



January 22nd, 2021

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

**RE: Notice of Exempt Modification for T-Mobile:
823529 - T-Mobile Site ID: CT11038C
38 Hatchetts Hill Road, Old Lyme, CT 06371
Latitude: 41° 19' 3.26" / Longitude: -72° 16' 11.87"**

Dear Ms. Bachman:

T-Mobile currently maintains 6 total antennas at the 190-foot mount on the existing 190-foot monopole tower located at 38 Hatchetts Hill Road in Old Lyme. The tower is owned by Crown Castle and the property is owned by Hatchetts Hill LLC. T-Mobile now intends to replace three (3) antennas and install six (6) new antennas and ancillary equipment. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. T-Mobile is also proposing tower mount modifications, as showing in the enclosed mount analysis.

Planned Modifications:

Tower:

Remove and Replace:

(3) APX16DWV-16DWV-S-E-A20 Antenna (**REMOVE**) – (3) RFS-APXVAALL24_43-U-NA20 Antenna 600/700 MHz (**REPLACE**)

Install new:

- (3) Radio 4415 B25
- (3) Radio 4449 B71+B85
- (3) AIR32 KRD901146 1_B66A_B2A 1900/2100 MHz antenna
- (3) AIR6449_B41 5G 2500 MHz antenna
- (3) 6x12 HCS feedlines
- (3) P2 STD mount pipe & handrail kit

Remove:

(12) 1 5/8" Coax

Ground:

Install new:

- (1) 6160 cabinet
- (1) B160 battery cabinet
- (1) BB 6630
- (1) BB 6648
- (1) PSU 4813 voltage booster
- (1) iXRe router in 6160 cabinet
- (3) Concrete steps

Remove:

- (3) TMAs
- (3) Diplexers

The facility was approved by the Town of Old Lyme Zoning Commission on January 14, 1999. The approval was given without conditions.

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.S.C.A. § 16-50j-73, a copy of this letter is being sent to First Selectman, Kenneth Kellogg, Town of Monroe, Zoning Enforcement Officer Joe Chapman, Town of Monroe. Crown Castle owns both the property and the tower.

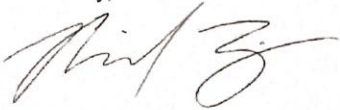
1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed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

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

Melanie A. Bachman

Page 3

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Zajac". The signature is fluid and cursive, with the first name being more prominent than the last.

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

cc:

Timothy Griswold, First Selectman
Town of Old Lyme
Town Hall – Selectwoman's Office
52 Lyme Street
Old Lyme, CT 06371
860-434-1605

Dan Bourret, Land Use Coordinator
Town of Old Lyme
Town Hall
52 Lyme Street
Old Lyme, CT 06371
860-434-1605

Hatchetts Hill LLC, Property Owner
38 Hatchetts Hill Road
Old Lyme, CT 06371

(585) 445-5896

ORIGIN ID: ONHA
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR
WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 22 JAN 21
ACT WGT: 1.00 LB
CAD: 112911364INET4340

BILL SENDER

TO DAN BOURRET - LAND USE COORDINATOR

TOWN OF OLD LYME

52 LYME STREET

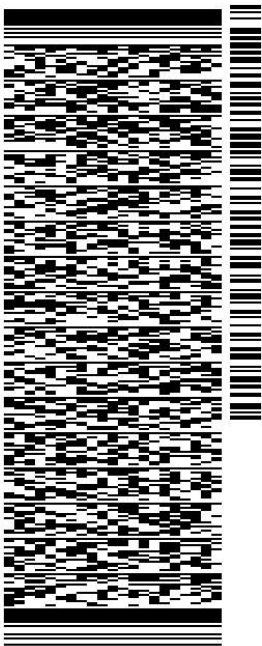
TOWN HALL

OLD LYME CT 06371

(860) 434-1605

REF: 799001 7690

INV/ PO/ DEPT:



J211121011901uv

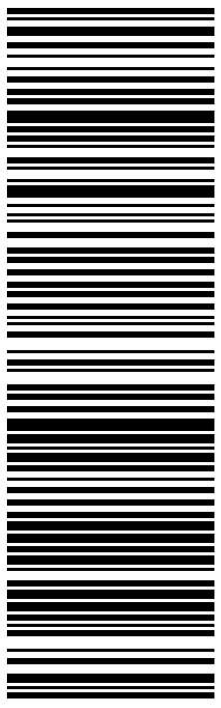
56DJ111136IFE4A

TRK# 7727 0248 5548
0201

MON - 25 JAN 4:30P
STANDARD OVERNIGHT

XE SKKA

06371
CT-US BDL



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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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: ONHA (585) 445-5896

RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 22 JAN 21
ACT WGT: 1.00 LB
CAD: 112911364INET4340

BILL SENDER

TO **TIMOTHY GRISWOLD - FIRST SELECTMAN**

TOWN OF OLD LYME

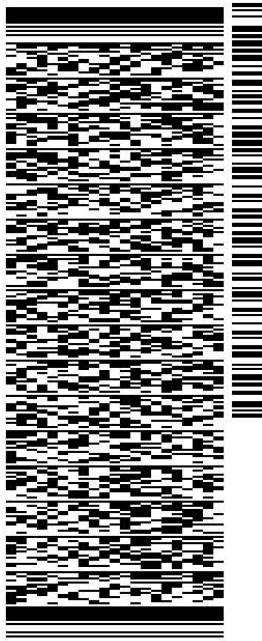
52 LYME STREET

TOWN HALL

OLD LYME CT 06371

REF: 799001 7890
(860) 434-1605
INV/ PO: DEPT:

56DJ111136IFE4A

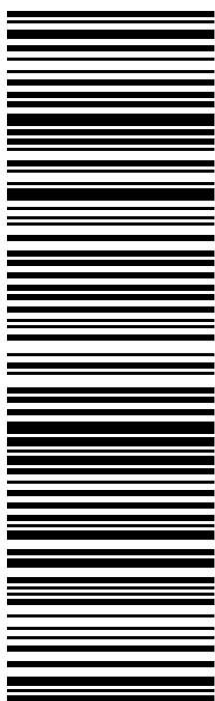


TRK# 7727 0246 5936
0201

MON - 25 JAN 4:30P
STANDARD OVERNIGHT

XE SKKA

06371
CT-US BDL



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RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR
WEBSTER, NY 14580

SHIP DATE: 22 JAN 21
ACT WGT: 1.00 LB
CAD: 112911364INET4340

UNITED STATES US

BILL SENDER

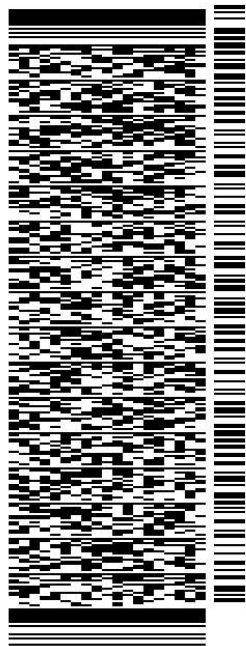
TO HATCHETTS HILL LLC

38 HATCHETTS HILL ROAD

OLD LYME CT 06371

(585) 445-5896 REF: 799001 7890

INV/ PO: DEPT:

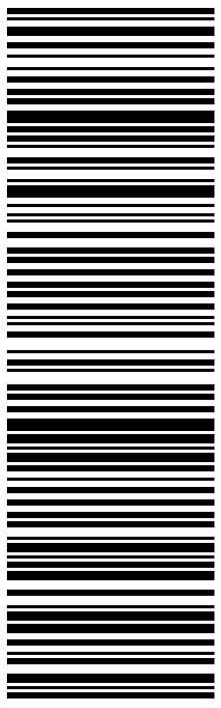


TRK# 7727 0250 4250
0201

MON - 25 JAN 4:30P
STANDARD OVERNIGHT

XE SKKA

06371
CT-US BDL



56DJ11136IFE4A

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Exhibit A

Original Facility Approval



TOWN OF OLD LYME, CONNECTICUT

ZONING COMMISSION
52 Lyme Street
P.O. Box 160
Old Lyme, CT 06371
Tel (860) 434-9174
Fax (860) 434-5636

CERTIFICATE OF DECISION

SPECIAL EXCEPTION

Application of: Omnipoint Communication, Inc. at 36 Hatchetts Hill Road, Old Lyme, CT., Map #19, Lot #22 in a LI-80 zone.

Request for a Special Exception Approval/Site Development Plan Approval for a proposed telecommunications tower. The Public Hearing was held on November 12, 1998.

Commission Members Present and Voting: Jeff Flower, Alan Bayreuther, Connie Kastelowitz, Robert McCarthy and Steven Ross.

Decision on January 14, 1999.

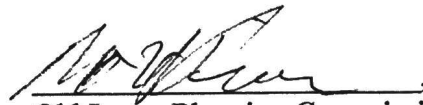
In this application the Commission members voted unanimously to approve the Site Development Plan/Special Exception as shown on the plan dated September 10, 1998 revised through December 9, 1998 with the following conditions:

1. Paragraph 13 be amended in accordance with Attorney Mattern's letter of January 13, 1999.

The Planning Commission concluded that this proposal, as approved, will not adversely affect the public health, safety, welfare or property values of the Town of Old Lyme.

This Certificate of Decision must be recorded in the land records of the Town of Old Lyme, Connecticut. The Town Clerk shall index the same in the grantor's index under the name of the record owner's, and the record owner shall pay the fees for such recording.

Dated at Old Lyme, Connecticut this 28th day of January 1999.


Chairman
Old Lyme Planning Commission

Received for Record 2/19/99 at 1:15 pm
Recorded by Ellen K. Coffey, Town Clerk

Exhibit B

Property Card

38 HATCHETTS HILL RD

Location 38 HATCHETTS HILL RD

Mblu 19 / 22 / 21

Acct# 00080200

Owner HATCHETTS HILL LLC

Assessment \$319,400

Appraisal \$456,400

PID 891

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$0	\$456,400	\$456,400

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$0	\$319,400	\$319,400

Owner of Record

Owner HATCHETTS HILL LLC

Sale Price \$0

Co-Owner

Certificate

Address 38 HATCHETTS HILL RD
OLD LYME, CT 06371

Book & Page 0220/0677

Sale Date 08/02/1994

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
HATCHETTS HILL LLC	\$0		0220/0677	08/02/1994

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent Good:

Replacement Cost

Less Depreciation: \$0

Building Attributes


Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Usrflid 103	
Usrflid 104	
Usrflid 105	
Usrflid 106	
Usrflid 107	
Num Park	
Fireplaces	
Usrflid 108	
Usrflid 101	
Usrflid 102	
Usrflid 100	
Usrflid 300	
Usrflid 301	

Building Photo



(<http://images.vgsi.com/photos/OldLymeCTPhotos//default.jpg>)

Building Layout

 Building Layout

(http://images.vgsi.com/photos/OldLymeCTPhotos//Sketches/891_891.jpg)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features	Legend
No Data for Extra Features	

Land

Land Use	Land Line Valuation
Use Code 4410	Size (Acres) 6.88
Description IND LD PO	Frontage 0
Zone LI80	Depth 0
Neighborhood IND	Assessed Value \$319,400
Alt Land Appr Category No	Appraised Value \$456,400

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$0	\$456,400	\$456,400
2019	\$0	\$380,300	\$380,300
2018	\$0	\$380,300	\$380,300

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$0	\$319,400	\$319,400
2019	\$0	\$266,200	\$266,200
2018	\$0	\$266,200	\$266,200

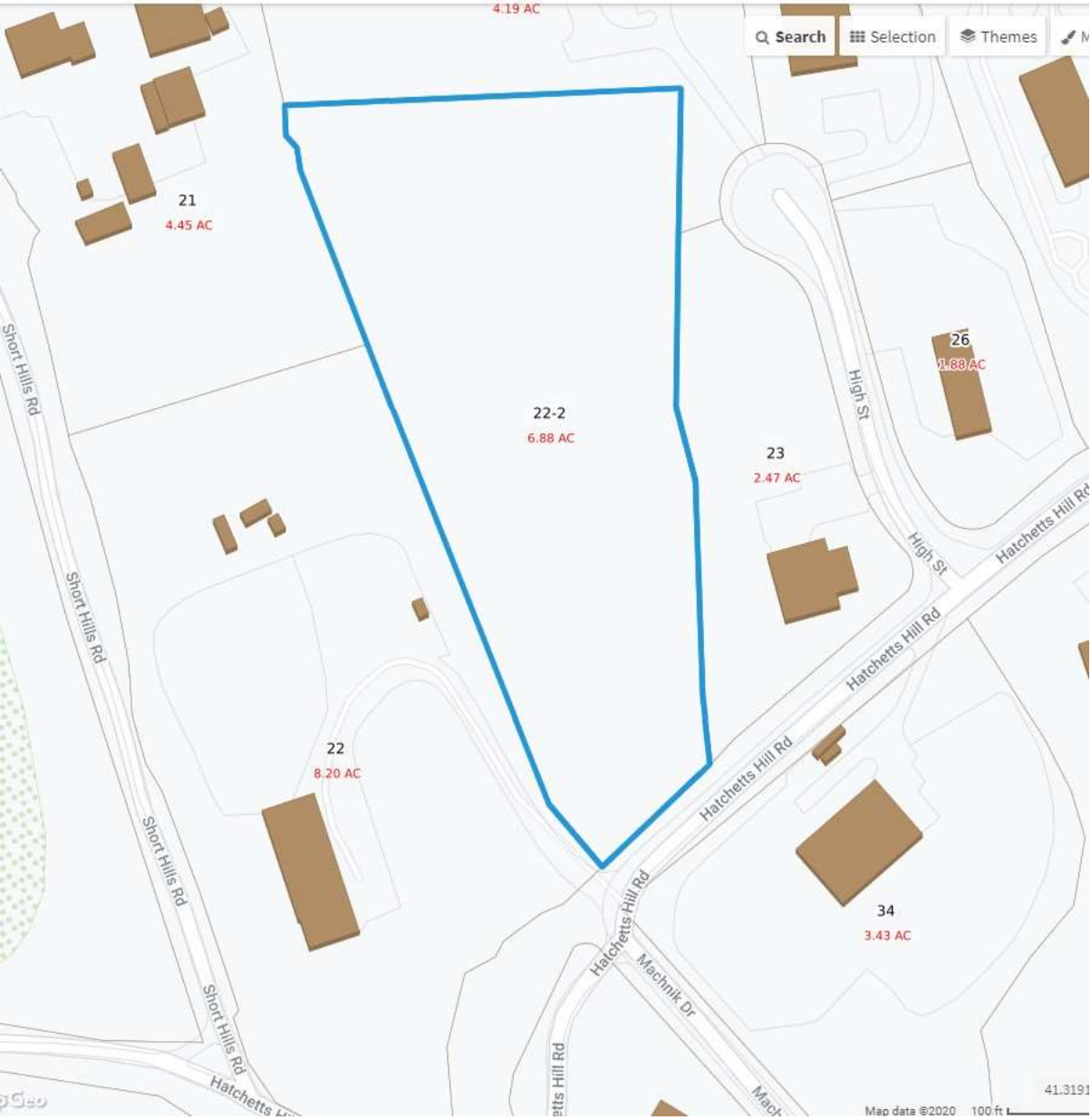


Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CT11038C

T-MOBILE SITE NAME: CT038/EASTLYME/ I-95/ X72

SITE TYPE: MONOPOLE TOWER

TOWER HEIGHT: 190'-0"

BUSINESS UNIT #: 823529

**SITE ADDRESS: 38 HATCHETTS HILL ROAD
OLD LYME, CT 06371**

COUNTY: NEW LONDON

JURISDICTION: TOWN OF OLD LYME

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A997DB OUTDOOR

T-Mobile

4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP

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

T-MOBILE SITE NUMBER:
CT11038C

BU #: 823529
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

ISSUED FOR:

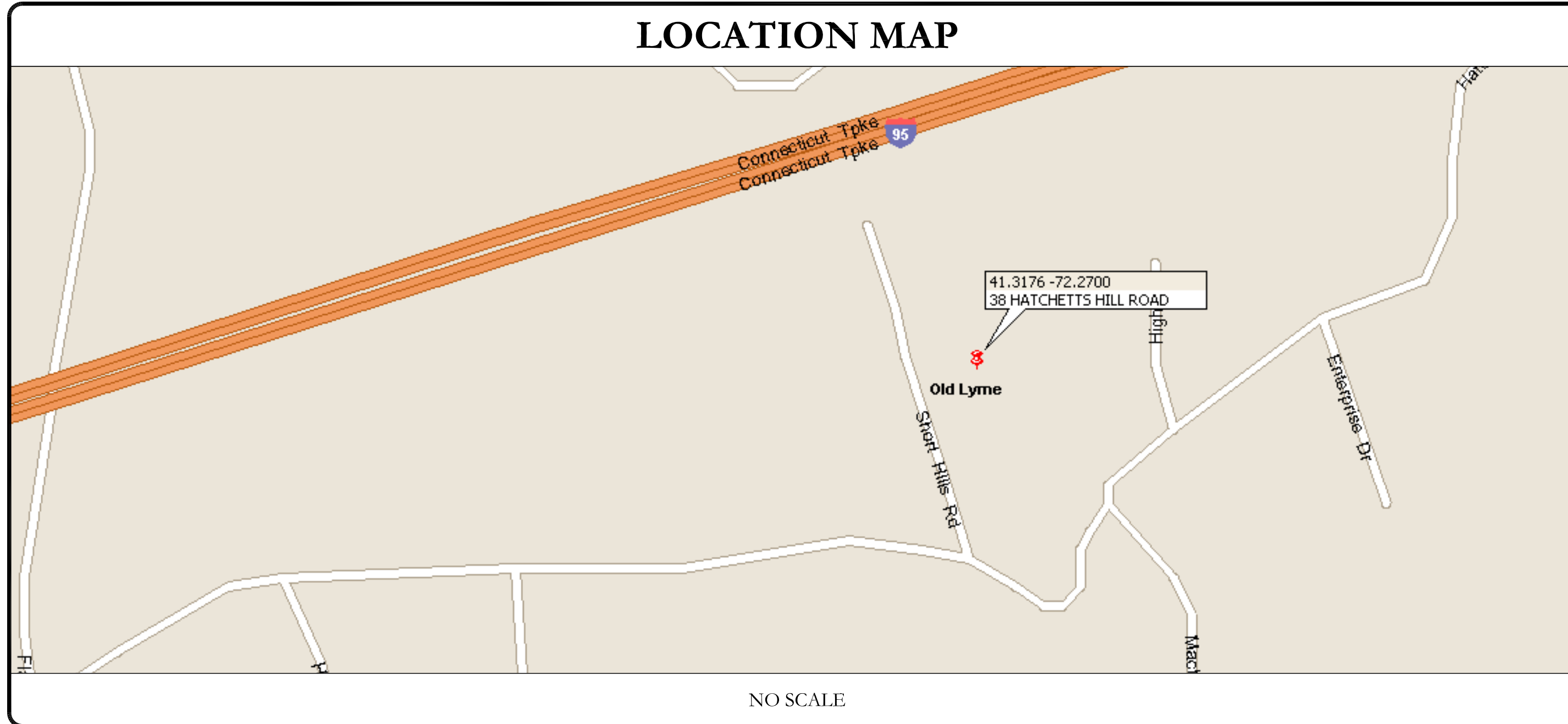
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/20/20	JTS	CONSTRUCTION	GEH
2	12/4/20	JTS	CONSTRUCTION	GEH
3	1/7/21	JJD	CONSTRUCTION	MTJ

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	CT038/EAST LYME/I-95/X72
SITE ADDRESS:	38 HATCHETTS HILL ROAD OLD LYME, CT 06371
COUNTY:	NEW LONDON
MAP/PARCEL #:	890
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.317583°
LONGITUDE:	-72.269999°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	177'-0"
CURRENT ZONING:	LI
JURISDICTION:	TOWN OF OLD LYME
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	HATCHETTS HILL LLC 38 HATCHETTS HILL RD OLD LYME, CT 06371
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION	
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.	
TOWER SCOPE OF WORK:	
<ul style="list-style-type: none"> REMOVE (3) ANTENNAS REMOVE (12) COAX CABLES INSTALL (9) ANTENNAS INSTALL (6) RADIOS INSTALL (3) HYBRID CABLE INSTALL (3) P2 STD (2.38" O.D. X 0.154") HANDRAIL KIT INSTALL (3) P2 STD 6-FT LONG MOUNT PIPE 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> REMOVE (3) TMAs REMOVE (3) DIPLEXERS INSTALL (1) 6160 CABINET INSTALL (1) B160 BATTERY CABINET INSTALL (1) BB 6630 INSTALL (1) BB 6648 INSTALL (1) PSU4813 VOLTAGE BOOSTER INSTALL (1) iXRc ROUTER INSTALL (3) NEW 1'-0"x2'-0"x4" THICK CONCRETE STEPS 	
NOTE: PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER	



APPLICABLE CODES/REFERENCE DOCUMENTS	
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:	
CODE TYPE	CODE
BUILDING	2015 IBC / 2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2015 IMC / 2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	2017 NEC / 2018 CONNECTICUT STATE BUILDING CODE
REFERENCE DOCUMENTS:	
STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	10/16/20
MOUNT ANALYSIS:	PAUL J FORD AND COMPANY
DATED:	10/7/20
RFDS REVISION:	8
DATED:	9/23/20
ORDER ID:	529710
REVISION:	0

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

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

B&T ENGINEERING, INC.

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: 3
------------------------------------	------------------------------

1:36164.003.01_CTO38_East_Lyme_I-95X72_CC_TMO_NE_CD_Updates.dwg - User: mjones - Jan 07, 2021 - 8:35am

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GREENFIELD GROUNDING NOTES:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

ABBREVIATIONS:

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

APWA UNIFORM COLOR CODE:

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



4 SYLVAN WAY
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BU #: 823529
CT038/EAST LYME/I-95/X72

38 HATCHETT'S HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/20/20	JTS	CONSTRUCTION	GEH
2	12/4/20	JTS	CONSTRUCTION	GEH
3	1/7/21	JJD	CONSTRUCTION	MTJ



1/7/21

B&T ENGINEERING, INC.

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.

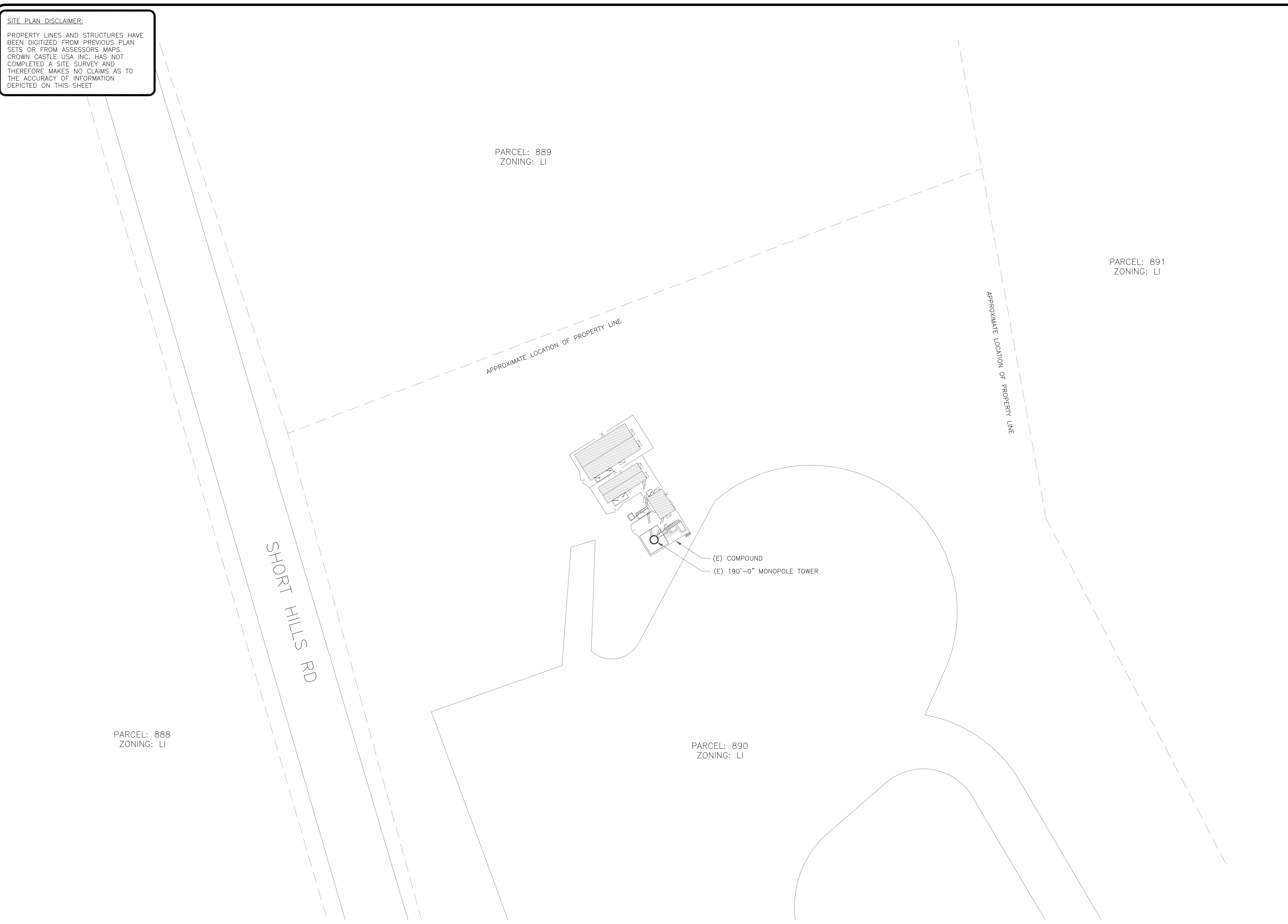
SHEET NUMBER:
T-2

REVISION:
3

1:36:164.003.01 - CT038 East Lyme I-95X72-CC-TWO_NE_CD Upgrades.dwg - Sheet1-2 - User: mjonas - Jan 07, 2021 - 8:35am

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

1:36164.003.01_CTO38_East_Lyme_1-95X72_CC_TWO_NE_CD_Upgrade.dwg - Sheet: C-1.1 - User: mjonas - Jan 07, 2021 - 8:36am



PARCEL: 889
 ZONING: LI

PARCEL: 891
 ZONING: LI

PARCEL: 888
 ZONING: LI

PARCEL: 890
 ZONING: LI

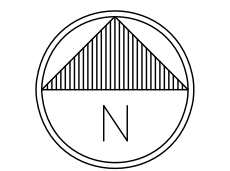
SHORT HILLS RD

APPROXIMATE LOCATION OF PROPERTY LINE

APPROXIMATE LOCATION OF PROPERTY LINE

(E) COMPOUND
 (E) 190'-0" MONOPOLE TOWER

1 OVERALL SITE PLAN
 SCALE: 1"=30'-0" (FULL SIZE)
 1"=60'-0" (11x17)



T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054

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

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

T-MOBILE SITE NUMBER:
CT11038C

BU #: 823529
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
 OLD LYME, CT 06371

EXISTING
 190'-0" MONOPOLE TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/20/20	JTS	CONSTRUCTION	GEH
2	12/4/20	JTS	CONSTRUCTION	GEH
3	1/7/21	JJD	CONSTRUCTION	MTJ

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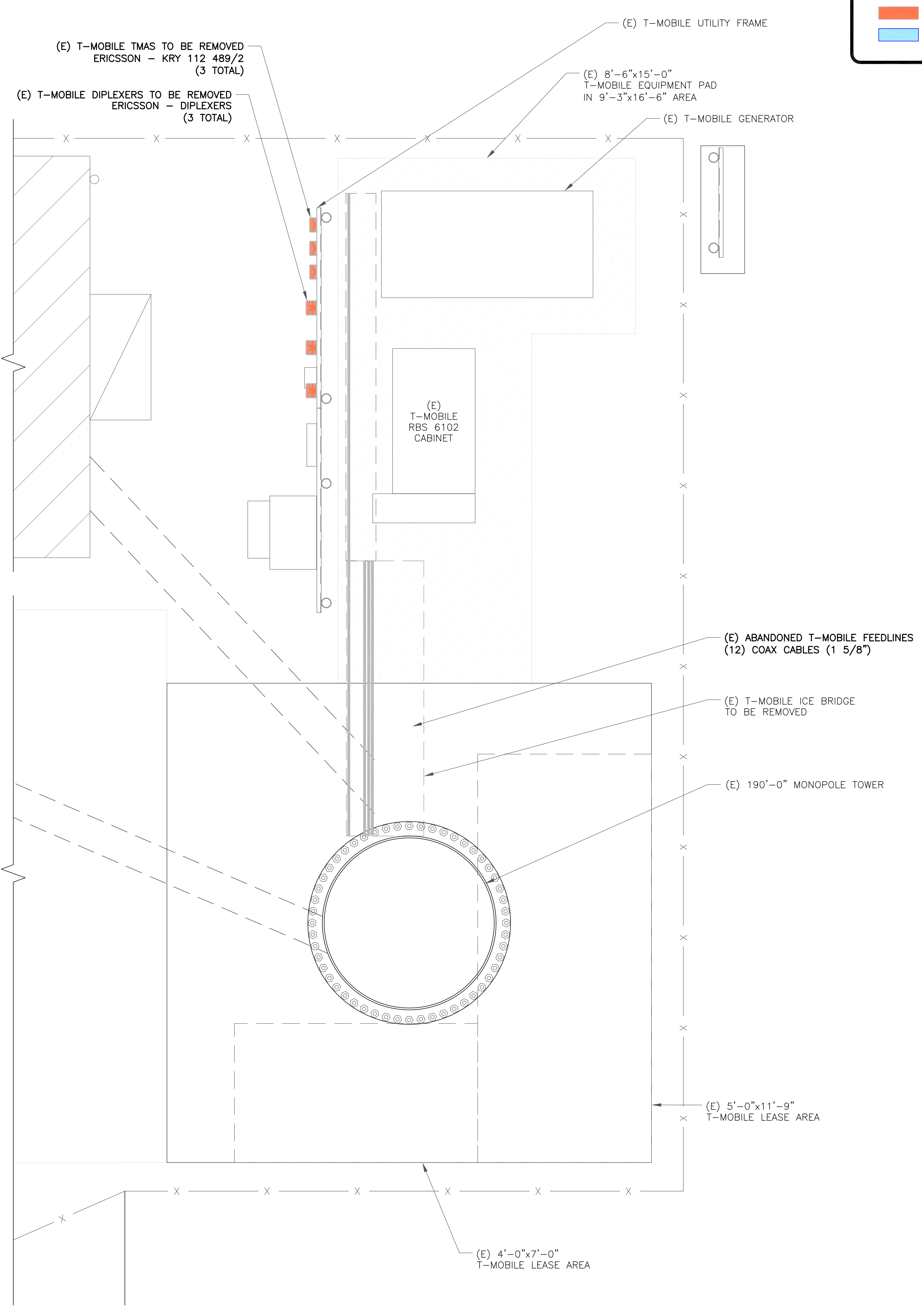
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SHEET NUMBER: C-1.1
REVISION: 3

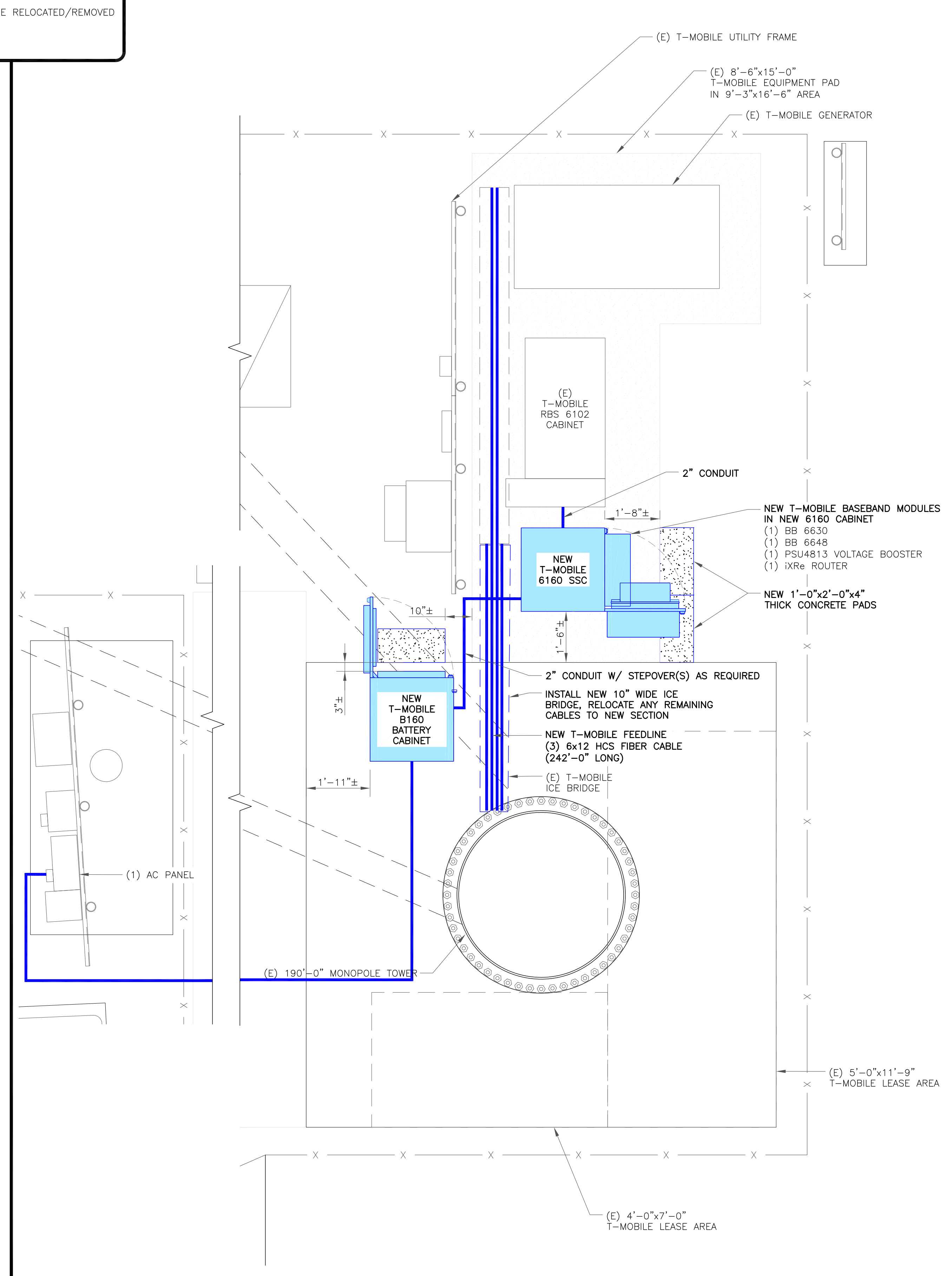
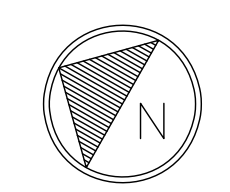
1:36164.003.01_CTO38_East_Lyme_1-95X72_CC_TMO_NE_CD_Upgrade.dwg - Sheet: C-1.2 - User: mjones - Jan 07, 2021 - 8:36am

