



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

February 18, 2020

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

RE: Notice of Exempt Modification for AT&T - 824359
725 Flanders Road, Groton, CT 06340
Latitude: 41° 22' 11.74" / Longitude: -72° 0' 29.77"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 125-foot mount on the existing 130-foot Monopole Tower, located at 725 Flanders Road, Groton, CT. The tower is owned by Crown Castle and the property is owned by the Town of Groton. AT&T now intends to replace six (6) antennas with six (6) new antennas. The new antennas will be installed at the 125-ft level of the tower.

The facility was approved by the Town of Groton Zoning Commission on September 10, 1998 via Grant of Special Permit #225.

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 John Burt, Town Manager, as both the municipality and property owner, Jonathan Reiner, Director of Planning 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, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

The Foundation for a Wireless World.

CrownCastle.com

Melanie A. Bachman

Page 2

Sincerely,

Anne Marie Zsamba
Network Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:

John Burt, Town Manager
Office of the Town Manager
Town Hall
45 Fort Hill Road
Groton, CT 06340
860-441-6630

Jonathan Reiner, AICP, Director of Planning
134 Groton Long Point Road
Groton, CT 06340
860-446-5970

Crown Castle, Tower Owner

ORIGIN ID: GFLA (518) 350-3639
ANNE MARIE ZSAMBRA
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

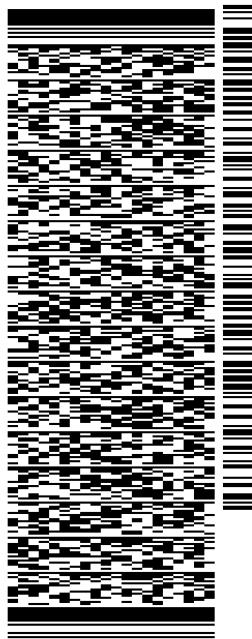
SHIP DATE: 18FEB20
ACTWGT: 3.50 LB
CAD: 104924194/INET4220

BILL SENDER

TO **MELANIE BACHMAN**
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE

NEW BRITAIN CT 06051

(860) 827-2951 REF: 1765 6880
INV: DEPT:
PO:



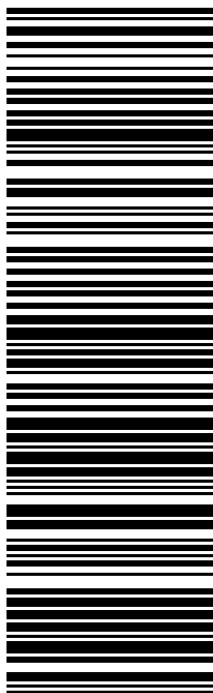
J201020011301uv

56BJ2049E/FE4A

TRK# 7777 9356 6953
0201

WED - 19 FEB 10:30A
PRIORITY OVERNIGHT

EB BDLA
06051
CT-US BDL



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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID: GFLA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 18FEB20
ACTWTGT: 1.50 LB
CAD: 104924194/INET4220

BILL SENDER

TO JOHN BURT, TOWN MANAGER

TOWN OF GROTON
TOWN HALL

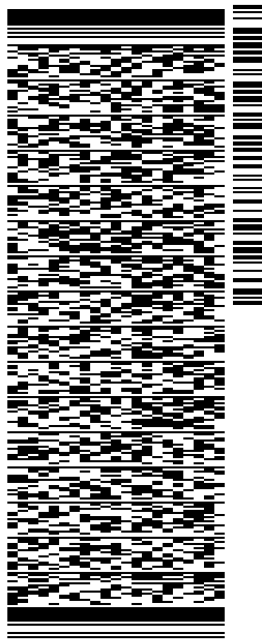
45 FORT HILL ROAD

GROTON CT 06340

(860) 441-6630 REF: 1734.7880

INV: PO: DEPT:

56BJ2049E/FE4A



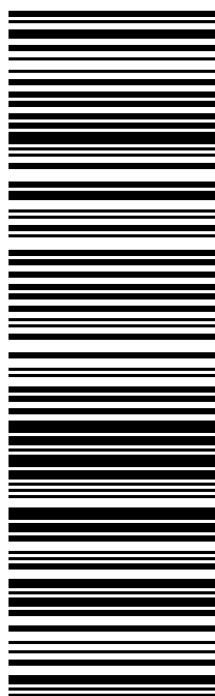
J201020011301uv

TRK# 7777 9358 4345
0201

WED - 19 FEB 10:30A
PRIORITY OVERNIGHT

EB GONA

06340
CT-US BDL



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3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

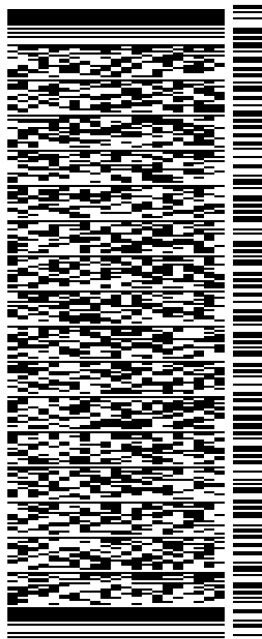
SHIP DATE: 18FEB20
ACTWTGT: 1.50 LB
CAD: 104924194/INET4220

BILL SENDER

TO JONATHAN REINER, AICP, PLANNING DIR
TOWN OF GROTON
134 GROTON LONG POINT ROAD

CENTER GROTON CT 06340

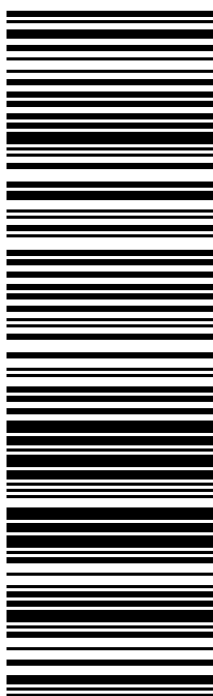
(860) 446-5970 REF: 1734.7680
INV: PO: DEPT:



56BJ2049E/FE4A

TRK# 7777 9360 4189 WED - 19 FEB 10:30A
0201 PRIORITY OVERNIGHT

EB GONA 06340
CT-US BDL



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Exhibit A

Original Facility Approval



Town of Groton

Building Inspection

CT 11-044-E

BUILDING/ZONING PERMIT APPLICATION

Please Print

Permit No. <u>98-534</u>	(office use only)
Date Permit Issued <u>11-24-98</u>	
Estimated Cost <u>\$53,000</u>	Bldg. Zon. C.O.
Fee <u>1436</u>	<u>21</u>

Address of Building Groton Landfill Flanders Road @ I-95
Zone IP-80B zone Map Block Lot
Owner Town of Groton Address 45 Fort Hill Rd. Ph. #
Contractor Conti Enterprises, Inc. Address 3001 S. Clinton Ave. South Plainfield NJ 07080
Nature of Proposed Work and Use The construction of a 150' monopole along with related equipment cabinet. Omnipoint Communications will use this site as a wireless telecommunications facility.
Plans: Yes ☒ No ☐ Type of Construction FAA REGULATIONS IF THEY APPLY FOR LIGHT TOWER
No. of Stories 150' monopole No. of Rooms N/A No. of Baths N/A
Garage N/A Breezeway N/A Fireplace N/A Heat N/A

ZONING PERMIT

(To be filled out in conjunction with a building permit involving any new structure, addition to an existing structure, or change of use.)

Flood Hazard District C HDC # N/A ZBA #
Site Plan Approval # X98-11 Special Zoning Permit # #255
Wetlands Coastal Area Management
Site Suitability # Sewer # A2 Survey
Zoning Official Signature R

I hereby certify that the proposed construction will conform to the applicable building and zoning regulations of the Town of Groton. AND ANY FAA REGULATIONS THAT APPLY.

Signed Scott E. Gustafson As Agent Date Nov. 20, 1998 Lic. # 00900869

Phone # (203) 855-5428 Building Official Approval R

NO BUILDING OR STRUCTURE SHALL BE OCCUPIED OR USED, UNTIL A
CERTIFICATE OF OCCUPANCY HAS BEEN ISSUED.

VOL 673 PAGE 538

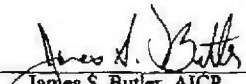
TOWN OF GROTON
ZONING COMMISSION

NOTICE OF GRANT OF SPECIAL PERMIT #225

This is to certify that on September 2, 1998 the Zoning Commission of the Town of Groton granted a Special Permit under Section 7.1-41 of the Zoning Regulations as follows:

1. Owner of Record: Town of Groton (Omnipoint Communications, Inc., Applicant)
2. Description of the premises: 741 Flanders Road
3. Description of the special permit:
Erection of a 150' telecommunications tower and associated equipment cabinet.

ZONING COMMISSION

by 
James S. Butler, AICP
Director of Planning

Date: September 10, 1998

NOTE: This notice is to be recorded on the Land Records of the Town of Groton, indexed in the grantor's index under the name of the record owner.

RECEIVED FOR RECORD AT GROTON, CONN.
ON 9-22-98 AT 12:44 PM
ATTEST BARBARA TARBOX, TOWN CLERK

Exhibit B

Property Card

Parcel Details

Property Type:	EXEMPT
District:	POQUONNOCK BRIDGE FIRE DISTRICT
PIN:	260910266458 E
Property Location:	685 FLANDERS RD
Owner:	GROTON TOWN OF TRANSFER STATION
In Care Of:	
Mailing Address:	741 FLANDERS RD
City:	MYSTIC
State:	CT
Zip:	06355
Acreage:	166.33
Zoning:	IP-80B
Use Code:	MUNICIPALITY
CT Grand List Code:	COMMERCIAL
Living Units:	
Neighborhood:	3010
Deed Book:	230
Deed Page:	536
Land Value:	\$ 8,983,200.00
Building Value:	\$ 348,900.00
Total Value:	\$ 9,332,100.00
Gross Assessed Value:	\$ 6,532,470.00

House Pictures



TAX DIVISION - TOWN OF GROTON

TAX DIVISION - TOWN OF GROTON
45 Fort Hill Road
Groton, CT 06340
(860) 441-6670

Bill Information



Taxpayer Information

Bill #	2017-2-0201683 (PERSONALPROPERTY)	Town Benefit	
Unique ID	225180	Elderly Benefit	
District/Flag	District: 2		
Name	T-MOBILE NORTHEAST LLC	Assessment	208,920
Care of/DBA	C/O PROP TAX DEPT / B BAYS / F/K/A OMNIPONT COMMUNIC	Exemption	0
Address		Net	208,920
Detail Information	741 FLANDERS RD		
Volume/Page		Mill Rate	Town 24.17 District 5.97 Other 0.27

Bill Information As of 07/16/2019

Installment	Due Date	Town	District		Total Due
Inst #1	07/01/2018	2,524.80	1,247.25	56.41	
Inst #2	01/01/2019	2,524.80			Tax/ Princ/ Bond Due 0.00
Inst #3					Interest Due 0.00
Inst #4					Lien Due 0.00
Total Adjustments		0.00	0.00		Fee Due 0.00
Total Installment + Adjustment		5,049.60	1,247.25	56.41	Total Due Now 0.00
Total Payments		6,353.26			Balance Due 0.00

*** Note: This is not a tax form, please contact your financial advisor for information regarding tax reporting. ***

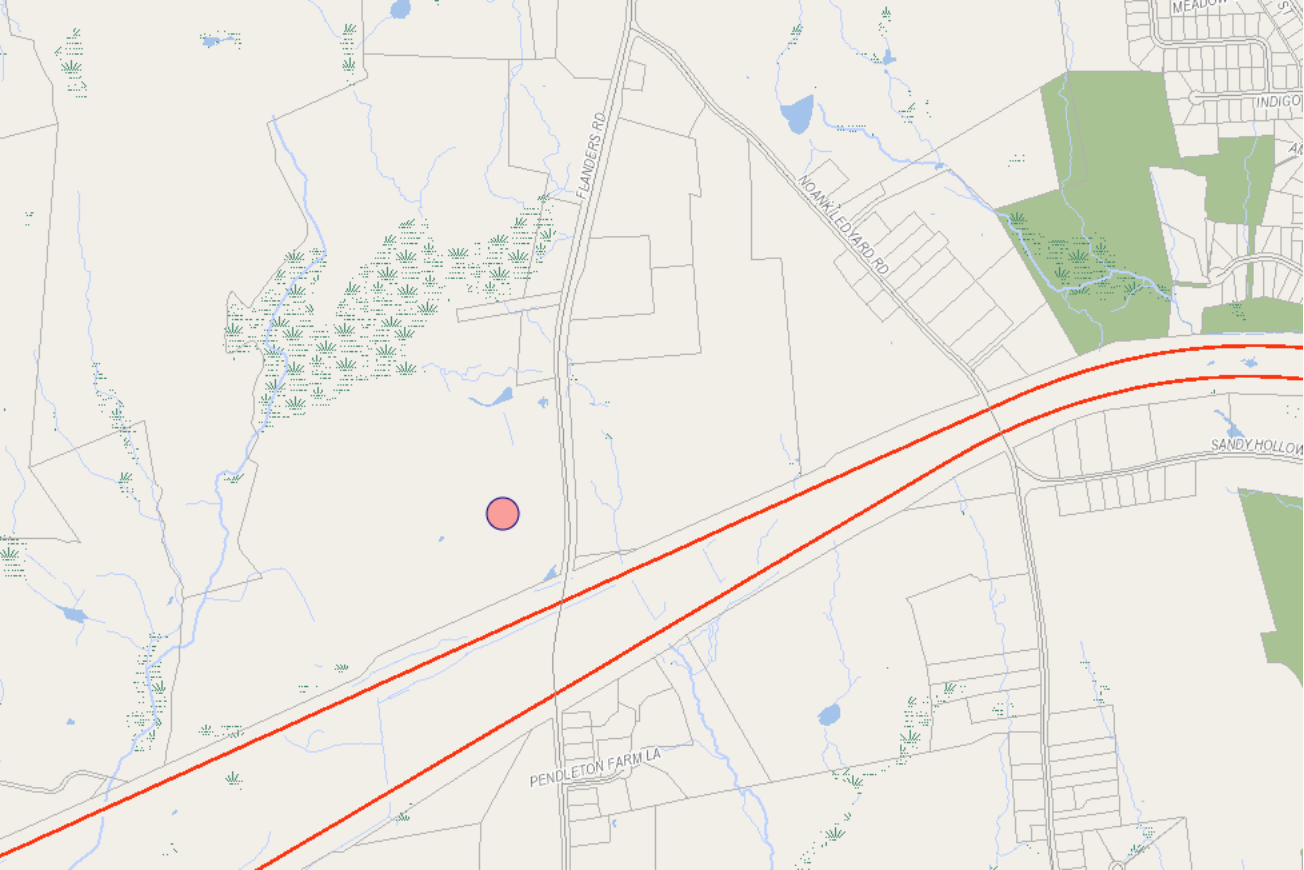


Exhibit C

Construction Drawings

AT&T SITE NUMBER: CT5225
AT&T SITE NAME: GROTON CENTRAL
AT&T FA CODE: 10099983
AT&T PACE NUMBER: MRCTB043950, MRCTB043941,
MRCTB043973, MRCTB043930,
MRCTB043968
SITE TYPE: MONOPOLE



BUSINESS UNIT #: 824359
SITE ADDRESS: 741 FLANDERS RD
MYSTIC, CT 06355
COUNTY: NEW LONDON
TOWER HEIGHT: 133'-0"

PROJECT: AT&T LTE 2C,3C,4C, 5G NR

SITE INFORMATION

CROWN CASTLE USA INC. GROTON/I-95/X89/NOA_1
SITE NAME:
SITE ADDRESS: 741 FLANDERS RD
MYSTIC, CT 06355
COUNTY: NEW LONDON
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 41.3688919
LONGITUDE: -72.007800
LAT/LONG TYPE: NAD83
OCCUPANCY CLASSIFICATION: U
TYPE OF CONSTRUCTION: IIB
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR
HUMAN HABITATION
TOWER OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CARRIER/APPLICANT: AT&T MOBILITY
ONE AT&T WAY
BEDMINSTER, NJ 07921
CROWN CASTLE USA INC.
APPLICATION ID: 507190

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	EQUIPMENT PLAN
C-3	TOWER ELEVATIONS
C-4	ANTENNA ORIENTATION
C-5	ANTENNA SCHEDULE
C-6	ANTENNA AND RRH SPECS.
C-7	ANTENNA AND RRH DETAIL
C-8	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17.
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 PROPOSE AN ANTENNA
MODIFICATION ON AN EXISTING WIRELESS SITE.

TOWER SCOPE OF WORK

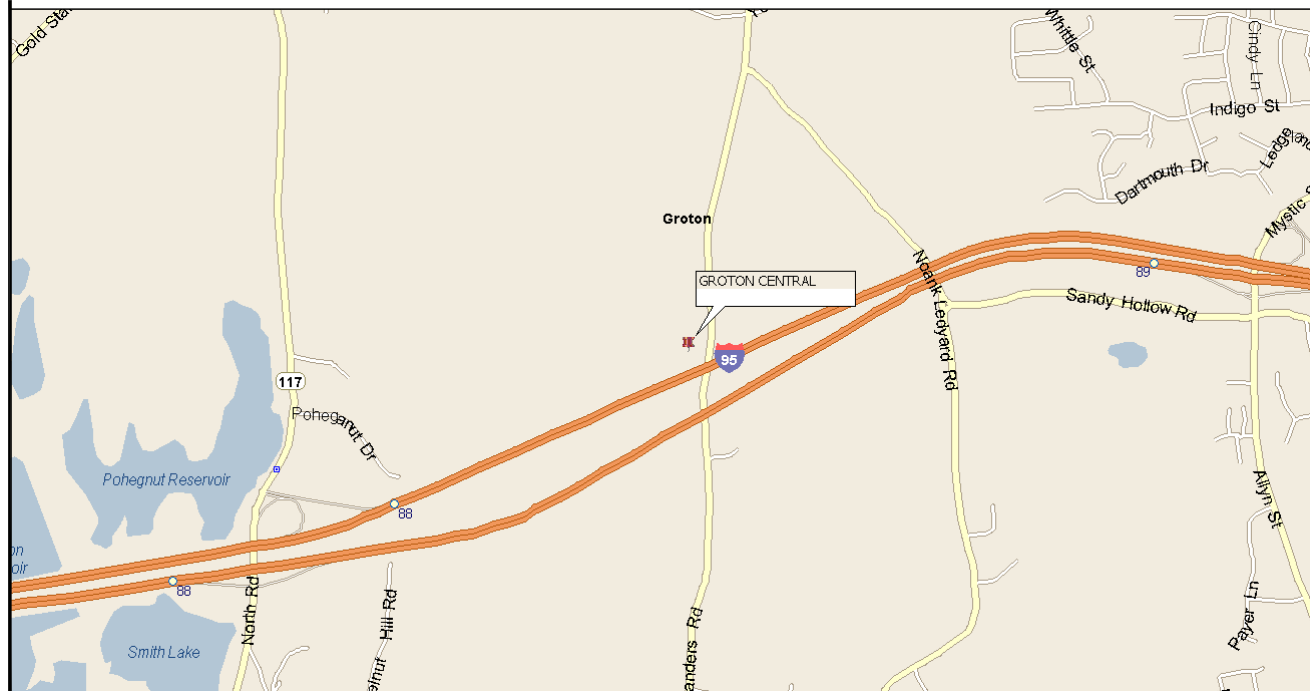
- REMOVE (1) KMW AM-X-CD-17-65-00T-RET ANTENNAS
- REMOVE (2) ANDREW SBNH-1D6565C ANTENNAS
- REMOVE (3) POWERWAVE 7770 ANTENNA
- REMOVE (3) ERICSSON RRUS11 B12 RRH
- RELOCATE (2) POWERWAVE 7770 ANTENNAS
- RELOCATE (4) POWERWAVE LGP 21401 TMS
- INSTALL (2) CCI DMP65R-BU8DA ANTENNA
- INSTALL (4) CCI DMP65R-BU4DA ANTENNA
- INSTALL (3) ERICSSON 4449 B5/B12 RRH
- INSTALL (3) ERICSSON 4478 B14 RRH
- INSTALL (3) ERICSSON 8843 B2/B66A RRH
- INSTALL (1) RAYCAP - DC9-48-60-24-8C-EV SURGE SUPPRESSOR
- INSTALL (1) ROSENBERGER LEONI - FB-L98B-034-XX FIBER TRUNK
- INSTALL (3) ROSENBERGER LEONI - WR-VG66ST-BRD DC TRUNK

GROUND SCOPE OF WORK

- REMOVE (1) XMU
 - INSTALL (2) 6630+IDLE
- DESIGN PACKAGE BASED
ON THE RFDS
REVISION: PRELIMINARY
DATE: 9/11/19

DESIGN PACKAGE BASED
ON THE APPLICATION
ID: 507190
REVISION: 0

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
BUILDING
MECHANICAL
ELECTRICAL

CODE
2018 BUILDING CODE OF CONNECTICUT
2018 MECHANICAL CODE OF CONNECTICUT
2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: KIMLEY-HORN
JUNE 12, 2019

MOUNT ANALYSIS: TOWER ENGINEERING
PROFESSIONALS
NOVEMBER 26, 2019

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



CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!



AT&T SITE NUMBER:
CT5225
BU #: 824359
GROTON/I-95/X89/NOA_1

741 FLANDERS RD
MYSTIC, CT 06355

EXISTING 133'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	1/29/20	MTJ	CONSTRUCTION	FWP
1	2/11/20	MTJ	CONSTRUCTION	FWP



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET NUMBER:

T-1

REVISION:

1

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. 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 SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. 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, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. 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.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. 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 PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. 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 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 THE ANSI/TIA–322 (LATEST EDITION).

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4") CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

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. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

CONCRETE CAST AGAINST EARTH.....3 IN.

CONCRETE EXPOSED TO EARTH OR WEATHER:

#6 AND LARGER.....2 IN.

#5 AND SMALLER & WWF.....1 1/2 IN.

CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:

SLAB AND WALLS.....3/4 IN.

BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR–GENERAL CONTRACTOR (CONSTRUCTION)

SUBCONTRACTOR–AT&T

CARRIER–CROWN CASTLE USA INC.

TOWER OWNER–ORIGINAL EQUIPMENT MANUFACTURER

OEM–
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND CROWN CASTLE USA INC.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR 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.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

AGL

ABOVE GRADE LEVEL

BTS

BASE TRANSCIVER STATION

EX

EXISTING

MIN

MINIMUM

REF

REFERENCE

RF

RADIO FREQUENCY

T.B.D.

TO BE DETERMINED

T.B.R.

TO BE RESOLVED

TYP

TYPICAL

REQ

REQUIRED

EGR

EQUIPMENT GROUND RING

AWG

AMERICAN WIRE GAUGE

MCB

MASTER GROUND BAR

EQ

EQUIPMENT GROUND

BCW

BARE COPPER WIRE

SIAD

SMART INTEGRATED ACCESS DEVICE

GEN

GENERATOR

IGR

INTERIOR GROUND RING (HALO)

RBS

RADIO BASE STATION

SYMBOLS:

 SOLID GROUND BUS BAR

 SOLID NEUTRAL BUS BAR

 SUPPLEMENTAL GROUND CONDUCTOR

 2–POLE THERMAL–MAGNETIC CIRCUIT BREAKER

 SINGLE–POLE THERMAL–MAGNETIC CIRCUIT BREAKER

 CHEMICAL GROUND ROD

 TEST WELL

 DISCONNECT SWITCH

 METER

 EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)

 MECHANICAL CONNECTION

 GROUNDING WIRE

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. SUBCONTRACTOR 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. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE USA INC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND 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.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
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 AT NO 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) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) 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 NEC.
21. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES 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 BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "AT&T".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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 SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR 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 AWG 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 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG 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 AWG 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 WIRES WITH 1–#2 AWG TIN–PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND 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 PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., 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 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE		
DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED–POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK–POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE OR PURPLE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)



ONE AT&T WAY
BEDMINSTER, NJ 07921



3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406



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

AT&T SITE NUMBER:
CT5225

BU #: 824359
GROTON/I-95/X89/NOA_1

741 FLANDERS RD
MYSTIC, CT 06355

EXISTING 133'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	1/29/20	MTJ	CONSTRUCTION	FWP
1	2/11/20	MTJ	CONSTRUCTION	FWP



2/11/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

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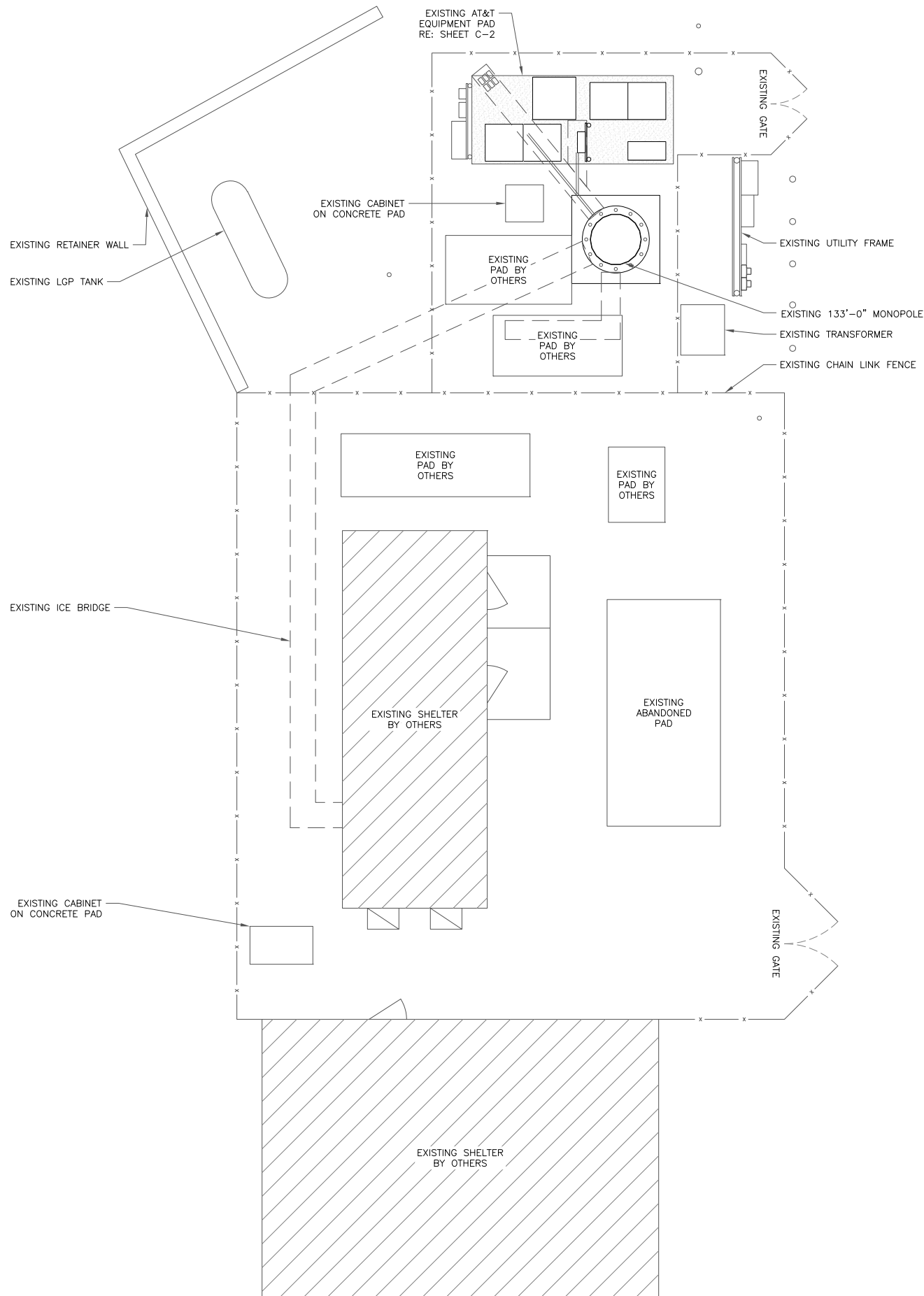
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T-2

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1

AT&T_137216_824359_Groton-I-95-X89-Noa_1.dwg - Sheet C-1 - User: m.jones - Feb 11, 2020 - 2:54pm



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



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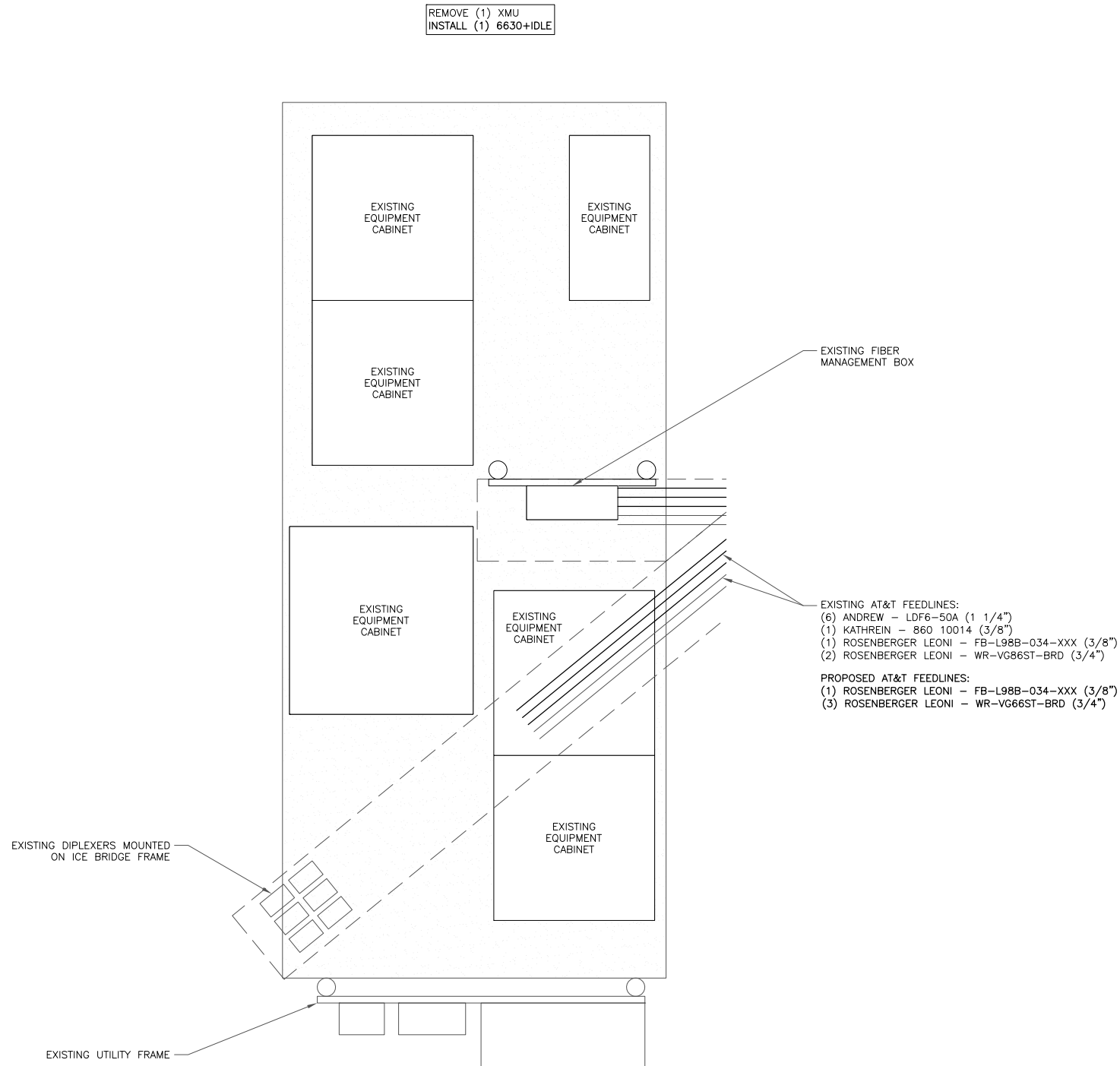
SHEET NUMBER:

C-1

REVISION:

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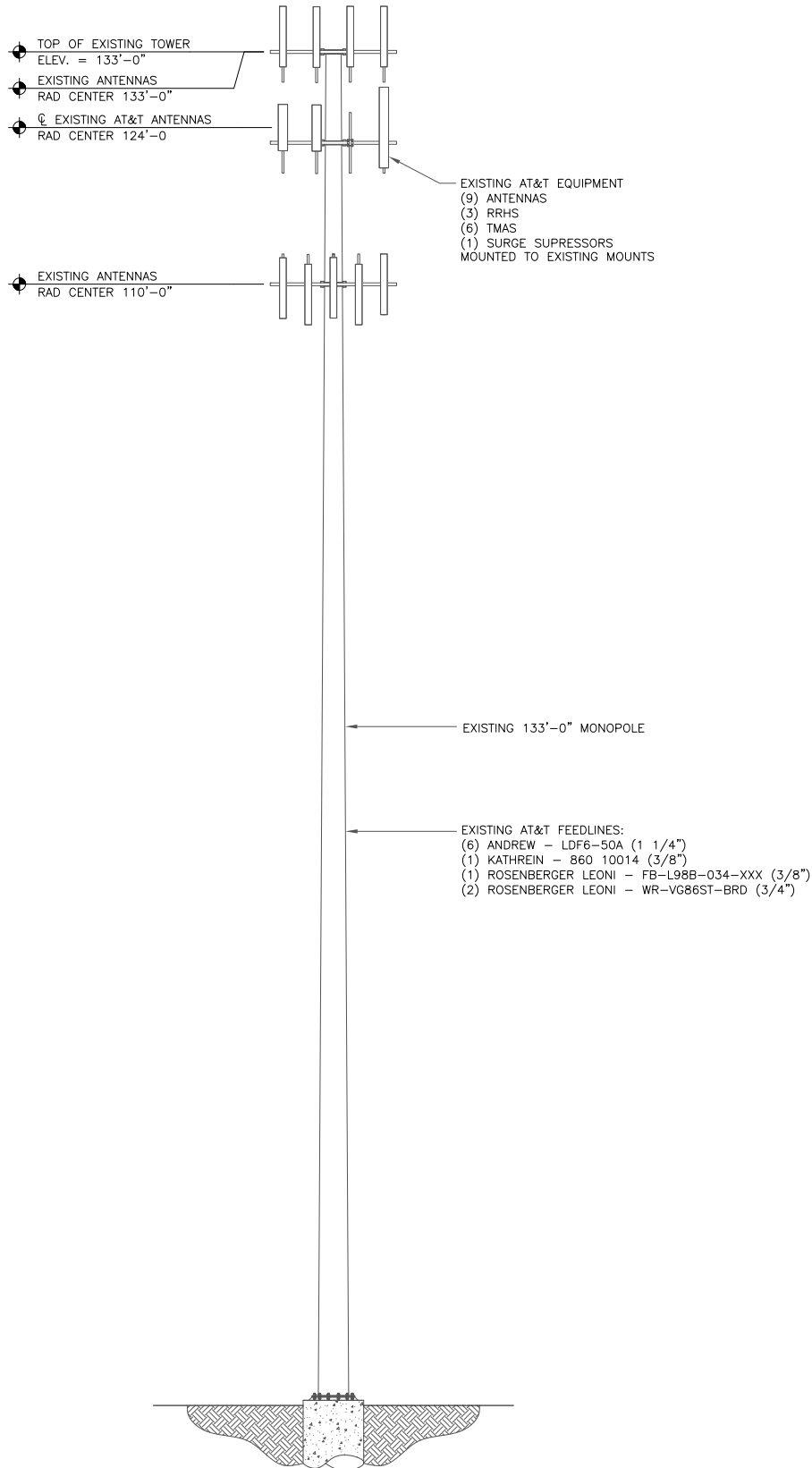
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AT&T EQUIPMENT

ANTENNA CL: 124'-0
MOUNT CL: 125'-0"



1 EXISTING ELEVATION
SCALE: NOT TO SCALE

AT&T EQUIPMENT

ANTENNA CL: 124'-0
MOUNT CL: 125'-0"



2 FINAL ELEVATION
SCALE: NOT TO SCALE



ONE AT&T WAY
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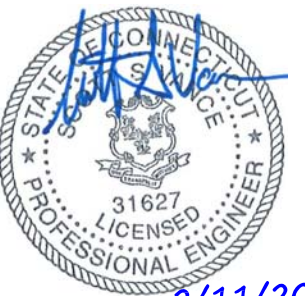
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2/11/20

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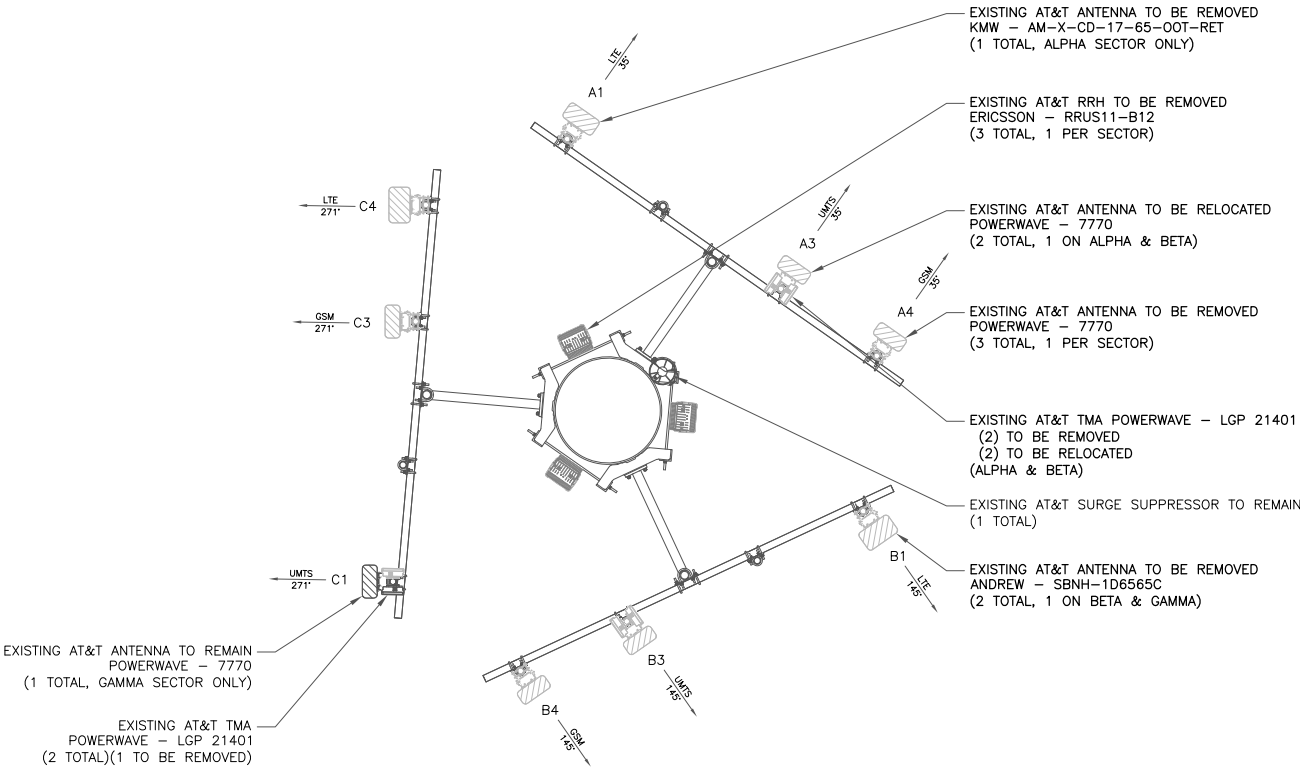
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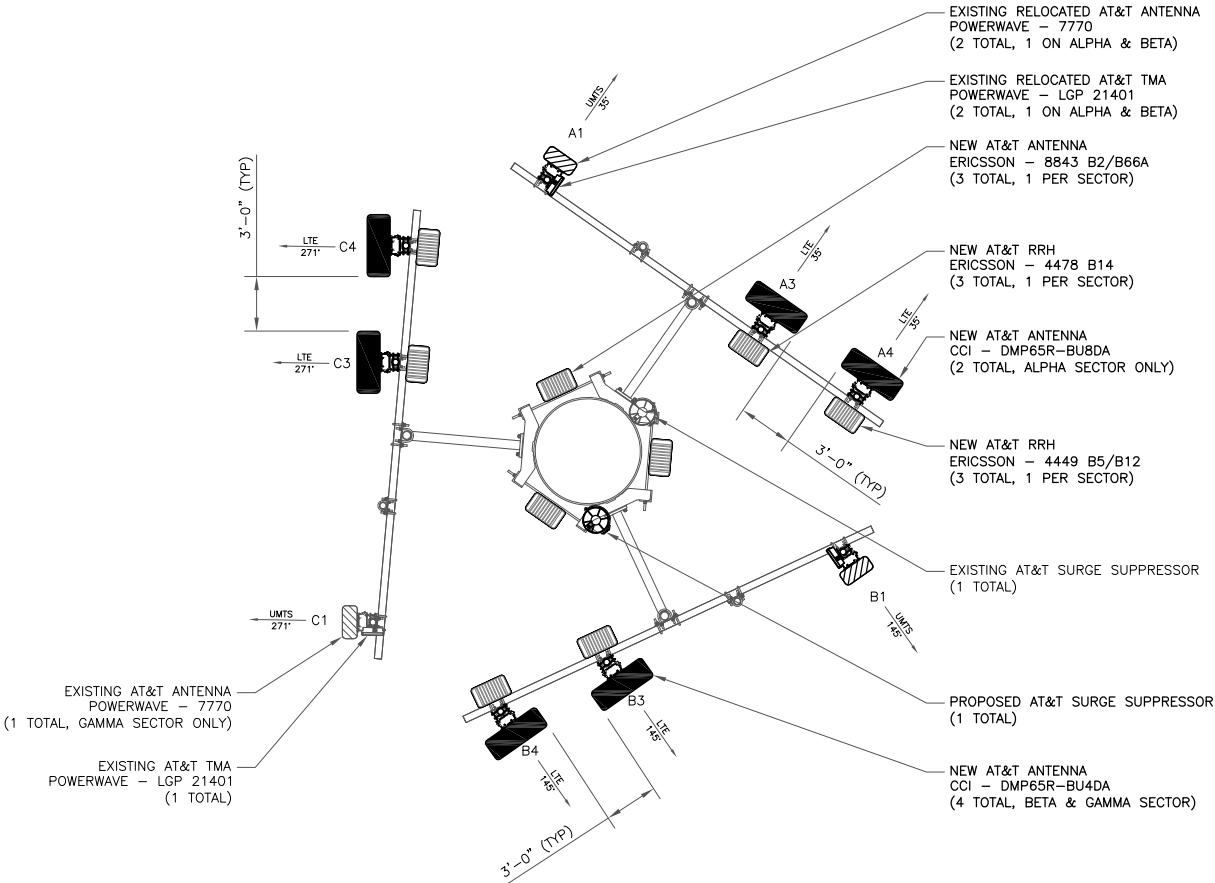
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C-4

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1 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



2 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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FINAL ANTENNA AND COAXIAL CABLE SCHEDULE																			
POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	RAYCAP	DC (WR-VG86ST-BRD) FIBER CABLES (FB-L98B-034-XXXXXX)	RRHs QTY ON TOWER	RRHs ON GROUND	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE	
ALPHA SECTOR																			
A1	UMTS	EXISTING	35°	POWERWAVE 7770	124'-0	0°	0°	1 1/4"	178'-0"	2	(2) LGP 21401	DC6-48-60-18-8F	(1) FIBER (2) DC LINES	-	-	-	Y	Y	
A2	-	-	-	-	-	-	-	1 1/4"	-	2	-			-	-	-	-	-	-
A3	LTE	NEW	35°	CCI DMP65R-BU8DA	124'-0	0°	3°/3°	-	178'-0"	-	-			(1) 4478 B14	-	-	-	-	Y
A4	LTE	NEW	35°	CCI DMP65R-BU8DA	124'-0	0°	3°/3°/3°/3°	-	178'-0"	-	-			(1) 4449 B5/B12 (1) 8843 B2/B66A	-	-	-	-	Y
BETA SECTOR																			
B1	UMTS	EXISTING	145°	POWERWAVE 7770	124'-0	0°	0°	1 1/4"	178'-0"	2	(2) LGP 21401	DC9-48-60-24-8C-EV	(1) FIBER (3) DC LINES	-	-	-	Y	Y	
B2	-	-	-	-	-	-	-	1 1/4"	-	2	-			-	-	-	-	-	-
B3	LTE	NEW	145°	CCI DMP65R-BU4DA	124'-0	0°	10°/8°	-	178'-0"	-	-			(1) 4478 B14	-	-	-	-	Y
B4	LTE	NEW	145°	CCI DMP65R-BU4DA	124'-0	0°	10°/10°/8°/10°	-	178'-0"	-	-			(1) 4449 B5/B12 (1) 8843 B2/B66A	-	-	-	-	Y
GAMMA SECTOR																			
C1	UMTS	EXISTING	271°	POWERWAVE 7770	124'-0	0°	0°	1 1/4"	178'-0"	2	(2) LGP 21401	-	-	-	-	-	Y	Y	
C2	-	-	-	-	-	-	-	1 1/4"	-	2	-			-	-	-	-	-	-
C3	LTE	NEW	271°	CCI DMP65R-BU4DA	124'-0	0°	10°/5°	-	178'-0"	-	-			(1) 4478 B14	-	-	-	-	Y
C4	LTE	NEW	271°	CCI DMP65R-BU4DA	124'-0	0°	10°/10°/5°/10°	-	178'-0"	-	-			(1) 4449 B5/B12 (1) 8843 B2/B66A	-	-	-	-	Y

NOTE: BOLD DENOTES NEW EQUIPMENT



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CT5225

BU #: **824359**
GROTON/I-95/X89/NOA_1

741 FLANDERS RD
MYSTIC, CT 06355

EXISTING 133'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	1/29/20	MTJ	CONSTRUCTION	FWP
1	2/11/20	MTJ	CONSTRUCTION	FWP



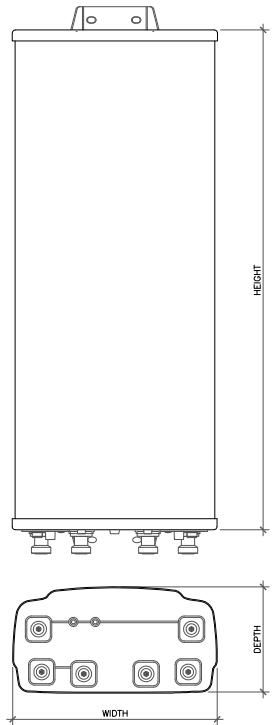
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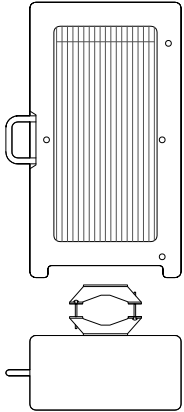
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C-5

REVISION:
1



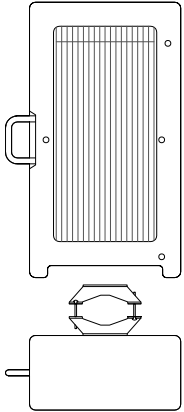
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DMP65R-BU8DA	96"	20.7"	7.7"	95.7 lbs
DMP65R-BU4DA	48"	20.7"	7.7"	67.9 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



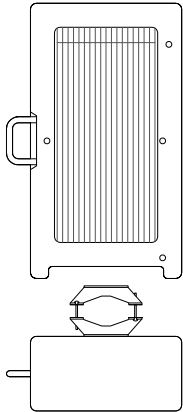
ERICSSON - 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 71.0 LBS
SIZE (HxWxD): 17.9x13.19x9.44 IN.

2 RRH DETAIL
SCALE: NOT TO SCALE



ERICSSON - 8843 B2/B66A
WEIGHT (FULLY EQUIPPED): 72.0 LBS
SIZE (HxWxD): 14.9x13.2x10.9 IN.

3 RRH DETAIL
SCALE: NOT TO SCALE



ERICSSON - 4478 B14
WEIGHT (FULLY EQUIPPED): 59.4 LBS
SIZE (HxWxD): 18.1x13.4x8.26 IN.

