766	0.000	0.027	0.000	0.778	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	149 - 111.5	Pole	TP29.487x23x0.1875	1	-9.38	1047.35	47.4	Pass
L2	111.5 - 75.25	Pole	TP35.383x28.4633x0.2188	2	-14.77	1466.49	86.6	Pass
L3	75.25 - 39.75	Pole	TP41.086x34.167x0.2813	3	-21.99	2187.66	86.0	Pass
L4	39.75 - 0	Pole	TP47.4x39.6154x0.375	4	-35.05	3438.05	74.1	Pass
							Summary	
						Pole (L2)	86.6	Pass
						RATING =	**86.6**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/4" TO 131 FT LEVEL
(8) 1-5/8" TO 131 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1/2" TO 80 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(20) 1-5/8" TO 120 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(5) 1-5/8" TO 139 FT LEVEL
(2) 3/8" TO 149 FT LEVEL
(5) 3/4" TO 149 FT LEVEL
(1) 1-5/8" TO 149 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

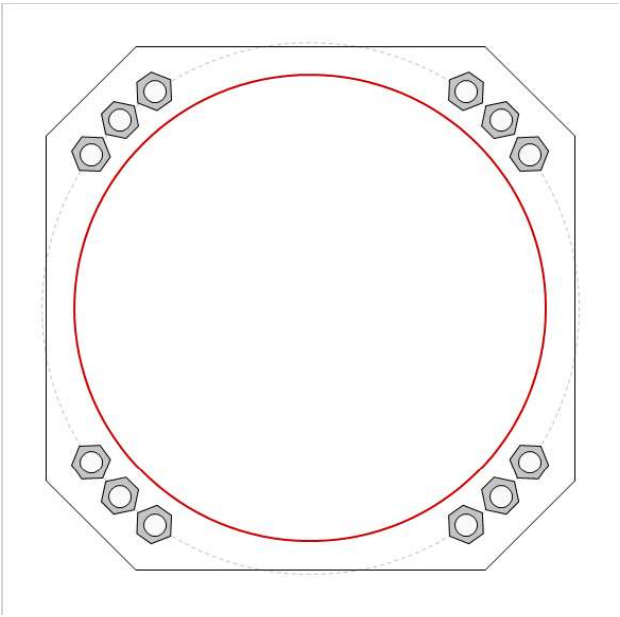
Monopole Base Plate Connection

Site Info	
BU #	845455
Site Name	Oxford-Quaker Farms
Order #	529733, Rev 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	2845.76
Axial Force (kips)	35.05
Shear Force (kips)	26.92

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC
Anchor Spacing: 4.5 in

Base Plate Data

53" W x 2.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi); Clip: 9 in

Stiffener Data

N/A

Pole Data

47.4" x 0.375" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 213.57	ϕPn_c = 268.39	**Stress Rating**
Vu = 2.24	ϕVn = 120.77	**75.8%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	37.18	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**65.6%**	**Pass**

Pier and Pad Foundation

BU # :	845455
Site Name:	Oxford-Quaker Farr
App. Number:	529733, rev 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	35.07	kips
Base Shear, Vu_comp:	26.88	kips
Moment, M_u:	2845.76	ft-kips
Tower Height, **H**:	149	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	32	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	7.5	ft
Pad Width, W_1:	20	ft
Pad Thickness, **T**:	3.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	21	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

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

Soil Properties

Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:	41	
Base Friction, μ:		
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	none	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	284.66	26.88	**9.0%**	**Pass**
Bearing Pressure (ksf)	22.50	3.82	**17.0%**	**Pass**
*Overturning (kip*ft)*	4331.06	3067.52	**70.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	7542.85	2966.72	**37.5%**	**Pass**
Pier Compression (kip)	23390.64	74.76	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	4295.05	1267.97	**28.1%**	**Pass**
Pad Shear - 1-way (kips)	731.44	229.34	**29.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	7386.86	1780.03	**22.9%**	**Pass**

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

Soil Rating*:	**70.8%**
Structural Rating*:	**37.5%**

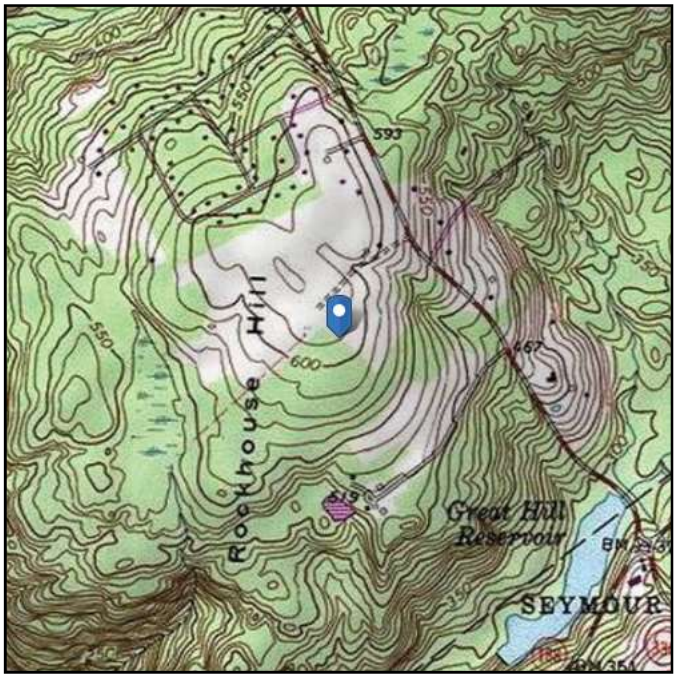
Version 4.0.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 607.1 ft (NAVD 88)
Latitude: 41.383989
Longitude: -73.137372



Wind

Results:

Wind Speed:	125 Vmph per Jurisdictional requirements
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Mon Nov 16 2020

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 7-10 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 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

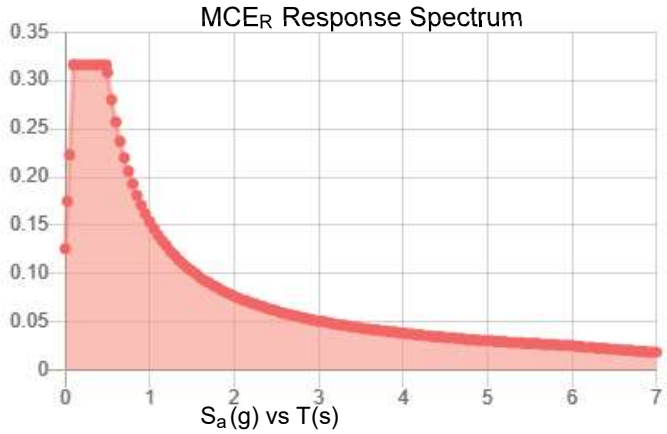
Seismic

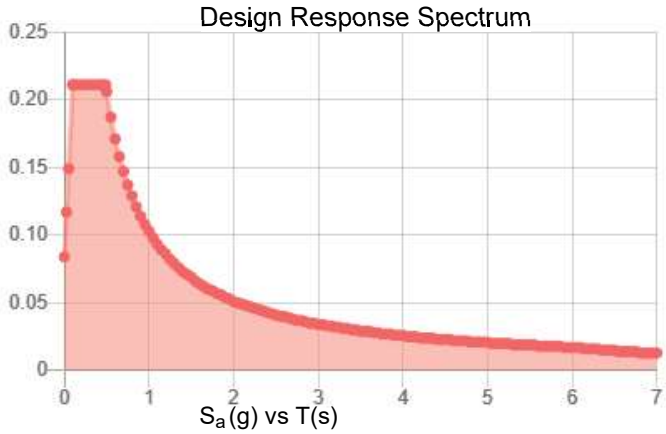
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.197	S_{DS} :	0.211
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.105
S_{MS} :	0.316	PGA_M :	0.166
S_{M1} :	0.154	F_{PGA} :	1.591
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Nov 16 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Nov 16 2020

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 50-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 15, 2020

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	82094
	Carrier Site Name:	CTL02256
Crown Castle Designation:	**Crown Castle BU Number:**	845455
	Crown Castle Site Name:	Oxford Quaker Farms
	Crown Castle JDE Job Number:	620147
	Crown Castle Order Number:	529733, Rev 0
Engineering Firm Designation:	**B+T Group Report Designation:**	136377.010.01
Site Data:	**85 Quaker Farms Road, Oxford, CT, New Haven, 06478** **Latitude 41° 23' 2.36" Longitude -73° 8' 14.54"**	
Structure Information:	**Tower Height & Type:**	**149 ft. Monopole**
	Mount Elevation:	**131 ft.**
	Mount Type:	**12 ft. Platform Mount**

Dear Ms. Tarr,

B+T Group is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of T Mobile 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 (Typical) **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Suman Rana, E.I.T

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2021

Scott S. Vance, P.E.

STATE OF CONNECTICUT SCOTT S. VANCE 31627 LICENSED PROFESSIONAL ENGINEER

10/15/20

TABLE OF CONTENTS

1) INTRODUCTION

This is a 12' platform mount, part# RMQP-496 with handrail kit, # HRK-12, designed by Sitepro1.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.202
Seismic S_1:	0.054
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
131	132	3	RFS/CELWAVE	APXVAARR24_43-UNA20	12' Platform Mount
		3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	RFS/CELWAVE	APX16DWV-16DWVS-E-A20	
		3	ERICSSON	RADIO 4415 B66A_CCIV3	
		3	ERICSSON	RADIO 4424 B25_TMO	
		3	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order Info	Existing and Proposed Loading	Date: 10/13/2020	Crown Castle

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 17.0.2), 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). In addition, this analysis is in accordance with OTHER SOW.

Manufacturers drawing 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 mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

Component	Section	Length	Note
Proposed Mount Pipe for New Antenna	2" Std. Pipe	8'-0"	-

6. 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.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. 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.
10. 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 Horizontal Member	131	1	16.7	Pass
	Support Angle Member	131	40	26.5	Pass
	Support Tube	131	24	43.7	Pass

	Handrail	131	80	18.8	Pass
	Mount Pipe	131	70	65.0	Pass
	Connection Plate	131	17	14.1	Pass
	Connection Angle	131	91	14.3	Pass

Structure Rating (max from all components) =	**65.0%**

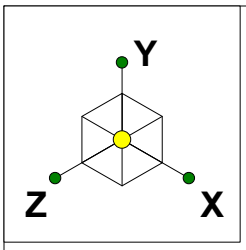
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

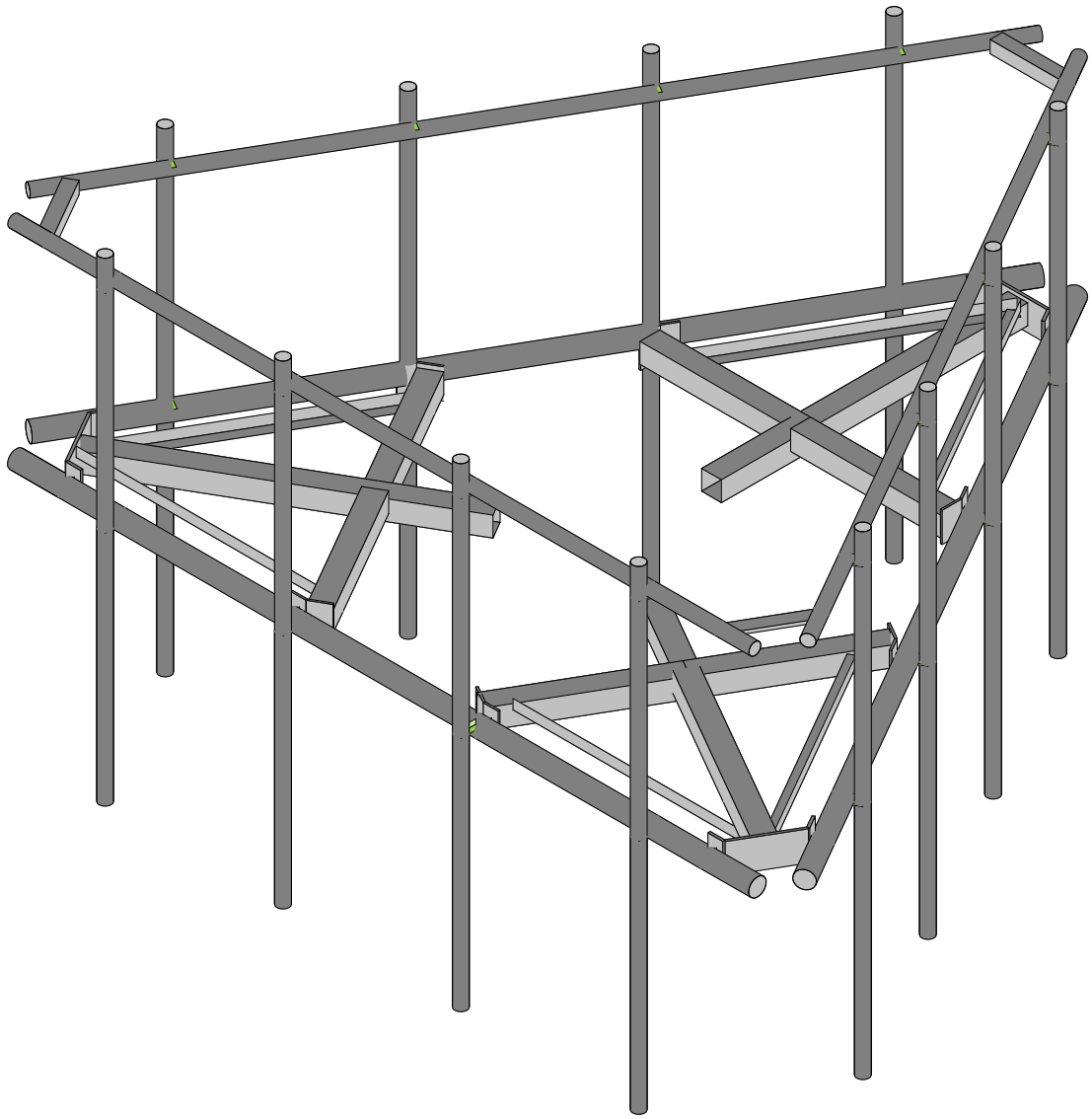
4.1) RECOMMENDATIONS

The Sitepro1 platform mount, part# RMQP-496 with handrail kit (HRK 12) has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