EQUIPMENT LEGEND:

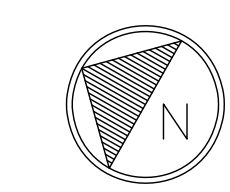
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



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



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



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CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

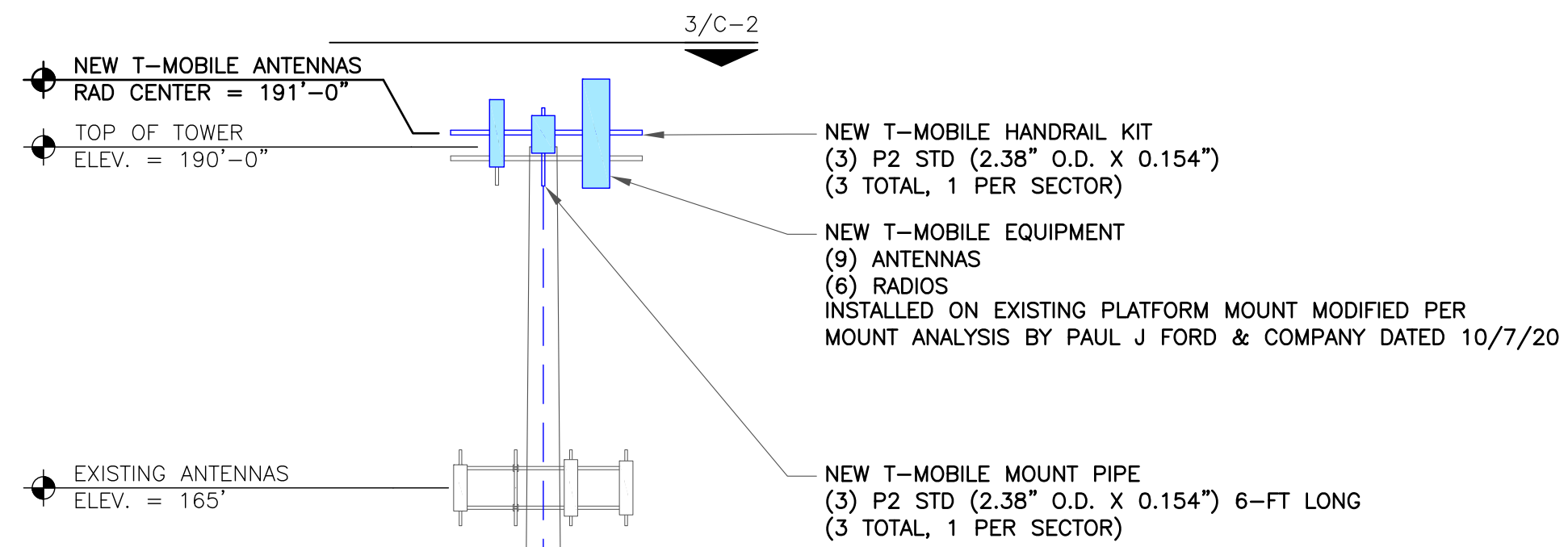
ISSUED FOR:

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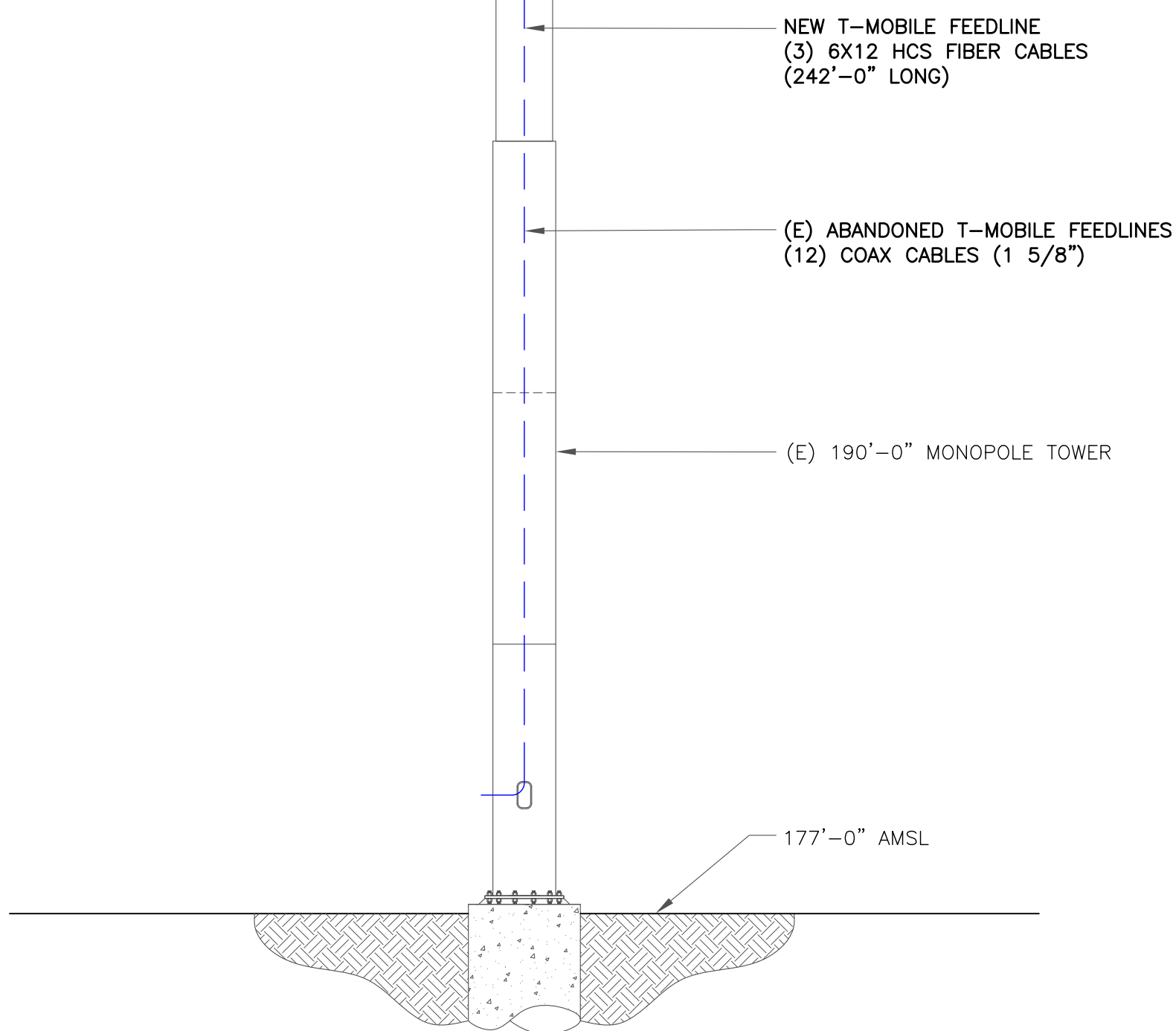
SHEET NUMBER: **C-1.2** REVISION: **3**



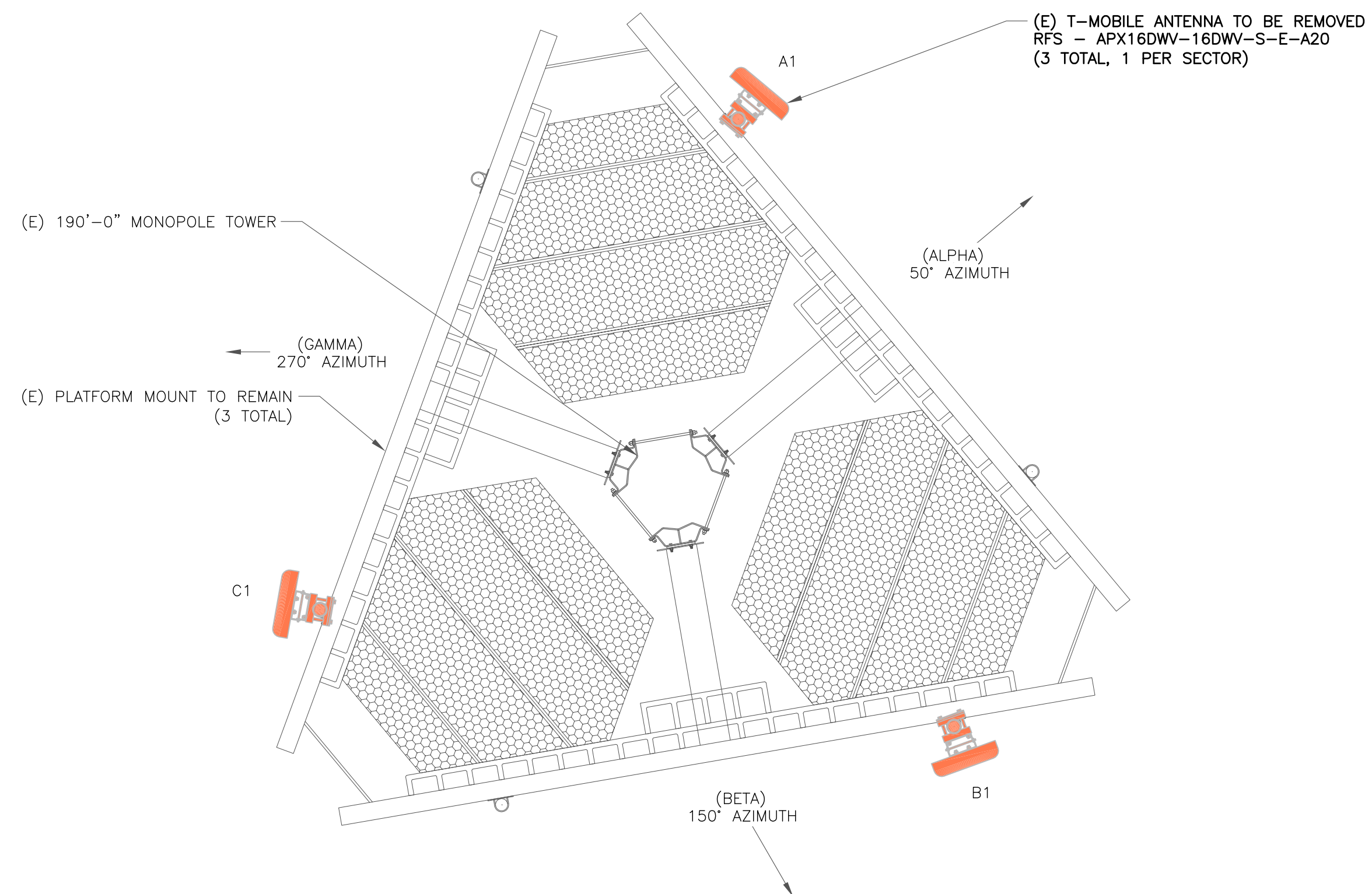
T-MOBILE EQUIPMENT

ANTENNA CL: 191'-0"
MOUNT CL: 190'-0"

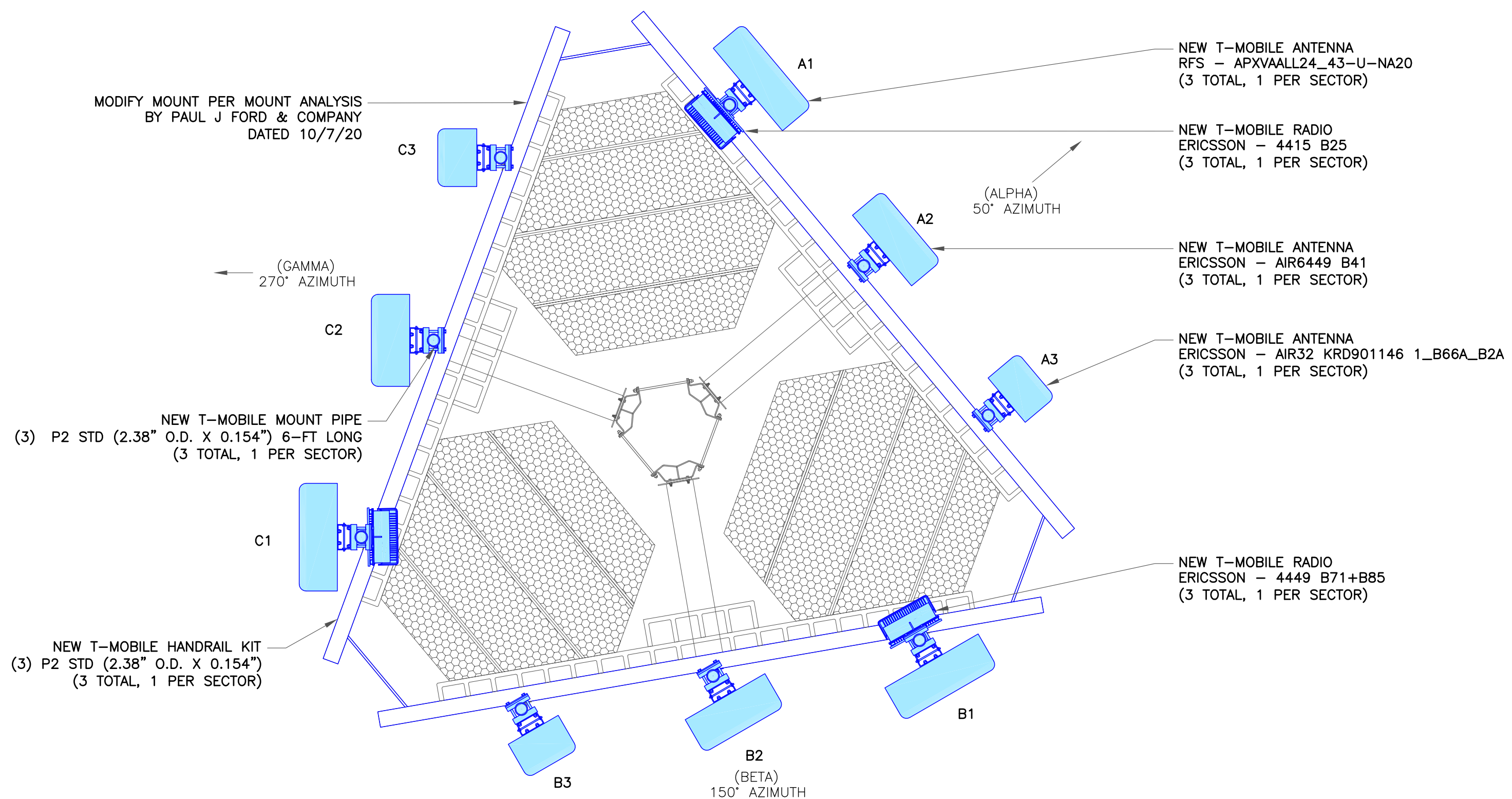
ANY AND ALL TOWER
MOUNTED EQUIPMENT MUST
NOT TRAP OR INTERFERE W/
EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE



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CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

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1/7/21

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BU #: **823529**
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

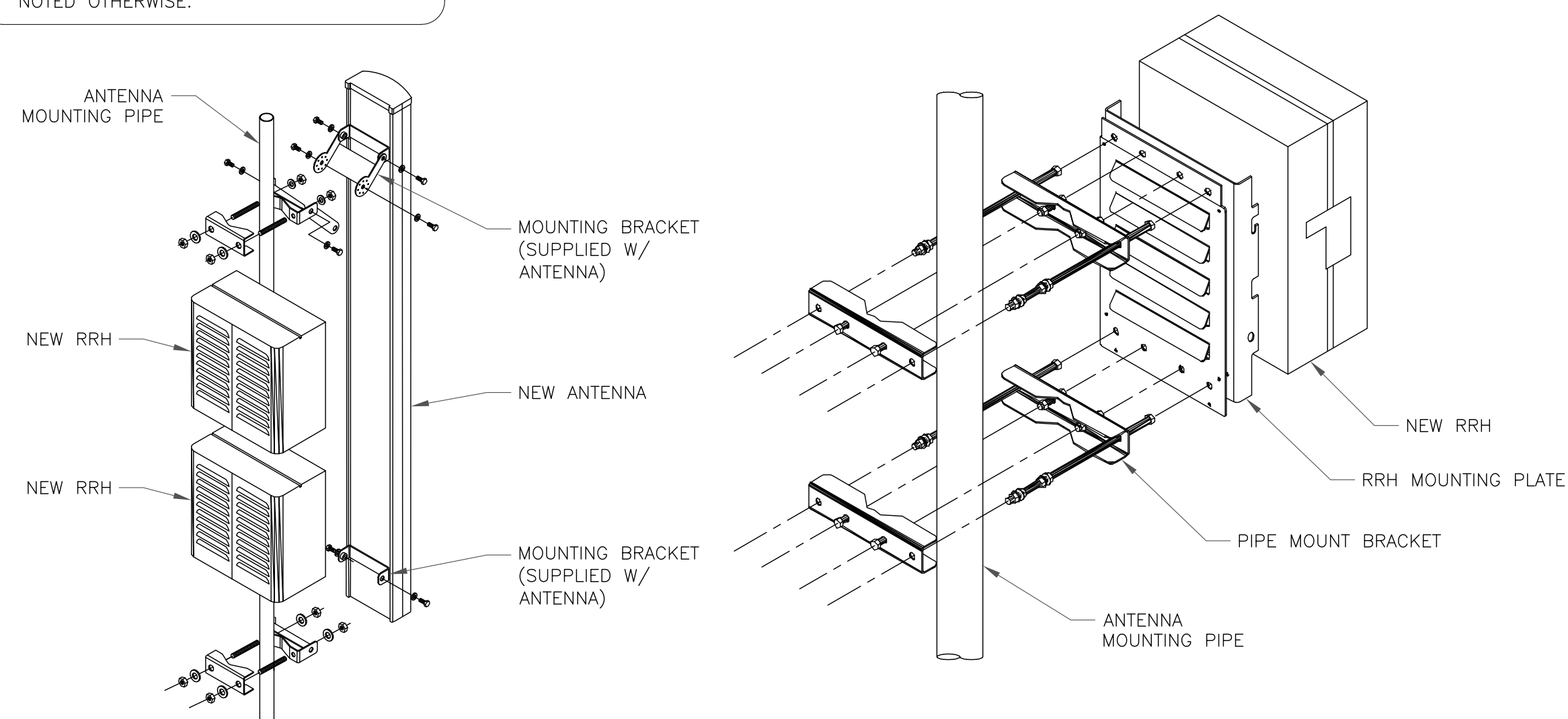
EXISTING
190'-0" MONOPOLE TOWER

RF SYSTEM SCHEDULE												
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE DIAMETER	CABLE LENGTH
ALPHA	A-1	L700 / L600 / N600 / U1900 / L1900	RFS	APXVAALL24_43-U-NA20	50°	0°	2°/2°/2°/2°	191'-0"	(1) RADIO 4449 B71+B85 (1) RADIO 4415 B25	(6) HYBRID	6x12	242'-0"
	A-2	L2500 / N2500	ERICSSON	AIR6449 B41	50°	0°	2°/2°	191'-0"	-			
	A-3	L2100 / G1900 / L1900	ERICSSON	AIR32 KRD901146 1_B66A_B2A	50°	0°	2°/2°/2°/2°	191'-0"	-			
BETA	B-1	L700 / L600 / N600 / U1900 / L1900	RFS	APXVAALL24_43-U-NA20	150°	0°	2°/2°/2°/2°	191'-0"	(1) RADIO 4449 B71+B85 (1) RADIO 4415 B25			
	B-2	L2500 / N2500	ERICSSON	AIR6449 B41	150°	0°	2°/2°	191'-0"	-			
	B-3	L2100 / G1900 / L1900	ERICSSON	AIR32 KRD901146 1_B66A_B2A	150°	0°	2°/2°/2°/2°	191'-0"	-			
GAMMA	C-1	L700 / L600 / N600 / U1900 / L1900	RFS	APXVAALL24_43-U-NA20	270°	0°	2°/2°/2°/2°	191'-0"	(1) RADIO 4449 B71+B85 (1) RADIO 4415 B25			
	C-2	L2500 / N2500	ERICSSON	AIR6449 B41	270°	0°	2°/2°	191'-0"	-			
	B-3	L2100 / G1900 / L1900	ERICSSON	AIR32 KRD901146 1_B66A_B2A	270°	0°	2°/2°/2°/2°	191'-0"	-			

1 ANTENNA & FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

ISSUED FOR:

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SHEET NUMBER:

C-3

REVISION:

3

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T-MOBILE SITE NUMBER:
CT11038C

BU #: 823529
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

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3	1/7/21	JJD	CONSTRUCTION	MTJ



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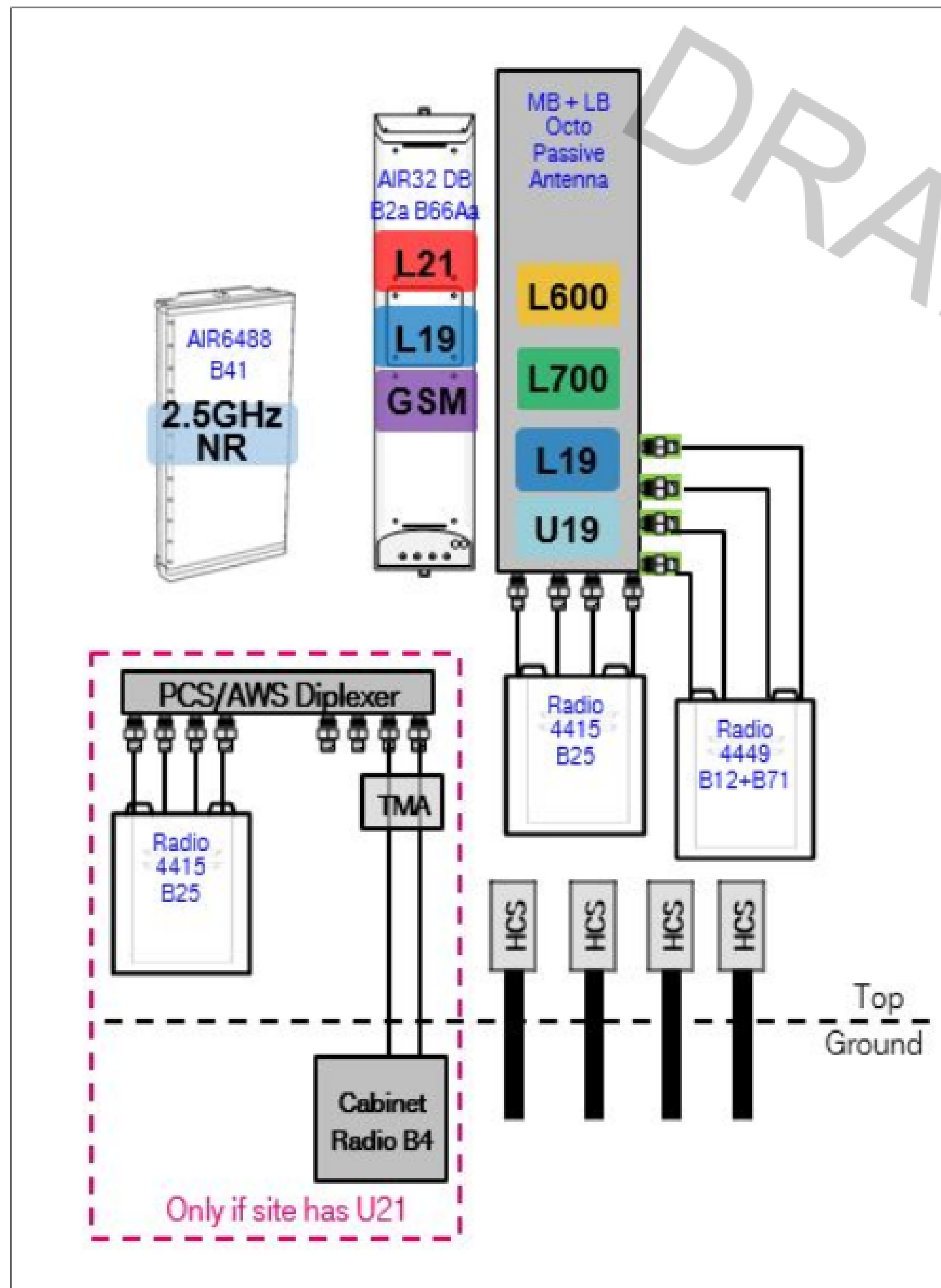
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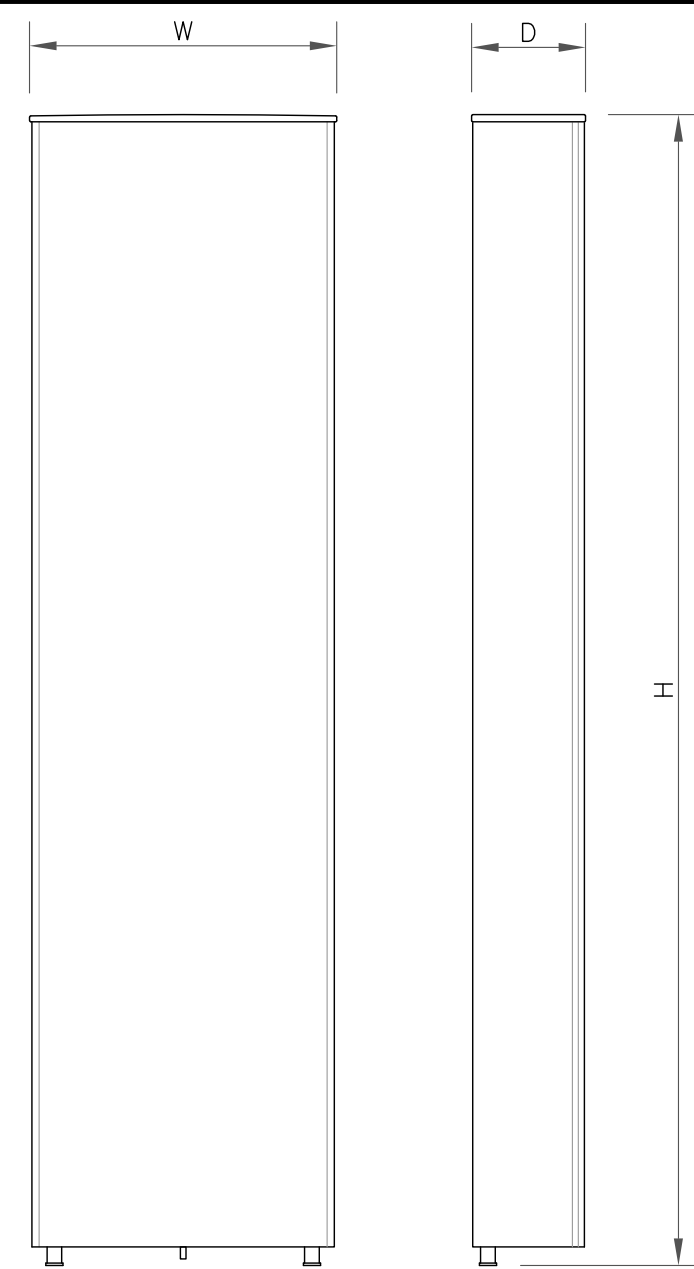
C-4

REVISION:

3

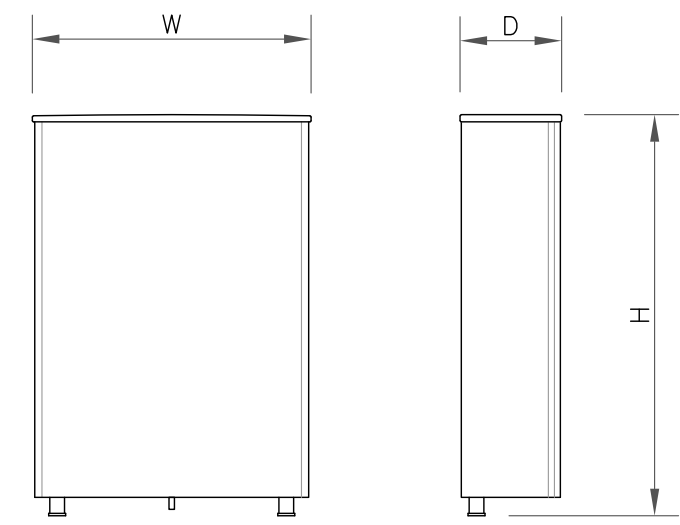


1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE



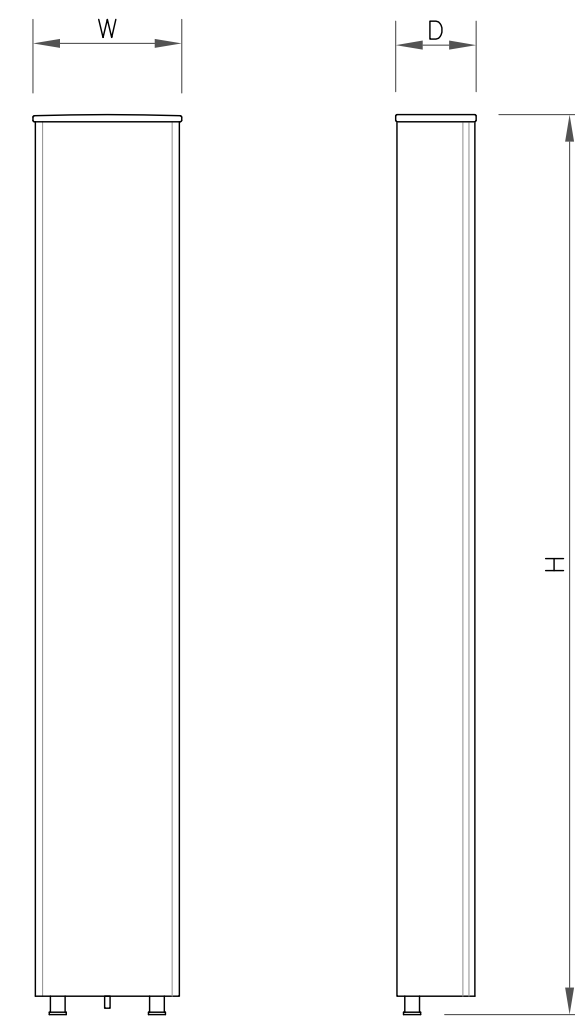
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



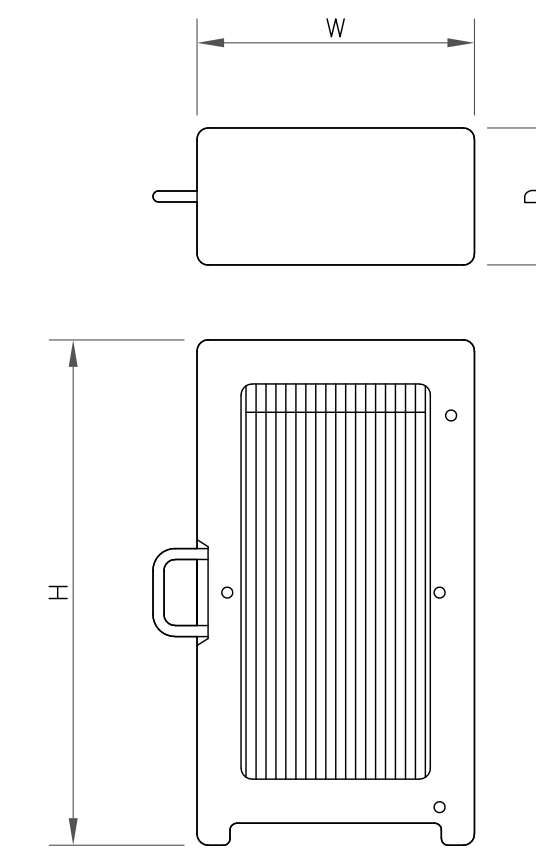
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR32 KRD901146 1_B66A_B2A
WIDTH	12.87"
DEPTH	8.70"
HEIGHT	59.25"
WEIGHT	171.96 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RRUS 4415 B25
WIDTH	13.19"
DEPTH	5.39"
HEIGHT	14.96"
WEIGHT	44.00 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

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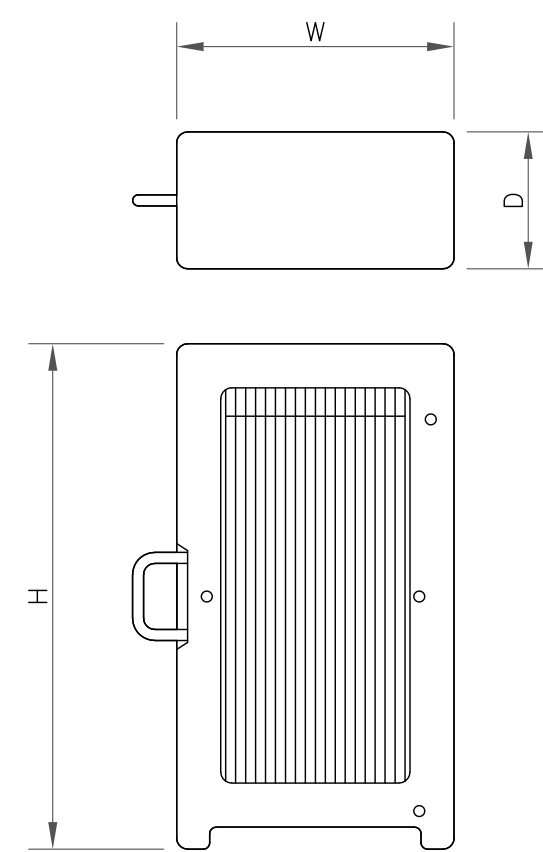
T-MOBILE SITE NUMBER:
CT11038C

BU #: **823529**
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
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RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4449 B71 B85A
WIDTH	13.20"
DEPTH	10.63"
HEIGHT	17.91"
WEIGHT	73.21 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



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

6 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



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

7 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE



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SHEET NUMBER: **C-5** REVISION: **3**

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SHEET NUMBER:

E-1

REVISION:

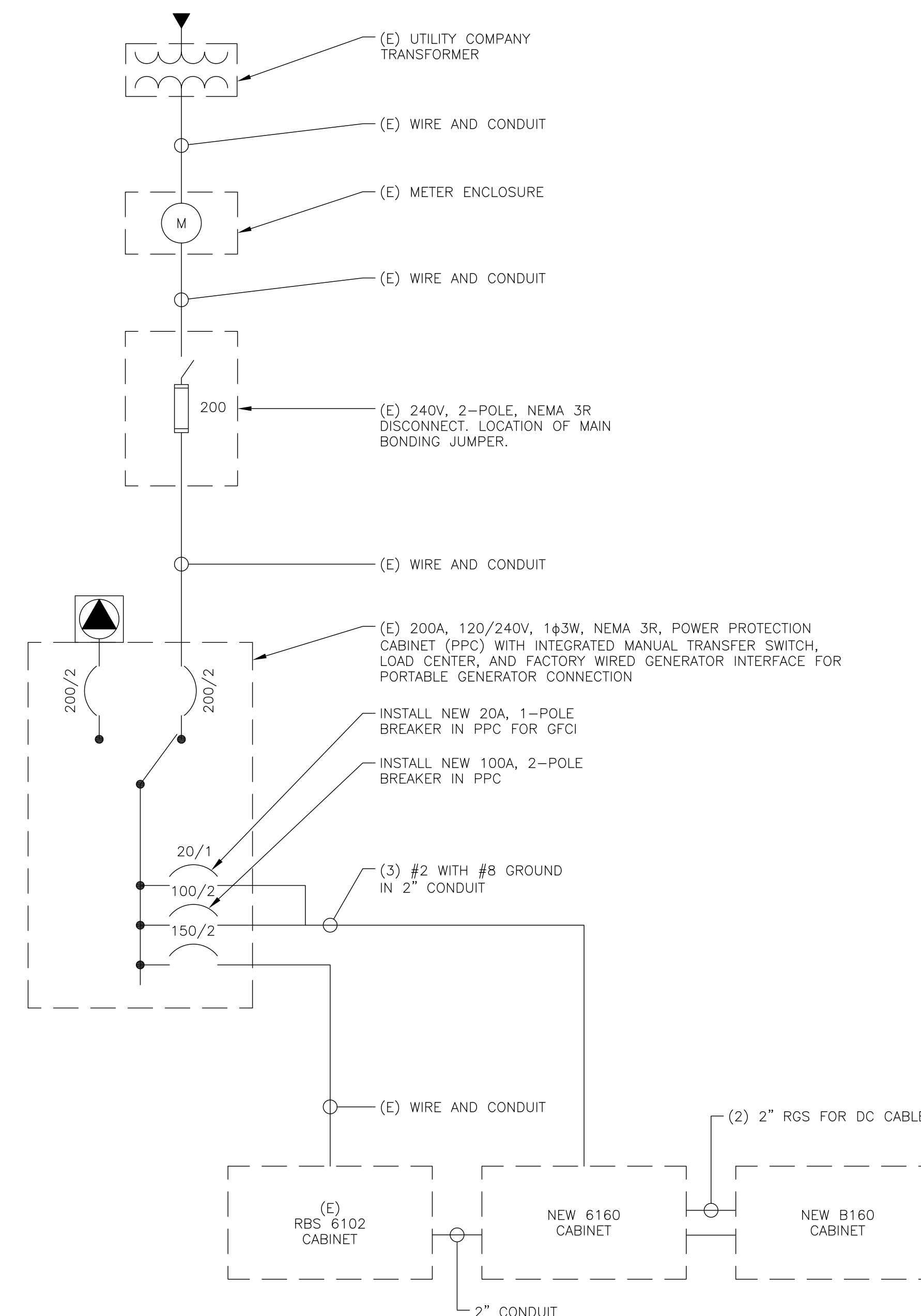
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FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
RBS 6102	2	60A	1	2	20A	1	GFI
6160 CABINET	2	100A	3	4	50A	2	UMTS
6160 GFCI	1	20A	5	6	20A	1	AAV
			7	8			
			9	10			

1 PHASE, 3 WIRE BRANCH POLES: 12 24
 400 CABINET: SURFACE FLUSH
 MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR
 BRANCH DEVICES TO BE GFCI BREAKERS
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

REPLACE EXISTING BREAKER IN POSITION 5 AND 7 WITH A NEW 2P 100A BREAKER
 REPLACE EXISTING BREAKER IN POSITION 9 WITH A NEW 1P 20A BREAKER
 REPLACE EXISTING WIRES FOR EXISTING 6201 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
 IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

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



NOTES:

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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38 HATCHETTS HILL ROAD
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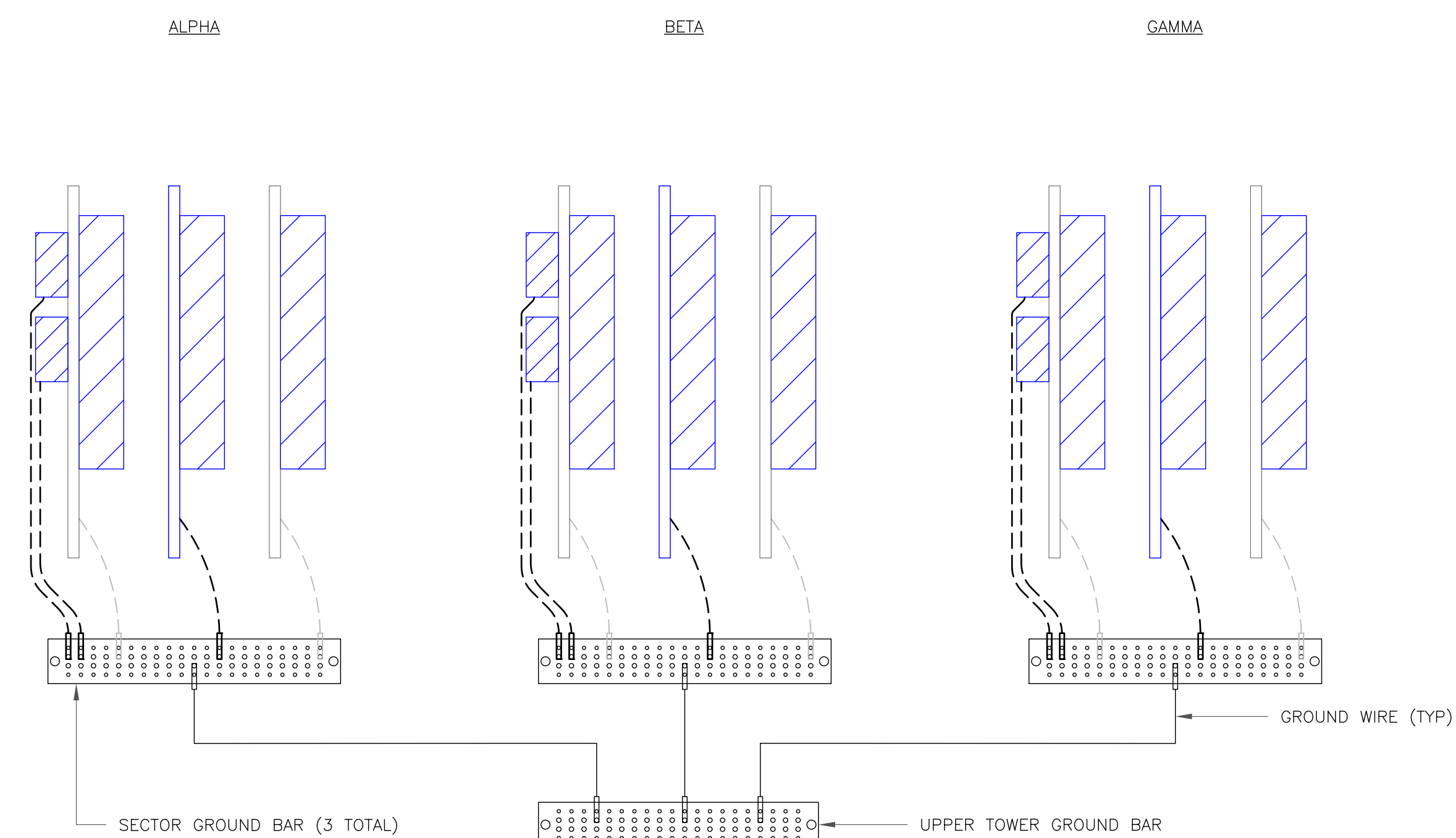
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G-1

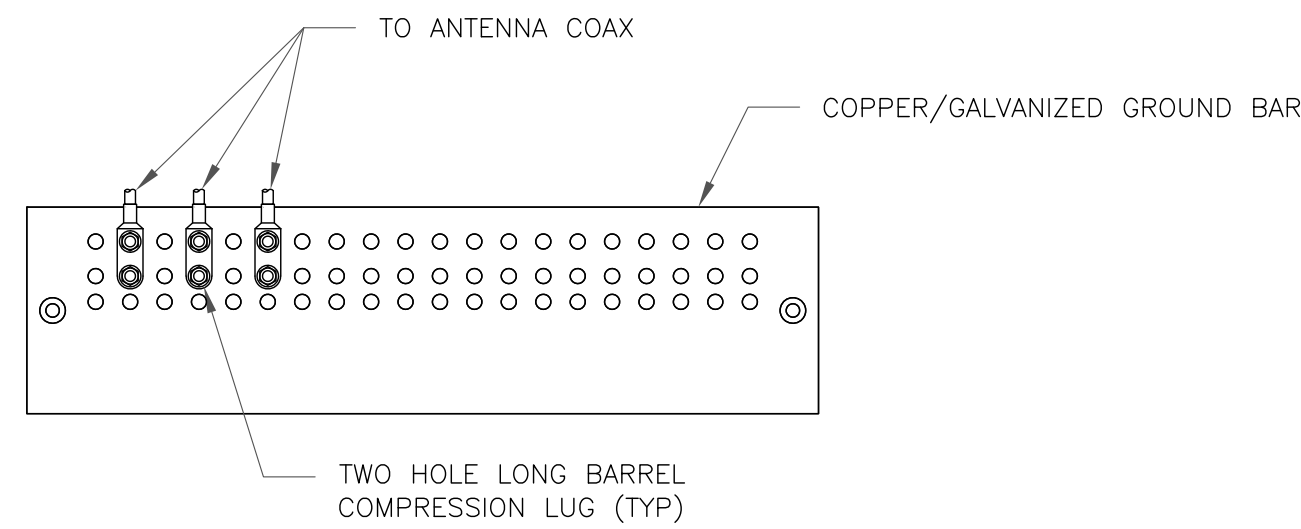
REVISION:

3



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

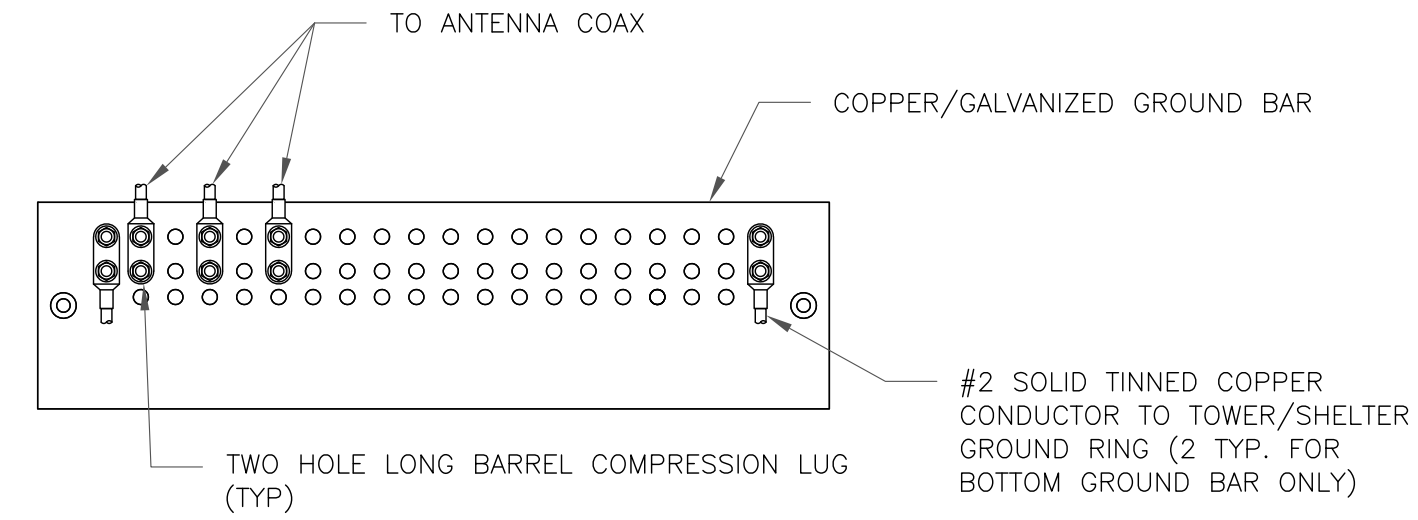
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



NOTES:

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

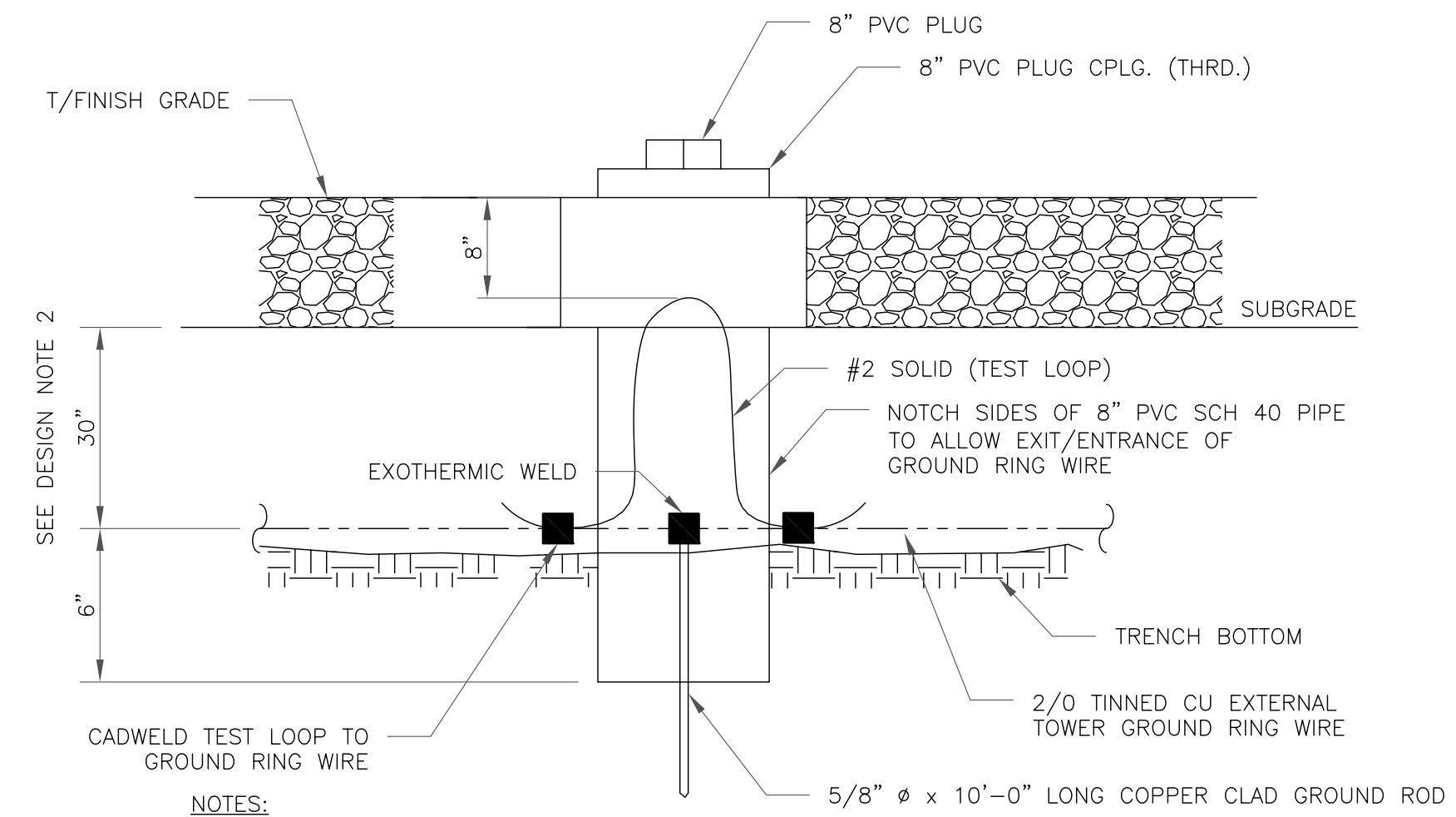
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

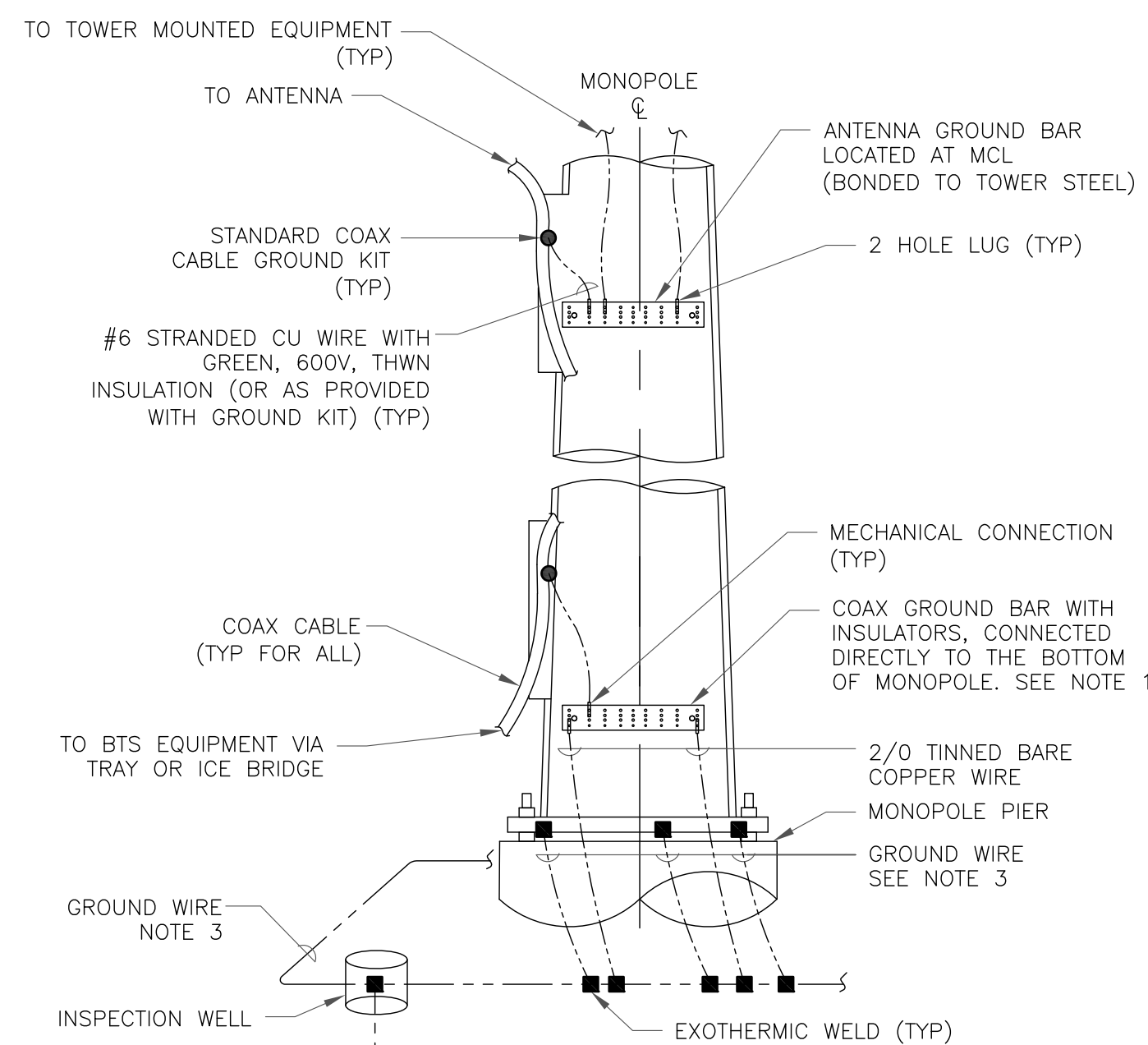
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

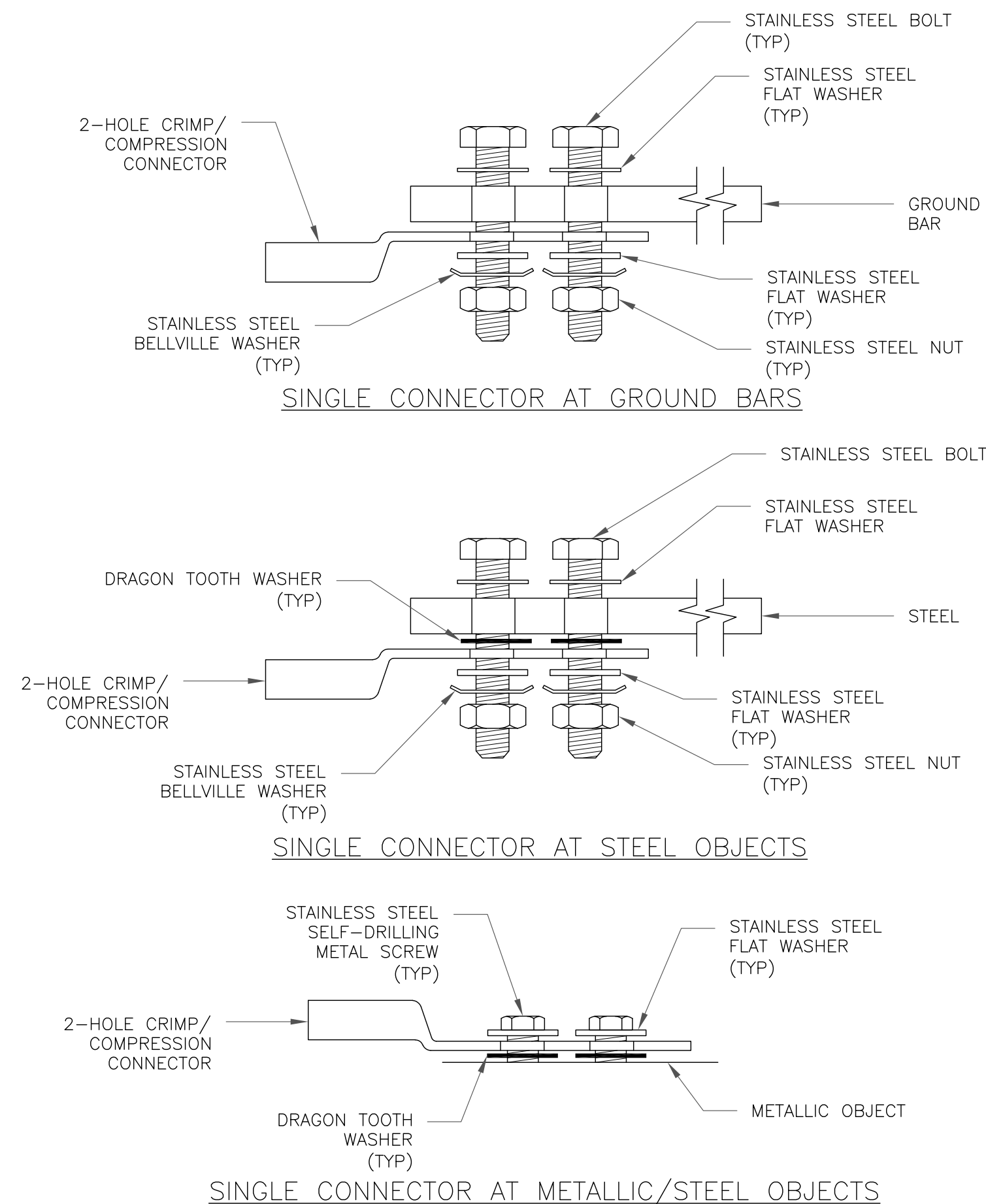
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



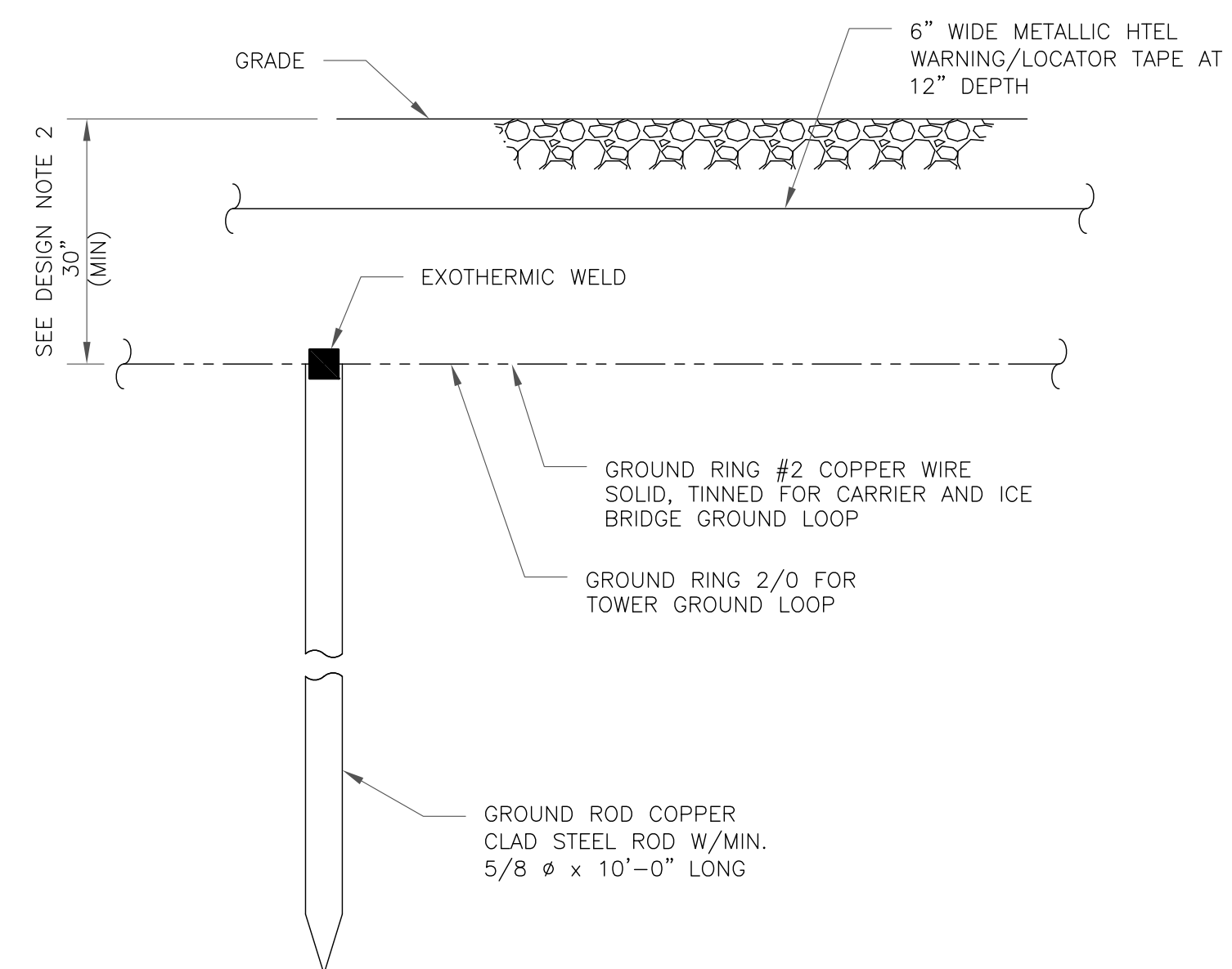
NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP

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

T-MOBILE SITE NUMBER:
CT11038C

BU #: 823529
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/20/20	JTS	CONSTRUCTION	GEH
2	12/4/20	JTS	CONSTRUCTION	GEH
3	1/7/21	JJD	CONSTRUCTION	MTJ



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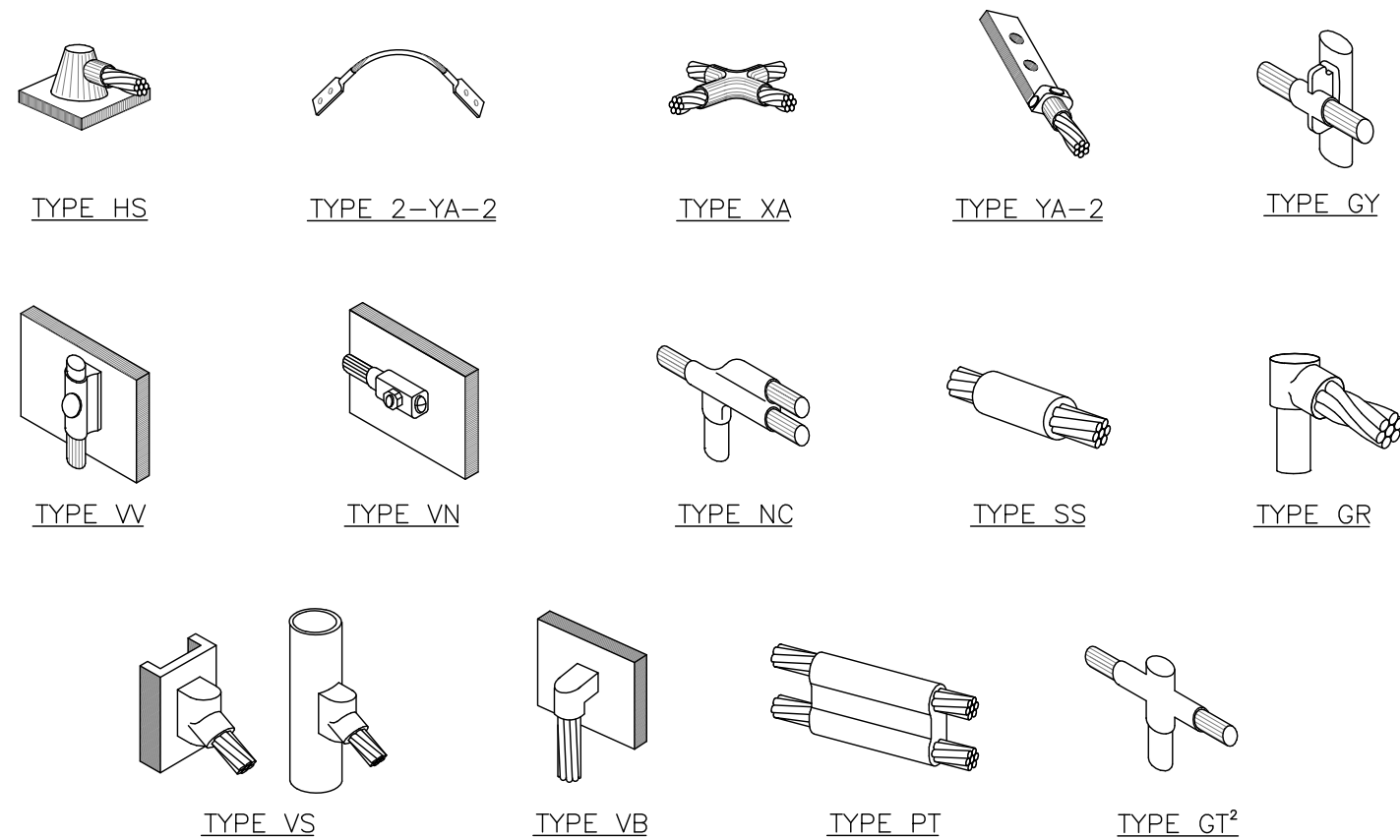
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TO ALTER THIS DOCUMENT.

SHEET NUMBER:

G-2

REVISION:

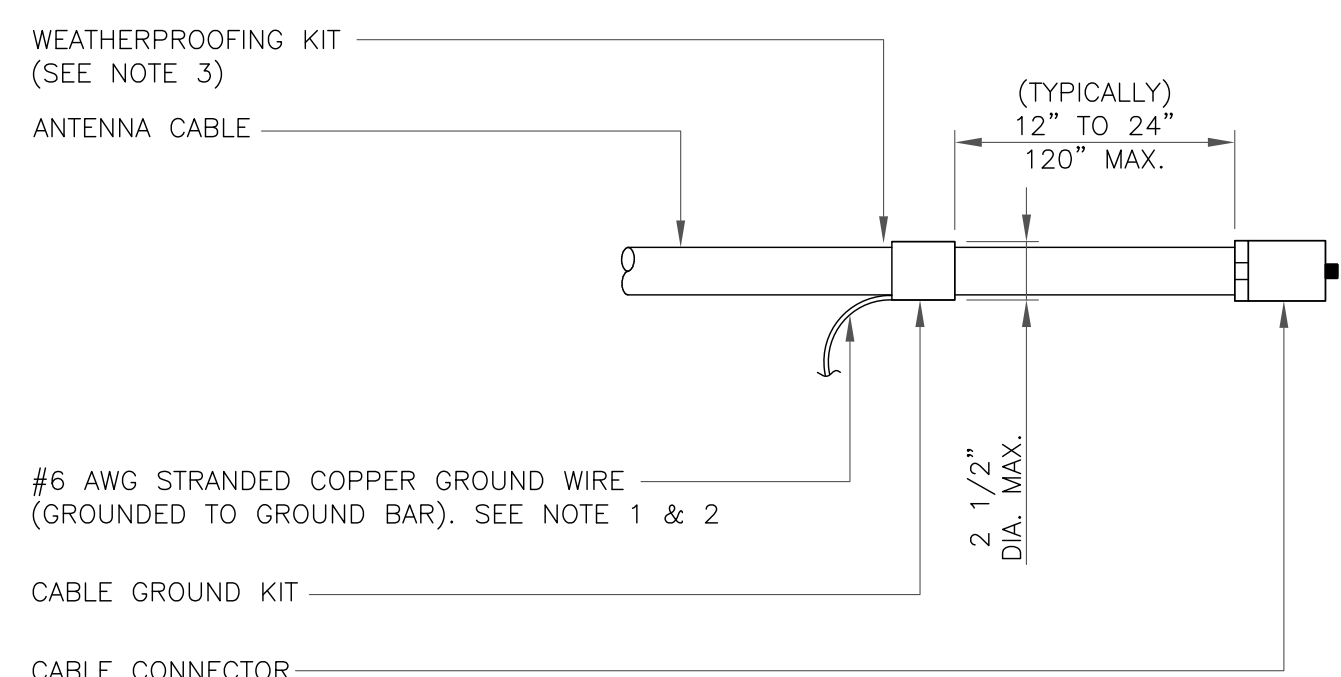
3



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.