4 RRH DETAIL
SCALE: NOT TO SCALE



AT&T

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CROWN
CASTLE

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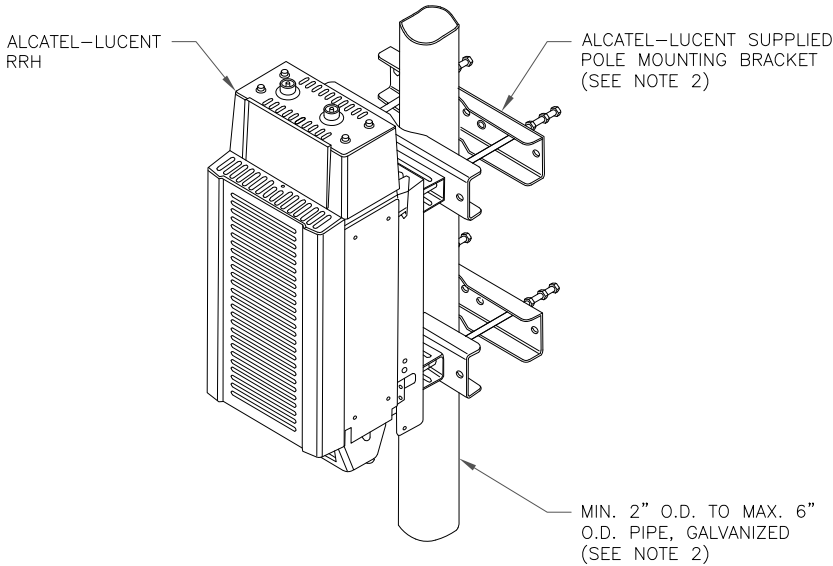
REVISION:
1

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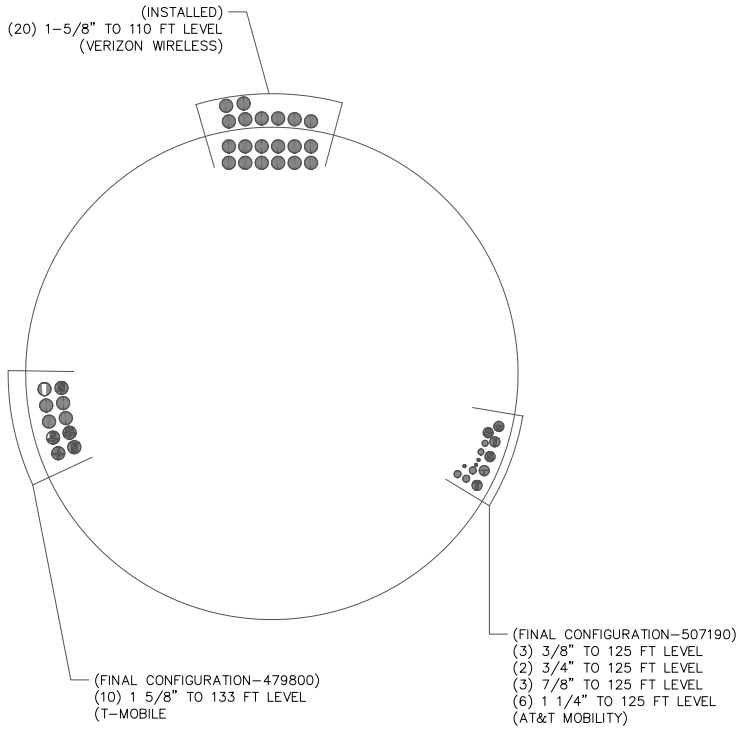
1.
- ALCATEL-LUCENT (ALU) VIA AT&T SUPPLIES RRH, RRH POLE-MOUNTING BRACKET. SUBCONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ALU RRH POLE-MOUNTING BRACKET. ALU INSTALLS RRH AND MAKES CABLE TERMINATIONS.

2.
- FOR POLE DIAMETERS FROM 6" TO 15", ALCATEL-LUCENT CAN SUPPLY A PAIR OF POLE MOUNTING METAL BANDS WITH BOLTING WELDMENT.

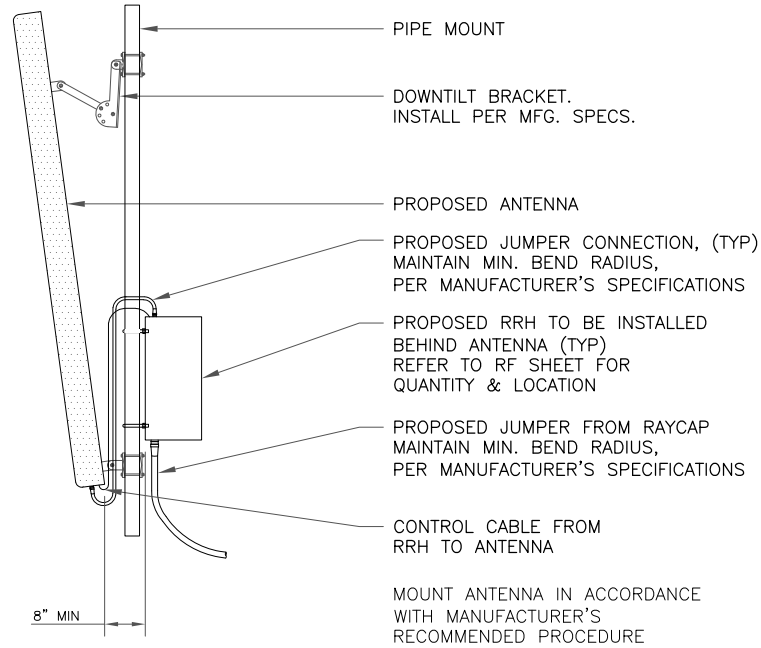
3.
- NO PAINTING OF THE RRH OR SOLAR SHIELD IS ALLOWED



1 RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



2 BASE LEVEL DRAWING
SCALE: NOT TO SCALE



3 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE



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2/11/20

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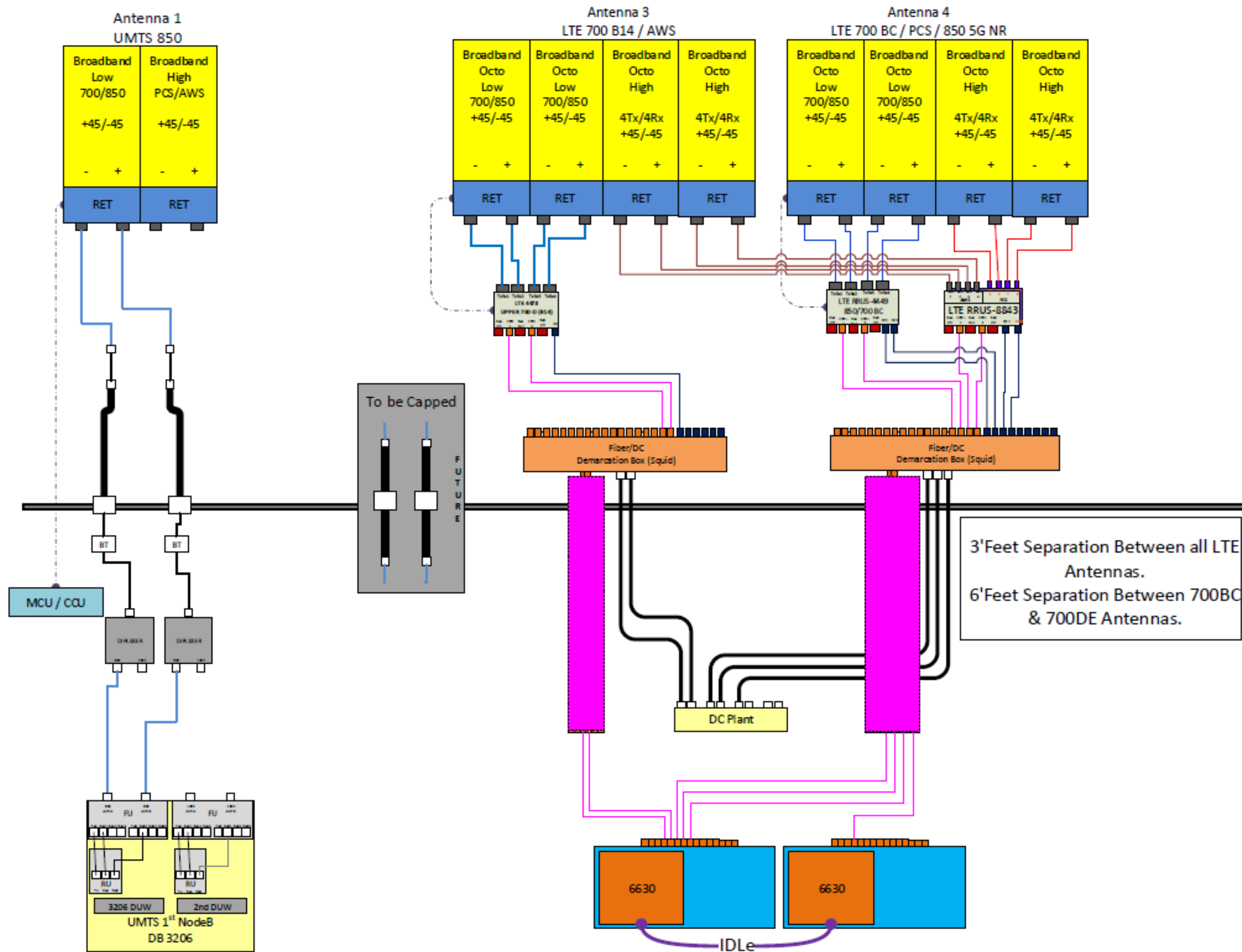
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SHEET NUMBER: REVISION:

C-7

1

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AT&T SITE NUMBER:
CT5225

BU #: 824359
GROTON/I-95/X89/NOA_1

741 FLANDERS RD
MYSTIC, CT 06355

EXISTING 133'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	1/29/20	MTJ	CONSTRUCTION	FWP
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SHEET NUMBER: C-8
REVISION: 1

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE



NOTES:

NOTES:

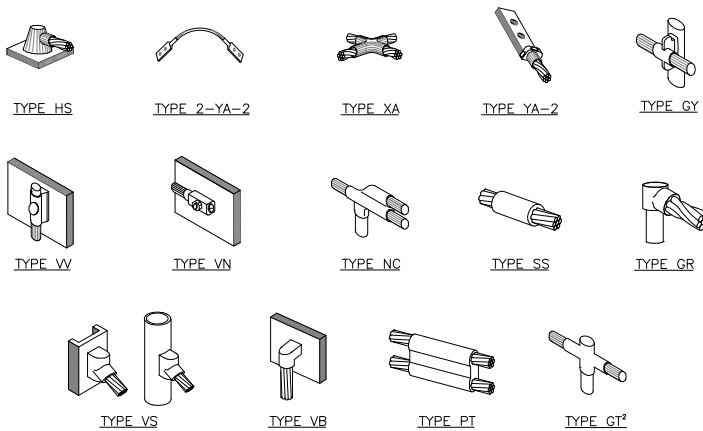
NOTES:

SINGLE CONNECTOR AT GROUND BARS



NOTES:

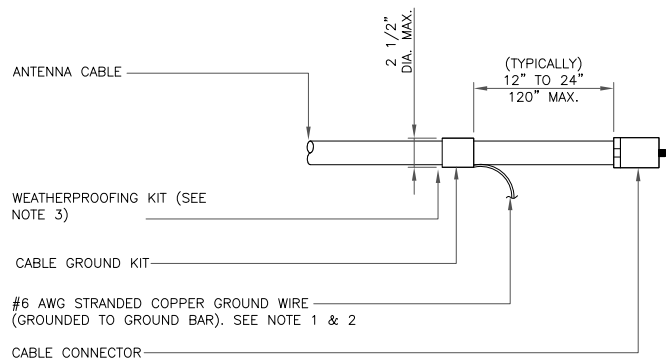
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NOTE:

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.

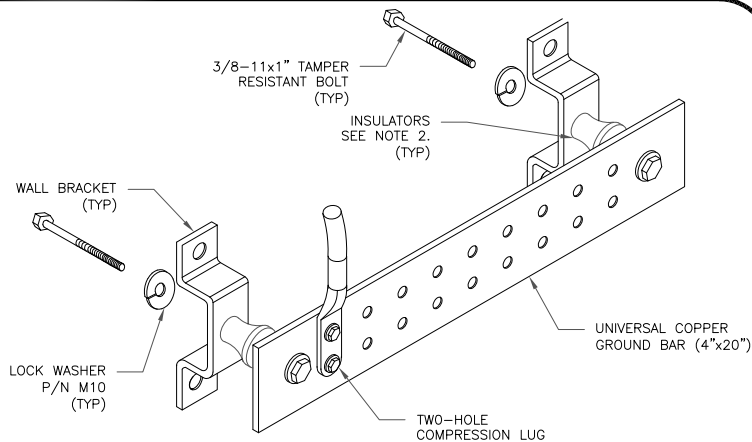
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



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.

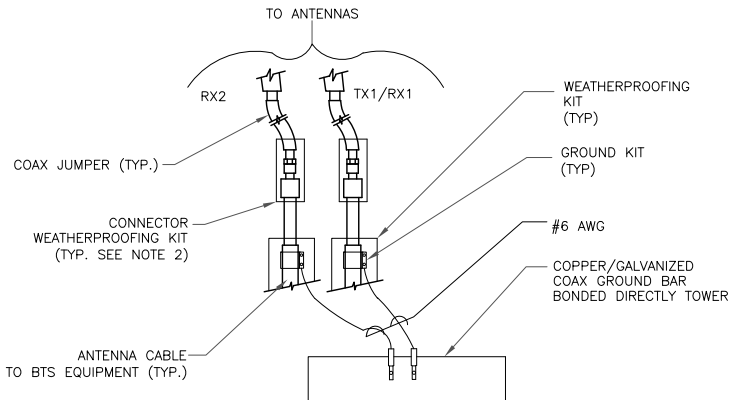
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. 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.

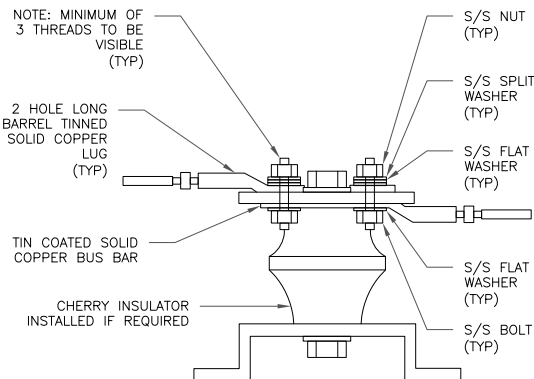
6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

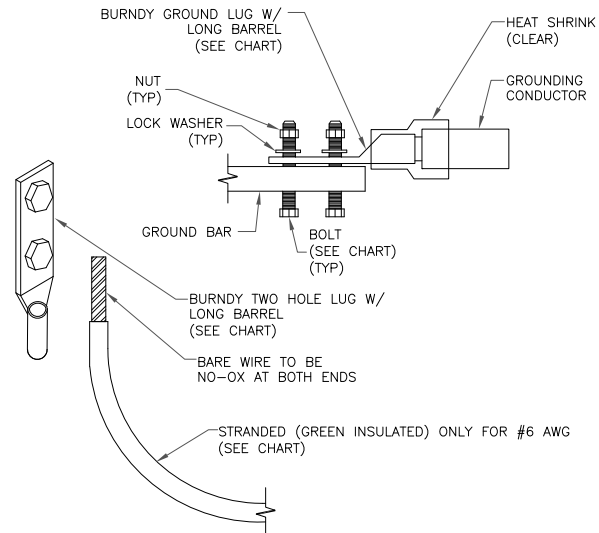
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

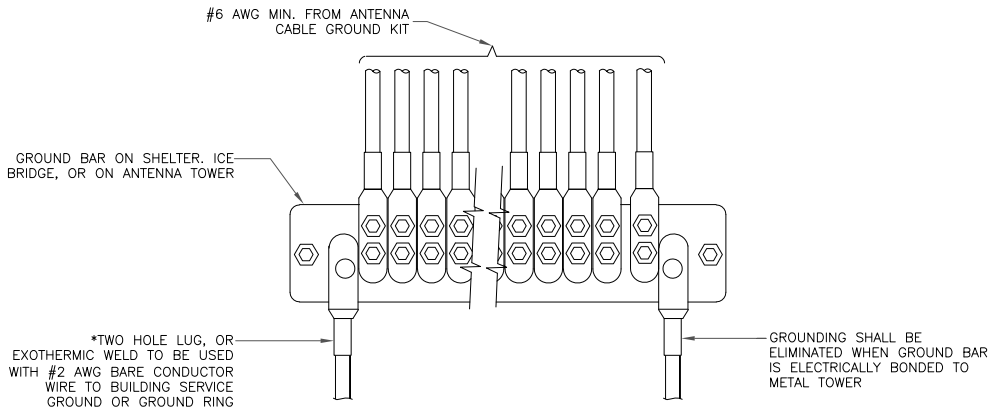
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



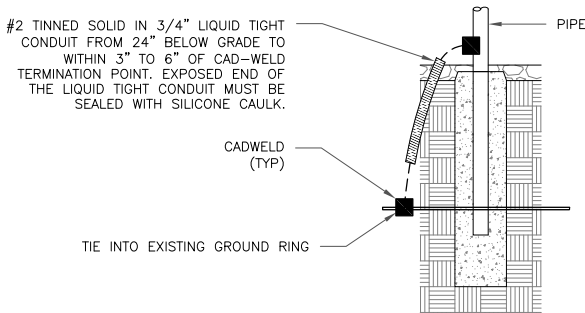
NOTES:

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



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



AT&T SITE NUMBER:
CT5225

BU #: 824359
GROTON/I-95/X89/NOA_1

741 FLANDERS RD
MYSTIC, CT 06355

EXISTING 133'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	1/29/20	MTJ	CONSTRUCTION	FWP
1	2/11/20	MTJ	CONSTRUCTION	FWP



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Exhibit D

Structural Analysis Report

Date: **December 12, 2019**

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



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:

AT&T Mobility Co-Locate

Carrier Site Number:

10099983

Carrier Site Name:

Groton Central

Crown Castle Designation:

Crown Castle BU Number:

824359

Crown Castle Site Name:

Groton/ I-95/ X89/ Noa_1

Crown Castle JDE Job Number:

593198

Crown Castle Work Order Number:

1805051

Crown Castle Order Number:

507190 Rev. 0

Engineering Firm Designation:

TEP Project Number:

217406.333606

Site Data:

725 Flanders Rd., Groton, New London County, CT 06340

Latitude 41° 22' 11.74", Longitude -72° 0' 29.77"

130 Foot - Monopole Tower

Dear Denice Nicholson,

Tower Engineering Professionals 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—90.3%

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Todd Lester, P.E. / CJB

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

12/12/2019

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tnxTower Output

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Base Level Drawing

7) APPENDIX C

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1) INTRODUCTION

This tower is a 130-ft monopole tower designed by Pirod. The modifications designed by Structural Components in October of 2010 were determined to be ineffective and not considered structurally in this analysis. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	C
Topographic Factor:	1.0
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)
125.0	128.0	4	CCI Antennas	DMP65R-BU4D w/ Mount Pipe	3 2 3 6	3/8 3/4 7/8 1-1/4
		2	CCI Antennas	DMP65R-BU8D w/ Mount Pipe		
		3	Powerwave Technologies	7770.00 w/ Mount Pipe		
	125.0	1	Tower Mounts	T-Arm Mount [TA 601-3]		
		1	Tower Mounts	Side Arm Mount [SO 102-1]		
	121.0	3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Powerwave Technologies	LGP21401		
		1	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC9-48-60-24-8C-EV		

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)
133.0	133.0	1	Tower Mounts	Platform Mount [LP 405-1]	10	1-5/8
		3	SitePro 1	PRK-SFS-L		
	132.0	3	Ericsson	AIR 21 B4A B2P w/ Mount Pipe		
		3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe		
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Ericsson	KRY 112 144/1		
127.0	127.0	1	Tower Mounts	Side Arm Mount [SO 102-1]	-	-
	122.0	3	Ericsson	TME-RRUS 11		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	110.0	6	Antel	LPA-80063/6CF w/ Mount Pipe	20	1-5/8
		3	Commscope	LNx-6514DS-A1M w/ Mount Pipe		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
		1	Tower Mounts	Platform Mount [LP 303-1]		
	109.0	6	Commscope	HBXX-6517DS-A2M w/ Mount Pipe		
		3	Alcatel Lucent	RRH2x60-PCS		
		3	Alcatel Lucent	RRH2x60-AWS		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	French & Parrello Associates, P.A.	3472178	CCISites
Tower Foundation Mapping	FDH	3804602	CCISites
Tower Manufacturer Drawings	Pirod	3472179	CCISites
Reinforcement Drawings	Structural Components	3472526	CCISites

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
- 3) All tower components are in sufficient condition to carry their full design capacity.
- 4) 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.
- 5) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
- 6) When applicable, the effective projected area (EPA) of appurtenances was determined by computation fluid dynamics (CFD) testing performed by Crown Castle. TEP assumes the means and methods used to determine the EPA's yields results that follow the intent of TIA-222-H and are accurate and complete.
- 7) The modifications designed by Structural Components in October of 2010 were determined to be ineffective and not considered structurally in this analysis.
- 8) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals 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)	ΦP_{allow} (K)	% Capacity	Pass / Fail
L1	130 - 120	Pole	P30x3/8	1	-8.20	1376.61	13.5	Pass
L2	120 - 100	Pole	P36x3/8	2	-15.38	1564.60	37.3	Pass
L3	100 - 80	Pole	P42x3/8	3	-20.43	1752.31	55.2	Pass
L4	80 - 60	Pole	P48x3/8	4	-27.91	1939.86	67.5	Pass
L5	60 - 40	Pole	P54x3/8	5	-34.83	2127.30	76.7	Pass
L6	40 - 20	Pole	P60x3/8	6	-42.39	2314.65	83.0	Pass
L7	20 - 0	Pole	P60x3/4	7	-55.54	5506.44	49.0	Pass
							Summary	
						Pole (L6)	83.0	Pass
						RATING =	83.0	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2,3	Flange Connection	120.0	13.5	Pass
1,2,3	Flange Connection	100.0	37.9	Pass
1,2,3	Flange Connection	80.0	57.8	Pass
1,2,3	Flange Connection	60.0	71.7	Pass
1,2,3	Flange Connection	40.0	76.7	Pass
1,2,3	Flange Connection	20.0	83.0	Pass
1,2	Anchor Rods	-	54.2	Pass
1,2,3	Base Plate	-	54.2	Pass
1,2	Base Foundation Soil Interaction	-	90.3	Pass
1,2	Base Foundation Structural	-	72.7	Pass

Structure Rating (max from all components) =	90.3%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5
- 3) Base/Flange plates are assumed to have the same capacity as their respective splice bolts or shaft.

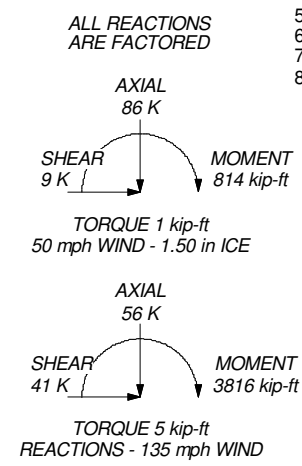
4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) 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

1	P30x3/8	10.00	A53-B-42	1.2
2	P36x3/8	20.00		2.9
3	P42x3/8	20.00		3.3
4	P48x3/8	20.00		3.8
5	P54x3/8	20.00		4.3
6	P60x3/8	20.00	9.5	4.8
7	P60x3/4	20.00		9.5
Length (ft)				29.8
Grade				
Weight (K)				



DESIGNED APPURTENANCE LOADING

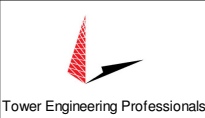
TYPE	ELEVATION	TYPE	ELEVATION
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	133	(2) DMP65R-BU4D w/ Mount Pipe	125
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	133	LGP21401	125
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	133	LGP21401	125
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	133	RRUS 4478 B14	125
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	133	(2) RRUS 4478 B14	125
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	133	RRUS 4449 B5/B12	125
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	133	(2) RRUS 4449 B5/B12	125
(2) KRY 112 144/1	133	RRUS 8843 B2/B66A	125
KRY 112 144/1	133	(2) RRUS 8843 B2/B66A	125
APXVAARR24_43-U-NA20 w/ Mount Pipe	133	DC6-48-60-18-8F	125
APXVAARR24_43-U-NA20 w/ Mount Pipe	133	DC9-48-60-24-8C-EV	125
APXVAARR24_43-U-NA20 w/ Mount Pipe	133	T-Arm Mount [TA 601-3]	125
RADIO 4449 B12/B71	133	Side Arm Mount [SO 102-1]	125
RADIO 4449 B12/B71	133	2.4" Dia. x 6-ft	125
RADIO 4449 B12/B71	133	2.4" Dia. x 6-ft	125
Platform Mount [LP 405-1]	133	(2) LPA-80063/6CF w/ Mount Pipe	110
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	133	(2) LPA-80063/6CF w/ Mount Pipe	110
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	133	(2) HBXX-6517DS-A2M w/ Mount Pipe	110
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	133	(2) HBXX-6517DS-A2M w/ Mount Pipe	110
Side Arm Mount [SO 102-1]	133	(2) HBXX-6517DS-A2M w/ Mount Pipe	110
TME-RRUS 11	127	LNx-6514DS-A1M w/ Mount Pipe	110
TME-RRUS 11	127	LNx-6514DS-A1M w/ Mount Pipe	110
TME-RRUS 11	127	LNx-6514DS-A1M w/ Mount Pipe	110
Side Arm Mount [SO 102-1]	127	RRH2X60-AWS	110
2.4" Dia. x 5-ft	127	RRH2X60-AWS	110
2.4" Dia. x 5-ft	127	RRH2X60-PCS	110
2.4" Dia. x 5-ft	127	RRH2X60-PCS	110
7770.00 w/ Mount Pipe	125	RRH2X60-PCS	110
7770.00 w/ Mount Pipe	125	(2) DB-T1-6Z-8AB-0Z	110
7770.00 w/ Mount Pipe	125	(2) 2.4" Dia. x 5-ft	110
(2) DMP65R-BU8D w/ Mount Pipe	125	Platform Mount [LP 303-1]	110
(2) DMP65R-BU4D w/ Mount Pipe	125	L3x3x1/4 (11.82' horizontal)	68
		L3x3x1/4 (11.82' horizontal)	68
		C7x14.75 (8-ft long) web horizontal	68
		C7x14.75 (8-ft long) web horizontal	68
		C7x14.75 (8-ft long) web horizontal	68
		L3x3x1/4 (11.82' horizontal)	68

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 135 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: 83%



Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: Groton/ I-95/ X89/ Noa_1 (BU 824359)

Project: **TEP No. 217406.333606**

Client: Crown Castle	Drawn by: tmlster	App'd:
Code: TIA-222-H	Date: 12/12/19	Scale: NTS
Path: C:\Users\tmlster\Desktop\Groton - I-95 - X89 - Noa_1\824359_1805051_LC7.dwg		Dwg No. E-1

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page 1 of 18
	Project TEP No. 217406.333606	Date 10:29:44 12/12/19
	Client Crown Castle	Designed by tmlester

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in New London County, Connecticut.

Tower base elevation above sea level: 193.00 ft.

Basic wind speed of 135 mph.

Risk Category II.

Exposure Category C.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.50 in.

Ice thickness is considered to increase with height.

Ice density of 56.00 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.05.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

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

Pole Section Geometry

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page	4 of 18
	Project	TEP No. 217406.333606	Date	10:29:44 12/12/19
	Client	Crown Castle	Designed by	tmlester

Feed Line/Linear Appurtenances Section Areas

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R ft²</i>	<i>A_F ft²</i>	<i>C_{AA} In Face ft²</i>	<i>C_{AA} Out Face ft²</i>	<i>Weight K</i>
L1	130.00-120.00	A	0.000	0.000	0.915	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.13
L2	120.00-100.00	A	0.000	0.000	1.830	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.15
		C	0.000	0.000	11.880	0.000	0.43
L3	100.00-80.00	A	0.000	0.000	1.830	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.15
		C	0.000	0.000	23.760	0.000	0.59
L4	80.00-60.00	A	0.000	0.000	26.950	2.257	0.50
		B	0.000	0.000	25.120	2.257	0.61
		C	0.000	0.000	48.880	2.257	1.05
L5	60.00-40.00	A	0.000	0.000	1.830	3.500	0.21
		B	0.000	0.000	0.000	3.500	0.32
		C	0.000	0.000	23.760	3.500	0.76
L6	40.00-20.00	A	0.000	0.000	1.830	3.500	0.21
		B	0.000	0.000	0.000	3.500	0.32
		C	0.000	0.000	23.760	3.500	0.76
L7	20.00-0.00	A	0.000	0.000	1.830	3.500	0.21
		B	0.000	0.000	0.000	3.500	0.32
		C	0.000	0.000	23.760	3.500	0.76

Feed Line/Linear Appurtenances Section Areas - With Ice

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face or Leg</i>	<i>Ice Thickness in</i>	<i>A_R ft²</i>	<i>A_F ft²</i>	<i>C_{AA} In Face ft²</i>	<i>C_{AA} Out Face ft²</i>	<i>Weight K</i>
L1	130.00-120.00	A	1.457	0.000	0.000	6.742	0.000	0.09
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.13
L2	120.00-100.00	A	1.438	0.000	0.000	13.335	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.15
		C		0.000	0.000	18.445	0.000	0.64
L3	100.00-80.00	A	1.410	0.000	0.000	13.106	0.000	0.17
		B		0.000	0.000	0.000	0.000	0.15
		C		0.000	0.000	36.748	0.000	1.01
L4	80.00-60.00	A	1.375	0.000	0.000	41.565	5.804	0.96
		B		0.000	0.000	28.739	5.804	0.95
		C		0.000	0.000	65.312	5.804	1.79
L5	60.00-40.00	A	1.329	0.000	0.000	12.463	8.816	0.43
		B		0.000	0.000	0.000	8.816	0.42
		C		0.000	0.000	36.345	8.816	1.25
L6	40.00-20.00	A	1.263	0.000	0.000	11.933	8.552	0.41
		B		0.000	0.000	0.000	8.552	0.41
		C		0.000	0.000	36.015	8.552	1.22
L7	20.00-0.00	A	1.132	0.000	0.000	10.882	8.026	0.38
		B		0.000	0.000	0.000	8.026	0.40
		C		0.000	0.000	35.358	8.026	1.17

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	Client Crown Castle	Designed by tmlester

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L1	130.00-120.00	0.00	-0.88	0.00	-2.59
L2	120.00-100.00	0.00	4.10	0.00	1.09
L3	100.00-80.00	0.00	7.50	0.00	3.74
L4	80.00-60.00	0.00	3.68	0.00	2.40
L5	60.00-40.00	0.00	7.09	0.00	3.57
L6	40.00-20.00	0.00	7.33	0.00	3.77
L7	20.00-0.00	0.00	7.33	0.00	3.90

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	1	Safety Line 3/8	120.00 - 130.00	1.0000	1.0000
L1	2	PiRod Ladder	120.00 - 130.00	1.0000	1.0000
L2	1	Safety Line 3/8	100.00 - 120.00	1.0000	1.0000
L2	2	PiRod Ladder	100.00 - 120.00	1.0000	1.0000
L2	28	LDF7-50A(1-5/8)	100.00 - 110.00	1.0000	1.0000
L3	1	Safety Line 3/8	80.00 - 100.00	1.0000	1.0000
L3	2	PiRod Ladder	80.00 - 100.00	1.0000	1.0000
L3	28	LDF7-50A(1-5/8)	80.00 - 100.00	1.0000	1.0000
L4	1	Safety Line 3/8	60.00 - 80.00	1.0000	1.0000
L4	2	PiRod Ladder	60.00 - 80.00	1.0000	1.0000
L4	10	Channel C8x18.75	60.58 - 79.42	1.0000	1.0000
L4	11	Channel C8x18.75	60.58 - 79.42	1.0000	1.0000
L4	12	Channel C8x18.75	60.58 - 79.42	1.0000	1.0000
L4	28	LDF7-50A(1-5/8)	60.00 - 80.00	1.0000	1.0000
L5	1	Safety Line 3/8	40.00 - 60.00	1.0000	1.0000
L5	2	PiRod Ladder	40.00 - 60.00	1.0000	1.0000
L5	28	LDF7-50A(1-5/8)	40.00 - 60.00	1.0000	1.0000
L6	1	Safety Line 3/8	20.00 - 40.00	1.0000	1.0000
L6	2	PiRod Ladder	20.00 - 40.00	1.0000	1.0000
L6	28	LDF7-50A(1-5/8)	20.00 - 40.00	1.0000	1.0000
L7	1	Safety Line 3/8	0.00 - 20.00	1.0000	1.0000
L7	2	PiRod Ladder	0.00 - 20.00	1.0000	1.0000
L7	28	LDF7-50A(1-5/8)	0.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page	6 of 18
	Project	TEP No. 217406.333606	Date	10:29:44 12/12/19
	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
L3x3x1/4 (11.82' horizontal)	A	From Leg	2.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.55 4.35 5.17 6.82	0.07 0.11 0.16 0.27	0.06 0.09 0.13 0.25
L3x3x1/4 (11.82' horizontal)	B	From Leg	2.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.55 4.35 5.17 6.82	0.07 0.11 0.16 0.27	0.06 0.09 0.13 0.25
L3x3x1/4 (11.82' horizontal)	C	From Leg	2.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.55 4.35 5.17 6.82	0.07 0.11 0.16 0.27	0.06 0.09 0.13 0.25
C7x14.75 (8-ft long) web horizontal	A	From Leg	4.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.13 0.19 0.25 0.40	0.13 0.19 0.25 0.40	0.01 0.02 0.02 0.04
C7x14.75 (8-ft long) web horizontal	B	From Leg	4.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.13 0.19 0.25 0.40	0.13 0.19 0.25 0.40	0.01 0.02 0.02 0.04
C7x14.75 (8-ft long) web horizontal	C	From Leg	4.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.13 0.19 0.25 0.40	0.13 0.19 0.25 0.40	0.01 0.02 0.02 0.04
*									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Centroid-Fa ce	4.00 7.00 -1.00	-50.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Centroid-Fa ce	4.00 7.00 -1.00	20.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Centroid-Fa ce	4.00 7.00 -1.00	0.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Centroid-Fa ce	4.00 0.00 -1.00	-50.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Centroid-Fa ce	4.00 -7.00 -1.00	20.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Centroid-Fa ce	4.00 0.00 -1.00	0.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
(2) KRY 112 144/1	A	From Centroid-Fa ce	4.00 3.00 -1.00	-50.000	133.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Centroid-Fa ce	4.00 -7.00 -1.00	0.000	133.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.16 0.22 0.28	0.01 0.01 0.02

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page	7 of 18
	Project	TEP No. 217406.333606	Date	10:29:44 12/12/19
	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Fa ce	4.00 -7.00 -1.00	-50.000	133.00	2" Ice 0.70 No Ice 14.69 1/2" Ice 15.46 1" Ice 16.23 2" Ice 17.82	0.44 6.87 7.55 8.25 9.67	0.03 0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Fa ce	4.00 0.00 -1.00	20.000	133.00	2" Ice 14.69 No Ice 15.46 1/2" Ice 16.23 1" Ice 17.82 2" Ice 17.82	6.87 7.55 8.25 9.67 9.67	0.19 0.31 0.46 0.79 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Fa ce	4.00 -7.00 -1.00	0.000	133.00	2" Ice 14.69 No Ice 15.46 1/2" Ice 16.23 1" Ice 17.82 2" Ice 17.82	6.87 7.55 8.25 9.67 9.67	0.19 0.31 0.46 0.79 0.79
RADIO 4449 B12/B71	A	From Centroid-Fa ce	4.00 -7.00 -1.00	-50.000	133.00	2" Ice 1.64 No Ice 1.80 1/2" Ice 1.97 1" Ice 2.33 2" Ice 2.33	1.15 1.29 1.44 1.75 1.75	0.07 0.09 0.11 0.15 0.15
RADIO 4449 B12/B71	B	From Centroid-Fa ce	4.00 -7.00 -1.00	20.000	133.00	2" Ice 1.64 No Ice 1.80 1/2" Ice 1.97 1" Ice 2.33 2" Ice 2.33	1.15 1.29 1.44 1.75 1.75	0.07 0.09 0.11 0.15 0.15
RADIO 4449 B12/B71	C	From Centroid-Fa ce	4.00 -7.00 -1.00	0.000	133.00	2" Ice 1.64 No Ice 1.80 1/2" Ice 1.97 1" Ice 2.33 2" Ice 2.33	1.15 1.29 1.44 1.75 1.75	0.07 0.09 0.11 0.15 0.15
2.4" Dia. x 5-ft	C	From Centroid-Fa ce	4.00 -1.00 0.00	0.000	133.00	2" Ice 1.20 No Ice 1.50 1/2" Ice 1.81 1" Ice 2.47 2" Ice 2.47	1.20 1.50 1.81 2.47 2.47	0.02 0.03 0.04 0.08 0.08
Platform Mount [LP 405-1]	C	None		0.000	133.00	2" Ice 20.88 No Ice 28.89 1/2" Ice 37.04 1" Ice 53.73 2" Ice 53.73	20.88 28.89 37.04 53.73 53.73	1.80 2.28 2.87 4.39 4.39
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	A	From Centroid-Fa ce	2.00 0.00 0.00	0.000	133.00	2" Ice 2.19 No Ice 2.57 1/2" Ice 2.96 1" Ice 3.75 2" Ice 3.75	0.06 0.12 0.18 0.29 0.29	0.02 0.02 0.03 0.06 0.06
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	B	From Centroid-Fa ce	2.00 0.00 0.00	0.000	133.00	2" Ice 2.19 No Ice 2.57 1/2" Ice 2.96 1" Ice 3.75 2" Ice 3.75	0.06 0.12 0.18 0.29 0.29	0.02 0.02 0.03 0.06 0.06
(2) L2 1/2 x 2 1/2 x 3/16 x 6.2-ft	C	From Centroid-Fa ce	2.00 0.00 0.00	0.000	133.00	2" Ice 2.19 No Ice 2.57 1/2" Ice 2.96 1" Ice 3.75 2" Ice 3.75	0.06 0.12 0.18 0.29 0.29	0.02 0.02 0.03 0.06 0.06
Side Arm Mount [SO 102-1]	C	None		0.000	133.00	2" Ice 1.50 No Ice 1.74 1/2" Ice 1.98 1" Ice 2.46 2" Ice 2.46	1.50 1.74 1.98 2.46 2.46	0.03 0.04 0.04 0.07 0.07
*								
TME-RRUS 11	A	From Leg	1.00 0.00 -5.00	35.000	127.00	2" Ice 2.79 No Ice 3.00 1/2" Ice 3.21 1" Ice 3.67 2" Ice 3.67	1.19 1.34 1.50 1.84 1.84	0.05 0.07 0.10 0.15 0.15
TME-RRUS 11	B	From Leg	1.00 0.00 -5.00	25.000	127.00	2" Ice 2.79 No Ice 3.00 1/2" Ice 3.21 1" Ice 3.21	1.19 1.34 1.50 1.50	0.05 0.07 0.10 0.10

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page	8 of 18
	Project	TEP No. 217406.333606	Date	10:29:44 12/12/19
	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>	
TME-RRUS 11	C	From Leg	1.00 0.00 -5.00	31.000	127.00	2" Ice 3.67 No Ice 2.79 1/2" Ice 3.00 1" Ice 3.21 2" Ice 3.67	1.84 1.19 1.34 1.50 1.84	0.15 0.05 0.07 0.10 0.15	
Side Arm Mount [SO 102-1]	C	None		0.000	127.00	No Ice 1.50 1/2" Ice 1.74 1" Ice 1.98 2" Ice 2.46	1.50 1.74 1.98 2.46	0.03 0.04 0.04 0.07	
2.4" Dia. x 5-ft	A	From Leg	0.50 0.00 -5.00	0.000	127.00	No Ice 1.20 1/2" Ice 1.50 1" Ice 1.81 2" Ice 2.47	1.20 1.50 1.81 2.47	0.02 0.03 0.04 0.08	
2.4" Dia. x 5-ft	B	From Leg	0.50 0.00 -5.00	0.000	127.00	No Ice 1.20 1/2" Ice 1.50 1" Ice 1.81 2" Ice 2.47	1.20 1.50 1.81 2.47	0.02 0.03 0.04 0.08	
2.4" Dia. x 5-ft	C	From Leg	0.50 0.00 -5.00	0.000	127.00	No Ice 1.20 1/2" Ice 1.50 1" Ice 1.81 2" Ice 2.47	1.20 1.50 1.81 2.47	0.02 0.03 0.04 0.08	
*									
7770.00 w/ Mount Pipe	A	From Leg	4.00 6.00 3.00	35.000	125.00	No Ice 5.75 1/2" Ice 6.18 1" Ice 6.61 2" Ice 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	4.00 2.00 3.00	25.000	125.00	No Ice 5.75 1/2" Ice 6.18 1" Ice 6.61 2" Ice 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	4.00 6.00 3.00	31.000	125.00	No Ice 5.75 1/2" Ice 6.18 1" Ice 6.61 2" Ice 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29	
(2) DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.00 -4.00 3.00	35.000	125.00	No Ice 18.11 1/2" Ice 18.84 1" Ice 19.59 2" Ice 21.01	10.26 11.78 13.33 15.67	0.13 0.25 0.38 0.68	
(2) DMP65R-BU4D w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	25.000	125.00	No Ice 8.52 1/2" Ice 8.96 1" Ice 9.42 2" Ice 10.36	4.69 5.31 5.93 7.22	0.09 0.15 0.22 0.39	
(2) DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.00 -4.00 3.00	31.000	125.00	No Ice 8.52 1/2" Ice 8.96 1" Ice 9.42 2" Ice 10.36	4.69 5.31 5.93 7.22	0.09 0.15 0.22 0.39	
LGP21401	A	From Leg	4.00 -6.00 -4.00	35.000	125.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	0.21 0.27 0.35 0.52	0.01 0.02 0.03 0.05	
LGP21401	B	From Leg	4.00 -6.00 -4.00	25.000	125.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	0.21 0.27 0.35 0.52	0.01 0.02 0.03 0.05	
LGP21401	C	From Leg	4.00 -6.00 -4.00	31.000	125.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38	0.21 0.27 0.35	0.01 0.02 0.03	

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page 9 of 18
	Project TEP No. 217406.333606	Date 10:29:44 12/12/19
	Client Crown Castle	Designed by tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
RRUS 4478 B14	A	From Leg	4.00 6.00 -4.00	35.000	125.00	2" Ice 1.69 No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 2" Ice 2.57	0.52 1.06 1.20 1.34 1.66	0.05 0.06 0.08 0.09 0.14
(2) RRUS 4478 B14	B	From Leg	4.00 4.00 -4.00	25.000	125.00	No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 2" Ice 2.57	1.06 1.20 1.34 1.66	0.06 0.08 0.09 0.14
RRUS 4449 B5/B12	A	From Leg	4.00 6.00 -4.00	35.000	125.00	No Ice 1.97 1/2" Ice 2.14 1" Ice 2.33 2" Ice 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
(2) RRUS 4449 B5/B12	C	From Leg	4.00 -2.00 -4.00	31.000	125.00	No Ice 1.97 1/2" Ice 2.14 1" Ice 2.33 2" Ice 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	B	From Leg	4.00 2.00 -4.00	25.000	125.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
(2) RRUS 8843 B2/B66A	C	From Leg	4.00 6.00 -4.00	31.000	125.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
DC6-48-60-18-8F	A	From Leg	4.00 -2.00 -4.00	35.000	125.00	No Ice 1.21 1/2" Ice 1.89 1" Ice 2.11 2" Ice 2.57	1.21 1.89 2.11 2.57	0.03 0.05 0.08 0.14
DC9-48-60-24-8C-EV	B	From Leg	4.00 6.00 -4.00	25.000	125.00	No Ice 2.74 1/2" Ice 2.96 1" Ice 3.20 2" Ice 3.68	4.78 5.06 5.35 5.95	0.03 0.06 0.10 0.20
T-Arm Mount [TA 601-3]	C	None		0.000	125.00	No Ice 12.56 1/2" Ice 15.36 1" Ice 18.04 2" Ice 23.69	12.56 15.36 18.04 23.69	0.73 0.94 1.21 1.92
Side Arm Mount [SO 102-1]	C	None		0.000	125.00	No Ice 1.50 1/2" Ice 1.74 1" Ice 1.98 2" Ice 2.46	1.50 1.74 1.98 2.46	0.03 0.04 0.04 0.07
2.4" Dia. x 6-ft	A	From Leg	4.00 0.00 1.00	0.000	125.00	No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 2" Ice 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
2.4" Dia. x 6-ft	B	From Leg	4.00 0.00 1.00	0.000	125.00	No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 2" Ice 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
2.4" Dia. x 6-ft	C	From Leg	4.00 0.00 1.00	0.000	125.00	No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 2" Ice 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
* (2) LPA-80063/6CF w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	30.000	110.00	No Ice 10.06 1/2" Ice 10.75 1" Ice 11.40	10.45 11.74 12.87	0.06 0.15 0.25

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page	10 of 18
	Project	TEP No. 217406.333606	Date	10:29:44 12/12/19
	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
(2) LPA-80063/6CF w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.000	110.00	2" Ice 12.62 No Ice 10.06 1/2" Ice 10.75 1" Ice 11.40 2" Ice 12.62	14.82 10.45 11.74 12.87 14.82	0.49 0.06 0.15 0.25 0.49
(2) LPA-80063/6CF w/ Mount Pipe	C	From Centroid-Le g	4.00 3.00 0.00	0.000	110.00	2" Ice 12.62 No Ice 10.06 1/2" Ice 10.75 1" Ice 11.40 2" Ice 12.62	14.82 10.45 11.74 12.87 14.82	0.49 0.06 0.15 0.25 0.49
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 -1.00	30.000	110.00	2" Ice 7.97 No Ice 7.97 1/2" Ice 8.73 1" Ice 9.50 2" Ice 11.11	5.99 5.99 6.72 7.47 9.02	0.08 0.14 0.22 0.40
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 -1.00	0.000	110.00	2" Ice 7.97 No Ice 7.97 1/2" Ice 8.73 1" Ice 9.50 2" Ice 11.11	5.99 5.99 6.72 7.47 9.02	0.08 0.14 0.22 0.40
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 -1.00	0.000	110.00	2" Ice 7.97 No Ice 7.97 1/2" Ice 8.73 1" Ice 9.50 2" Ice 11.11	5.99 5.99 6.72 7.47 9.02	0.08 0.14 0.22 0.40
LNx-6514DS-A1M w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	50.000	110.00	2" Ice 4.09 No Ice 4.09 1/2" Ice 4.49 1" Ice 4.89 2" Ice 5.71	3.30 3.30 3.68 4.06 4.87	0.06 0.13 0.20 0.38
LNx-6514DS-A1M w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	20.000	110.00	2" Ice 4.09 No Ice 4.09 1/2" Ice 4.49 1" Ice 4.89 2" Ice 5.71	3.30 3.30 3.68 4.06 4.87	0.06 0.13 0.20 0.38
LNx-6514DS-A1M w/ Mount Pipe	C	From Centroid-Le g	4.00 -6.00 0.00	-10.000	110.00	2" Ice 4.09 No Ice 4.09 1/2" Ice 4.49 1" Ice 4.89 2" Ice 5.71	3.30 3.30 3.68 4.06 4.87	0.06 0.13 0.20 0.38
RRH2X60-AWS	A	From Centroid-Le g	4.00 3.00 -1.00	30.000	110.00	2" Ice 3.50 No Ice 3.50 1/2" Ice 3.76 1" Ice 4.03 2" Ice 4.58	1.82 1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-AWS	B	From Centroid-Le g	4.00 3.00 -1.00	0.000	110.00	2" Ice 3.50 No Ice 3.50 1/2" Ice 3.76 1" Ice 4.03 2" Ice 4.58	1.82 1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-AWS	C	From Centroid-Le g	4.00 3.00 -1.00	0.000	110.00	2" Ice 3.50 No Ice 3.50 1/2" Ice 3.76 1" Ice 4.03 2" Ice 4.58	1.82 1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-PCS	A	From Centroid-Le g	4.00 -3.00 -1.00	30.000	110.00	2" Ice 2.20 No Ice 2.20 1/2" Ice 2.39 1" Ice 2.59 2" Ice 3.01	1.72 1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16
RRH2X60-PCS	B	From Centroid-Le g	4.00 -3.00 -1.00	0.000	110.00	2" Ice 2.20 No Ice 2.20 1/2" Ice 2.39 1" Ice 2.59 2" Ice 3.01	1.72 1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16
RRH2X60-PCS	C	From Centroid-Le g	4.00 -3.00 -1.00	0.000	110.00	2" Ice 2.20 No Ice 2.20 1/2" Ice 2.39 1" Ice 2.59 2" Ice 3.01	1.72 1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16