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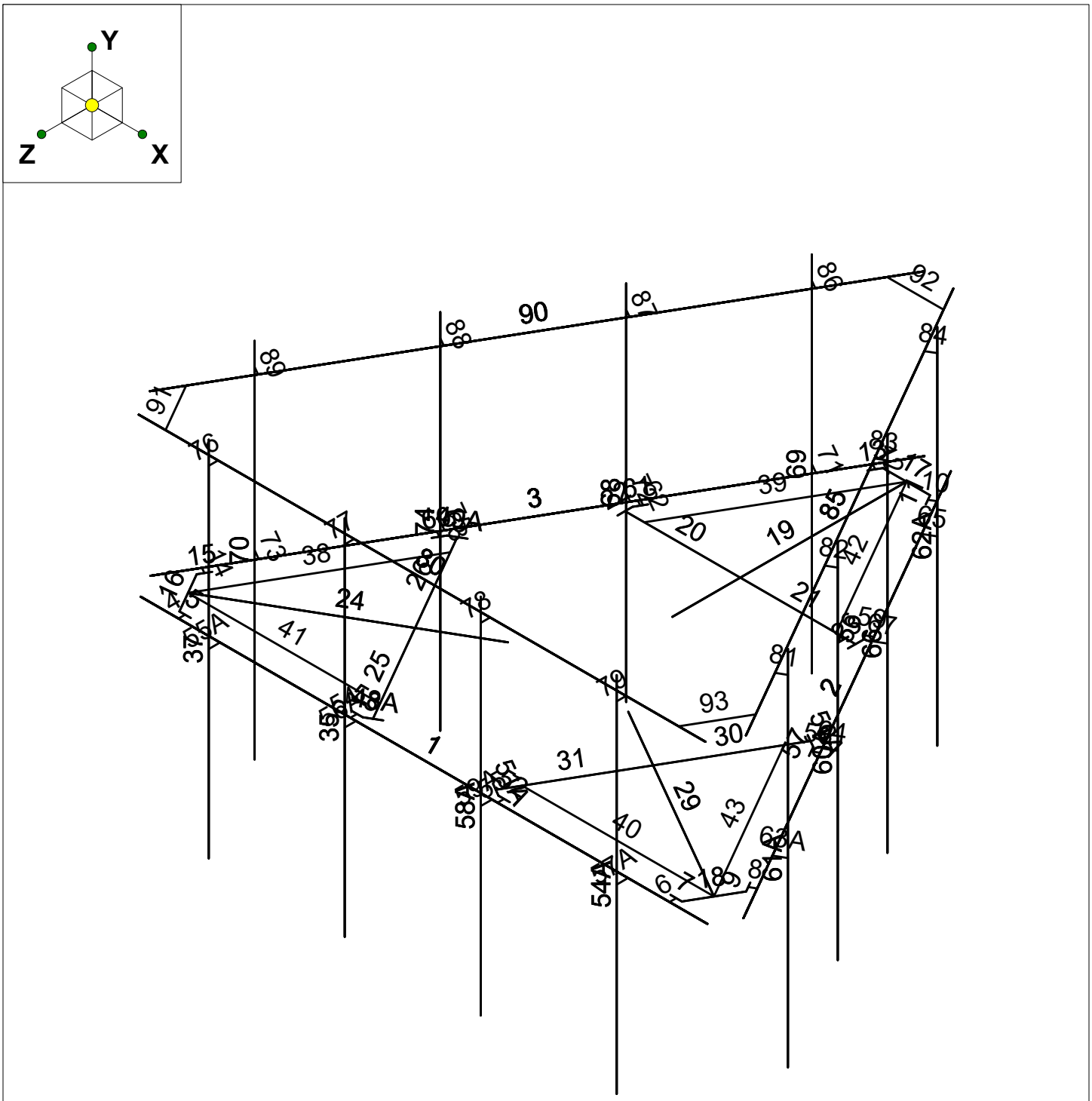

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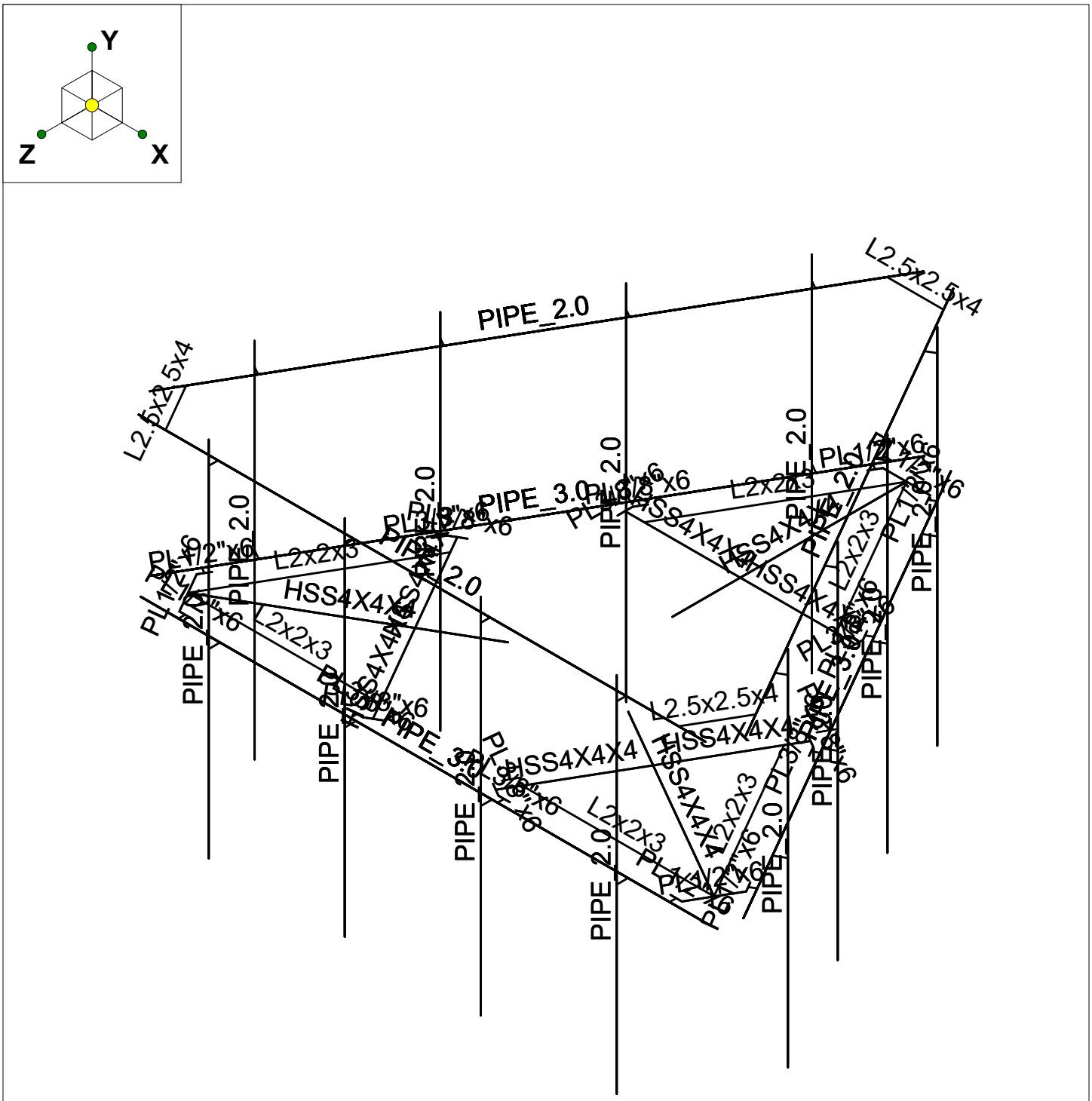

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APPENDIX B

SOFTWARE INPUT CALCULATIONS

PROJECT	**136377.009.01 - Oxford-Qua**		**SR**
SUBJECT	**T-Arm Mount Mount Analysis**		
DATE	**10/15/20**	PAGE	OF

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	607	ft	[ASCE7 Hazard Tool]
Tower Height		:	149.00	ft	
Mount Elevation		:	131.00	ft	
Antenna Elevation		:	131.00	ft	
Crest Height		:	56	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[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	:	0.20		
	S_1	:	0.05		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.34		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.98		[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	:	0.108		[Sec. 2.7.7.1]
Amplification	A_s	:	2.516779		[Sec. 16.7]

	q_z	:	44.38	psf

PROJECT	**136377.009.01 - Oxford-Qua**		**SR**
SUBJECT	**T-Arm Mount Mount Analysis**		
DATE	**10/15/20**	PAGE	OF

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/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	8.11	7.99	2.90	8.97	3.75	0.33	0.12	0.06	0.03
RFS/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	1.27	7.99	2.90	8.97	3.75	0.33	0.12	0.06	0.03
ERICSSON	TME-RRUS 4415 B66A_CCIV3	1	1.13	1.20	1.37	0.56	1.85	0.92	0.07	0.03	0.01	0.00
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.11	0.05	0.02	0.01
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.11	0.05	0.02	0.01
ERICSSON	RADIO 4424 B25_TMO	1	1.19	1.20	1.71	1.34	2.25	1.83	0.08	0.06	0.01	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.14	0.03	0.03	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.14	0.03	0.03	0.01
ERICSSON	TME-RADIO 4449 B71 B85A	1	1.36	1.20	1.64	1.32	2.17	1.81	0.08	0.06	0.01	0.01
RFS/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	1.27	7.99	2.90	8.97	3.75	0.33	0.12	0.06	0.03
RFS/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	1.27	7.99	2.90	8.97	3.75	0.33	0.12	0.06	0.03
ERICSSON	TME-RRUS 4415 B66A_CCIV3	1	1.13	1.20	1.37	0.56	1.85	0.92	0.07	0.03	0.01	0.00
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.11	0.05	0.02	0.01
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.11	0.05	0.02	0.01
ERICSSON	RADIO 4424 B25_TMO	1	1.19	1.20	1.71	1.34	2.25	1.83	0.08	0.06	0.01	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.14	0.03	0.03	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.14	0.03	0.03	0.01
ERICSSON	TME-RADIO 4449 B71 B85A	1	1.36	1.20	1.64	1.32	2.17	1.81	0.08	0.06	0.01	0.01

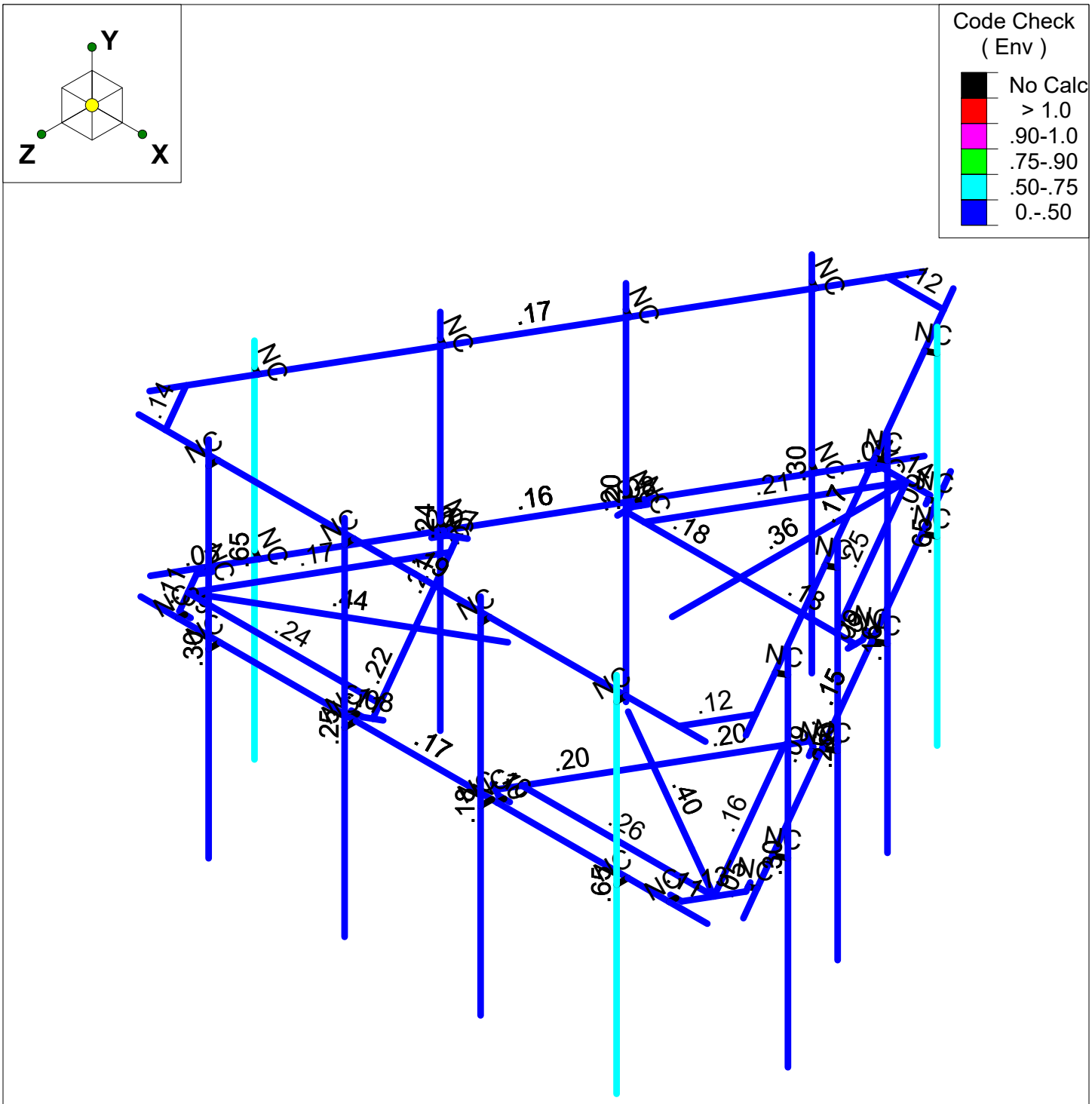
PROJECT	**136377.009.01 - Oxford-Qua**		**SR**
SUBJECT	**T-Arm Mount Mount Analysis**		
DATE	**10/15/20**	PAGE 3	OF

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/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	1.27	7.99	2.90	8.97	3.75	0.00	0.12	0.06	0.03
RFS/CELWAVE	APXVAARR24_43-U-NA20	0.5	4.00	1.27	7.99	2.90	8.97	3.75	0.00	0.12	0.06	0.03
ERICSSON	TME-RRUS 4415 B66A_CCIV3	1	1.13	1.20	1.37	0.56	1.85	0.92	0.00	0.03	0.01	0.00
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.00	0.05	0.02	0.01
ERICSSON	AIR 6449 B41	0.5	1.61	1.20	2.36	0.98	2.80	1.33	0.00	0.05	0.02	0.01
ERICSSON	RADIO 4424 B25_TMO	1	1.19	1.20	1.71	1.34	2.25	1.83	0.00	0.06	0.01	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.00	0.03	0.03	0.01
RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	0.5	4.20	1.28	2.58	0.61	3.15	1.10	0.00	0.03	0.03	0.01
ERICSSON	TME-RADIO 4449 B71 B85A	1	1.36	1.20	1.64	1.32	2.17	1.81	0.00	0.06	0.01	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT



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Envelope Only Solution

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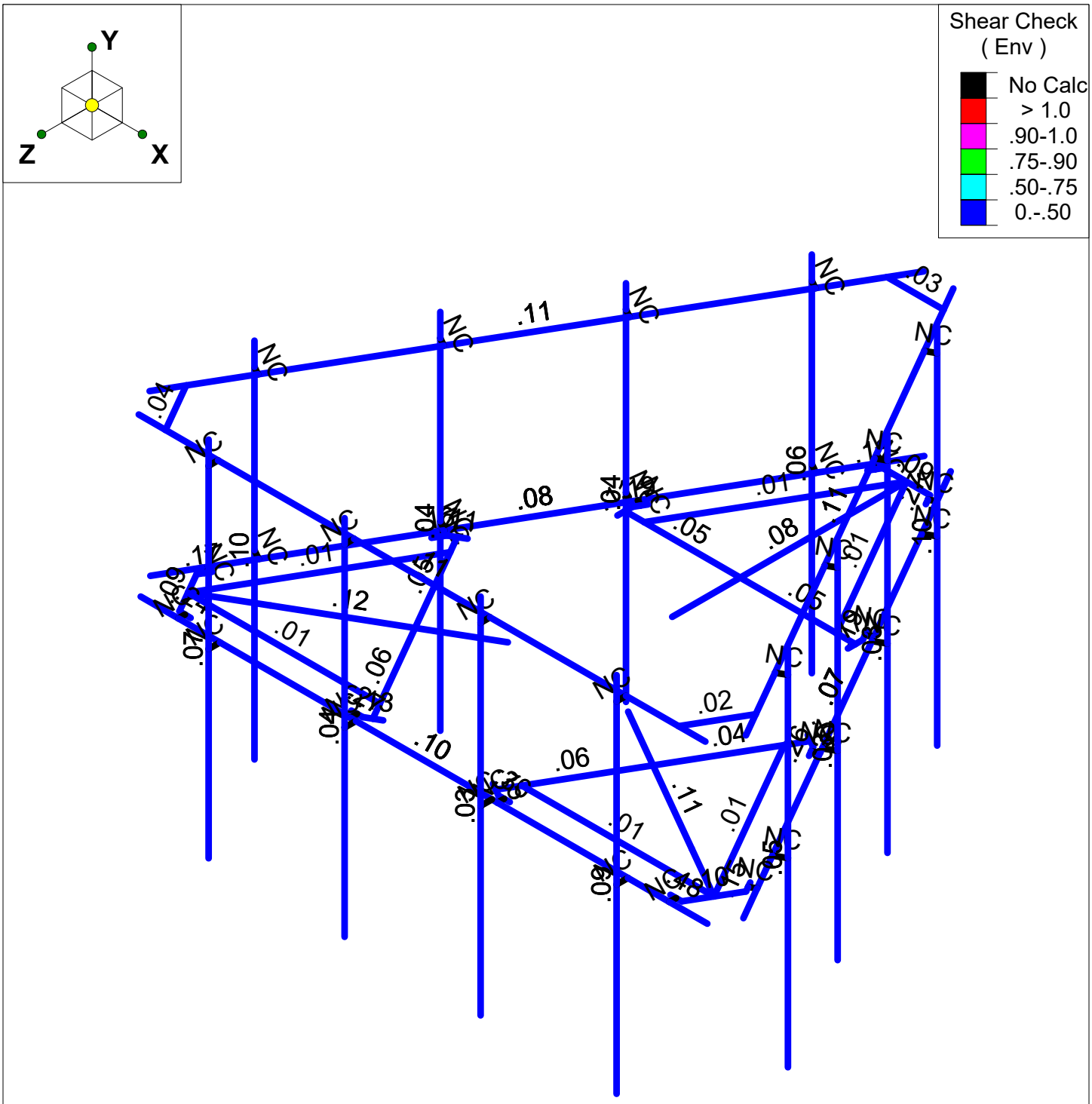


Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	845455_Oxford Quaker Farm	SK - 5
SR		Oct 15, 2020 at 12:09 PM
136377.010.01		136377.010.01_Oxford Quaker Far...

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
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	.627	.627	1.25
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	.627	.627	1.25
5	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
6	MF-CP2	PL1/2"x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
7	SF-H2	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
8	SF-H3	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	1	2	1			MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	2	4	3			MF-H1	Beam	Pipe	A53 Gr.B	Typical
3	3	6	5			MF-H1	Beam	Pipe	A53 Gr.B	Typical
4	4	7	8			RIGID	None	None	RIGID	Typical
5	5	9	10			MF-CP2	Beam	RECT	A36 Gr.36	Typical
6	6	11	12			RIGID	None	None	RIGID	Typical
7	7	13	14			MF-CP2	Beam	RECT	A36 Gr.36	Typical
8	8	15	16			RIGID	None	None	RIGID	Typical
9	9	17	18			MF-CP2	Beam	RECT	A36 Gr.36	Typical
10	10	19	20			RIGID	None	None	RIGID	Typical
11	11	21	22			MF-CP2	Beam	RECT	A36 Gr.36	Typical
12	12	23	24			RIGID	None	None	RIGID	Typical
13	13	25	26			MF-CP2	Beam	RECT	A36 Gr.36	Typical
14	14	27	28			RIGID	None	None	RIGID	Typical
15	15	29	30			MF-CP2	Beam	RECT	A36 Gr.36	Typical
16	16	10	30			MF-CP2	Beam	RECT	A36 Gr.36	Typical
17	17	26	22			MF-CP2	Beam	RECT	A36 Gr.36	Typical
18	18	18	14			MF-CP2	Beam	RECT	A36 Gr.36	Typical
19	19	32	31			SF-H1	Beam	Tube	A53 Gr.B	Typical
20	20	34	33			SF-H1	Beam	Tube	A53 Gr.B	Typical
21	21	33	35			SF-H1	Beam	Tube	A53 Gr.B	Typical
22	22	40	91			MF-CP1	Beam	RECT	A36 Gr.36	Typical
23	23	41	90			MF-CP1	Beam	RECT	A36 Gr.36	Typical
24	24	43	42			SF-H1	Beam	Tube	A53 Gr.B	Typical
25	25	45	44			SF-H1	Beam	Tube	A53 Gr.B	Typical
26	26	44	46			SF-H1	Beam	Tube	A53 Gr.B	Typical
27	29	48	47			SF-H1	Beam	Tube	A53 Gr.B	Typical
28	30	50	49			SF-H1	Beam	Tube	A53 Gr.B	Typical
29	31	49	51			SF-H1	Beam	Tube	A53 Gr.B	Typical
30	35	58	54			MF-P1	Column	Pipe	A53 Gr.B	Typical
31	37	56	52			MF-P1	Column	Pipe	A53 Gr.B	Typical
32	38	42	61			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
33	39	60	31			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
34	40	47	63			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
35	41	62	42			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
36	42	31	65			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
37	43	64	47			SF-H2	Beam	Single Angle	A36 Gr.36	Typical
38	48A	92	95			MF-CP1	Beam	RECT	A36 Gr.36	Typical
39	49A	93	94			MF-CP1	Beam	RECT	A36 Gr.36	Typical
40	50A	96	99			MF-CP1	Beam	RECT	A36 Gr.36	Typical
41	51A	97	98			MF-CP1	Beam	RECT	A36 Gr.36	Typical
42	52	98	100			MF-CP1	Beam	RECT	A36 Gr.36	Typical
43	53	95	101			MF-CP1	Beam	RECT	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
44	54	103	105			RIGID	None	None	RIGID	Typical
45	55	102	104			RIGID	None	None	RIGID	Typical
46	56	90	106			MF-CP1	Beam	RECT	A36 Gr.36	Typical
47	57	99	107			MF-CP1	Beam	RECT	A36 Gr.36	Typical
48	58	109	111			RIGID	None	None	RIGID	Typical
49	59	108	110			RIGID	None	None	RIGID	Typical
50	60	94	112			MF-CP1	Beam	RECT	A36 Gr.36	Typical
51	61	91	113			MF-CP1	Beam	RECT	A36 Gr.36	Typical
52	62	115	117			RIGID	None	None	RIGID	Typical
53	63	114	116			RIGID	None	None	RIGID	Typical
54	54A	90A	89			MF-P1	Column	Pipe	A53 Gr.B	Typical
55	55A	36	91A			RIGID	None	None	RIGID	Typical
56	56A	38	92A			RIGID	None	None	RIGID	Typical
57	57A	88	93A			RIGID	None	None	RIGID	Typical
58	58A	96A	95A			MF-P1	Column	Pipe	A53 Gr.B	Typical
59	59A	94A	97A			RIGID	None	None	RIGID	Typical
60	60A	103A	101A			MF-P1	Column	Pipe	A53 Gr.B	Typical
61	61A	102A	100A			MF-P1	Column	Pipe	A53 Gr.B	Typical
62	62A	106A	105A			MF-P1	Column	Pipe	A53 Gr.B	Typical
63	63A	98A	107A			RIGID	None	None	RIGID	Typical
64	64	99A	108A			RIGID	None	None	RIGID	Typical
65	65	104A	109A			RIGID	None	None	RIGID	Typical
66	66	112A	111A			MF-P1	Column	Pipe	A53 Gr.B	Typical
67	67	110A	113A			RIGID	None	None	RIGID	Typical
68	68	119	117A			MF-P1	Column	Pipe	A53 Gr.B	Typical
69	69	118	116A			MF-P1	Column	Pipe	A53 Gr.B	Typical
70	70	122	121			MF-P1	Column	Pipe	A53 Gr.B	Typical
71	71	114A	123			RIGID	None	None	RIGID	Typical
72	72	115A	124			RIGID	None	None	RIGID	Typical
73	73	120	125			RIGID	None	None	RIGID	Typical
74	74	128	127			MF-P1	Column	Pipe	A53 Gr.B	Typical
75	75	126	129			RIGID	None	None	RIGID	Typical
76	76	130	136			RIGID	None	None	RIGID	Typical
77	77	131	137			RIGID	None	None	RIGID	Typical
78	78	133	139			RIGID	None	None	RIGID	Typical
79	79	132	138			RIGID	None	None	RIGID	Typical
80	80	135	134			MF-H2	Beam	Pipe	A53 Gr.B	Typical
81	81	140	146			RIGID	None	None	RIGID	Typical
82	82	141	147			RIGID	None	None	RIGID	Typical
83	83	143	149			RIGID	None	None	RIGID	Typical
84	84	142	148			RIGID	None	None	RIGID	Typical
85	85	145	144			MF-H2	Beam	Pipe	A53 Gr.B	Typical
86	86	150	156			RIGID	None	None	RIGID	Typical
87	87	151	157			RIGID	None	None	RIGID	Typical
88	88	153	159			RIGID	None	None	RIGID	Typical
89	89	152	158			RIGID	None	None	RIGID	Typical
90	90	155	154			MF-H2	Beam	Pipe	A53 Gr.B	Typical
91	91	160	165		180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
92	92	164	163		180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
93	93	162	161		180	SF-H3	Beam	Single Angle	A36 Gr.36	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Grav...	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL		-1			45			
2	0 Wind - No Ice	WLZ					45	57		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Grav...	Joint	Point	Distribut...	Area(Me...	Surface(...
3	90 Wind - No Ice	WLX					45	57		
4	0 Wind - Ice	WLZ					45	57		
5	90 Wind - Ice	WLX					45	57		
6	0 Wind - Service	WLZ					45	57		
7	90 Wind - Service	WLX					45	57		
8	Ice	OL1					45	57		
9	0 Seismic	ELZ					45	57		
10	90 Seismic	ELX					45	57		
11	Live Load a	LL				1				
12	Live Load b	LL				1				
13	Live Load c	LL				1				
14	Live Load d	LL				1				
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			
27	Maint LL 13	LL					1			
28	Maint LL 14	LL					1			
29	Maint LL 15	LL					1			

Load Combinations

	Description	S...	PDelta	S...	B...	Factor	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...
1	1.4 Dead	Y...	Y		1	1.4																				
2	1.2 D + 1.0 - 0 W	Y...	Y		1	1.2	2	1																		
3	1.2 D + 1.0 - 30 W	Y...	Y		1	1.2	2	.8...	3	.5																
4	1.2 D + 1.0 - 60 W	Y...	Y		1	1.2	3	.8...	2	.5																
5	1.2 D + 1.0 - 90 W	Y...	Y		1	1.2	3	1																		
6	1.2 D + 1.0 - 120 W	Y...	Y		1	1.2	3	.8...	2	-.5																
7	1.2 D + 1.0 - 150 W	Y...	Y		1	1.2	2	-....	3	.5																
8	1.2 D + 1.0 - 180 W	Y...	Y		1	1.2	2	-1																		
9	1.2 D + 1.0 - 210 W	Y...	Y		1	1.2	2	-....	3	-.5																
10	1.2 D + 1.0 - 240 W	Y...	Y		1	1.2	3	-....	2	-.5																
11	1.2 D + 1.0 - 270 W	Y...	Y		1	1.2	3	-1																		
12	1.2 D + 1.0 - 300 W	Y...	Y		1	1.2	3	-....	2	.5																
13	1.2 D + 1.0 - 330 W	Y...	Y		1	1.2	2	.8...	3	-.5																
14	1.2 D + 1.0 - 0 W/Ice	Y...	Y		1	1.2	4	1			8	1														
15	1.2 D + 1.0 - 30 W/Ice	Y...	Y		1	1.2	4	.8...	5	.5	8	1														
16	1.2 D + 1.0 - 60 W/Ice	Y...	Y		1	1.2	5	.8...	4	.5	8	1														
17	1.2 D + 1.0 - 90 W/Ice	Y...	Y		1	1.2	5	1			8	1														
18	1.2 D + 1.0 - 120 W/Ice	Y...	Y		1	1.2	5	.8...	4	-.5	8	1														
19	1.2 D + 1.0 - 150 W/Ice	Y...	Y		1	1.2	4	-....	5	.5	8	1														
20	1.2 D + 1.0 - 180 W/Ice	Y...	Y		1	1.2	4	-1			8	1														
21	1.2 D + 1.0 - 210 W/Ice	Y...	Y		1	1.2	4	-....	5	-.5	8	1														
22	1.2 D + 1.0 - 240 W/Ice	Y...	Y		1	1.2	5	-....	4	-.5	8	1														
23	1.2 D + 1.0 - 270 W/Ice	Y...	Y		1	1.2	5	-1			8	1														
24	1.2 D + 1.0 - 300 W/Ice	Y...	Y		1	1.2	5	-....	4	.5	8	1														
25	1.2 D + 1.0 - 330 W/Ice	Y...	Y		1	1.2	4	.8...	5	-.5	8	1														