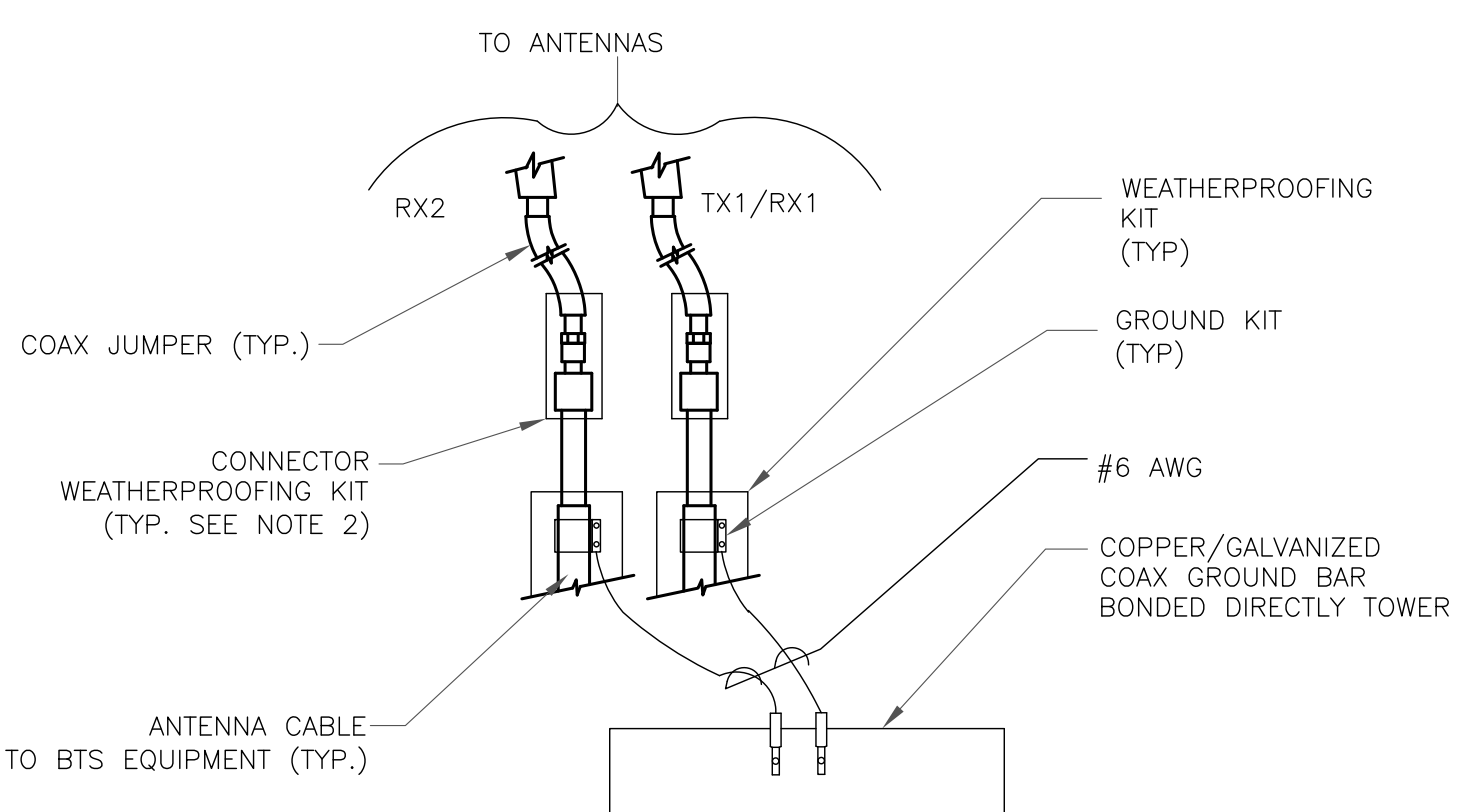
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



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.

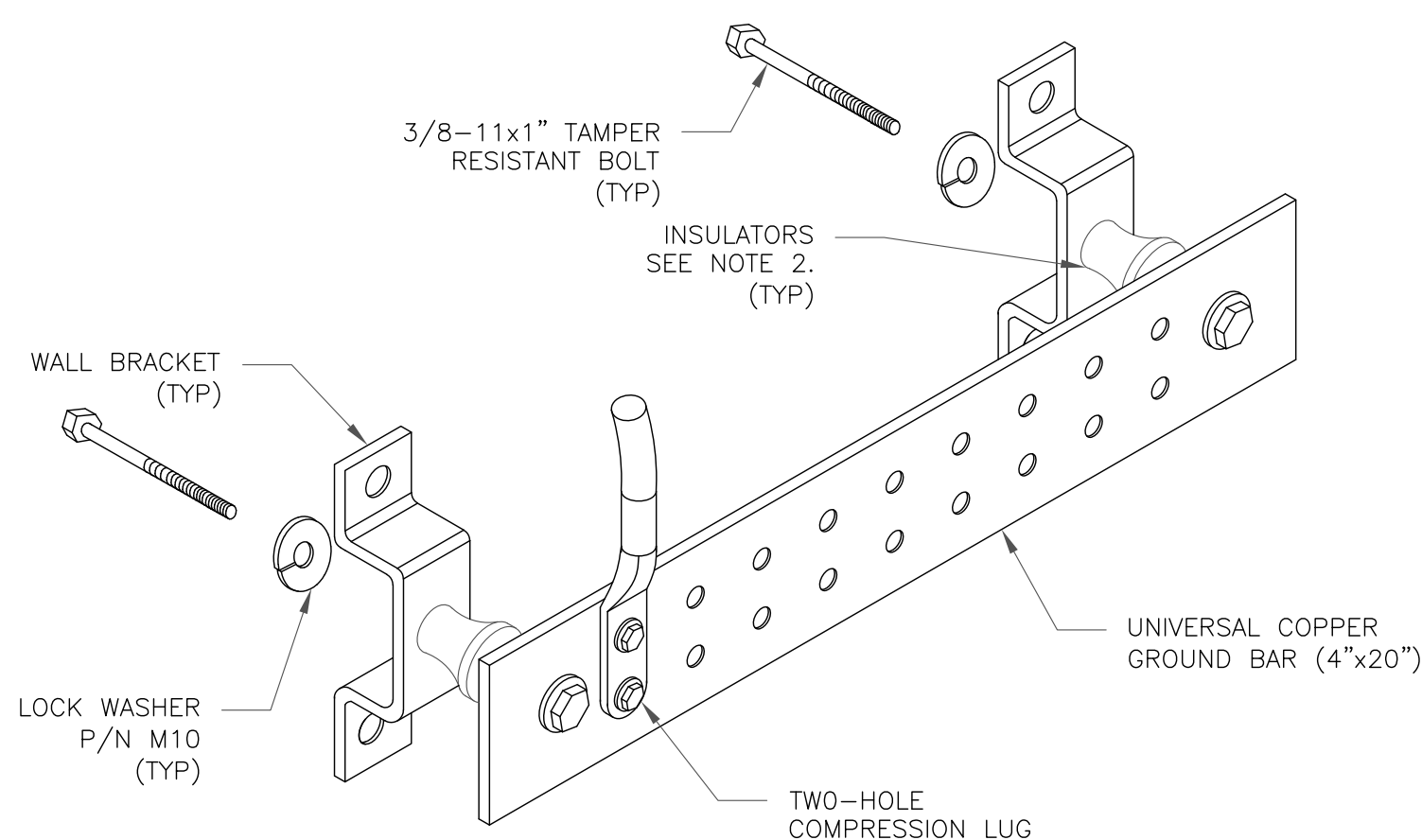
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. 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.

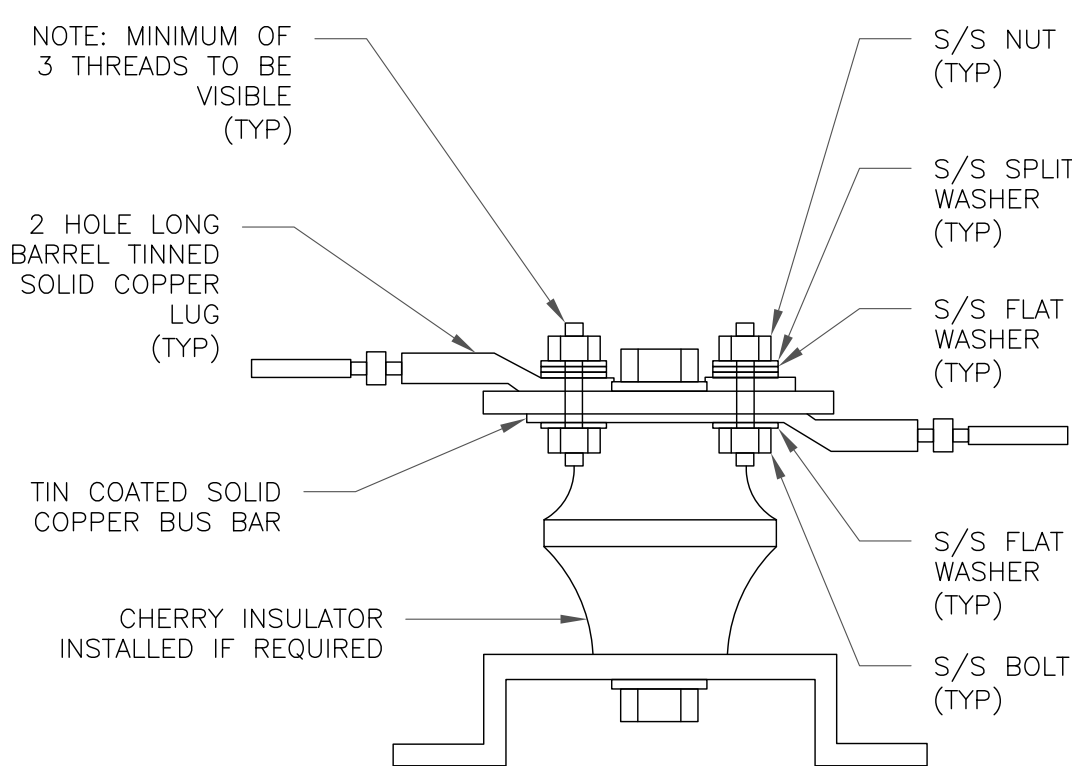
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

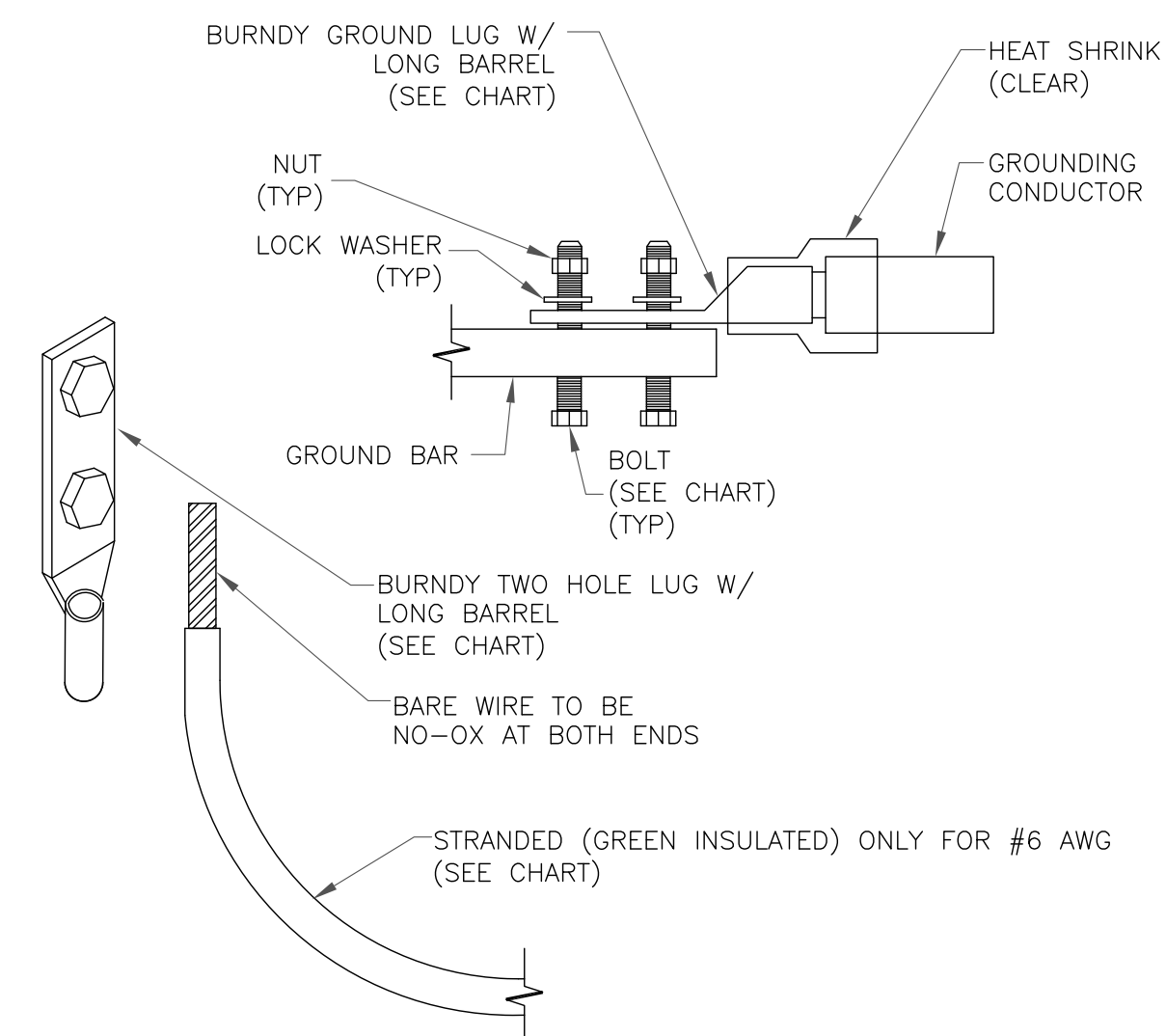
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

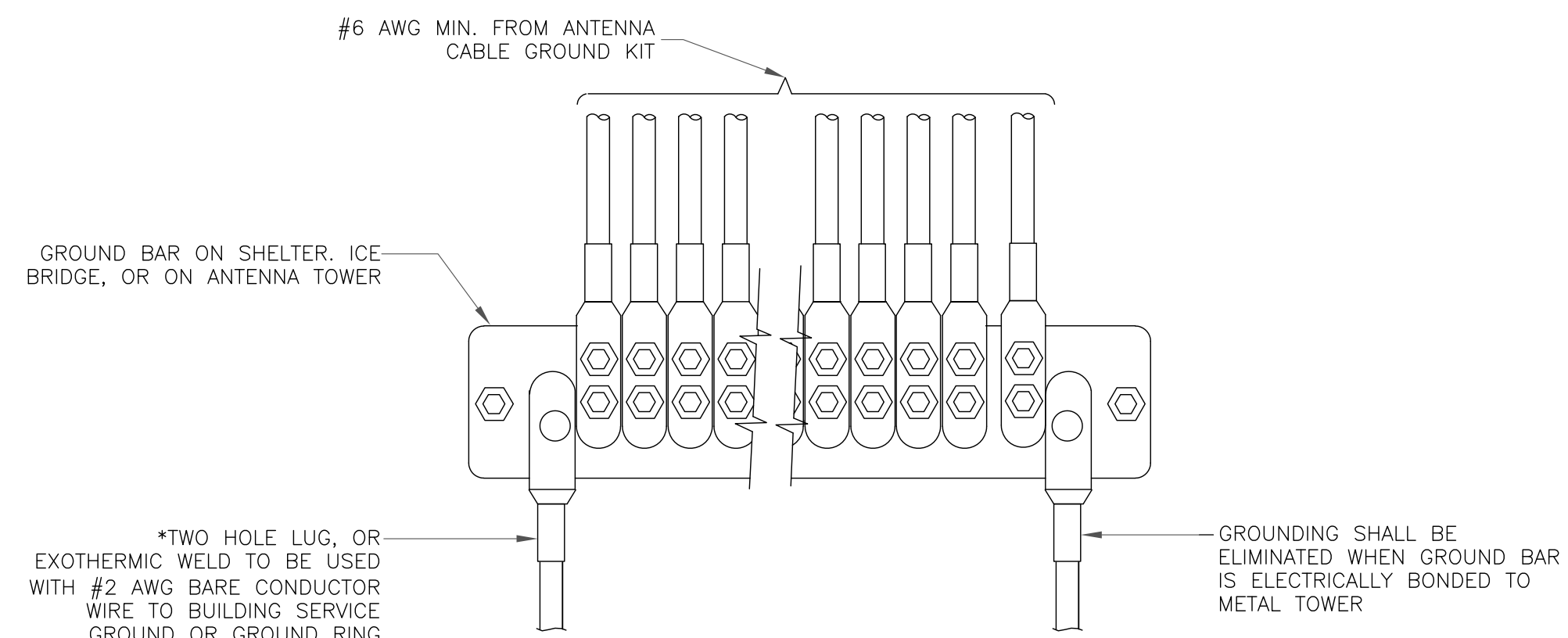
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



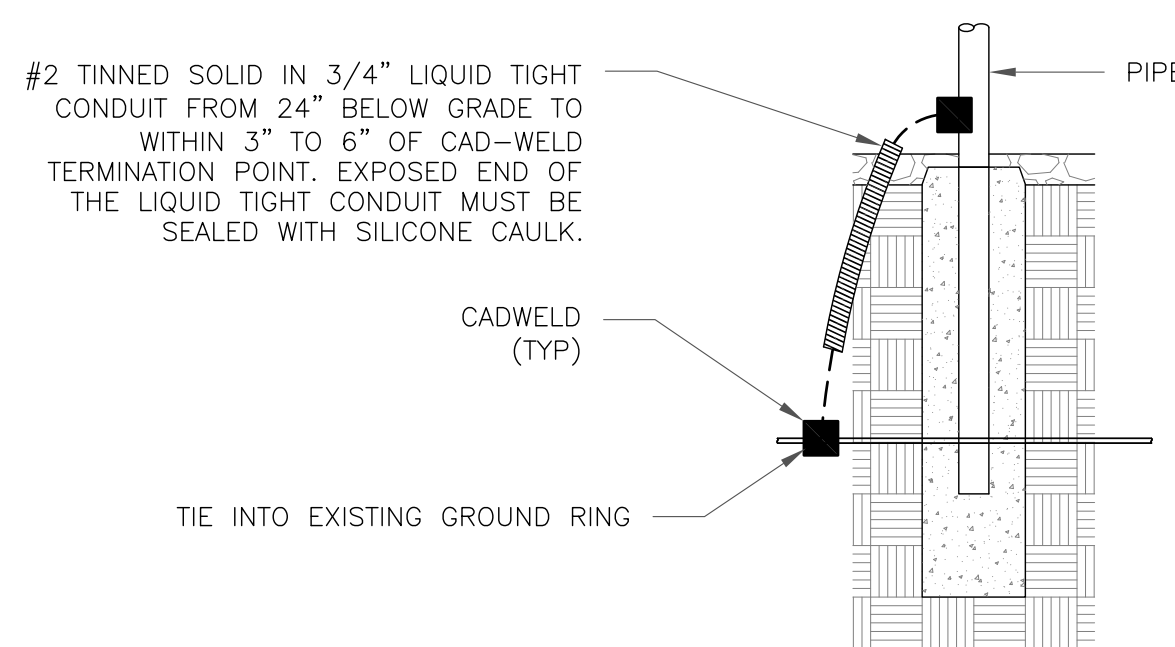
NOTES:

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.

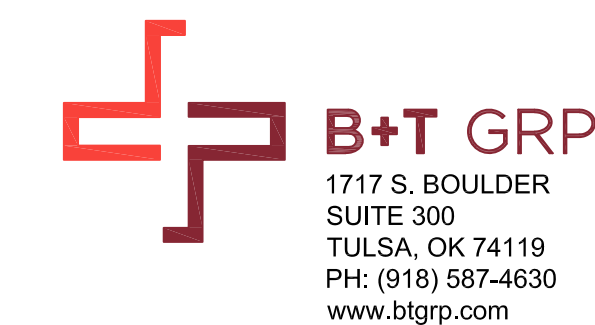
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



T-MOBILE SITE NUMBER:
CT11038C

BU #: **823529**
CT038/EAST LYME/I-95/X72

38 HATCHETTS HILL ROAD
OLD LYME, CT 06371

EXISTING
190'-0" MONOPOLE TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/9/20	JTS	CONSTRUCTION	MTJ
1	11/20/20	JTS	CONSTRUCTION	GEH
2	12/4/20	JTS	CONSTRUCTION	GEH
3	1/7/21	JJD	CONSTRUCTION	MTJ



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SHEET NUMBER:

G-3

REVISION:

3

Exhibit D

Structural Analysis Report



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

Date: **October 16, 2020**

Cheryl Schultz
 Crown Castle
 6325 Ardrey Kell RddSuite 600
 Charlotte, NC 28277

Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Carrier Site Number: CT11038C
Carrier Site Name: CT038/EastLyme/ I-95/ X72

Crown Castle Designation: **Crown Castle BU Number:** 823529
Crown Castle Site Name: CT038/EastLyme/ I-95/ X72
Crown Castle JDE Job Number: 620139
Crown Castle Work Order Number: 1890285
Crown Castle Order Number: 529710 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1890285

Site Data: **38 Hatchetts Hill Road, Old Lyme, New London County, CT**
Latitude 41° 19' 3.26", Longitude -72° 16' 11.87"
190 Foot - Monopole Tower

Dear Cheryl Schultz,

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

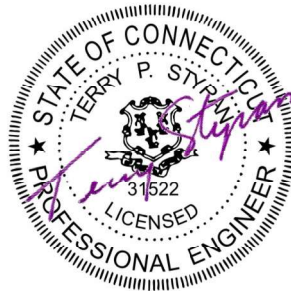
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut Building Code & 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Bernadette Rossmiller /AM

Respectfully submitted by:



Terry P Styran
2020.10.16
18:10:45 -04'00'

Terry P. Styran, P.E.
 Senior Project Engineer

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tnxTower Output

6) APPENDIX B

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7) APPENDIX C

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1) INTRODUCTION

This tower is a 190 ft Monopole tower designed by PIROD MANUFACTURES INC. The tower has been modified per reinforcement drawings prepared by TEP. Reinforcement consist of shaft reinforcing and bolted flange jumps at 5 different elevations.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
190.0	192.0	3	ericsson	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	6	1-3/8
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RRUS 4415 B25		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
	190.0	3	tower mounts	6' x 2" Mount Pipe		
		3	tower mounts	Site Pro 1 AHCP Corner Plate		
		3	tower mounts	P2STD Hand Rail		
		1	tower mounts	Platform Mount [LP 405-1_HR-1]		

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)
173.0	175.0	3	alcatel lucent	B13 RRH 4X30	14	1/2 1-5/8
		3	alcatel lucent	B25 RRH4X30		
		3	alcatel lucent	RRH4X45-AWS4 B66		
		6	andrew	SBNHH-1D65B w/ Mount Pipe		
		6	antel	LPA-80080/4CF w/ Mount Pipe		
		1	gps	GPS_A		
		2	raycap	RRFDC-3315-PF-48		
	6	rfs celwave	FD9R6004/2C-3L			
165.0	173.0	1	tower mounts	Platform Mount [LP 403-1]		
	167.0	1	raycap	DC6-48-60-18-8F	2	3/8
	165.0	3	andrew	SBNHH-1D65A w/ Mount Pipe	5	3/4

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	cci antennas	DMP65R-BU4D w/ Mount Pipe	6 1	1-1/4 Conduit
		3	cci antennas	OPA65R-BU4D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		3	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC9-48-60-24-8C-EV		
		1	tower mounts	Platform Mount [LP 712-1_KCKR]		
		1	tower mounts	HRK12-3HD		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	3500965	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Pirod	3505479	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Pirod	3500968	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	TEP	3771952	CCISITES
4-POST-MODIFICATION INSPECTION	PJF	3826084	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) 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. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	190 - 160	Pole	P24x0.375	1	-14.40	1104.67	54.5	Pass
L2	160 - 140	Pole	30" x 0.375"	2	-18.15	1376.61	76.1	Pass
L3	140 - 120	Pole	36" x 0.375"	3	-22.51	1564.60	85.0	Pass
L4	120 - 100	Pole	42" x 0.375"	4	-28.95	1752.31	88.8	Pass
L5	100 - 80	Pole	P48x0.375	5	-35.46	1939.86	90.2	Pass
L6	80 - 60	Pole	P54x3/8	6	-42.70	2127.30	90.5	Pass
L7	60 - 40	Pole	P60x3/8	7	-50.52	2314.65	90.1	Pass
L8	40 - 20	Pole	P60x1/2	8	-59.53	3281.97	78.4	Pass
L9	20 - 0	Pole	P60x5/8	9	-70.20	4346.11	71.6	Pass
							Summary	
						Pole (L6)	90.5	Pass
						Rating =	90.5	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	160	52.5	Pass
1,2	Flange Plate	160	84.5	Pass
1	Flange Bolts	140	77.2	Pass
1,2	Flange Plate	140	77.2	Pass
1	Flange Bolts	120	88.5	Pass
1,2	Flange Plate	120	88.5	Pass
1	Flange Bolts	100	93.8	Pass
1,2	Flange Plate	100	93.8	Pass
1	Flange Bolts	80	96.2	Pass
1,2	Flange Plate	80	96.2	Pass
1	Flange Bolts	60	57.8	Pass
1,2	Flange Plate	60	90.5	Pass
1	Flange Bolts	40	63.8	Pass
1,2	Flange Plate	40	90.1	Pass
1	Flange Bolts	20	75.9	Pass
1,2	Flange Plate	20	78.4	Pass
1	Anchor Rods	0	54.9	Pass
1,2	Base Plate	0	71.6	Pass
1	Base Foundation (Soil Interaction)	0	87.6	Pass
1	Base Foundation (Structure)	0	33.2	Pass

Structure Rating (max from all components) =	96.2%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Base/Flange plates are assumed to have the same capacity as their respective splice bolts or shaft.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

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

- 4) Tower is located in New London County, Connecticut.
- 5) Tower base elevation above sea level: 168.0000 ft.
- 6) Basic wind speed of 135.00 mph.
- 7) Risk Category II.
- 8) Exposure Category B.
- 9) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 10) Topographic Category: 1.
- 11) Crest Height: 0.0000 ft.
- 12) Nominal ice thickness of 1.5000 in.
- 13) Ice thickness is considered to increase with height.
- 14) Ice density of 56.00 pcf.
- 15) A wind speed of 50.00 mph is used in combination with ice.
- 16) Temperature drop of 50.00 °F.
- 17) Deflections calculated using a wind speed of 60.00 mph.
- 18) TIA-222-H Annex S.
- 19) A non-linear (P-delta) analysis was used.
- 20) Pressures are calculated at each section.
- 21) Stress ratio used in pole design is 1.05.
- 22) Tower analysis based on target reliabilities in accordance with Annex S.
- 23) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 24) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Pole Section Geometry

Section	Elevation	Section Length	Pole Size	Pole Grade	Socket Length
	ft	ft			ft

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	190.0000-160.0000	30.0000	P24x0.375	A53-B-42 (42 ksi)	
L2	160.0000-140.0000	20.0000	30" x 0.375"	A53-B-42 (42 ksi)	
L3	140.0000-120.0000	20.0000	36" x 0.375"	A53-B-42 (42 ksi)	
L4	120.0000-100.0000	20.0000	42" x 0.375"	A53-B-42 (42 ksi)	
L5	100.0000-80.0000	20.0000	P48x0.375	A53-B-42 (42 ksi)	
L6	80.0000-60.0000	20.0000	P54x3/8	A53-B-42 (42 ksi)	
L7	60.0000-40.0000	20.0000	P60x3/8	A53-B-42 (42 ksi)	
L8	40.0000-20.0000	20.0000	P60x1/2	A53-B-42 (42 ksi)	
L9	20.0000-0.0000	20.0000	P60x5/8	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 190.0000-160.0000				1	1	1			
L2 160.0000-140.0000				1	1	1			
L3 140.0000-120.0000				1	1	1			
L4 120.0000-100.0000				1	1	1			
L5 100.0000-80.0000				1	1	1			
L6 80.0000-60.0000				1	1	1			
L7 60.0000-40.0000				1	1	1			
L8 40.0000-20.0000				1	1	1			
L9 20.0000-0.0000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
3/4" ladder rung (12" long 12" oc) *****	C	No	Surface Ar (CaAa)	190.0000 - 10.0000	1	1	-0.167 -0.167	0.7500		1.50
CCI-045100 (L)	A	No	Surface Af (CaAa)	23.5000 - 17.2500	1	1	-0.250 -0.250	4.5000	11.0000	15.31
CCI-045100 (L)	B	No	Surface Af (CaAa)	23.5000 - 17.2500	1	1	-0.250 -0.250	4.5000	11.0000	15.31
CCI-045100 (L)	C	No	Surface Af (CaAa)	23.5000 - 17.2500	1	1	-0.250 -0.250	4.5000	11.0000	15.31
CCI-045100 (L)	A	No	Surface Af (CaAa)	90.5000 - 36.7500	1	1	-0.250 -0.250	4.5000	11.0000	15.31
CCI-045100 (L)	B	No	Surface Af (CaAa)	90.5000 - 36.7500	1	1	-0.250 -0.250	4.5000	11.0000	15.31

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
CCI-045100 (L)	C	No	Surface Af (CaAa)	90.5000 - 36.7500	1	1	-0.250 -0.250	4.5000	11.0000	15.31
FP 4 x 4.5	A	No	Surface Af (CaAa)	106.7500 - 98.2500	1	1	-0.250 -0.250	4.0000	17.0000	61.25
FP 4 x 4.5	B	No	Surface Af (CaAa)	106.7500 - 98.2500	1	1	-0.250 -0.250	4.0000	17.0000	61.25
FP 4 x 4.5	C	No	Surface Af (CaAa)	106.7500 - 98.2500	1	1	-0.250 -0.250	4.0000	17.0000	61.25

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf

HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	190.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.70 1.70 1.70 1.70

LDF4-50A(1/2)	C	No	No	Inside Pole	173.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.15 0.15 0.15 0.15
LDF7-50A(1-5/8)	C	No	No	Inside Pole	173.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.82 0.82 0.82 0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	173.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.30 1.30 1.30 1.30

FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	165.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.06 0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	165.0000 - 0.0000	5	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.58 0.58 0.58 0.58
LDF6-50A(1-1/4)	C	No	No	Inside Pole	165.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.60 0.60 0.60 0.60
2" (Nominal) Conduit	C	No	No	Inside Pole	165.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.72 0.72 0.72 0.72

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	190.0000-	A	0.000	0.000	0.000	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
	160.0000	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	2.250	0.000	0.55
L2	160.0000- 140.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	1.500	0.000	0.63
L3	140.0000- 120.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	1.500	0.000	0.63
L4	120.0000- 100.0000	A	0.000	0.000	3.896	0.000	0.41
		B	0.000	0.000	3.896	0.000	0.41
		C	0.000	0.000	5.396	0.000	1.05
L5	100.0000- 80.0000	A	0.000	0.000	8.885	0.000	0.27
		B	0.000	0.000	8.885	0.000	0.27
		C	0.000	0.000	10.385	0.000	0.90
L6	80.0000-60.0000	A	0.000	0.000	15.000	0.000	0.31
		B	0.000	0.000	15.000	0.000	0.31
		C	0.000	0.000	16.500	0.000	0.94
L7	60.0000-40.0000	A	0.000	0.000	15.000	0.000	0.31
		B	0.000	0.000	15.000	0.000	0.31
		C	0.000	0.000	16.500	0.000	0.94
L8	40.0000-20.0000	A	0.000	0.000	4.681	0.000	0.10
		B	0.000	0.000	4.681	0.000	0.10
		C	0.000	0.000	6.181	0.000	0.74
L9	20.0000-0.0000	A	0.000	0.000	1.762	0.000	0.04
		B	0.000	0.000	1.762	0.000	0.04
		C	0.000	0.000	2.512	0.000	0.66

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	190.0000- 160.0000	A	1.506	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	11.289	0.000	0.68
L2	160.0000- 140.0000	A	1.483	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	7.434	0.000	0.71
L3	140.0000- 120.0000	A	1.462	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	7.349	0.000	0.71
L4	120.0000- 100.0000	A	1.438	0.000	0.000	5.073	0.000	0.50
		B		0.000	0.000	5.073	0.000	0.50
		C		0.000	0.000	12.326	0.000	1.21
L5	100.0000- 80.0000	A	1.410	0.000	0.000	12.145	0.000	0.38
		B		0.000	0.000	12.145	0.000	0.38
		C		0.000	0.000	19.283	0.000	1.09
L6	80.0000-60.0000	A	1.375	0.000	0.000	20.498	0.000	0.48
		B		0.000	0.000	20.498	0.000	0.48
		C		0.000	0.000	27.497	0.000	1.18
L7	60.0000-40.0000	A	1.329	0.000	0.000	20.316	0.000	0.47
		B		0.000	0.000	20.316	0.000	0.47
		C		0.000	0.000	27.133	0.000	1.17
L8	40.0000-20.0000	A	1.263	0.000	0.000	5.975	0.000	0.16
		B		0.000	0.000	5.975	0.000	0.16
		C		0.000	0.000	12.527	0.000	0.85
L9	20.0000-0.0000	A	1.132	0.000	0.000	2.097	0.000	0.06
		B		0.000	0.000	2.097	0.000	0.06
		C		0.000	0.000	5.110	0.000	0.70

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L1	190.0000-160.0000	0.2490	0.6840	0.5176	1.4218
L2	160.0000-140.0000	0.2505	0.6880	0.5329	1.4638
L3	140.0000-120.0000	0.2514	0.6907	0.5422	1.4894
L4	120.0000-100.0000	0.1987	0.5459	0.4725	1.2980
L5	100.0000-80.0000	0.1642	0.4511	0.4099	1.1259
L6	80.0000-60.0000	0.1398	0.3839	0.3601	0.9892
L7	60.0000-40.0000	0.1464	0.4020	0.3668	1.0076
L8	40.0000-20.0000	0.2063	0.5668	0.4553	1.2506
L9	20.0000-0.0000	0.1180	0.3242	0.2339	0.6426