<i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Groton/ I-95/ X89/ Noa_1 (BU 824359)	Page 11 of 18
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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>		<i>C_{AA} Front</i>	<i>C_{AA} Side</i>	<i>Weight</i>
			<i>ft ft ft</i>	<i>°</i>	<i>ft</i>		<i>ft²</i>	<i>ft²</i>	<i>K</i>
(2) DB-T1-6Z-8AB-0Z	A	From Centroid-Le g	2.00 0.00 0.00	0.000	110.00	No Ice 1/2" 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) 2.4" Dia. x 5-ft	A	From Centroid-Le g	2.00 0.00 0.00	0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.20 1.50 1.81 2.47	1.20 1.50 1.81 2.47	0.02 0.03 0.04 0.08
Platform Mount [LP 303-1]	C	None		0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 18.01 21.34 28.08	14.69 18.01 21.34 28.08	1.25 1.57 1.94 2.85
* ***									

Load Combinations

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

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<i>Comb. No.</i>	<i>Description</i>
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

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Axial K</i>	<i>Major Axis Moment kip-ft</i>	<i>Minor Axis Moment kip-ft</i>
L1	130 - 120	Pole	Max Tension	26	0.00	-0.00	0.00
			Max. Compression	26	-18.32	1.91	-2.93
			Max. Mx	20	-8.22	123.15	-6.56
			Max. My	14	-8.25	5.69	-118.62
			Max. Vy	20	-13.87	123.15	-6.56
			Max. Vx	14	13.34	5.69	-118.62
			Max. Torque	2			-3.65
			Max Tension	1	0.00	0.00	0.00
L2	120 - 100	Pole	Max. Compression	26	-33.03	2.43	-2.02
			Max. Mx	20	-15.41	495.21	-18.09
			Max. My	14	-15.42	17.37	-481.22
			Max. Vy	20	-23.58	495.21	-18.09
			Max. Vx	14	23.18	17.37	-481.22
			Max. Torque	7			4.73
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.02	2.74	-2.99
L3	100 - 80	Pole	Max. Mx	20	-20.45	992.55	-31.42
			Max. My	14	-20.46	30.60	-969.58
			Max. Vy	20	-26.13	992.55	-31.42
			Max. Vx	14	25.61	30.60	-969.58
			Max. Torque	7			4.73
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.04	3.05	-4.02
			Max. Mx	20	-28.00	1550.93	-44.81
L4	80 - 60	Pole	Max. My	14	-27.95	43.83	-1541.70
			Max. Vy	20	-29.73	1550.93	-44.81
			Max. Vx	14	31.60	43.83	-1541.70
			Max. Torque	7			4.73
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.36	3.38	-5.15
			Max. Mx	20	-34.90	2176.88	-58.18
			Max. My	14	-34.86	57.00	-2205.28
L5	60 - 40	Pole	Max. Vy	20	-32.84	2176.88	-58.18
			Max. Vx	14	34.71	57.00	-2205.28
			Max. Torque	7			4.72

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	Client	Crown Castle	Designed by	tmlester

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L6	40 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.29	3.73	-6.36
			Max. M _x	20	-42.41	2863.33	-71.50
			Max. M _y	14	-42.40	70.08	-2929.35
			Max. V _y	20	-35.78	2863.33	-71.50
			Max. V _x	14	37.65	70.08	-2929.35
			Max. Torque	7			4.72
L7	20 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.59	4.04	-7.49
			Max. M _x	20	-55.54	3604.54	-84.70
			Max. M _y	14	-55.54	83.04	-3708.08
			Max. V _y	20	-38.31	3604.54	-84.70
			Max. V _x	14	40.17	83.04	-3708.08
			Max. Torque	7			4.72

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	85.59	0.00	-0.00
	Max. H _x	20	55.54	38.30	-0.64
	Max. H _z	2	55.54	-0.64	37.39
	Max. M _x	2	3506.00	-0.64	37.39
	Max. M _z	8	3602.15	-38.30	0.64
	Max. Torsion	7	4.72	-35.45	20.64
	Min. Vert	25	41.66	18.34	32.06
	Min. H _x	8	55.54	-38.30	0.64
	Min. H _z	14	55.54	0.64	-40.17
	Min. M _x	14	-3708.08	0.64	-40.17
	Min. M _z	20	-3604.54	38.30	-0.64
	Min. Torsion	19	-4.70	33.05	-19.25

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	46.29	0.00	0.00	2.32	0.97	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	55.54	0.64	-37.39	-3506.00	-80.66	-3.38
0.9 Dead+1.0 Wind 0 deg - No Ice	41.66	0.64	-37.39	-3492.34	-80.58	-3.37
1.2 Dead+1.0 Wind 30 deg - No Ice	55.54	19.45	-32.70	-3076.78	-1852.02	-4.67
0.9 Dead+1.0 Wind 30 deg - No Ice	41.66	19.45	-32.70	-3064.86	-1844.66	-4.67
1.2 Dead+1.0 Wind 60 deg - No Ice	55.54	35.45	-20.64	-1920.62	-3296.88	-4.71
0.9 Dead+1.0 Wind 60 deg - No Ice	41.66	35.45	-20.64	-1913.55	-3283.83	-4.72
1.2 Dead+1.0 Wind 90 deg - No Ice	55.54	38.30	-0.64	-79.00	-3602.15	-3.49

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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
0.9 Dead+1.0 Wind 90 deg - No Ice	41.66	38.30	-0.64	-79.34	-3587.68	-3.50
1.2 Dead+1.0 Wind 120 deg - No Ice	55.54	32.41	18.14	1686.38	-3045.01	-1.32
0.9 Dead+1.0 Wind 120 deg - No Ice	41.66	32.41	18.14	1678.80	-3032.81	-1.33
1.2 Dead+1.0 Wind 150 deg - No Ice	55.54	18.34	32.06	3000.68	-1710.29	1.21
0.9 Dead+1.0 Wind 150 deg - No Ice	41.66	18.34	32.06	2987.70	-1703.59	1.20
1.2 Dead+1.0 Wind 180 deg - No Ice	55.54	-0.64	40.17	3708.08	83.04	3.41
0.9 Dead+1.0 Wind 180 deg - No Ice	41.66	-0.64	40.17	3692.44	82.35	3.41
1.2 Dead+1.0 Wind 210 deg - No Ice	55.54	-19.45	32.70	3082.47	1854.39	4.68
0.9 Dead+1.0 Wind 210 deg - No Ice	41.66	-19.45	32.70	3069.10	1846.43	4.68
1.2 Dead+1.0 Wind 240 deg - No Ice	55.54	-33.05	19.25	1828.11	3129.17	4.69
0.9 Dead+1.0 Wind 240 deg - No Ice	41.66	-33.05	19.25	1819.87	3115.98	4.70
1.2 Dead+1.0 Wind 270 deg - No Ice	55.54	-38.30	0.64	84.70	3604.54	3.45
0.9 Dead+1.0 Wind 270 deg - No Ice	41.66	-38.30	0.64	83.59	3589.46	3.47
1.2 Dead+1.0 Wind 300 deg - No Ice	55.54	-34.81	-19.53	-1778.90	3217.49	1.30
0.9 Dead+1.0 Wind 300 deg - No Ice	41.66	-34.81	-19.53	-1772.50	3204.22	1.31
1.2 Dead+1.0 Wind 330 deg - No Ice	55.54	-18.34	-32.06	-2995.01	1712.67	-1.19
0.9 Dead+1.0 Wind 330 deg - No Ice	41.66	-18.34	-32.06	-2983.46	1705.37	-1.18
1.2 Dead+1.0 Ice+1.0 Temp	85.59	-0.00	0.00	7.49	4.04	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	85.59	0.07	-8.97	-786.93	-4.49	-0.40
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	85.59	4.56	-7.80	-684.80	-403.63	-0.56
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	85.59	7.86	-4.55	-398.07	-695.17	-0.57
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	85.59	9.01	-0.07	-0.98	-796.45	-0.43
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	85.59	7.77	4.43	397.47	-684.88	-0.18
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	85.59	4.45	7.73	691.47	-388.68	0.13
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	85.59	-0.07	8.99	804.15	12.78	0.40
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	85.59	-4.56	7.80	700.10	411.92	0.56
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	85.59	-7.83	4.54	412.42	701.80	0.57
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	85.59	-9.01	0.07	16.29	804.74	0.43
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	85.59	-7.79	-4.44	-383.12	694.82	0.18
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	85.59	-4.45	-7.73	-676.16	396.96	-0.12
Dead+Wind 0 deg - Service	46.29	0.12	-6.96	-648.79	-14.19	-0.63
Dead+Wind 30 deg - Service	46.29	3.62	-6.08	-569.15	-342.91	-0.87

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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+ Wind 60 deg - Service	46.29	6.60	-3.84	-354.61	-611.08	-0.88
Dead+ Wind 90 deg - Service	46.29	7.13	-0.12	-12.83	-667.71	-0.65
Dead+ Wind 120 deg - Service	46.29	6.03	3.37	314.78	-564.30	-0.25
Dead+ Wind 150 deg - Service	46.29	3.41	5.96	558.68	-316.61	0.22
Dead+ Wind 180 deg - Service	46.29	-0.12	7.47	690.00	16.18	0.63
Dead+ Wind 210 deg - Service	46.29	-3.62	6.08	573.86	344.90	0.87
Dead+ Wind 240 deg - Service	46.29	-6.15	3.58	341.08	581.47	0.88
Dead+ Wind 270 deg - Service	46.29	-7.13	0.12	17.54	669.69	0.65
Dead+ Wind 300 deg - Service	46.29	-6.48	-3.63	-328.31	597.88	0.25
Dead+ Wind 330 deg - Service	46.29	-3.41	-5.96	-553.96	318.60	-0.22

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-46.29	0.00	0.00	46.29	0.00	0.000%
2	0.64	-55.54	-37.39	-0.64	55.54	37.39	0.000%
3	0.64	-41.66	-37.39	-0.64	41.66	37.39	0.000%
4	19.45	-55.54	-32.70	-19.45	55.54	32.70	0.000%
5	19.45	-41.66	-32.70	-19.45	41.66	32.70	0.000%
6	35.45	-55.54	-20.64	-35.45	55.54	20.64	0.000%
7	35.45	-41.66	-20.64	-35.45	41.66	20.64	0.000%
8	38.30	-55.54	-0.64	-38.30	55.54	0.64	0.000%
9	38.30	-41.66	-0.64	-38.30	41.66	0.64	0.000%
10	32.41	-55.54	18.14	-32.41	55.54	-18.14	0.000%
11	32.41	-41.66	18.14	-32.41	41.66	-18.14	0.000%
12	18.34	-55.54	32.06	-18.34	55.54	-32.06	0.000%
13	18.34	-41.66	32.06	-18.34	41.66	-32.06	0.000%
14	-0.64	-55.54	40.17	0.64	55.54	-40.17	0.000%
15	-0.64	-41.66	40.17	0.64	41.66	-40.17	0.000%
16	-19.45	-55.54	32.70	19.45	55.54	-32.70	0.000%
17	-19.45	-41.66	32.70	19.45	41.66	-32.70	0.000%
18	-33.05	-55.54	19.25	33.05	55.54	-19.25	0.000%
19	-33.05	-41.66	19.25	33.05	41.66	-19.25	0.000%
20	-38.30	-55.54	0.64	38.30	55.54	-0.64	0.000%
21	-38.30	-41.66	0.64	38.30	41.66	-0.64	0.000%
22	-34.81	-55.54	-19.53	34.81	55.54	19.53	0.000%
23	-34.81	-41.66	-19.53	34.81	41.66	19.53	0.000%
24	-18.34	-55.54	-32.06	18.34	55.54	32.06	0.000%
25	-18.34	-41.66	-32.06	18.34	41.66	32.06	0.000%
26	0.00	-85.59	0.00	0.00	85.59	-0.00	0.000%
27	0.07	-85.59	-8.97	-0.07	85.59	8.97	0.000%
28	4.56	-85.59	-7.80	-4.56	85.59	7.80	0.000%
29	7.86	-85.59	-4.55	-7.86	85.59	4.55	0.000%
30	9.01	-85.59	-0.07	-9.01	85.59	0.07	0.000%
31	7.77	-85.59	4.43	-7.77	85.59	-4.43	0.000%
32	4.45	-85.59	7.73	-4.45	85.59	-7.73	0.000%
33	-0.07	-85.59	8.99	0.07	85.59	-8.99	0.000%
34	-4.56	-85.59	7.80	4.56	85.59	-7.80	0.000%
35	-7.83	-85.59	4.54	7.83	85.59	-4.54	0.000%
36	-9.01	-85.59	0.07	9.01	85.59	-0.07	0.000%
37	-7.79	-85.59	-4.44	7.79	85.59	4.44	0.000%
38	-4.45	-85.59	-7.73	4.45	85.59	7.73	0.000%
39	0.12	-46.29	-6.96	-0.12	46.29	6.96	0.000%
40	3.62	-46.29	-6.08	-3.62	46.29	6.08	0.000%
41	6.60	-46.29	-3.84	-6.60	46.29	3.84	0.000%
42	7.13	-46.29	-0.12	-7.13	46.29	0.12	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
43	6.03	-46.29	3.37	-6.03	46.29	-3.37	0.000%
44	3.41	-46.29	5.96	-3.41	46.29	-5.96	0.000%
45	-0.12	-46.29	7.47	0.12	46.29	-7.47	0.000%
46	-3.62	-46.29	6.08	3.62	46.29	-6.08	0.000%
47	-6.15	-46.29	3.58	6.15	46.29	-3.58	0.000%
48	-7.13	-46.29	0.12	7.13	46.29	-0.12	0.000%
49	-6.48	-46.29	-3.63	6.48	46.29	3.63	0.000%
50	-3.41	-46.29	-5.96	3.41	46.29	5.96	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	4	0.00000001	0.00043333
3	Yes	4	0.00000001	0.00027359
4	Yes	5	0.00000001	0.00005558
5	Yes	5	0.00000001	0.00002526
6	Yes	5	0.00000001	0.00007503
7	Yes	5	0.00000001	0.00003414
8	Yes	4	0.00000001	0.00076925
9	Yes	4	0.00000001	0.00048912
10	Yes	5	0.00000001	0.00005163
11	Yes	5	0.00000001	0.00002368
12	Yes	5	0.00000001	0.00005146
13	Yes	5	0.00000001	0.00002366
14	Yes	4	0.00000001	0.00076560
15	Yes	4	0.00000001	0.00048076
16	Yes	5	0.00000001	0.00007136
17	Yes	5	0.00000001	0.00003278
18	Yes	5	0.00000001	0.00005577
19	Yes	5	0.00000001	0.00002524
20	Yes	4	0.00000001	0.00043041
21	Yes	4	0.00000001	0.00027367
22	Yes	5	0.00000001	0.00005952
23	Yes	5	0.00000001	0.00002719
24	Yes	5	0.00000001	0.00005580
25	Yes	5	0.00000001	0.00002576
26	Yes	4	0.00000001	0.00002627
27	Yes	5	0.00000001	0.00006882
28	Yes	5	0.00000001	0.00007211
29	Yes	5	0.00000001	0.00007274
30	Yes	5	0.00000001	0.00006977
31	Yes	5	0.00000001	0.00007177
32	Yes	5	0.00000001	0.00007189
33	Yes	5	0.00000001	0.00007070
34	Yes	5	0.00000001	0.00007466
35	Yes	5	0.00000001	0.00007481
36	Yes	5	0.00000001	0.00007108
37	Yes	5	0.00000001	0.00007203
38	Yes	5	0.00000001	0.00007111
39	Yes	4	0.00000001	0.00002918
40	Yes	4	0.00000001	0.00004273
41	Yes	4	0.00000001	0.00005983
42	Yes	4	0.00000001	0.00003194
43	Yes	4	0.00000001	0.00003283

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44	Yes	4	0.00000001	0.00003264
45	Yes	4	0.00000001	0.00003235
46	Yes	4	0.00000001	0.00005704
47	Yes	4	0.00000001	0.00004330
48	Yes	4	0.00000001	0.00003013
49	Yes	4	0.00000001	0.00003981
50	Yes	4	0.00000001	0.00003689

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	130 - 120 (1)	P30x3/8	10.00	0.00	0.0	34.90	-8.20	1311.06	0.006
L2	120 - 100 (2)	P36x3/8	20.00	0.00	0.0	41.97	-15.38	1490.10	0.010
L3	100 - 80 (3)	P42x3/8	20.00	0.00	0.0	49.04	-20.43	1668.87	0.012
L4	80 - 60 (4)	P48x3/8	20.00	0.00	0.0	56.11	-27.91	1847.49	0.015
L5	60 - 40 (5)	P54x3/8	20.00	0.00	0.0	63.18	-34.83	2026.00	0.017
L6	40 - 20 (6)	P60x3/8	20.00	0.00	0.0	70.24	-42.39	2204.43	0.019
L7	20 - 0 (7)	P60x3/4	20.00	0.00	0.0	139.60	-55.54	5244.23	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	130 - 120 (1)	P30x3/8	126.87	947.86	0.134	0.00	947.86	0.000
L2	120 - 100 (2)	P36x3/8	506.51	1338.81	0.378	0.00	1338.81	0.000
L3	100 - 80 (3)	P42x3/8	1012.02	1796.56	0.563	0.00	1796.56	0.000
L4	80 - 60 (4)	P48x3/8	1598.97	2321.11	0.689	0.00	2321.11	0.000
L5	60 - 40 (5)	P54x3/8	2279.45	2912.46	0.783	0.00	2912.46	0.000
L6	40 - 20 (6)	P60x3/8	3020.23	3570.61	0.846	0.00	3570.61	0.000
L7	20 - 0 (7)	P60x3/4	3815.52	7582.87	0.503	0.00	7582.87	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	φT _n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 120 (1)	P30x3/8	14.19	395.78	0.036	1.92	994.73	0.002
L2	120 - 100 (2)	P36x3/8	24.04	454.19	0.053	4.70	1094.28	0.004
L3	100 - 80 (3)	P42x3/8	26.47	461.11	0.057	4.70	1297.25	0.004
L4	80 - 60 (4)	P48x3/8	32.48	477.30	0.068	4.72	1536.36	0.003
L5	60 - 40 (5)	P54x3/8	35.58	492.00	0.072	4.71	1783.17	0.003
L6	40 - 20 (6)	P60x3/8	38.51	505.48	0.076	4.71	2037.03	0.002
L7	20 - 0 (7)	P60x3/4	41.03	1583.12	0.026	4.71	8246.71	0.001

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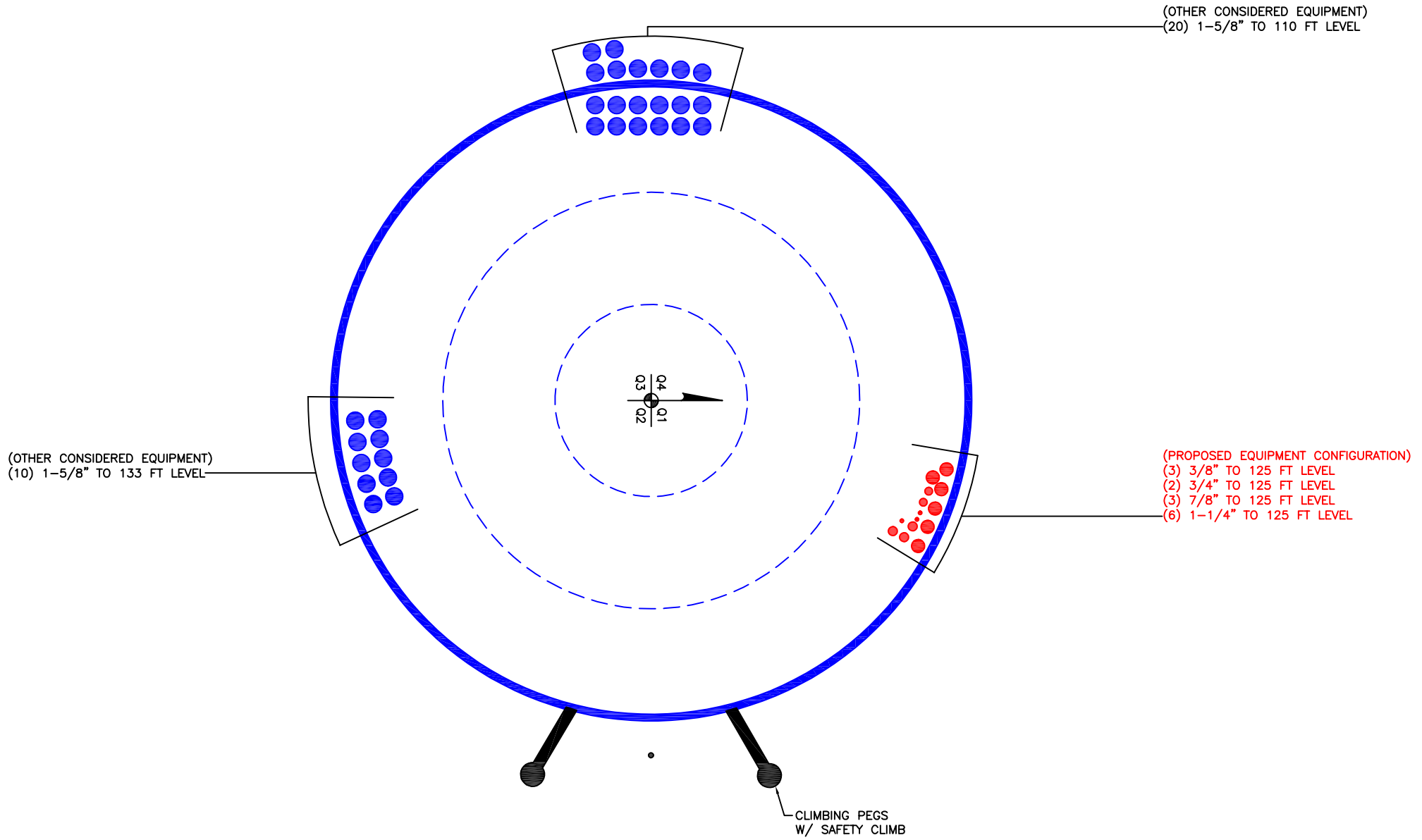
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 120 (1)	0.006	0.134	0.000	0.036	0.002	0.142	1.050	4.8.2
L2	120 - 100 (2)	0.010	0.378	0.000	0.053	0.004	0.392	1.050	4.8.2
L3	100 - 80 (3)	0.012	0.563	0.000	0.057	0.004	0.579	1.050	4.8.2
L4	80 - 60 (4)	0.015	0.689	0.000	0.068	0.003	0.709	1.050	4.8.2
L5	60 - 40 (5)	0.017	0.783	0.000	0.072	0.003	0.805	1.050	4.8.2
L6	40 - 20 (6)	0.019	0.846	0.000	0.076	0.002	0.871	1.050	4.8.2
L7	20 - 0 (7)	0.011	0.503	0.000	0.026	0.001	0.514	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	130 - 120	Pole	P30x3/8	1	-8.20	1376.61	13.5	Pass
L2	120 - 100	Pole	P36x3/8	2	-15.38	1564.60	37.3	Pass
L3	100 - 80	Pole	P42x3/8	3	-20.43	1752.31	55.2	Pass
L4	80 - 60	Pole	P48x3/8	4	-27.91	1939.86	67.5	Pass
L5	60 - 40	Pole	P54x3/8	5	-34.83	2127.30	76.7	Pass
L6	40 - 20	Pole	P60x3/8	6	-42.39	2314.65	83.0	Pass
L7	20 - 0	Pole	P60x3/4	7	-55.54	5506.44	49.0	Pass
							Summary	
							Pole (L6)	83.0 Pass
							RATING =	83.0 Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C

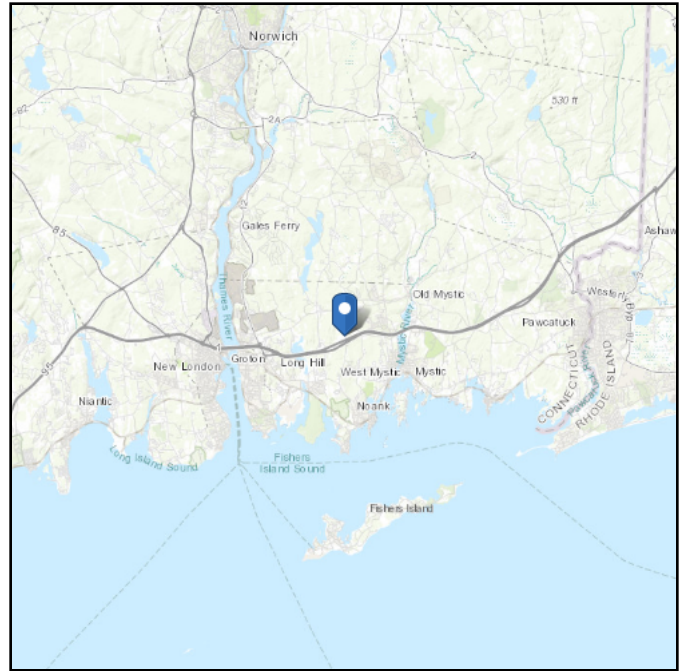
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 193.35 ft (NAVD 88)
Latitude: 41.369928
Longitude: -72.008269



Wind

Results:

Wind Speed:	135 Vmph
10-year MRI	80 Vmph
25-year MRI	90 Vmph
50-year MRI	99 Vmph
100-year MRI	110 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 Dec 09 2019

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.

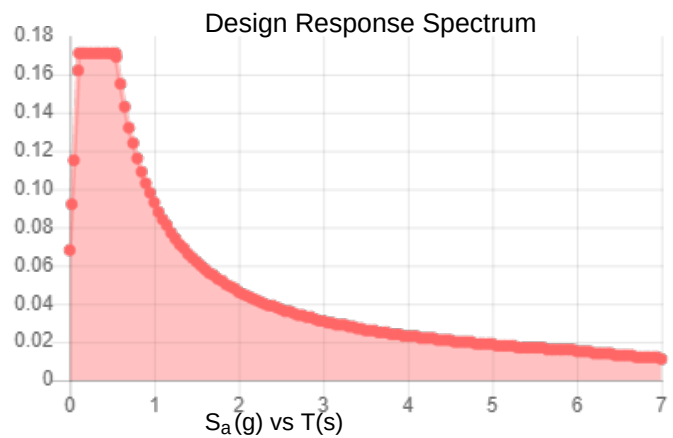
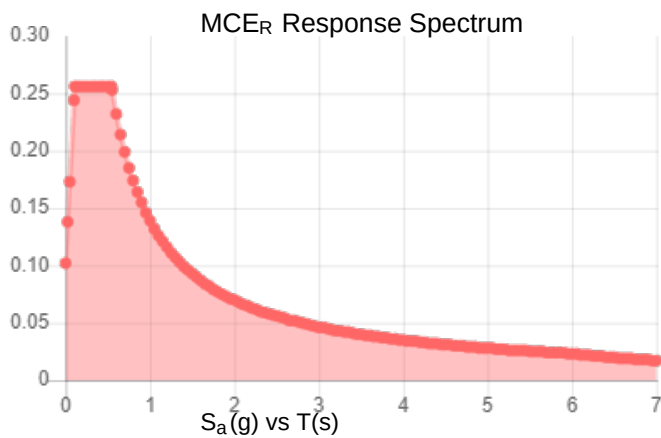
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.16	S_{DS} :	0.171
S_1 :	0.058	S_{D1} :	0.093
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.08
S_{MS} :	0.256	PGA_M :	0.127
S_{M1} :	0.139	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Dec 09 2019

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 Dec 09 2019

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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

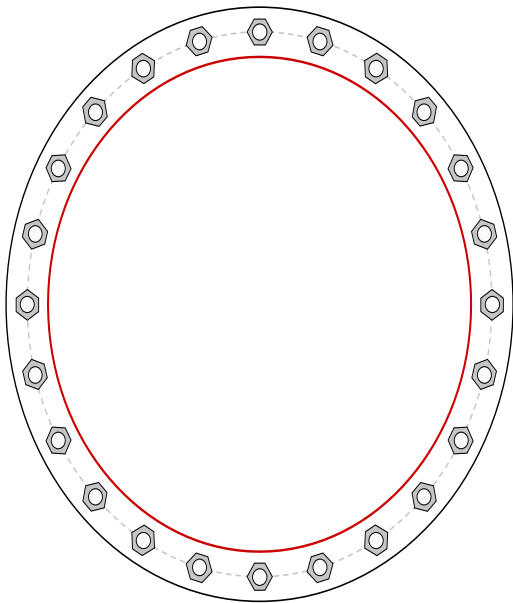
Elevation = 120 ft.



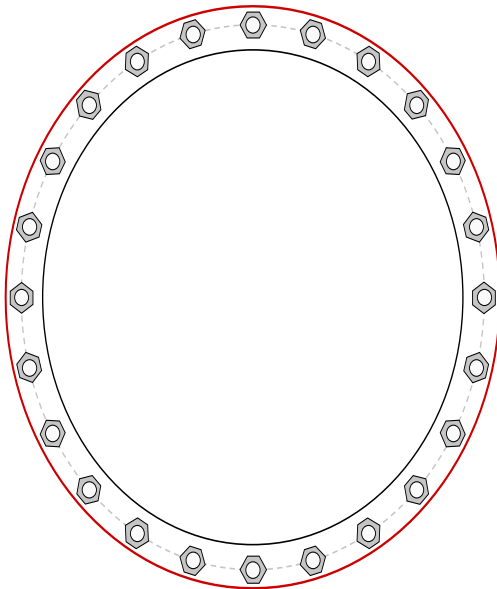
Applied Loads	
Moment (kip-ft)	126.87
Axial Force (kips)	8.20
Shear Force (kips)	14.19

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" $\varnothing$ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

30" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	7.34
Allowable (kips)	54.53
Stress Rating:	12.8% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

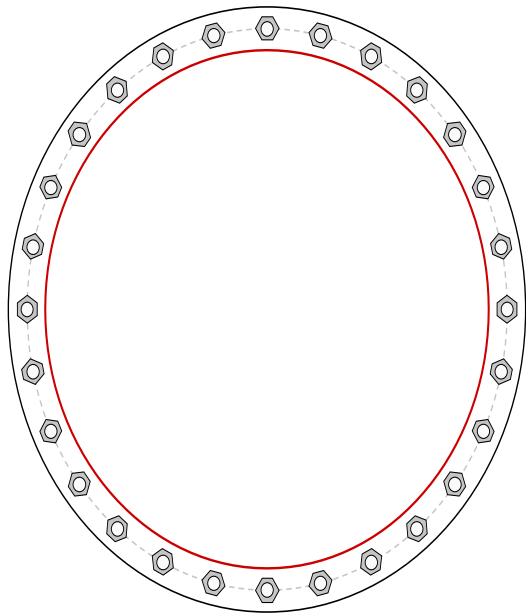
Elevation = 100 ft.



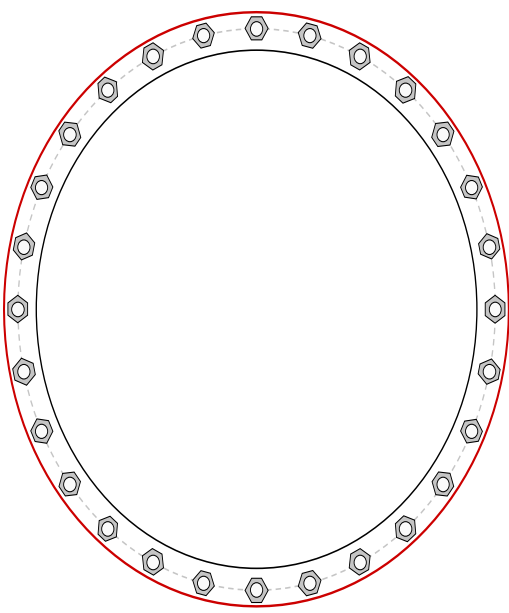
Applied Loads	
Moment (kip-ft)	506.51
Axial Force (kips)	15.38
Shear Force (kips)	24.04

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" $\varnothing$ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

36" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	21.71
Allowable (kips)	54.52
Stress Rating:	37.9% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

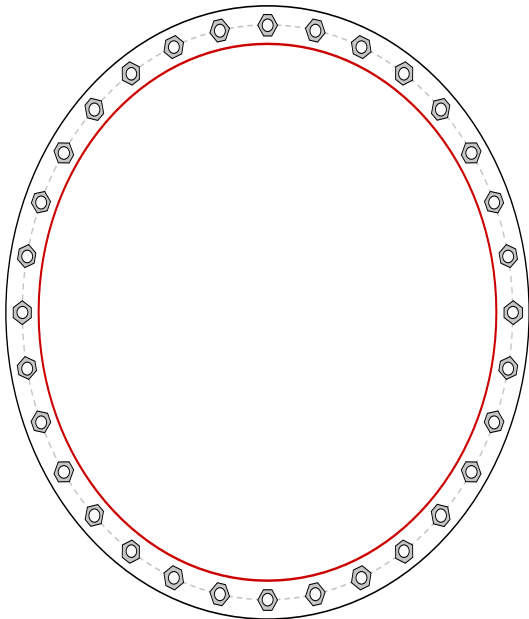
Elevation = 80 ft.



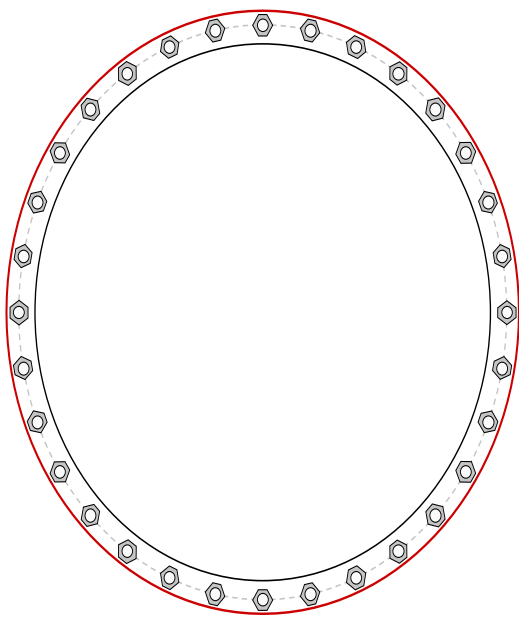
Applied Loads	
Moment (kip-ft)	1012.02
Axial Force (kips)	20.43
Shear Force (kips)	26.47

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" $\varnothing$ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 45" BC

Top Plate Data

48" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

42" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	33.09
Allowable (kips)	54.53
Stress Rating:	57.8% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirol OK
Tension Side Stress Rating:	Pirol OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirol OK
Tension Side Stress Rating:	Pirol OK

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

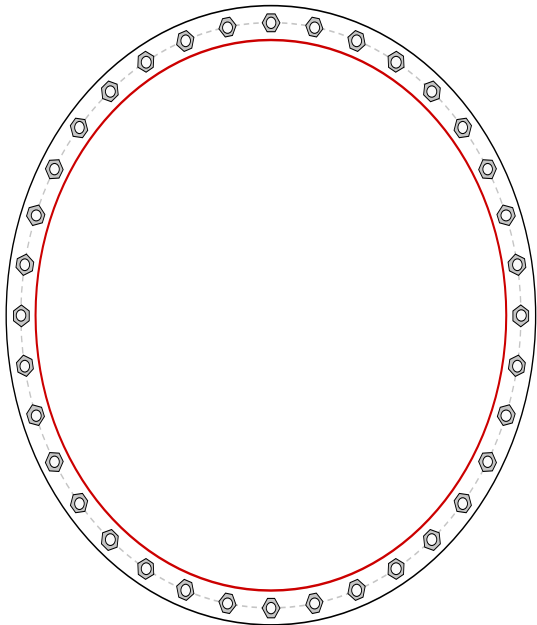
Elevation = 60 ft.



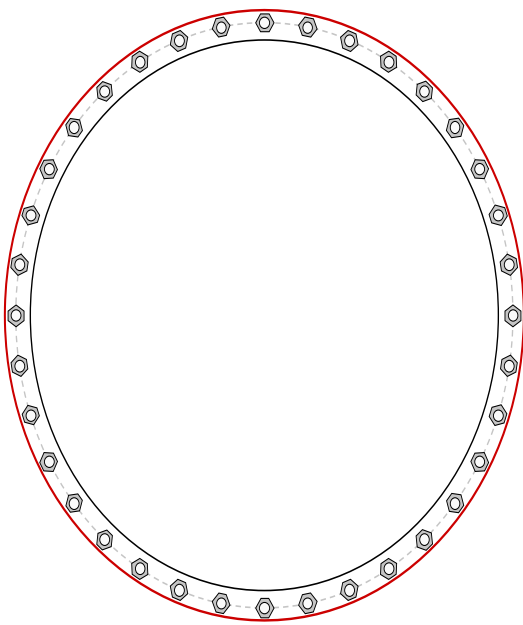
Applied Loads	
Moment (kip-ft)	1598.98
Axial Force (kips)	27.91
Shear Force (kips)	32.48

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" $\varnothing$ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 51" BC

Top Plate Data

54" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

48" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	41.02
Allowable (kips)	54.52
Stress Rating:	71.7% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

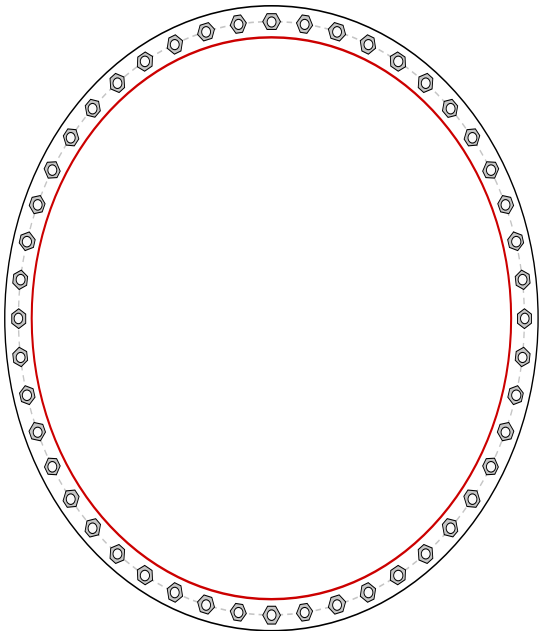
Elevation = 40 ft.



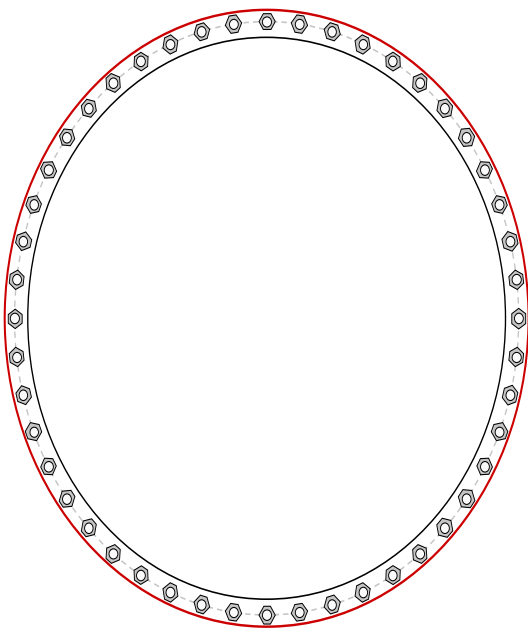
Applied Loads	
Moment (kip-ft)	2279.45
Axial Force (kips)	34.83
Shear Force (kips)	35.58

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(48) 1" $\varnothing$ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 57" BC

Top Plate Data

60" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

54" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	39.26
Allowable (kips)	54.53
Stress Rating:	68.6% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Monopole Flange Plate Connection

BU #	824359
Site Name	roton/ I-95/ X89/ Noa
Order #	507190 Rev. 0
TIA-222 Revision	H

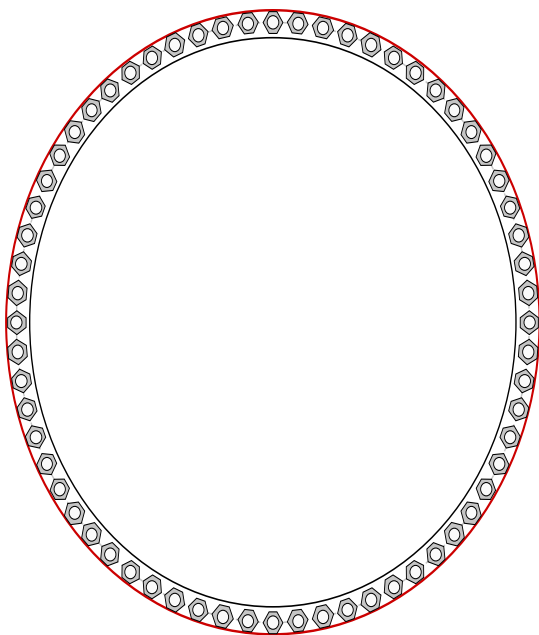
Elevation = 20 ft.



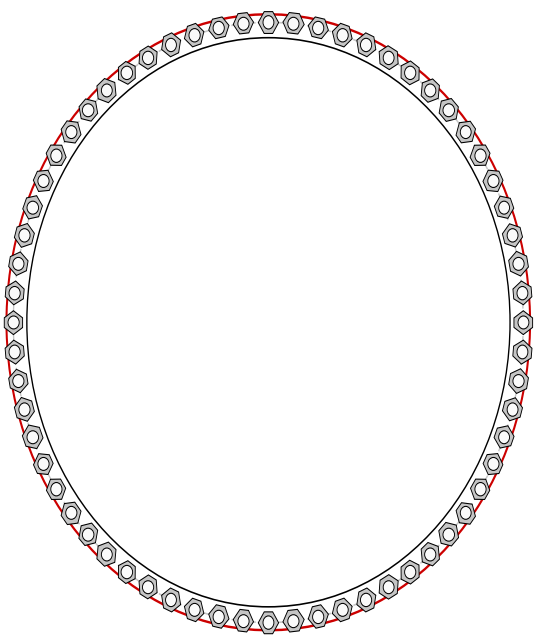
Applied Loads	
Moment (kip-ft)	3020.23
Axial Force (kips)	42.39
Shear Force (kips)	38.51

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(64) 1-1/4" ø bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 57" BC

Top Plate Data

54" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

54" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

60" x 0.75" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	39.07
Allowable (kips)	76.30
Stress Rating:	48.8% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirol OK
Tension Side Stress Rating:	Pirol OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirol OK
Tension Side Stress Rating:	Pirol OK

Monopole Base Plate Connection

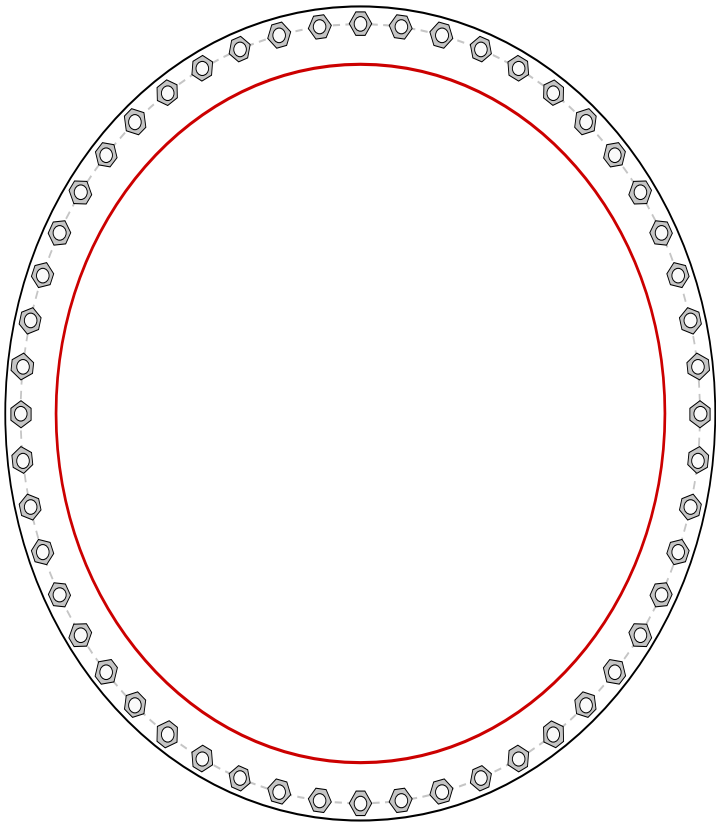


Site Info	
BU #	824359
Site Name	Proton/ I-95/ X89/ Noa
Order #	507190 Rev. 0

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

Applied Loads	
Moment (kip-ft)	3815.52
Axial Force (kips)	55.54
Shear Force (kips)	41.03

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(52) 1-1/4" $\varnothing$ bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 67" BC		Pu_c = 53.63	ϕ Pn_c = 101.75 Stress Rating
Base Plate Data		Vu = 0.79	ϕ Vn = 30.52 54.2%
70" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)		Mu = 0.9	ϕ Mn = 21.58 Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	-
Pole Data		Allowable Stress (ksi):	-
60" x 0.75" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)		Stress Rating:	Pi rod OK

Pier and Pad Foundation



BU # : 824359
 Site Name: Groton/ I-95/ X89/ I
 App. Number: 507190 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	56	kips
Base Shear, V_{u_comp} :	41	kips
Moment, M_u :	3816	ft-kips
Tower Height, H :	130	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 :	9	
Pier Rebar Quantity, mc :	40	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	6.6	ft
Pad Width, W :	20.7	ft
Pad Thickness, T :	2.3	ft
Pad Rebar Size (Bottom), Sp :	11	
Pad Rebar Quantity (Bottom), mp :	24	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	130	pcf
Ultimate Net Bearing, Q_{net} :	32.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	34	degrees
SPT Blow Count, N_{blows} :	31	
Base Friction, μ :	0.65	
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	10	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	290.91	41.00	13.4%	Pass
Bearing Pressure (ksf)	24.64	7.31	29.7%	Pass
Overtuning (kip*ft)	4558.42	4117.35	90.3%	Pass
Pier Flexure (Comp.) (kip*ft)	6265.22	4012.80	61.0%	Pass
Pier Compression (kip)	23390.64	98.34	0.4%	Pass
Pad Flexure (kip*ft)	3489.52	2329.26	63.6%	Pass
Pad Shear - 1-way (kips)	458.88	350.40	72.7%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	4634.07	2407.68	49.5%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	90.3%
Structural Rating*:	72.7%

<--Toggle between Gross and Net

Exhibit E

Mount Analysis

November 26, 2019

Kevin Morrow
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6619



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
structuresseattle@tepgroup.net

Subject: Mount Analysis

Carrier Designation: **AT&T Mobility Reconfiguration**
Client Site Number: 10099983
Client Site Name: GROTON CENTRAL

Crown Castle Designation: **Crown Castle BU Number:** 824359
Crown Castle Site Name: Groton/ I-95/ X89/ Noa_1
Crown Castle JDE Job Number: 593198
Crown Castle Order Number: 507190 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 217406.329174

Site Data: **725 Flanders Rd., Groton, New London County, CT 06340**
Latitude 41° 22' 11.74", Longitude -72° 00' 29.77"

Structure Information: **Tower Height & Type:** 130.0± ft Monopole
Mount Elevation: 125.0 ft
Mount Width & Type: 10.0 ft T-Arm Mount

Dear Kevin Morrow,

Tower Engineering Professionals is pleased to submit this “**Mount Analysis**” to determine the structural integrity of AT&T Mobility’s antenna mounting system with proposed appurtenance and equipment addition on the above mentioned 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 stress level. Based on our analysis, we have determined the mount stress level to be:

T-Arm Mount

Sufficient Capacity*
*The mount has sufficient capacity once the loading changes, as describes in Section 4.1 Recommendations of this report, are completed.