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Factor	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...
26	1.2 D + 1.0 E - 0	Y...	Y		1	1.2	9	1																		
27	1.2 D + 1.0 E - 30	Y...	Y		1	1.2	9	.8...	10	.5																
28	1.2 D + 1.0 E - 60	Y...	Y		1	1.2	10	.8...	9	.5																
29	1.2 D + 1.0 E - 90	Y...	Y		1	1.2	10	1																		
30	1.2 D + 1.0 E - 120	Y...	Y		1	1.2	10	.8...	9	-.5																
31	1.2 D + 1.0 E - 150	Y...	Y		1	1.2	9	-....	10	.5																
32	1.2 D + 1.0 E - 180	Y...	Y		1	1.2	9	-1																		
33	1.2 D + 1.0 E - 210	Y...	Y		1	1.2	9	-....	10	-.5																
34	1.2 D + 1.0 E - 240	Y...	Y		1	1.2	10	-....	9	-.5																
35	1.2 D + 1.0 E - 270	Y...	Y		1	1.2	10	-1																		
36	1.2 D + 1.0 E - 300	Y...	Y		1	1.2	10	-....	9	.5																
37	1.2 D + 1.0 E - 330	Y...	Y		1	1.2	9	.8...	10	-.5																
38	1.2 D + 1.5 LL a + Service - 0 W	Y...	Y		1	1.2	6	1			11	1.5														
39	1.2 D + 1.5 LL a + Service - 30 W	Y...	Y		1	1.2	6	.8...	7	.5	11	1.5														
40	1.2 D + 1.5 LL a + Service - 60 W	Y...	Y		1	1.2	7	.8...	6	.5	11	1.5														
41	1.2 D + 1.5 LL a + Service - 90 W	Y...	Y		1	1.2	7	1			11	1.5														
42	1.2 D + 1.5 LL a + Service - 120 W	Y...	Y		1	1.2	7	.8...	6	-.5	11	1.5														
43	1.2 D + 1.5 LL a + Service - 150 W	Y...	Y		1	1.2	6	-....	7	.5	11	1.5														
44	1.2 D + 1.5 LL a + Service - 180 W	Y...	Y		1	1.2	6	-1			11	1.5														
45	1.2 D + 1.5 LL a + Service - 210 W	Y...	Y		1	1.2	6	-....	7	-.5	11	1.5														
46	1.2 D + 1.5 LL a + Service - 240 W	Y...	Y		1	1.2	7	-....	6	-.5	11	1.5														
47	1.2 D + 1.5 LL a + Service - 270 W	Y...	Y		1	1.2	7	-1			11	1.5														
48	1.2 D + 1.5 LL a + Service - 300 W	Y...	Y		1	1.2	7	-....	6	.5	11	1.5														
49	1.2 D + 1.5 LL a + Service - 330 W	Y...	Y		1	1.2	6	.8...	7	-.5	11	1.5														
50	1.2 D + 1.5 LL b + Service - 0 W	Y...	Y		1	1.2	6	1			12	1.5														
51	1.2 D + 1.5 LL b + Service - 30 W	Y...	Y		1	1.2	6	.8...	7	.5	12	1.5														
52	1.2 D + 1.5 LL b + Service - 60 W	Y...	Y		1	1.2	7	.8...	6	.5	12	1.5														
53	1.2 D + 1.5 LL b + Service - 90 W	Y...	Y		1	1.2	7	1			12	1.5														
54	1.2 D + 1.5 LL b + Service - 120 W	Y...	Y		1	1.2	7	.8...	6	-.5	12	1.5														
55	1.2 D + 1.5 LL b + Service - 150 W	Y...	Y		1	1.2	6	-....	7	.5	12	1.5														
56	1.2 D + 1.5 LL b + Service - 180 W	Y...	Y		1	1.2	6	-1			12	1.5														
57	1.2 D + 1.5 LL b + Service - 210 W	Y...	Y		1	1.2	6	-....	7	-.5	12	1.5														
58	1.2 D + 1.5 LL b + Service - 240 W	Y...	Y		1	1.2	7	-....	6	-.5	12	1.5														
59	1.2 D + 1.5 LL b + Service - 270 W	Y...	Y		1	1.2	7	-1			12	1.5														
60	1.2 D + 1.5 LL b + Service - 300 W	Y...	Y		1	1.2	7	-....	6	.5	12	1.5														
61	1.2 D + 1.5 LL b + Service - 330 W	Y...	Y		1	1.2	6	.8...	7	-.5	12	1.5														
62	1.2 D + 1.5 LL c + Service - 0 W	Y...	Y		1	1.2	6	1			13	1.5														
63	1.2 D + 1.5 LL c + Service - 30 W	Y...	Y		1	1.2	6	.8...	7	.5	13	1.5														
64	1.2 D + 1.5 LL c + Service - 60 W	Y...	Y		1	1.2	7	.8...	6	.5	13	1.5														
65	1.2 D + 1.5 LL c + Service - 90 W	Y...	Y		1	1.2	7	1			13	1.5														
66	1.2 D + 1.5 LL c + Service - 120 W	Y...	Y		1	1.2	7	.8...	6	-.5	13	1.5														
67	1.2 D + 1.5 LL c + Service - 150 W	Y...	Y		1	1.2	6	-....	7	.5	13	1.5														
68	1.2 D + 1.5 LL c + Service - 180 W	Y...	Y		1	1.2	6	-1			13	1.5														
69	1.2 D + 1.5 LL c + Service - 210 W	Y...	Y		1	1.2	6	-....	7	-.5	13	1.5														
70	1.2 D + 1.5 LL c + Service - 240 W	Y...	Y		1	1.2	7	-....	6	-.5	13	1.5														
71	1.2 D + 1.5 LL c + Service - 270 W	Y...	Y		1	1.2	7	-1			13	1.5														
72	1.2 D + 1.5 LL c + Service - 300 W	Y...	Y		1	1.2	7	-....	6	.5	13	1.5														
73	1.2 D + 1.5 LL c + Service - 330 W	Y...	Y		1	1.2	6	.8...	7	-.5	13	1.5														
74	1.2 D + 1.5 LL d + Service - 0 W	Y...	Y		1	1.2	6	1			14	1.5														
75	1.2 D + 1.5 LL d + Service - 30 W	Y...	Y		1	1.2	6	.8...	7	.5	14	1.5														
76	1.2 D + 1.5 LL d + Service - 60 W	Y...	Y		1	1.2	7	.8...	6	.5	14	1.5														
77	1.2 D + 1.5 LL d + Service - 90 W	Y...	Y		1	1.2	7	1			14	1.5														
78	1.2 D + 1.5 LL d + Service - 120 W	Y...	Y		1	1.2	7	.8...	6	-.5	14	1.5														
79	1.2 D + 1.5 LL d + Service - 150 W	Y...	Y		1	1.2	6	-....	7	.5	14	1.5														
80	1.2 D + 1.5 LL d + Service - 180 W	Y...	Y		1	1.2	6	-1			14	1.5														
81	1.2 D + 1.5 LL d + Service - 210 W	Y...	Y		1	1.2	6	-....	7	-.5	14	1.5														
82	1.2 D + 1.5 LL d + Service - 240 W	Y...	Y		1	1.2	7	-....	6	-.5	14	1.5														

Load Combinations (Continued)

	Description	S...	PDelta	S..	B..	Factor	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...
83	1.2 D + 1.5 LL d + Service - 270 W	Y...	Y		1	1.2	7	-1			14	1.5														
84	1.2 D + 1.5 LL d + Service - 300 W	Y...	Y		1	1.2	7	-....	6	.5	14	1.5														
85	1.2 D + 1.5 LL d + Service - 330 W	Y...	Y		1	1.2	6	.8...	7	-.5	14	1.5														
86	1.2 D + 1.5 LL Maint (1)	Y...	Y		1	1.2					15	1.5														
87	1.2 D + 1.5 LL Maint (2)	Y...	Y		1	1.2					16	1.5														
88	1.2 D + 1.5 LL Maint (3)	Y...	Y		1	1.2					17	1.5														
89	1.2 D + 1.5 LL Maint (4)	Y...	Y		1	1.2					18	1.5														
90	1.2 D + 1.5 LL Maint (5)	Y...	Y		1	1.2					19	1.5														
91	1.2 D + 1.5 LL Maint (6)	Y...	Y		1	1.2					20	1.5														
92	1.2 D + 1.5 LL Maint (7)	Y...	Y		1	1.2					21	1.5														
93	1.2 D + 1.5 LL Maint (8)	Y...	Y		1	1.2					22	1.5														
94	1.2 D + 1.5 LL Maint (9)	Y...	Y		1	1.2					23	1.5														
95	1.2 D + 1.5 LL Maint (10)	Y...	Y		1	1.2					24	1.5														
96	1.2 D + 1.5 LL Maint (11)	Y...	Y		1	1.2					25	1.5														
97	1.2 D + 1.5 LL Maint (12)	Y...	Y		1	1.2					26	1.5														
98	1.2 D + 1.5 LL Maint (13)	Y...	Y		1	1.2					27	1.5														
99	1.2 D + 1.5 LL Maint (14)	Y...	Y		1	1.2					28	1.5														
100	1.2 D + 1.5 LL Maint (15)	Y...	Y		1	1.2					29	1.5														

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Y	-.077	%5
2	54A	Y	-.077	%55
3	54A	Y	-.046	%70
4	54A	Y	0	0
5	54A	Y	0	0
6	35	Y	-.057	%10
7	35	Y	-.057	%70
8	35	Y	-.086	%50
9	35	Y	0	0
10	35	Y	0	0
11	37	Y	-.02	%5
12	37	Y	-.02	%70
13	37	Y	-.073	%50
14	37	Y	0	0
15	37	Y	0	0
16	70	Y	-.077	%5
17	70	Y	-.077	%55
18	70	Y	-.046	%70
19	70	Y	0	0
20	70	Y	0	0
21	88	Y	-.057	%10
22	88	Y	-.057	%70
23	88	Y	-.086	%50
24	88	Y	0	0
25	88	Y	0	0
26	69	Y	-.02	%5
27	69	Y	-.02	%70
28	69	Y	-.073	%50
29	69	Y	0	0
30	69	Y	0	0
31	62A	Y	-.077	%5
32	62A	Y	-.077	%55
33	62A	Y	-.046	%70
34	62A	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
35	62A	Y	0	0
36	60A	Y	-.057	%10
37	60A	Y	-.057	%70
38	60A	Y	-.086	%50
39	60A	Y	0	0
40	60A	Y	0	0
41	61A	Y	-.02	%5
42	61A	Y	-.02	%70
43	61A	Y	-.073	%50
44	61A	Y	0	0
45	61A	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Z	-.325	%5
2	54A	Z	-.325	%55
3	54A	Z	-.066	%70
4	54A	Z	0	0
5	54A	Z	0	0
6	35	Z	-.113	%10
7	35	Z	-.113	%70
8	35	Z	-.082	%50
9	35	Z	0	0
10	35	Z	0	0
11	37	Z	-.139	%5
12	37	Z	-.139	%70
13	37	Z	-.079	%50
14	37	Z	0	0
15	37	Z	0	0
16	70	Z	-.325	%5
17	70	Z	-.325	%55
18	70	Z	-.066	%70
19	70	Z	0	0
20	70	Z	0	0
21	88	Z	-.113	%10
22	88	Z	-.113	%70
23	88	Z	-.082	%50
24	88	Z	0	0
25	88	Z	0	0
26	69	Z	-.139	%5
27	69	Z	-.139	%70
28	69	Z	-.079	%50
29	69	Z	0	0
30	69	Z	0	0
31	62A	Z	-.325	%5
32	62A	Z	-.325	%55
33	62A	Z	-.066	%70
34	62A	Z	0	0
35	62A	Z	0	0
36	60A	Z	-.113	%10
37	60A	Z	-.113	%70
38	60A	Z	-.082	%50
39	60A	Z	0	0
40	60A	Z	0	0
41	61A	Z	-.139	%5
42	61A	Z	-.139	%70

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
43	61A	Z	-.079	%50
44	61A	Z	0	0
45	61A	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	X	-.118	%5
2	54A	X	-.118	%55
3	54A	X	-.027	%70
4	54A	X	0	0
5	54A	X	0	0
6	35	X	-.047	%10
7	35	X	-.047	%70
8	35	X	-.064	%50
9	35	X	0	0
10	35	X	0	0
11	37	X	-.033	%5
12	37	X	-.033	%70
13	37	X	-.063	%50
14	37	X	0	0
15	37	X	0	0
16	70	X	-.118	%5
17	70	X	-.118	%55
18	70	X	-.027	%70
19	70	X	0	0
20	70	X	0	0
21	88	X	-.047	%10
22	88	X	-.047	%70
23	88	X	-.064	%50
24	88	X	0	0
25	88	X	0	0
26	69	X	-.033	%5
27	69	X	-.033	%70
28	69	X	-.063	%50
29	69	X	0	0
30	69	X	0	0
31	62A	X	-.118	%5
32	62A	X	-.118	%55
33	62A	X	-.027	%70
34	62A	X	0	0
35	62A	X	0	0
36	60A	X	-.047	%10
37	60A	X	-.047	%70
38	60A	X	-.064	%50
39	60A	X	0	0
40	60A	X	0	0
41	61A	X	-.033	%5
42	61A	X	-.033	%70
43	61A	X	-.063	%50
44	61A	X	0	0
45	61A	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Z	-.065	%5
2	54A	Z	-.065	%55