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	3/4" ladder rung (12" long 12" oc)	160.00 - 190.00	1.0000	1.0000
L2	1	3/4" ladder rung (12" long 12" oc)	140.00 - 160.00	1.0000	1.0000
L3	1	3/4" ladder rung (12" long 12" oc)	120.00 - 140.00	1.0000	1.0000
L4	1	3/4" ladder rung (12" long 12" oc)	100.00 - 120.00	1.0000	1.0000
L4	24	FP 4 x 4.5	100.00 - 106.75	1.0000	1.0000
L4	25	FP 4 x 4.5	100.00 - 106.75	1.0000	1.0000
L4	26	FP 4 x 4.5	100.00 - 106.75	1.0000	1.0000
L5	1	3/4" ladder rung (12" long 12" oc)	80.00 - 100.00	1.0000	1.0000
L5	21	CCI-045100 (L)	80.00 - 90.50	1.0000	1.0000
L5	22	CCI-045100 (L)	80.00 - 90.50	1.0000	1.0000
L5	23	CCI-045100 (L)	80.00 - 90.50	1.0000	1.0000
L5	24	FP 4 x 4.5	98.25 - 100.00	1.0000	1.0000
L5	25	FP 4 x 4.5	98.25 - 100.00	1.0000	1.0000
L5	26	FP 4 x 4.5	98.25 - 100.00	1.0000	1.0000
L6	1	3/4" ladder rung (12" long 12" oc)	60.00 - 80.00	1.0000	1.0000
L6	21	CCI-045100 (L)	60.00 - 80.00	1.0000	1.0000
L6	22	CCI-045100 (L)	60.00 - 80.00	1.0000	1.0000
L6	23	CCI-045100 (L)	60.00 - 80.00	1.0000	1.0000
L7	1	3/4" ladder rung (12" long 12" oc)	40.00 - 60.00	1.0000	1.0000
L7	21	CCI-045100 (L)	40.00 - 60.00	1.0000	1.0000
L7	22	CCI-045100 (L)	40.00 - 60.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L7	23	CCI-045100 (L)	60.00 40.00 -	1.0000	1.0000
L8	1	3/4" ladder rung (12" long 12" oc)	60.00 20.00 -	1.0000	1.0000
L8	18	CCI-045100 (L)	40.00 20.00 -	1.0000	1.0000
L8	19	CCI-045100 (L)	23.50 20.00 -	1.0000	1.0000
L8	20	CCI-045100 (L)	23.50 20.00 -	1.0000	1.0000
L8	21	CCI-045100 (L)	23.50 36.75 -	1.0000	1.0000
L8	22	CCI-045100 (L)	40.00 36.75 -	1.0000	1.0000
L8	23	CCI-045100 (L)	40.00 36.75 -	1.0000	1.0000
L9	1	3/4" ladder rung (12" long 12" oc)	10.00 - 20.00	1.0000	1.0000
L9	18	CCI-045100 (L)	17.25 - 20.00	1.0000	1.0000
L9	19	CCI-045100 (L)	17.25 - 20.00	1.0000	1.0000
L9	20	CCI-045100 (L)	17.25 - 20.00	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L4	24	FP 4 x 4.5	100.00 - 106.75	Manual	1.0000
L4	25	FP 4 x 4.5	100.00 - 106.75	Manual	1.0000
L4	26	FP 4 x 4.5	100.00 - 106.75	Manual	1.0000
L5	21	CCI-045100 (L)	80.00 - 90.50	Manual	1.0000
L5	22	CCI-045100 (L)	80.00 - 90.50	Manual	1.0000
L5	23	CCI-045100 (L)	80.00 - 90.50	Manual	1.0000
L5	24	FP 4 x 4.5	98.25 - 100.00	Manual	1.0000
L5	25	FP 4 x 4.5	98.25 - 100.00	Manual	1.0000
L5	26	FP 4 x 4.5	98.25 - 100.00	Manual	1.0000
L6	21	CCI-045100 (L)	60.00 - 80.00	Manual	1.0000
L6	22	CCI-045100 (L)	60.00 - 80.00	Manual	1.0000
L6	23	CCI-045100 (L)	60.00 - 80.00	Manual	1.0000
L7	21	CCI-045100 (L)	40.00 - 60.00	Manual	1.0000
L7	22	CCI-045100 (L)	40.00 - 60.00	Manual	1.0000
L7	23	CCI-045100 (L)	40.00 -	Manual	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	18	CCI-045100 (L)	60.00 20.00 - 23.50	Manual	1.0000
L8	19	CCI-045100 (L)	20.00 - 23.50	Manual	1.0000
L8	20	CCI-045100 (L)	20.00 - 23.50	Manual	1.0000
L8	21	CCI-045100 (L)	36.75 - 40.00	Manual	1.0000
L8	22	CCI-045100 (L)	36.75 - 40.00	Manual	1.0000
L8	23	CCI-045100 (L)	36.75 - 40.00	Manual	1.0000
L9	18	CCI-045100 (L)	17.25 - 20.00	Manual	1.0000
L9	19	CCI-045100 (L)	17.25 - 20.00	Manual	1.0000
L9	20	CCI-045100 (L)	17.25 - 20.00	Manual	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CA _A Front ft ²	CA _A Side ft ²	Weight K	
190									
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	7.0872	6.3915	0.19
						1/2" Ice	7.5606	7.2487	0.26
						Ice	8.0206	7.9915	0.33
						1" Ice	8.9662	9.5258	0.49
						2" Ice			
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	7.0872	6.3915	0.19
						1/2" Ice	7.5606	7.2487	0.26
						Ice	8.0206	7.9915	0.33
						1" Ice	8.9662	9.5258	0.49
						2" Ice			
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	7.0872	6.3915	0.19
						1/2" Ice	7.5606	7.2487	0.26
						Ice	8.0206	7.9915	0.33
						1" Ice	8.9662	9.5258	0.49
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	5.8701	3.2700	0.13
						1/2" Ice	6.2332	3.7282	0.18
						Ice	6.6061	4.2026	0.23
						1" Ice	7.3816	5.2001	0.36
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	5.8701	3.2700	0.13
						1/2" Ice	6.2332	3.7282	0.18
						Ice	6.6061	4.2026	0.23
						1" Ice	7.3816	5.2001	0.36
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice	5.8701	3.2700	0.13
						1/2" Ice	6.2332	3.7282	0.18
						Ice	6.6061	4.2026	0.23
						1" Ice	7.3816	5.2001	0.36
						2" Ice			
APXVAALL24_43-U-	A	From Leg	4.0000	0.0000	190.0000	No Ice	20.4801	10.8686	0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
NA20_TMO w/ Mount Pipe			0.00 2.00			1/2" Ice 1" Ice 2" Ice	21.2306 13.9417 16.2912	0.32 0.46 0.79	
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	10.8686 12.3931 13.9417 16.2912	0.18 0.32 0.46 0.79
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	10.8686 12.3931 13.9417 16.2912	0.18 0.32 0.46 0.79
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9701 2.1466 2.3306 2.7207	1.5865 1.7488 1.9185 2.2800	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9701 2.1466 2.3306 2.7207	1.5865 1.7488 1.9185 2.2800	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9701 2.1466 2.3306 2.7207	1.5865 1.7488 1.9185 2.2800	0.07 0.09 0.12 0.17
RRUS 4415 B25	A	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.6788 0.7911 0.9129 1.1834	0.04 0.06 0.07 0.11
RRUS 4415 B25	B	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.6788 0.7911 0.9129 1.1834	0.04 0.06 0.07 0.11
RRUS 4415 B25	C	From Leg	4.0000 0.00 2.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.6788 0.7911 0.9129 1.1834	0.04 0.06 0.07 0.11
6' x 2" Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
Platform Mount [LP 405-1_HR-1]	C	None		0.0000	190.0000	No Ice 1/2" Ice 1" Ice 2" Ice	25.3300 33.7900 42.1600 58.7700	25.3300 33.7900 42.1600 58.7700	2.06 2.63 3.36 5.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	4.0900	3.3000	0.07
						1/2" Ice	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
						2" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	4.0900	3.3000	0.07
						1/2" Ice	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
						2" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	4.0900	3.3000	0.07
						1/2" Ice	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
						2" Ice			
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.8561	6.5689	0.03
						1/2" Ice	3.2195	7.1948	0.08
						Ice	3.5922	7.8369	0.13
						1" Ice	4.3374	9.1700	0.25
						2" Ice			
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.8561	6.5689	0.03
						1/2" Ice	3.2195	7.1948	0.08
						Ice	3.5922	7.8369	0.13
						1" Ice	4.3374	9.1700	0.25
						2" Ice			
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.8561	6.5689	0.03
						1/2" Ice	3.2195	7.1948	0.08
						Ice	3.5922	7.8369	0.13
						1" Ice	4.3374	9.1700	0.25
						2" Ice			
GPS_A	B	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	0.2550	0.2550	0.00
						1/2" Ice	0.3205	0.3205	0.00
						Ice	0.3934	0.3934	0.01
						1" Ice	0.5614	0.5614	0.02
						2" Ice			
(2) FD9R6004/2C-3L	A	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						Ice	0.4656	0.1685	0.01
						1" Ice	0.6468	0.2940	0.02
						2" Ice			
(2) FD9R6004/2C-3L	B	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						Ice	0.4656	0.1685	0.01
						1" Ice	0.6468	0.2940	0.02
						2" Ice			
(2) FD9R6004/2C-3L	C	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						Ice	0.4656	0.1685	0.01
						1" Ice	0.6468	0.2940	0.02
						2" Ice			
B13 RRH 4X30	A	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.0552	1.3201	0.06
						1/2" Ice	2.2405	1.4754	0.07
						Ice	2.4333	1.6376	0.09
						1" Ice	2.8411	1.9966	0.14
						2" Ice			
B13 RRH 4X30	B	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.0552	1.3201	0.06
						1/2" Ice	2.2405	1.4754	0.07
						Ice	2.4333	1.6376	0.09
						1" Ice	2.8411	1.9966	0.14
						2" Ice			
B13 RRH 4X30	C	From Leg	4.0000 0.00 2.00	0.0000	173.0000	No Ice	2.0552	1.3201	0.06
						1/2" Ice	2.2405	1.4754	0.07
						Ice	2.4333	1.6376	0.09
						1" Ice	2.8411	1.9966	0.14
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						ft
			ft	ft	°	ft	ft ²	ft ²	K	
B25 RRH4X30	A	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.2000	1.7417	0.06
			0.00				1/2"	2.3926	1.9204	0.08
			2.00				Ice	2.5926	2.1065	0.10
							1" Ice	3.0148	2.5009	0.16
							2" Ice			
B25 RRH4X30	B	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.2000	1.7417	0.06
			0.00				1/2"	2.3926	1.9204	0.08
			2.00				Ice	2.5926	2.1065	0.10
							1" Ice	3.0148	2.5009	0.16
							2" Ice			
B25 RRH4X30	C	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.2000	1.7417	0.06
			0.00				1/2"	2.3926	1.9204	0.08
			2.00				Ice	2.5926	2.1065	0.10
							1" Ice	3.0148	2.5009	0.16
							2" Ice			
RRH4X45-AWS4 B66	A	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.6600	1.5861	0.06
			0.00				1/2"	2.8781	1.7690	0.08
			2.00				Ice	3.1037	1.9588	0.11
							1" Ice	3.5770	2.3594	0.17
							2" Ice			
RRH4X45-AWS4 B66	B	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.6600	1.5861	0.06
			0.00				1/2"	2.8781	1.7690	0.08
			2.00				Ice	3.1037	1.9588	0.11
							1" Ice	3.5770	2.3594	0.17
							2" Ice			
RRH4X45-AWS4 B66	C	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	2.6600	1.5861	0.06
			0.00				1/2"	2.8781	1.7690	0.08
			2.00				Ice	3.1037	1.9588	0.11
							1" Ice	3.5770	2.3594	0.17
							2" Ice			
(2) RRFDC-3315-PF-48	B	From Leg	4.0000	0.0000	0.0000	173.0000	No Ice	3.3636	2.1921	0.03
			0.00				1/2"	3.5972	2.3950	0.06
			2.00				Ice	3.8383	2.6056	0.09
							1" Ice	4.3426	3.0491	0.17
							2" Ice			
Platform Mount [LP 403-1]	C	None			0.0000	173.0000	No Ice	18.9400	18.9400	1.50
							1/2"	23.3100	23.3100	1.90
							Ice	27.7400	27.7400	2.37
							1" Ice	36.7700	36.7700	3.53
							2" Ice			
*** SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.0000	0.0000	0.0000	165.0000	No Ice	3.0400	2.4500	0.05
			0.00				1/2"	3.3400	2.7500	0.10
			0.00				Ice	3.6500	3.0500	0.16
							1" Ice	4.3100	3.6800	0.31
							2" Ice			
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.0000	0.0000	0.0000	165.0000	No Ice	3.0400	2.4500	0.05
			0.00				1/2"	3.3400	2.7500	0.10
			0.00				Ice	3.6500	3.0500	0.16
							1" Ice	4.3100	3.6800	0.31
							2" Ice			
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.0000	0.0000	0.0000	165.0000	No Ice	3.0400	2.4500	0.05
			0.00				1/2"	3.3400	2.7500	0.10
			0.00				Ice	3.6500	3.0500	0.16
							1" Ice	4.3100	3.6800	0.31
							2" Ice			
DMP65R-BU4D w/ Mount Pipe	A	From Leg	4.0000	0.0000	0.0000	165.0000	No Ice	7.5300	3.7900	0.09
			0.00				1/2"	8.0400	4.2300	0.16
			0.00				Ice	8.5700	4.6800	0.22
							1" Ice	9.6800	5.6300	0.39
							2" Ice			
DMP65R-BU4D w/ Mount Pipe	B	From Leg	4.0000	0.0000	0.0000	165.0000	No Ice	7.5300	3.7900	0.09
			0.00				1/2"	8.0400	4.2300	0.16
			0.00				Ice	8.5700	4.6800	0.22
							1" Ice	9.6800	5.6300	0.39
							2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	7.5300	3.7900	0.09
						1/2"	8.0400	4.2300	0.16
						Ice	8.5700	4.6800	0.22
OPA65R-BU4D w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	8.1000	4.0300	0.08
						1/2"	8.6500	4.5000	0.14
						Ice	9.2100	4.9800	0.21
OPA65R-BU4D w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	8.1000	4.0300	0.08
						1/2"	8.6500	4.5000	0.14
						Ice	9.2100	4.9800	0.21
OPA65R-BU4D w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	8.1000	4.0300	0.08
						1/2"	8.6500	4.5000	0.14
						Ice	9.2100	4.9800	0.21
(2) TT19-08BP111-001	B	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	0.5453	0.4420	0.02
						1/2"	0.6406	0.5303	0.02
						Ice	0.7433	0.6260	0.03
TT19-08BP111-001	C	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	0.5453	0.4420	0.02
						1/2"	0.6406	0.5303	0.02
						Ice	0.7433	0.6260	0.03
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 2.00	0.0000	165.0000	2" Ice			
						No Ice	1.2117	1.2117	0.02
						1/2"	1.8924	1.8924	0.04
						Ice	2.1051	2.1051	0.07
(3) RRUS 4478 B14	A	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.8425	1.0588	0.06
						1/2"	2.0123	1.1969	0.08
						Ice	2.1895	1.3425	0.09
DC9-48-60-24-8C-EV	A	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.1450	1.1450	0.03
						1/2"	1.7924	1.7924	0.05
						Ice	2.0024	2.0024	0.07
RRUS 8843 B2/B66A	A	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.6390	1.3534	0.07
						1/2"	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
RRUS 8843 B2/B66A	B	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.6390	1.3534	0.07
						1/2"	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
RRUS 8843 B2/B66A	C	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.6390	1.3534	0.07
						1/2"	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
(3) RRUS 4449 B5/B12	B	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.9675	1.4081	0.07
						1/2"	2.1439	1.5637	0.09
						Ice	2.3278	1.7267	0.11
						1" Ice	2.7177	2.0749	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Platform Mount [LP 712-1_KCKR]	C	None		0.0000	165.0000	2" Ice			
						No Ice	35.7800	35.7800	1.61
						1/2"	42.1400	42.1400	2.33
						Ice	48.6600	48.6600	3.15
						1" Ice	62.2300	62.2300	5.06
Miscellaneous [NA 507-1]	C	None		0.0000	165.0000	2" Ice			
						No Ice	4.5600	4.5600	0.25
						1/2"	6.3900	6.3900	0.31
						Ice	8.1800	8.1800	0.40
						1" Ice	11.6600	11.6600	0.66
2.375" OD x 6' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.4250	1.4250	0.03
						1/2"	1.9250	1.9250	0.04
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.4250	1.4250	0.03
						1/2"	1.9250	1.9250	0.04
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	165.0000	2" Ice			
						No Ice	1.4250	1.4250	0.03
						1/2"	1.9250	1.9250	0.04
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 190.0000-160.0000		1.16	48.53	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000
					B	0.000	60.000	60.000	100.00	0.000	0.000
					C	0.000	60.000	60.000	100.00	2.250	0.000
L2 160.0000-140.0000		1.11	46.44	50.000	A	0.000	50.000	50.000	100.00	0.000	0.000
					B	0.000	50.000	50.000	100.00	0.000	0.000
					C	0.000	50.000	50.000	100.00	1.500	0.000
L3 140.0000-120.0000		1.065	44.58	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000
					B	0.000	60.000	60.000	100.00	0.000	0.000
					C	0.000	60.000	60.000	100.00	1.500	0.000
L4 120.0000-100.0000		1.016	42.50	70.000	A	0.000	70.000	70.000	100.00	3.896	0.000
					B	0.000	70.000	70.000	100.00	3.896	0.000
					C	0.000	70.000	70.000	100.00	5.396	0.000
L5 100.0000-80.0000		0.959	40.13	80.000	A	0.000	80.000	80.000	100.00	8.885	0.000
					B	0.000	80.000	80.000	100.00	8.885	0.000
					C	0.000	80.000	80.000	100.00	10.385	0.000
L6 80.0000-60.0000		0.892	37.35	90.000	A	0.000	90.000	90.000	100.00	15.000	0.000
					B	0.000	90.000	90.000	100.00	15.000	0.000
					C	0.000	90.000	90.000	100.00	16.500	0.000
L7 60.0000-40.0000		0.811	33.93	100.000	A	0.000	100.000	100.000	100.00	15.000	0.000
					B	0.000	100.000	100.000	100.00	15.000	0.000
					C	0.000	100.000	100.000	100.00	16.500	0.000
L8 40.0000-20.0000		0.701	29.32	100.000	A	0.000	100.000	100.000	100.00	4.681	0.000
					B	0.000	100.000	100.000	100.00	4.681	0.000
					C	0.000	100.000	100.000	100.00	4.681	0.000

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L9 20.0000-0.0000	10.0000	0.7	29.30	100.000	C	0.000	100.000	100.000	100.00	6.181	0.000
					A	0.000	100.000		100.00	1.762	0.000
					B	0.000	100.000		100.00	1.762	0.000
					C	0.000	100.000		100.00	2.512	0.000

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K _z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 190.0000-160.0000	175.0000	1.16	6.66	1.5065	67.532	A	0.000	67.532	67.532	100.00	0.000	0.000
						B	0.000	67.532		100.00	0.000	0.000
						C	0.000	67.532		100.00	11.289	0.000
L2 160.0000-140.0000	150.0000	1.11	6.37	1.4834	54.945	A	0.000	54.945	54.945	100.00	0.000	0.000
						B	0.000	54.945		100.00	0.000	0.000
						C	0.000	54.945		100.00	7.434	0.000
L3 140.0000-120.0000	130.0000	1.065	6.12	1.4624	64.875	A	0.000	64.875	64.875	100.00	0.000	0.000
						B	0.000	64.875		100.00	0.000	0.000
						C	0.000	64.875		100.00	7.349	0.000
L4 120.0000-100.0000	110.0000	1.016	5.83	1.4381	74.794	A	0.000	74.794	74.794	100.00	5.073	0.000
						B	0.000	74.794		100.00	5.073	0.000
						C	0.000	74.794		100.00	12.326	0.000
L5 100.0000-80.0000	90.0000	0.959	5.51	1.4096	84.699	A	0.000	84.699	84.699	100.00	12.145	0.000
						B	0.000	84.699		100.00	12.145	0.000
						C	0.000	84.699		100.00	19.283	0.000
L6 80.0000-60.0000	70.0000	0.892	5.12	1.3746	94.582	A	0.000	94.582	94.582	100.00	20.498	0.000
						B	0.000	94.582		100.00	20.498	0.000
						C	0.000	94.582		100.00	27.497	0.000
L7 60.0000-40.0000	50.0000	0.811	4.65	1.3291	104.430	A	0.000	104.430	104.430	100.00	20.316	0.000
						B	0.000	104.430		100.00	20.316	0.000
						C	0.000	104.430		100.00	27.133	0.000
L8 40.0000-20.0000	30.0000	0.701	4.02	1.2629	104.210	A	0.000	104.210	104.210	100.00	5.975	0.000
						B	0.000	104.210		100.00	5.975	0.000
						C	0.000	104.210		100.00	12.527	0.000
L9 20.0000-0.0000	10.0000	0.7	4.02	1.1315	103.772	A	0.000	103.772	103.772	100.00	2.097	0.000
						B	0.000	103.772		100.00	2.097	0.000
						C	0.000	103.772		100.00	5.110	0.000

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 190.0000-160.0000	175.0000	1.16	9.03	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000
					B	0.000	60.000		100.00	0.000	0.000
					C	0.000	60.000		100.00	2.250	0.000
L2 160.0000-140.0000	150.0000	1.11	8.64	50.000	A	0.000	50.000	50.000	100.00	0.000	0.000
					B	0.000	50.000		100.00	0.000	0.000
					C	0.000	50.000		100.00	1.500	0.000
L3 140.0000-120.0000	130.0000	1.065	8.29	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000
					B	0.000	60.000		100.00	0.000	0.000
					C	0.000	60.000		100.00	1.500	0.000
L4 120.0000-100.0000	110.0000	1.016	7.91	70.000	A	0.000	70.000	70.000	100.00	3.896	0.000
					B	0.000	70.000		100.00	3.896	0.000

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L5 100.0000-80.0000	90.0000	0.959	7.47	80.000	C	0.000	70.000	80.000	100.00	5.396	0.000
					A	0.000	80.000		100.00	8.885	0.000
					B	0.000	80.000		100.00	8.885	0.000
L6 80.0000-60.0000	70.0000	0.892	6.95	90.000	C	0.000	80.000	90.000	100.00	10.385	0.000
					A	0.000	90.000		100.00	15.000	0.000
					B	0.000	90.000		100.00	15.000	0.000
L7 60.0000-40.0000	50.0000	0.811	6.31	100.00 0	C	0.000	90.000	100.000	100.00	16.500	0.000
					A	0.000	100.000		100.00	15.000	0.000
					B	0.000	100.000		100.00	15.000	0.000
L8 40.0000-20.0000	30.0000	0.701	5.45	100.00 0	C	0.000	100.000	100.000	100.00	16.500	0.000
					A	0.000	100.000		100.00	4.681	0.000
					B	0.000	100.000		100.00	4.681	0.000
L9 20.0000-0.0000	10.0000	0.7	5.45	100.00 0	C	0.000	100.000	100.000	100.00	6.181	0.000
					A	0.000	100.000		100.00	1.762	0.000
					B	0.000	100.000		100.00	1.762	0.000
					C	0.000	100.000		100.00	2.512	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service

Comb. No.	Description
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	190 - 160	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.13	-3.57	0.59
			Max. Mx	8	-14.41	-345.92	-0.56
			Max. My	2	-14.41	-0.55	344.28
			Max. Vy	8	18.90	-345.92	-0.56
			Max. Vx	14	18.91	-2.33	-343.63
			Max. Torque	3			-1.67
L2	160 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.96	-3.70	0.45
			Max. Mx	8	-18.16	-740.08	-2.21
			Max. My	2	-18.16	0.99	738.55
			Max. Vy	8	20.50	-740.08	-2.21
			Max. Vx	14	20.50	-4.00	-738.00
			Max. Torque	3			-1.67
L3	140 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.56	-3.80	0.27
			Max. Mx	8	-22.52	-1167.75	-3.87
			Max. My	2	-22.52	2.56	1166.34
			Max. Vy	8	22.26	-1167.75	-3.87
			Max. Vx	14	22.26	-5.66	-1165.93
			Max. Torque	3			-1.67
L4	120 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.67	-3.79	0.07
			Max. Mx	8	-28.96	-1632.71	-5.55
			Max. My	2	-28.96	4.14	1631.43
			Max. Vy	8	24.23	-1632.71	-5.55
			Max. Vx	14	24.23	-7.30	-1631.19
			Max. Torque	3			-1.66
L5	100 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.10	-3.77	-0.16
			Max. Mx	8	-35.47	-2137.35	-7.22
			Max. My	2	-35.47	5.72	2136.21
			Max. Vy	8	26.23	-2137.35	-7.22
			Max. Vx	14	26.24	-8.93	-2136.16
			Max. Torque	3			-1.66
L6	80 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.57	-3.75	-0.40
			Max. Mx	8	-42.70	-2682.32	-8.90
			Max. My	14	-42.70	-10.54	-2681.46
			Max. Vy	8	28.26	-2682.32	-8.90
			Max. Vx	14	28.27	-10.54	-2681.46
			Max. Torque	3			-1.66
L7	60 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.73	-3.73	-0.67
			Max. Mx	8	-50.53	-3267.14	-10.57
			Max. My	14	-50.53	-12.13	-3266.64
			Max. Vy	8	30.22	-3267.14	-10.57
			Max. Vx	14	30.23	-12.13	-3266.64
			Max. Torque	3			-1.66
L8	40 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.60	-3.71	-0.92
			Max. Mx	8	-59.53	-3887.29	-12.22
			Max. My	14	-59.53	-13.69	-3887.15
			Max. Vy	8	31.79	-3887.29	-12.22
			Max. Vx	14	31.80	-13.69	-3887.15
			Max. Torque	3			-1.66

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L9	20 - 0	Pole	Max. Torque	3			-1.66
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.79	-3.69	-1.03
			Max. Mx	8	-70.20	-4537.67	-13.79
			Max. My	14	-70.20	-15.22	-4537.84
			Max. Vy	20	-33.24	4534.38	13.37
			Max. Vx	14	33.25	-15.22	-4537.84
		Max. Torque	3			-1.66	

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	102.79	0.00	-0.00
	Max. H _x	21	52.66	33.22	0.08
	Max. H _z	3	52.66	0.08	33.23
	Max. M _x	2	4537.09	0.08	33.23
	Max. M _z	8	4537.67	-33.22	-0.08
	Max. Torsion	15	1.65	-0.08	-33.23
	Min. Vert	9	52.66	-33.22	-0.08
	Min. H _x	9	52.66	-33.22	-0.08
	Min. H _z	14	70.21	-0.08	-33.24
	Min. M _x	14	-4537.84	-0.08	-33.24
	Min. M _z	20	-4534.38	33.22	0.08
	Min. Torsion	3	-1.66	0.08	33.23

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	58.51	-0.00	0.00	0.18	-1.25	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	70.21	-0.08	-33.23	-4537.09	11.94	1.64
0.9 Dead+1.0 Wind 0 deg - No Ice	52.66	-0.08	-33.23	-4483.21	12.21	1.66
1.2 Dead+1.0 Wind 30 deg - No Ice	70.21	16.55	-28.75	-3923.01	-2258.54	1.38
0.9 Dead+1.0 Wind 30 deg - No Ice	52.66	16.55	-28.75	-3876.24	-2231.17	1.39
1.2 Dead+1.0 Wind 60 deg - No Ice	70.21	28.74	-16.55	-2257.02	-3924.29	0.75
0.9 Dead+1.0 Wind 60 deg - No Ice	52.66	28.74	-16.55	-2230.14	-3877.04	0.76
1.2 Dead+1.0 Wind 90 deg - No Ice	70.21	33.22	0.08	13.79	-4537.67	-0.08
0.9 Dead+1.0 Wind 90 deg - No Ice	52.66	33.22	0.08	13.57	-4483.50	-0.08
1.2 Dead+1.0 Wind 120 deg - No Ice	70.21	28.82	16.68	2280.94	-3937.82	-0.88
0.9 Dead+1.0 Wind 120 deg - No Ice	52.66	28.82	16.68	2253.66	-3890.39	-0.89
1.2 Dead+1.0 Wind 150 deg - No Ice	70.21	16.68	28.82	3936.96	-2282.04	-1.45
0.9 Dead+1.0 Wind 150 deg - No Ice	52.66	16.68	28.82	3889.92	-2254.37	-1.46
1.2 Dead+1.0 Wind 180 deg - No Ice	70.21	0.08	33.24	4537.84	-15.22	-1.63
0.9 Dead+1.0 Wind 180 deg - No Ice	52.66	0.08	33.23	4483.53	-14.61	-1.65

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
1.2 Dead+1.0 Wind 210 deg - No Ice	70.21	-16.55	28.75	3923.43	2255.26	-1.38
0.9 Dead+1.0 Wind 210 deg - No Ice	52.66	-16.55	28.75	3876.56	2228.77	-1.39
1.2 Dead+1.0 Wind 240 deg - No Ice	70.21	-28.74	16.55	2257.44	3921.00	-0.76
0.9 Dead+1.0 Wind 240 deg - No Ice	52.66	-28.74	16.55	2230.46	3874.63	-0.77
1.2 Dead+1.0 Wind 270 deg - No Ice	70.21	-33.22	-0.08	-13.37	4534.38	0.07
0.9 Dead+1.0 Wind 270 deg - No Ice	52.66	-33.22	-0.08	-13.25	4481.09	0.07
1.2 Dead+1.0 Wind 300 deg - No Ice	70.21	-28.82	-16.68	-2280.51	3934.53	0.88
0.9 Dead+1.0 Wind 300 deg - No Ice	52.66	-28.82	-16.68	-2253.33	3887.98	0.89
1.2 Dead+1.0 Wind 330 deg - No Ice	70.21	-16.68	-28.82	-3936.53	2278.76	1.46
0.9 Dead+1.0 Wind 330 deg - No Ice	52.66	-16.68	-28.82	-3889.59	2251.96	1.47
1.2 Dead+1.0 Ice+1.0 Temp	102.79	-0.00	0.00	1.03	-3.69	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	102.79	-0.01	-8.24	-1095.66	-1.97	0.29
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	102.79	4.11	-7.13	-947.71	-550.57	0.23
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	102.79	7.13	-4.11	-545.48	-952.75	0.10
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	102.79	8.24	0.01	3.20	-1100.67	-0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	102.79	7.14	4.13	551.30	-954.88	-0.19
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	102.79	4.13	7.14	951.97	-554.26	-0.28
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	102.79	0.01	8.24	1097.78	-6.23	-0.29
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	102.79	-4.11	7.13	949.84	542.37	-0.23
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	102.79	-7.13	4.11	547.61	944.54	-0.10
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	102.79	-8.24	-0.01	-1.07	1092.47	0.05
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	102.79	-7.14	-4.13	-549.17	946.67	0.19
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	102.79	-4.13	-7.14	-949.84	546.06	0.28
Dead+Wind 0 deg - Service	58.51	-0.01	-6.18	-838.12	1.14	0.31
Dead+Wind 30 deg - Service	58.51	3.08	-5.35	-724.55	-418.28	0.26
Dead+Wind 60 deg - Service	58.51	5.35	-3.08	-416.80	-725.99	0.14
Dead+Wind 90 deg - Service	58.51	6.18	0.01	2.68	-839.54	-0.01
Dead+Wind 120 deg - Service	58.51	5.36	3.10	421.50	-728.50	-0.17
Dead+Wind 150 deg - Service	58.51	3.10	5.36	727.41	-422.62	-0.28
Dead+Wind 180 deg - Service	58.51	0.01	6.18	838.47	-3.87	-0.31
Dead+Wind 210 deg - Service	58.51	-3.08	5.35	724.91	415.55	-0.26
Dead+Wind 240 deg - Service	58.51	-5.35	3.08	417.15	723.26	-0.14
Dead+Wind 270 deg - Service	58.51	-6.18	-0.01	-2.33	836.81	0.01
Dead+Wind 300 deg - Service	58.51	-5.36	-3.10	-421.14	725.77	0.17
Dead+Wind 330 deg - Service	58.51	-3.10	-5.36	-727.06	419.89	0.28

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	-58.51	0.00	0.00	58.51	-0.00	0.000%
2	-0.08	-70.21	-33.24	0.08	70.21	33.23	0.006%
3	-0.08	-52.66	-33.24	0.08	52.66	33.23	0.005%
4	16.55	-70.21	-28.75	-16.55	70.21	28.75	0.000%
5	16.55	-52.66	-28.75	-16.55	52.66	28.75	0.000%
6	28.74	-70.21	-16.55	-28.74	70.21	16.55	0.000%
7	28.74	-52.66	-16.55	-28.74	52.66	16.55	0.000%
8	33.23	-70.21	0.08	-33.22	70.21	-0.08	0.011%
9	33.23	-52.66	0.08	-33.22	52.66	-0.08	0.009%
10	28.82	-70.21	16.68	-28.82	70.21	-16.68	0.000%
11	28.82	-52.66	16.68	-28.82	52.66	-16.68	0.000%
12	16.68	-70.21	28.82	-16.68	70.21	-28.82	0.000%
13	16.68	-52.66	28.82	-16.68	52.66	-28.82	0.000%
14	0.08	-70.21	33.24	-0.08	70.21	-33.24	0.003%
15	0.08	-52.66	33.24	-0.08	52.66	-33.23	0.005%
16	-16.55	-70.21	28.75	16.55	70.21	-28.75	0.000%
17	-16.55	-52.66	28.75	16.55	52.66	-28.75	0.000%
18	-28.74	-70.21	16.55	28.74	70.21	-16.55	0.000%
19	-28.74	-52.66	16.55	28.74	52.66	-16.55	0.000%
20	-33.23	-70.21	-0.08	33.22	70.21	0.08	0.011%
21	-33.23	-52.66	-0.08	33.22	52.66	0.08	0.009%
22	-28.82	-70.21	-16.68	28.82	70.21	16.68	0.000%
23	-28.82	-52.66	-16.68	28.82	52.66	16.68	0.000%
24	-16.68	-70.21	-28.82	16.68	70.21	28.82	0.000%
25	-16.68	-52.66	-28.82	16.68	52.66	28.82	0.000%
26	0.00	-102.79	0.00	0.00	102.79	-0.00	0.001%
27	-0.01	-102.79	-8.24	0.01	102.79	8.24	0.001%
28	4.11	-102.79	-7.13	-4.11	102.79	7.13	0.000%
29	7.13	-102.79	-4.11	-7.13	102.79	4.11	0.000%
30	8.24	-102.79	0.01	-8.24	102.79	-0.01	0.001%
31	7.14	-102.79	4.13	-7.14	102.79	-4.13	0.000%
32	4.13	-102.79	7.14	-4.13	102.79	-7.14	0.000%
33	0.01	-102.79	8.24	-0.01	102.79	-8.24	0.001%
34	-4.11	-102.79	7.13	4.11	102.79	-7.13	0.000%
35	-7.13	-102.79	4.11	7.13	102.79	-4.11	0.000%
36	-8.24	-102.79	-0.01	8.24	102.79	0.01	0.001%
37	-7.14	-102.79	-4.13	7.14	102.79	4.13	0.000%
38	-4.13	-102.79	-7.14	4.13	102.79	7.14	0.000%
39	-0.01	-58.51	-6.18	0.01	58.51	6.18	0.002%
40	3.08	-58.51	-5.35	-3.08	58.51	5.35	0.002%
41	5.35	-58.51	-3.08	-5.35	58.51	3.08	0.002%
42	6.18	-58.51	0.01	-6.18	58.51	-0.01	0.002%
43	5.36	-58.51	3.10	-5.36	58.51	-3.10	0.002%
44	3.10	-58.51	5.36	-3.10	58.51	-5.36	0.002%
45	0.01	-58.51	6.18	-0.01	58.51	-6.18	0.002%
46	-3.08	-58.51	5.35	3.08	58.51	-5.35	0.002%
47	-5.35	-58.51	3.08	5.35	58.51	-3.08	0.002%
48	-6.18	-58.51	-0.01	6.18	58.51	0.01	0.002%
49	-5.36	-58.51	-3.10	5.36	58.51	3.10	0.002%
50	-3.10	-58.51	-5.36	3.10	58.51	5.36	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00006872	0.00011766
3	Yes	17	0.00004588	0.00009967
4	Yes	22	0.00000001	0.00013598
5	Yes	22	0.00000001	0.00010079
6	Yes	22	0.00000001	0.00013242
7	Yes	22	0.00000001	0.00009802