This analysis utilizes an ultimate 3-second gust wind speed of 127 mph from the 2018 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Lauren Gibson, E.I. / HBC

Respectfully submitted by:

Aaron T. Rucker, P.E.
Structural Division Manager



Electronic Copy

11/26/2019

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Additional Calculations

1) INTRODUCTION

The mount is an existing 10.0-ft T-Arm mount, mapped by Tower Engineering Professionals.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	127 mph
Exposure Category:	C
Topographic Category at Base:	1.0
Topographic Category at Mount:	1.0
Ice Thickness:	1.00 in
Wind Speed with Ice:	50 mph
Seismic Design Category:	B
Seismic S_s:	0.187
Seismic S_1:	0.052
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
125.0	128.0	4	CCI Antennas	DMP65R-BU4D	T-Arm Mount
		2	CCI Antennas	DMP65R-BU8D	
		3	Powerwave Technologies	7770.00	
	121.0	3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14	
		3	Ericsson	RRUS 8843 B2/B66A	
		3	Powerwave Technologies	LGP21401	
		1	Raycap	DC6-48-60-18-8F ¹	
		1	Raycap	DC9-48-60-24-8C-EV	

Notes:

- 1) Equipment mounted directly to tower and not included in this analysis.

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Mount Mapping Report	Tower Engineering Professionals, Inc.	217406.322408	TEP
Loading Application	AT&T Mobility	Order 507190 Rev. 0	CCIsites

3.1) Analysis Method

RISA-3D (Version 17.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A and Appendix C.

TEP Mount Analysis Tool, a tool internally developed by TEP using Microsoft Excel, was used to calculate member loading for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis (Revision C)*. In addition, this analysis is in accordance with AT&T's *Mount Technical Directive – R14.1*.

3.2) Assumptions

- 1) The mount was built in accordance with the manufacturer's specifications.
- 2) The mount has been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, mounts and other appurtenances are as specified in Table 1. All mount components have been assumed to be in sufficient condition to carry their full design capacity for this analysis. Refer to the issued mapping for any structural and/or maintenance issues found during our site visit if applicable.
- 4) All mount components are in sufficient condition to carry their full design capacity.
- 5) TEP did not analyze the collar mount connection to the pole and assumes it to have sufficient structural capacity to transfer the applied forces from the mount to the tower.
- 6) All material grades used for this analysis, unless verified by mount manufacturer design, were assumed per AISC Table 2-4, 15th Edition. See RISA-3D output for confirmation on grades used in this analysis.

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

4) ANALYSIS RESULTS

Table 3(a) - Mount Component Stresses vs. Capacity (T-Arm Mount, Alpha Sector)

Notes	Component	Critical Member	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontals	FFTH	125.0	83.8	Pass
1	Support Horizontals	SF1-TH	125.0	57.2	Pass
1	Mount Pipes	MP-1	125.0	96.3	Pass
2	Connection Bolts	-	125.0	46.1	Pass
2	Connection Plate	-	125.0	42.8	Pass

Table 3(b) - Mount Component Stresses vs. Capacity (T-Arm Mount, Beta Sector)

Notes	Component	Critical Member	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontals	FFTH	125.0	91.8	Pass
1	Support Horizontals	SF1-TH	125.0	73.4	Pass
1	Mount Pipes	MP-2	125.0	78.9	Pass
2	Connection Bolts	-	125.0	55.3	Pass
2	Connection Plate	-	125.0	51.5	Pass

Table 3(c) - Mount Component Stresses vs. Capacity (T-Arm Mount, Gamma Sector)

Notes	Component	Critical Member	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontals	FFTH	125.0	74.5	Pass
1	Support Horizontals	SF1-TH	125.0	57.6	Pass
1	Mount Pipes	MP-4	125.0	96.8	Pass
2	Connection Bolts	-	125.0	18.1	Pass
2	Connection Plate	-	125.0	23.9	Pass

Structure Rating (max from all components) =	96.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity listed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity listed.

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing/ Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb) ³	Notes
-	-	-	-	-	-	-

Notes:

- 1) Tieback connection point is within 25% of either end of the connected tower member.
- 2) Tower connection point is NOT within 25% of either end of the connected tower member.
- 3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*.

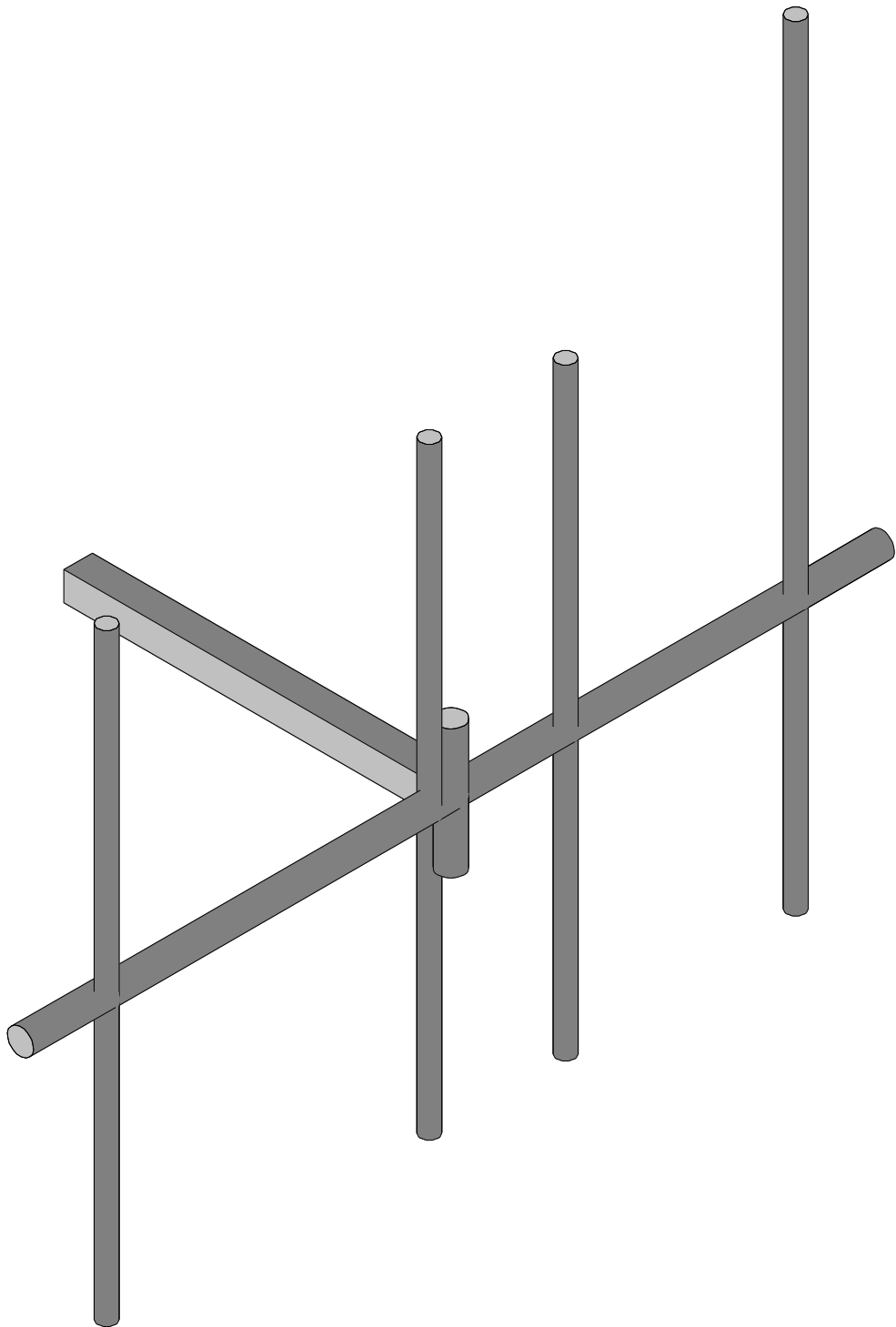
4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount and its connection have sufficient capacity to carry the proposed loading configuration. In order for the results of this analysis to be valid, the mount modifications listed below must be completed:
 - a) Antenna mount pipe connection points in position 1 on Beta Sector must be at 4-ft and 8.5-ft from top of mount pipe.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

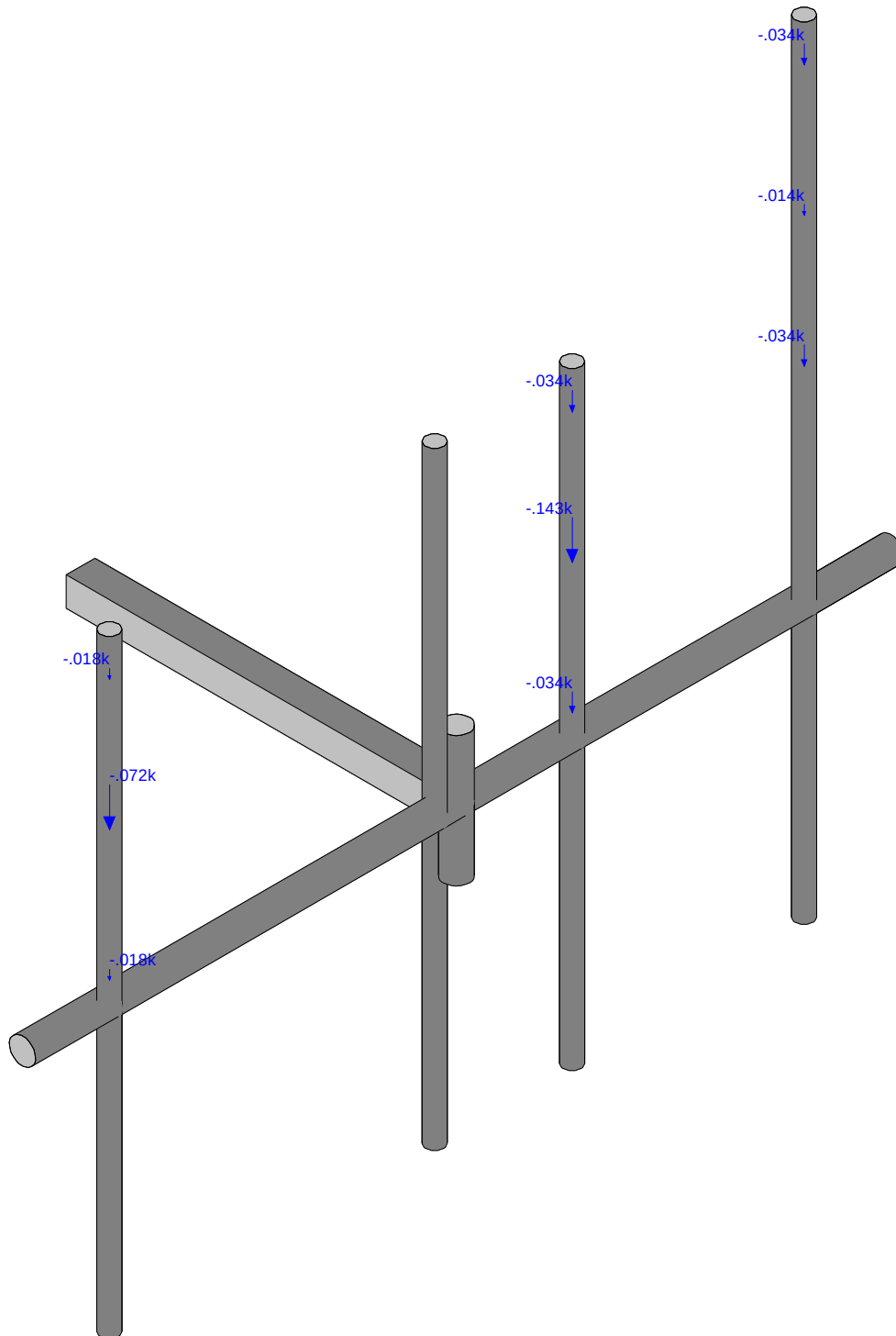
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)	SK - 1
LEG		Nov 26, 2019 at 11:33 AM
TEP No. 217406.329174		Mount Rev H.r3d

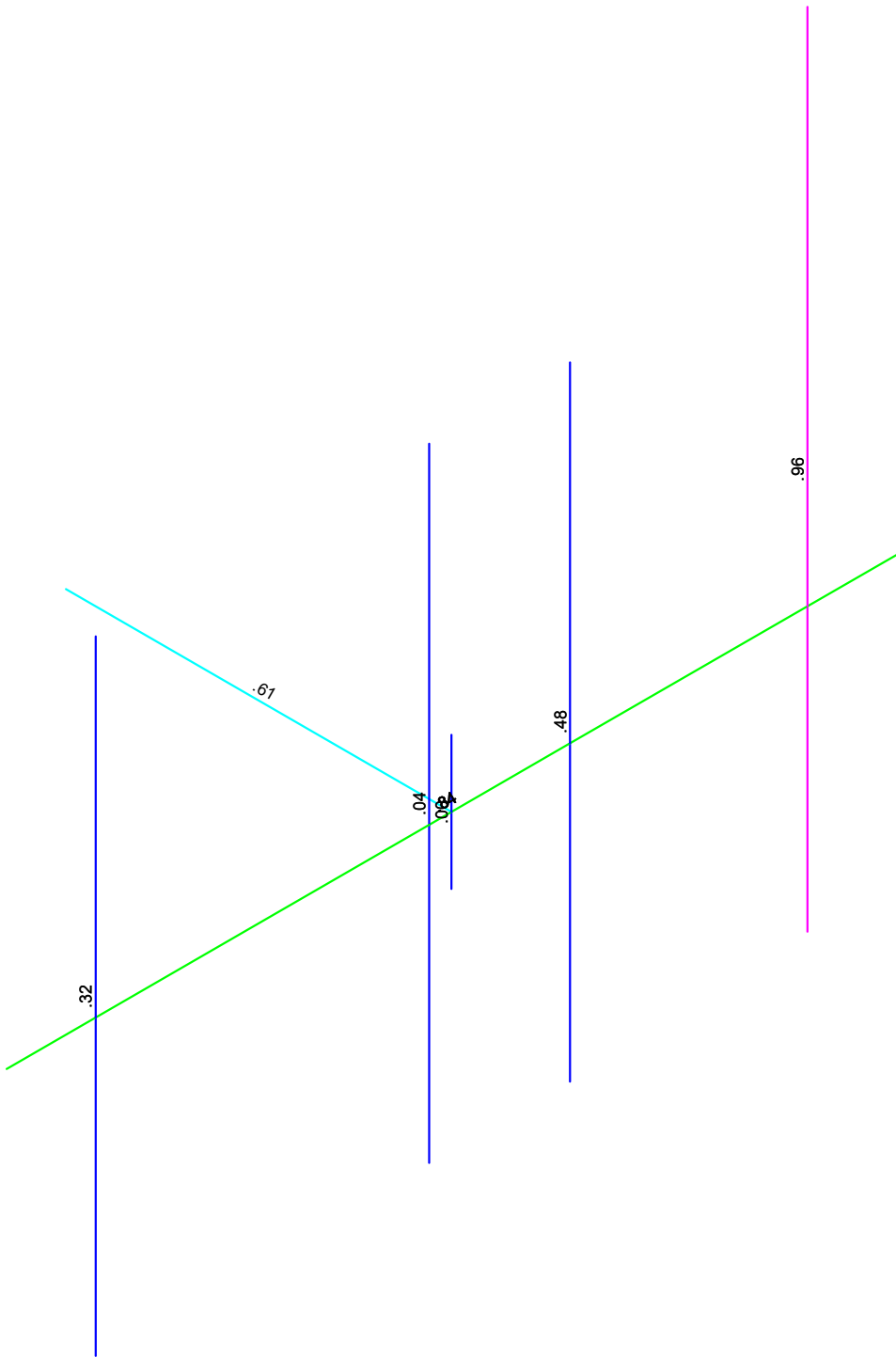


Loads: BLC 1, Dead
Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)	SK - 2
LEG		Nov 26, 2019 at 11:33 AM
TEP No. 217406.329174		Mount Rev H.r3d

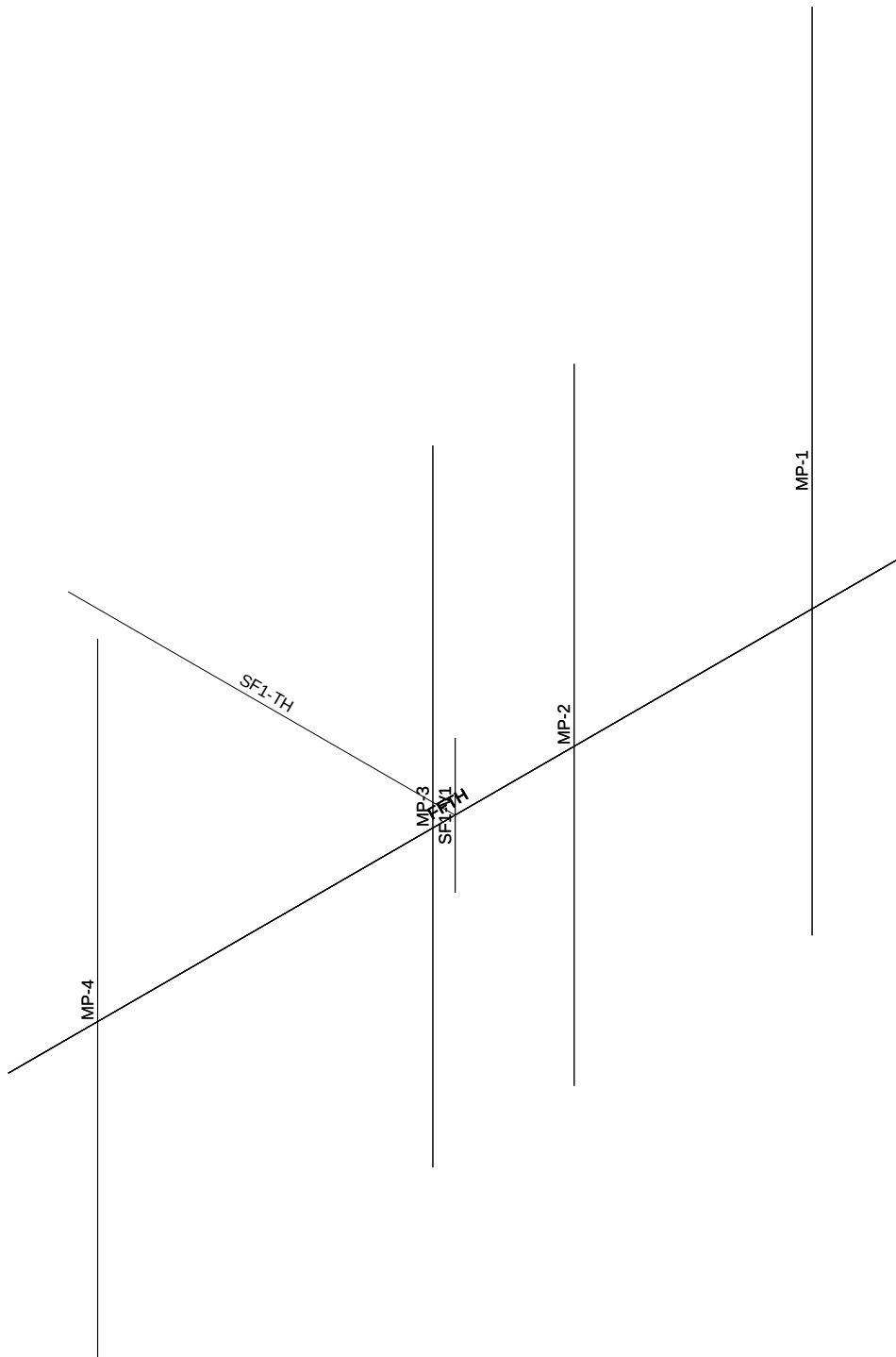


Code Check (Elem)	
No Calc	
> 1.0	
.90-1.0	
.75-.90	
.50-.75	
0-.50	



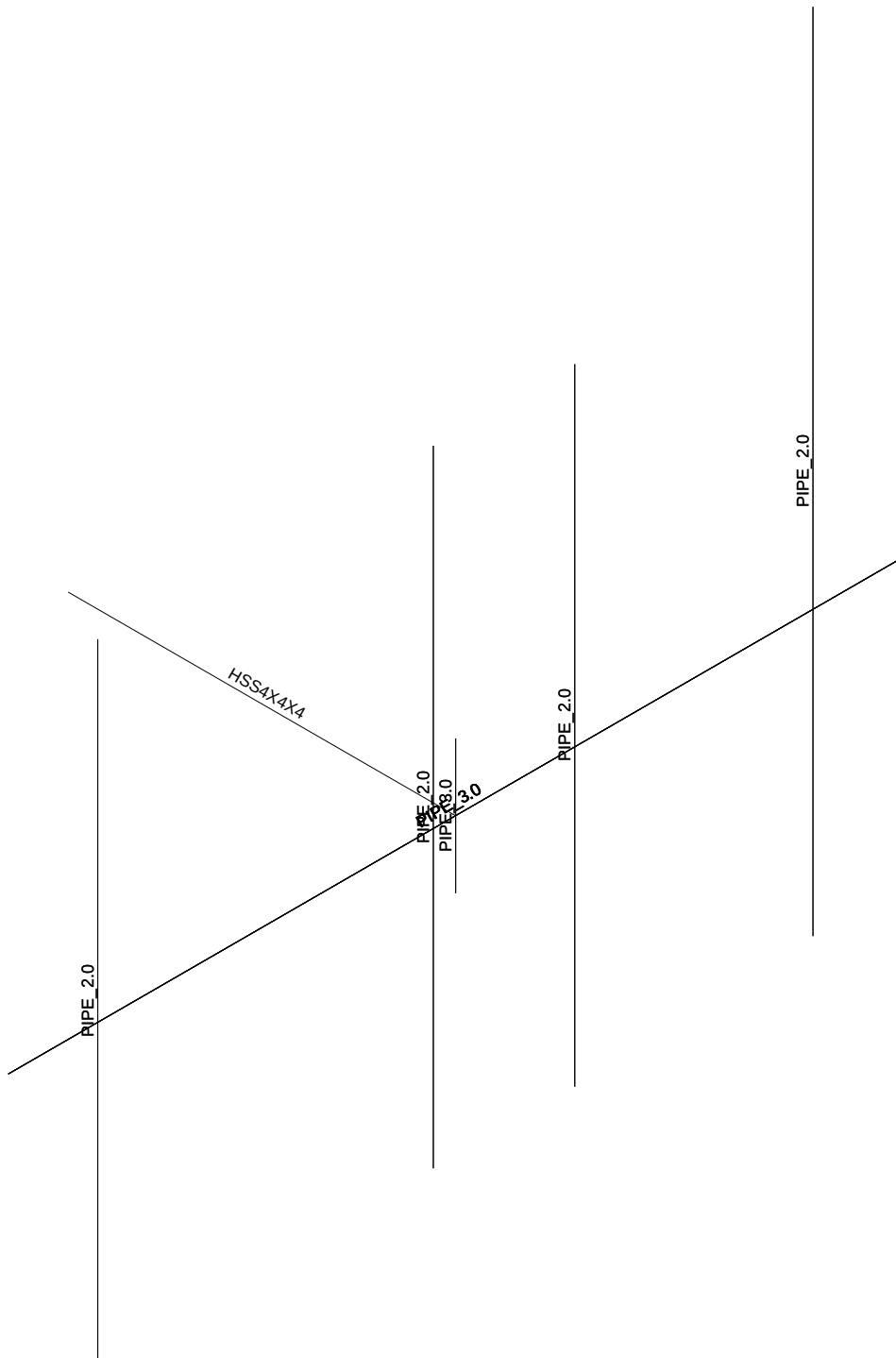
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)	SK - 3
LEG		Nov 26, 2019 at 11:34 AM
TEP No. 217406.329174		Mount Rev H.r3d

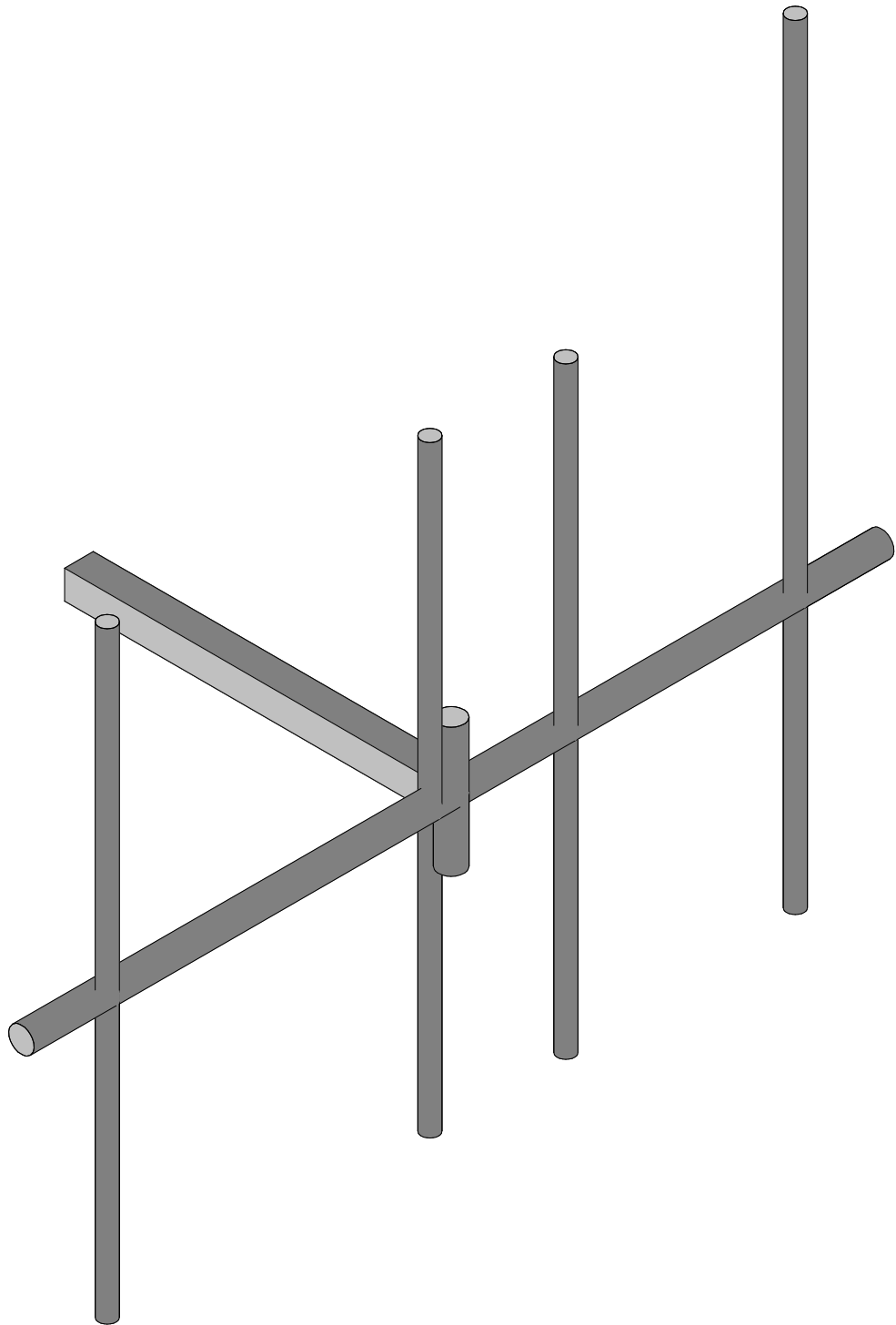


TEP No. 217406.329174

Mount Rev H.r3d



Envelope Only Solution		BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)	SK - 5
Tower Engineering Profes...	LEG		Nov 26, 2019 at 11:33 AM
TEP No. 217406.329174			Mount Rev H.r3d

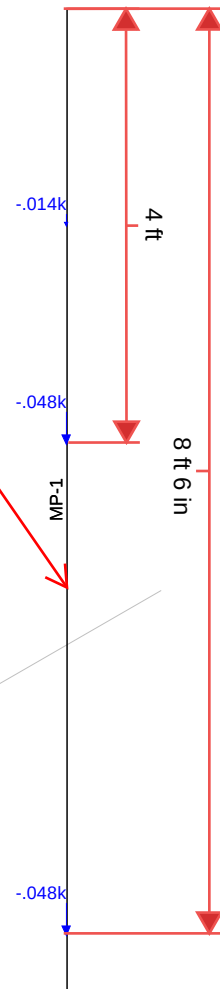


Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)	SK - 1
LEG		Nov 26, 2019 at 11:49 AM
TEP No. 217406.329174		Mount Rev H.r3d

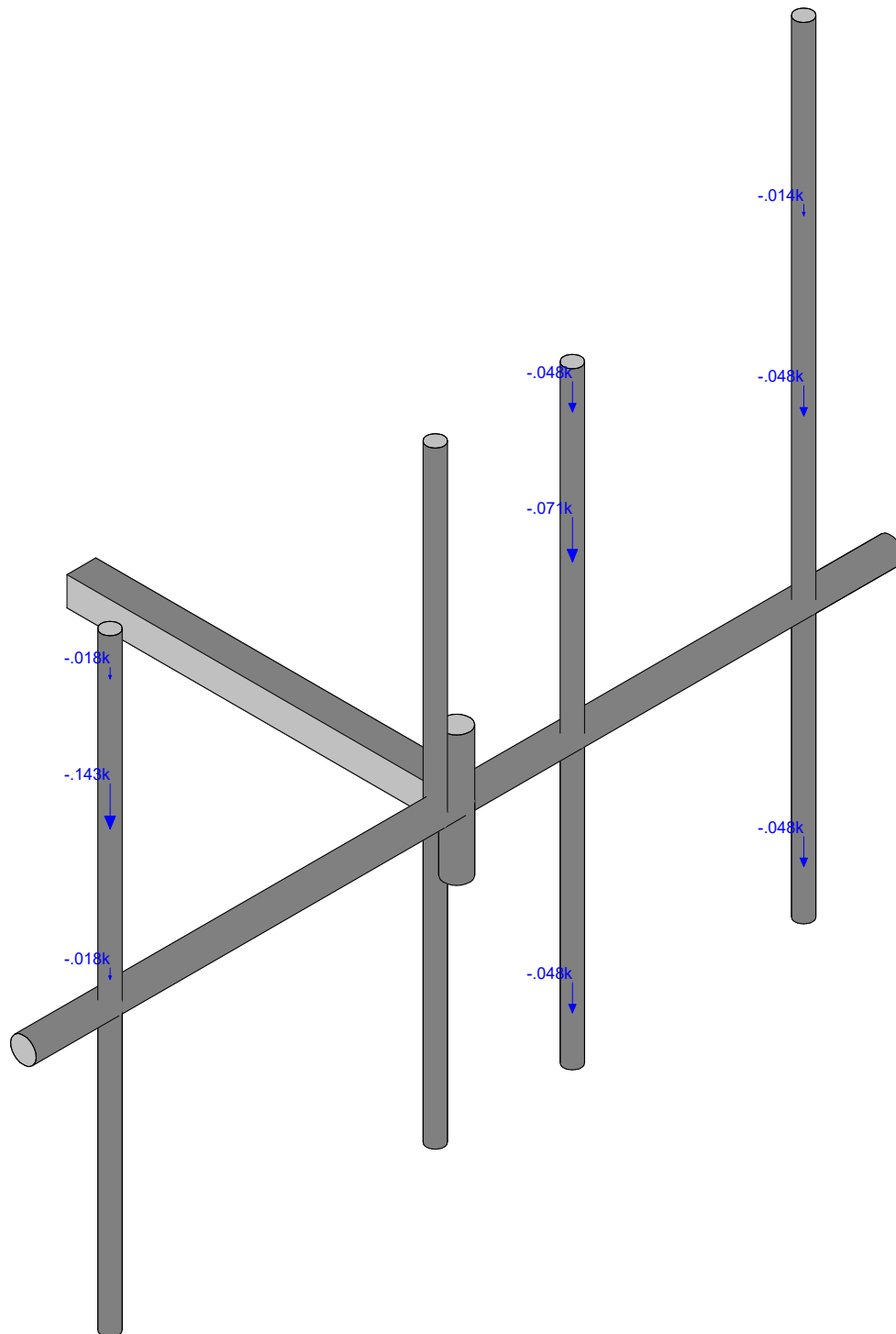


Antenna mount pipe connection points must be at 4-ft and 8-ft 6-in from top of mount pipe.



Loads: BLC 1, Dead

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)	SK - 1
LEG		Nov 25, 2019 at 4:41 PM
TEP No. 217406.329174		Mount Rev H.r3d



Loads: BLC 1, Dead
Envelope Only Solution

Tower Engineering Profes...

LEG

TEP No. 217406.329174

BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)

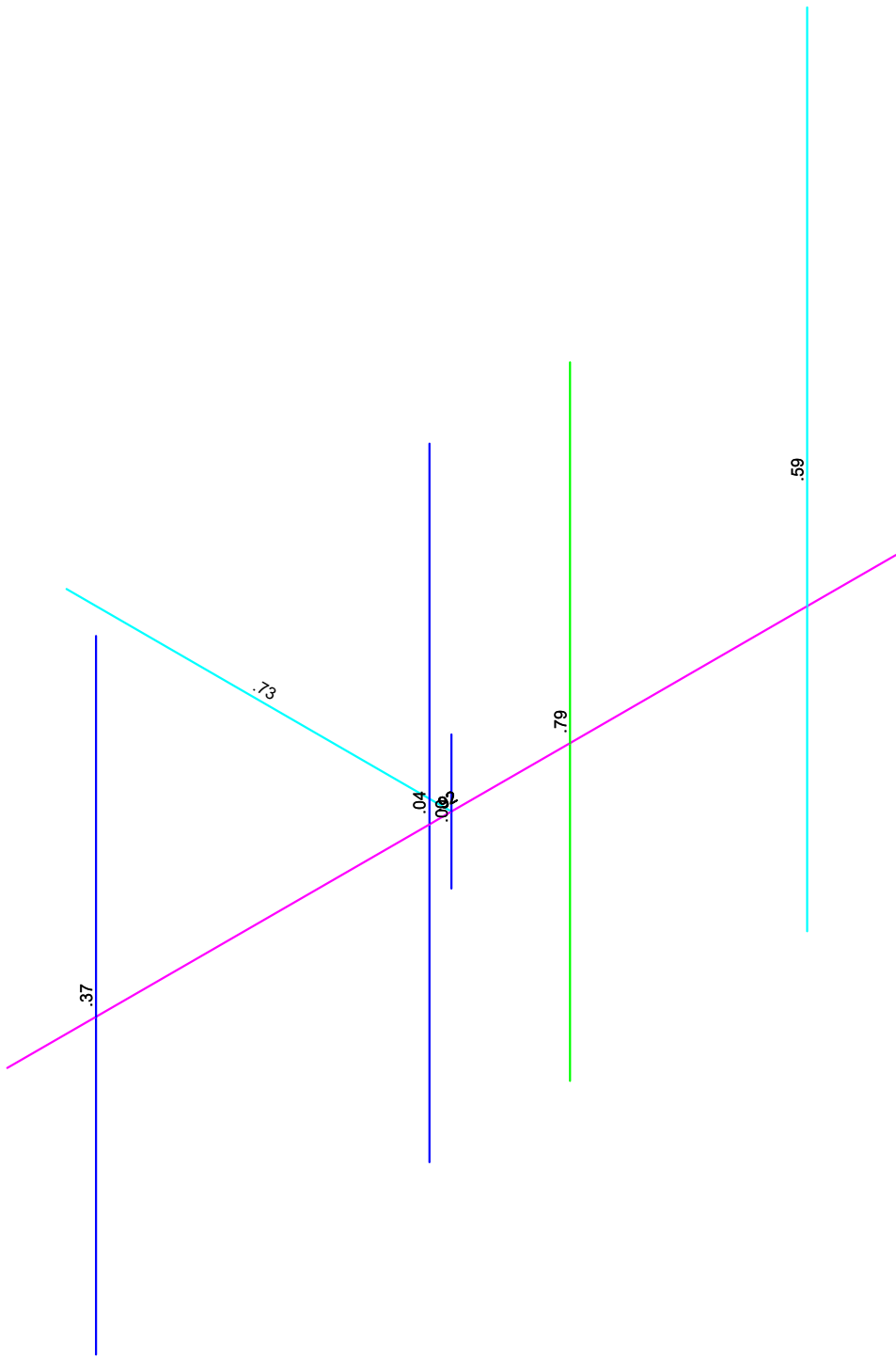
SK - 2

Nov 26, 2019 at 11:49 AM

Mount Rev H.r3d



Code Check (Elev)	
■	No Calc
■	> 1.0
■	.90-1.0
■	.75-.90
■	.50-.75
■	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profes...

LEG

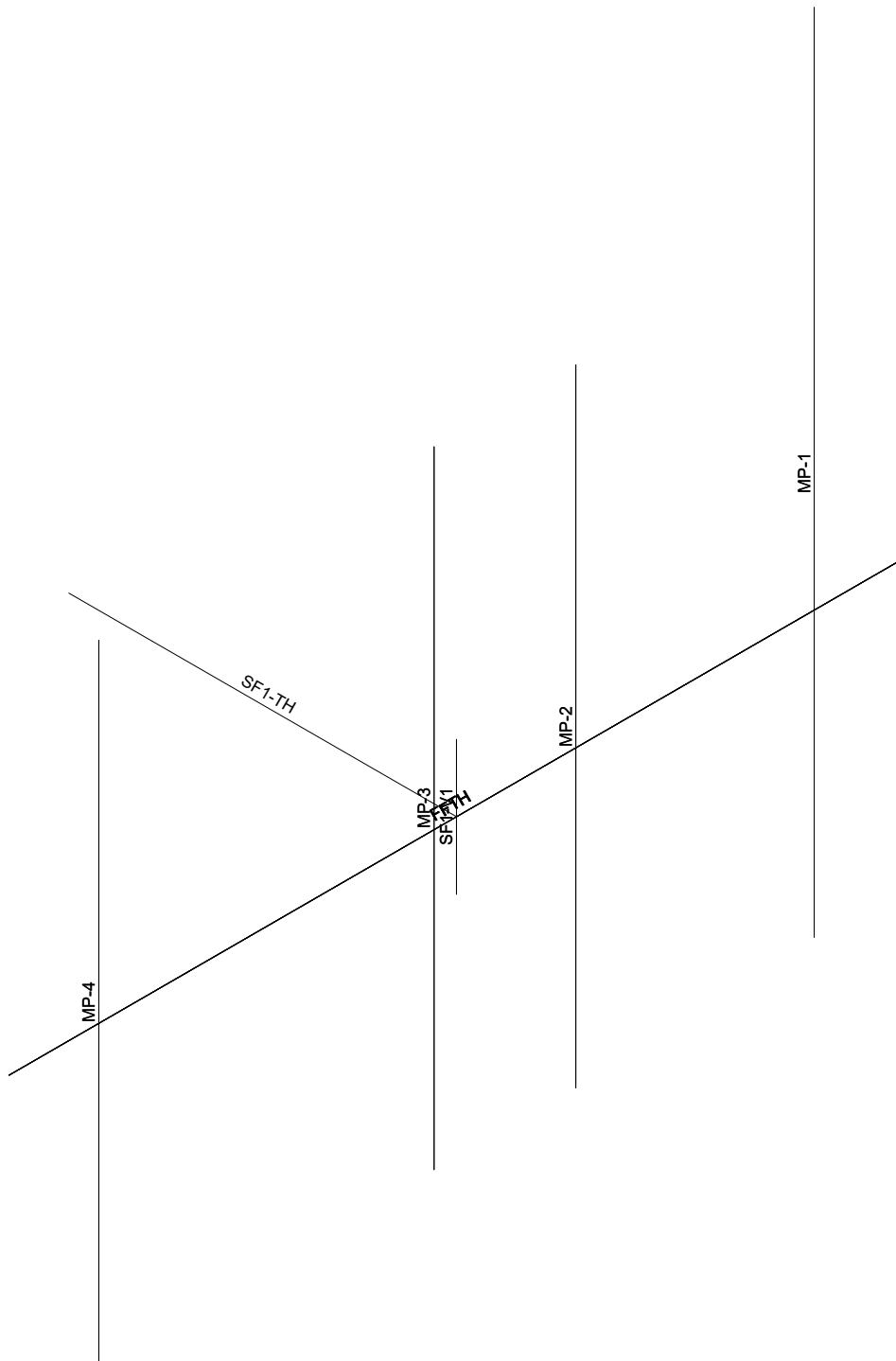
TEP No. 217406.329174

BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)

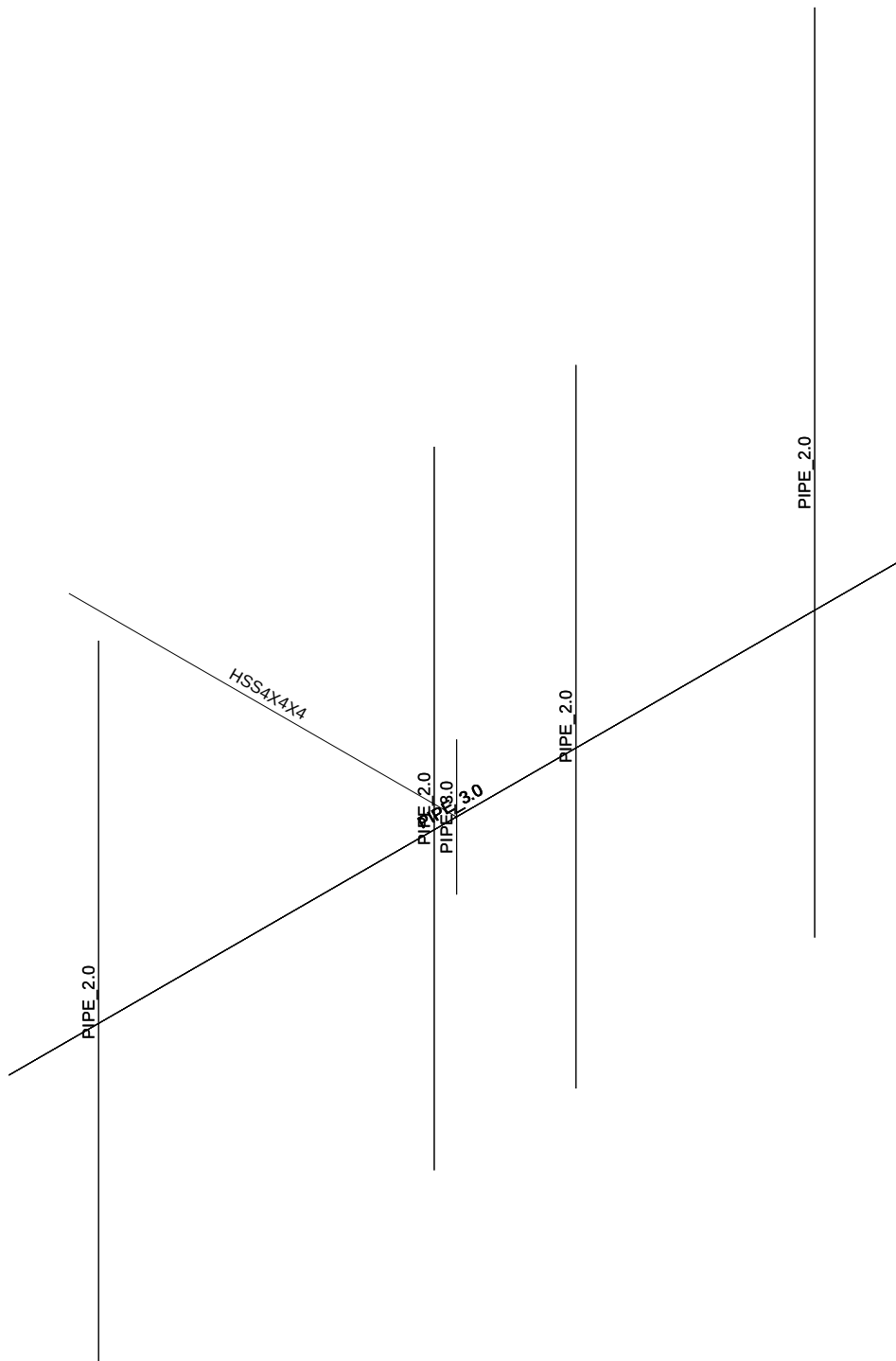
SK - 3

Nov 26, 2019 at 11:49 AM

Mount Rev H.r3d

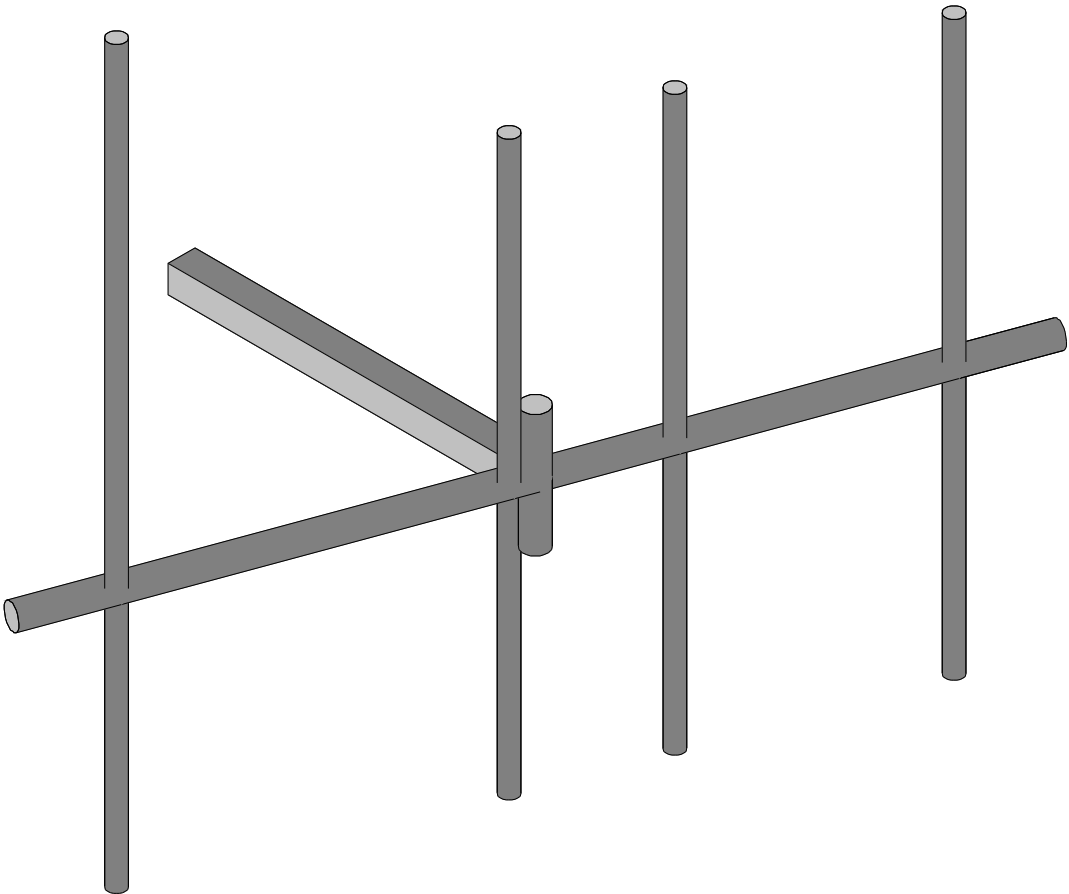


Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)	SK - 4
LEG		Nov 26, 2019 at 11:49 AM
TEP No. 217406.329174		Mount Rev H.r3d