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	54A	Z	-.012	%70
4	54A	Z	0	0
5	54A	Z	0	0
6	35	Z	-.02	%10
7	35	Z	-.02	%70
8	35	Z	-.015	%50
9	35	Z	0	0
10	35	Z	0	0
11	37	Z	-.03	%5
12	37	Z	-.03	%70
13	37	Z	-.014	%50
14	37	Z	0	0
15	37	Z	0	0
16	70	Z	-.065	%5
17	70	Z	-.065	%55
18	70	Z	-.012	%70
19	70	Z	0	0
20	70	Z	0	0
21	88	Z	-.02	%10
22	88	Z	-.02	%70
23	88	Z	-.015	%50
24	88	Z	0	0
25	88	Z	0	0
26	69	Z	-.03	%5
27	69	Z	-.03	%70
28	69	Z	-.014	%50
29	69	Z	0	0
30	69	Z	0	0
31	62A	Z	-.065	%5
32	62A	Z	-.065	%55
33	62A	Z	-.012	%70
34	62A	Z	0	0
35	62A	Z	0	0
36	60A	Z	-.02	%10
37	60A	Z	-.02	%70
38	60A	Z	-.015	%50
39	60A	Z	0	0
40	60A	Z	0	0
41	61A	Z	-.03	%5
42	61A	Z	-.03	%70
43	61A	Z	-.014	%50
44	61A	Z	0	0
45	61A	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	X	-.027	%5
2	54A	X	-.027	%55
3	54A	X	-.005	%70
4	54A	X	0	0
5	54A	X	0	0
6	35	X	-.008	%10
7	35	X	-.008	%70
8	35	X	-.011	%50
9	35	X	0	0
10	35	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
11	37	X	-.01	%5
12	37	X	-.01	%70
13	37	X	-.011	%50
14	37	X	0	0
15	37	X	0	0
16	70	X	-.027	%5
17	70	X	-.027	%55
18	70	X	-.005	%70
19	70	X	0	0
20	70	X	0	0
21	88	X	-.008	%10
22	88	X	-.008	%70
23	88	X	-.011	%50
24	88	X	0	0
25	88	X	0	0
26	69	X	-.01	%5
27	69	X	-.01	%70
28	69	X	-.011	%50
29	69	X	0	0
30	69	X	0	0
31	62A	X	-.027	%5
32	62A	X	-.027	%55
33	62A	X	-.005	%70
34	62A	X	0	0
35	62A	X	0	0
36	60A	X	-.008	%10
37	60A	X	-.008	%70
38	60A	X	-.011	%50
39	60A	X	0	0
40	60A	X	0	0
41	61A	X	-.01	%5
42	61A	X	-.01	%70
43	61A	X	-.011	%50
44	61A	X	0	0
45	61A	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Z	-.021	%5
2	54A	Z	-.021	%55
3	54A	Z	-.004	%70
4	54A	Z	0	0
5	54A	Z	0	0
6	35	Z	-.007	%10
7	35	Z	-.007	%70
8	35	Z	-.005	%50
9	35	Z	0	0
10	35	Z	0	0
11	37	Z	-.009	%5
12	37	Z	-.009	%70
13	37	Z	-.005	%50
14	37	Z	0	0
15	37	Z	0	0
16	70	Z	-.021	%5
17	70	Z	-.021	%55
18	70	Z	-.004	%70

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
19	70	Z	0	0
20	70	Z	0	0
21	88	Z	-.007	%10
22	88	Z	-.007	%70
23	88	Z	-.005	%50
24	88	Z	0	0
25	88	Z	0	0
26	69	Z	-.009	%5
27	69	Z	-.009	%70
28	69	Z	-.005	%50
29	69	Z	0	0
30	69	Z	0	0
31	62A	Z	-.021	%5
32	62A	Z	-.021	%55
33	62A	Z	-.004	%70
34	62A	Z	0	0
35	62A	Z	0	0
36	60A	Z	-.007	%10
37	60A	Z	-.007	%70
38	60A	Z	-.005	%50
39	60A	Z	0	0
40	60A	Z	0	0
41	61A	Z	-.009	%5
42	61A	Z	-.009	%70
43	61A	Z	-.005	%50
44	61A	Z	0	0
45	61A	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	X	-.008	%5
2	54A	X	-.008	%55
3	54A	X	-.002	%70
4	54A	X	0	0
5	54A	X	0	0
6	35	X	-.003	%10
7	35	X	-.003	%70
8	35	X	-.004	%50
9	35	X	0	0
10	35	X	0	0
11	37	X	-.002	%5
12	37	X	-.002	%70
13	37	X	-.004	%50
14	37	X	0	0
15	37	X	0	0
16	70	X	-.008	%5
17	70	X	-.008	%55
18	70	X	-.002	%70
19	70	X	0	0
20	70	X	0	0
21	88	X	-.003	%10
22	88	X	-.003	%70
23	88	X	-.004	%50
24	88	X	0	0
25	88	X	0	0
26	69	X	-.002	%5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
27	69	X	-.002	%70
28	69	X	-.004	%50
29	69	X	0	0
30	69	X	0	0
31	62A	X	-.008	%5
32	62A	X	-.008	%55
33	62A	X	-.002	%70
34	62A	X	0	0
35	62A	X	0	0
36	60A	X	-.003	%10
37	60A	X	-.003	%70
38	60A	X	-.004	%50
39	60A	X	0	0
40	60A	X	0	0
41	61A	X	-.002	%5
42	61A	X	-.002	%70
43	61A	X	-.004	%50
44	61A	X	0	0
45	61A	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Y	-.194	%5
2	54A	Y	-.194	%55
3	54A	Y	-.027	%70
4	54A	Y	0	0
5	54A	Y	0	0
6	35	Y	-.045	%10
7	35	Y	-.045	%70
8	35	Y	-.039	%50
9	35	Y	0	0
10	35	Y	0	0
11	37	Y	-.056	%5
12	37	Y	-.056	%70
13	37	Y	-.038	%50
14	37	Y	0	0
15	37	Y	0	0
16	70	Y	-.194	%5
17	70	Y	-.194	%55
18	70	Y	-.027	%70
19	70	Y	0	0
20	70	Y	0	0
21	88	Y	-.045	%10
22	88	Y	-.045	%70
23	88	Y	-.039	%50
24	88	Y	0	0
25	88	Y	0	0
26	69	Y	-.056	%5
27	69	Y	-.056	%70
28	69	Y	-.038	%50
29	69	Y	0	0
30	69	Y	0	0
31	62A	Y	-.194	%5
32	62A	Y	-.194	%55
33	62A	Y	-.027	%70
34	62A	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
35	62A	Y	0	0
36	60A	Y	-.045	%10
37	60A	Y	-.045	%70
38	60A	Y	-.039	%50
39	60A	Y	0	0
40	60A	Y	0	0
41	61A	Y	-.056	%5
42	61A	Y	-.056	%70
43	61A	Y	-.038	%50
44	61A	Y	0	0
45	61A	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	Z	-.042	%5
2	54A	Z	-.042	%55
3	54A	Z	-.013	%70
4	54A	Z	0	0
5	54A	Z	0	0
6	35	Z	-.031	%10
7	35	Z	-.031	%70
8	35	Z	-.023	%50
9	35	Z	0	0
10	35	Z	0	0
11	37	Z	-.011	%5
12	37	Z	-.011	%70
13	37	Z	-.02	%50
14	37	Z	0	0
15	37	Z	0	0
16	70	Z	-.042	%5
17	70	Z	-.042	%55
18	70	Z	-.013	%70
19	70	Z	0	0
20	70	Z	0	0
21	88	Z	-.031	%10
22	88	Z	-.031	%70
23	88	Z	-.023	%50
24	88	Z	0	0
25	88	Z	0	0
26	69	Z	-.011	%5
27	69	Z	-.011	%70
28	69	Z	-.02	%50
29	69	Z	0	0
30	69	Z	0	0
31	62A	Z	-.042	%5
32	62A	Z	-.042	%55
33	62A	Z	-.013	%70
34	62A	Z	0	0
35	62A	Z	0	0
36	60A	Z	-.031	%10
37	60A	Z	-.031	%70
38	60A	Z	-.023	%50
39	60A	Z	0	0
40	60A	Z	0	0
41	61A	Z	-.011	%5
42	61A	Z	-.011	%70

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
43	61A	Z	-.02	%50
44	61A	Z	0	0
45	61A	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	54A	X	-.042	%5
2	54A	X	-.042	%55
3	54A	X	-.013	%70
4	54A	X	0	0
5	54A	X	0	0
6	35	X	-.031	%10
7	35	X	-.031	%70
8	35	X	-.023	%50
9	35	X	0	0
10	35	X	0	0
11	37	X	-.011	%5
12	37	X	-.011	%70
13	37	X	-.02	%50
14	37	X	0	0
15	37	X	0	0
16	70	X	-.042	%5
17	70	X	-.042	%55
18	70	X	-.013	%70
19	70	X	0	0
20	70	X	0	0
21	88	X	-.031	%10
22	88	X	-.031	%70
23	88	X	-.023	%50
24	88	X	0	0
25	88	X	0	0
26	69	X	-.011	%5
27	69	X	-.011	%70
28	69	X	-.02	%50
29	69	X	0	0
30	69	X	0	0
31	62A	X	-.042	%5
32	62A	X	-.042	%55
33	62A	X	-.013	%70
34	62A	X	0	0
35	62A	X	0	0
36	60A	X	-.031	%10
37	60A	X	-.031	%70
38	60A	X	-.023	%50
39	60A	X	0	0
40	60A	X	0	0
41	61A	X	-.011	%5
42	61A	X	-.011	%70
43	61A	X	-.02	%50
44	61A	X	0	0
45	61A	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	1	Y	-.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	1	Y	-.25	%95

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	2	Y	-.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	2	Y	-.25	%95

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	3	Y	-.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	3	Y	-.25	%95

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	80	Y	-.25	%5

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	80	Y	-.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	85	Y	-.25	%5

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	24	Y	-.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	85	Y	-.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	90	Y	-.25	%5

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	90	Y	-.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	19	Y	-.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	29	Y	-.25	%95