8	Yes	16	0.00013169	0.00006442
9	Yes	16	0.00008922	0.00006420
10	Yes	22	0.00000001	0.00013468
11	Yes	22	0.00000001	0.00009961
12	Yes	22	0.00000001	0.00013851
13	Yes	22	0.00000001	0.00010260
14	Yes	18	0.00003543	0.00009062
15	Yes	17	0.00004588	0.00013991
16	Yes	22	0.00000001	0.00013093
17	Yes	22	0.00000001	0.00009697
18	Yes	22	0.00000001	0.00013445
19	Yes	22	0.00000001	0.00009971
20	Yes	16	0.00013170	0.00007791
21	Yes	16	0.00008923	0.00007413
22	Yes	22	0.00000001	0.00013712
23	Yes	22	0.00000001	0.00010162
24	Yes	22	0.00000001	0.00013334
25	Yes	22	0.00000001	0.00009867
26	Yes	10	0.00000001	0.00003554
27	Yes	19	0.00000001	0.00014299
28	Yes	20	0.00000001	0.00008884
29	Yes	20	0.00000001	0.00008880
30	Yes	19	0.00000001	0.00014427
31	Yes	20	0.00000001	0.00008925
32	Yes	20	0.00000001	0.00008937
33	Yes	19	0.00000001	0.00014305
34	Yes	20	0.00000001	0.00008740
35	Yes	20	0.00000001	0.00008742
36	Yes	19	0.00000001	0.00014165
37	Yes	20	0.00000001	0.00008790
38	Yes	20	0.00000001	0.00008781
39	Yes	16	0.00010772	0.00001628
40	Yes	16	0.00010768	0.00004794
41	Yes	16	0.00010770	0.00004059
42	Yes	16	0.00010776	0.00001296
43	Yes	16	0.00010769	0.00004113
44	Yes	16	0.00010766	0.00004901
45	Yes	16	0.00010769	0.00001669
46	Yes	16	0.00010761	0.00003819
47	Yes	16	0.00010759	0.00004477
48	Yes	16	0.00010765	0.00001288
49	Yes	16	0.00010760	0.00004613
50	Yes	16	0.00010763	0.00003900

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 160	20.768	43	1.0711	0.0021
L2	160 - 140	14.271	43	0.9533	0.0015
L3	140 - 120	10.553	43	0.8039	0.0010
L4	120 - 100	7.478	43	0.6531	0.0006
L5	100 - 80	5.017	43	0.5143	0.0004
L6	80 - 60	3.112	43	0.3896	0.0003
L7	60 - 40	1.705	43	0.2779	0.0002
L8	40 - 20	0.744	43	0.1776	0.0001
L9	20 - 0	0.186	43	0.0865	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
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Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.0000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	43	20.768	1.0711	0.0021	47606
173.0000	(2) SBNHH-1D65B w/ Mount Pipe	43	16.999	1.0171	0.0018	14001
165.0000	SBNHH-1D65A w/ Mount Pipe	43	15.296	0.9814	0.0017	9521

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 160	112.149	10	5.7873	0.0110
L2	160 - 140	77.135	10	5.1540	0.0083
L3	140 - 120	57.068	10	4.3495	0.0052
L4	120 - 100	40.451	10	3.5346	0.0034
L5	100 - 80	27.142	10	2.7840	0.0022
L6	80 - 60	16.837	10	2.1089	0.0015
L7	60 - 40	9.225	10	1.5041	0.0009
L8	40 - 20	4.026	10	0.9608	0.0005
L9	20 - 0	1.005	10	0.4676	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.0000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	10	112.149	5.7873	0.0111	9053
173.0000	(2) SBNHH-1D65B w/ Mount Pipe	10	91.843	5.4972	0.0097	2660
165.0000	SBNHH-1D65A w/ Mount Pipe	10	82.663	5.3051	0.0089	1807

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	190 - 160 (1)	P24x0.375	30.000	0.0000	0.0	27.832	-14.40	1052.07	0.014
L2	160 - 140 (2)	30" x 0.375"	20.000	0.0000	0.0	34.901	-18.15	1311.06	0.014
L3	140 - 120 (3)	36" x 0.375"	20.000	0.0000	0.0	41.969	-22.51	1490.10	0.015
L4	120 - 100 (4)	42" x 0.375"	20.000	0.0000	0.0	49.038	-28.95	1668.87	0.017
L5	100 - 80 (5)	P48x0.375	20.000	0.0000	0.0	56.106	-35.46	1847.49	0.019
L6	80 - 60 (6)	P54x3/8	20.000	0.0000	0.0	63.175	-42.70	2026.00	0.021
L7	60 - 40 (7)	P60x3/8	20.000	0.0000	0.0	70.244	-50.52	2204.43	0.023
L8	40 - 20 (8)	P60x1/2	20.000	0.0000	0.0	93.462	-59.53	3125.69	0.019

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L9	20 - 0 (9)	P60x5/8	0 20.000 0	0.0000	0.0	4 116.58 30	-70.20	4139.15	0.017

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	190 - 160 (1)	P24x0.375	346.25	623.72	0.555	0.00	623.72	0.000
L2	160 - 140 (2)	30" x 0.375"	741.94	947.86	0.783	0.00	947.86	0.000
L3	140 - 120 (3)	36" x 0.375"	1171.17	1338.81	0.875	0.00	1338.81	0.000
L4	120 - 100 (4)	42" x 0.375"	1637.73	1796.56	0.912	0.00	1796.56	0.000
L5	100 - 80 (5)	P48x0.375	2144.00	2321.11	0.924	0.00	2321.11	0.000
L6	80 - 60 (6)	P54x3/8	2690.59	2912.46	0.924	0.00	2912.46	0.000
L7	60 - 40 (7)	P60x3/8	3277.03	3570.61	0.918	0.00	3570.61	0.000
L8	40 - 20 (8)	P60x1/2	3898.79	4860.41	0.802	0.00	4860.41	0.000
L9	20 - 0 (9)	P60x5/8	4550.73	6198.18	0.734	0.00	6198.18	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	190 - 160 (1)	P24x0.375	18.97	315.62	0.060	0.89	655.57	0.001
L2	160 - 140 (2)	30" x 0.375"	20.57	395.78	0.052	0.89	994.73	0.001
L3	140 - 120 (3)	36" x 0.375"	22.34	454.19	0.049	0.89	1094.28	0.001
L4	120 - 100 (4)	42" x 0.375"	24.30	421.13	0.058	0.88	1185.51	0.001
L5	100 - 80 (5)	P48x0.375	26.31	394.81	0.067	0.88	1270.83	0.001
L6	80 - 60 (6)	P54x3/8	28.34	406.96	0.070	0.88	1474.98	0.001
L7	60 - 40 (7)	P60x3/8	30.29	418.12	0.072	0.88	1684.97	0.001
L8	40 - 20 (8)	P60x1/2	31.87	797.08	0.040	0.88	3205.39	0.000
L9	20 - 0 (9)	P60x5/8	33.31	1314.11	0.025	0.88	5273.53	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	190 - 160 (1)	0.014	0.555	0.000	0.060	0.001	0.573	1.050	4.8.2
L2	160 - 140 (2)	0.014	0.783	0.000	0.052	0.001	0.799	1.050	4.8.2
L3	140 - 120 (3)	0.015	0.875	0.000	0.049	0.001	0.892	1.050	4.8.2
L4	120 - 100 (4)	0.017	0.912	0.000	0.058	0.001	0.932	1.050	4.8.2
L5	100 - 80 (5)	0.019	0.924	0.000	0.067	0.001	0.947	1.050	4.8.2
L6	80 - 60 (6)	0.021	0.924	0.000	0.070	0.001	0.950	1.050	4.8.2
L7	60 - 40 (7)	0.023	0.918	0.000	0.072	0.001	0.946	1.050	4.8.2
L8	40 - 20 (8)	0.019	0.802	0.000	0.040	0.000	0.823	1.050	4.8.2
L9	20 - 0 (9)	0.017	0.734	0.000	0.025	0.000	0.752	1.050	4.8.2

Section Capacity Table

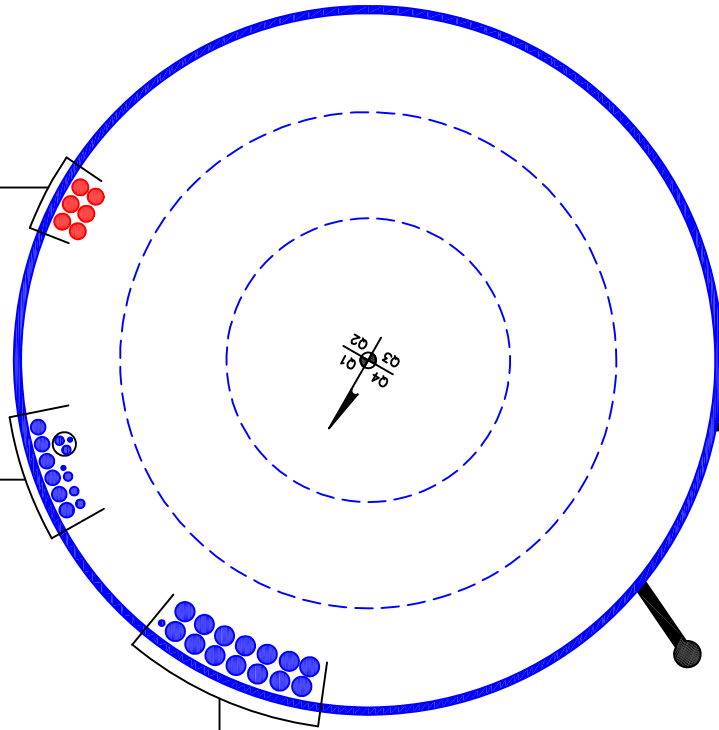
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	190 - 160	Pole	P24x0.375	1	-14.40	1104.67	54.5	Pass
L2	160 - 140	Pole	30" x 0.375"	2	-18.15	1376.61	76.1	Pass
L3	140 - 120	Pole	36" x 0.375"	3	-22.51	1564.60	85.0	Pass
L4	120 - 100	Pole	42" x 0.375"	4	-28.95	1752.31	88.8	Pass
L5	100 - 80	Pole	P48x0.375	5	-35.46	1939.86	90.2	Pass
L6	80 - 60	Pole	P54x3/8	6	-42.70	2127.30	90.5	Pass
L7	60 - 40	Pole	P60x3/8	7	-50.52	2314.65	90.1	Pass
L8	40 - 20	Pole	P60x1/2	8	-59.53	3281.97	78.4	Pass
L9	20 - 0	Pole	P60x5/8	9	-70.20	4346.11	71.6	Pass
Summary								
Pole (L6)							90.5	Pass
RATING =							90.5	Pass

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(1) 3/8" TO 165 FT LEVEL
(2) 3/4" TO 165 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 165 FT LEVEL
(3) 3/4" TO 165 FT LEVEL
(6) 1-1/4" TO 165 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(6) 1-3/8" TO 190 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 173 FT LEVEL
(14) 1-5/8" TO 173 FT LEVEL

CLIMBING PEGS
W/ SAFETY CLIMB

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 160 ft.

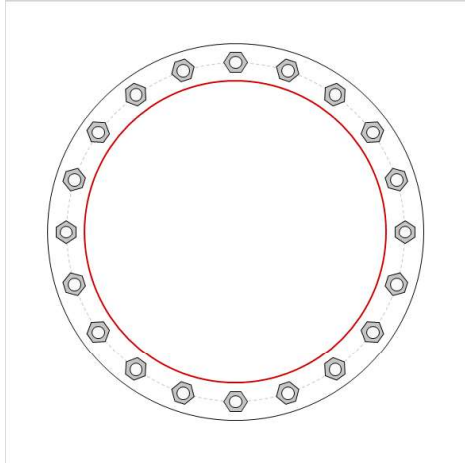


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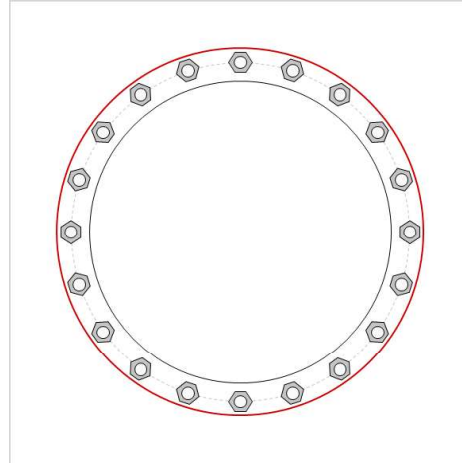
Applied Loads	
Moment (kip-ft)	346.25
Axial Force (kips)	14.40
Shear Force (kips)	18.97

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 27" BC

Top Plate Data

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

Top Stiffener Data

N/A

Top Pole Data

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

Bottom Plate Data

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

Bottom Stiffener Data

N/A

Bottom Pole Data

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

Analysis Results

Bolt Capacity

Max Load (kips)	30.04
Allowable (kips)	54.52
Stress Rating:	52.5% 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

Elevation = 140 ft.

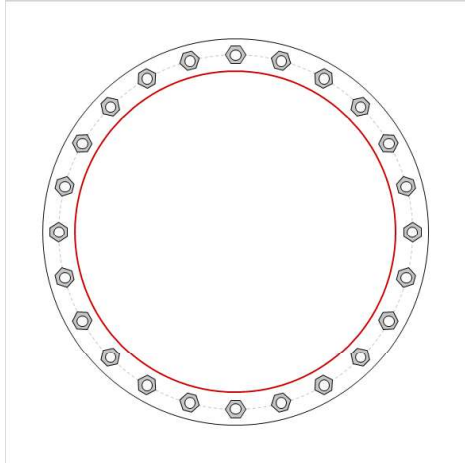


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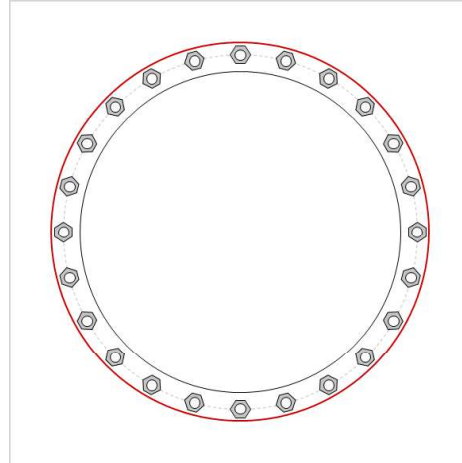
Applied Loads	
Moment (kip-ft)	741.94
Axial Force (kips)	18.15
Shear Force (kips)	20.58

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ϕ 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)	44.19
Allowable (kips)	54.52
Stress Rating:	77.2% 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

Elevation = 120 ft.

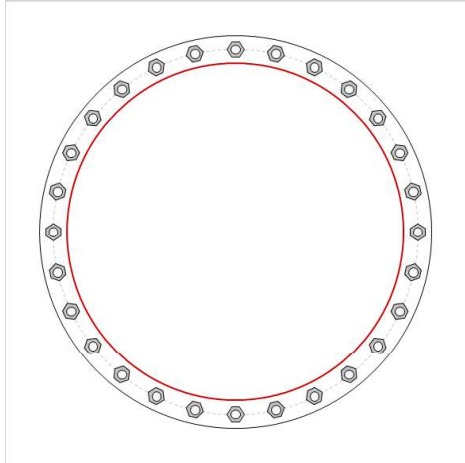


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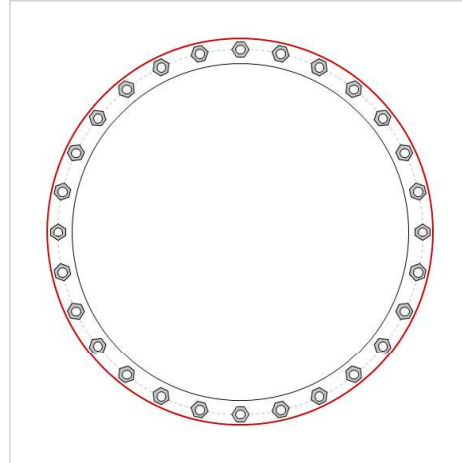
Applied Loads	
Moment (kip-ft)	1171.17
Axial Force (kips)	22.51
Shear Force (kips)	22.34

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ϕ 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)	50.66
Allowable (kips)	54.53
Stress Rating:	88.5% 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

Elevation = 100 ft.

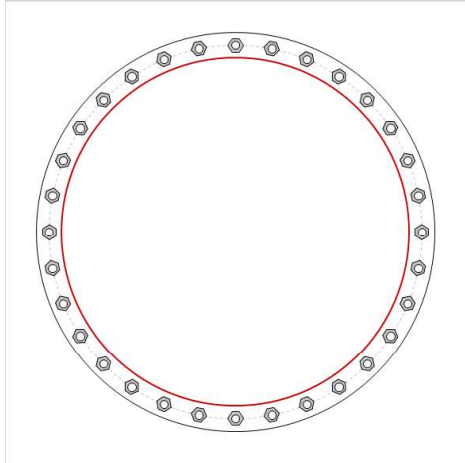


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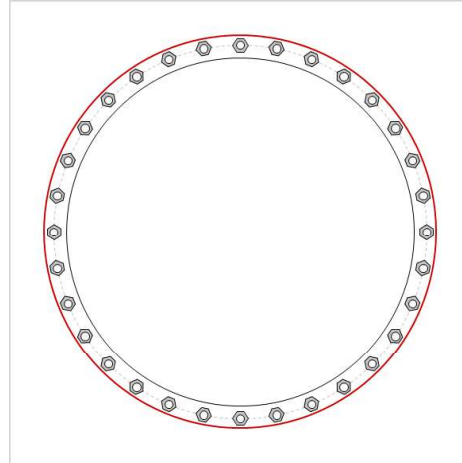
Applied Loads	
Moment (kip-ft)	1637.73
Axial Force (kips)	28.95
Shear Force (kips)	24.30

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" ϕ 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)	53.68
Allowable (kips)	54.53
Stress Rating:	93.8% 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

Elevation = 80 ft.

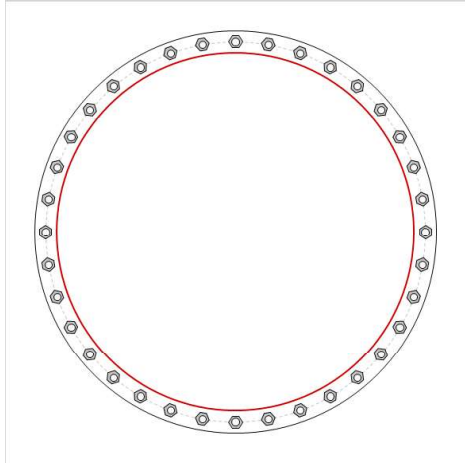


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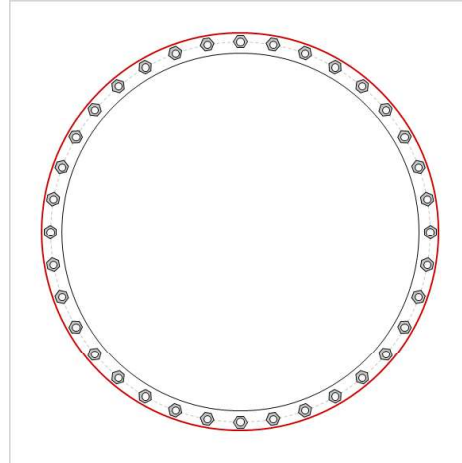
Applied Loads	
Moment (kip-ft)	2144.00
Axial Force (kips)	35.46
Shear Force (kips)	26.31

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" ϕ 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)	55.06
Allowable (kips)	54.53
Stress Rating:	96.2% 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

Elevation = 60 ft.

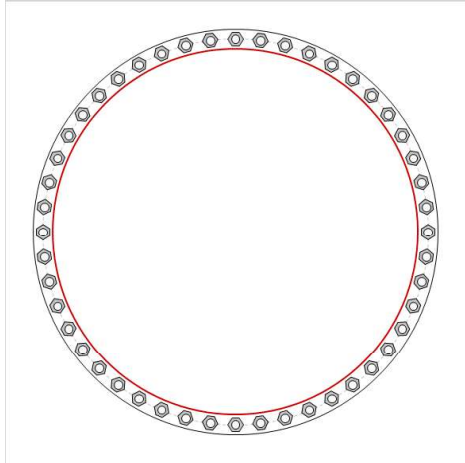


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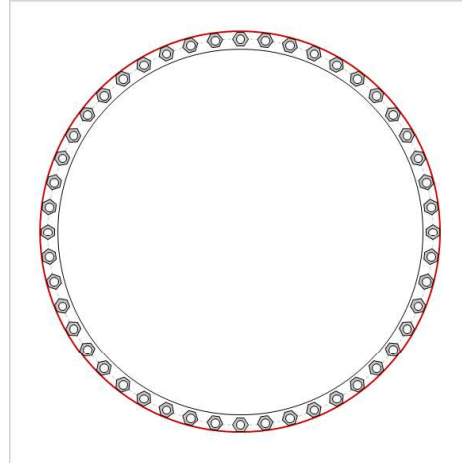
Applied Loads	
Moment (kip-ft)	2690.59
Axial Force (kips)	42.70
Shear Force (kips)	28.33

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(48) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 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)	46.30
Allowable (kips)	76.30
Stress Rating:	57.8% 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

Elevation = 40 ft.

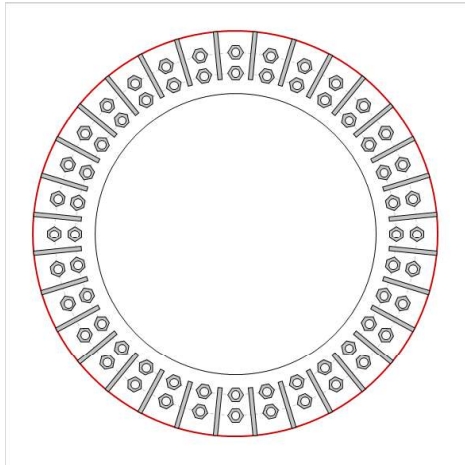


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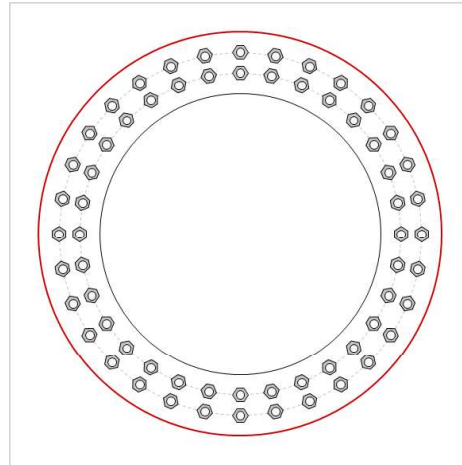
Applied Loads	
Moment (kip-ft)	3277.04
Axial Force (kips)	50.52
Shear Force (kips)	30.29

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

- GROUP 1: (32) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 47" BC
- GROUP 2: (32) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 53" BC

Top Plate Data

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

Top Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
 plate: Fy= 36 ksi ; weld: Fy= 70 ksi
 horiz. weld: 0.375" fillet
 vert. weld: 0.375" fillet

Top Pole Data

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

Bottom Plate Data

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

Bottom Stiffener Data

(32) "H x "W x "T, Notch: "
 plate: Fy= ksi ; weld: Fy= ksi
 horiz. weld: FALSE
 vert. weld: " fillet

Bottom Pole Data

60" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	51.12
Allowable (kips)	76.31
Stress Rating:	63.8% Pass

Top Plate Capacity

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

Top Stiffener Capacity

Horizontal Weld:	Pirod OK
Vertical Weld:	Pirod OK
Plate Flexure+Shear:	Pirod OK
Plate Tension+Shear:	Pirod OK
Plate Compression:	Pirod OK

Top Pole Capacity

Punching Shear:	Pirod OK
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Bottom Plate Capacity

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

Bottom Stiffener Capacity

Horizontal Weld:	Pirod OK
Vertical Weld:	Pirod OK
Plate Flexure+Shear:	Pirod OK
Plate Tension+Shear:	Pirod OK
Plate Compression:	Pirod OK

Bottom Pole Capacity

Punching Shear:	Pirod OK
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Monopole Flange Plate Connection

Elevation = 20 ft.

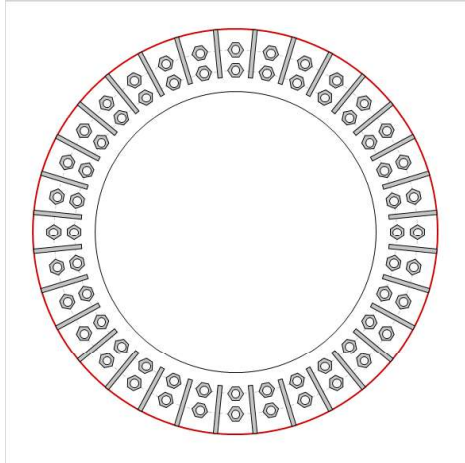


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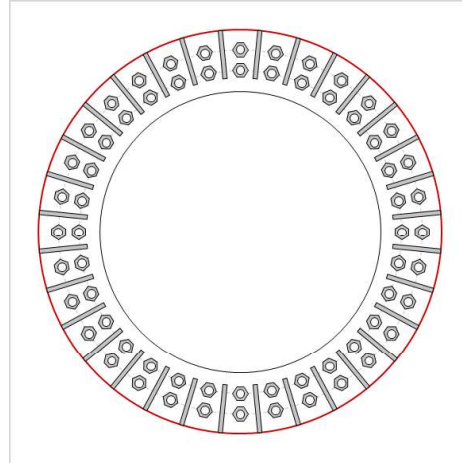
Applied Loads	
Moment (kip-ft)	3898.79
Axial Force (kips)	59.53
Shear Force (kips)	31.87

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

GROUP 1: (32) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 53" BC
 GROUP 2: (32) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 47" BC

Top Plate Data

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

Top Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
 plate: Fy= 36 ksi ; weld: Fy= 80 ksi
 horiz. weld: 0.375" fillet
 vert. weld: 0.375" fillet

Top Pole Data

60" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

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

Bottom Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
 plate: Fy= 36 ksi ; weld: Fy= 80 ksi
 horiz. weld: 0.375" fillet
 vert. weld: 0.375" fillet

Bottom Pole Data

60" x 0.625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	60.82
Allowable (kips)	76.30
Stress Rating:	75.9% Pass

Top Plate Capacity

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

Top Stiffener Capacity

Horizontal Weld:	Pirod OK
Vertical Weld:	Pirod OK
Plate Flexure+Shear:	Pirod OK
Plate Tension+Shear:	Pirod OK
Plate Compression:	Pirod OK

Top Pole Capacity

Punching Shear:	Pirod OK
-----------------	-----------------

Bottom Plate Capacity

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

Bottom Stiffener Capacity

Horizontal Weld:	Pirod OK
Vertical Weld:	Pirod OK
Plate Flexure+Shear:	Pirod OK
Plate Tension+Shear:	Pirod OK
Plate Compression:	Pirod OK

Bottom Pole Capacity

Punching Shear:	Pirod OK
-----------------	-----------------

Monopole Base Plate Connection

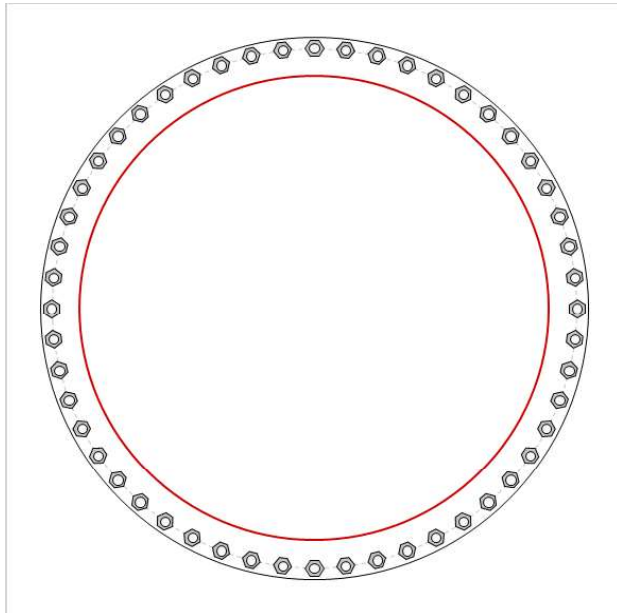


Site Info	
BU #	823529
Site Name	038/EastLyme/I-95/X
Order #	529710, Rev 0

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

Applied Loads	
Moment (kip-ft)	4550.73
Axial Force (kips)	70.20
Shear Force (kips)	33.31

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(52) 1-1/4" ϕ bolts (F1554-105 N; $F_y=105$ ksi, $F_u=125$ ksi) on 67" BC
Base Plate Data
70" OD x 1.25" Plate (A36; $F_y=36$ ksi, $F_u=58$ ksi)
Stiffener Data
N/A
Pole Data
60" x 0.625" round pole (A53-B-42; $F_y=42$ ksi, $F_u=63$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
$Pu_c = 64.04$	$\phi Pn_c = 115.97$	Stress Rating
$Vu = 0.64$	$\phi Vn = 52.19$	54.9%
$Mu = 0.73$	$\phi Mn = 30.76$	Pass
Base Plate Summary		
Max Stress (ksi):	-	
Allowable Stress (ksi):	-	
Stress Rating:	Pi rod OK	

Pier and Pad Foundation



BU # : 823529
Site Name: 1890285
App. Number: 529710, Rev 0

TIA-222 Revision: H
Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	70.21	kips
Base Shear, V_{u_comp} :	33.3	kips
Moment, M_u :	4550.73	ft-kips
Tower Height, H :	190	ft
BP Dist. Above Fdn, bp_{dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	67	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	68.35	33.30	46.4%	Pass
<i>Bearing Pressure (ksf)</i>	30.31	26.55	87.6%	Pass
<i>Overtuning (kip*ft)</i>	5610.02	4683.93	83.5%	Pass
<i>Pad Flexure (kip*ft)</i>	2664.57	768.55	27.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	559.01	194.64	33.2%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4234.65	0.00	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	87.6%
Structural Rating*:	33.2%

Pad Properties		
Depth, D :	2.75	ft
Pad Width, W :	14	ft
Pad Thickness, T :	3.75	ft
Pad Rebar Size (Bottom), Sp :	8	
Pad Rebar Quantity (Bottom), mp :	19	
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 :	150	pcf
Ultimate Net Bearing, Q_{net} :	40.000	ksf
Cohesion, C_u :	15.000	ksf
Friction Angle, ϕ :	0	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.6	
Neglected Depth, N :	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

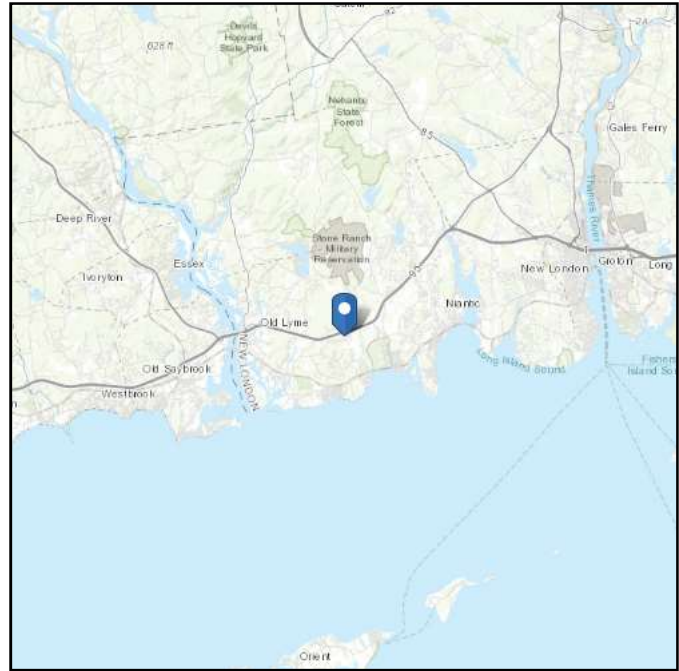
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 168.4 ft (NAVD 88)
Latitude: 41.317572
Longitude: -72.269964



Wind

Results:

Wind Speed:	133 Vmph
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	98 Vmph
100-year MRI	108 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: Tue Oct 13 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

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: Tue Oct 13 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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.



BU: 823520
 WO: 1800285
 Order: 529710

Structure: A
 Rev:

Location

	Decimal Degrees	Deg	Min	Sec
Lat:	41.317572	+ 41	19	3.26
Long:	-72.269964	- 72	16	11.87

Code and Site Parameters

Seismic Design Code:	ASCE 7-10	
Site Soil:	D	Stiff Soil (Default)
Risk Category:	II	
<u>USGS Seismic Reference</u>		
S _s :	0.1640	g
S ₁ :	0.0590	g
T _L :	6	s

Seismic Design Category Determination

Importance Factor, I _e :	1
Acceleration-based site coefficient, F _a :	1.6000
Velocity-based site coefficient, F _v :	2.4000
Design spectral response acceleration short period, S _{DS} :	0.1749 g
Design spectral response acceleration 1 s period, S _{D1} :	0.0944 g
Seismic Design Category Based on S _{DS} :	B
Seismic Design Category Based on S _{D1} :	B
Seismic Design Category Based on S ₁ :	N/A
Controlling Seismic Design Category:	B

Exhibit E

Mount Analysis

Date: October 07, 2020

Darcy Tarr
Crown Castle
6325 Ardrey Kell Road, Suite 600
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject: Mount Analysis Report

Carrier Designation: T-Mobile Equipment Change-out
Carrier Site Number: CT11038C
Carrier Site Name: CT038/EastLyme/ I-95/
X72

Crown Castle Designation: **Crown Castle BU Number:** 823529
Crown Castle Site Name: CT038/EastLyme/ I-95/
X72
Crown Castle JDE Job Number: 620139
Crown Castle Purchase Order Number: 1575292
Crown Castle Order Number: 529710 Rev. 0

Engineering Firm Designation: Paul J Ford and Company Project Number: A37520-0839.002.7190

Site Data: 38 Hatchetts Hill Road, old Lyme, New London County, CT 06371
Latitude 41.317572°, Longitude -72.269964°

Structure Information: **Tower Height & Type:** 190 Foot Monopole
Mount Elevation: 190 Foot
Mount Type: (1) 16.5 Foot Platform

Dear Darcy Tarr,

Paul J Ford and Company is pleased to submit this "Mount Analysis Report" to determine the structural integrity of the T-Mobile antenna mounting system with the 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 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:


16.5' Platform

SUFFICIENT*
*The mount has sufficient capacity once the changes, as described in Section 4.1 Recommendations of this report, are completed.