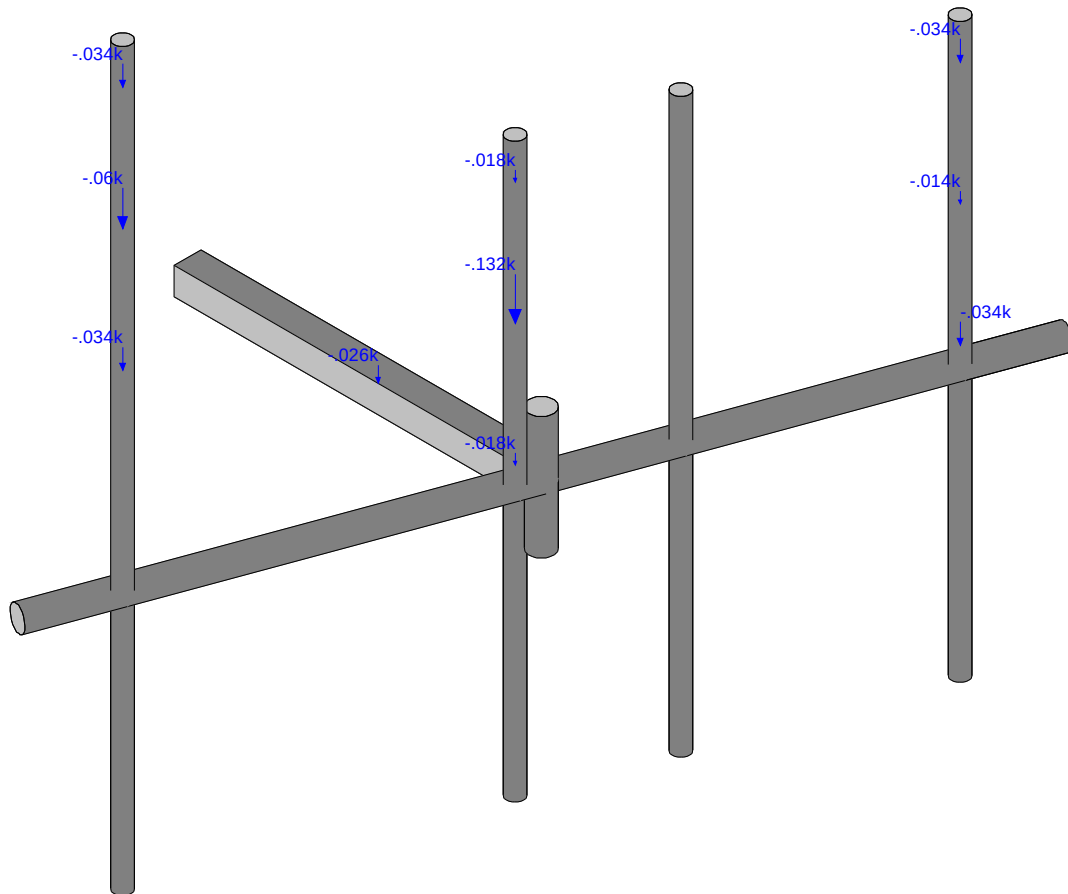
Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)	SK - 5
LEG		Nov 25, 2019 at 4:38 PM
TEP No. 217406.329174		Mount Rev H.r3d



Envelope Only Solution

Tower Engineering Profes...		SK - 1
LEG	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)	Nov 25, 2019 at 5:15 PM
TEP No. 217406.329174		Mount Rev H.r3d

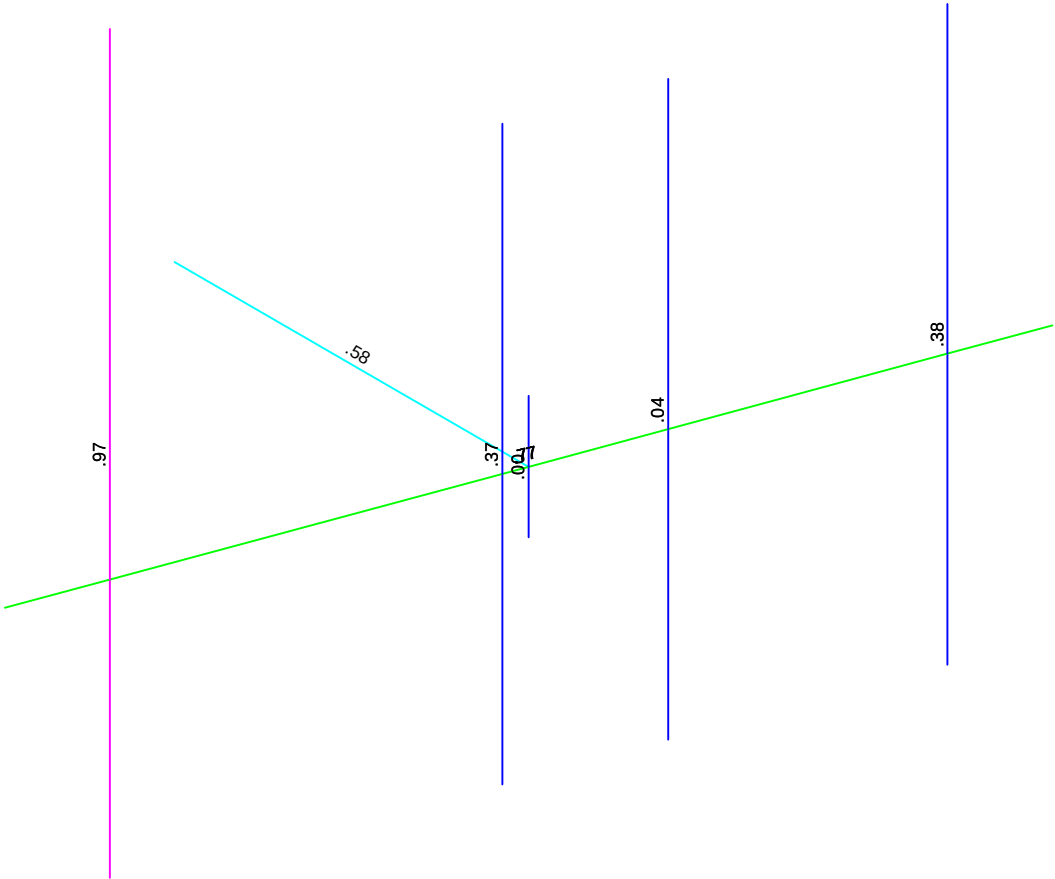


Loads: BLC 1, Dead
Envelope Only Solution

Tower Engineering Profes...		SK - 2
LEG	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)	Nov 25, 2019 at 5:16 PM
TEP No. 217406.329174		Mount Rev H.r3d

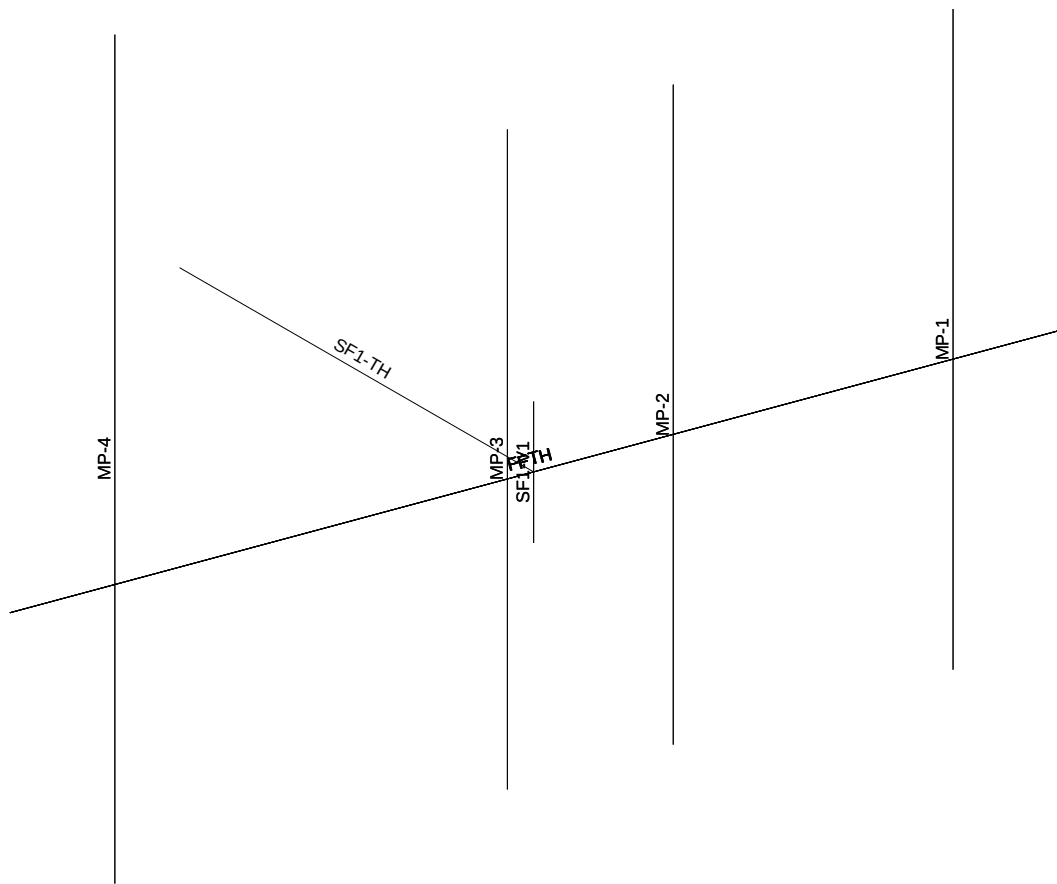


Code Check (Dist)	
■	No Calc
■	> 1.0
■	50-1.0
■	75-90
■	50-75
■	0-.50

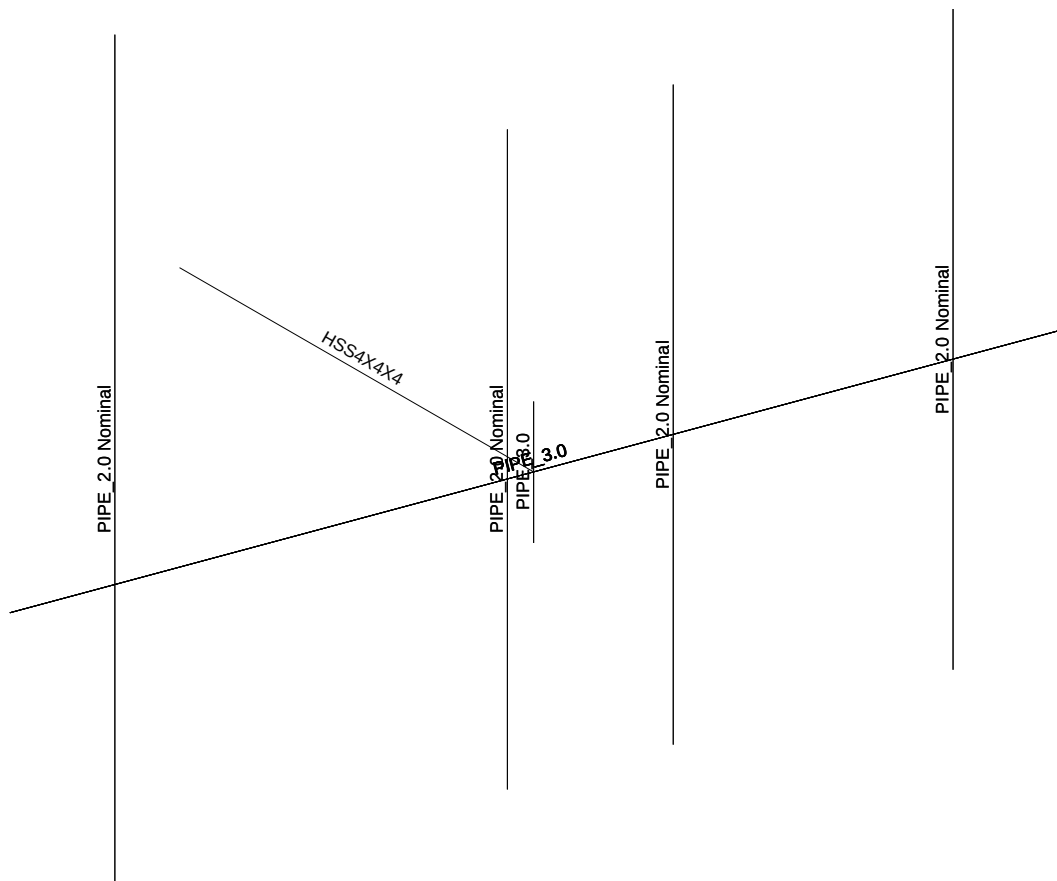


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)	SK - 3
LEG		Nov 25, 2019 at 5:16 PM
TEP No. 217406.329174		Mount Rev H.r3d



Envelope Only Solution		
Tower Engineering Profes...		SK - 4
LEG	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)	Nov 25, 2019 at 5:16 PM
TEP No. 217406.329174		Mount Rev H.r3d



Envelope Only Solution

Tower Engineering Profes...	BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)	SK - 5
LEG		Nov 25, 2019 at 5:17 PM
TEP No. 217406.329174		Mount Rev H.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS



BU# 824359 - Groton/ I-95/ X89/ Noa_1

TEP No. 217406.329174

Analysis By: LEG 11/25/2019

Checked By: HBC 11/25/2019

Code Revisions:	TIA-222-H	IBC 2018
Tower Type:	Monopole	

Wind Inputs:

Ult. Wind Velocity:	127.0	mph
Live Load Velocity:	30.0	mph
Ice Wind Velocity:	50.0	mph
Base Ice Thickness:	1.00	inches
Mount Centerline:	125.0	ft
Antenna Centerline:	128.0	ft
Exposure Category:	C	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	193	ft

Wind Calculations:

K_{zt} :	1.000	Section 2.6.6
K_d :	0.950	
$K_{z-Mount}$:	1.326	Section 2.6.5.2
$K_{z-Antenna}$:	1.333	Section 2.6.5.2
K_{iz} :	1.144	Section 2.6.10
Ice Thickness:	0.972	inches - Section 2.6.10
$K_{es-wind}$:	0.95	Annex S (Table S-1)
K_{es-ice} :	0.85	Annex S (Table S-1)

Without Ice - (psf)	With Ice - (psf)
$(q_z G_h)_{Mount}$: 49.09	$(q_z G_h)_{Mount}$: 8.01
$(q_z G_h)_{Antenna}$: 49.33	$(q_z G_h)_{Antenna}$: 8.05

Seismic Code Revisions:	TIA-222-H
Seismic Risk Category:	II

Seismic Input

S_{DS} :	0.200	Design Short Period Spectral Accel.
I_p :	1.0	Importance Factor
R_p :	2.0	Response Modification Factor
ρ :	1.0	
A_s :	1.0	Applification Factor - TIA-222-H Section 2.7.8.1
S_1 :	0.052	Short Period Spectral Accel.

Seismic Design Force

Cs:	0.100	kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.030	kips/kip	TIA-H Sec 2.7.7.1.1



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Antenna Loads are Calculated in Accordance with TIA-222-H

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis.

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Distance from start node of the member		
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
CCI ANTENNAS	DMP65R-BU4D	48.00	20.70	7.70	67.90	0.00	1	Flat	MP-1	0.50	3.50	
POWERWAVE TECHNOLOGIES	LGP21401	14.40	9.20	2.60	14.10	0.00	1	Flat	MP-1	2.00		
CCI ANTENNAS	DMP65R-BU4D	48.00	20.70	7.70	67.90	0.00	1	Flat	MP-2	0.50	3.50	
ERICSSON	RRUS 4449 B5/B12	17.90	9.44	13.19	71.00	0.00	1	Flat	MP-2	2.00		
ERICSSON	RRUS 8843 B2/B66A	14.90	10.90	13.20	72.00	0.00	1	Flat	MP-2	2.00		
POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	0.00	1	Flat	MP-4	0.50	3.50	
ERICSSON	RRUS 8843 B2/B66A	14.90	13.20	10.90	72.00	0.00	1	Flat	MP-4	2.00		



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Antenna Loads are Calculated in Accordance with TIA-222-H

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis.

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Distance from start node of the member		
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	95.70	0.00	1	Flat	MP-1	4.00	8.50	
POWERWAVE TECHNOLOGIES	LGP21401	14.40	9.20	2.60	14.10	0.00	1	Flat	MP-1	2.00		
CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	95.70	0.00	1	Flat	MP-2	0.50	6.50	
ERICSSON	RRUS 4449 B5/B12	17.90	13.19	9.44	71.00	0.00	1	Flat	MP-2	2.00		
POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	0.00	1	Flat	MP-4	0.50	3.50	
ERICSSON	RRUS 8843 B2/B66A	14.90	10.90	13.20	72.00	0.00	1	Flat	MP-4	2.00		
ERICSSON	RRUS 4449 B5/B12	17.90	9.44	13.19	71.00	0.00	1	Flat	MP-4	2.00		



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Antenna Loads are Calculated in Accordance with TIA-222-H

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis.

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth*	Qty	Shape	Member Label	Distance from start node of the member		
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
CCI ANTENNAS	DMP65R-BU4D	48.00	20.70	7.70	67.90	0.00	1	Flat	MP-1	0.50	3.50	
POWERWAVE TECHNOLOGIES	LGP21401	14.40	9.20	2.60	14.10	0.00	1	Flat	MP-1	2.00		
POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	0.00	1	Flat	MP-3	0.50	3.50	
ERICSSON	RRUS 4478 B14	16.50	7.70	13.40	59.90	0.00	1	Flat	MP-3	2.00		
ERICSSON	RRUS 8843 B2/B66A	14.90	10.90	13.20	72.00	0.00	1	Flat	MP-3	2.00		
CCI ANTENNAS	DMP65R-BU4D	48.00	20.70	7.70	67.90	0.00	1	Flat	MP-4	0.50	3.50	
ERICSSON	RRUS 4478 B14	16.50	13.40	7.70	59.90	0.00	1	Flat	MP-4	2.00		
RAYCAP	DC9-48-60-24-8C-EV	31.41	10.24	18.28	26.20	0.00	1	Flat	SF1-TH	2.00		



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Member Forces are Calculated in Accordance with TIA-222-H

Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
FFTH	3.500	120.00	Round	90.00	11.00
SF1-TH	4.000	52.00	Flat	0.00	16.00
SF1-V1	3.500	18.00	Round		11.00
MP-1	2.375	108.00	Round		7.46
MP-2	2.375	84.00	Round		7.46
MP-3	2.375	84.00	Round		7.46
MP-4	2.375	84.00	Round		7.46



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Beta Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Member Forces are Calculated in Accordance with TIA-222-H

Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
FFTH	3.500	120.00	Round	90.00	11.00
SF1-TH	4.000	52.00	Flat	0.00	16.00
SF1-V1	3.500	18.00	Round		11.00
MP-1	2.375	108.00	Round		7.46
MP-2	2.375	84.00	Round		7.46
MP-3	2.375	84.00	Round		7.46
MP-4	2.375	84.00	Round		7.46



BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)

TEP No. 217406.329174

Analysis By: LEG 11/26/2019

Checked By: HBC 11/26/2019

Member Forces are Calculated in Accordance with TIA-222-H

Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
FFTH	3.500	120.00	Round	70.00	11.00
SF1-TH	4.000	52.00	Flat	0.00	16.00
SF1-V1	3.500	18.00	Round		11.00
MP-1	2.375	84.00	Round		7.46
MP-2	2.375	84.00	Round		7.46
MP-3	2.375	84.00	Round		7.46
MP-4	2.375	108.00	Round		7.46

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in ²)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec ²)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	No
RISACONNECTION Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...Density [k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Support Horizontal	HSS4X4X4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Support Vertical	PIPE 3.0	Column	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Mount Pines	PIPE 2.0	Column	None	A53 Gr.B	Typical	1.02	627	627	1.25

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B Rect	HSS4X4X4	1	4.3	0
3	A53 Gr.B	PIPE 2.0	4	30	.1
4	A53 Gr.B	PIPE 3.0	2	11.5	0
5	Total HR Steel		7	45.8	2

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	SEI-1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	FFTH	N3	N4			Face Horizontal	Beam	None	A53 Gr.B	Typical
2	SF1-TH	N2	SF1-1			Support Horizontal	Beam	None	A500 Gr... A53 Gr.B	Typical
3	SF1-V1	N9	N10			Support Vertical	Column	None	A53 Gr.B	Typical
4	MP-1	N13	N14			Mount Pipes	Column	None	A53 Gr.B	Typical
5	MP-2	N15	N18			Mount Pipes	Column	None	A53 Gr.B	Typical
6	MP-3	N14A	N17			Mount Pipes	Column	None	A53 Gr.B	Typical
7	MP-4	N13A	N16			Mount Pipes	Column	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset(in)	J Offset(in)	T/C Only	Physical	Defl Rati...	Analysis Off...	Inactive	Seismi...
1	FFTH						Yes				None
2	SF1-TH						Yes				None
3	SF1-V1						Yes	** NA **			None
4	MP-1						Yes	** NA **			None
5	MP-2						Yes	** NA **			None
6	MP-3						Yes	** NA **			None
7	MP-4						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[...]	Lbby[ft]	Lbzz[ft]	Lcomp top...	Lcomp bot...	L-torq...	Kvy	Kzz	Cb	Function
1	FFTH	Face Horizontal	10	5	5	Lbby			2.1	2.1		Lateral
2	SF1-TH	Support Horizontal	4.333			Lbby			2.1	2.1		Lateral
3	SF1-V1	Support Vertical	1.5						2.1	2.1		Lateral
4	MP-1	Mount Pipes	9	Segment	Segment				2.1	2.1		Lateral
5	MP-2	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral
6	MP-3	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral
7	MP-4	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...)	Surface(P...
1	Dead	None		-1			10			
2	0 Wind - No Ice	None					10	7		
3	30 Wind - No Ice	None					20	14		
4	45 Wind - No Ice	None					20	14		
5	60 Wind - No Ice	None					20	14		
6	90 Wind - No Ice	None					10	7		
7	120 Wind - No Ice	None					20	14		
8	135 Wind - No Ice	None					20	14		
9	150 Wind - No Ice	None					20	14		
10	180 Wind - No Ice	None					10	7		
11	210 Wind - No Ice	None					20	14		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
12	225 Wind - No Ice	None					20	14		
13	240 Wind - No Ice	None					20	14		
14	270 Wind - No Ice	None					10	7		
15	300 Wind - No Ice	None					20	14		
16	315 Wind - No Ice	None					20	14		
17	330 Wind - No Ice	None					20	14		
18	Ice Weight	None					10	7		
19	0 Wind - Ice	None					10	7		
20	30 Wind - Ice	None					20	14		
21	45 Wind - Ice	None					20	14		
22	60 Wind - Ice	None					20	14		
23	90 Wind - Ice	None					10	7		
24	120 Wind - Ice	None					20	14		
25	135 Wind - Ice	None					20	14		
26	150 Wind - Ice	None					20	14		
27	180 Wind - Ice	None					10	7		
28	210 Wind - Ice	None					20	14		
29	225 Wind - Ice	None					20	14		
30	240 Wind - Ice	None					20	14		
31	270 Wind - Ice	None					10	7		
32	300 Wind - Ice	None					20	14		
33	315 Wind - Ice	None					20	14		
34	330 Wind - Ice	None					20	14		
35	Lm	None				1				
36	Lv	None				1				
37	Seismic Load X	ELX	-1				10			
38	Seismic Load Z	ELZ			-1		10			

Load Combinations

[illegible]

Load Combinations (Continued)

[illegible]

Load Combinations (Continued)

	Description	So...	P...	S...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
73	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.071	ELZ	.071						
74	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.087	ELZ	.05						
75	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.1	0							
76	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.087	ELZ	-.05						
77	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.071	ELZ	-.071						
78	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.05	ELZ	-.087						
79	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	0		ELZ	-.1						
80	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.05	ELZ	-.087						
81	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.071	ELZ	-.071						
82	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.087	ELZ	-.05						
83	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.1	0							
84	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.087	ELZ	.05						
85	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.071	ELZ	.071						
86	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.05	ELZ	.087						
87	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	0		ELZ	.1						
88	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.05	ELZ	.087						
89	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.071	ELZ	.071						
90	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.087	ELZ	.05						
91	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.1	0							
92	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.087	ELZ	-.05						
93	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.071	ELZ	-.071						
94	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.05	ELZ	-.087						
95	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	0		ELZ	-.1						
96	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.05	ELZ	-.087						
97	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.071	ELZ	-.071						
98	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.087	ELZ	-.05						

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap.
1	SF1-1	0	0	0	0	
2	N2	4.333	0	0	0	
3	N3	4.333	0	-5	0	
4	N4	4.333	0	5	0	
5	N5	4.333	0	4	0	
6	N6	4.333	0	.25	0	
7	N7	4.333	0	-1.33333	0	
8	N8	4.333	0	-4	0	
9	N9	4.333	.75	0	0	
10	N10	4.333	-.75	0	0	
11	N13	4.333	5.8333	-4	0	
12	N14	4.333	-3.1667	-4	0	
13	N13A	4.333	3.708333	4	0	
14	N14A	4.333	3.708333	.25	0	
15	N15	4.333	3.708333	-1.33333	0	
16	N16	4.333	-3.291667	4	0	
17	N17	4.333	-3.291667	.25	0	
18	N18	4.333	-3.291667	-1.33333	0	



Company : Tower Engineering Professionals, Inc.
Designer : LEG
Job Number : TEP No. 217406.329174
Model Name : BU# 824359 - Grotton/ I-95/ X89/ Noa_1 (Alpha Sector)

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Joint Loads and Enforced Displacements (BLC 35 : Lm)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/...
1	N8	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 36 : Lv)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/...
1	N3	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Y	-.034	.5
2	MP-1	Y	-.014	2
3	MP-2	Y	-.034	.5
4	MP-2	Y	-.071	2
5	MP-2	Y	-.072	2
6	MP-4	Y	-.018	.5
7	MP-4	Y	-.072	2
8	MP-1	Y	-.034	3.5
9	MP-2	Y	-.034	3.5
10	MP-4	Y	-.018	3.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.184	.5
2	MP-1	X	-.049	2
3	MP-2	X	-.184	.5
4	MP-2	X	-.063	2
5	MP-2	X	-.06	2
6	MP-4	X	-.122	.5
7	MP-4	X	-.073	2
8	MP-1	X	-.184	3.5
9	MP-2	X	-.184	3.5
10	MP-4	X	-.122	3.5

Member Point Loads (BLC 3 : 30 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.136	.5
2	MP-1	X	-.035	2
3	MP-2	X	-.136	.5
4	MP-2	X	-.06	2
5	MP-2	X	-.055	2
6	MP-4	X	-.094	.5
7	MP-4	X	-.06	2
8	MP-1	X	-.136	3.5
9	MP-2	X	-.136	3.5
10	MP-4	X	-.094	3.5
11	MP-1	Z	-.079	.5
12	MP-1	Z	-.02	2
13	MP-2	Z	-.079	.5
14	MP-2	Z	-.034	2



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Member Point Loads (BLC 3 : 30 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	MP-2	Z	-.032	2
16	MP-4	Z	-.054	.5
17	MP-4	Z	-.035	2
18	MP-1	Z	-.079	3.5
19	MP-2	Z	-.079	3.5
20	MP-4	Z	-.054	3.5

Member Point Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.093	.5
2	MP-1	X	-.023	2
3	MP-2	X	-.093	.5
4	MP-2	X	-.053	2
5	MP-2	X	-.047	2
6	MP-4	X	-.066	.5
7	MP-4	X	-.047	2
8	MP-1	X	-.093	3.5
9	MP-2	X	-.093	3.5
10	MP-4	X	-.066	3.5
11	MP-1	Z	-.093	.5
12	MP-1	Z	-.023	2
13	MP-2	Z	-.093	.5
14	MP-2	Z	-.053	2
15	MP-2	Z	-.047	2
16	MP-4	Z	-.066	.5
17	MP-4	Z	-.047	2
18	MP-1	Z	-.093	3.5
19	MP-2	Z	-.093	3.5
20	MP-4	Z	-.066	3.5

Member Point Loads (BLC 5 : 60 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.052	.5
2	MP-1	X	-.012	2
3	MP-2	X	-.052	.5
4	MP-2	X	-.041	2
5	MP-2	X	-.035	2
6	MP-4	X	-.04	.5
7	MP-4	X	-.032	2
8	MP-1	X	-.052	3.5
9	MP-2	X	-.052	3.5
10	MP-4	X	-.04	3.5
11	MP-1	Z	-.09	.5
12	MP-1	Z	-.021	2
13	MP-2	Z	-.09	.5
14	MP-2	Z	-.07	2
15	MP-2	Z	-.06	2
16	MP-4	Z	-.069	.5
17	MP-4	Z	-.055	2
18	MP-1	Z	-.09	3.5
19	MP-2	Z	-.09	3.5



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Member Point Loads (BLC 5 : 60 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	MP-4	Z	-.069	3.5

Member Point Loads (BLC 6 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.078	.5
2	MP-1	Z	-.015	2
3	MP-2	Z	-.078	.5
4	MP-2	Z	-.087	2
5	MP-2	Z	-.073	2
6	MP-4	Z	-.065	.5
7	MP-4	Z	-.06	2
8	MP-1	Z	-.078	3.5
9	MP-2	Z	-.078	3.5
10	MP-4	Z	-.065	3.5

Member Point Loads (BLC 7 : 120 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.052	.5
2	MP-1	X	.012	2
3	MP-2	X	.052	.5
4	MP-2	X	.041	2
5	MP-2	X	.035	2
6	MP-4	X	.04	.5
7	MP-4	X	.032	2
8	MP-1	X	.052	3.5
9	MP-2	X	.052	3.5
10	MP-4	X	.04	3.5
11	MP-1	Z	-.09	.5
12	MP-1	Z	-.021	2
13	MP-2	Z	-.09	.5
14	MP-2	Z	-.07	2
15	MP-2	Z	-.06	2
16	MP-4	Z	-.069	.5
17	MP-4	Z	-.055	2
18	MP-1	Z	-.09	3.5
19	MP-2	Z	-.09	3.5
20	MP-4	Z	-.069	3.5

Member Point Loads (BLC 8 : 135 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.093	.5
2	MP-1	X	.023	2
3	MP-2	X	.093	.5
4	MP-2	X	.053	2
5	MP-2	X	.047	2
6	MP-4	X	.066	.5
7	MP-4	X	.047	2
8	MP-1	X	.093	3.5
9	MP-2	X	.093	3.5
10	MP-4	X	.066	3.5



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Member Point Loads (BLC 8 : 135 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
11	MP-1	Z	-.093	.5
12	MP-1	Z	-.023	2
13	MP-2	Z	-.093	.5
14	MP-2	Z	-.053	2
15	MP-2	Z	-.047	2
16	MP-4	Z	-.066	.5
17	MP-4	Z	-.047	2
18	MP-1	Z	-.093	3.5
19	MP-2	Z	-.093	3.5
20	MP-4	Z	-.066	3.5

Member Point Loads (BLC 9 : 150 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.136	.5
2	MP-1	X	.035	2
3	MP-2	X	.136	.5
4	MP-2	X	.06	2
5	MP-2	X	.055	2
6	MP-4	X	.094	.5
7	MP-4	X	.06	2
8	MP-1	X	.136	3.5
9	MP-2	X	.136	3.5
10	MP-4	X	.094	3.5
11	MP-1	Z	-.079	.5
12	MP-1	Z	-.02	2
13	MP-2	Z	-.079	.5
14	MP-2	Z	-.034	2
15	MP-2	Z	-.032	2
16	MP-4	Z	-.054	.5
17	MP-4	Z	-.035	2
18	MP-1	Z	-.079	3.5
19	MP-2	Z	-.079	3.5
20	MP-4	Z	-.054	3.5

Member Point Loads (BLC 10 : 180 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.184	.5
2	MP-1	X	.049	2
3	MP-2	X	.184	.5
4	MP-2	X	.063	2
5	MP-2	X	.06	2
6	MP-4	X	.122	.5
7	MP-4	X	.073	2
8	MP-1	X	.184	3.5
9	MP-2	X	.184	3.5
10	MP-4	X	.122	3.5

Member Point Loads (BLC 11 : 210 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.136	.5



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Member Point Loads (BLC 11 : 210 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
2	MP-1	X	.035	2
3	MP-2	X	.136	.5
4	MP-2	X	.06	2
5	MP-2	X	.055	2
6	MP-4	X	.094	.5
7	MP-4	X	.06	2
8	MP-1	X	.136	3.5
9	MP-2	X	.136	3.5
10	MP-4	X	.094	3.5
11	MP-1	Z	.079	.5
12	MP-1	Z	.02	2
13	MP-2	Z	.079	.5
14	MP-2	Z	.034	2
15	MP-2	Z	.032	2
16	MP-4	Z	.054	.5
17	MP-4	Z	.035	2
18	MP-1	Z	.079	3.5
19	MP-2	Z	.079	3.5
20	MP-4	Z	.054	3.5

Member Point Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
1	MP-1	X	.093	.5
2	MP-1	X	.023	2
3	MP-2	X	.093	.5
4	MP-2	X	.053	2
5	MP-2	X	.047	2
6	MP-4	X	.066	.5
7	MP-4	X	.047	2
8	MP-1	X	.093	3.5
9	MP-2	X	.093	3.5
10	MP-4	X	.066	3.5
11	MP-1	Z	.093	.5
12	MP-1	Z	.023	2
13	MP-2	Z	.093	.5
14	MP-2	Z	.053	2
15	MP-2	Z	.047	2
16	MP-4	Z	.066	.5
17	MP-4	Z	.047	2
18	MP-1	Z	.093	3.5
19	MP-2	Z	.093	3.5
20	MP-4	Z	.066	3.5

Member Point Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
1	MP-1	X	.052	.5
2	MP-1	X	.012	2
3	MP-2	X	.052	.5
4	MP-2	X	.041	2
5	MP-2	X	.035	2
6	MP-4	X	.04	.5



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Member Point Loads (BLC 13 : 240 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
7	MP-4	X	.032	2
8	MP-1	X	.052	3.5
9	MP-2	X	.052	3.5
10	MP-4	X	.04	3.5
11	MP-1	Z	.09	.5
12	MP-1	Z	.021	2
13	MP-2	Z	.09	.5
14	MP-2	Z	.07	2
15	MP-2	Z	.06	2
16	MP-4	Z	.069	.5
17	MP-4	Z	.055	2
18	MP-1	Z	.09	3.5
19	MP-2	Z	.09	3.5
20	MP-4	Z	.069	3.5

Member Point Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
1	MP-1	Z	.078	.5
2	MP-1	Z	.015	2
3	MP-2	Z	.078	.5
4	MP-2	Z	.087	2
5	MP-2	Z	.073	2
6	MP-4	Z	.065	.5
7	MP-4	Z	.06	2
8	MP-1	Z	.078	3.5
9	MP-2	Z	.078	3.5
10	MP-4	Z	.065	3.5

Member Point Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location(ft,%)
1	MP-1	X	-.052	.5
2	MP-1	X	-.012	2
3	MP-2	X	-.052	.5
4	MP-2	X	-.041	2
5	MP-2	X	-.035	2
6	MP-4	X	-.04	.5
7	MP-4	X	-.032	2
8	MP-1	X	-.052	3.5
9	MP-2	X	-.052	3.5
10	MP-4	X	-.04	3.5
11	MP-1	Z	.09	.5
12	MP-1	Z	.021	2
13	MP-2	Z	.09	.5
14	MP-2	Z	.07	2
15	MP-2	Z	.06	2
16	MP-4	Z	.069	.5
17	MP-4	Z	.055	2
18	MP-1	Z	.09	3.5
19	MP-2	Z	.09	3.5
20	MP-4	Z	.069	3.5



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Member Point Loads (BLC 16 : 315 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.093	.5
2	MP-1	X	-.023	2
3	MP-2	X	-.093	.5
4	MP-2	X	-.053	2
5	MP-2	X	-.047	2
6	MP-4	X	-.066	.5
7	MP-4	X	-.047	2
8	MP-1	X	-.093	3.5
9	MP-2	X	-.093	3.5
10	MP-4	X	-.066	3.5
11	MP-1	Z	.093	.5
12	MP-1	Z	.023	2
13	MP-2	Z	.093	.5
14	MP-2	Z	.053	2
15	MP-2	Z	.047	2
16	MP-4	Z	.066	.5
17	MP-4	Z	.047	2
18	MP-1	Z	.093	3.5
19	MP-2	Z	.093	3.5
20	MP-4	Z	.066	3.5

Member Point Loads (BLC 17 : 330 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.136	.5
2	MP-1	X	-.035	2
3	MP-2	X	-.136	.5
4	MP-2	X	-.06	2
5	MP-2	X	-.055	2
6	MP-4	X	-.094	.5
7	MP-4	X	-.06	2
8	MP-1	X	-.136	3.5
9	MP-2	X	-.136	3.5
10	MP-4	X	-.094	3.5
11	MP-1	Z	.079	.5
12	MP-1	Z	.02	2
13	MP-2	Z	.079	.5
14	MP-2	Z	.034	2
15	MP-2	Z	.032	2
16	MP-4	Z	.054	.5
17	MP-4	Z	.035	2
18	MP-1	Z	.079	3.5
19	MP-2	Z	.079	3.5
20	MP-4	Z	.054	3.5

Member Point Loads (BLC 18 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Y	-.053	.5
2	MP-1	Y	-.016	2
3	MP-2	Y	-.053	.5
4	MP-2	Y	-.039	2
5	MP-2	Y	-.037	2



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Member Point Loads (BLC 18 : Ice Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	MP-4	Y	-.034	.5
7	MP-4	Y	-.037	2
8	MP-1	Y	-.053	3.5
9	MP-2	Y	-.053	3.5
10	MP-4	Y	-.034	3.5

Member Point Loads (BLC 19 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.034	.5
2	MP-1	X	-.011	2
3	MP-2	X	-.034	.5
4	MP-2	X	-.014	2
5	MP-2	X	-.013	2
6	MP-4	X	-.024	.5
7	MP-4	X	-.015	2
8	MP-1	X	-.034	3.5
9	MP-2	X	-.034	3.5
10	MP-4	X	-.024	3.5

Member Point Loads (BLC 20 : 30 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.026	.5
2	MP-1	X	-.008	2
3	MP-2	X	-.026	.5
4	MP-2	X	-.013	2
5	MP-2	X	-.012	2
6	MP-4	X	-.019	.5
7	MP-4	X	-.013	2
8	MP-1	X	-.026	3.5
9	MP-2	X	-.026	3.5
10	MP-4	X	-.019	3.5
11	MP-1	Z	-.015	.5
12	MP-1	Z	-.005	2
13	MP-2	Z	-.015	.5
14	MP-2	Z	-.007	2
15	MP-2	Z	-.007	2
16	MP-4	Z	-.011	.5
17	MP-4	Z	-.007	2
18	MP-1	Z	-.015	3.5
19	MP-2	Z	-.015	3.5
20	MP-4	Z	-.011	3.5

Member Point Loads (BLC 21 : 45 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.018	.5
2	MP-1	X	-.006	2
3	MP-2	X	-.018	.5
4	MP-2	X	-.011	2
5	MP-2	X	-.01	2
6	MP-4	X	-.013	.5



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Member Point Loads (BLC 21 : 45 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
7	MP-4	X	-.01	2
8	MP-1	X	-.018	3.5
9	MP-2	X	-.018	3.5
10	MP-4	X	-.013	3.5
11	MP-1	Z	-.018	.5
12	MP-1	Z	-.006	2
13	MP-2	Z	-.018	.5
14	MP-2	Z	-.011	2
15	MP-2	Z	-.01	2
16	MP-4	Z	-.013	.5
17	MP-4	Z	-.01	2
18	MP-1	Z	-.018	3.5
19	MP-2	Z	-.018	3.5
20	MP-4	Z	-.013	3.5

Member Point Loads (BLC 22 : 60 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.01	.5
2	MP-1	X	-.003	2
3	MP-2	X	-.01	.5
4	MP-2	X	-.009	2
5	MP-2	X	-.007	2
6	MP-4	X	-.008	.5
7	MP-4	X	-.007	2
8	MP-1	X	-.01	3.5
9	MP-2	X	-.01	3.5
10	MP-4	X	-.008	3.5
11	MP-1	Z	-.018	.5
12	MP-1	Z	-.005	2
13	MP-2	Z	-.018	.5
14	MP-2	Z	-.015	2
15	MP-2	Z	-.013	2
16	MP-4	Z	-.014	.5
17	MP-4	Z	-.012	2
18	MP-1	Z	-.018	3.5
19	MP-2	Z	-.018	3.5
20	MP-4	Z	-.014	3.5

Member Point Loads (BLC 23 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.016	.5
2	MP-1	Z	-.005	2
3	MP-2	Z	-.016	.5
4	MP-2	Z	-.018	2
5	MP-2	Z	-.015	2
6	MP-4	Z	-.014	.5
7	MP-4	Z	-.013	2
8	MP-1	Z	-.016	3.5
9	MP-2	Z	-.016	3.5
10	MP-4	Z	-.014	3.5



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Member Point Loads (BLC 24 : 120 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.01	.5
2	MP-1	X	.003	2
3	MP-2	X	.01	.5
4	MP-2	X	.009	2
5	MP-2	X	.007	2
6	MP-4	X	.008	.5
7	MP-4	X	.007	2
8	MP-1	X	.01	3.5
9	MP-2	X	.01	3.5
10	MP-4	X	.008	3.5
11	MP-1	Z	-.018	.5
12	MP-1	Z	-.005	2
13	MP-2	Z	-.018	.5
14	MP-2	Z	-.015	2
15	MP-2	Z	-.013	2
16	MP-4	Z	-.014	.5
17	MP-4	Z	-.012	2
18	MP-1	Z	-.018	3.5
19	MP-2	Z	-.018	3.5
20	MP-4	Z	-.014	3.5

Member Point Loads (BLC 25 : 135 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.018	.5
2	MP-1	X	.006	2
3	MP-2	X	.018	.5
4	MP-2	X	.011	2
5	MP-2	X	.01	2
6	MP-4	X	.013	.5
7	MP-4	X	.01	2
8	MP-1	X	.018	3.5
9	MP-2	X	.018	3.5
10	MP-4	X	.013	3.5
11	MP-1	Z	-.018	.5
12	MP-1	Z	-.006	2
13	MP-2	Z	-.018	.5
14	MP-2	Z	-.011	2
15	MP-2	Z	-.01	2
16	MP-4	Z	-.013	.5
17	MP-4	Z	-.01	2
18	MP-1	Z	-.018	3.5
19	MP-2	Z	-.018	3.5
20	MP-4	Z	-.013	3.5

Member Point Loads (BLC 26 : 150 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.026	.5
2	MP-1	X	.008	2
3	MP-2	X	.026	.5
4	MP-2	X	.013	2
5	MP-2	X	.012	2



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Member Point Loads (BLC 26 : 150 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	MP-4	X	.019	.5
7	MP-4	X	.013	2
8	MP-1	X	.026	3.5
9	MP-2	X	.026	3.5
10	MP-4	X	.019	3.5
11	MP-1	Z	-.015	.5
12	MP-1	Z	-.005	2
13	MP-2	Z	-.015	.5
14	MP-2	Z	-.007	2
15	MP-2	Z	-.007	2
16	MP-4	Z	-.011	.5
17	MP-4	Z	-.007	2
18	MP-1	Z	-.015	3.5
19	MP-2	Z	-.015	3.5
20	MP-4	Z	-.011	3.5

Member Point Loads (BLC 27 : 180 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.034	.5
2	MP-1	X	.011	2
3	MP-2	X	.034	.5
4	MP-2	X	.014	2
5	MP-2	X	.013	2
6	MP-4	X	.024	.5
7	MP-4	X	.015	2
8	MP-1	X	.034	3.5
9	MP-2	X	.034	3.5
10	MP-4	X	.024	3.5

Member Point Loads (BLC 28 : 210 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.026	.5
2	MP-1	X	.008	2
3	MP-2	X	.026	.5
4	MP-2	X	.013	2
5	MP-2	X	.012	2
6	MP-4	X	.019	.5
7	MP-4	X	.013	2
8	MP-1	X	.026	3.5
9	MP-2	X	.026	3.5
10	MP-4	X	.019	3.5
11	MP-1	Z	.015	.5
12	MP-1	Z	.005	2
13	MP-2	Z	.015	.5
14	MP-2	Z	.007	2
15	MP-2	Z	.007	2
16	MP-4	Z	.011	.5
17	MP-4	Z	.007	2
18	MP-1	Z	.015	3.5
19	MP-2	Z	.015	3.5
20	MP-4	Z	.011	3.5



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Member Point Loads (BLC 29 : 225 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.018	.5
2	MP-1	X	.006	2
3	MP-2	X	.018	.5
4	MP-2	X	.011	2
5	MP-2	X	.01	2
6	MP-4	X	.013	.5
7	MP-4	X	.01	2
8	MP-1	X	.018	3.5
9	MP-2	X	.018	3.5
10	MP-4	X	.013	3.5
11	MP-1	Z	.018	.5
12	MP-1	Z	.006	2
13	MP-2	Z	.018	.5
14	MP-2	Z	.011	2
15	MP-2	Z	.01	2
16	MP-4	Z	.013	.5
17	MP-4	Z	.01	2
18	MP-1	Z	.018	3.5
19	MP-2	Z	.018	3.5
20	MP-4	Z	.013	3.5

Member Point Loads (BLC 30 : 240 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.01	.5
2	MP-1	X	.003	2
3	MP-2	X	.01	.5
4	MP-2	X	.009	2
5	MP-2	X	.007	2
6	MP-4	X	.008	.5
7	MP-4	X	.007	2
8	MP-1	X	.01	3.5
9	MP-2	X	.01	3.5
10	MP-4	X	.008	3.5
11	MP-1	Z	.018	.5
12	MP-1	Z	.005	2
13	MP-2	Z	.018	.5
14	MP-2	Z	.015	2
15	MP-2	Z	.013	2
16	MP-4	Z	.014	.5
17	MP-4	Z	.012	2
18	MP-1	Z	.018	3.5
19	MP-2	Z	.018	3.5
20	MP-4	Z	.014	3.5

Member Point Loads (BLC 31 : 270 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	.016	.5
2	MP-1	Z	.005	2
3	MP-2	Z	.016	.5
4	MP-2	Z	.018	2
5	MP-2	Z	.015	2



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Member Point Loads (BLC 31 : 270 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
6	MP-4	Z	.014	.5
7	MP-4	Z	.013	2
8	MP-1	Z	.016	3.5
9	MP-2	Z	.016	3.5
10	MP-4	Z	.014	3.5

Member Point Loads (BLC 32 : 300 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.01	.5
2	MP-1	X	-.003	2
3	MP-2	X	-.01	.5
4	MP-2	X	-.009	2
5	MP-2	X	-.007	2
6	MP-4	X	-.008	.5
7	MP-4	X	-.007	2
8	MP-1	X	-.01	3.5
9	MP-2	X	-.01	3.5
10	MP-4	X	-.008	3.5
11	MP-1	Z	.018	.5
12	MP-1	Z	.005	2
13	MP-2	Z	.018	.5
14	MP-2	Z	.015	2
15	MP-2	Z	.013	2
16	MP-4	Z	.014	.5
17	MP-4	Z	.012	2
18	MP-1	Z	.018	3.5
19	MP-2	Z	.018	3.5
20	MP-4	Z	.014	3.5

Member Point Loads (BLC 33 : 315 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.018	.5
2	MP-1	X	-.006	2
3	MP-2	X	-.018	.5
4	MP-2	X	-.011	2
5	MP-2	X	-.01	2
6	MP-4	X	-.013	.5
7	MP-4	X	-.01	2
8	MP-1	X	-.018	3.5
9	MP-2	X	-.018	3.5
10	MP-4	X	-.013	3.5
11	MP-1	Z	.018	.5
12	MP-1	Z	.006	2
13	MP-2	Z	.018	.5
14	MP-2	Z	.011	2
15	MP-2	Z	.01	2
16	MP-4	Z	.013	.5
17	MP-4	Z	.01	2
18	MP-1	Z	.018	3.5
19	MP-2	Z	.018	3.5
20	MP-4	Z	.013	3.5



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Member Point Loads (BLC 34 : 330 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.026	.5
2	MP-1	X	-.008	2
3	MP-2	X	-.026	.5
4	MP-2	X	-.013	2
5	MP-2	X	-.012	2
6	MP-4	X	-.019	.5
7	MP-4	X	-.013	2
8	MP-1	X	-.026	3.5
9	MP-2	X	-.026	3.5
10	MP-4	X	-.019	3.5
11	MP-1	Z	.015	.5
12	MP-1	Z	.005	2
13	MP-2	Z	.015	.5
14	MP-2	Z	.007	2
15	MP-2	Z	.007	2
16	MP-4	Z	.011	.5
17	MP-4	Z	.007	2
18	MP-1	Z	.015	3.5
19	MP-2	Z	.015	3.5
20	MP-4	Z	.011	3.5

Member Point Loads (BLC 37 : Seismic Load X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.034	.5
2	MP-1	X	-.014	2
3	MP-2	X	-.034	.5
4	MP-2	X	-.071	2
5	MP-2	X	-.072	2
6	MP-4	X	-.018	.5
7	MP-4	X	-.072	2
8	MP-1	X	-.034	3.5
9	MP-2	X	-.034	3.5
10	MP-4	X	-.018	3.5

Member Point Loads (BLC 38 : Seismic Load Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	Z	-.034	.5
2	MP-1	Z	-.014	2
3	MP-2	Z	-.034	.5
4	MP-2	Z	-.071	2
5	MP-2	Z	-.072	2
6	MP-4	Z	-.018	.5
7	MP-4	Z	-.072	2
8	MP-1	Z	-.034	3.5
9	MP-2	Z	-.034	3.5
10	MP-4	Z	-.018	3.5