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.014	-.014	0	0
2	2	Z	-.014	-.014	0	0
3	3	Z	-.014	-.014	0	0
4	5	Z	-.024	-.024	0	0
5	7	Z	-.024	-.024	0	0
6	9	Z	-.024	-.024	0	0
7	11	Z	-.024	-.024	0	0
8	13	Z	-.024	-.024	0	0
9	15	Z	-.024	-.024	0	0
10	16	Z	-.024	-.024	0	0
11	17	Z	-.024	-.024	0	0
12	18	Z	-.024	-.024	0	0
13	19	Z	-.022	-.022	0	0
14	20	Z	-.018	-.018	0	0
15	21	Z	-.018	-.018	0	0
16	22	Z	-.002	-.002	0	0
17	23	Z	-.002	-.002	0	0
18	24	Z	-.022	-.022	0	0
19	25	Z	-.018	-.018	0	0
20	26	Z	-.018	-.018	0	0
21	29	Z	-.022	-.022	0	0
22	30	Z	-.018	-.018	0	0
23	31	Z	-.018	-.018	0	0
24	35	Z	-.009	-.009	0	0
25	37	Z	-.009	-.009	0	0
26	38	Z	-.013	-.013	0	0
27	39	Z	-.013	-.013	0	0
28	40	Z	-.013	-.013	0	0
29	41	Z	-.013	-.013	0	0
30	42	Z	-.013	-.013	0	0
31	43	Z	-.013	-.013	0	0
32	48A	Z	-.002	-.002	0	0
33	49A	Z	-.002	-.002	0	0
34	50A	Z	-.002	-.002	0	0
35	51A	Z	-.002	-.002	0	0
36	52	Z	-.002	-.002	0	0
37	53	Z	-.002	-.002	0	0
38	56	Z	-.002	-.002	0	0
39	57	Z	-.002	-.002	0	0
40	60	Z	-.002	-.002	0	0
41	61	Z	-.002	-.002	0	0
42	54A	Z	-.009	-.009	0	0
43	58A	Z	-.009	-.009	0	0
44	60A	Z	-.009	-.009	0	0
45	61A	Z	-.009	-.009	0	0
46	62A	Z	-.009	-.009	0	0
47	66	Z	-.009	-.009	0	0
48	68	Z	-.009	-.009	0	0
49	69	Z	-.009	-.009	0	0
50	70	Z	-.009	-.009	0	0
51	74	Z	-.009	-.009	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
52	80	Z	-.009	-.009	0	0
53	85	Z	-.009	-.009	0	0
54	90	Z	-.009	-.009	0	0
55	91	Z	-.011	-.011	0	0
56	92	Z	-.011	-.011	0	0
57	93	Z	-.011	-.011	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.014	-.014	0	0
2	2	X	-.014	-.014	0	0
3	3	X	-.014	-.014	0	0
4	5	X	-.024	-.024	0	0
5	7	X	-.024	-.024	0	0
6	9	X	-.024	-.024	0	0
7	11	X	-.024	-.024	0	0
8	13	X	-.024	-.024	0	0
9	15	X	-.024	-.024	0	0
10	16	X	-.024	-.024	0	0
11	17	X	-.024	-.024	0	0
12	18	X	-.024	-.024	0	0
13	19	X	-.022	-.022	0	0
14	20	X	-.018	-.018	0	0
15	21	X	-.018	-.018	0	0
16	22	X	-.002	-.002	0	0
17	23	X	-.002	-.002	0	0
18	24	X	-.022	-.022	0	0
19	25	X	-.018	-.018	0	0
20	26	X	-.018	-.018	0	0
21	29	X	-.022	-.022	0	0
22	30	X	-.018	-.018	0	0
23	31	X	-.018	-.018	0	0
24	35	X	-.009	-.009	0	0
25	37	X	-.009	-.009	0	0
26	38	X	-.013	-.013	0	0
27	39	X	-.013	-.013	0	0
28	40	X	-.013	-.013	0	0
29	41	X	-.013	-.013	0	0
30	42	X	-.013	-.013	0	0
31	43	X	-.013	-.013	0	0
32	48A	X	-.002	-.002	0	0
33	49A	X	-.002	-.002	0	0
34	50A	X	-.002	-.002	0	0
35	51A	X	-.002	-.002	0	0
36	52	X	-.002	-.002	0	0
37	53	X	-.002	-.002	0	0
38	56	X	-.002	-.002	0	0
39	57	X	-.002	-.002	0	0
40	60	X	-.002	-.002	0	0
41	61	X	-.002	-.002	0	0
42	54A	X	-.009	-.009	0	0
43	58A	X	-.009	-.009	0	0
44	60A	X	-.009	-.009	0	0
45	61A	X	-.009	-.009	0	0
46	62A	X	-.009	-.009	0	0
47	66	X	-.009	-.009	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
48	68	X	-.009	-.009	0	0
49	69	X	-.009	-.009	0	0
50	70	X	-.009	-.009	0	0
51	74	X	-.009	-.009	0	0
52	80	X	-.009	-.009	0	0
53	85	X	-.009	-.009	0	0
54	90	X	-.009	-.009	0	0
55	91	X	-.011	-.011	0	0
56	92	X	-.011	-.011	0	0
57	93	X	-.011	-.011	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.002	-.002	0	0
2	2	Z	-.002	-.002	0	0
3	3	Z	-.002	-.002	0	0
4	5	Z	-.011	-.011	0	0
5	7	Z	-.011	-.011	0	0
6	9	Z	-.011	-.011	0	0
7	11	Z	-.011	-.011	0	0
8	13	Z	-.011	-.011	0	0
9	15	Z	-.011	-.011	0	0
10	16	Z	-.007	-.007	0	0
11	17	Z	-.007	-.007	0	0
12	18	Z	-.007	-.007	0	0
13	19	Z	-.006	-.006	0	0
14	20	Z	-.006	-.006	0	0
15	21	Z	-.006	-.006	0	0
16	22	Z	-.004	-.004	0	0
17	23	Z	-.004	-.004	0	0
18	24	Z	-.006	-.006	0	0
19	25	Z	-.006	-.006	0	0
20	26	Z	-.006	-.006	0	0
21	29	Z	-.006	-.006	0	0
22	30	Z	-.006	-.006	0	0
23	31	Z	-.006	-.006	0	0
24	35	Z	-.002	-.002	0	0
25	37	Z	-.002	-.002	0	0
26	38	Z	-.005	-.005	0	0
27	39	Z	-.005	-.005	0	0
28	40	Z	-.005	-.005	0	0
29	41	Z	-.005	-.005	0	0
30	42	Z	-.005	-.005	0	0
31	43	Z	-.005	-.005	0	0
32	48A	Z	-.004	-.004	0	0
33	49A	Z	-.004	-.004	0	0
34	50A	Z	-.004	-.004	0	0
35	51A	Z	-.004	-.004	0	0
36	52	Z	-.004	-.004	0	0
37	53	Z	-.004	-.004	0	0
38	56	Z	-.004	-.004	0	0
39	57	Z	-.004	-.004	0	0
40	60	Z	-.004	-.004	0	0
41	61	Z	-.004	-.004	0	0
42	54A	Z	-.002	-.002	0	0
43	58A	Z	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
44	60A	Z	-.002	-.002	0	0
45	61A	Z	-.002	-.002	0	0
46	62A	Z	-.002	-.002	0	0
47	66	Z	-.002	-.002	0	0
48	68	Z	-.002	-.002	0	0
49	69	Z	-.002	-.002	0	0
50	70	Z	-.002	-.002	0	0
51	74	Z	-.002	-.002	0	0
52	80	Z	-.002	-.002	0	0
53	85	Z	-.002	-.002	0	0
54	90	Z	-.002	-.002	0	0
55	91	Z	-.004	-.004	0	0
56	92	Z	-.004	-.004	0	0
57	93	Z	-.004	-.004	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.002	-.002	0	0
2	2	X	-.002	-.002	0	0
3	3	X	-.002	-.002	0	0
4	5	X	-.011	-.011	0	0
5	7	X	-.011	-.011	0	0
6	9	X	-.011	-.011	0	0
7	11	X	-.011	-.011	0	0
8	13	X	-.011	-.011	0	0
9	15	X	-.011	-.011	0	0
10	16	X	-.007	-.007	0	0
11	17	X	-.007	-.007	0	0
12	18	X	-.007	-.007	0	0
13	19	X	-.006	-.006	0	0
14	20	X	-.006	-.006	0	0
15	21	X	-.006	-.006	0	0
16	22	X	-.004	-.004	0	0
17	23	X	-.004	-.004	0	0
18	24	X	-.006	-.006	0	0
19	25	X	-.006	-.006	0	0
20	26	X	-.006	-.006	0	0
21	29	X	-.006	-.006	0	0
22	30	X	-.006	-.006	0	0
23	31	X	-.006	-.006	0	0
24	35	X	-.002	-.002	0	0
25	37	X	-.002	-.002	0	0
26	38	X	-.005	-.005	0	0
27	39	X	-.005	-.005	0	0
28	40	X	-.005	-.005	0	0
29	41	X	-.005	-.005	0	0
30	42	X	-.005	-.005	0	0
31	43	X	-.005	-.005	0	0
32	48A	X	-.004	-.004	0	0
33	49A	X	-.004	-.004	0	0
34	50A	X	-.004	-.004	0	0
35	51A	X	-.004	-.004	0	0
36	52	X	-.004	-.004	0	0
37	53	X	-.004	-.004	0	0
38	56	X	-.004	-.004	0	0
39	57	X	-.004	-.004	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
40	60	X	-.004	-.004	0	0
41	61	X	-.004	-.004	0	0
42	54A	X	-.002	-.002	0	0
43	58A	X	-.002	-.002	0	0
44	60A	X	-.002	-.002	0	0
45	61A	X	-.002	-.002	0	0
46	62A	X	-.002	-.002	0	0
47	66	X	-.002	-.002	0	0
48	68	X	-.002	-.002	0	0
49	69	X	-.002	-.002	0	0
50	70	X	-.002	-.002	0	0
51	74	X	-.002	-.002	0	0
52	80	X	-.002	-.002	0	0
53	85	X	-.002	-.002	0	0
54	90	X	-.002	-.002	0	0
55	91	X	-.004	-.004	0	0
56	92	X	-.004	-.004	0	0
57	93	X	-.004	-.004	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.0005	-.0005	0	0
2	2	Z	-.0005	-.0005	0	0
3	3	Z	-.0005	-.0005	0	0
4	5	Z	-.002	-.002	0	0
5	7	Z	-.002	-.002	0	0
6	9	Z	-.002	-.002	0	0
7	11	Z	-.002	-.002	0	0
8	13	Z	-.002	-.002	0	0
9	15	Z	-.002	-.002	0	0
10	16	Z	-.002	-.002	0	0
11	17	Z	-.002	-.002	0	0
12	18	Z	-.002	-.002	0	0
13	19	Z	-.001	-.001	0	0
14	20	Z	-.001	-.001	0	0
15	21	Z	-.001	-.001	0	0
16	22	Z	-.0001	-.0001	0	0
17	23	Z	-.0001	-.0001	0	0
18	24	Z	-.001	-.001	0	0
19	25	Z	-.001	-.001	0	0
20	26	Z	-.001	-.001	0	0
21	29	Z	-.001	-.001	0	0
22	30	Z	-.001	-.001	0	0
23	31	Z	-.001	-.001	0	0
24	35	Z	-.0003	-.0003	0	0
25	37	Z	-.0003	-.0003	0	0
26	38	Z	-.0009	-.0009	0	0
27	39	Z	-.0009	-.0009	0	0
28	40	Z	-.0009	-.0009	0	0
29	41	Z	-.0009	-.0009	0	0
30	42	Z	-.0009	-.0009	0	0
31	43	Z	-.0009	-.0009	0	0
32	48A	Z	-.0001	-.0001	0	0
33	49A	Z	-.0001	-.0001	0	0
34	50A	Z	-.0001	-.0001	0	0
35	51A	Z	-.0001	-.0001	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
36	52	Z	-.0001	-.0001	0	0
37	53	Z	-.0001	-.0001	0	0
38	56	Z	-.0001	-.0001	0	0
39	57	Z	-.0001	-.0001	0	0
40	60	Z	-.0001	-.0001	0	0
41	61	Z	-.0001	-.0001	0	0
42	54A	Z	-.0003	-.0003	0	0
43	58A	Z	-.0003	-.0003	0	0
44	60A	Z	-.0003	-.0003	0	0
45	61A	Z	-.0003	-.0003	0	0
46	62A	Z	-.0003	-.0003	0	0
47	66	Z	-.0003	-.0003	0	0
48	68	Z	-.0003	-.0003	0	0
49	69	Z	-.0003	-.0003	0	0
50	70	Z	-.0003	-.0003	0	0
51	74	Z	-.0003	-.0003	0	0
52	80	Z	-.0003	-.0003	0	0
53	85	Z	-.0003	-.0003	0	0
54	90	Z	-.0003	-.0003	0	0
55	91	Z	-.0007	-.0007	0	0
56	92	Z	-.0007	-.0007	0	0
57	93	Z	-.0007	-.0007	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.0005	-.0005	0	0
2	2	X	-.0005	-.0005	0	0
3	3	X	-.0005	-.0005	0	0
4	5	X	-.002	-.002	0	0
5	7	X	-.002	-.002	0	0
6	9	X	-.002	-.002	0	0
7	11	X	-.002	-.002	0	0
8	13	X	-.002	-.002	0	0
9	15	X	-.002	-.002	0	0
10	16	X	-.002	-.002	0	0
11	17	X	-.002	-.002	0	0
12	18	X	-.002	-.002	0	0
13	19	X	-.001	-.001	0	0
14	20	X	-.001	-.001	0	0
15	21	X	-.001	-.001	0	0
16	22	X	-.0001	-.0001	0	0
17	23	X	-.0001	-.0001	0	0
18	24	X	-.001	-.001	0	0
19	25	X	-.001	-.001	0	0
20	26	X	-.001	-.001	0	0
21	29	X	-.001	-.001	0	0
22	30	X	-.001	-.001	0	0
23	31	X	-.001	-.001	0	0
24	35	X	-.0003	-.0003	0	0
25	37	X	-.0003	-.0003	0	0
26	38	X	-.0009	-.0009	0	0
27	39	X	-.0009	-.0009	0	0
28	40	X	-.0009	-.0009	0	0
29	41	X	-.0009	-.0009	0	0
30	42	X	-.0009	-.0009	0	0
31	43	X	-.0009	-.0009	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
32	48A	X	-.0001	-.0001	0	0
33	49A	X	-.0001	-.0001	0	0
34	50A	X	-.0001	-.0001	0	0
35	51A	X	-.0001	-.0001	0	0
36	52	X	-.0001	-.0001	0	0
37	53	X	-.0001	-.0001	0	0
38	56	X	-.0001	-.0001	0	0
39	57	X	-.0001	-.0001	0	0
40	60	X	-.0001	-.0001	0	0
41	61	X	-.0001	-.0001	0	0
42	54A	X	-.0003	-.0003	0	0
43	58A	X	-.0003	-.0003	0	0
44	60A	X	-.0003	-.0003	0	0
45	61A	X	-.0003	-.0003	0	0
46	62A	X	-.0003	-.0003	0	0
47	66	X	-.0003	-.0003	0	0
48	68	X	-.0003	-.0003	0	0
49	69	X	-.0003	-.0003	0	0
50	70	X	-.0003	-.0003	0	0
51	74	X	-.0003	-.0003	0	0
52	80	X	-.0003	-.0003	0	0
53	85	X	-.0003	-.0003	0	0
54	90	X	-.0003	-.0003	0	0
55	91	X	-.0007	-.0007	0	0
56	92	X	-.0007	-.0007	0	0
57	93	X	-.0007	-.0007	0	0

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Y	-.007	-.007	0	0
2	2	Y	-.007	-.007	0	0
3	3	Y	-.007	-.007	0	0
4	5	Y	-.01	-.01	0	0
5	7	Y	-.01	-.01	0	0
6	9	Y	-.01	-.01	0	0
7	11	Y	-.01	-.01	0	0
8	13	Y	-.01	-.01	0	0
9	15	Y	-.01	-.01	0	0
10	16	Y	-.01	-.01	0	0
11	17	Y	-.01	-.01	0	0
12	18	Y	-.01	-.01	0	0
13	19	Y	-.01	-.01	0	0
14	20	Y	-.01	-.01	0	0
15	21	Y	-.01	-.01	0	0
16	22	Y	-.01	-.01	0	0
17	23	Y	-.01	-.01	0	0
18	24	Y	-.01	-.01	0	0
19	25	Y	-.01	-.01	0	0
20	26	Y	-.01	-.01	0	0
21	29	Y	-.01	-.01	0	0
22	30	Y	-.01	-.01	0	0
23	31	Y	-.01	-.01	0	0
24	35	Y	-.005	-.005	0	0
25	37	Y	-.005	-.005	0	0
26	38	Y	-.006	-.006	0	0
27	39	Y	-.006	-.006	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
28	40	Y	-.006	-.006	0	0
29	41	Y	-.006	-.006	0	0
30	42	Y	-.006	-.006	0	0
31	43	Y	-.006	-.006	0	0
32	48A	Y	-.01	-.01	0	0
33	49A	Y	-.01	-.01	0	0
34	50A	Y	-.01	-.01	0	0
35	51A	Y	-.01	-.01	0	0
36	52	Y	-.01	-.01	0	0
37	53	Y	-.01	-.01	0	0
38	56	Y	-.01	-.01	0	0
39	57	Y	-.01	-.01	0	0
40	60	Y	-.01	-.01	0	0
41	61	Y	-.01	-.01	0	0
42	54A	Y	-.005	-.005	0	0
43	58A	Y	-.005	-.005	0	0
44	60A	Y	-.005	-.005	0	0
45	61A	Y	-.005	-.005	0	0
46	62A	Y	-.005	-.005	0	0
47	66	Y	-.005	-.005	0	0
48	68	Y	-.005	-.005	0	0
49	69	Y	-.005	-.005	0	0
50	70	Y	-.005	-.005	0	0
51	74	Y	-.005	-.005	0	0
52	80	Y	-.005	-.005	0	0
53	85	Y	-.005	-.005	0	0
54	90	Y	-.005	-.005	0	0
55	91	Y	-.007	-.007	0	0
56	92	Y	-.007	-.007	0	0
57	93	Y	-.007	-.007	0	0

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.002	-.002	0	0
2	2	Z	-.002	-.002	0	0
3	3	Z	-.002	-.002	0	0
4	5	Z	-.003	-.003	0	0
5	7	Z	-.003	-.003	0	0
6	9	Z	-.003	-.003	0	0
7	11	Z	-.003	-.003	0	0
8	13	Z	-.003	-.003	0	0
9	15	Z	-.003	-.003	0	0
10	16	Z	-.003	-.003	0	0
11	17	Z	-.003	-.003	0	0
12	18	Z	-.003	-.003	0	0
13	19	Z	-.003	-.003	0	0
14	20	Z	-.003	-.003	0	0
15	21	Z	-.003	-.003	0	0
16	22	Z	-.002	-.002	0	0
17	23	Z	-.002	-.002	0	0
18	24	Z	-.003	-.003	0	0
19	25	Z	-.003	-.003	0	0
20	26	Z	-.003	-.003	0	0
21	29	Z	-.003	-.003	0	0
22	30	Z	-.003	-.003	0	0
23	31	Z	-.003	-.003	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
24	35	Z	-.001	-.001	0	0
25	37	Z	-.001	-.001	0	0
26	38	Z	-.0007	-.0007	0	0
27	39	Z	-.0007	-.0007	0	0
28	40	Z	-.0007	-.0007	0	0
29	41	Z	-.0007	-.0007	0	0
30	42	Z	-.0007	-.0007	0	0
31	43	Z	-.0007	-.0007	0	0
32	48A	Z	-.002	-.002	0	0
33	49A	Z	-.002	-.002	0	0
34	50A	Z	-.002	-.002	0	0
35	51A	Z	-.002	-.002	0	0
36	52	Z	-.002	-.002	0	0
37	53	Z	-.002	-.002	0	0
38	56	Z	-.002	-.002	0	0
39	57	Z	-.002	-.002	0	0
40	60	Z	-.002	-.002	0	0
41	61	Z	-.002	-.002	0	0
42	54A	Z	-.001	-.001	0	0
43	58A	Z	-.001	-.001	0	0
44	60A	Z	-.001	-.001	0	0
45	61A	Z	-.001	-.001	0	0
46	62A	Z	-.001	-.001	0	0
47	66	Z	-.001	-.001	0	0
48	68	Z	-.001	-.001	0	0
49	69	Z	-.001	-.001	0	0
50	70	Z	-.001	-.001	0	0
51	74	Z	-.001	-.001	0	0
52	80	Z	-.001	-.001	0	0
53	85	Z	-.001	-.001	0	0
54	90	Z	-.001	-.001	0	0
55	91	Z	-.001	-.001	0	0
56	92	Z	-.001	-.001	0	0
57	93	Z	-.001	-.001	0	0