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

Mount analysis prepared by: RG

Respectfully submitted by:



Deepesh Savla, PE
Project Manager
dsavla@pauljford.com

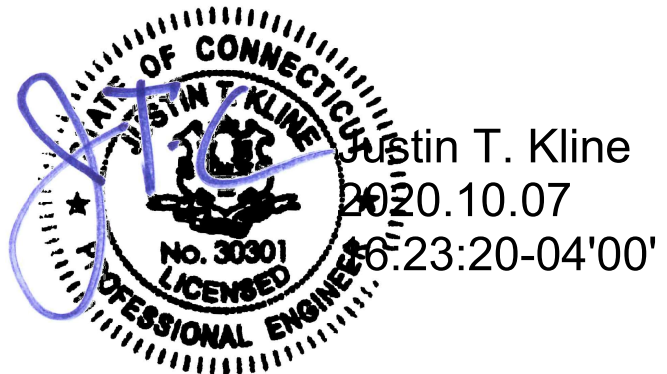


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8) APPENDIX C

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MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)

1) INTRODUCTION

The existing mount under consideration is (1) 16.5' Platform mount estimated based on photos and models of previously analyzed mounts of similar type

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.163
Seismic S1:	0.058
Maintenance Loading Wind Speed:	30 mph
Maintenance Load at Mid/End-Points, Lv:	250 lb
Maintenance Load at Mount Pipes, Lm:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
190	192	3	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	(3)-SECTOR MOUNT (16.5')
		3	RFS CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	
		3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	ERICSSON	RRUS 4415 B25	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Order	ID: 529710 Rev. 0 Dated: 9/30/2020	-	CCISites
Radio Frequency Data Sheet	RFDS ID #: CT11038C Version 8.00, Dated: 9/18/2020	-	CCISites
Photos	Dated: 1/15/2020	-	CCISites
Mount Analysis Report	Project Number: A37519-1562.003.7190 Dated: 5/03/2019	-	PJF

3.1) Analysis Method

RISA-3D (version 17.0.4), 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.

A tool internally developed, using Microsoft Excel, by Paul J. Ford and Company was used to calculate wind loading on all appurtenances, dishes, and mount members 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).

3.2) Assumptions

- 1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
- 2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
- 3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
- 4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
- 5) *Steel grades are as follows, unless noted otherwise:*
 - a) Channel, Solid Round, Angle, Plate, Unistrut ASTM A36 (GR 36)
 - b) Pipe ASTM A53 (GR 35)
 - c) HSS (Rectangular) ASTM 500 (GR B-46)
 - d) HSS (Round) ASTM 500 (GR B-42)
 - e) Threaded Rods ASTM A36 (GR 36)
 - f) Connection Bolts ASTM A325
 - g) U-Bolts SAE J429 (GR 2)
- 6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
- 7) *Mount has been modeled based on the photographs and/or the TIA inspection referenced in Table 2. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3 - Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Face Horizontals	190	40.0	Pass
1,2	Support Rails		58.1	Pass
1,2	Grating Support Members		21.9	Pass
1,2	Standoff Members		43.8	Pass
1,2	Corner Plates		36.2	Pass
1,2	Mount Pipes		74.3	Pass
1,2	Mount to Tower Connection		86.4	Pass

Mount Rating (max from all components) =	86.4%
---	--------------

Notes:

- 1) See additional documentation in "Appendix B – Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

The mount will have sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, modification listed below must be completed.

- All modifications listed below and in the previous mount analysis (Project #: 37519-1562.003.7190, dated 05/03/2019) must be completed.
 - Install a handrail kit made up of (3) P2 STD (2.38" O.D. X 0.154") pipes with total lengths match the existing boom lengths and (3) SitePro-1 AHCP Angle Handrail Corner Plate Kits or EOR Approved Equivalents. See Appendix D for details.
 - Install an additional 6-ft long, P2 STD (2.38" O.D. x 0.154") mount pipe per sector. See Appendix C for details.

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

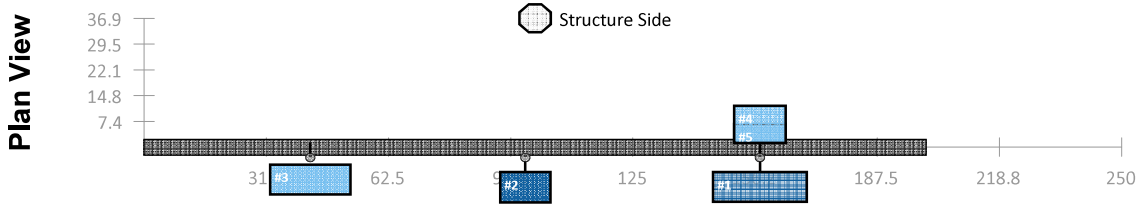
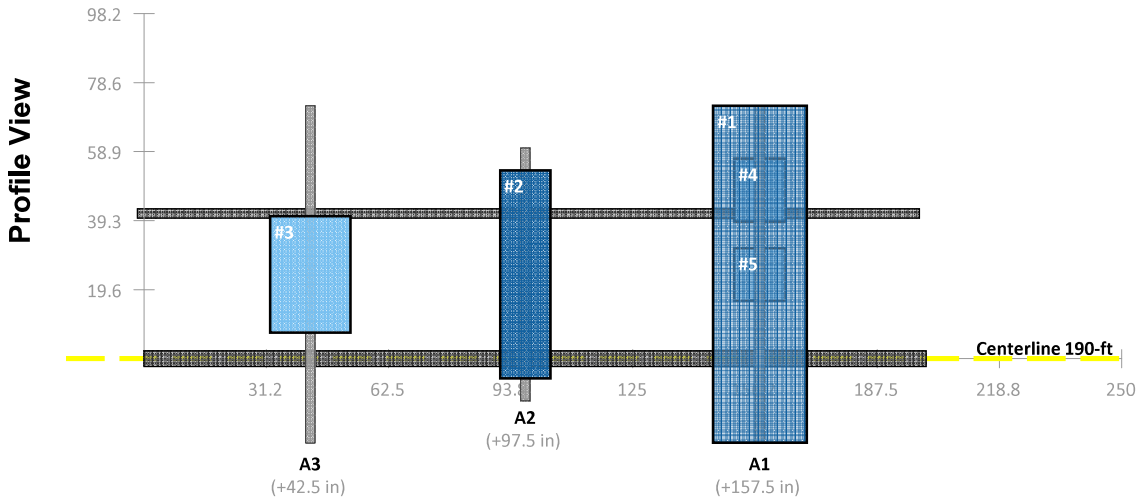
**STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING
SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY**

- 1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.
- 2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.
- 3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.
- 4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.
- 5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

APPENDIX A

SOFTWARE INPUT CALCULATION

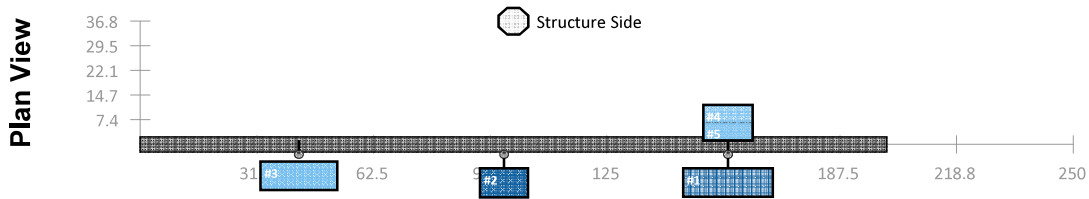
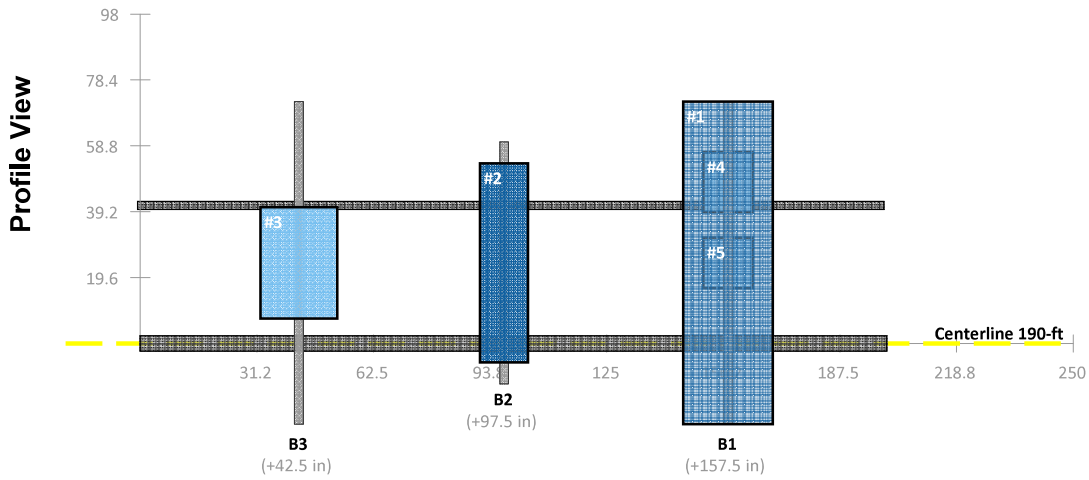
Sector A



Ref ID	Type	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Center Line (ft)	Mount Pipe	Tangential Offset (in)	Normal Offset (in)
#1	Antenna	RFS CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	192.00	A1	0.00	3.00
#2	Antenna	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.70	192.00	A2	0.00	3.00
#3	TME/RRH	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	192.00	A3	0.00	-3.00
#4	TME/RRH	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.20	10.63	194.00	A1	0.00	-3.00
#5	TME/RRH	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	192.00	A1	0.00	-3.00

1. A 6" tolerance for proposed equipment is acceptable.
2. Contractor to verify location of existing equipment prior to installation of proposed equipment. Notify for any deviations.
3. Install shall not cause harm to the structure, climbing facility, safety climb, or any system installed on the structure

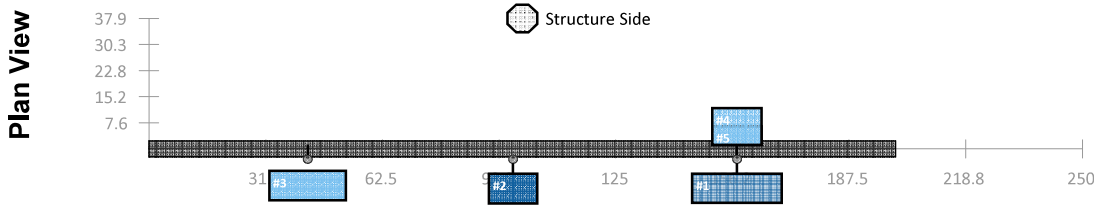
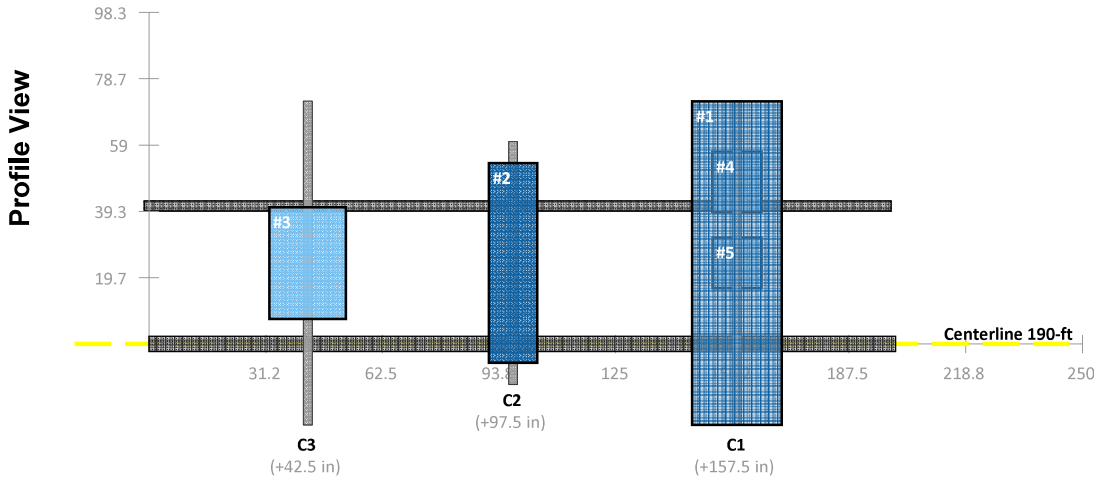
Sector B



Ref ID	Type	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Center Line (ft)	Mount Pipe	Horizontal Offset (in)	Lateral Offset (in)
#1	Antenna	RFS CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	192.00	B1	0.00	3.00
#2	Antenna	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.70	192.00	B2	0.00	3.00
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1. A 6" tolerance for proposed equipment is acceptable.
2. Contractor to verify location of existing equipment prior to installation of proposed equipment. Notify for any deviations.
3. Install shall not cause harm to the structure, climbing facility, safety climb, or any system installed on the structure

Sector C



Ref ID	Type	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Center Line (ft)	Mount Pipe	Horizontal Offset (in)	Lateral Offset (in)
#1	Antenna	RFS CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	192.00	C1	0.00	3.00
#2	Antenna	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.70	192.00	C2	0.00	3.00
#3	TME/RRH	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	192.00	C3	0.00	-3.00
#4	TME/RRH	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.20	10.63	194.00	C1	0.00	-3.00
#5	TME/RRH	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	192.00	C1	0.00	-3.00

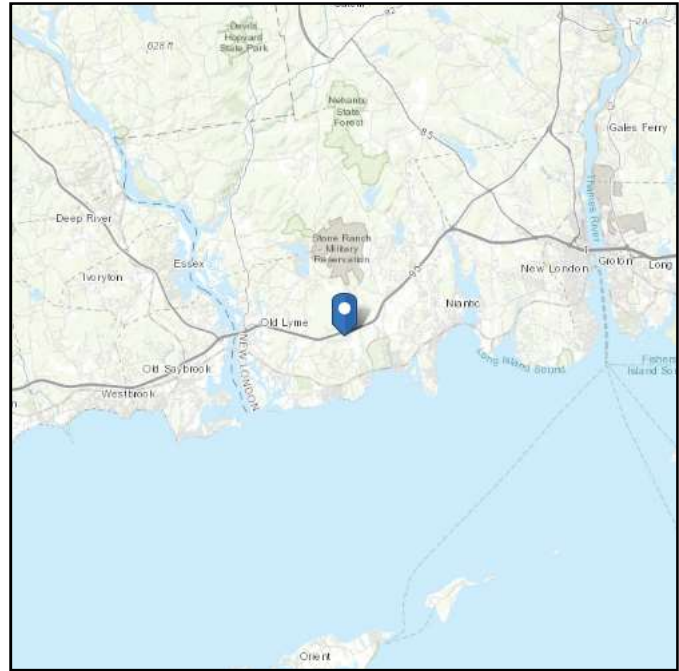
1. A 6" tolerance for proposed equipment is acceptable.
2. Contractor to verify location of existing equipment prior to installation of proposed equipment. Notify for any deviations.
3. Install shall not cause harm to the structure, climbing facility, safety climb, or any system installed on the structure

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 168.4 ft (NAVD 88)
Latitude: 41.317572
Longitude: -72.269964



Wind

Results:

Wind Speed:	133 Vmph	← 135 per jurisdiction
10-year MRI	79 Vmph	
25-year MRI	89 Vmph	
50-year MRI	98 Vmph	
100-year MRI	108 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 Apr 29 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.

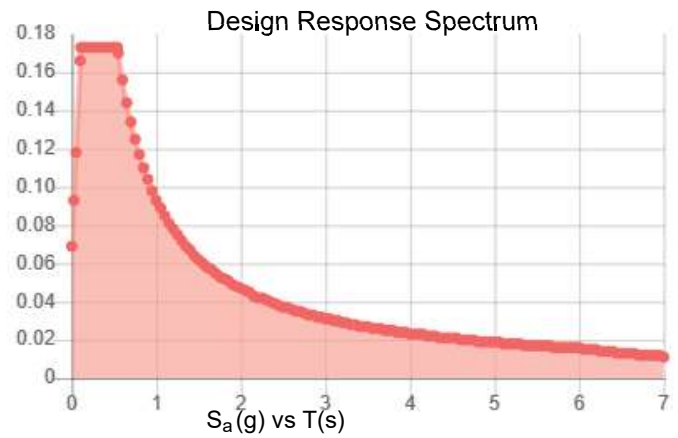
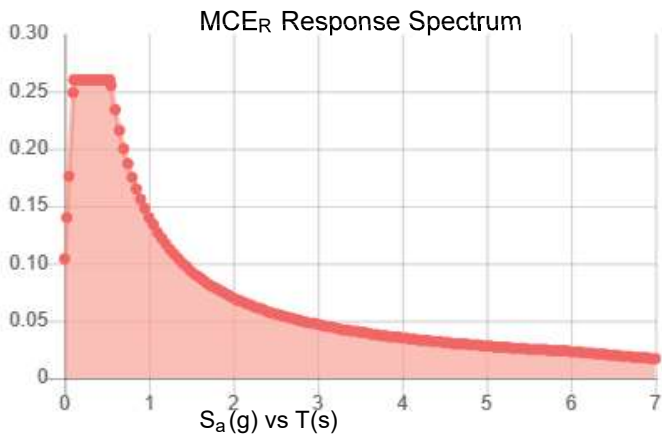
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.163	S_{DS} :	0.173
S_1 :	0.058	S_{D1} :	0.093
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.081
S_{MS} :	0.26	PGA _M :	0.13
S_{M1} :	0.14	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Apr 29 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 Apr 29 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.

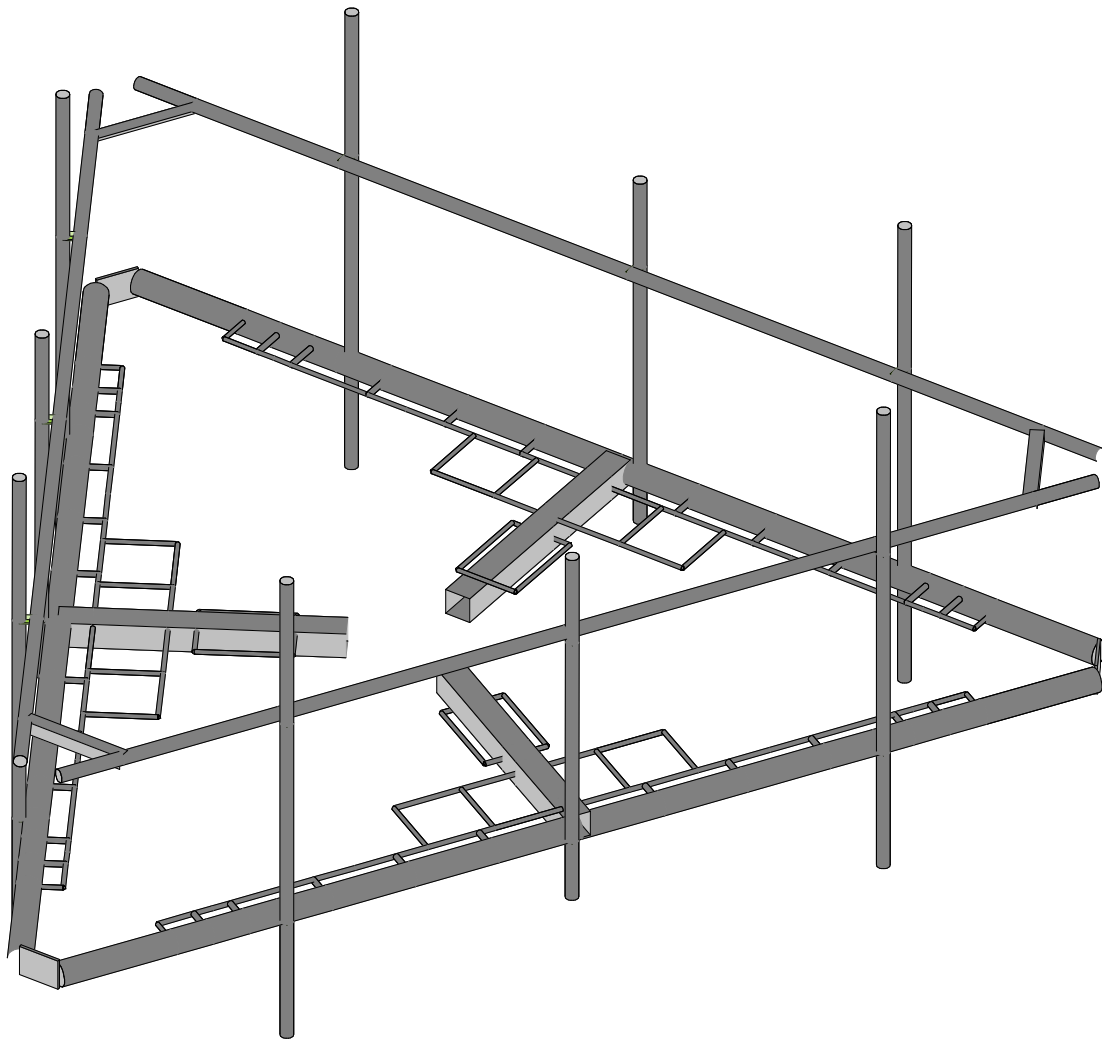
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APPENDIX B

SOFTWARE ANALYSIS OUTPUT



Envelope Only Solution

Paul J. Ford and Company

RG

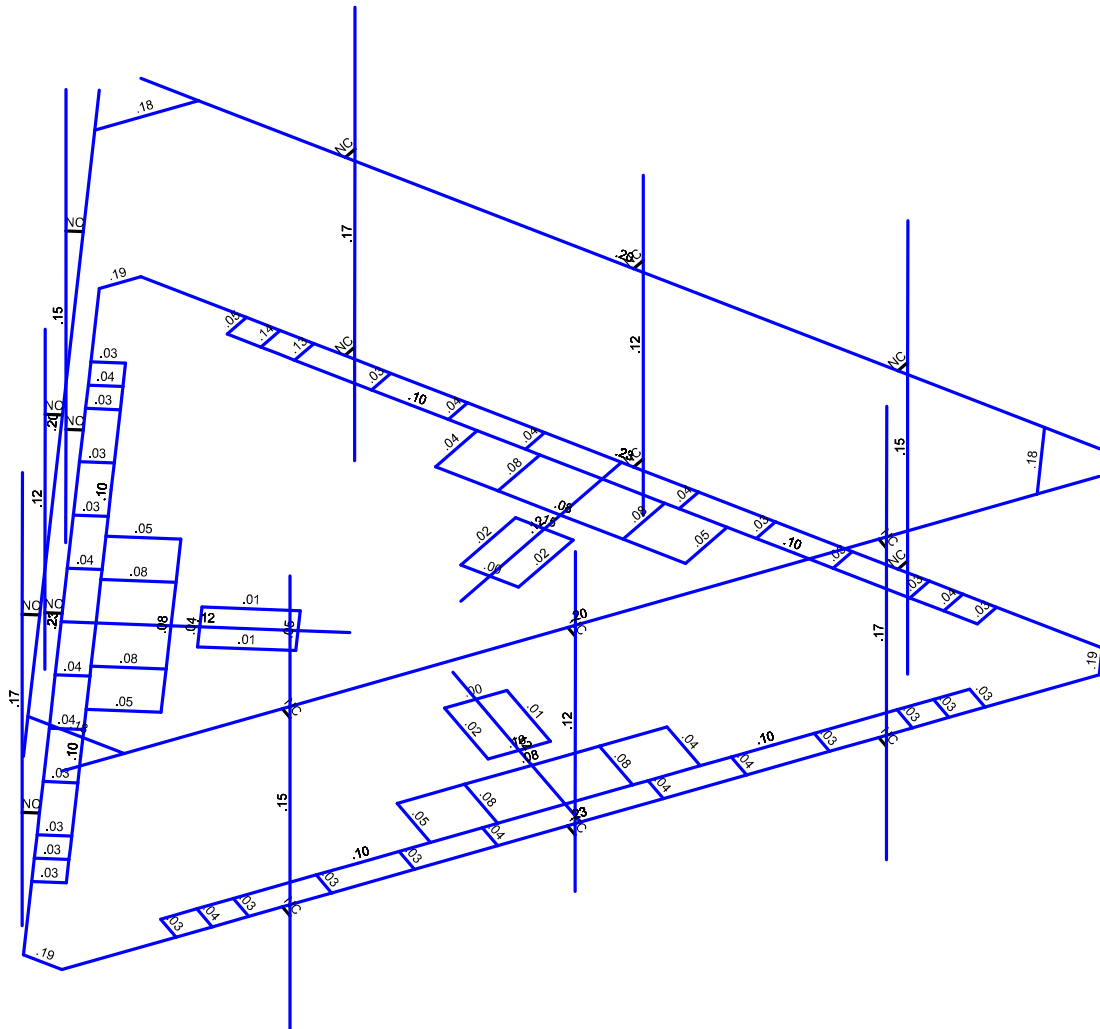
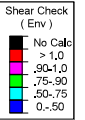
37520-0839.002.7190

823529 - CT038 EastLyme

SK - 1

Oct 7, 2020 at 5:37 PM

Risa128_Client_2020-10-07T0743...



Member Shear Checks Displayed (Enveloped)
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37520-0839.002.7190

823529 - CT038 EastLyme

SK - 3

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Risa128_Client_2020-10-07T0743...

(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?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
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 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
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	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame 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

15th



(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	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
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
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	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B (35 ksi)	29000	11154	.3	.65	.49	35	1.5	60	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	CROSSC1	N6	N1			PIPE 4.0	None	None	A53 Gr. B ...	Typical
2	F2	N1	N2			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
3	CROSSB1	N2	N3			PIPE 4.0	None	None	A53 Gr. B ...	Typical
4	F3	N3	N4			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
5	CROSSA1	N4	N5			PIPE 4.0	None	None	A53 Gr. B ...	Typical
6	F1	N5	N6			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
7	DFG	N7	N8			HSS5X5X5	None	None	A500 Gr.46	Typical
8	DFE	N9	N10			HSS5X5X5	None	None	A500 Gr.46	Typical
9	STH	N11	N12			HSS5X5X5	None	None	A500 Gr.46	Typical
10	I112	N49	N50			SR 3/4"	None	None	A36 Gr.36	Typical
11	I11	N29	N40			SR 3/4"	None	None	A36 Gr.36	Typical
12	I12	N30	N31			SR 1"	None	None	A36 Gr.36	Typical
13	I13	N32	N33			SR 1"	None	None	A36 Gr.36	Typical
14	I14	N34	N35			SR 1"	None	None	A36 Gr.36	Typical
15	I15	N36	N37			SR 1"	None	None	A36 Gr.36	Typical



Company : Paul J. Ford and Company
 Designer : RG
 Job Number : 37520-0839.002.7190
 Model Name : 823529 - CT038 EastLyme

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
16	I16	N38	N39			SR 1"	None	None	A36 Gr.36	Typical
17	HH1	N40	N256			SR 3/4"	None	None	A36 Gr.36	Typical
18	II3	N41	N42			SR 3/4"	None	None	A36 Gr.36	Typical
19	II4	N43	N48			SR 3/4"	None	None	A36 Gr.36	Typical
20	II2	N44	N45			SR 3/4"	None	None	A36 Gr.36	Typical
21	II1	N46	N47			SR 3/4"	None	None	A36 Gr.36	Typical
22	H1	N47	N48			SR 3/4"	None	None	A36 Gr.36	Typical
23	I111	N51	N52			SR 1"	None	None	A36 Gr.36	Typical
24	I110	N53	N54			SR 1"	None	None	A36 Gr.36	Typical
25	I19	N55	N56			SR 1"	None	None	A36 Gr.36	Typical
26	I18	N57	N58			SR 1"	None	None	A36 Gr.36	Typical
27	I17	N59	N60			SR 1"	None	None	A36 Gr.36	Typical
28	I212	N115	N116			SR 3/4"	None	None	A36 Gr.36	Typical
29	I21	N95	N106			SR 3/4"	None	None	A36 Gr.36	Typical
30	I22	N96	N97			SR 1"	None	None	A36 Gr.36	Typical
31	I23	N98	N99			SR 1"	None	None	A36 Gr.36	Typical
32	I24	N100	N101			SR 1"	None	None	A36 Gr.36	Typical
33	I25	N102	N103			SR 1"	None	None	A36 Gr.36	Typical
34	I26	N104	N105			SR 1"	None	None	A36 Gr.36	Typical
35	HH2	N106	N258			SR 3/4"	None	None	A36 Gr.36	Typical
36	II7	N107	N108			SR 3/4"	None	None	A36 Gr.36	Typical
37	II8	N109	N114			SR 3/4"	None	None	A36 Gr.36	Typical
38	II6	N110	N111			SR 3/4"	None	None	A36 Gr.36	Typical
39	II5	N112	N113			SR 3/4"	None	None	A36 Gr.36	Typical
40	H2	N113	N114			SR 3/4"	None	None	A36 Gr.36	Typical
41	I211	N117	N118			SR 1"	None	None	A36 Gr.36	Typical
42	I210	N119	N120			SR 1"	None	None	A36 Gr.36	Typical
43	I29	N121	N122			SR 1"	None	None	A36 Gr.36	Typical
44	I28	N123	N124			SR 1"	None	None	A36 Gr.36	Typical
45	I27	N125	N126			SR 1"	None	None	A36 Gr.36	Typical
46	I312	N181	N182			SR 3/4"	None	None	A36 Gr.36	Typical
47	I31	N161	N172			SR 3/4"	None	None	A36 Gr.36	Typical
48	I32	N162	N163			SR 1"	None	None	A36 Gr.36	Typical
49	I33	N164	N165			SR 1"	None	None	A36 Gr.36	Typical
50	I34	N166	N167			SR 1"	None	None	A36 Gr.36	Typical
51	I35	N168	N169			SR 1"	None	None	A36 Gr.36	Typical
52	I36	N170	N171			SR 1"	None	None	A36 Gr.36	Typical
53	HH3	N172	N260			SR 3/4"	None	None	A36 Gr.36	Typical
54	II11	N173	N174			SR 3/4"	None	None	A36 Gr.36	Typical
55	II12	N175	N180			SR 3/4"	None	None	A36 Gr.36	Typical
56	II10	N176	N177			SR 3/4"	None	None	A36 Gr.36	Typical
57	II9	N178	N179			SR 3/4"	None	None	A36 Gr.36	Typical
58	H3	N179	N180			SR 3/4"	None	None	A36 Gr.36	Typical
59	I311	N183	N184			SR 1"	None	None	A36 Gr.36	Typical
60	I310	N185	N186			SR 1"	None	None	A36 Gr.36	Typical
61	I39	N187	N188			SR 1"	None	None	A36 Gr.36	Typical
62	I38	N189	N190			SR 1"	None	None	A36 Gr.36	Typical
63	I37	N191	N192			SR 1"	None	None	A36 Gr.36	Typical
64	M117	N240	N241A			RIGID	None	None	RIGID	Typical
65	C1	N243A	N242A			PIPE 2.0	None	None	A53 Gr. B ...	Typical
66	M140A	N256	N50			SR 3/4"	None	None	A36 Gr.36	Typical
67	M141A	N258	N116			SR 3/4"	None	None	A36 Gr.36	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
68	M142	N260	N182			SR 3/4"	None	None	A36 Gr.36	Typical
69	M69	N135	N136			RIGID	None	None	RIGID	Typical
70	C3	N138	N137			PIPE 2.0	None	None	A53 Gr. B...	Typical
71	M71	N139	N140			RIGID	None	None	RIGID	Typical
72	B1	N142	N141			PIPE 2.0	None	None	A53 Gr. B...	Typical
73	M73	N143	N144			RIGID	None	None	RIGID	Typical
74	B3	N146	N145			PIPE 2.0	None	None	A53 Gr. B...	Typical
75	M75	N147	N148			RIGID	None	None	RIGID	Typical
76	A1	N150	N149			PIPE 2.0	None	None	A53 Gr. B...	Typical
77	M77	N151	N152			RIGID	None	None	RIGID	Typical
78	A3	N154	N153			PIPE 2.0	None	None	A53 Gr. B...	Typical
79	M79	N158	N156			SR 3/4	None	None	A36 Gr.36	Typical
80	M80	N156	N157			SR 3/4	None	None	A36 Gr.36	Typical
81	M81	N157	N159			SR 3/4	None	None	A36 Gr.36	Typical
82	M82	N159	N158			SR 3/4	None	None	A36 Gr.36	Typical
83	M83	N162A	N160			SR 3/4	None	None	A36 Gr.36	Typical
84	M84	N160	N161A			SR 3/4	None	None	A36 Gr.36	Typical
85	M85	N161A	N163A			SR 3/4	None	None	A36 Gr.36	Typical
86	M86	N163A	N162A			SR 3/4	None	None	A36 Gr.36	Typical
87	M87	N166A	N164A			SR 3/4	None	None	A36 Gr.36	Typical
88	M88	N164A	N165A			SR 3/4	None	None	A36 Gr.36	Typical
89	M89	N165A	N167A			SR 3/4	None	None	A36 Gr.36	Typical
90	M90	N167A	N166A			SR 3/4	None	None	A36 Gr.36	Typical
91	M91	N169A	N168A			PIPE 2.0	None	None	A53 Gr. B...	Typical
92	M92	N170A	N171A			RIGID	None	None	RIGID	Typical
93	M93	N172A	N173A			RIGID	None	None	RIGID	Typical
94	M94	N175A	N174A			PIPE 2.0	None	None	A53 Gr. B...	Typical
95	M95	N176A	N177A			RIGID	None	None	RIGID	Typical
96	M96	N178A	N179A			RIGID	None	None	RIGID	Typical
97	M97	N181A	N180A			PIPE 2.0	None	None	A53 Gr. B...	Typical
98	M98	N182A	N183A			RIGID	None	None	RIGID	Typical
99	M99	N184A	N185A			RIGID	None	None	RIGID	Typical
100	M100	N186A	N187A			RIGID	None	None	RIGID	Typical
101	C2	N189A	N188A			PIPE 2.0	None	None	A53 Gr. B...	Typical
102	M102	N190A	N191A			RIGID	None	None	RIGID	Typical
103	M103	N192A	N193			RIGID	None	None	RIGID	Typical
104	B2	N195	N194			PIPE 2.0	None	None	A53 Gr. B...	Typical
105	M105	N196	N197			RIGID	None	None	RIGID	Typical
106	M106	N198	N199			RIGID	None	None	RIGID	Typical
107	A2	N201	N200			PIPE 2.0	None	None	A53 Gr. B...	Typical
108	M108	N202	N203A			RIGID	None	None	RIGID	Typical
109	M109	N204	N207		180	L2.5x2.5x4	None	None	A36 Gr.36	Typical
110	M110	N206	N209		180	L2.5x2.5x4	None	None	A36 Gr.36	Typical
111	M111	N208	N205		180	L2.5x2.5x4	None	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	CROSSC1						Yes	** NA **			None
2	F2						Yes	** NA **			None
3	CROSSB1						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
4	F3						Yes	** NA **			None
5	CROSSA1						Yes	** NA **			None
6	F1						Yes	** NA **			None
7	DFG						Yes	** NA **			None
8	DFE						Yes	** NA **			None
9	STH						Yes	** NA **			None
10	I112						Yes	** NA **			None
11	I11						Yes	** NA **			None
12	I12						Yes	** NA **			None
13	I13						Yes	** NA **			None
14	I14						Yes	** NA **			None
15	I15						Yes	** NA **			None
16	I16						Yes	** NA **			None
17	HH1						Yes	** NA **			None
18	I13						Yes	** NA **			None
19	I14						Yes	** NA **			None
20	I12						Yes	** NA **			None
21	I11						Yes	** NA **			None
22	H1						Yes	** NA **			None
23	I111						Yes	** NA **			None
24	I110						Yes	** NA **			None
25	I19						Yes	** NA **			None
26	I18						Yes	** NA **			None
27	I17						Yes	** NA **			None
28	I212						Yes	** NA **			None
29	I21						Yes	** NA **			None
30	I22						Yes	** NA **			None
31	I23						Yes	** NA **			None
32	I24						Yes	** NA **			None
33	I25						Yes	** NA **			None
34	I26						Yes	** NA **			None
35	HH2						Yes	** NA **			None
36	I17						Yes	** NA **			None
37	I18						Yes	** NA **			None
38	I16						Yes	** NA **			None
39	I15						Yes	** NA **			None
40	H2						Yes	** NA **			None
41	I211						Yes	** NA **			None
42	I210						Yes	** NA **			None
43	I29						Yes	** NA **			None
44	I28						Yes	** NA **			None
45	I27						Yes	** NA **			None
46	I312						Yes	** NA **			None
47	I31						Yes	** NA **			None
48	I32						Yes	** NA **			None
49	I33						Yes	** NA **			None
50	I34						Yes	** NA **			None
51	I35						Yes	** NA **			None
52	I36						Yes	** NA **			None
53	HH3						Yes	** NA **			None
54	I111						Yes	** NA **			None
55	I112						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
56	I110						Yes	** NA **			None
57	I19						Yes	** NA **			None
58	H3						Yes	** NA **			None
59	I311						Yes	** NA **			None
60	I310						Yes	** NA **			None
61	I39						Yes	** NA **			None
62	I38						Yes	** NA **			None
63	I37						Yes	** NA **			None
64	M117						Yes	** NA **			None
65	C1						Yes	** NA **			None
66	M140A						Yes	** NA **			None
67	M141A						Yes	** NA **			None
68	M142						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	C3						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	B1						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	B3						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	A1						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	A3						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89						Yes	** NA **			None
90	M90						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	M100						Yes	** NA **			None
101	C2						Yes	** NA **			None
102	M102						Yes	** NA **			None
103	M103						Yes	** NA **			None
104	B2						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	A2						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	M110						Yes	** NA **			None
111	M111						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	CROSSC1	PIPE 4.0	200			Lbyy						Lateral
2	F2	PL 6" x 1/2"	8			Lbyy						Lateral
3	CROSSB1	PIPE 4.0	200			Lbyy						Lateral
4	F3	PL 6" x 1/2"	8			Lbyy						Lateral
5	CROSSA1	PIPE 4.0	200			Lbyy						Lateral
6	F1	PL 6" x 1/2"	8			Lbyy						Lateral
7	DFG	HSS5X5X5	50			Lbyy						Lateral
8	DFE	HSS5X5X5	50			Lbyy						Lateral
9	STH	HSS5X5X5	50			Lbyy						Lateral
10	I112	SR 3/4"	6			Lbyy						Lateral
11	I11	SR 3/4"	6			Lbyy						Lateral
12	I12	SR 1"	6			Lbyy						Lateral
13	I13	SR 1"	6			Lbyy						Lateral
14	I14	SR 1"	6			Lbyy						Lateral
15	I15	SR 1"	6			Lbyy						Lateral
16	I16	SR 1"	6			Lbyy						Lateral
17	HH1	SR 3/4"	78	16	16	Lbyy						Lateral
18	I13	SR 3/4"	13			Lbyy						Lateral
19	I14	SR 3/4"	13			Lbyy						Lateral
20	I12	SR 3/4"	13			Lbyy						Lateral
21	I11	SR 3/4"	13			Lbyy						Lateral
22	H1	SR 3/4"	52			Lbyy						Lateral
23	I111	SR 1"	6			Lbyy						Lateral
24	I110	SR 1"	6			Lbyy						Lateral
25	I19	SR 1"	6			Lbyy						Lateral
26	I18	SR 1"	6			Lbyy						Lateral
27	I17	SR 1"	6			Lbyy						Lateral
28	I212	SR 3/4"	6			Lbyy						Lateral
29	I21	SR 3/4"	6			Lbyy						Lateral
30	I22	SR 1"	6			Lbyy						Lateral
31	I23	SR 1"	6			Lbyy						Lateral
32	I24	SR 1"	6			Lbyy						Lateral
33	I25	SR 1"	6			Lbyy						Lateral
34	I26	SR 1"	6			Lbyy						Lateral
35	HH2	SR 3/4"	78	16	16	Lbyy						Lateral
36	I17	SR 3/4"	13			Lbyy						Lateral
37	I18	SR 3/4"	13			Lbyy						Lateral
38	I16	SR 3/4"	13			Lbyy						Lateral
39	I15	SR 3/4"	13			Lbyy						Lateral
40	H2	SR 3/4"	52			Lbyy						Lateral
41	I211	SR 1"	6			Lbyy						Lateral
42	I210	SR 1"	6			Lbyy						Lateral
43	I29	SR 1"	6			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
44	I28	SR 1"	6			Lbyy						Lateral
45	I27	SR 1"	6			Lbyy						Lateral
46	I312	SR 3/4"	6			Lbyy						Lateral
47	I31	SR 3/4"	6			Lbyy						Lateral
48	I32	SR 1"	6			Lbyy						Lateral
49	I33	SR 1"	6			Lbyy						Lateral
50	I34	SR 1"	6			Lbyy						Lateral
51	I35	SR 1"	6			Lbyy						Lateral
52	I36	SR 1"	6			Lbyy						Lateral
53	HH3	SR 3/4"	78	16	16	Lbyy						Lateral
54	II11	SR 3/4"	13			Lbyy						Lateral
55	II12	SR 3/4"	13			Lbyy						Lateral
56	II10	SR 3/4"	13			Lbyy						Lateral
57	II9	SR 3/4"	13			Lbyy						Lateral
58	H3	SR 3/4"	52			Lbyy						Lateral
59	I311	SR 1"	6			Lbyy						Lateral
60	I310	SR 1"	6			Lbyy						Lateral
61	I39	SR 1"	6			Lbyy						Lateral
62	I38	SR 1"	6			Lbyy						Lateral
63	I37	SR 1"	6			Lbyy						Lateral
64	C1	PIPE 2.0	96			Lbyy						Lateral
65	M140A	SR 3/4"	78	16	16	Lbyy						Lateral
66	M141A	SR 3/4"	78	16	16	Lbyy						Lateral
67	M142	SR 3/4"	78	16	16	Lbyy						Lateral
68	C3	PIPE 2.0	96			Lbyy						Lateral
69	B1	PIPE 2.0	96			Lbyy						Lateral
70	B3	PIPE 2.0	96			Lbyy						Lateral
71	A1	PIPE 2.0	96			Lbyy						Lateral
72	A3	PIPE 2.0	96			Lbyy						Lateral
73	M79	SR 3/4	12									Lateral
74	M80	SR 3/4	17									Lateral
75	M81	SR 3/4	12									Lateral
76	M82	SR 3/4	17									Lateral
77	M83	SR 3/4	12									Lateral
78	M84	SR 3/4	17									Lateral
79	M85	SR 3/4	12									Lateral
80	M86	SR 3/4	17									Lateral
81	M87	SR 3/4	12									Lateral
82	M88	SR 3/4	17									Lateral
83	M89	SR 3/4	12									Lateral
84	M90	SR 3/4	17									Lateral
85	M91	PIPE 2.0	200			Lbyy						Lateral
86	M94	PIPE 2.0	200			Lbyy						Lateral
87	M97	PIPE 2.0	200			Lbyy						Lateral
88	C2	PIPE 2.0	72			Lbyy						Lateral
89	B2	PIPE 2.0	72			Lbyy						Lateral
90	A2	PIPE 2.0	72			Lbyy						Lateral
91	M109	L2.5x2.5x4	20									Lateral
92	M110	L2.5x2.5x4	20									Lateral
93	M111	L2.5x2.5x4	20									Lateral