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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	FFTH	X	-.012	-.012	0	%100
2	SF1-TH	X	0	0	0	%100
3	SF1-V1	X	-.007	-.007	0	%100
4	MP-1	X	-.01	-.01	0	%100
5	MP-2	X	-.01	-.01	0	%100
6	MP-3	X	-.01	-.01	0	%100
7	MP-4	X	-.01	-.01	0	%100

Member Distributed Loads (BLC 3 : 30 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.009	-.009	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.006	-.006	0	%100
4	MP-1	X	-.009	-.009	0	%100
5	MP-2	X	-.009	-.009	0	%100
6	MP-3	X	-.009	-.009	0	%100
7	MP-4	X	-.009	-.009	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.006	-.006	0	%100
10	SF1-V1	Z	-.004	-.004	0	%100
11	MP-1	Z	-.005	-.005	0	%100
12	MP-2	Z	-.005	-.005	0	%100
13	MP-3	Z	-.005	-.005	0	%100
14	MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.006	-.006	0	%100
2	SF1-TH	X	-.009	-.009	0	%100
3	SF1-V1	X	-.005	-.005	0	%100
4	MP-1	X	-.007	-.007	0	%100
5	MP-2	X	-.007	-.007	0	%100
6	MP-3	X	-.007	-.007	0	%100
7	MP-4	X	-.007	-.007	0	%100
8	FFTH	Z	-.006	-.006	0	%100
9	SF1-TH	Z	-.012	-.012	0	%100
10	SF1-V1	Z	-.005	-.005	0	%100
11	MP-1	Z	-.007	-.007	0	%100
12	MP-2	Z	-.007	-.007	0	%100
13	MP-3	Z	-.007	-.007	0	%100
14	MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 5 : 60 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.004	-.004	0	%100
4	MP-1	X	-.005	-.005	0	%100
5	MP-2	X	-.005	-.005	0	%100



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Member Distributed Loads (BLC 5 : 60 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
6	MP-3	X	-.005	-.005	0	%100
7	MP-4	X	-.005	-.005	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.018	-.018	0	%100
10	SF1-V1	Z	-.006	-.006	0	%100
11	MP-1	Z	-.009	-.009	0	%100
12	MP-2	Z	-.009	-.009	0	%100
13	MP-3	Z	-.009	-.009	0	%100
14	MP-4	Z	-.009	-.009	0	%100

Member Distributed Loads (BLC 6 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	-.024	-.024	0	%100
3	SF1-V1	Z	-.007	-.007	0	%100
4	MP-1	Z	-.01	-.01	0	%100
5	MP-2	Z	-.01	-.01	0	%100
6	MP-3	Z	-.01	-.01	0	%100
7	MP-4	Z	-.01	-.01	0	%100

Member Distributed Loads (BLC 7 : 120 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.004	.004	0	%100
4	MP-1	X	.005	.005	0	%100
5	MP-2	X	.005	.005	0	%100
6	MP-3	X	.005	.005	0	%100
7	MP-4	X	.005	.005	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.018	-.018	0	%100
10	SF1-V1	Z	-.006	-.006	0	%100
11	MP-1	Z	-.009	-.009	0	%100
12	MP-2	Z	-.009	-.009	0	%100
13	MP-3	Z	-.009	-.009	0	%100
14	MP-4	Z	-.009	-.009	0	%100

Member Distributed Loads (BLC 8 : 135 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.006	.006	0	%100
2	SF1-TH	X	.009	.009	0	%100
3	SF1-V1	X	.005	.005	0	%100
4	MP-1	X	.007	.007	0	%100
5	MP-2	X	.007	.007	0	%100
6	MP-3	X	.007	.007	0	%100
7	MP-4	X	.007	.007	0	%100
8	FFTH	Z	-.006	-.006	0	%100
9	SF1-TH	Z	-.012	-.012	0	%100
10	SF1-V1	Z	-.005	-.005	0	%100
11	MP-1	Z	-.007	-.007	0	%100



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Member Distributed Loads (BLC 8 : 135 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
12	MP-2	Z	-.007	-.007	0	%100
13	MP-3	Z	-.007	-.007	0	%100
14	MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 9 : 150 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.009	.009	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.006	.006	0	%100
4	MP-1	X	.009	.009	0	%100
5	MP-2	X	.009	.009	0	%100
6	MP-3	X	.009	.009	0	%100
7	MP-4	X	.009	.009	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.006	-.006	0	%100
10	SF1-V1	Z	-.004	-.004	0	%100
11	MP-1	Z	-.005	-.005	0	%100
12	MP-2	Z	-.005	-.005	0	%100
13	MP-3	Z	-.005	-.005	0	%100
14	MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 10 : 180 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.012	.012	0	%100
2	SF1-TH	X	0	0	0	%100
3	SF1-V1	X	.007	.007	0	%100
4	MP-1	X	.01	.01	0	%100
5	MP-2	X	.01	.01	0	%100
6	MP-3	X	.01	.01	0	%100
7	MP-4	X	.01	.01	0	%100

Member Distributed Loads (BLC 11 : 210 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.009	.009	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.006	.006	0	%100
4	MP-1	X	.009	.009	0	%100
5	MP-2	X	.009	.009	0	%100
6	MP-3	X	.009	.009	0	%100
7	MP-4	X	.009	.009	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.006	.006	0	%100
10	SF1-V1	Z	.004	.004	0	%100
11	MP-1	Z	.005	.005	0	%100
12	MP-2	Z	.005	.005	0	%100
13	MP-3	Z	.005	.005	0	%100
14	MP-4	Z	.005	.005	0	%100

Member Distributed Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
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Member Distributed Loads (BLC 12 : 225 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.006	.006	0	%100
2	SF1-TH	X	.009	.009	0	%100
3	SF1-V1	X	.005	.005	0	%100
4	MP-1	X	.007	.007	0	%100
5	MP-2	X	.007	.007	0	%100
6	MP-3	X	.007	.007	0	%100
7	MP-4	X	.007	.007	0	%100
8	FFTH	Z	.006	.006	0	%100
9	SF1-TH	Z	.012	.012	0	%100
10	SF1-V1	Z	.005	.005	0	%100
11	MP-1	Z	.007	.007	0	%100
12	MP-2	Z	.007	.007	0	%100
13	MP-3	Z	.007	.007	0	%100
14	MP-4	Z	.007	.007	0	%100

Member Distributed Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.004	.004	0	%100
4	MP-1	X	.005	.005	0	%100
5	MP-2	X	.005	.005	0	%100
6	MP-3	X	.005	.005	0	%100
7	MP-4	X	.005	.005	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.018	.018	0	%100
10	SF1-V1	Z	.006	.006	0	%100
11	MP-1	Z	.009	.009	0	%100
12	MP-2	Z	.009	.009	0	%100
13	MP-3	Z	.009	.009	0	%100
14	MP-4	Z	.009	.009	0	%100

Member Distributed Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	.024	.024	0	%100
3	SF1-V1	Z	.007	.007	0	%100
4	MP-1	Z	.01	.01	0	%100
5	MP-2	Z	.01	.01	0	%100
6	MP-3	Z	.01	.01	0	%100
7	MP-4	Z	.01	.01	0	%100

Member Distributed Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.004	-.004	0	%100
4	MP-1	X	-.005	-.005	0	%100
5	MP-2	X	-.005	-.005	0	%100
6	MP-3	X	-.005	-.005	0	%100



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Member Distributed Loads (BLC 15 : 300 Wind - No Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
7	MP-4	X	-.005	0	%100
8	FFTH	Z	.005	0	%100
9	SF1-TH	Z	.018	0	%100
10	SF1-V1	Z	.006	0	%100
11	MP-1	Z	.009	0	%100
12	MP-2	Z	.009	0	%100
13	MP-3	Z	.009	0	%100
14	MP-4	Z	.009	0	%100

Member Distributed Loads (BLC 16 : 315 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.006	0	%100
2	SF1-TH	X	-.009	0	%100
3	SF1-V1	X	-.005	0	%100
4	MP-1	X	-.007	0	%100
5	MP-2	X	-.007	0	%100
6	MP-3	X	-.007	0	%100
7	MP-4	X	-.007	0	%100
8	FFTH	Z	.006	0	%100
9	SF1-TH	Z	.012	0	%100
10	SF1-V1	Z	.005	0	%100
11	MP-1	Z	.007	0	%100
12	MP-2	Z	.007	0	%100
13	MP-3	Z	.007	0	%100
14	MP-4	Z	.007	0	%100

Member Distributed Loads (BLC 17 : 330 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.009	0	%100
2	SF1-TH	X	-.008	0	%100
3	SF1-V1	X	-.006	0	%100
4	MP-1	X	-.009	0	%100
5	MP-2	X	-.009	0	%100
6	MP-3	X	-.009	0	%100
7	MP-4	X	-.009	0	%100
8	FFTH	Z	.005	0	%100
9	SF1-TH	Z	.006	0	%100
10	SF1-V1	Z	.004	0	%100
11	MP-1	Z	.005	0	%100
12	MP-2	Z	.005	0	%100
13	MP-3	Z	.005	0	%100
14	MP-4	Z	.005	0	%100

Member Distributed Loads (BLC 18 : Ice Weight)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Y	-.005	0	%100
2	SF1-TH	Y	-.006	0	%100
3	SF1-V1	Y	-.006	0	%100
4	MP-1	Y	-.004	0	%100
5	MP-2	Y	-.004	0	%100



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Member Distributed Loads (BLC 18 : Ice Weight) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
6	MP-3	Y	-.004	0	%100
7	MP-4	Y	-.004	0	%100

Member Distributed Loads (BLC 19 : 0 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.004	0	%100
2	SF1-TH	X	-.004	0	%100
3	SF1-V1	X	-.002	0	%100
4	MP-1	X	-.003	0	%100
5	MP-2	X	-.003	0	%100
6	MP-3	X	-.003	0	%100
7	MP-4	X	-.003	0	%100

Member Distributed Loads (BLC 20 : 30 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	0	%100
2	SF1-TH	X	-.002	0	%100
3	SF1-V1	X	-.002	0	%100
4	MP-1	X	-.002	0	%100
5	MP-2	X	-.002	0	%100
6	MP-3	X	-.002	0	%100
7	MP-4	X	-.002	0	%100
8	FFTH	Z	-.001	0	%100
9	SF1-TH	Z	-.001	0	%100
10	SF1-V1	Z	-.001	0	%100
11	MP-1	Z	-.002	0	%100
12	MP-2	Z	-.001	0	%100
13	MP-3	Z	-.001	0	%100
14	MP-4	Z	-.001	0	%100

Member Distributed Loads (BLC 21 : 45 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.002	0	%100
2	SF1-TH	X	-.002	0	%100
3	SF1-V1	X	-.002	0	%100
4	MP-1	X	-.002	0	%100
5	MP-2	X	-.002	0	%100
6	MP-3	X	-.002	0	%100
7	MP-4	X	-.002	0	%100
8	FFTH	Z	-.002	0	%100
9	SF1-TH	Z	-.003	0	%100
10	SF1-V1	Z	-.002	0	%100
11	MP-1	Z	-.002	0	%100
12	MP-2	Z	-.002	0	%100
13	MP-3	Z	-.002	0	%100
14	MP-4	Z	-.002	0	%100

Member Distributed Loads (BLC 22 : 60 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.000949	0	%100



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Member Distributed Loads (BLC 22 : 60 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.001	-.001	0	%100
4 MP-1	X	-.001	-.001	0	%100
5 MP-2	X	-.001	-.001	0	%100
6 MP-3	X	-.001	-.001	0	%100
7 MP-4	X	-.001	-.001	0	%100
8 FFTH	Z	-.001	-.001	0	%100
9 SF1-TH	Z	-.004	-.004	0	%100
10 SF1-V1	Z	-.002	-.002	0	%100
11 MP-1	Z	-.003	-.003	0	%100
12 MP-2	Z	-.002	-.002	0	%100
13 MP-3	Z	-.002	-.002	0	%100
14 MP-4	Z	-.002	-.002	0	%100

Member Distributed Loads (BLC 23 : 90 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	Z	0	0	0	%100
2 SF1-TH	Z	-.005	-.005	0	%100
3 SF1-V1	Z	-.003	-.003	0	%100
4 MP-1	Z	-.003	-.003	0	%100
5 MP-2	Z	-.003	-.003	0	%100
6 MP-3	Z	-.003	-.003	0	%100
7 MP-4	Z	-.003	-.003	0	%100

Member Distributed Loads (BLC 24 : 120 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.000949	.000949	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.001	.001	0	%100
4 MP-1	X	.001	.001	0	%100
5 MP-2	X	.001	.001	0	%100
6 MP-3	X	.001	.001	0	%100
7 MP-4	X	.001	.001	0	%100
8 FFTH	Z	-.001	-.001	0	%100
9 SF1-TH	Z	-.004	-.004	0	%100
10 SF1-V1	Z	-.002	-.002	0	%100
11 MP-1	Z	-.003	-.003	0	%100
12 MP-2	Z	-.002	-.002	0	%100
13 MP-3	Z	-.002	-.002	0	%100
14 MP-4	Z	-.002	-.002	0	%100

Member Distributed Loads (BLC 25 : 135 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.002	.002	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.002	.002	0	%100
4 MP-1	X	.002	.002	0	%100
5 MP-2	X	.002	.002	0	%100
6 MP-3	X	.002	.002	0	%100
7 MP-4	X	.002	.002	0	%100



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Member Distributed Loads (BLC 25 : 135 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
8 FFTH	Z	-.002	-.002	0	%100
9 SF1-TH	Z	-.003	-.003	0	%100
10 SF1-V1	Z	-.002	-.002	0	%100
11 MP-1	Z	-.002	-.002	0	%100
12 MP-2	Z	-.002	-.002	0	%100
13 MP-3	Z	-.002	-.002	0	%100
14 MP-4	Z	-.002	-.002	0	%100

Member Distributed Loads (BLC 26 : 150 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.003	.003	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.002	.002	0	%100
4 MP-1	X	.002	.002	0	%100
5 MP-2	X	.002	.002	0	%100
6 MP-3	X	.002	.002	0	%100
7 MP-4	X	.002	.002	0	%100
8 FFTH	Z	-.001	-.001	0	%100
9 SF1-TH	Z	-.001	-.001	0	%100
10 SF1-V1	Z	-.001	-.001	0	%100
11 MP-1	Z	-.002	-.002	0	%100
12 MP-2	Z	-.001	-.001	0	%100
13 MP-3	Z	-.001	-.001	0	%100
14 MP-4	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 27 : 180 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.004	.004	0	%100
2 SF1-TH	X	.004	.004	0	%100
3 SF1-V1	X	.002	.002	0	%100
4 MP-1	X	.003	.003	0	%100
5 MP-2	X	.003	.003	0	%100
6 MP-3	X	.003	.003	0	%100
7 MP-4	X	.003	.003	0	%100

Member Distributed Loads (BLC 28 : 210 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.003	.003	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.002	.002	0	%100
4 MP-1	X	.002	.002	0	%100
5 MP-2	X	.002	.002	0	%100
6 MP-3	X	.002	.002	0	%100
7 MP-4	X	.002	.002	0	%100
8 FFTH	Z	.001	.001	0	%100
9 SF1-TH	Z	.001	.001	0	%100
10 SF1-V1	Z	.001	.001	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.001	.001	0	%100
13 MP-3	Z	.001	.001	0	%100



Company : Tower Engineering Professionals, Inc.
Designer : LEG
Job Number : TEP No. 217406.329174
Model Name : BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Alpha Sector)

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Member Distributed Loads (BLC 28 : 210 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
14 MP-4	Z	.001	.001	0	%100

Member Distributed Loads (BLC 29 : 225 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.002	.002	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.002	.002	0	%100
4 MP-1	X	.002	.002	0	%100
5 MP-2	X	.002	.002	0	%100
6 MP-3	X	.002	.002	0	%100
7 MP-4	X	.002	.002	0	%100
8 FFTH	Z	.002	.002	0	%100
9 SF1-TH	Z	.003	.003	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 30 : 240 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	.000949	.000949	0	%100
2 SF1-TH	X	.002	.002	0	%100
3 SF1-V1	X	.001	.001	0	%100
4 MP-1	X	.001	.001	0	%100
5 MP-2	X	.001	.001	0	%100
6 MP-3	X	.001	.001	0	%100
7 MP-4	X	.001	.001	0	%100
8 FFTH	Z	.001	.001	0	%100
9 SF1-TH	Z	.004	.004	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.003	.003	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 31 : 270 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	Z	0	0	0	%100
2 SF1-TH	Z	.005	.005	0	%100
3 SF1-V1	Z	.003	.003	0	%100
4 MP-1	Z	.003	.003	0	%100
5 MP-2	Z	.003	.003	0	%100
6 MP-3	Z	.003	.003	0	%100
7 MP-4	Z	.003	.003	0	%100

Member Distributed Loads (BLC 32 : 300 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	-.000949	-.000949	0	%100
2 SF1-TH	X	-.002	-.002	0	%100



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Member Distributed Loads (BLC 32 : 300 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
3 SF1-V1	X	-.001	-.001	0	%100
4 MP-1	X	-.001	-.001	0	%100
5 MP-2	X	-.001	-.001	0	%100
6 MP-3	X	-.001	-.001	0	%100
7 MP-4	X	-.001	-.001	0	%100
8 FFTH	Z	.001	.001	0	%100
9 SF1-TH	Z	.004	.004	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.003	.003	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 33 : 315 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	-.002	-.002	0	%100
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.002	-.002	0	%100
4 MP-1	X	-.002	-.002	0	%100
5 MP-2	X	-.002	-.002	0	%100
6 MP-3	X	-.002	-.002	0	%100
7 MP-4	X	-.002	-.002	0	%100
8 FFTH	Z	.002	.002	0	%100
9 SF1-TH	Z	.003	.003	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 34 : 330 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1 FFTH	X	-.003	-.003	0	%100
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.002	-.002	0	%100
4 MP-1	X	-.002	-.002	0	%100
5 MP-2	X	-.002	-.002	0	%100
6 MP-3	X	-.002	-.002	0	%100
7 MP-4	X	-.002	-.002	0	%100
8 FFTH	Z	.001	.001	0	%100
9 SF1-TH	Z	.001	.001	0	%100
10 SF1-V1	Z	.001	.001	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.001	.001	0	%100
13 MP-3	Z	.001	.001	0	%100
14 MP-4	Z	.001	.001	0	%100



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Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....	L	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn
1	MP-1	PIPE 2.0	.963	5.813	26	.050	5.8...	26	6.555	32.13	1.872	1.872	2..H1-1b
2	FFTH	PIPE 3.0	.838	5	26	.572	5	26	36.138	65.205	5.749	5.749	1..H3-6
3	SF1-TH	HSS4X4X4	.610	4.333	27	.288	4.3...	y 54	98.66	139.518	16.181	16.181	1..H1-1b
4	MP-2	PIPE 2.0	.484	3.646	26	.055	3.6...	26	15.528	32.13	1.872	1.872	1..H1-1b
5	MP-4	PIPE 2.0	.324	3.646	26	.037	3.6...	26	15.528	32.13	1.872	1.872	1..H1-1b
6	MP-3	PIPE 2.0	.038	3.646	25	.004	3.6...	25	15.528	32.13	1.872	1.872	1..H1-1b
7	SF1-V1	PIPE 3.0	.000	.75	25	.000	.75	25	61.832	65.205	5.749	5.749	1..H1-1b

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	No
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Support Horizontal	HSS4X4X4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Support Vertical	PIPE 3.0	Column	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Mount Pipes	PIPE 2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B Rect	HSS4X4X4	1	4.3	0
3	A53 Gr.B	PIPE 2.0	4	30	.1
4	A53 Gr.B	PIPE 3.0	2	11.5	0
5	Total HR Steel		7	45.8	.2

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	SF1-1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
1	FFTH	N3	N4		Face Horizontal	Beam	None	A53 Gr.B	Typical
2	SF1-TH	N2	SF1-1		Support Horizontal	Beam	None	A500 Gr....	Typical
3	SF1-V1	N9	N10		Support Vertical	Column	None	A53 Gr.B	Typical
4	MP-1	N13	N14		Mount Pipes	Column	None	A53 Gr.B	Typical
5	MP-2	N15	N18		Mount Pipes	Column	None	A53 Gr.B	Typical
6	MP-3	N14A	N17		Mount Pipes	Column	None	A53 Gr.B	Typical
7	MP-4	N13A	N16		Mount Pipes	Column	None	A53 Gr.B	Typical

Member Advanced Data

Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rati...	Analysis Off...	Inactive	Seismi...
1	FFTH					Yes				None
2	SF1-TH					Yes				None
3	SF1-V1					Yes	** NA **			None
4	MP-1					Yes	** NA **			None
5	MP-2					Yes	** NA **			None
6	MP-3					Yes	** NA **			None
7	MP-4					Yes	** NA **			None

Hot Rolled Steel Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top...	Lcomp bot...	L-torg...	Kyy	Kzz	Cb	Funci...
1	FFTH	10	5	5	Lbyy			2.1	2.1		Lateral
2	SF1-TH	4.333			Lbyy			2.1	2.1		Lateral
3	SF1-V1	1.5						2.1	2.1		Lateral
4	MP-1	9	Segment	Segment				2.1	2.1		Lateral
5	MP-2	7	Segment	Segment				2.1	2.1		Lateral
6	MP-3	7	Segment	Segment				2.1	2.1		Lateral
7	MP-4	7	Segment	Segment				2.1	2.1		Lateral

Basic Load Cases

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	None	-1			9		
2	0 Wind - No Ice	None				9	7	
3	30 Wind - No Ice	None				18	14	
4	45 Wind - No Ice	None				18	14	
5	60 Wind - No Ice	None				18	14	
6	90 Wind - No Ice	None				9	7	
7	120 Wind - No Ice	None				18	14	
8	135 Wind - No Ice	None				18	14	
9	150 Wind - No Ice	None				18	14	
10	180 Wind - No Ice	None				9	7	
11	210 Wind - No Ice	None				18	14	
12	225 Wind - No Ice	None				18	14	
13	240 Wind - No Ice	None				18	14	
14	270 Wind - No Ice	None				9	7	
15	300 Wind - No Ice	None				18	14	
16	315 Wind - No Ice	None				18	14	
17	330 Wind - No Ice	None				18	14	
18	Ice Weight	None				9	7	
19	0 Wind - Ice	None				9	7	
20	30 Wind - Ice	None				18	14	
21	45 Wind - Ice	None				18	14	
22	60 Wind - Ice	None				18	14	
23	90 Wind - Ice	None				9	7	
24	120 Wind - Ice	None				18	14	
25	135 Wind - Ice	None				18	14	
26	150 Wind - Ice	None				18	14	
27	180 Wind - Ice	None				9	7	
28	210 Wind - Ice	None				18	14	

Basic Load Cases (Continued)

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
29	225 Wind - Ice	None				18	14	
30	240 Wind - Ice	None				18	14	
31	270 Wind - Ice	None				9	7	
32	300 Wind - Ice	None				18	14	
33	315 Wind - Ice	None				18	14	
34	330 Wind - Ice	None				18	14	
35	Lm	None			1			
36	Lv	None			1			
37	Seismic Load X	ELX	-1			9		
38	Seismic Load Z	ELZ		-1		9		

Load Combinations

Description	So...P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
1	1.4D	Yes	Y	1	1.4									
2	0.9D+1.0 0-Wind	Yes	Y	1	.9	2	1							
3	0.9D+1.0 30-Wind	Yes	Y	1	.9	3	1							
4	0.9D+1.0 45-Wind	Yes	Y	1	.9	4	1							
5	0.9D+1.0 60-Wind	Yes	Y	1	.9	5	1							
6	0.9D+1.0 90-Wind	Yes	Y	1	.9	6	1							
7	0.9D+1.0 120-Wind	Yes	Y	1	.9	7	1							
8	0.9D+1.0 135-Wind	Yes	Y	1	.9	8	1							
9	0.9D+1.0 150-Wind	Yes	Y	1	.9	9	1							
10	0.9D+1.0 180-Wind	Yes	Y	1	.9	10	1							
11	0.9D+1.0 210-Wind	Yes	Y	1	.9	11	1							
12	0.9D+1.0 225-Wind	Yes	Y	1	.9	12	1							
13	0.9D+1.0 240-Wind	Yes	Y	1	.9	13	1							
14	0.9D+1.0 270-Wind	Yes	Y	1	.9	14	1							
15	0.9D+1.0 300-Wind	Yes	Y	1	.9	15	1							
16	0.9D+1.0 315-Wind	Yes	Y	1	.9	16	1							
17	0.9D+1.0 330-Wind	Yes	Y	1	.9	17	1							
18	1.2D+1.0 0-Wind	Yes	Y	1	1.2	2	1							
19	1.2D+1.0 30-Wind	Yes	Y	1	1.2	3	1							
20	1.2D+1.0 45-Wind	Yes	Y	1	1.2	4	1							
21	1.2D+1.0 60-Wind	Yes	Y	1	1.2	5	1							
22	1.2D+1.0 90-Wind	Yes	Y	1	1.2	6	1							
23	1.2D+1.0 120-Wind	Yes	Y	1	1.2	7	1							
24	1.2D+1.0 135-Wind	Yes	Y	1	1.2	8	1							
25	1.2D+1.0 150-Wind	Yes	Y	1	1.2	9	1							
26	1.2D+1.0 180-Wind	Yes	Y	1	1.2	10	1							
27	1.2D+1.0 210-Wind	Yes	Y	1	1.2	11	1							
28	1.2D+1.0 225-Wind	Yes	Y	1	1.2	12	1							
29	1.2D+1.0 240-Wind	Yes	Y	1	1.2	13	1							
30	1.2D+1.0 270-Wind	Yes	Y	1	1.2	14	1							
31	1.2D+1.0 300-Wind	Yes	Y	1	1.2	15	1							
32	1.2D+1.0 315-Wind	Yes	Y	1	1.2	16	1							
33	1.2D+1.0 330-Wind	Yes	Y	1	1.2	17	1							
34	1.2D+1.0Di+1.0 0...	Yes	Y	1	1.2	18	1	19	1					
35	1.2D+1.0Di+1.0 30...	Yes	Y	1	1.2	18	1	20	1					
36	1.2D+1.0Di+1.0 45...	Yes	Y	1	1.2	18	1	21	1					
37	1.2D+1.0Di+1.0 60...	Yes	Y	1	1.2	18	1	22	1					
38	1.2D+1.0Di+1.0 90...	Yes	Y	1	1.2	18	1	23	1					
39	1.2D+1.0Di+1.0 12...	Yes	Y	1	1.2	18	1	24	1					
40	1.2D+1.0Di+1.0 13...	Yes	Y	1	1.2	18	1	25	1					
41	1.2D+1.0Di+1.0 15...	Yes	Y	1	1.2	18	1	26	1					
42	1.2D+1.0Di+1.0 18...	Yes	Y	1	1.2	18	1	27	1					
43	1.2D+1.0Di+1.0 21...	Yes	Y	1	1.2	18	1	28	1					
44	1.2D+1.0Di+1.0 22...	Yes	Y	1	1.2	18	1	29	1					
45	1.2D+1.0Di+1.0 24...	Yes	Y	1	1.2	18	1	30	1					
46	1.2D+1.0Di+1.0 27...	Yes	Y	1	1.2	18	1	31	1					
47	1.2D+1.0Di+1.0 30...	Yes	Y	1	1.2	18	1	32	1					
48	1.2D+1.0Di+1.0 31...	Yes	Y	1	1.2	18	1	33	1					

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diagram
1	SF1-1	0	0	0	0	
2	N2	4.333	0	0	0	
3	N3	4.333	0	-5	0	
4	N4	4.333	0	5	0	
5	N5	4.333	0	4	0	
6	N6	4.333	0	.25	0	
7	N7	4.333	0	-1.33333	0	
8	N8	4.333	0	-4	0	

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap.
9	N9	4.333	.75	0	0	
10	N10	4.333	-.75	0	0	
11	N13	4.333	5.8333	-4	0	
12	N14	4.333	-3.1667	-4	0	
13	N13A	4.333	3.708333	4	0	
14	N14A	4.333	3.708333	.25	0	
15	N15	4.333	3.708333	-1.33333	0	
16	N16	4.333	-3.291667	4	0	
17	N17	4.333	-3.291667	.25	0	
18	N18	4.333	-3.291667	-1.33333	0	

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f,
1	N8	I	Y	-5

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f,
1	N3	I	Y	- 25

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Y	-.048	4
2	MP-1	Y	-.014	2
3	MP-2	Y	-.048	.5
4	MP-2	Y	-.071	2
5	MP-4	Y	-.018	.5
6	MP-4	Y	-.072	2
7	MP-1	Y	-.048	8.5
8	MP-2	Y	-.048	6.5
9	MP-4	Y	-.018	3.5

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.397	4
2	MP-1	X	-.049	2
3	MP-2	X	-.397	.5
4	MP-2	X	-.087	2
5	MP-4	X	-.122	.5
6	MP-4	X	-.073	2
7	MP-1	X	-.397	8.5
8	MP-2	X	-.397	6.5
9	MP-4	X	-.122	3.5

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.297	4
2	MP-1	X	-.035	2
3	MP-2	X	-.297	.5
4	MP-2	X	-.07	2
5	MP-4	X	-.094	.5
6	MP-4	X	-.06	2
7	MP-1	X	-.297	8.5
8	MP-2	X	-.297	6.5
9	MP-4	X	-.094	3.5
10	MP-1	Z	-.171	4
11	MP-1	Z	-.02	2
12	MP-2	Z	-.171	.5
13	MP-2	Z	-.041	2

Member Point Loads (BLC 3 : 30 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
14	MP-4	Z	-.054	.5
15	MP-4	Z	-.035	2
16	MP-1	Z	-.171	8.5
17	MP-2	Z	-.171	6.5
18	MP-4	Z	-.054	3.5

Member Point Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.204	4
2	MP-1	X	-.023	2
3	MP-2	X	-.204	.5
4	MP-2	X	-.053	2
5	MP-4	X	-.066	.5
6	MP-4	X	-.047	2
7	MP-1	X	-.204	8.5
8	MP-2	X	-.204	6.5
9	MP-4	X	-.066	3.5
10	MP-1	Z	-.204	4
11	MP-1	Z	-.023	2
12	MP-2	Z	-.204	.5
13	MP-2	Z	-.053	2
14	MP-4	Z	-.066	.5
15	MP-4	Z	-.047	2
16	MP-1	Z	-.204	8.5
17	MP-2	Z	-.204	6.5
18	MP-4	Z	-.066	3.5

Member Point Loads (BLC 5 : 60 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.117	4
2	MP-1	X	-.012	2
3	MP-2	X	-.117	.5
4	MP-2	X	-.034	2
5	MP-4	X	-.04	.5
6	MP-4	X	-.032	2
7	MP-1	X	-.117	8.5
8	MP-2	X	-.117	6.5
9	MP-4	X	-.04	3.5
10	MP-1	Z	-.203	4
11	MP-1	Z	-.021	2
12	MP-2	Z	-.203	.5
13	MP-2	Z	-.06	2
14	MP-4	Z	-.069	.5
15	MP-4	Z	-.055	2
16	MP-1	Z	-.203	8.5
17	MP-2	Z	-.203	6.5
18	MP-4	Z	-.069	3.5

Member Point Loads (BLC 6 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	Z	-.18	4
2	MP-1	Z	-.015	2
3	MP-2	Z	-.18	.5
4	MP-2	Z	-.063	2
5	MP-4	Z	-.065	.5
6	MP-4	Z	-.06	2
7	MP-1	Z	-.18	8.5
8	MP-2	Z	-.18	6.5
9	MP-4	Z	-.065	3.5

Member Point Loads (BLC 7 : 120 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.117	4
2	MP-1	X	.012	2
3	MP-2	X	.117	.5
4	MP-2	X	.034	2
5	MP-4	X	.04	.5
6	MP-4	X	.032	2
7	MP-1	X	.117	8.5
8	MP-2	X	.117	6.5
9	MP-4	X	.04	3.5
10	MP-1	Z	-.203	4
11	MP-1	Z	-.021	2
12	MP-2	Z	-.203	.5
13	MP-2	Z	-.06	2
14	MP-4	Z	-.069	.5
15	MP-4	Z	-.055	2
16	MP-1	Z	-.203	8.5
17	MP-2	Z	-.203	6.5
18	MP-4	Z	-.069	3.5

Member Point Loads (BLC 8 : 135 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.204	4
2	MP-1	X	.023	2
3	MP-2	X	.204	.5
4	MP-2	X	.053	2
5	MP-4	X	.066	.5
6	MP-4	X	.047	2
7	MP-1	X	.204	8.5
8	MP-2	X	.204	6.5
9	MP-4	X	.066	3.5
10	MP-1	Z	-.204	4
11	MP-1	Z	-.023	2
12	MP-2	Z	-.204	.5
13	MP-2	Z	-.053	2
14	MP-4	Z	-.066	.5
15	MP-4	Z	-.047	2
16	MP-1	Z	-.204	8.5
17	MP-2	Z	-.204	6.5
18	MP-4	Z	-.066	3.5

Member Point Loads (BLC 9 : 150 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.297	4
2	MP-1	X	.035	2
3	MP-2	X	.297	.5
4	MP-2	X	.07	2
5	MP-4	X	.094	.5
6	MP-4	X	.06	2
7	MP-1	X	.297	8.5
8	MP-2	X	.297	6.5
9	MP-4	X	.094	3.5
10	MP-1	Z	-.171	4
11	MP-1	Z	-.02	2
12	MP-2	Z	-.171	.5
13	MP-2	Z	-.041	2
14	MP-4	Z	-.054	.5
15	MP-4	Z	-.035	2
16	MP-1	Z	-.171	8.5
17	MP-2	Z	-.171	6.5
18	MP-4	Z	-.054	3.5

Member Point Loads (BLC 10 : 180 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.397	4
2	MP-1	X	.049	2
3	MP-2	X	.397	.5
4	MP-2	X	.087	2
5	MP-4	X	.122	.5
6	MP-4	X	.073	2
7	MP-1	X	.397	8.5
8	MP-2	X	.397	6.5
9	MP-4	X	.122	3.5

Member Point Loads (BLC 11 : 210 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.297	4
2	MP-1	X	.035	2
3	MP-2	X	.297	.5
4	MP-2	X	.07	2
5	MP-4	X	.094	.5
6	MP-4	X	.06	2
7	MP-1	X	.297	8.5
8	MP-2	X	.297	6.5
9	MP-4	X	.094	3.5
10	MP-1	Z	.171	4
11	MP-1	Z	.02	2
12	MP-2	Z	.171	.5
13	MP-2	Z	.041	2
14	MP-4	Z	.054	.5
15	MP-4	Z	.035	2
16	MP-1	Z	.171	8.5
17	MP-2	Z	.171	6.5
18	MP-4	Z	.054	3.5

Member Point Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.204	4
2	MP-1	X	.023	2
3	MP-2	X	.204	.5
4	MP-2	X	.053	2
5	MP-4	X	.066	.5
6	MP-4	X	.047	2
7	MP-1	X	.204	8.5
8	MP-2	X	.204	6.5
9	MP-4	X	.066	3.5
10	MP-1	Z	.204	4
11	MP-1	Z	.023	2
12	MP-2	Z	.204	.5
13	MP-2	Z	.053	2
14	MP-4	Z	.066	.5
15	MP-4	Z	.047	2
16	MP-1	Z	.204	8.5
17	MP-2	Z	.204	6.5
18	MP-4	Z	.066	3.5

Member Point Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.117	4
2	MP-1	X	.012	2
3	MP-2	X	.117	.5
4	MP-2	X	.034	2
5	MP-4	X	.04	.5
6	MP-4	X	.032	2
7	MP-1	X	.117	8.5

Member Point Loads (BLC 13 : 240 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
8	MP-2	X	.117	6.5
9	MP-4	X	.04	3.5
10	MP-1	Z	.203	4
11	MP-1	Z	.021	2
12	MP-2	Z	.203	.5
13	MP-2	Z	.06	2
14	MP-4	Z	.069	.5
15	MP-4	Z	.055	2
16	MP-1	Z	.203	8.5
17	MP-2	Z	.203	6.5
18	MP-4	Z	.069	3.5

Member Point Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	Z	.18	4
2	MP-1	Z	.015	2
3	MP-2	Z	.18	.5
4	MP-2	Z	.063	2
5	MP-4	Z	.065	.5
6	MP-4	Z	.06	2
7	MP-1	Z	.18	8.5
8	MP-2	Z	.18	6.5
9	MP-4	Z	.065	3.5

Member Point Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.117	4
2	MP-1	X	-.012	2
3	MP-2	X	-.117	.5
4	MP-2	X	-.034	2
5	MP-4	X	-.04	.5
6	MP-4	X	-.032	2
7	MP-1	X	-.117	8.5
8	MP-2	X	-.117	6.5
9	MP-4	X	-.04	3.5
10	MP-1	Z	.203	4
11	MP-1	Z	.021	2
12	MP-2	Z	.203	.5
13	MP-2	Z	.06	2
14	MP-4	Z	.069	.5
15	MP-4	Z	.055	2
16	MP-1	Z	.203	8.5
17	MP-2	Z	.203	6.5
18	MP-4	Z	.069	3.5

Member Point Loads (BLC 16 : 315 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	-.204	4
2	MP-1	X	-.023	2
3	MP-2	X	-.204	.5
4	MP-2	X	-.053	2
5	MP-4	X	-.066	.5
6	MP-4	X	-.047	2
7	MP-1	X	-.204	8.5
8	MP-2	X	-.204	6.5
9	MP-4	X	-.066	3.5
10	MP-1	Z	.204	4
11	MP-1	Z	.023	2
12	MP-2	Z	.204	.5
13	MP-2	Z	.053	2
14	MP-4	Z	.066	.5

Member Point Loads (BLC 16 : 315 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	MP-4	Z	.047	2
16	MP-1	Z	.204	8.5
17	MP-2	Z	.204	6.5
18	MP-4	Z	.066	3.5

Member Point Loads (BLC 17 : 330 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.297	4
2	MP-1	X	-.035	2
3	MP-2	X	-.297	.5
4	MP-2	X	-.07	2
5	MP-4	X	-.094	.5
6	MP-4	X	-.06	2
7	MP-1	X	-.297	8.5
8	MP-2	X	-.297	6.5
9	MP-4	X	-.094	3.5
10	MP-1	Z	.171	4
11	MP-1	Z	.02	2
12	MP-2	Z	.171	.5
13	MP-2	Z	.041	2
14	MP-4	Z	.054	.5
15	MP-4	Z	.035	2
16	MP-1	Z	.171	8.5
17	MP-2	Z	.171	6.5
18	MP-4	Z	.054	3.5

Member Point Loads (BLC 18 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Y	-.099	4
2	MP-1	Y	-.016	2
3	MP-2	Y	-.099	.5
4	MP-2	Y	-.039	2
5	MP-4	Y	-.034	.5
6	MP-4	Y	-.037	2
7	MP-1	Y	-.099	8.5
8	MP-2	Y	-.099	6.5
9	MP-4	Y	-.034	3.5

Member Point Loads (BLC 19 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.071	4
2	MP-1	X	-.011	2
3	MP-2	X	-.071	.5
4	MP-2	X	-.018	2
5	MP-4	X	-.024	.5
6	MP-4	X	-.015	2
7	MP-1	X	-.071	8.5
8	MP-2	X	-.071	6.5
9	MP-4	X	-.024	3.5

Member Point Loads (BLC 20 : 30 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.054	4
2	MP-1	X	-.008	2
3	MP-2	X	-.054	.5
4	MP-2	X	-.015	2
5	MP-4	X	-.019	.5
6	MP-4	X	-.013	2
7	MP-1	X	-.054	8.5
8	MP-2	X	-.054	6.5
9	MP-4	X	-.019	3.5

Member Point Loads (BLC 20 : 30 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	MP-1	Z	-.031	4
11	MP-1	Z	-.005	2
12	MP-2	Z	-.031	.5
13	MP-2	Z	-.009	2
14	MP-4	Z	-.011	.5
15	MP-4	Z	-.007	2
16	MP-1	Z	-.031	8.5
17	MP-2	Z	-.031	6.5
18	MP-4	Z	-.011	3.5

Member Point Loads (BLC 21 : 45 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.038	4
2	MP-1	X	-.006	2
3	MP-2	X	-.038	.5
4	MP-2	X	-.011	2
5	MP-4	X	-.013	.5
6	MP-4	X	-.01	2
7	MP-1	X	-.038	8.5
8	MP-2	X	-.038	6.5
9	MP-4	X	-.013	3.5
10	MP-1	Z	-.038	4
11	MP-1	Z	-.006	2
12	MP-2	Z	-.038	.5
13	MP-2	Z	-.011	2
14	MP-4	Z	-.013	.5
15	MP-4	Z	-.01	2
16	MP-1	Z	-.038	8.5
17	MP-2	Z	-.038	6.5
18	MP-4	Z	-.013	3.5

Member Point Loads (BLC 22 : 60 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.022	4
2	MP-1	X	-.003	2
3	MP-2	X	-.022	.5
4	MP-2	X	-.007	2
5	MP-4	X	-.008	.5
6	MP-4	X	-.007	2
7	MP-1	X	-.022	8.5
8	MP-2	X	-.022	6.5
9	MP-4	X	-.008	3.5
10	MP-1	Z	-.039	4
11	MP-1	Z	-.005	2
12	MP-2	Z	-.039	.5
13	MP-2	Z	-.013	2
14	MP-4	Z	-.014	.5
15	MP-4	Z	-.012	2
16	MP-1	Z	-.039	8.5
17	MP-2	Z	-.039	6.5
18	MP-4	Z	-.014	3.5

Member Point Loads (BLC 23 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.036	4
2	MP-1	Z	-.005	2
3	MP-2	Z	-.036	.5
4	MP-2	Z	-.014	2
5	MP-4	Z	-.014	.5
6	MP-4	Z	-.013	2
7	MP-1	Z	-.036	8.5

Member Point Loads (BLC 23 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
8	MP-2	Z	-.036	6.5
9	MP-4	Z	-.014	3.5

Member Point Loads (BLC 24 : 120 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.022	4
2	MP-1	X	.003	2
3	MP-2	X	.022	.5
4	MP-2	X	.007	2
5	MP-4	X	.008	.5
6	MP-4	X	.007	2
7	MP-1	X	.022	8.5
8	MP-2	X	.022	6.5
9	MP-4	X	.008	3.5
10	MP-1	Z	-.039	4
11	MP-1	Z	-.005	2
12	MP-2	Z	-.039	.5
13	MP-2	Z	-.013	2
14	MP-4	Z	-.014	.5
15	MP-4	Z	-.012	2
16	MP-1	Z	-.039	8.5
17	MP-2	Z	-.039	6.5
18	MP-4	Z	-.014	3.5

Member Point Loads (BLC 25 : 135 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.038	4
2	MP-1	X	.006	2
3	MP-2	X	.038	.5
4	MP-2	X	.011	2
5	MP-4	X	.013	.5
6	MP-4	X	.01	2
7	MP-1	X	.038	8.5
8	MP-2	X	.038	6.5
9	MP-4	X	.013	3.5
10	MP-1	Z	-.038	4
11	MP-1	Z	-.006	2
12	MP-2	Z	-.038	.5
13	MP-2	Z	-.011	2
14	MP-4	Z	-.013	.5
15	MP-4	Z	-.01	2
16	MP-1	Z	-.038	8.5
17	MP-2	Z	-.038	6.5
18	MP-4	Z	-.013	3.5

Member Point Loads (BLC 26 : 150 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.054	4
2	MP-1	X	.008	2
3	MP-2	X	.054	.5
4	MP-2	X	.015	2
5	MP-4	X	.019	.5
6	MP-4	X	.013	2
7	MP-1	X	.054	8.5
8	MP-2	X	.054	6.5
9	MP-4	X	.019	3.5
10	MP-1	Z	-.031	4
11	MP-1	Z	-.005	2
12	MP-2	Z	-.031	.5
13	MP-2	Z	-.009	2
14	MP-4	Z	-.011	.5

Member Point Loads (BLC 26 : 150 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
15	MP-4	Z	-.007	2
16	MP-1	Z	-.031	8.5
17	MP-2	Z	-.031	6.5
18	MP-4	Z	-.011	3.5

Member Point Loads (BLC 27 : 180 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.071	4
2	MP-1	X	.011	2
3	MP-2	X	.071	.5
4	MP-2	X	.018	2
5	MP-4	X	.024	.5
6	MP-4	X	.015	2
7	MP-1	X	.071	8.5
8	MP-2	X	.071	6.5
9	MP-4	X	.024	3.5

Member Point Loads (BLC 28 : 210 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.054	4
2	MP-1	X	.008	2
3	MP-2	X	.054	.5
4	MP-2	X	.015	2
5	MP-4	X	.019	.5
6	MP-4	X	.013	2
7	MP-1	X	.054	8.5
8	MP-2	X	.054	6.5
9	MP-4	X	.019	3.5
10	MP-1	Z	.031	4
11	MP-1	Z	.005	2
12	MP-2	Z	.031	.5
13	MP-2	Z	.009	2
14	MP-4	Z	.011	.5
15	MP-4	Z	.007	2
16	MP-1	Z	.031	8.5
17	MP-2	Z	.031	6.5
18	MP-4	Z	.011	3.5

Member Point Loads (BLC 29 : 225 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.038	4
2	MP-1	X	.006	2
3	MP-2	X	.038	.5
4	MP-2	X	.011	2
5	MP-4	X	.013	.5
6	MP-4	X	.01	2
7	MP-1	X	.038	8.5
8	MP-2	X	.038	6.5
9	MP-4	X	.013	3.5
10	MP-1	Z	.038	4
11	MP-1	Z	.006	2
12	MP-2	Z	.038	.5
13	MP-2	Z	.011	2
14	MP-4	Z	.013	.5
15	MP-4	Z	.01	2
16	MP-1	Z	.038	8.5
17	MP-2	Z	.038	6.5
18	MP-4	Z	.013	3.5

Member Point Loads (BLC 30 : 240 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
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Member Point Loads (BLC 30 : 240 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.022	4
2	MP-1	X	.003	2
3	MP-2	X	.022	.5
4	MP-2	X	.007	2
5	MP-4	X	.008	.5
6	MP-4	X	.007	2
7	MP-1	X	.022	8.5
8	MP-2	X	.022	6.5
9	MP-4	X	.008	3.5
10	MP-1	Z	.039	4
11	MP-1	Z	.005	2
12	MP-2	Z	.039	.5
13	MP-2	Z	.013	2
14	MP-4	Z	.014	.5
15	MP-4	Z	.012	2
16	MP-1	Z	.039	8.5
17	MP-2	Z	.039	6.5
18	MP-4	Z	.014	3.5

Member Point Loads (BLC 31 : 270 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	Z	.036	4
2	MP-1	Z	.005	2
3	MP-2	Z	.036	.5
4	MP-2	Z	.014	2
5	MP-4	Z	.014	.5
6	MP-4	Z	.013	2
7	MP-1	Z	.036	8.5
8	MP-2	Z	.036	6.5
9	MP-4	Z	.014	3.5

Member Point Loads (BLC 32 : 300 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.022	4
2	MP-1	X	-.003	2
3	MP-2	X	-.022	.5
4	MP-2	X	-.007	2
5	MP-4	X	-.008	.5
6	MP-4	X	-.007	2
7	MP-1	X	-.022	8.5
8	MP-2	X	-.022	6.5
9	MP-4	X	-.008	3.5
10	MP-1	Z	.039	4
11	MP-1	Z	.005	2
12	MP-2	Z	.039	.5
13	MP-2	Z	.013	2
14	MP-4	Z	.014	.5
15	MP-4	Z	.012	2
16	MP-1	Z	.039	8.5
17	MP-2	Z	.039	6.5
18	MP-4	Z	.014	3.5

Member Point Loads (BLC 33 : 315 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.038	4
2	MP-1	X	-.006	2
3	MP-2	X	-.038	.5
4	MP-2	X	-.011	2
5	MP-4	X	-.013	.5
6	MP-4	X	-.01	2
7	MP-1	X	-.038	8.5

Member Point Loads (BLC 33 : 315 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
8	MP-2	X	-.038	6.5
9	MP-4	X	-.013	3.5
10	MP-1	Z	.038	4
11	MP-1	Z	.006	2
12	MP-2	Z	.038	.5
13	MP-2	Z	.011	2
14	MP-4	Z	.013	.5
15	MP-4	Z	.01	2
16	MP-1	Z	.038	8.5
17	MP-2	Z	.038	6.5
18	MP-4	Z	.013	3.5