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.002	-.002	0	0
2	2	X	-.002	-.002	0	0
3	3	X	-.002	-.002	0	0
4	5	X	-.003	-.003	0	0
5	7	X	-.003	-.003	0	0
6	9	X	-.003	-.003	0	0
7	11	X	-.003	-.003	0	0
8	13	X	-.003	-.003	0	0
9	15	X	-.003	-.003	0	0
10	16	X	-.003	-.003	0	0
11	17	X	-.003	-.003	0	0
12	18	X	-.003	-.003	0	0
13	19	X	-.003	-.003	0	0
14	20	X	-.003	-.003	0	0
15	21	X	-.003	-.003	0	0
16	22	X	-.002	-.002	0	0
17	23	X	-.002	-.002	0	0
18	24	X	-.003	-.003	0	0
19	25	X	-.003	-.003	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
20	26	X	-.003	-.003	0	0
21	29	X	-.003	-.003	0	0
22	30	X	-.003	-.003	0	0
23	31	X	-.003	-.003	0	0
24	35	X	-.001	-.001	0	0
25	37	X	-.001	-.001	0	0
26	38	X	-.0007	-.0007	0	0
27	39	X	-.0007	-.0007	0	0
28	40	X	-.0007	-.0007	0	0
29	41	X	-.0007	-.0007	0	0
30	42	X	-.0007	-.0007	0	0
31	43	X	-.0007	-.0007	0	0
32	48A	X	-.002	-.002	0	0
33	49A	X	-.002	-.002	0	0
34	50A	X	-.002	-.002	0	0
35	51A	X	-.002	-.002	0	0
36	52	X	-.002	-.002	0	0
37	53	X	-.002	-.002	0	0
38	56	X	-.002	-.002	0	0
39	57	X	-.002	-.002	0	0
40	60	X	-.002	-.002	0	0
41	61	X	-.002	-.002	0	0
42	54A	X	-.001	-.001	0	0
43	58A	X	-.001	-.001	0	0
44	60A	X	-.001	-.001	0	0
45	61A	X	-.001	-.001	0	0
46	62A	X	-.001	-.001	0	0
47	66	X	-.001	-.001	0	0
48	68	X	-.001	-.001	0	0
49	69	X	-.001	-.001	0	0
50	70	X	-.001	-.001	0	0
51	74	X	-.001	-.001	0	0
52	80	X	-.001	-.001	0	0
53	85	X	-.001	-.001	0	0
54	90	X	-.001	-.001	0	0
55	91	X	-.001	-.001	0	0
56	92	X	-.001	-.001	0	0
57	93	X	-.001	-.001	0	0

Joint Loads and Enforced Displacements (BLC 11 : Live Load a)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	91A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 12 : Live Load b)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	92A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 13 : Live Load c)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	97A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 14 : Live Load d)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	93A	L	Y	-.5

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	48	max	2.083	4	2.327	25	1.872	3	-.652	8	1.215	7	4.035	14
2		min	-2.031	10	1.001	6	-1.846	9	-2.5	74	-1.211	13	1.625	45
3	43	max	2.003	6	2.502	16	1.896	2	-.785	8	1.292	3	-1.83	10
4		min	-2.057	12	1.134	10	-1.866	8	-2.659	38	-1.293	9	-4.434	15
5	32	max	.824	5	2.141	20	3.287	2	4.281	20	.794	11	.14	96
6		min	-.821	11	.772	50	-3.344	8	1.38	38	-.797	5	-.08	97
7	Totals:	max	4.556	5	6.907	25	7.044	2						
8		min	-4.556	11	3.329	6	-7.044	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
1	1	PIPE_3.0	.167	4.688	20	.105	.911		2	28.251	65.205	5.749	5.749	...	H1-...
2	2	PIPE_3.0	.152	1.823	2	.066	4.557		13	28.251	65.205	5.749	5.749	...	H1-...
3	3	PIPE_3.0	.161	7.813	18	.075	4.557		3	28.251	65.205	5.749	5.749	...	H1-...
4	5	PL1/2"x6	.088	.125	13	.239	.125	y	2	95.014	97.2	1.012	12.15	...	H1-...
5	7	PL1/2"x6	.109	.125	2	.485	.125	y	2	95.014	97.2	1.012	12.15	...	H1-...
6	9	PL1/2"x6	.055	.125	5	.145	.125	y	8	95.014	97.2	1.012	12.15	...	H1-...
7	11	PL1/2"x6	.092	.125	7	.269	.25	y	7	95.014	97.2	1.012	12.15	...	H1-...
8	13	PL1/2"x6	.072	.125	9	.132	.25	y	6	95.014	97.2	1.012	12.15	...	H1-...
9	15	PL1/2"x6	.058	.125	10	.172	.125	y	8	95.014	97.2	1.012	12.15	...	H1-...
10	16	PL1/2"x6	.113	.519	13	.093	.519	y	44	65.639	97.2	1.012	12.15	...	H1-...
11	17	PL1/2"x6	.141	.519	8	.092	1.039	y	2	65.639	97.2	1.012	12.15	...	H1-...
12	18	PL1/2"x6	.132	.519	3	.099	.519	y	8	65.639	97.2	1.012	12.15	...	H1-...
13	19	HSS4X4X4	.359	0	18	.083	0	y	19	97.504	106....	12.311	12.311	...	H1-...
14	20	HSS4X4X4	.183	2.541	21	.050	.424	z	9	103....	106....	12.311	12.311	...	H1-...
15	21	HSS4X4X4	.182	0	19	.051	2.118	z	7	103....	106....	12.311	12.311	...	H1-...
16	22	PL3/8"x6	.086	.331	9	.107	.169	y	18	67.903	72.9	.57	9.113	...	H1-...
17	23	PL3/8"x6	.089	.331	2	.167	.169	y	8	67.903	72.9	.57	9.113	...	H1-...
18	24	HSS4X4X4	.437	0	15	.121	0	y	50	97.504	106....	12.311	12.311	...	H1-...
19	25	HSS4X4X4	.216	2.541	14	.060	.424	z	2	103....	106....	12.311	12.311	...	H1-...
20	26	HSS4X4X4	.211	0	22	.051	0	y	19	103....	106....	12.311	12.311	...	H1-...
21	29	HSS4X4X4	.401	0	14	.114	0	y	62	97.504	106....	12.311	12.311	...	H1-...
22	30	HSS4X4X4	.200	2.541	17	.043	2.541	y	20	103....	106....	12.311	12.311	...	H1-...
23	31	HSS4X4X4	.195	0	14	.065	2.118	z	2	103....	106....	12.311	12.311	...	H1-...
24	35	PIPE_2.0	.248	4	8	.041	4		2	14.916	32.13	1.872	1.872	...	H1-...
25	37	PIPE_2.0	.300	3.917	8	.066	4		2	14.917	32.13	1.872	1.872	...	H1-...
26	38	L2x2x3	.173	4.234	5	.006	4.234	z	4	9.529	23.393	.558	1.183	...	H2-1
27	39	L2x2x3	.213	0	3	.006	0	z	10	9.529	23.393	.558	1.239	...	H2-1
28	40	L2x2x3	.265	4.234	8	.008	4.234	z	8	9.529	23.393	.558	1.167	...	H2-1
29	41	L2x2x3	.239	0	8	.007	0	z	8	9.529	23.393	.558	1.185	...	H2-1
30	42	L2x2x3	.254	4.234	13	.007	4.234	z	13	9.529	23.393	.558	1.229	...	H2-1
31	43	L2x2x3	.161	0	11	.007	0	z	12	9.529	23.393	.558	1.159	...	H2-1
32	48A	PL3/8"x6	.083	.331	7	.126	.169	y	44	67.903	72.9	.57	9.113	...	H1-...
33	49A	PL3/8"x6	.070	.169	8	.107	.169	y	8	67.903	72.9	.57	9.113	...	H1-...
34	50A	PL3/8"x6	.077	.169	7	.084	.169	y	2	67.903	72.9	.57	9.113	...	H1-...
35	51A	PL3/8"x6	.101	.331	8	.153	.169	y	3	67.903	72.9	.57	9.113	...	H1-...
36	52	PL3/8"x6	.096	0	8	.304	0	y	8	70.011	72.9	.57	9.113	...	H1-...
37	53	PL3/8"x6	.105	.125	8	.267	0	y	8	70.011	72.9	.57	9.113	...	H1-...
38	56	PL3/8"x6	.092	0	8	.191	0	y	2	70.011	72.9	.57	9.113	...	H1-...
39	57	PL3/8"x6	.091	.125	13	.260	0	y	2	70.011	72.9	.57	9.113	...	H1-...
40	60	PL3/8"x6	.079	.125	9	.155	0	y	48	70.011	72.9	.57	9.113	...	H1-...
41	61	PL3/8"x6	.083	0	9	.193	0	y	9	70.011	72.9	.57	9.113	...	H1-...
42	54A	PIPE_2.0	.650	3.917	8	.091	4		2	14.917	32.13	1.872	1.872	...	H1-...
43	58A	PIPE_2.0	.183	4	16	.030	4		19	14.916	32.13	1.872	1.872	...	H1-...

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
44	60A	PIPE_2.0	.249	4	8	.031	4		15	14.916	32.13	1.872	1.872	...	H1-...
45	61A	PIPE_2.0	.300	3.917	8	.050	4		8	14.917	32.13	1.872	1.872	...	H1-...
46	62A	PIPE_2.0	.650	3.917	2	.104	4		8	14.917	32.13	1.872	1.872	...	H1-...
47	66	PIPE_2.0	.162	4	20	.028	4		21	14.916	32.13	1.872	1.872	...	H1-...
48	68	PIPE_2.0	.202	4	9	.042	4		4	14.916	32.13	1.872	1.872	...	H1-...
49	69	PIPE_2.0	.300	3.917	2	.057	4		5	14.917	32.13	1.872	1.872	...	H1-...
50	70	PIPE_2.0	.650	3.917	8	.103	4		3	14.917	32.13	1.872	1.872	...	H1-...
51	74	PIPE_2.0	.240	4	10	.038	4		3	14.916	32.13	1.872	1.872	...	H1-...
52	80	PIPE_2.0	.188	4.688	16	.107	1.693		92	6.295	32.13	1.872	1.872	...	H1-...
53	85	PIPE_2.0	.172	4.688	20	.110	1.693		94	6.295	32.13	1.872	1.872	...	H1-...
54	90	PIPE_2.0	.174	7.813	20	.111	1.693		97	6.295	32.13	1.872	1.872	...	H1-...
55	91	L2.5x2.5x4	.143	1.245	3	.042	0	y	9	36.654	38.556	1.114	2.537	...	H2-1
56	92	L2.5x2.5x4	.123	1.245	94	.031	0	y	5	36.654	38.556	1.114	2.537	...	H2-1
57	93	L2.5x2.5x4	.120	0	96	.025	0	y	92	36.654	38.556	1.114	2.537	...	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

PROJECT	**136377.010.01**				**SR**
SUBJECT	**Mount Analysis**				
DATE	**10/15/20**	PAGE	1	OF	1

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

[REF: ANSI/TIA-222-H]

Reactions at Arm connection to Ring Mount

Tension	:	1.872	k
Vertical Shear	:	2.327	k
Horizontal Shear	:	2.083	k
Torsion	:	4.035	k.ft
Moment from Horizontal Forces	:	1.215	k.ft
Moment from Vertical Forces	:	2.5	k.ft

Bolt Parameters

Bolt Grade	:	36	ksi
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in2
Total Number of Bolts	:	4	bolts

Plate Parameters

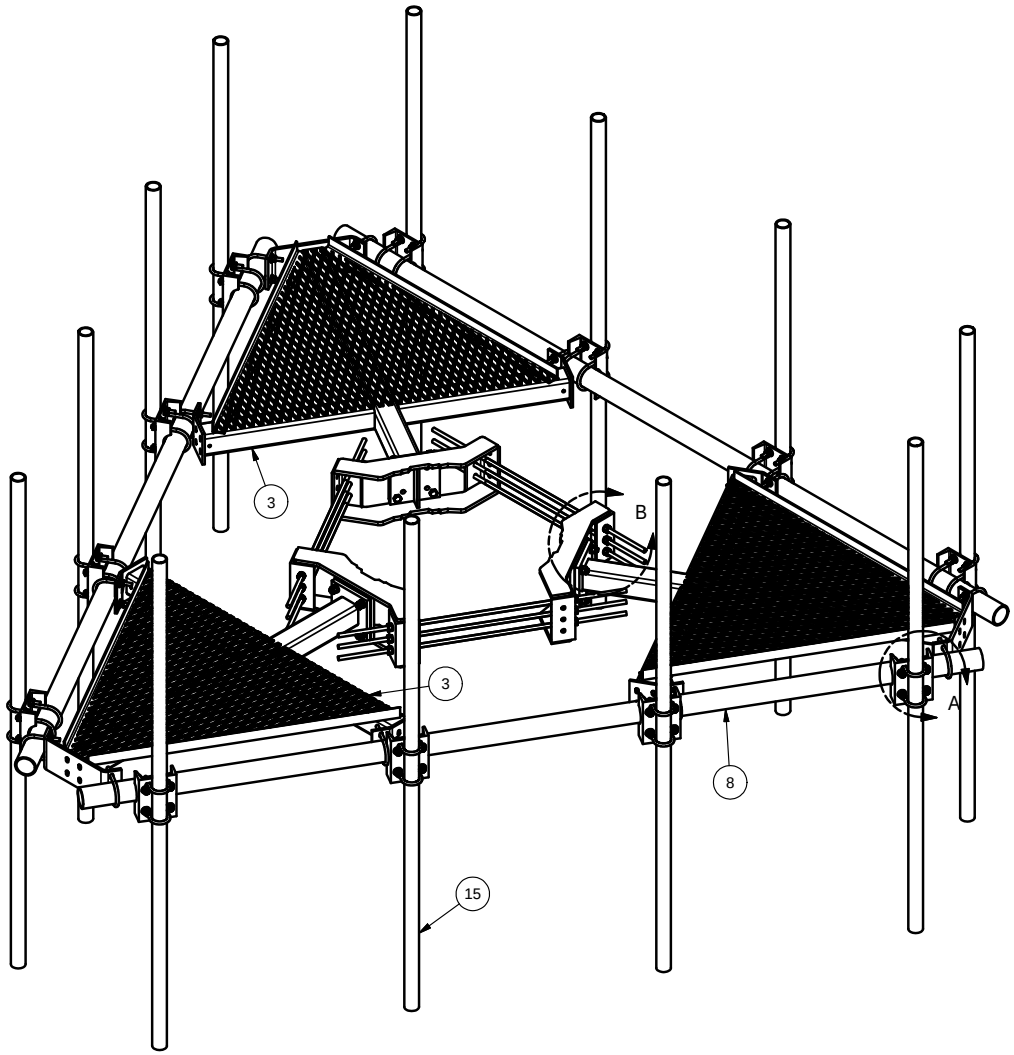
Plate material	:	36	ksi	Shear Resultant Force	:	3.12	k
Plate height	:	10	in	Force from Horz. Moment	:	1.91	k
Plate weight	:	10	in	Force from Vert. Moment	:	3.93	k
Plate thickness	:	0.75	in				
Bolt edge distance, plate height	:	1.5	in				
Bolt edge distance, plate width	:	1.5	in	Shear Load / Bolt	:	0.78	k
Bolt spacing, Horizontal	:	7	in	Tension Load / Bolt	:	0.47	k
Bolt spacing, Vertical	:	7	in	Resultant from Moments / Bolt	:	2.19	k