Basic Load Cases

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(P...
1 Dead	None		-1.1			30	6	
2 Wind 0	None					60	186	
3 Wind 30	None					60	186	
4 Wind 60	None					60	186	
5 Wind 90	None					60	186	
6 Wind 120	None					60	186	
7 Wind 150	None					60	186	
8 Ice Load	None					30	93	6
9 Ice 0	None					60	186	
10 Ice 30	None					60	186	
11 Ice 60	None					60	186	
12 Ice 90	None					60	186	
13 Ice 120	None					60	186	
14 Ice 150	None					60	186	
15 Lm1	None				1			
16 Lm2	None				1			
17 Lm3	None				1			
18 Lm4	None				1			
19 Lv1	None				1			
20 Lv2	None				1			
21 Lv3	None				1			
22 Lv4	None				1			
23 BLC 1 Transient Area...	None						170	
24 BLC 8 Transient Area...	None						170	

Load Combinations

Description	So..P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
1 1.4 D	Yes	Y	1	1.4									
2 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	2	1							
3 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	3	1							
4 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	4	1							
5 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	5	1							
6 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	6	1							
7 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	7	1							
8 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	2	-1							
9 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	3	-1							
10 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	4	-1							
11 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	5	-1							
12 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	6	-1							
13 1.2 D + 1.0 Wo...	Yes	Y	1	1.2	7	-1							
14 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	9	1					
15 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	10	1					
16 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	11	1					
17 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	12	1					
18 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	13	1					
19 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	14	1					
20 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	9	-1					
21 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	10	-1					
22 1.2 D + 1.0 Di+...	Yes	Y	1	1.2	8	1	11	-1					



Company : Paul J. Ford and Company
 Designer : RG
 Job Number : 37520-0839.002.7190
 Model Name : 823529 - CT038 EastLyme

Oct 7, 2020
 5:39 PM
 Checked By: DS

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
23	1.2 D + 1.0 Di+...	Yes	Y		1	1.2	8	1	12	-1							
24	1.2 D + 1.0 Di+...	Yes	Y		1	1.2	8	1	13	-1							
25	1.2 D + 1.0 Di+...	Yes	Y		1	1.2	8	1	14	-1							
26	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	2	.049							
27	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	3	.049							
28	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	4	.049							
29	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	5	.049							
30	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	6	.049							
31	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	7	.049							
32	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	2	.049							
33	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	3	.049							
34	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	4	.049							
35	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	5	.049							
36	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	6	.049							
37	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	15	1.5	7	.049							
38	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	2	.049							
39	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	3	.049							
40	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	4	.049							
41	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	5	.049							
42	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	6	.049							
43	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	7	.049							
44	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	2	.049							
45	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	3	.049							
46	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	4	.049							
47	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	5	.049							
48	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	6	.049							
49	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	16	1.5	7	.049							
50	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	2	.049							
51	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	3	.049							
52	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	4	.049							
53	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	5	.049							
54	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	6	.049							
55	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	7	.049							
56	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	2	.049							
57	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	3	.049							
58	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	4	.049							
59	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	5	.049							
60	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	6	.049							
61	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	17	1.5	7	.049							
62	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	2	.049							
63	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	3	.049							
64	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	4	.049							
65	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	5	.049							
66	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	6	.049							
67	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	7	.049							
68	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	2	-.049							
69	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	3	-.049							
70	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	4	-.049							
71	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	5	-.049							
72	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	6	-.049							
73	1.2 D + 1.5 Lm...	Yes	Y		1	1.2	18	1.5	7	-.049							
74	1.2 D + 1.5 Lv1	Yes	Y		1	1.2	19	1.5									

Load Combinations (Continued)

Description	So...P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
75	1.2 D + 1.5 Lv2	Yes Y	1	1.2	20	1.5							
76	1.2 D + 1.5 Lv3	Yes Y	1	1.2	21	1.5							
77	1.2 D + 1.5 Lv4	Yes Y	1	1.2	22	1.5							
78	1.0 D	Yes Y	1	1									

Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear Check	Loc[. Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...Cb	Eqn
1	C2	PIPE 2.0	.782	12	12	.125	12	6 20866...	32130	1.872	1.872	1... H1-1b
2	B2	PIPE 2.0	.782	12	8	.125	12	2 20866...	32130	1.872	1.872	1... H1-1b
3	A2	PIPE 2.0	.782	12	4	.125	12	10 20866...	32130	1.872	1.872	1... H1-1b
4	B3	PIPE 2.0	.749	24	13	.154	24	2 14916...	32130	1.872	1.872	1... H1-1b
5	C3	PIPE 2.0	.748	24	5	.154	24	6 14916...	32130	1.872	1.872	2... H1-1b
6	A3	PIPE 2.0	.748	24	9	.154	24	10 14916...	32130	1.872	1.872	1... H1-1b
7	C1	PIPE 2.0	.652	66	11	.174	66	6 14916...	32130	1.872	1.872	1... H1-1b
8	A1	PIPE 2.0	.644	24	4	.174	66	10 14916...	32130	1.872	1.872	1... H1-1b
9	B1	PIPE 2.0	.644	24	8	.174	66	2 14916...	32130	1.872	1.872	1... H1-1b
10	M91	PIPE 2.0	.607	156.25	11	.198	187.5	6 3541.175	32130	1.872	1.872	1... H1-1b
11	M94	PIPE 2.0	.607	156.25	7	.198	187.5	2 3541.175	32130	1.872	1.872	1... H1-1b
12	M97	PIPE 2.0	.607	156.25	3	.198	187.5	10 3541.175	32130	1.872	1.872	1... H1-1b
13	DFG	HSS5X5X5	.460	50	17	.124	50	z 4 207858...	217764	31.602	31.602	1... H1-1b
14	STH	HSS5X5X5	.458	50	21	.124	50	z 8 207858...	217764	31.602	31.602	1... H1-1b
15	DFE	HSS5X5X5	.458	50	25	.124	50	z 12 207858...	217764	31.602	31.602	1... H1-1b
16	CROSSC1	PIPE 4.0	.427	100	18	.234	100	13 38344...	93240	10.631	10.631	1... H1-1b
17	I310	SR 1"	.425	0	56	.134	0	59 24686.84	25446...	.424	.424	1... H1-1b
18	CROSSA1	PIPE 4.0	.425	100	22	.234	100	5 38344...	93240	10.631	10.631	1... H1-1b
19	CROSSB1	PIPE 4.0	.425	100	14	.234	100	9 38344...	93240	10.631	10.631	1... H1-1b
20	I311	SR 1"	.412	0	56	.144	0	56 24686.84	25446...	.424	.424	1... H1-1b
21	M142	SR 3/4"	.411	67.437	56	.103	31.6...	24 9756.123	14313...	.179	.179	1 H1-1b
22	M111	L2.5x2.5x4	.382	20	10	.185	20	y 5 35215...	38556	1.114	2.537	1... H2-1
23	M110	L2.5x2.5x4	.382	20	2	.185	20	y 9 35215...	38556	1.114	2.537	1... H2-1
24	M109	L2.5x2.5x4	.382	20	6	.185	20	y 13 35215...	38556	1.114	2.537	1... H2-1
25	H2	SR 3/4"	.308	26	23	.078	26	22 1297.659	14313...	.179	.179	1... H1-1b
26	H3	SR 3/4"	.306	26	19	.077	26	18 1297.659	14313...	.179	.179	1... H1-1b
27	H1	SR 3/4"	.304	26	15	.077	26	14 1297.659	14313...	.179	.179	1... H1-1b
28	I32	SR 1"	.284	0	2	.036	6	8 24686.84	25446...	.424	.424	1... H1-1b
29	I22	SR 1"	.284	0	6	.036	6	12 24686.84	25446...	.424	.424	2... H1-1b
30	I12	SR 1"	.283	0	10	.036	6	4 24686.84	25446...	.424	.424	1... H1-1b
31	I18	SR 1"	.281	0	12	.038	6	6 24686.84	25446...	.424	.424	1... H1-1b
32	I28	SR 1"	.281	0	8	.038	6	2 24686.84	25446...	.424	.424	1... H1-1b
33	I38	SR 1"	.281	0	4	.038	6	10 24686.84	25446...	.424	.424	1... H1-1b
34	I211	SR 1"	.273	0	12	.034	6	12 24686.84	25446...	.424	.424	2... H1-1b
35	I111	SR 1"	.273	0	4	.034	6	4 24686.84	25446...	.424	.424	1... H1-1b
36	I31	SR 3/4"	.268	0	2	.026	6	2 13562...	14313...	.179	.179	1... H1-1b
37	I21	SR 3/4"	.268	0	6	.026	6	6 13562...	14313...	.179	.179	1... H1-1b
38	I11	SR 3/4"	.268	0	10	.026	6	10 13562...	14313...	.179	.179	1... H1-1b
39	I19	SR 1"	.267	0	11	.032	6	12 24686.84	25446...	.424	.424	1... H1-1b
40	I29	SR 1"	.267	0	7	.031	6	8 24686.84	25446...	.424	.424	1... H1-1b
41	I39	SR 1"	.266	0	3	.032	6	4 24686.84	25446...	.424	.424	1... H1-1b
42	I212	SR 3/4"	.257	0	12	.025	6	12 13562...	14313...	.179	.179	1... H1-1b
43	I312	SR 3/4"	.257	0	8	.050	0	61 13562...	14313...	.179	.179	1... H1-1b



Company : Paul J. Ford and Company
 Designer : RG
 Job Number : 37520-0839.002.7190
 Model Name : 823529 - CT038 EastLyme

Oct 7, 2020
 5:39 PM
 Checked By: DS

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

Member	Shape	Code ...	Loc[in]	LC	Shear Check	Loc[.Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn	
44	I112	SR 3/4"	.257	0	4	.025	6	4	13562....	14313....	.179	.179	1...H1-1b	
45	I33	SR 1"	.245	0	8	.030	6	2	24686.84	25446....	.424	.424	1...H1-1b	
46	I23	SR 1"	.245	0	12	.029	6	6	24686.84	25446....	.424	.424	1...H1-1b	
47	I13	SR 1"	.245	0	4	.030	6	10	24686.84	25446....	.424	.424	1...H1-1b	
48	I210	SR 1"	.243	0	13	.028	6	13	24686.84	25446....	.424	.424	1...H1-1b	
49	I110	SR 1"	.242	0	5	.030	6	5	24686.84	25446....	.424	.424	1...H1-1b	
50	HH3	SR 3/4"	.233	13.813	8	.097	46.3...	22	9756.123	14313....	.179	.179	2...H1-1b	
51	HH2	SR 3/4"	.233	13.812	12	.101	46.3...	14	9756.123	14313....	.179	.179	2...H1-1b	
52	HH1	SR 3/4"	.233	13.813	4	.100	46.3...	18	9756.123	14313....	.179	.179	2...H1-1b	
53	M141A	SR 3/4"	.224	64.187	6	.103	31.6...	16	9756.123	14313....	.179	.179	2...H1-1b	
54	M140A	SR 3/4"	.223	64.187	10	.104	31.6...	20	9756.123	14313....	.179	.179	2...H1-1b	
55	I34	SR 1"	.223	0	7	.026	6	6	24686.84	25446....	.424	.424	1...H1-1b	
56	I14	SR 1"	.223	0	3	.026	6	2	24686.84	25446....	.424	.424	1...H1-1b	
57	I24	SR 1"	.222	0	11	.026	6	10	24686.84	25446....	.424	.424	1...H1-1b	
58	I15	SR 1"	.208	0	2	.028	6	8	24686.84	25446....	.424	.424	1...H1-1b	
59	I35	SR 1"	.208	0	6	.028	6	12	24686.84	25446....	.424	.424	1...H1-1b	
60	I25	SR 1"	.208	0	10	.029	6	4	24686.84	25446....	.424	.424	1...H1-1b	
61	I37	SR 1"	.196	0	4	.038	6	4	24686.84	25446....	.424	.424	1...H1-1b	
62	I17	SR 1"	.196	0	12	.038	0	24	24686.84	25446....	.424	.424	1...H1-1b	
63	I27	SR 1"	.196	0	8	.038	6	8	24686.84	25446....	.424	.424	1...H1-1b	
64	II4	SR 3/4"	.174	0	11	.046	0	25	11113....	14313....	.179	.179	2...H1-1b	
65	II8	SR 3/4"	.174	0	7	.044	0	21	11113....	14313....	.179	.179	2...H1-1b	
66	II12	SR 3/4"	.174	0	3	.043	0	17	11113....	14313....	.179	.179	2...H1-1b	
67	F3	PL 6" x 1/2"	.155	0	9	.186	8	y	10	82791....	97200	1.012	12.15	1...H1-1b
68	F1	PL 6" x 1/2"	.155	0	5	.186	8	y	6	82791....	97200	1.012	12.15	1...H1-1b
69	F2	PL 6" x 1/2"	.155	0	13	.187	8	y	2	82791....	97200	1.012	12.15	1...H1-1b
70	II5	SR 3/4"	.139	0	11	.045	0	21	11113....	14313....	.179	.179	2...H1-1b	
71	II1	SR 3/4"	.139	0	3	.047	0	25	11113....	14313....	.179	.179	2...H1-1b	
72	II9	SR 3/4"	.138	0	7	.045	0	17	11113....	14313....	.179	.179	2...H1-1b	
73	I26	SR 1"	.135	0	10	.040	0	21	24686.84	25446....	.424	.424	1...H1-1b	
74	I16	SR 1"	.135	0	2	.040	0	25	24686.84	25446....	.424	.424	1...H1-1b	
75	I36	SR 1"	.135	0	6	.039	0	17	24686.84	25446....	.424	.424	1...H1-1b	
76	II7	SR 3/4"	.121	13	7	.077	0	20	11113....	14313....	.179	.179	2...H1-1b	
77	II11	SR 3/4"	.121	13	3	.077	0	16	11113....	14313....	.179	.179	2...H1-1b	
78	II3	SR 3/4"	.121	13	11	.078	0	24	11113....	14313....	.179	.179	2...H1-1b	
79	M86	SR 3/4	.117	17	24	.015	17	18	9285.75	14313....	.179	.179	2...H1-1b	
80	M84	SR 3/4	.114	0	18	.019	0	24	9285.75	14313....	.179	.179	2...H1-1b	
81	M90	SR 3/4	.109	17	20	.017	17	14	9285.75	14313....	.179	.179	2...H1-1b	
82	M88	SR 3/4	.109	0	14	.017	0	20	9285.75	14313....	.179	.179	2...H1-1b	
83	II10	SR 3/4"	.092	13	7	.079	0	18	11113....	14313....	.179	.179	2...H1-1b	
84	II6	SR 3/4"	.092	13	11	.081	0	22	11113....	14313....	.179	.179	2...H1-1b	
85	II2	SR 3/4"	.092	13	3	.081	0	14	11113....	14313....	.179	.179	2...H1-1b	
86	M83	SR 3/4	.083	6	17	.161	6	16	11537....	14313....	.179	.179	1...H1-1b	
87	M87	SR 3/4	.083	6	25	.150	6	21	11537....	14313....	.179	.179	1...H1-1b	
88	M81	SR 3/4	.070	6	4	.055	6	18	11537....	14313....	.179	.179	1...H1-1b	
89	M79	SR 3/4	.064	6	4	.041	6	18	11537....	14313....	.179	.179	1...H1-1b	
90	M82	SR 3/4	.039	0	18	.010	0	4	9285.75	14313....	.179	.179	2...H1-1b	
91	M80	SR 3/4	.037	17	20	.010	17	10	9285.75	14313....	.179	.179	2...H1-1b	
92	M85	SR 3/4	.013	0	24	.002	0	24	11537....	14313....	.179	.179	1...H1-1b	
93	M89	SR 3/4	.011	12	14	.001	12	20	11537....	14313....	.179	.179	1...H1-1b	

MOUNT TO TOWER CONNECTION CHECKS-LRFD

TIA Rev.	H-15.5	AISC	15th
Mount Type	3-Sector	Checks	Bolts & Welds

REACTIONS FROM RISA-3D

NODE	LC	Horizontal Shear (k)	Vertical Shear (k)	Axial along member(k)	Moment about horizontal axis (ft-k)	Moment about Vertical axis (ft-k)	Torque (ft-k)
N12	envelope	2.40	3.57	1.52	13.60	6.66	2.23

Bolt Information	Type	Dia (in)	Quantity	Vertical Bolt spacing (D) (in)	Horizontal Bolt spacing (B) (in)
	A325N	0.625	4	7	7

CHECKS	Forces	Strength	Rating
TENSION (K)	17.75	20.7	85.7%
	Reduced Tensile Rating		-
SHEAR (k)	2.42	12.4	19.5%

Note: Tension reduction not required if tension or shear capacity < 30%

Standoff Member	Type	Width (b) (in)	Depth (d) (in)	thickness (in)	Weld Size	Weld Assumed?	Stiffeners present
	Rectangle	5	5	0.25	0.25	yes	No

WELDS CHECKS	Resultant (k)	Strength (k)	Rating
	5.05	5.57	90.7%

Controlling Rating per TIA-222-H Section 15.5:	86.4%
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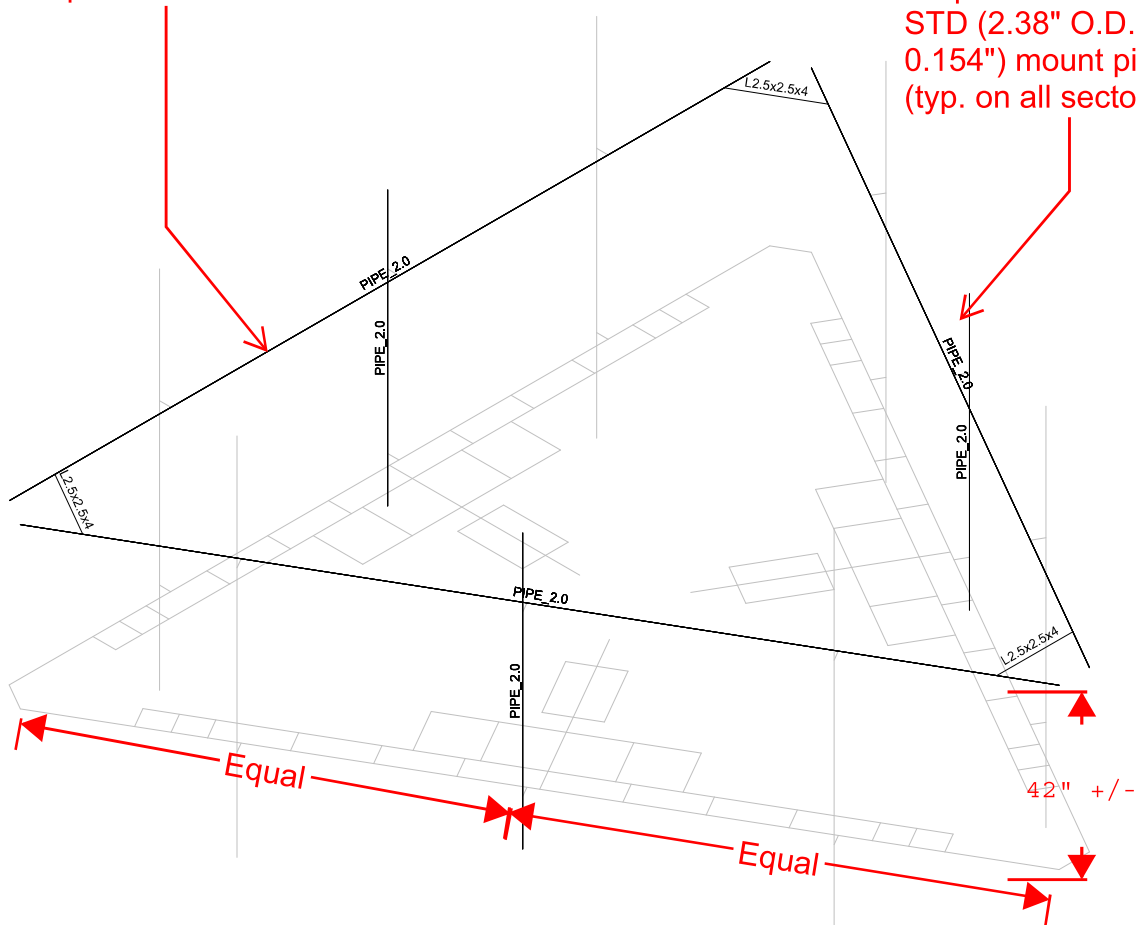
APPENDIX C

SUPPLEMENTAL MODIFICATION INFORMATION



Proposed handrail kit made up of (3) P2 STD (2.38" O.D. x 0.154") with total lengths matching the existing boom length and (3) SitePro-1 AHCP Angle Handrail Corner Plate Kits or EOR Approved Equivalents

Proposed 6-ft long, P2 STD (2.38" O.D. x 0.154") mount pipe (typ. on all sectors)



Envelope Only Solution

Paul J. Ford and Company

RG

37520-0839.002.7190

823529 - CT038 EastLyme

SK - 4

Oct 7, 2020 at 6:15 PM

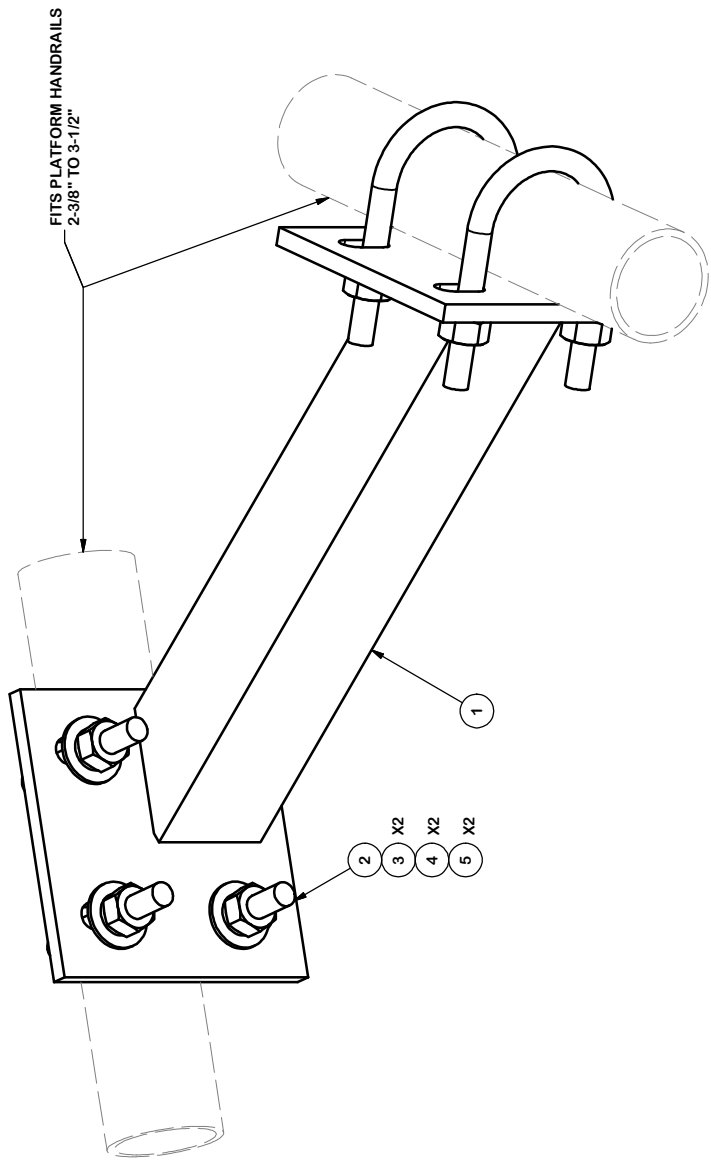
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APPENDIX D

MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	12.92
2	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	2.93
2	4	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	2.93
2	4	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.73	2.93
3	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
4	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57



TOLERANCE NOTES

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

PROPRIETARY NOTE: DIMENSIONS CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 ANGLE HANDRAIL
 CORNER PLATE KIT

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK	5/13/2014	AHCP
CLASS	DRAWING USAGE	CHECKED BY	DWG. NO.
81	CUSTOMER	BMC	AHCP
SUB			
01			



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

Engineering
 Support Team:
 1-888-753-7446

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CT11038C

CT038/EastLyme/ I-95/ X72
38 Hatchetts Hill Road
Old Lyme, Connecticut 06371

November 3, 2020

EBI Project Number: 6220005729

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	12.55%

November 3, 2020

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

Emissions Analysis for Site: CT11038C - CT038/EastLyme/ I-95/ X72

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **38 Hatchetts Hill Road** in **Old Lyme, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 38 Hatchetts Hill Road in Old Lyme, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

- 6) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 13) The antenna mounting height centerline of the proposed antennas is 192 feet above ground level (AGL).
- 14) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 15) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	192 feet	Height (AGL):	192 feet	Height (AGL):	192 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	10,465.36	ERP (W):	10,465.36	ERP (W):	10,465.36
Antenna A1 MPE %:	1.58%	Antenna B1 MPE %:	1.58%	Antenna C1 MPE %:	1.58%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	192 feet	Height (AGL):	192 feet	Height (AGL):	192 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A2 MPE %:	2.50%	Antenna B2 MPE %:	2.50%	Antenna C2 MPE %:	2.50%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	192 feet	Height (AGL):	192 feet	Height (AGL):	192 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A3 MPE %:	1.25%	Antenna B3 MPE %:	1.25%	Antenna C3 MPE %:	1.25%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	5.33%
AT&T	0.94%
Verizon	6.28%
Site Total MPE % :	12.55%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	5.33%
T-Mobile Sector B Total:	5.33%
T-Mobile Sector C Total:	5.33%
Site Total MPE % :	12.55%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	192.0	1.15	600 MHz LTE	400	0.29%
T-Mobile 600 MHz NR	1	1577.94	192.0	1.54	600 MHz NR	400	0.38%
T-Mobile 700 MHz LTE	2	695.22	192.0	1.36	700 MHz LTE	467	0.29%
T-Mobile 1900 MHz UMTS	2	1052.26	192.0	2.05	1900 MHz UMTS	1000	0.21%
T-Mobile 1900 MHz LTE	2	2104.51	192.0	4.10	1900 MHz LTE	1000	0.41%
T-Mobile 2500 MHz LTE	2	6412.98	192.0	12.51	2500 MHz LTE	1000	1.25%
T-Mobile 2500 MHz NR	2	6412.98	192.0	12.51	2500 MHz NR	1000	1.25%
T-Mobile 1900 MHz GSM	4	1028.30	192.0	4.01	1900 MHz GSM	1000	0.40%
T-Mobile 1900 MHz LTE	2	2056.61	192.0	4.01	1900 MHz LTE	1000	0.40%
T-Mobile 2100 MHz LTE	2	2307.55	192.0	4.50	2100 MHz LTE	1000	0.45%
						Total:	5.33%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	5.33%
Sector B:	5.33%
Sector C:	5.33%
T-Mobile Maximum MPE % (Sector A):	5.33%
Site Total:	12.55%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **12.55%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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