Member Point Loads (BLC 34 : 330 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.054	4
2	MP-1	X	-.008	2
3	MP-2	X	-.054	.5
4	MP-2	X	-.015	2
5	MP-4	X	-.019	.5
6	MP-4	X	-.013	2
7	MP-1	X	-.054	8.5
8	MP-2	X	-.054	6.5
9	MP-4	X	-.019	3.5
10	MP-1	Z	.031	4
11	MP-1	Z	.005	2
12	MP-2	Z	.031	.5
13	MP-2	Z	.009	2
14	MP-4	Z	.011	.5
15	MP-4	Z	.007	2
16	MP-1	Z	.031	8.5
17	MP-2	Z	.031	6.5
18	MP-4	Z	.011	3.5

Member Point Loads (BLC 37 : Seismic Load X)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.048	4
2	MP-1	X	-.014	2
3	MP-2	X	-.048	.5
4	MP-2	X	-.071	2
5	MP-4	X	-.018	.5
6	MP-4	X	-.072	2
7	MP-1	X	-.048	8.5
8	MP-2	X	-.048	6.5
9	MP-4	X	-.018	3.5

Member Point Loads (BLC 38 : Seismic Load Z)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	Z	-.048	4
2	MP-1	Z	-.014	2
3	MP-2	Z	-.048	.5
4	MP-2	Z	-.071	2
5	MP-4	Z	-.018	.5
6	MP-4	Z	-.072	2
7	MP-1	Z	-.048	8.5
8	MP-2	Z	-.048	6.5
9	MP-4	Z	-.018	3.5

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	FFTH	X	-.012	-.012	0	%100
2	SF1-TH	X	0	0	0	%100
3	SF1-V1	X	-.007	-.007	0	%100
4	MP-1	X	-.01	-.01	0	%100
5	MP-2	X	-.01	-.01	0	%100
6	MP-3	X	-.01	-.01	0	%100
7	MP-4	X	-.01	-.01	0	%100

Member Distributed Loads (BLC 3 : 30 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.009	-.009	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.006	-.006	0	%100
4	MP-1	X	-.009	-.009	0	%100
5	MP-2	X	-.009	-.009	0	%100
6	MP-3	X	-.009	-.009	0	%100
7	MP-4	X	-.009	-.009	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.006	-.006	0	%100
10	SF1-V1	Z	-.004	-.004	0	%100
11	MP-1	Z	-.005	-.005	0	%100
12	MP-2	Z	-.005	-.005	0	%100
13	MP-3	Z	-.005	-.005	0	%100
14	MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.006	-.006	0	%100
2	SF1-TH	X	-.009	-.009	0	%100
3	SF1-V1	X	-.005	-.005	0	%100
4	MP-1	X	-.007	-.007	0	%100
5	MP-2	X	-.007	-.007	0	%100
6	MP-3	X	-.007	-.007	0	%100
7	MP-4	X	-.007	-.007	0	%100
8	FFTH	Z	-.006	-.006	0	%100
9	SF1-TH	Z	-.012	-.012	0	%100
10	SF1-V1	Z	-.005	-.005	0	%100
11	MP-1	Z	-.007	-.007	0	%100
12	MP-2	Z	-.007	-.007	0	%100
13	MP-3	Z	-.007	-.007	0	%100
14	MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 5 : 60 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.004	-.004	0	%100
4	MP-1	X	-.005	-.005	0	%100
5	MP-2	X	-.005	-.005	0	%100
6	MP-3	X	-.005	-.005	0	%100
7	MP-4	X	-.005	-.005	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.018	-.018	0	%100
10	SF1-V1	Z	-.006	-.006	0	%100
11	MP-1	Z	-.009	-.009	0	%100
12	MP-2	Z	-.009	-.009	0	%100
13	MP-3	Z	-.009	-.009	0	%100
14	MP-4	Z	-.009	-.009	0	%100

Member Distributed Loads (BLC 6 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	-.024	-.024	0	%100
3	SF1-V1	Z	-.007	-.007	0	%100
4	MP-1	Z	-.01	-.01	0	%100
5	MP-2	Z	-.01	-.01	0	%100
6	MP-3	Z	-.01	-.01	0	%100
7	MP-4	Z	-.01	-.01	0	%100

Member Distributed Loads (BLC 7 : 120 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.004	.004	0	%100
4	MP-1	X	.005	.005	0	%100
5	MP-2	X	.005	.005	0	%100
6	MP-3	X	.005	.005	0	%100
7	MP-4	X	.005	.005	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.018	-.018	0	%100
10	SF1-V1	Z	-.006	-.006	0	%100
11	MP-1	Z	-.009	-.009	0	%100
12	MP-2	Z	-.009	-.009	0	%100
13	MP-3	Z	-.009	-.009	0	%100
14	MP-4	Z	-.009	-.009	0	%100

Member Distributed Loads (BLC 8 : 135 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.006	.006	0	%100
2	SF1-TH	X	.009	.009	0	%100
3	SF1-V1	X	.005	.005	0	%100
4	MP-1	X	.007	.007	0	%100
5	MP-2	X	.007	.007	0	%100
6	MP-3	X	.007	.007	0	%100
7	MP-4	X	.007	.007	0	%100
8	FFTH	Z	-.006	-.006	0	%100
9	SF1-TH	Z	-.012	-.012	0	%100
10	SF1-V1	Z	-.005	-.005	0	%100
11	MP-1	Z	-.007	-.007	0	%100
12	MP-2	Z	-.007	-.007	0	%100
13	MP-3	Z	-.007	-.007	0	%100
14	MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 9 : 150 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.009	.009	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.006	.006	0	%100
4	MP-1	X	.009	.009	0	%100
5	MP-2	X	.009	.009	0	%100
6	MP-3	X	.009	.009	0	%100
7	MP-4	X	.009	.009	0	%100
8	FFTH	Z	-.005	-.005	0	%100
9	SF1-TH	Z	-.006	-.006	0	%100
10	SF1-V1	Z	-.004	-.004	0	%100
11	MP-1	Z	-.005	-.005	0	%100
12	MP-2	Z	-.005	-.005	0	%100
13	MP-3	Z	-.005	-.005	0	%100
14	MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 10 : 180 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
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Member Distributed Loads (BLC 10 : 180 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.012	.012	0	%100
2	SF1-TH	X	0	0	0	%100
3	SF1-V1	X	.007	.007	0	%100
4	MP-1	X	.01	.01	0	%100
5	MP-2	X	.01	.01	0	%100
6	MP-3	X	.01	.01	0	%100
7	MP-4	X	.01	.01	0	%100

Member Distributed Loads (BLC 11 : 210 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.009	.009	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.006	.006	0	%100
4	MP-1	X	.009	.009	0	%100
5	MP-2	X	.009	.009	0	%100
6	MP-3	X	.009	.009	0	%100
7	MP-4	X	.009	.009	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.006	.006	0	%100
10	SF1-V1	Z	.004	.004	0	%100
11	MP-1	Z	.005	.005	0	%100
12	MP-2	Z	.005	.005	0	%100
13	MP-3	Z	.005	.005	0	%100
14	MP-4	Z	.005	.005	0	%100

Member Distributed Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.006	.006	0	%100
2	SF1-TH	X	.009	.009	0	%100
3	SF1-V1	X	.005	.005	0	%100
4	MP-1	X	.007	.007	0	%100
5	MP-2	X	.007	.007	0	%100
6	MP-3	X	.007	.007	0	%100
7	MP-4	X	.007	.007	0	%100
8	FFTH	Z	.006	.006	0	%100
9	SF1-TH	Z	.012	.012	0	%100
10	SF1-V1	Z	.005	.005	0	%100
11	MP-1	Z	.007	.007	0	%100
12	MP-2	Z	.007	.007	0	%100
13	MP-3	Z	.007	.007	0	%100
14	MP-4	Z	.007	.007	0	%100

Member Distributed Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.004	.004	0	%100
4	MP-1	X	.005	.005	0	%100
5	MP-2	X	.005	.005	0	%100
6	MP-3	X	.005	.005	0	%100
7	MP-4	X	.005	.005	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.018	.018	0	%100
10	SF1-V1	Z	.006	.006	0	%100
11	MP-1	Z	.009	.009	0	%100
12	MP-2	Z	.009	.009	0	%100
13	MP-3	Z	.009	.009	0	%100
14	MP-4	Z	.009	.009	0	%100

Member Distributed Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
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Member Distributed Loads (BLC 14 : 270 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	.024	.024	0	%100
3	SF1-V1	Z	.007	.007	0	%100
4	MP-1	Z	.01	.01	0	%100
5	MP-2	Z	.01	.01	0	%100
6	MP-3	Z	.01	.01	0	%100
7	MP-4	Z	.01	.01	0	%100

Member Distributed Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.004	-.004	0	%100
4	MP-1	X	-.005	-.005	0	%100
5	MP-2	X	-.005	-.005	0	%100
6	MP-3	X	-.005	-.005	0	%100
7	MP-4	X	-.005	-.005	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.018	.018	0	%100
10	SF1-V1	Z	.006	.006	0	%100
11	MP-1	Z	.009	.009	0	%100
12	MP-2	Z	.009	.009	0	%100
13	MP-3	Z	.009	.009	0	%100
14	MP-4	Z	.009	.009	0	%100

Member Distributed Loads (BLC 16 : 315 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.006	-.006	0	%100
2	SF1-TH	X	-.009	-.009	0	%100
3	SF1-V1	X	-.005	-.005	0	%100
4	MP-1	X	-.007	-.007	0	%100
5	MP-2	X	-.007	-.007	0	%100
6	MP-3	X	-.007	-.007	0	%100
7	MP-4	X	-.007	-.007	0	%100
8	FFTH	Z	.006	.006	0	%100
9	SF1-TH	Z	.012	.012	0	%100
10	SF1-V1	Z	.005	.005	0	%100
11	MP-1	Z	.007	.007	0	%100
12	MP-2	Z	.007	.007	0	%100
13	MP-3	Z	.007	.007	0	%100
14	MP-4	Z	.007	.007	0	%100

Member Distributed Loads (BLC 17 : 330 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.009	-.009	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.006	-.006	0	%100
4	MP-1	X	-.009	-.009	0	%100
5	MP-2	X	-.009	-.009	0	%100
6	MP-3	X	-.009	-.009	0	%100
7	MP-4	X	-.009	-.009	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.006	.006	0	%100
10	SF1-V1	Z	.004	.004	0	%100
11	MP-1	Z	.005	.005	0	%100
12	MP-2	Z	.005	.005	0	%100
13	MP-3	Z	.005	.005	0	%100
14	MP-4	Z	.005	.005	0	%100

Member Distributed Loads (BLC 18 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
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Member Distributed Loads (BLC 18 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Y	-0.005	-0.005	0	%100
2	SF1-TH	Y	-0.006	-0.006	0	%100
3	SF1-V1	Y	-0.006	-0.006	0	%100
4	MP-1	Y	-0.004	-0.004	0	%100
5	MP-2	Y	-0.004	-0.004	0	%100
6	MP-3	Y	-0.004	-0.004	0	%100
7	MP-4	Y	-0.004	-0.004	0	%100

Member Distributed Loads (BLC 19 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-0.004	-0.004	0	%100
2	SF1-TH	X	-0.004	-0.004	0	%100
3	SF1-V1	X	-0.002	-0.002	0	%100
4	MP-1	X	-0.003	-0.003	0	%100
5	MP-2	X	-0.003	-0.003	0	%100
6	MP-3	X	-0.003	-0.003	0	%100
7	MP-4	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 20 : 30 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-0.003	-0.003	0	%100
2	SF1-TH	X	-0.002	-0.002	0	%100
3	SF1-V1	X	-0.002	-0.002	0	%100
4	MP-1	X	-0.002	-0.002	0	%100
5	MP-2	X	-0.002	-0.002	0	%100
6	MP-3	X	-0.002	-0.002	0	%100
7	MP-4	X	-0.002	-0.002	0	%100
8	FFTH	Z	-0.001	-0.001	0	%100
9	SF1-TH	Z	-0.001	-0.001	0	%100
10	SF1-V1	Z	-0.001	-0.001	0	%100
11	MP-1	Z	-0.002	-0.002	0	%100
12	MP-2	Z	-0.001	-0.001	0	%100
13	MP-3	Z	-0.001	-0.001	0	%100
14	MP-4	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 21 : 45 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-0.002	-0.002	0	%100
2	SF1-TH	X	-0.002	-0.002	0	%100
3	SF1-V1	X	-0.002	-0.002	0	%100
4	MP-1	X	-0.002	-0.002	0	%100
5	MP-2	X	-0.002	-0.002	0	%100
6	MP-3	X	-0.002	-0.002	0	%100
7	MP-4	X	-0.002	-0.002	0	%100
8	FFTH	Z	-0.002	-0.002	0	%100
9	SF1-TH	Z	-0.003	-0.003	0	%100
10	SF1-V1	Z	-0.002	-0.002	0	%100
11	MP-1	Z	-0.002	-0.002	0	%100
12	MP-2	Z	-0.002	-0.002	0	%100
13	MP-3	Z	-0.002	-0.002	0	%100
14	MP-4	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 22 : 60 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-0.000949	-0.000949	0	%100
2	SF1-TH	X	-0.002	-0.002	0	%100
3	SF1-V1	X	-0.001	-0.001	0	%100
4	MP-1	X	-0.001	-0.001	0	%100
5	MP-2	X	-0.001	-0.001	0	%100
6	MP-3	X	-0.001	-0.001	0	%100
7	MP-4	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 22 : 60 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
8	FFTH	Z	-0.001	-0.001	0	%100
9	SF1-TH	Z	-0.004	-0.004	0	%100
10	SF1-V1	Z	-0.002	-0.002	0	%100
11	MP-1	Z	-0.003	-0.003	0	%100
12	MP-2	Z	-0.002	-0.002	0	%100
13	MP-3	Z	-0.002	-0.002	0	%100
14	MP-4	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 23 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	-0.005	-0.005	0	%100
3	SF1-V1	Z	-0.003	-0.003	0	%100
4	MP-1	Z	-0.003	-0.003	0	%100
5	MP-2	Z	-0.003	-0.003	0	%100
6	MP-3	Z	-0.003	-0.003	0	%100
7	MP-4	Z	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 24 : 120 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.000949	.000949	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.001	.001	0	%100
4	MP-1	X	.001	.001	0	%100
5	MP-2	X	.001	.001	0	%100
6	MP-3	X	.001	.001	0	%100
7	MP-4	X	.001	.001	0	%100
8	FFTH	Z	-0.001	-0.001	0	%100
9	SF1-TH	Z	-0.004	-0.004	0	%100
10	SF1-V1	Z	-0.002	-0.002	0	%100
11	MP-1	Z	-0.003	-0.003	0	%100
12	MP-2	Z	-0.002	-0.002	0	%100
13	MP-3	Z	-0.002	-0.002	0	%100
14	MP-4	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 25 : 135 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.002	.002	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.002	.002	0	%100
4	MP-1	X	.002	.002	0	%100
5	MP-2	X	.002	.002	0	%100
6	MP-3	X	.002	.002	0	%100
7	MP-4	X	.002	.002	0	%100
8	FFTH	Z	-0.002	-0.002	0	%100
9	SF1-TH	Z	-0.003	-0.003	0	%100
10	SF1-V1	Z	-0.002	-0.002	0	%100
11	MP-1	Z	-0.002	-0.002	0	%100
12	MP-2	Z	-0.002	-0.002	0	%100
13	MP-3	Z	-0.002	-0.002	0	%100
14	MP-4	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 26 : 150 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.002	.002	0	%100
4	MP-1	X	.002	.002	0	%100
5	MP-2	X	.002	.002	0	%100
6	MP-3	X	.002	.002	0	%100
7	MP-4	X	.002	.002	0	%100

Member Distributed Loads (BLC 26 : 150 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft, F...	Start Location[ft, %]	End Location[ft, %]
8	FFTH	Z	-0.001	-0.001	0	%100
9	SF1-TH	Z	-0.001	-0.001	0	%100
10	SF1-V1	Z	-0.001	-0.001	0	%100
11	MP-1	Z	-0.002	-0.002	0	%100
12	MP-2	Z	-0.001	-0.001	0	%100
13	MP-3	Z	-0.001	-0.001	0	%100
14	MP-4	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 27 : 180 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.004	.004	0	%100
2	SF1-TH	X	.004	.004	0	%100
3	SF1-V1	X	.002	.002	0	%100
4	MP-1	X	.003	.003	0	%100
5	MP-2	X	.003	.003	0	%100
6	MP-3	X	.003	.003	0	%100
7	MP-4	X	.003	.003	0	%100

Member Distributed Loads (BLC 28 : 210 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.003	.003	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.002	.002	0	%100
4	MP-1	X	.002	.002	0	%100
5	MP-2	X	.002	.002	0	%100
6	MP-3	X	.002	.002	0	%100
7	MP-4	X	.002	.002	0	%100
8	FFTH	Z	.001	.001	0	%100
9	SF1-TH	Z	.001	.001	0	%100
10	SF1-V1	Z	.001	.001	0	%100
11	MP-1	Z	.002	.002	0	%100
12	MP-2	Z	.001	.001	0	%100
13	MP-3	Z	.001	.001	0	%100
14	MP-4	Z	.001	.001	0	%100

Member Distributed Loads (BLC 29 : 225 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.002	.002	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.002	.002	0	%100
4	MP-1	X	.002	.002	0	%100
5	MP-2	X	.002	.002	0	%100
6	MP-3	X	.002	.002	0	%100
7	MP-4	X	.002	.002	0	%100
8	FFTH	Z	.002	.002	0	%100
9	SF1-TH	Z	.003	.003	0	%100
10	SF1-V1	Z	.002	.002	0	%100
11	MP-1	Z	.002	.002	0	%100
12	MP-2	Z	.002	.002	0	%100
13	MP-3	Z	.002	.002	0	%100
14	MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 30 : 240 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft, F....	Start Location[ft.%]	End Location[ft.%]
1	FFTH	X	.000949	.000949	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.001	.001	0	%100
4	MP-1	X	.001	.001	0	%100
5	MP-2	X	.001	.001	0	%100
6	MP-3	X	.001	.001	0	%100
7	MP-4	X	.001	.001	0	%100

Member Distributed Loads (BLC 30 : 240 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
8	FFTH	Z	.001	.001	0	%100
9	SF1-TH	Z	.004	.004	0	%100
10	SF1-V1	Z	.002	.002	0	%100
11	MP-1	Z	.003	.003	0	%100
12	MP-2	Z	.002	.002	0	%100
13	MP-3	Z	.002	.002	0	%100
14	MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 31 : 270 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	Z	0	0	0	%100
2	SF1-TH	Z	.005	.005	0	%100
3	SF1-V1	Z	.003	.003	0	%100
4	MP-1	Z	.003	.003	0	%100
5	MP-2	Z	.003	.003	0	%100
6	MP-3	Z	.003	.003	0	%100
7	MP-4	Z	.003	.003	0	%100

Member Distributed Loads (BLC 32 : 300 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.000949	-.000949	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.001	-.001	0	%100
4	MP-1	X	-.001	-.001	0	%100
5	MP-2	X	-.001	-.001	0	%100
6	MP-3	X	-.001	-.001	0	%100
7	MP-4	X	-.001	-.001	0	%100
8	FFTH	Z	.001	.001	0	%100
9	SF1-TH	Z	.004	.004	0	%100
10	SF1-V1	Z	.002	.002	0	%100
11	MP-1	Z	.003	.003	0	%100
12	MP-2	Z	.002	.002	0	%100
13	MP-3	Z	.002	.002	0	%100
14	MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 33 : 315 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.002	-.002	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.002	-.002	0	%100
4	MP-1	X	-.002	-.002	0	%100
5	MP-2	X	-.002	-.002	0	%100
6	MP-3	X	-.002	-.002	0	%100
7	MP-4	X	-.002	-.002	0	%100
8	FFTH	Z	.002	.002	0	%100
9	SF1-TH	Z	.003	.003	0	%100
10	SF1-V1	Z	.002	.002	0	%100
11	MP-1	Z	.002	.002	0	%100
12	MP-2	Z	.002	.002	0	%100
13	MP-3	Z	.002	.002	0	%100
14	MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 34 : 330 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft,%)	End Location[ft,%)
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.002	-.002	0	%100
4	MP-1	X	-.002	-.002	0	%100
5	MP-2	X	-.002	-.002	0	%100
6	MP-3	X	-.002	-.002	0	%100
7	MP-4	X	-.002	-.002	0	%100

Member Distributed Loads (BLC 34 : 330 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
8	FFTH	Z	.001	.001	0	%100
9	SF1-TH	Z	.001	.001	0	%100
10	SF1-V1	Z	.001	.001	0	%100
11	MP-1	Z	.002	.002	0	%100
12	MP-2	Z	.001	.001	0	%100
13	MP-3	Z	.001	.001	0	%100
14	MP-4	Z	.001	.001	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....	phi*Pn.....	phi*Pn.....	phi*M.....	phi*M.....	Eqn	
1	FFTH	PIPE 3.0	.918	5	26	.215	5	26	36.138	65.205	5.749	5.749	H1-1b
2	MP-2	PIPE 2.0	.789	3.646	26	.054	3.6.....	26	15.528	32.13	1.872	1.872	H1-1b
3	SF1-TH	HSS4X4X4	.705	4.333	28	.287	4.3.....y	55	98.66	139.518	16.181	16.181	H1-1b
4	MP-1	PIPE 2.0	.589	5.813	26	.053	5.8.....	26	6.555	32.13	1.872	1.872	H1-1b
5	MP-4	PIPE 2.0	.323	3.646	26	.037	3.6.....	26	15.528	32.13	1.872	1.872	H1-1b
6	MP-3	PIPE 2.0	.038	3.646	25	.004	3.6.....	25	15.528	32.13	1.872	1.872	H1-1b
7	SF1-V1	PIPE 3.0	.000	.75	25	.000	.75	25	61.832	65.205	5.749	5.749	H1-1b

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in ²)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec ²)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	No
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...Density [k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Support Horizontal	HSS4X4X4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Support Vertical	PIPE 3.0	Column	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Mount Pipes	PIPE 2.0 Nominal	Column	None	A53 Gr.B	Typical	1.077	.67	.67	1.34

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B Rect	HSS4X4X4	1	4.3	0
3	A53 Gr.B	PIPE 2.0 Nominal	4	30	.1
4	A53 Gr.B	PIPE 3.0	2	11.5	0
5	Total HR Steel		7	45.8	2

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	SE1-1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(de...)	Section/Shape	Type	Design List	Material	Design Rules
1	FFTH	N3	N4			Face Horizontal	Beam	None	A53 Gr.B	Typical
2	SF1-TH	N2	SF1-1			Support Horizontal	Beam	None	A500 Gr...	Typical
3	SF1-V1	N9	N10			Support Vertical	Column	None	A53 Gr.B	Typical
4	MP-1	N13	N14			Mount Pipes	Column	None	A53 Gr.B	Typical
5	MP-2	N15	N18			Mount Pipes	Column	None	A53 Gr.B	Typical
6	MP-3	N14A	N17			Mount Pipes	Column	None	A53 Gr.B	Typical
7	MP-4	N13A	N16			Mount Pipes	Column	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset(in)	J Offset(in)	T/C Only	Physical	Defl Rati...	Analysis Off...	Inactive	Seismi...
1	FFTH						Yes				None
2	SF1-TH						Yes				None
3	SF1-V1						Yes	** NA **			None
4	MP-1						Yes	** NA **			None
5	MP-2						Yes	** NA **			None
6	MP-3						Yes	** NA **			None
7	MP-4						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[...]	Lbby[ft]	Lbzz[ft]	Lcomp top...	Lcomp bot...	L-torg...	Kyy	Kzz	Cb	Function
1	FFTH	Face Horizontal	10	5	5	Lbby			2.1	2.1		Lateral
2	SF1-TH	Support Horizontal	4.333			Lbby			2.1	2.1		Lateral
3	SF1-V1	Support Vertical	1.5						2.1	2.1		Lateral
4	MP-1	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral
5	MP-2	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral
6	MP-3	Mount Pipes	7	Segment	Segment				2.1	2.1		Lateral
7	MP-4	Mount Pipes	9	Segment	Segment				2.1	2.1		Lateral

Basic Load Cases

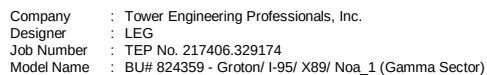
	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	None		-1			11			
2	0 Wind - No Ice	None					11	7		
3	30 Wind - No Ice	None					22	14		
4	45 Wind - No Ice	None					22	14		
5	60 Wind - No Ice	None					22	14		
6	90 Wind - No Ice	None					11	7		
7	120 Wind - No Ice	None					22	14		
8	135 Wind - No Ice	None					22	14		
9	150 Wind - No Ice	None					22	14		
10	180 Wind - No Ice	None					11	7		
11	210 Wind - No Ice	None					22	14		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
12	225 Wind - No Ice	None					22	14		
13	240 Wind - No Ice	None					22	14		
14	270 Wind - No Ice	None					11	7		
15	300 Wind - No Ice	None					22	14		
16	315 Wind - No Ice	None					22	14		
17	330 Wind - No Ice	None					22	14		
18	Ice Weight	None					11	7		
19	0 Wind - Ice	None					11	7		
20	30 Wind - Ice	None					22	14		
21	45 Wind - Ice	None					22	14		
22	60 Wind - Ice	None					22	14		
23	90 Wind - Ice	None					11	7		
24	120 Wind - Ice	None					22	14		
25	135 Wind - Ice	None					22	14		
26	150 Wind - Ice	None					22	14		
27	180 Wind - Ice	None					11	7		
28	210 Wind - Ice	None					22	14		
29	225 Wind - Ice	None					22	14		
30	240 Wind - Ice	None					22	14		
31	270 Wind - Ice	None					11	7		
32	300 Wind - Ice	None					22	14		
33	315 Wind - Ice	None					22	14		
34	330 Wind - Ice	None					22	14		
35	Lm	None				1				
36	Lv	None				1				
37	Seismic Load X	ELX	-1				11			
38	Seismic Load Z	ELZ			-1		11			

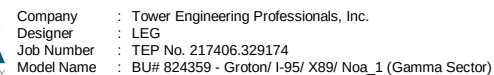
Load Combinations

	Description	So..P...	S...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
1	1.4D	Yes	Y		1	1.4										
2	0.9D+1.0 0-Wind	Yes	Y		1	.9	2	1								
3	0.9D+1.0 30-Wind	Yes	Y		1	.9	3	1								
4	0.9D+1.0 45-Wind	Yes	Y		1	.9	4	1								
5	0.9D+1.0 60-Wind	Yes	Y		1	.9	5	1								
6	0.9D+1.0 90-Wind	Yes	Y		1	.9	6	1								
7	0.9D+1.0 120-Wind	Yes	Y		1	.9	7	1								
8	0.9D+1.0 135-Wind	Yes	Y		1	.9	8	1								
9	0.9D+1.0 150-Wind	Yes	Y		1	.9	9	1								
10	0.9D+1.0 180-Wind	Yes	Y		1	.9	10	1								
11	0.9D+1.0 210-Wind	Yes	Y		1	.9	11	1								
12	0.9D+1.0 225-Wind	Yes	Y		1	.9	12	1								
13	0.9D+1.0 240-Wind	Yes	Y		1	.9	13	1								
14	0.9D+1.0 270-Wind	Yes	Y		1	.9	14	1								
15	0.9D+1.0 300-Wind	Yes	Y		1	.9	15	1								
16	0.9D+1.0 315-Wind	Yes	Y		1	.9	16	1								
17	0.9D+1.0 330-Wind	Yes	Y		1	.9	17	1								
18	1.2D+1.0 0-Wind	Yes	Y		1	1.2	2	1								
19	1.2D+1.0 30-Wind	Yes	Y		1	1.2	3	1								
20	1.2D+1.0 45-Wind	Yes	Y		1	1.2	4	1								



Nov 26, 2019
12:13 PM
Checked By: HBC

	Description	So.	P...	S...	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..	BLC Fac..
21	1.2D+1.0 60-Wind	Yes	Y		1	1.2	5	1								
22	1.2D+1.0 90-Wind	Yes	Y		1	1.2	6	1								
23	1.2D+1.0 120-Wind	Yes	Y		1	1.2	7	1								
24	1.2D+1.0 135-Wind	Yes	Y		1	1.2	8	1								
25	1.2D+1.0 150-Wind	Yes	Y		1	1.2	9	1								
26	1.2D+1.0 180-Wind	Yes	Y		1	1.2	10	1								
27	1.2D+1.0 210-Wind	Yes	Y		1	1.2	11	1								
28	1.2D+1.0 225-Wind	Yes	Y		1	1.2	12	1								
29	1.2D+1.0 240-Wind	Yes	Y		1	1.2	13	1								
30	1.2D+1.0 270-Wind	Yes	Y		1	1.2	14	1								
31	1.2D+1.0 300-Wind	Yes	Y		1	1.2	15	1								
32	1.2D+1.0 315-Wind	Yes	Y		1	1.2	16	1								
33	1.2D+1.0 330-Wind	Yes	Y		1	1.2	17	1								
34	1.2D+1.0Di+1.0 0-...	Yes	Y		1	1.2	18	1	19	1						
35	1.2D+1.0Di+1.0 30-...	Yes	Y		1	1.2	18	1	20	1						
36	1.2D+1.0Di+1.0 45-...	Yes	Y		1	1.2	18	1	21	1						
37	1.2D+1.0Di+1.0 60-...	Yes	Y		1	1.2	18	1	22	1						
38	1.2D+1.0Di+1.0 90-...	Yes	Y		1	1.2	18	1	23	1						
39	1.2D+1.0Di+1.0 12...	Yes	Y		1	1.2	18	1	24	1						
40	1.2D+1.0Di+1.0 13...	Yes	Y		1	1.2	18	1	25	1						
41	1.2D+1.0Di+1.0 15...	Yes	Y		1	1.2	18	1	26	1						
42	1.2D+1.0Di+1.0 18...	Yes	Y		1	1.2	18	1	27	1						
43	1.2D+1.0Di+1.0 21...	Yes	Y		1	1.2	18	1	28	1						
44	1.2D+1.0Di+1.0 22...	Yes	Y		1	1.2	18	1	29	1						
45	1.2D+1.0Di+1.0 24...	Yes	Y		1	1.2	18	1	30	1						
46	1.2D+1.0Di+1.0 27...	Yes	Y		1	1.2	18	1	31	1						
47	1.2D+1.0Di+1.0 30...	Yes	Y		1	1.2	18	1	32	1						
48	1.2D+1.0Di+1.0 31...	Yes	Y		1	1.2	18	1	33	1						
49	1.2D+1.0Di+1.0 33...	Yes	Y		1	1.2	18	1	34	1						
50	1.2D+1.5Lv	Yes	Y		36	1.5	1	1.2								
51	1.2D+1.5Lm+1.0 0-...	Yes	Y		1	1.2	2	.056	35	1.5						
52	1.2D+1.5Lm+1.0 30-...	Yes	Y		1	1.2	3	.056	35	1.5						
53	1.2D+1.5Lm+1.0 45-...	Yes	Y		1	1.2	4	.056	35	1.5						
54	1.2D+1.5Lm+1.0 60-...	Yes	Y		1	1.2	5	.056	35	1.5						
55	1.2D+1.5Lm+1.0 90-...	Yes	Y		1	1.2	6	.056	35	1.5						
56	1.2D+1.5Lm+1.0 12-...	Yes	Y		1	1.2	7									



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	Description	So...	P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
73	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.071	ELZ	.071						
74	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.087	ELZ	.05						
75	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.1	0							
76	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.087	ELZ	-.05						
77	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.071	ELZ	-.071						
78	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	-.05	ELZ	-.087						
79	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	0		ELZ	-.1						
80	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.05	ELZ	-.087						
81	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.071	ELZ	-.071						
82	(1.2+0.2Sds)D+1.0...	Yes	Y		1	1.24	ELX	.087	ELZ	-.05						
83	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.1	0							
84	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.087	ELZ	.05						
85	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.071	ELZ	.071						
86	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.05	ELZ	.087						
87	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	0		ELZ	.1						
88	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.05	ELZ	.087						
89	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.071	ELZ	.071						
90	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.087	ELZ	.05						
91	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.1	0							
92	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.087	ELZ	-.05						
93	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.071	ELZ	-.071						
94	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	-.05	ELZ	-.087						
95	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	0		ELZ	-.1						
96	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.05	ELZ	-.087						
97	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.071	ELZ	-.071						
98	(0.9-0.2Sds)*DL+1...	Yes	Y		1	.86	ELX	.087	ELZ	-.05						

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap.
1	SF1-1	0	0	0	0	
2	N2	4.333	0	0	0	
3	N3	6.043101	0	-4.698463	0	
4	N4	2.622899	0	4.698463	0	
5	N5	2.964919	0	3.75877	0	
6	N6	4.247495	0	0.234923	0	
7	N7	4.789026	0	-1.25292	0	
8	N8	5.701081	0	-3.75877	0	
9	N9	4.333	.75	0	0	
10	N10	4.333	-.75	0	0	
11	N13	5.701081	3.70833	-3.75877	0	
12	N14	5.701081	-3.29167	-3.75877	0	
13	N13A	2.964919	5.833303	3.75877	0	
14	N14A	4.247495	3.708333	0.234923	0	
15	N15	4.789026	3.708333	-1.25292	0	
16	N16	2.964919	-3.166697	3.75877	0	
17	N17	4.247495	-3.291667	0.234923	0	
18	N18	4.789026	-3.291667	-1.25292	0	



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Designer : LEG
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Joint Loads and Enforced Displacements (BLC 35 : Lm)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/...]
1	N8	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 36 : Lv)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/...]
1	N3	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Y	-.034	.5
2	MP-1	Y	-.014	2
3	MP-3	Y	-.018	.5
4	MP-3	Y	-.06	2
5	MP-3	Y	-.072	2
6	MP-4	Y	-.034	.5
7	MP-4	Y	-.06	2
8	SF1-TH	Y	-.026	2
9	MP-1	Y	-.034	3.5
10	MP-3	Y	-.018	3.5
11	MP-4	Y	-.034	3.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.184	.5
2	MP-1	X	-.049	2
3	MP-3	X	-.122	.5
4	MP-3	X	-.047	2
5	MP-3	X	-.06	2
6	MP-4	X	-.184	.5
7	MP-4	X	-.082	2
8	SF1-TH	X	-.122	2
9	MP-1	X	-.184	3.5
10	MP-3	X	-.122	3.5
11	MP-4	X	-.184	3.5

Member Point Loads (BLC 3 : 30 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.136	.5
2	MP-1	X	-.035	2
3	MP-3	X	-.094	.5
4	MP-3	X	-.048	2
5	MP-3	X	-.055	2
6	MP-4	X	-.136	.5
7	MP-4	X	-.063	2
8	SF1-TH	X	-.125	2
9	MP-1	X	-.136	3.5
10	MP-3	X	-.094	3.5
11	MP-4	X	-.136	3.5
12	MP-1	Z	-.079	.5



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Member Point Loads (BLC 3 : 30 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
13	MP-1	Z	-.02	2
14	MP-3	Z	-.054	.5
15	MP-3	Z	-.028	2
16	MP-3	Z	-.032	2
17	MP-4	Z	-.079	.5
18	MP-4	Z	-.037	2
19	SF1-TH	Z	-.072	2
20	MP-1	Z	-.079	3.5
21	MP-3	Z	-.054	3.5
22	MP-4	Z	-.079	3.5

Member Point Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.093	.5
2	MP-1	X	-.023	2
3	MP-3	X	-.066	.5
4	MP-3	X	-.046	2
5	MP-3	X	-.047	2
6	MP-4	X	-.093	.5
7	MP-4	X	-.046	2
8	SF1-TH	X	-.118	2
9	MP-1	X	-.093	3.5
10	MP-3	X	-.066	3.5
11	MP-4	X	-.093	3.5
12	MP-1	Z	-.093	.5
13	MP-1	Z	-.023	2
14	MP-3	Z	-.066	.5
15	MP-3	Z	-.046	2
16	MP-3	Z	-.047	2
17	MP-4	Z	-.093	.5
18	MP-4	Z	-.046	2
19	SF1-TH	Z	-.118	2
20	MP-1	Z	-.093	3.5
21	MP-3	Z	-.066	3.5
22	MP-4	Z	-.093	3.5

Member Point Loads (BLC 5 : 60 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.052	.5
2	MP-1	X	-.012	2
3	MP-3	X	-.04	.5
4	MP-3	X	-.037	2
5	MP-3	X	-.035	2
6	MP-4	X	-.052	.5
7	MP-4	X	-.028	2
8	SF1-TH	X	-.095	2
9	MP-1	X	-.052	3.5
10	MP-3	X	-.04	3.5
11	MP-4	X	-.052	3.5
12	MP-1	Z	-.09	.5
13	MP-1	Z	-.021	2



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Member Point Loads (BLC 5 : 60 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	MP-3	Z	-.069	.5
15	MP-3	Z	-.063	2
16	MP-3	Z	-.06	2
17	MP-4	Z	-.09	.5
18	MP-4	Z	-.048	2
19	SF1-TH	Z	-.164	2
20	MP-1	Z	-.09	3.5
21	MP-3	Z	-.069	3.5
22	MP-4	Z	-.09	3.5

Member Point Loads (BLC 6 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.078	.5
2	MP-1	Z	-.015	2
3	MP-3	Z	-.065	.5
4	MP-3	Z	-.082	2
5	MP-3	Z	-.073	2
6	MP-4	Z	-.078	.5
7	MP-4	Z	-.047	2
8	SF1-TH	Z	-.212	2
9	MP-1	Z	-.078	3.5
10	MP-3	Z	-.065	3.5
11	MP-4	Z	-.078	3.5

Member Point Loads (BLC 7 : 120 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.052	.5
2	MP-1	X	.012	2
3	MP-3	X	.04	.5
4	MP-3	X	.037	2
5	MP-3	X	.035	2
6	MP-4	X	.052	.5
7	MP-4	X	.028	2
8	SF1-TH	X	.095	2
9	MP-1	X	.052	3.5
10	MP-3	X	.04	3.5
11	MP-4	X	.052	3.5
12	MP-1	Z	-.09	.5
13	MP-1	Z	-.021	2
14	MP-3	Z	-.069	.5
15	MP-3	Z	-.063	2
16	MP-3	Z	-.06	2
17	MP-4	Z	-.09	.5
18	MP-4	Z	-.048	2
19	SF1-TH	Z	-.164	2
20	MP-1	Z	-.09	3.5
21	MP-3	Z	-.069	3.5
22	MP-4	Z	-.09	3.5

Member Point Loads (BLC 8 : 135 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
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Member Point Loads (BLC 8 : 135 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.093	.5
2	MP-1	X	.023	2
3	MP-3	X	.066	.5
4	MP-3	X	.046	2
5	MP-3	X	.047	2
6	MP-4	X	.093	.5
7	MP-4	X	.046	2
8	SF1-TH	X	.118	2
9	MP-1	X	.093	3.5
10	MP-3	X	.066	3.5
11	MP-4	X	.093	3.5
12	MP-1	Z	-.093	.5
13	MP-1	Z	-.023	2
14	MP-3	Z	-.066	.5
15	MP-3	Z	-.046	2
16	MP-3	Z	-.047	2
17	MP-4	Z	-.093	.5
18	MP-4	Z	-.046	2
19	SF1-TH	Z	-.118	2
20	MP-1	Z	-.093	3.5
21	MP-3	Z	-.066	3.5
22	MP-4	Z	-.093	3.5

Member Point Loads (BLC 9 : 150 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.136	.5
2	MP-1	X	.035	2
3	MP-3	X	.094	.5
4	MP-3	X	.048	2
5	MP-3	X	.055	2
6	MP-4	X	.136	.5
7	MP-4	X	.063	2
8	SF1-TH	X	.125	2
9	MP-1	X	.136	3.5
10	MP-3	X	.094	3.5
11	MP-4	X	.136	3.5
12	MP-1	Z	-.079	.5
13	MP-1	Z	-.02	2
14	MP-3	Z	-.054	.5
15	MP-3	Z	-.028	2
16	MP-3	Z	-.032	2
17	MP-4	Z	-.079	.5
18	MP-4	Z	-.037	2
19	SF1-TH	Z	-.072	2
20	MP-1	Z	-.079	3.5
21	MP-3	Z	-.054	3.5
22	MP-4	Z	-.079	3.5

Member Point Loads (BLC 10 : 180 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.184	.5

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Member Point Loads (BLC 10 : 180 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
2	MP-1	X	.049	2
3	MP-3	X	.122	.5
4	MP-3	X	.047	2
5	MP-3	X	.06	2
6	MP-4	X	.184	.5
7	MP-4	X	.082	2
8	SF1-TH	X	.122	2
9	MP-1	X	.184	3.5
10	MP-3	X	.122	3.5
11	MP-4	X	.184	3.5

Member Point Loads (BLC 11 : 210 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.136	.5
2	MP-1	X	.035	2
3	MP-3	X	.094	.5
4	MP-3	X	.048	2
5	MP-3	X	.055	2
6	MP-4	X	.136	.5
7	MP-4	X	.063	2
8	SF1-TH	X	.125	2
9	MP-1	X	.136	3.5
10	MP-3	X	.094	3.5
11	MP-4	X	.136	3.5
12	MP-1	Z	.079	.5
13	MP-1	Z	.02	2
14	MP-3	Z	.054	.5
15	MP-3	Z	.028	2
16	MP-3	Z	.032	2
17	MP-4	Z	.079	.5
18	MP-4	Z	.037	2
19	SF1-TH	Z	.072	2
20	MP-1	Z	.079	3.5
21	MP-3	Z	.054	3.5
22	MP-4	Z	.079	3.5

Member Point Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.093	.5
2	MP-1	X	.023	2
3	MP-3	X	.066	.5
4	MP-3	X	.046	2
5	MP-3	X	.047	2
6	MP-4	X	.093	.5
7	MP-4	X	.046	2
8	SF1-TH	X	.118	2
9	MP-1	X	.093	3.5
10	MP-3	X	.066	3.5
11	MP-4	X	.093	3.5
12	MP-1	Z	.093	.5
13	MP-1	Z	.023	2



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Member Point Loads (BLC 12 : 225 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
14	MP-3	Z	.066	.5
15	MP-3	Z	.046	2
16	MP-3	Z	.047	2
17	MP-4	Z	.093	.5
18	MP-4	Z	.046	2
19	SF1-TH	Z	.118	2
20	MP-1	Z	.093	3.5
21	MP-3	Z	.066	3.5
22	MP-4	Z	.093	3.5

Member Point Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	.052	.5
2	MP-1	X	.012	2
3	MP-3	X	.04	.5
4	MP-3	X	.037	2
5	MP-3	X	.035	2
6	MP-4	X	.052	.5
7	MP-4	X	.028	2
8	SF1-TH	X	.095	2
9	MP-1	X	.052	3.5
10	MP-3	X	.04	3.5
11	MP-4	X	.052	3.5
12	MP-1	Z	.09	.5
13	MP-1	Z	.021	2
14	MP-3	Z	.069	.5
15	MP-3	Z	.063	2
16	MP-3	Z	.06	2
17	MP-4	Z	.09	.5
18	MP-4	Z	.048	2
19	SF1-TH	Z	.164	2
20	MP-1	Z	.09	3.5
21	MP-3	Z	.069	3.5
22	MP-4	Z	.09	3.5

Member Point Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	Z	.078	.5
2	MP-1	Z	.015	2
3	MP-3	Z	.065	.5
4	MP-3	Z	.082	2
5	MP-3	Z	.073	2
6	MP-4	Z	.078	.5
7	MP-4	Z	.047	2
8	SF1-TH	Z	.212	2
9	MP-1	Z	.078	3.5
10	MP-3	Z	.065	3.5
11	MP-4	Z	.078	3.5

Member Point Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
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Member Point Loads (BLC 15 : 300 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.052	.5
2	MP-1	X	-.012	2
3	MP-3	X	-.04	.5
4	MP-3	X	-.037	2
5	MP-3	X	-.035	2
6	MP-4	X	-.052	.5
7	MP-4	X	-.028	2
8	SF1-TH	X	-.095	2
9	MP-1	X	-.052	3.5
10	MP-3	X	-.04	3.5
11	MP-4	X	-.052	3.5
12	MP-1	Z	.09	.5
13	MP-1	Z	.021	2
14	MP-3	Z	.069	.5
15	MP-3	Z	.063	2
16	MP-3	Z	.06	2
17	MP-4	Z	.09	.5
18	MP-4	Z	.048	2
19	SF1-TH	Z	.164	2
20	MP-1	Z	.09	3.5
21	MP-3	Z	.069	3.5
22	MP-4	Z	.09	3.5

Member Point Loads (BLC 16 : 315 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.093	.5
2	MP-1	X	-.023	2
3	MP-3	X	-.066	.5
4	MP-3	X	-.046	2
5	MP-3	X	-.047	2
6	MP-4	X	-.093	.5
7	MP-4	X	-.046	2
8	SF1-TH	X	-.118	2
9	MP-1	X	-.093	3.5
10	MP-3	X	-.066	3.5
11	MP-4	X	-.093	3.5
12	MP-1	Z	.093	.5
13	MP-1	Z	.023	2
14	MP-3	Z	.066	.5
15	MP-3	Z	.046	2
16	MP-3	Z	.047	2
17	MP-4	Z	.093	.5
18	MP-4	Z	.046	2
19	SF1-TH	Z	.118	2
20	MP-1	Z	.093	3.5
21	MP-3	Z	.066	3.5
22	MP-4	Z	.093	3.5

Member Point Loads (BLC 17 : 330 Wind - No Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.136	.5



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Member Point Loads (BLC 17 : 330 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
2	MP-1	X	-.035	2
3	MP-3	X	-.094	.5
4	MP-3	X	-.048	2
5	MP-3	X	-.055	2
6	MP-4	X	-.136	.5
7	MP-4	X	-.063	2
8	SF1-TH	X	-.125	2
9	MP-1	X	-.136	3.5
10	MP-3	X	-.094	3.5
11	MP-4	X	-.136	3.5
12	MP-1	Z	.079	.5
13	MP-1	Z	.02	2
14	MP-3	Z	.054	.5
15	MP-3	Z	.028	2
16	MP-3	Z	.032	2
17	MP-4	Z	.079	.5
18	MP-4	Z	.037	2
19	SF1-TH	Z	.072	2
20	MP-1	Z	.079	3.5
21	MP-3	Z	.054	3.5
22	MP-4	Z	.079	3.5

Member Point Loads (BLC 18 : Ice Weight)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	Y	-.053	.5
2	MP-1	Y	-.016	2
3	MP-3	Y	-.034	.5
4	MP-3	Y	-.033	2
5	MP-3	Y	-.037	2
6	MP-4	Y	-.053	.5
7	MP-4	Y	-.033	2
8	SF1-TH	Y	-.076	2
9	MP-1	Y	-.053	3.5
10	MP-3	Y	-.034	3.5
11	MP-4	Y	-.053	3.5

Member Point Loads (BLC 19 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location[ft, %]
1	MP-1	X	-.034	.5
2	MP-1	X	-.011	2
3	MP-3	X	-.024	.5
4	MP-3	X	-.011	2
5	MP-3	X	-.013	2
6	MP-4	X	-.034	.5
7	MP-4	X	-.017	2
8	SF1-TH	X	-.025	2
9	MP-1	X	-.034	3.5
10	MP-3	X	-.024	3.5
11	MP-4	X	-.034	3.5



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Member Point Loads (BLC 20 : 30 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.026	.5
2	MP-1	X	-.008	2
3	MP-3	X	-.019	.5
4	MP-3	X	-.011	2
5	MP-3	X	-.012	2
6	MP-4	X	-.026	.5
7	MP-4	X	-.013	2
8	SF1-TH	X	-.025	2
9	MP-1	X	-.026	3.5
10	MP-3	X	-.019	3.5
11	MP-4	X	-.026	3.5
12	MP-1	Z	-.015	.5
13	MP-1	Z	-.005	2
14	MP-3	Z	-.011	.5
15	MP-3	Z	-.006	2
16	MP-3	Z	-.007	2
17	MP-4	Z	-.015	.5
18	MP-4	Z	-.008	2
19	SF1-TH	Z	-.014	2
20	MP-1	Z	-.015	3.5
21	MP-3	Z	-.011	3.5
22	MP-4	Z	-.015	3.5