Bolt Check

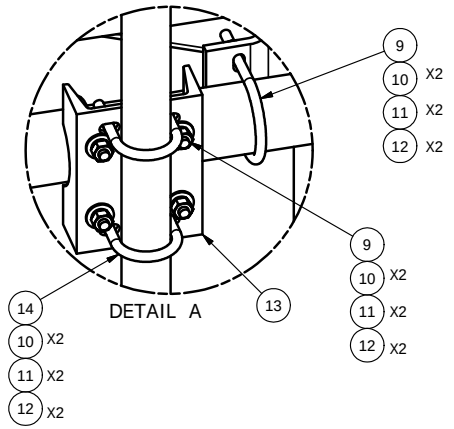
Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	12.81%		**OKAY**
Nominal Shear Stress, F_{nv}	:	54.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	12.43	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	10.04%		**OKAY**
Unity Check, Combined	:	22.86%		**OKAY**

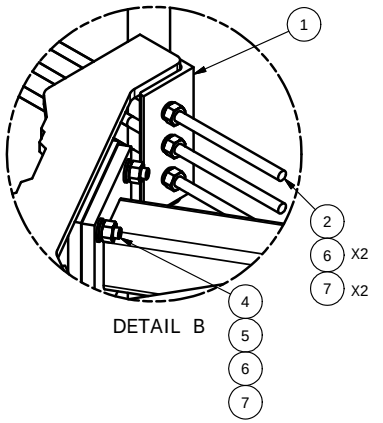
APPENDIX E

SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.40	3.59
2	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
3	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
4	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
5	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
6	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
7	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
8	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
9	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	9.25
10	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.09
11	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
12	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
13	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
14	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	6.17
15	12	B	ANTENNA MOUNTING PIPE	C	D	E





2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO. "A"	PART NO. "B"	LENGTH, "C"	UNIT WEIGHT, "D"	NET WEIGHT, "E"	TOTAL WEIGHT
RMQP-463	P263	63"	20.18	242.16	1591.11
RMQP-472	P272	72"	23.07	276.84	1625.79
RMQP-484	P284	84"	26.91	322.92	1671.87
RMQP-496	P296	96"	30.76	369.12	1718.07
RMQP-4126	P2126	126"	40.75	489.00	1837.95

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015

REVISION HISTORY

TOLERANCE NOTE

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

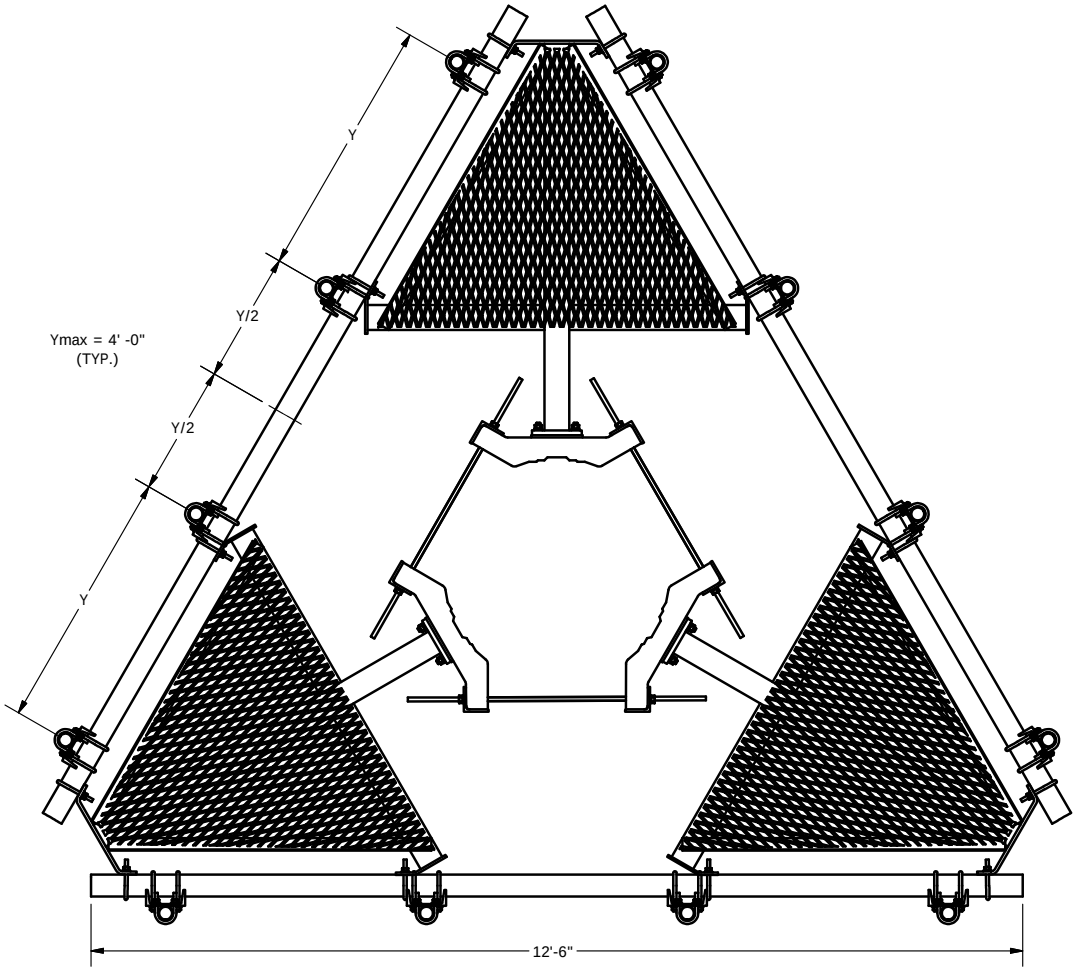
DESCRIPTION
LOW PROFILE CO-LOCATION PLATFORM
FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH
FOR 12" - 38" DIAMETER POLES

SITE PRO 1
A valmont COMPANY

Engineering Support Team: 1-888-753-7446

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

DRAWN BY	CPD NO.	DRAWING USAGE	PART NO.
CEK 1/20/2012	semb	CUSTOMER	SEE ASSEMBLY NO. "A"
ENG. APPROVAL	CHECKED BY		DWG. NO.
	BMC 7/9/2015		RMQP-4XX



TOLERANCE NOTE

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

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015

REVISION HISTORY

DESCRIPTION
LOW PROFILE CO-LOCATION PLATFORM
FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH
FOR 12" - 38" DIAMETER POLES

SITE PRO 1
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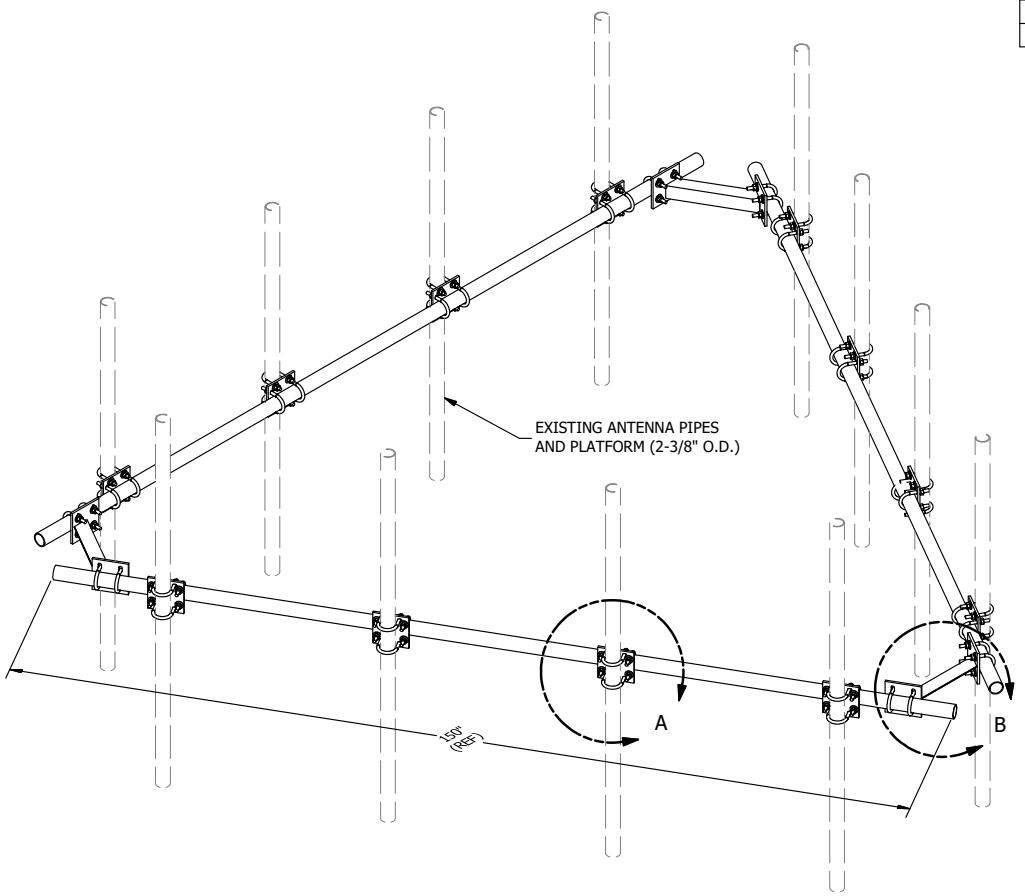
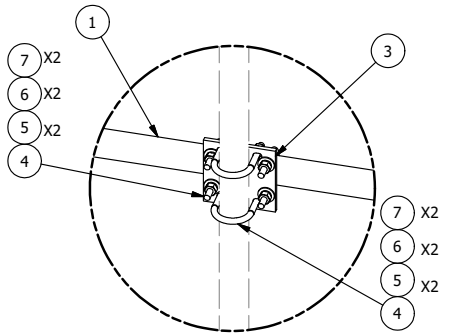
Dallas, TX

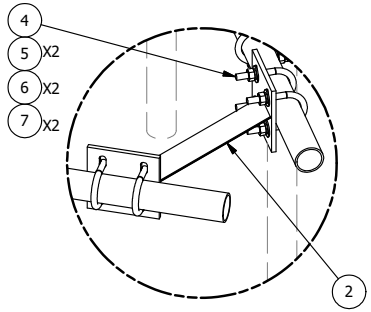
DRAWN BY	CPD NO.	DRAWING USAGE	PART NO.
CEK 1/20/2012	semb	CUSTOMER	SEE ASSEMBLY NO. "A"
ENG. APPROVAL	CHECKED BY	DWG. NO.	PAGE
	BMC 7/9/2015	RMQP-4XX	2 OF 2

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43





DETAIL A



DETAIL B

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

REVISION HISTORY

TOLERANCE NOTES

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

DESCRIPTION: **HANDRAIL KIT FOR 12'-6" FACE**

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	KC8 5/30/2012		HRK12

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 7/13/2014	HRK12

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: CTNH211B

NH211/Quaker Farms_Collo
85 Quaker Farms Road
Oxford, Connecticut 06478

November 25, 2020

EBI Project Number: 6220006023

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.97%**

November 25, 2020

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

Emissions Analysis for Site: CTNH211B - NH211/Quaker Farms_Collo

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **85 Quaker Farms Road** in **Oxford, 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 85 Quaker Farms Road in Oxford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

9) 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.

10) 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.

11) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 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.

12) The antenna mounting height centerline of the proposed antennas is 132 feet above ground level (AGL).

13) 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.

14) 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 APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE %:	**0.96%**	Antenna B1 MPE %:	**0.96%**	Antenna C1 MPE %:	**0.96%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	10,670.10	ERP (W):	10,670.10	ERP (W):	10,670.10
Antenna A2 MPE %:	**3.36%**	Antenna B2 MPE %:	**3.36%**	Antenna C2 MPE %:	**3.36%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	**7.94%**	Antenna B3 MPE %:	**7.94%**	Antenna C3 MPE %:	**7.94%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	12.26%
AT&T	3.6%
Verizon	3.11%
Site Total MPE % :	18.97%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	12.26%
T-Mobile Sector B Total:	12.26%
T-Mobile Sector C Total:	12.26%
Site Total MPE % :	18.97%

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 2100 MHz LTE	2	2334.27	132.0	9.63	2100 MHz LTE	1000	0.96%
T-Mobile 600 MHz LTE	2	591.73	132.0	2.44	600 MHz LTE	400	0.61%
T-Mobile 600 MHz NR	1	1577.94	132.0	3.26	600 MHz NR	400	0.81%
T-Mobile 700 MHz LTE	2	648.82	132.0	2.68	700 MHz LTE	467	0.57%
T-Mobile 1900 MHz GSM	4	1101.85	132.0	9.09	1900 MHz GSM	1000	0.91%
T-Mobile 1900 MHz LTE	2	1101.85	132.0	4.55	1900 MHz LTE	1000	0.45%
T-Mobile 2500 MHz LTE	1	19238.94	132.0	39.70	2500 MHz LTE	1000	3.97%
T-Mobile 2500 MHz NR	1	19238.94	132.0	39.70	2500 MHz NR	1000	3.97%
						Total:	**12.26%**

• 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:	12.26%
Sector B:	12.26%
Sector C:	12.26%
T-Mobile Maximum MPE % (Sector A):	12.26%
Site Total:	18.97%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.97%** 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.