Member Point Loads (BLC 21 : 45 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.018	.5
2	MP-1	X	-.006	2
3	MP-3	X	-.013	.5
4	MP-3	X	-.01	2
5	MP-3	X	-.01	2
6	MP-4	X	-.018	.5
7	MP-4	X	-.01	2
8	SF1-TH	X	-.023	2
9	MP-1	X	-.018	3.5
10	MP-3	X	-.013	3.5
11	MP-4	X	-.018	3.5
12	MP-1	Z	-.018	.5
13	MP-1	Z	-.006	2
14	MP-3	Z	-.013	.5
15	MP-3	Z	-.01	2
16	MP-3	Z	-.01	2
17	MP-4	Z	-.018	.5
18	MP-4	Z	-.01	2
19	SF1-TH	Z	-.023	2
20	MP-1	Z	-.018	3.5
21	MP-3	Z	-.013	3.5
22	MP-4	Z	-.018	3.5

Member Point Loads (BLC 22 : 60 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.01	.5



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Member Point Loads (BLC 22 : 60 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP-1	X	-.003	2
3	MP-3	X	-.008	.5
4	MP-3	X	-.008	2
5	MP-3	X	-.007	2
6	MP-4	X	-.01	.5
7	MP-4	X	-.006	2
8	SF1-TH	X	-.018	2
9	MP-1	X	-.01	3.5
10	MP-3	X	-.008	3.5
11	MP-4	X	-.01	3.5
12	MP-1	Z	-.018	.5
13	MP-1	Z	-.005	2
14	MP-3	Z	-.014	.5
15	MP-3	Z	-.013	2
16	MP-3	Z	-.013	2
17	MP-4	Z	-.018	.5
18	MP-4	Z	-.011	2
19	SF1-TH	Z	-.032	2
20	MP-1	Z	-.018	3.5
21	MP-3	Z	-.014	3.5
22	MP-4	Z	-.018	3.5

Member Point Loads (BLC 23 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.016	.5
2	MP-1	Z	-.005	2
3	MP-3	Z	-.014	.5
4	MP-3	Z	-.017	2
5	MP-3	Z	-.015	2
6	MP-4	Z	-.016	.5
7	MP-4	Z	-.011	2
8	SF1-TH	Z	-.041	2
9	MP-1	Z	-.016	3.5
10	MP-3	Z	-.014	3.5
11	MP-4	Z	-.016	3.5

Member Point Loads (BLC 24 : 120 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	.01	.5
2	MP-1	X	.003	2
3	MP-3	X	.008	.5
4	MP-3	X	.008	2
5	MP-3	X	.007	2
6	MP-4	X	.01	.5
7	MP-4	X	.006	2
8	SF1-TH	X	.018	2
9	MP-1	X	.01	3.5
10	MP-3	X	.008	3.5
11	MP-4	X	.01	3.5
12	MP-1	Z	-.018	.5
13	MP-1	Z	-.005	2



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Member Point Loads (BLC 24 : 120 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
14	MP-3	Z	-.014	.5
15	MP-3	Z	-.013	2
16	MP-3	Z	-.013	2
17	MP-4	Z	-.018	.5
18	MP-4	Z	-.011	2
19	SF1-TH	Z	-.032	2
20	MP-1	Z	-.018	3.5
21	MP-3	Z	-.014	3.5
22	MP-4	Z	-.018	3.5

Member Point Loads (BLC 25 : 135 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.018	.5
2	MP-1	X	.006	2
3	MP-3	X	.013	.5
4	MP-3	X	.01	2
5	MP-3	X	.01	2
6	MP-4	X	.018	.5
7	MP-4	X	.01	2
8	SF1-TH	X	.023	2
9	MP-1	X	.018	3.5
10	MP-3	X	.013	3.5
11	MP-4	X	.018	3.5
12	MP-1	Z	-.018	.5
13	MP-1	Z	-.006	2
14	MP-3	Z	-.013	.5
15	MP-3	Z	-.01	2
16	MP-3	Z	-.01	2
17	MP-4	Z	-.018	.5
18	MP-4	Z	-.01	2
19	SF1-TH	Z	-.023	2
20	MP-1	Z	-.018	3.5
21	MP-3	Z	-.013	3.5
22	MP-4	Z	-.018	3.5

Member Point Loads (BLC 26 : 150 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.026	.5
2	MP-1	X	.008	2
3	MP-3	X	.019	.5
4	MP-3	X	.011	2
5	MP-3	X	.012	2
6	MP-4	X	.026	.5
7	MP-4	X	.013	2
8	SF1-TH	X	.025	2
9	MP-1	X	.026	3.5
10	MP-3	X	.019	3.5
11	MP-4	X	.026	3.5
12	MP-1	Z	-.015	.5
13	MP-1	Z	-.005	2
14	MP-3	Z	-.011	.5



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Member Point Loads (BLC 26 : 150 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
15	MP-3	Z	-.006	2
16	MP-3	Z	-.007	2
17	MP-4	Z	-.015	.5
18	MP-4	Z	-.008	2
19	SF1-TH	Z	-.014	2
20	MP-1	Z	-.015	3.5
21	MP-3	Z	-.011	3.5
22	MP-4	Z	-.015	3.5

Member Point Loads (BLC 27 : 180 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.034	.5
2	MP-1	X	.011	2
3	MP-3	X	.024	.5
4	MP-3	X	.011	2
5	MP-3	X	.013	2
6	MP-4	X	.034	.5
7	MP-4	X	.017	2
8	SF1-TH	X	.025	2
9	MP-1	X	.034	3.5
10	MP-3	X	.024	3.5
11	MP-4	X	.034	3.5

Member Point Loads (BLC 28 : 210 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
1	MP-1	X	.026	.5
2	MP-1	X	.008	2
3	MP-3	X	.019	.5
4	MP-3	X	.011	2
5	MP-3	X	.012	2
6	MP-4	X	.026	.5
7	MP-4	X	.013	2
8	SF1-TH	X	.025	2
9	MP-1	X	.026	3.5
10	MP-3	X	.019	3.5
11	MP-4	X	.026	3.5
12	MP-1	Z	.015	.5
13	MP-1	Z	.005	2
14	MP-3	Z	.011	.5
15	MP-3	Z	.006	2
16	MP-3	Z	.007	2
17	MP-4	Z	.015	.5
18	MP-4	Z	.008	2
19	SF1-TH	Z	.014	2
20	MP-1	Z	.015	3.5
21	MP-3	Z	.011	3.5
22	MP-4	Z	.015	3.5

Member Point Loads (BLC 29 : 225 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft, %]
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Member Point Loads (BLC 29 : 225 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
1	MP-1	X	.018	.5
2	MP-1	X	.006	2
3	MP-3	X	.013	.5
4	MP-3	X	.01	2
5	MP-3	X	.01	2
6	MP-4	X	.018	.5
7	MP-4	X	.01	2
8	SF1-TH	X	.023	2
9	MP-1	X	.018	3.5
10	MP-3	X	.013	3.5
11	MP-4	X	.018	3.5
12	MP-1	Z	.018	.5
13	MP-1	Z	.006	2
14	MP-3	Z	.013	.5
15	MP-3	Z	.01	2
16	MP-3	Z	.01	2
17	MP-4	Z	.018	.5
18	MP-4	Z	.01	2
19	SF1-TH	Z	.023	2
20	MP-1	Z	.018	3.5
21	MP-3	Z	.013	3.5
22	MP-4	Z	.018	3.5

Member Point Loads (BLC 30 : 240 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
1	MP-1	X	.01	.5
2	MP-1	X	.003	2
3	MP-3	X	.008	.5
4	MP-3	X	.008	2
5	MP-3	X	.007	2
6	MP-4	X	.01	.5
7	MP-4	X	.006	2
8	SF1-TH	X	.018	2
9	MP-1	X	.01	3.5
10	MP-3	X	.008	3.5
11	MP-4	X	.01	3.5
12	MP-1	Z	.018	.5
13	MP-1	Z	.005	2
14	MP-3	Z	.014	.5
15	MP-3	Z	.013	2
16	MP-3	Z	.013	2
17	MP-4	Z	.018	.5
18	MP-4	Z	.011	2
19	SF1-TH	Z	.032	2
20	MP-1	Z	.018	3.5
21	MP-3	Z	.014	3.5
22	MP-4	Z	.018	3.5

Member Point Loads (BLC 31 : 270 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
1	MP-1	Z	.016	.5



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Member Point Loads (BLC 31 : 270 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
2	MP-1	Z	.005	2
3	MP-3	Z	.014	.5
4	MP-3	Z	.017	2
5	MP-3	Z	.015	2
6	MP-4	Z	.016	.5
7	MP-4	Z	.011	2
8	SF1-TH	Z	.041	2
9	MP-1	Z	.016	3.5
10	MP-3	Z	.014	3.5
11	MP-4	Z	.016	3.5

Member Point Loads (BLC 32 : 300 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
1	MP-1	X	-.01	.5
2	MP-1	X	-.003	2
3	MP-3	X	-.008	.5
4	MP-3	X	-.008	2
5	MP-3	X	-.007	2
6	MP-4	X	-.01	.5
7	MP-4	X	-.006	2
8	SF1-TH	X	-.018	2
9	MP-1	X	-.01	3.5
10	MP-3	X	-.008	3.5
11	MP-4	X	-.01	3.5
12	MP-1	Z	.018	.5
13	MP-1	Z	.005	2
14	MP-3	Z	.014	.5
15	MP-3	Z	.013	2
16	MP-3	Z	.013	2
17	MP-4	Z	.018	.5
18	MP-4	Z	.011	2
19	SF1-TH	Z	.032	2
20	MP-1	Z	.018	3.5
21	MP-3	Z	.014	3.5
22	MP-4	Z	.018	3.5

Member Point Loads (BLC 33 : 315 Wind - Ice)

	Member Label	Direction	Magnitude[k, k-ft]	Location(ft, %)
1	MP-1	X	-.018	.5
2	MP-1	X	-.006	2
3	MP-3	X	-.013	.5
4	MP-3	X	-.01	2
5	MP-3	X	-.01	2
6	MP-4	X	-.018	.5
7	MP-4	X	-.01	2
8	SF1-TH	X	-.023	2
9	MP-1	X	-.018	3.5
10	MP-3	X	-.013	3.5
11	MP-4	X	-.018	3.5
12	MP-1	Z	.018	.5
13	MP-1	Z	.006	2



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Member Point Loads (BLC 33 : 315 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	MP-3	Z	.013	.5
15	MP-3	Z	.01	2
16	MP-3	Z	.01	2
17	MP-4	Z	.018	.5
18	MP-4	Z	.01	2
19	SF1-TH	Z	.023	2
20	MP-1	Z	.018	3.5
21	MP-3	Z	.013	3.5
22	MP-4	Z	.018	3.5

Member Point Loads (BLC 34 : 330 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.026	.5
2	MP-1	X	-.008	2
3	MP-3	X	-.019	.5
4	MP-3	X	-.011	2
5	MP-3	X	-.012	2
6	MP-4	X	-.026	.5
7	MP-4	X	-.013	2
8	SF1-TH	X	-.025	2
9	MP-1	X	-.026	3.5
10	MP-3	X	-.019	3.5
11	MP-4	X	-.026	3.5
12	MP-1	Z	.015	.5
13	MP-1	Z	.005	2
14	MP-3	Z	.011	.5
15	MP-3	Z	.006	2
16	MP-3	Z	.007	2
17	MP-4	Z	.015	.5
18	MP-4	Z	.008	2
19	SF1-TH	Z	.014	2
20	MP-1	Z	.015	3.5
21	MP-3	Z	.011	3.5
22	MP-4	Z	.015	3.5

Member Point Loads (BLC 37 : Seismic Load X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	X	-.034	.5
2	MP-1	X	-.014	2
3	MP-3	X	-.018	.5
4	MP-3	X	-.06	2
5	MP-3	X	-.072	2
6	MP-4	X	-.034	.5
7	MP-4	X	-.06	2
8	SF1-TH	X	-.026	2
9	MP-1	X	-.034	3.5
10	MP-3	X	-.018	3.5
11	MP-4	X	-.034	3.5

Member Point Loads (BLC 38 : Seismic Load Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
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Member Point Loads (BLC 38 : Seismic Load Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP-1	Z	-.034	.5
2	MP-1	Z	-.014	2
3	MP-3	Z	-.018	.5
4	MP-3	Z	-.06	2
5	MP-3	Z	-.072	2
6	MP-4	Z	-.034	.5
7	MP-4	Z	-.06	2
8	SF1-TH	Z	-.026	2
9	MP-1	Z	-.034	3.5
10	MP-3	Z	-.018	3.5
11	MP-4	Z	-.034	3.5

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	FFTH	X	-.011	-.011	0	%100
2	SF1-TH	X	0	0	0	%100
3	SF1-V1	X	-.007	-.007	0	%100
4	MP-1	X	-.01	-.01	0	%100
5	MP-2	X	-.01	-.01	0	%100
6	MP-3	X	-.01	-.01	0	%100
7	MP-4	X	-.01	-.01	0	%100

Member Distributed Loads (BLC 3 : 30 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.01	-.01	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.006	-.006	0	%100
4	MP-1	X	-.009	-.009	0	%100
5	MP-2	X	-.009	-.009	0	%100
6	MP-3	X	-.009	-.009	0	%100
7	MP-4	X	-.009	-.009	0	%100
8	FFTH	Z	-.004	-.004	0	%100
9	SF1-TH	Z	-.006	-.006	0	%100
10	SF1-V1	Z	-.004	-.004	0	%100
11	MP-1	Z	-.005	-.005	0	%100
12	MP-2	Z	-.005	-.005	0	%100
13	MP-3	Z	-.005	-.005	0	%100
14	MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 4 : 45 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.007	-.007	0	%100
2	SF1-TH	X	-.009	-.009	0	%100
3	SF1-V1	X	-.005	-.005	0	%100
4	MP-1	X	-.007	-.007	0	%100
5	MP-2	X	-.007	-.007	0	%100
6	MP-3	X	-.007	-.007	0	%100
7	MP-4	X	-.007	-.007	0	%100
8	FFTH	Z	-.005	-.005	0	%100



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Member Distributed Loads (BLC 4 : 45 Wind - No Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
9 SF1-TH	Z	-.012	-.012	0	%100
10 SF1-V1	Z	-.005	-.005	0	%100
11 MP-1	Z	-.007	-.007	0	%100
12 MP-2	Z	-.007	-.007	0	%100
13 MP-3	Z	-.007	-.007	0	%100
14 MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 5 : 60 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	-.004	-.004	0	%100
2 SF1-TH	X	-.008	-.008	0	%100
3 SF1-V1	X	-.004	-.004	0	%100
4 MP-1	X	-.005	-.005	0	%100
5 MP-2	X	-.005	-.005	0	%100
6 MP-3	X	-.005	-.005	0	%100
7 MP-4	X	-.005	-.005	0	%100
8 FFTH	Z	-.005	-.005	0	%100
9 SF1-TH	Z	-.018	-.018	0	%100
10 SF1-V1	Z	-.006	-.006	0	%100
11 MP-1	Z	-.009	-.009	0	%100
12 MP-2	Z	-.009	-.009	0	%100
13 MP-3	Z	-.009	-.009	0	%100
14 MP-4	Z	-.009	-.009	0	%100

Member Distributed Loads (BLC 6 : 90 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	Z	-.003	-.003	0	%100
2 SF1-TH	Z	-.024	-.024	0	%100
3 SF1-V1	Z	-.007	-.007	0	%100
4 MP-1	Z	-.01	-.01	0	%100
5 MP-2	Z	-.01	-.01	0	%100
6 MP-3	Z	-.01	-.01	0	%100
7 MP-4	Z	-.01	-.01	0	%100

Member Distributed Loads (BLC 7 : 120 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	.001	.001	0	%100
2 SF1-TH	X	.008	.008	0	%100
3 SF1-V1	X	.004	.004	0	%100
4 MP-1	X	.005	.005	0	%100
5 MP-2	X	.005	.005	0	%100
6 MP-3	X	.005	.005	0	%100
7 MP-4	X	.005	.005	0	%100
8 FFTH	Z	-.001	-.001	0	%100
9 SF1-TH	Z	-.018	-.018	0	%100
10 SF1-V1	Z	-.006	-.006	0	%100
11 MP-1	Z	-.009	-.009	0	%100
12 MP-2	Z	-.009	-.009	0	%100
13 MP-3	Z	-.009	-.009	0	%100
14 MP-4	Z	-.009	-.009	0	%100



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Member Distributed Loads (BLC 8 : 135 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	.003	.003	0	%100
2 SF1-TH	X	.009	.009	0	%100
3 SF1-V1	X	.005	.005	0	%100
4 MP-1	X	.007	.007	0	%100
5 MP-2	X	.007	.007	0	%100
6 MP-3	X	.007	.007	0	%100
7 MP-4	X	.007	.007	0	%100
8 FFTH	Z	-.002	-.002	0	%100
9 SF1-TH	Z	-.012	-.012	0	%100
10 SF1-V1	Z	-.005	-.005	0	%100
11 MP-1	Z	-.007	-.007	0	%100
12 MP-2	Z	-.007	-.007	0	%100
13 MP-3	Z	-.007	-.007	0	%100
14 MP-4	Z	-.007	-.007	0	%100

Member Distributed Loads (BLC 9 : 150 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	.006	.006	0	%100
2 SF1-TH	X	.008	.008	0	%100
3 SF1-V1	X	.006	.006	0	%100
4 MP-1	X	.009	.009	0	%100
5 MP-2	X	.009	.009	0	%100
6 MP-3	X	.009	.009	0	%100
7 MP-4	X	.009	.009	0	%100
8 FFTH	Z	-.003	-.003	0	%100
9 SF1-TH	Z	-.006	-.006	0	%100
10 SF1-V1	Z	-.004	-.004	0	%100
11 MP-1	Z	-.005	-.005	0	%100
12 MP-2	Z	-.005	-.005	0	%100
13 MP-3	Z	-.005	-.005	0	%100
14 MP-4	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 10 : 180 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	.011	.011	0	%100
2 SF1-TH	X	0	0	0	%100
3 SF1-V1	X	.007	.007	0	%100
4 MP-1	X	.01	.01	0	%100
5 MP-2	X	.01	.01	0	%100
6 MP-3	X	.01	.01	0	%100
7 MP-4	X	.01	.01	0	%100

Member Distributed Loads (BLC 11 : 210 Wind - No Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	.01	.01	0	%100
2 SF1-TH	X	.008	.008	0	%100
3 SF1-V1	X	.006	.006	0	%100
4 MP-1	X	.009	.009	0	%100
5 MP-2	X	.009	.009	0	%100
6 MP-3	X	.009	.009	0	%100



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Member Distributed Loads (BLC 11 : 210 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
7	MP-4	X	.009	.009	0	%100
8	FFTH	Z	.004	.004	0	%100
9	SF1-TH	Z	.006	.006	0	%100
10	SF1-V1	Z	.004	.004	0	%100
11	MP-1	Z	.005	.005	0	%100
12	MP-2	Z	.005	.005	0	%100
13	MP-3	Z	.005	.005	0	%100
14	MP-4	Z	.005	.005	0	%100

Member Distributed Loads (BLC 12 : 225 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.007	.007	0	%100
2	SF1-TH	X	.009	.009	0	%100
3	SF1-V1	X	.005	.005	0	%100
4	MP-1	X	.007	.007	0	%100
5	MP-2	X	.007	.007	0	%100
6	MP-3	X	.007	.007	0	%100
7	MP-4	X	.007	.007	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.012	.012	0	%100
10	SF1-V1	Z	.005	.005	0	%100
11	MP-1	Z	.007	.007	0	%100
12	MP-2	Z	.007	.007	0	%100
13	MP-3	Z	.007	.007	0	%100
14	MP-4	Z	.007	.007	0	%100

Member Distributed Loads (BLC 13 : 240 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.004	.004	0	%100
2	SF1-TH	X	.008	.008	0	%100
3	SF1-V1	X	.004	.004	0	%100
4	MP-1	X	.005	.005	0	%100
5	MP-2	X	.005	.005	0	%100
6	MP-3	X	.005	.005	0	%100
7	MP-4	X	.005	.005	0	%100
8	FFTH	Z	.005	.005	0	%100
9	SF1-TH	Z	.018	.018	0	%100
10	SF1-V1	Z	.006	.006	0	%100
11	MP-1	Z	.009	.009	0	%100
12	MP-2	Z	.009	.009	0	%100
13	MP-3	Z	.009	.009	0	%100
14	MP-4	Z	.009	.009	0	%100

Member Distributed Loads (BLC 14 : 270 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	Z	.003	.003	0	%100
2	SF1-TH	Z	.024	.024	0	%100
3	SF1-V1	Z	.007	.007	0	%100
4	MP-1	Z	.01	.01	0	%100
5	MP-2	Z	.01	.01	0	%100



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Member Distributed Loads (BLC 14 : 270 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
6	MP-3	Z	.01	.01	0	%100
7	MP-4	Z	.01	.01	0	%100

Member Distributed Loads (BLC 15 : 300 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.001	-.001	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.004	-.004	0	%100
4	MP-1	X	-.005	-.005	0	%100
5	MP-2	X	-.005	-.005	0	%100
6	MP-3	X	-.005	-.005	0	%100
7	MP-4	X	-.005	-.005	0	%100
8	FFTH	Z	.001	.001	0	%100
9	SF1-TH	Z	.018	.018	0	%100
10	SF1-V1	Z	.006	.006	0	%100
11	MP-1	Z	.009	.009	0	%100
12	MP-2	Z	.009	.009	0	%100
13	MP-3	Z	.009	.009	0	%100
14	MP-4	Z	.009	.009	0	%100

Member Distributed Loads (BLC 16 : 315 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.009	-.009	0	%100
3	SF1-V1	X	-.005	-.005	0	%100
4	MP-1	X	-.007	-.007	0	%100
5	MP-2	X	-.007	-.007	0	%100
6	MP-3	X	-.007	-.007	0	%100
7	MP-4	X	-.007	-.007	0	%100
8	FFTH	Z	.002	.002	0	%100
9	SF1-TH	Z	.012	.012	0	%100
10	SF1-V1	Z	.005	.005	0	%100
11	MP-1	Z	.007	.007	0	%100
12	MP-2	Z	.007	.007	0	%100
13	MP-3	Z	.007	.007	0	%100
14	MP-4	Z	.007	.007	0	%100

Member Distributed Loads (BLC 17 : 330 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,....	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	-.006	-.006	0	%100
2	SF1-TH	X	-.008	-.008	0	%100
3	SF1-V1	X	-.006	-.006	0	%100
4	MP-1	X	-.009	-.009	0	%100
5	MP-2	X	-.009	-.009	0	%100
6	MP-3	X	-.009	-.009	0	%100
7	MP-4	X	-.009	-.009	0	%100
8	FFTH	Z	.003	.003	0	%100
9	SF1-TH	Z	.006	.006	0	%100
10	SF1-V1	Z	.004	.004	0	%100
11	MP-1	Z	.005	.005	0	%100



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Member Distributed Loads (BLC 17 : 330 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
12	MP-2	Z	.005	.005	0	%100
13	MP-3	Z	.005	.005	0	%100
14	MP-4	Z	.005	.005	0	%100

Member Distributed Loads (BLC 18 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Y	-.005	-.005	0	%100
2	SF1-TH	Y	-.006	-.006	0	%100
3	SF1-V1	Y	-.006	-.006	0	%100
4	MP-1	Y	-.004	-.004	0	%100
5	MP-2	Y	-.004	-.004	0	%100
6	MP-3	Y	-.004	-.004	0	%100
7	MP-4	Y	-.004	-.004	0	%100

Member Distributed Loads (BLC 19 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.004	-.004	0	%100
2	SF1-TH	X	-.004	-.004	0	%100
3	SF1-V1	X	-.002	-.002	0	%100
4	MP-1	X	-.003	-.003	0	%100
5	MP-2	X	-.003	-.003	0	%100
6	MP-3	X	-.003	-.003	0	%100
7	MP-4	X	-.003	-.003	0	%100

Member Distributed Loads (BLC 20 : 30 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.003	-.003	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.002	-.002	0	%100
4	MP-1	X	-.002	-.002	0	%100
5	MP-2	X	-.002	-.002	0	%100
6	MP-3	X	-.002	-.002	0	%100
7	MP-4	X	-.002	-.002	0	%100
8	FFTH	Z	-.001	-.001	0	%100
9	SF1-TH	Z	-.001	-.001	0	%100
10	SF1-V1	Z	-.001	-.001	0	%100
11	MP-1	Z	-.001	-.001	0	%100
12	MP-2	Z	-.001	-.001	0	%100
13	MP-3	Z	-.001	-.001	0	%100
14	MP-4	Z	-.002	-.002	0	%100

Member Distributed Loads (BLC 21 : 45 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.002	-.002	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.002	-.002	0	%100
4	MP-1	X	-.002	-.002	0	%100
5	MP-2	X	-.002	-.002	0	%100
6	MP-3	X	-.002	-.002	0	%100
7	MP-4	X	-.002	-.002	0	%100



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Member Distributed Loads (BLC 21 : 45 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
8	FFTH	Z	-.002	-.002	0	%100
9	SF1-TH	Z	-.003	-.003	0	%100
10	SF1-V1	Z	-.002	-.002	0	%100
11	MP-1	Z	-.002	-.002	0	%100
12	MP-2	Z	-.002	-.002	0	%100
13	MP-3	Z	-.002	-.002	0	%100
14	MP-4	Z	-.002	-.002	0	%100

Member Distributed Loads (BLC 22 : 60 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	-.001	-.001	0	%100
2	SF1-TH	X	-.002	-.002	0	%100
3	SF1-V1	X	-.001	-.001	0	%100
4	MP-1	X	-.001	-.001	0	%100
5	MP-2	X	-.001	-.001	0	%100
6	MP-3	X	-.001	-.001	0	%100
7	MP-4	X	-.001	-.001	0	%100
8	FFTH	Z	-.002	-.002	0	%100
9	SF1-TH	Z	-.004	-.004	0	%100
10	SF1-V1	Z	-.002	-.002	0	%100
11	MP-1	Z	-.002	-.002	0	%100
12	MP-2	Z	-.002	-.002	0	%100
13	MP-3	Z	-.002	-.002	0	%100
14	MP-4	Z	-.003	-.003	0	%100

Member Distributed Loads (BLC 23 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	Z	-.000932	-.000932	0	%100
2	SF1-TH	Z	-.005	-.005	0	%100
3	SF1-V1	Z	-.003	-.003	0	%100
4	MP-1	Z	-.003	-.003	0	%100
5	MP-2	Z	-.003	-.003	0	%100
6	MP-3	Z	-.003	-.003	0	%100
7	MP-4	Z	-.003	-.003	0	%100

Member Distributed Loads (BLC 24 : 120 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft, %]	End Location[ft, %]
1	FFTH	X	.000321	.000321	0	%100
2	SF1-TH	X	.002	.002	0	%100
3	SF1-V1	X	.001	.001	0	%100
4	MP-1	X	.001	.001	0	%100
5	MP-2	X	.001	.001	0	%100
6	MP-3	X	.001	.001	0	%100
7	MP-4	X	.001	.001	0	%100
8	FFTH	Z	-.00041	-.00041	0	%100
9	SF1-TH	Z	-.004	-.004	0	%100
10	SF1-V1	Z	-.002	-.002	0	%100
11	MP-1	Z	-.002	-.002	0	%100
12	MP-2	Z	-.002	-.002	0	%100
13	MP-3	Z	-.002	-.002	0	%100



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Member Distributed Loads (BLC 24 : 120 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
14	MP-4	Z	-.003	0	%100

Member Distributed Loads (BLC 25 : 135 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.001	0	%100
2	SF1-TH	X	.002	0	%100
3	SF1-V1	X	.002	0	%100
4	MP-1	X	.002	0	%100
5	MP-2	X	.002	0	%100
6	MP-3	X	.002	0	%100
7	MP-4	X	.002	0	%100
8	FFTH	Z	-.000814	0	%100
9	SF1-TH	Z	-.003	0	%100
10	SF1-V1	Z	-.002	0	%100
11	MP-1	Z	-.002	0	%100
12	MP-2	Z	-.002	0	%100
13	MP-3	Z	-.002	0	%100
14	MP-4	Z	-.002	0	%100

Member Distributed Loads (BLC 26 : 150 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.002	0	%100
2	SF1-TH	X	.002	0	%100
3	SF1-V1	X	.002	0	%100
4	MP-1	X	.002	0	%100
5	MP-2	X	.002	0	%100
6	MP-3	X	.002	0	%100
7	MP-4	X	.002	0	%100
8	FFTH	Z	-.000876	0	%100
9	SF1-TH	Z	-.001	0	%100
10	SF1-V1	Z	-.001	0	%100
11	MP-1	Z	-.001	0	%100
12	MP-2	Z	-.001	0	%100
13	MP-3	Z	-.001	0	%100
14	MP-4	Z	-.002	0	%100

Member Distributed Loads (BLC 27 : 180 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.004	0	%100
2	SF1-TH	X	.004	0	%100
3	SF1-V1	X	.002	0	%100
4	MP-1	X	.003	0	%100
5	MP-2	X	.003	0	%100
6	MP-3	X	.003	0	%100
7	MP-4	X	.003	0	%100

Member Distributed Loads (BLC 28 : 210 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.003	0	%100
2	SF1-TH	X	.002	0	%100



Company : Tower Engineering Professionals, Inc.
Designer : LEG
Job Number : TEP No. 217406.329174
Model Name : BU# 824359 - Groton/ I-95/ X89/ Noa_1 (Gamma Sector)

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Member Distributed Loads (BLC 28 : 210 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
3	SF1-V1	X	.002	0	%100
4	MP-1	X	.002	0	%100
5	MP-2	X	.002	0	%100
6	MP-3	X	.002	0	%100
7	MP-4	X	.002	0	%100
8	FFTH	Z	.001	0	%100
9	SF1-TH	Z	.001	0	%100
10	SF1-V1	Z	.001	0	%100
11	MP-1	Z	.001	0	%100
12	MP-2	Z	.001	0	%100
13	MP-3	Z	.001	0	%100
14	MP-4	Z	.002	0	%100

Member Distributed Loads (BLC 29 : 225 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.002	0	%100
2	SF1-TH	X	.002	0	%100
3	SF1-V1	X	.002	0	%100
4	MP-1	X	.002	0	%100
5	MP-2	X	.002	0	%100
6	MP-3	X	.002	0	%100
7	MP-4	X	.002	0	%100
8	FFTH	Z	.002	0	%100
9	SF1-TH	Z	.003	0	%100
10	SF1-V1	Z	.002	0	%100
11	MP-1	Z	.002	0	%100
12	MP-2	Z	.002	0	%100
13	MP-3	Z	.002	0	%100
14	MP-4	Z	.002	0	%100

Member Distributed Loads (BLC 30 : 240 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	X	.001	0	%100
2	SF1-TH	X	.002	0	%100
3	SF1-V1	X	.001	0	%100
4	MP-1	X	.001	0	%100
5	MP-2	X	.001	0	%100
6	MP-3	X	.001	0	%100
7	MP-4	X	.001	0	%100
8	FFTH	Z	.002	0	%100
9	SF1-TH	Z	.004	0	%100
10	SF1-V1	Z	.002	0	%100
11	MP-1	Z	.002	0	%100
12	MP-2	Z	.002	0	%100
13	MP-3	Z	.002	0	%100
14	MP-4	Z	.003	0	%100

Member Distributed Loads (BLC 31 : 270 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	FFTH	Z	.000932	0	%100



Company : Tower Engineering Professionals, Inc.
Designer : LEG
Job Number : TEP No. 217406.329174
Model Name : BU# 824359 - Grotton/ I-95/ X89/ Noa_1 (Gamma Sector)

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Member Distributed Loads (BLC 31 : 270 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
2 SF1-TH	Z	.005	.005	0	%100
3 SF1-V1	Z	.003	.003	0	%100
4 MP-1	Z	.003	.003	0	%100
5 MP-2	Z	.003	.003	0	%100
6 MP-3	Z	.003	.003	0	%100
7 MP-4	Z	.003	.003	0	%100

Member Distributed Loads (BLC 32 : 300 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	-.000321	-.000321	0	%100
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.001	-.001	0	%100
4 MP-1	X	-.001	-.001	0	%100
5 MP-2	X	-.001	-.001	0	%100
6 MP-3	X	-.001	-.001	0	%100
7 MP-4	X	-.001	-.001	0	%100
8 FFTH	Z	.00041	.00041	0	%100
9 SF1-TH	Z	.004	.004	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.003	.003	0	%100

Member Distributed Loads (BLC 33 : 315 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	-.001	-.001	0	%100
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.002	-.002	0	%100
4 MP-1	X	-.002	-.002	0	%100
5 MP-2	X	-.002	-.002	0	%100
6 MP-3	X	-.002	-.002	0	%100
7 MP-4	X	-.002	-.002	0	%100
8 FFTH	Z	.000814	.000814	0	%100
9 SF1-TH	Z	.003	.003	0	%100
10 SF1-V1	Z	.002	.002	0	%100
11 MP-1	Z	.002	.002	0	%100
12 MP-2	Z	.002	.002	0	%100
13 MP-3	Z	.002	.002	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Distributed Loads (BLC 34 : 330 Wind - Ice)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1 FFTH	X	-.002	-.002	0	%100
2 SF1-TH	X	-.002	-.002	0	%100
3 SF1-V1	X	-.002	-.002	0	%100
4 MP-1	X	-.002	-.002	0	%100
5 MP-2	X	-.002	-.002	0	%100
6 MP-3	X	-.002	-.002	0	%100
7 MP-4	X	-.002	-.002	0	%100



Company : Tower Engineering Professionals, Inc.
Designer : LEG
Job Number : TEP No. 217406.329174
Model Name : BU# 824359 - Grotton/ I-95/ X89/ Noa_1 (Gamma Sector)

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Member Distributed Loads (BLC 34 : 330 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
8 FFTH	Z	.000876	.000876	0	%100
9 SF1-TH	Z	.001	.001	0	%100
10 SF1-V1	Z	.001	.001	0	%100
11 MP-1	Z	.001	.001	0	%100
12 MP-2	Z	.001	.001	0	%100
13 MP-3	Z	.001	.001	0	%100
14 MP-4	Z	.002	.002	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[k/ksf]
No Data to Print ...						

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Egn
1 MP-4	PIPE 2.0 No...	.968	5.813	26	.051	5.8...	26	7.007	33.924	2.006	2.006	2...H1-1b
2 FFTH	PIPE 3.0	.745	5	18	.513	5	26	36.138	65.205	5.749	5.749	1...H3-6
3 SF1-TH	HSS4X4X4	.576	4.333	24	.236	4.3...	54	98.66	139.518	16.181	16.181	1...H1-1b
4 MP-1	PIPE 2.0 No...	.383	3.646	26	.045	3.6...	26	16.542	33.924	2.006	2.006	1...H1-1b
5 MP-3	PIPE 2.0 No...	.334	3.646	26	.039	3.6...	26	16.542	33.924	2.006	2.006	1...H1-1b
6 MP-2	PIPE 2.0 No...	.035	3.646	26	.004	3.6...	26	16.542	33.924	2.006	2.006	1...H1-1b
7 SF1-V1	PIPE 3.0	.000	.75	27	.000	.75	27	61.832	65.205	5.749	5.749	1...H1-1b

APPENDIX D
ADDITIONAL CALCULATIONS

Moment Bolt Group - Support Arm

Bolt Size: 0.625 in

Bolts: 4

Plate Width: 8 in

Plate Height: 8 in

Bolt H Gap: 6.5 in

Bolt V Gap: 6.5 in

Plate T: 0.75 in

Tower Leg Ø: - in

Bolt Grade: A325N

 $F_{u,bolt}$ 120 ksi

r: 4.5962 in

J: 84.50 in⁴/in² $Bolt_{Area}$: 0.307 in² $Bolt_{Area, Net Tensile}$: 0.226 in²

Pretension: 19 kips

Slotted Holes: No

Code Checks Per ANSI/TIA-222-H:

Bolt Capacity = 46.1% PASS

Plate Capacity = 42.8% PASS

Plate Bending

Plate F_y : 36 ksi

Horizontal Member height: 4 in

Horizontal Member width: 4 in

 M_y = 11.9288 k - in Z_y = 1.125 in³ S_y = 0.750 in³ M_z = 15.5913 k - in Z_z = 1.125 in³ S_z = 0.750 in³ $\emptyset M_{py}(Z)$ = 36.450 k - in $\emptyset M_{py}(S)$ = 38.880 k - in $\emptyset M_{pz}(Z)$ = 36.450 k - in $\emptyset M_{pz}(S)$ = 38.880 k - in

Moment Bolt Group - Support Arm

Bolt Size: 0.625 in

Bolts: 4

Plate Width: 8 in

Plate Height: 8 in

Bolt H Gap: 6.5 in

Bolt V Gap: 6.5 in

Plate T: 0.75 in

Tower Leg Ø: - in

Bolt Grade: A325N

 $F_{u,bolt}$ 120 ksi

r: 4.5962 in

J: 84.50 in⁴/in² $Bolt_{Area}$: 0.307 in² $Bolt_{Area, Net Tensile}$: 0.226 in²

Pretension: 19 kips

Slotted Holes: No

Code Checks Per ANSI/TIA-222-H:

Bolt Capacity = 55.3% PASS

Plate Capacity = 51.5% PASS

Plate Bending

Plate F_y : 36 ksi

Horizontal Member height: 4 in

Horizontal Member width: 4 in

 M_y = 18.7753 k - in Z_y = 1.125 in³ S_y = 0.750 in³ M_z = 15.9069 k - in Z_z = 1.125 in³ S_z = 0.750 in³ $\emptyset M_{py}(Z)$ = 36.450 k - in $\emptyset M_{py}(S)$ = 38.880 k - in $\emptyset M_{pz}(Z)$ = 36.450 k - in $\emptyset M_{pz}(S)$ = 38.880 k - in

Moment Bolt Group - Support Arm

Bolt Size: 0.625 in
 # Bolts: 4
 Plate Width: 8 in
 Plate Height: 8 in
 Bolt H Gap: 6.5 in
 Bolt V Gap: 6.5 in
 Plate T: 0.75 in
 Slip Member Ø: - in
 Bolt Grade: A325N
 $F_{u_{bolt}}$: 120 ksi
 r: 4.5962 in
 J: 84.50 in⁴/in²
 $Bolt_{Area}$: 0.307 in²
 $Bolt_{Area, Net Tensile}$: 0.226 in²
 Pretension: 19 kips
 Slotted Holes: No

Code Checks Per ANSI/TIA-222-H:Bolt Capacity = 18.1% **PASS**Plate Capacity = 23.9% **PASS****Plate Bending**

Horizontal Member height: 4 in

Horizontal Member width: 4 in

Plate F_y : 36 ksi $M_y = 1.5339$ k - in $Z_y = 1.125$ in³ $S_y = 0.750$ in³ $M_z = 8.7177$ k - in $Z_z = 1.125$ in³ $S_z = 0.750$ in³ $\emptyset Mp_y (Z): 36.450$ k - in $\emptyset Mp_y (S): 38.880$ k - in $\emptyset Mp_z (Z): 36.450$ k - in $\emptyset Mp_z (S): 38.880$ k - in

Exhibit F

Power Density/RF Emissions Report



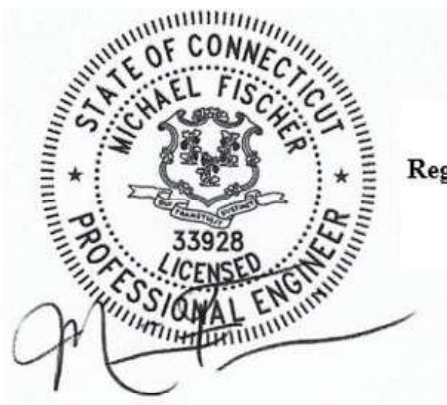
RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of AT&T Mobility, LLC

Crown Castle Site Name: Groton/ I-95/X89/ Noa_1
Crown Castle Site BU: 824359
AT&T Mobility, LLC Site FA #: 10099983
725 Flanders Rd
Groton, CT
12/11/2019

Report Status:

AT&T Mobility, LLC Is Compliant



Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2020

Signed 11 December 2019

Prepared By:

Site Safe, LLC

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
GROTON, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Site Safe, LLC in Vienna, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle (see attached Site Summary and Carrier documents) and that AT&T Mobility, LLC's installation involves communications equipment, antennas and associated technical equipment at a location referred to as "Groton/ I-95/X89/ Noa_1" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet and that worst-case 100% duty cycle has been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio frequency energy must utilize the standards set by the FCC, which is the federal agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," which defines situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and 2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequencies as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is

no more than 2.635% of the maximum permissible exposure limits in any accessible area on the ground; and

That it is understood per FCC Guidelines and OET 65 Appendix A, that regardless of the existent radio frequency environment, only those licensees whose contributions exceed 5% of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 7.743% of the maximum in any accessible area up to two meters above the ground per OET 65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET 65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier(s) and frequency range(s) indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding radio frequency safety; and

In summary, it is stated here that the proposed operation at the site will not result in exposure of the public to excessive levels of radio frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307(b), and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals and approved contractor personnel trained in radio frequency safety and that this instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower or in the immediate proximity of the antennas.

**Crown Castle
Groton/ I-95/X89/ Noa_1
Site Summary**

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.122 %
AT&T Mobility, LLC (Proposed)	0.665 %
AT&T Mobility, LLC (Proposed)	0.332 %
AT&T Mobility, LLC (Proposed)	0.379 %
AT&T Mobility, LLC (Proposed)	0.771 %
AT&T Mobility, LLC (Proposed)	0.366 %
Dish Network	0.236 %
Dish Network	0.278 %
T-Mobile	0.258 %
T-Mobile	0.574 %
T-Mobile	0.383 %
T-Mobile	0.258 %
Verizon Wireless	0.799 %
Verizon Wireless	0.930 %
Verizon Wireless	0.740 %
Verizon Wireless	0.652 %
Composite Site MPE:	7.743 %

AT&T Mobility, LLC
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 0.68871 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.12154 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Powerwave	7770	128	35	547	0.325408	0.057425	0.503996	0.088941
Powerwave	7770	128	145	547	0.325408	0.057425	0.503996	0.088941
Powerwave	7770	128	271	547	0.325408	0.057425	0.503996	0.088941

AT&T Mobility, LLC (Proposed)
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 6.65124 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.66512 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCI Antennas	DMP65R-BU8D	128	35	4170	5.233235	0.523323	6.595337	0.659534
CCI Antennas	DMP65R-BU4D	128	145	3541	4.50182	0.450182	5.796432	0.579643
CCI Antennas	DMP65R-BU4D	128	271	3541	4.50182	0.450182	5.796432	0.579643

AT&T Mobility, LLC (Proposed)
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.88409 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.33249 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCI Antennas	DMP65R-BU8D	128	35	2885	1.025521	0.180974	1.868888	0.329804
CCI Antennas	DMP65R-BU4D	128	145	1695	1.262459	0.222787	1.330316	0.234762
CCI Antennas	DMP65R-BU4D	128	271	1695	1.262459	0.222787	1.330316	0.234762

AT&T Mobility, LLC (Proposed)
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 737 MHz
Maximum Permissible Exposure (MPE): 491.33 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.861 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.37877 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCI Antennas	DMP65R-BU8D	128	35	2692	0.96891	0.1972	1.78662	0.363627
CCI Antennas	DMP65R-BU4D	128	145	1582	1.252064	0.25483	1.308131	0.266241
CCI Antennas	DMP65R-BU4D	128	271	1582	1.252064	0.25483	1.308131	0.266241

AT&T Mobility, LLC (Proposed)
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 7.70924 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.77092 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCI Antennas	DMP65R-BU8D	128	35	5250	6.503615	0.650362	7.650837	0.765084
CCI Antennas	DMP65R-BU4D	128	145	4066	3.846568	0.384657	5.171541	0.517154
CCI Antennas	DMP65R-BU4D	128	271	4066	3.846568	0.384657	5.171541	0.517154

AT&T Mobility, LLC (Proposed)
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 763 MHz
Maximum Permissible Exposure (MPE): 508.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.861 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.36586 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCI Antennas	DMP65R-BU8D	128	35	2692	0.96891	0.19048	1.78662	0.351236
CCI Antennas	DMP65R-BU4D	128	145	1582	1.252064	0.246146	1.308131	0.257169
CCI Antennas	DMP65R-BU4D	128	271	1582	1.252064	0.246146	1.308131	0.257169

Dish Network

Groton/ I-95/X89/ Noa_1

Carrier Summary

Frequency: 2010 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.35668 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.23567 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Comba	ODI2-065R18K-GQ	100	0	2945	1.388167	0.138817	2.19394	0.219394
Comba	ODI2-065R18K-GQ	100	120	2945	1.388167	0.138817	2.19394	0.219394
Comba	ODI2-065R18K-GQ	100	240	2945	1.388167	0.138817	2.19394	0.219394

Dish Network

Groton/ I-95/X89/ Noa_1

Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.77969 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.27797 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Comba	ODI2-065R18K-GQ	100	0	2813	1.351022	0.135102	2.488791	0.248879
Comba	ODI2-065R18K-GQ	100	120	2813	1.351022	0.135102	2.488791	0.248879
Comba	ODI2-065R18K-GQ	100	240	2813	1.351022	0.135102	2.488791	0.248879

T-Mobile
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.57682 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.25768 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Ericsson	AIR 21 B4A B2P	132	80	4123	1.1573	0.11573	1.322532	0.132253
Ericsson	AIR 21 B4A B2P	132	180	4123	1.1573	0.11573	1.322532	0.132253
Ericsson	AIR 21 B4A B2P	132	250	4123	1.1573	0.11573	1.322532	0.132253

T-Mobile
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 700 MHz
Maximum Permissible Exposure (MPE): 466.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.67976 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.57423 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APXVAARR24_43-U-NA20	132	80	3484	1.301884	0.278975	1.361038	0.291651
RFS	APXVAARR24_43-U-NA20	132	180	3484	1.301884	0.278975	1.361038	0.291651
RFS	APXVAARR24_43-U-NA20	132	250	3484	1.301884	0.278975	1.361038	0.291651

T-Mobile
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 600 MHz
Maximum Permissible Exposure (MPE): 400 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.53192 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.38298 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APXVAARR24_43-U-NA20	132	80	2501	1.004673	0.251168	1.030791	0.257698
RFS	APXVAARR24_43-U-NA20	132	180	2501	1.004673	0.251168	1.030791	0.257698
RFS	APXVAARR24_43-U-NA20	132	250	2501	1.004673	0.251168	1.030791	0.257698

T-Mobile
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.57682 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.25768 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Ericsson	AIR 21 B2A B4P	132	80	4123	1.1573	0.11573	1.322532	0.132253
Ericsson	AIR 21 B2A B4P	132	180	4123	1.1573	0.11573	1.322532	0.132253
Ericsson	AIR 21 B2A B4P	132	250	4123	1.1573	0.11573	1.322532	0.132253

**Verizon Wireless
Groton/ I-95/X89/ Noa_1
Carrier Summary**

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 7.98752 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.79875 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
ANDREW	HBXX-6517DS-VTM	109	30	5621	2.220244	0.222024	4.340957	0.434096
ANDREW	HBXX-6517DS-VTM	109	120	5621	2.220244	0.222024	4.340957	0.434096
ANDREW	HBXX-6517DS-VTM	109	240	5621	2.220244	0.222024	4.340957	0.434096

**Verizon Wireless
Groton/ I-95/X89/ Noa_1
Carrier Summary**

Frequency: 751 MHz
Maximum Permissible Exposure (MPE): 500.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 4.65575 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.92991 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
ANDREW	LNx-6514DS-VTM	110	50	3770	2.796508	0.558557	4.25978	0.850822
ANDREW	LNx-6514DS-VTM	110	140	3770	2.796508	0.558557	4.25978	0.850822
ANDREW	LNx-6514DS-VTM	110	230	3770	2.796508	0.558557	4.25978	0.850822

Verizon Wireless
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 7.39836 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.73984 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
ANDREW	HBXX-6517DS-VTM	109	30	5130	2.277009	0.227701	4.391691	0.439169
ANDREW	HBXX-6517DS-VTM	109	120	5130	2.277009	0.227701	4.391691	0.439169
ANDREW	HBXX-6517DS-VTM	109	240	5130	2.277009	0.227701	4.391691	0.439169

Verizon Wireless
Groton/ I-95/X89/ Noa_1
Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 3.69317 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.65174 %

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	LPA-80063-6CF	110	30	4509	2.649799	0.467612	2.725666	0.481
Antel	LPA-80063-6CF	110	120	4509	2.649799	0.467612	2.725666	0.481
Antel	LPA-80063-6CF	110	240	4509	2.649799	0.467612	2.725666	0.481