



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

February 26, 2018

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

RE: Request of T-Mobile for an Order to Approve the Shared Use of an Existing Tower at 151 Young Street, East Hampton, CT 06424

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes (“C.G.S.”) §16-50aa, as amended, T-Mobile Northeast LLC (“T-Mobile”) hereby requests an order from the Connecticut Siting Council (“Council”) to approve the shared use by T-Mobile of an existing telecommunication tower at 151 Young Street, East Hampton, Connecticut (the “Property”). The existing 140-foot monopole is owned by Crown Castle International Corp. (“Crown Castle”), the underlying property is owned by Kevin and Kim Kiely. T-Mobile requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being mailed to Town Manager Michael Maniscalco and Planning & Zoning Official Jeremy DeCarli.

Background

The existing Crown Castle facility consists of a 140-foot monopole tower on a 10,000 square foot parcel along the northwest side of Young Street. AT&T maintains antennas at the 118-foot level. Equipment associated with the AT&T antennas is located south of the tower. Verizon maintains antennas at the 139-foot level. Equipment associated with the Verizon antennas is located north of the tower.

T-Mobile is licensed by the Federal Communications Commission (“FCC”) to provide wireless services throughout the State of Connecticut. T-Mobile and Crown Castle have agreed to the proposed shared use of the Young Street tower pursuant to mutually acceptable terms and conditions. Likewise, T-Mobile and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the southeast side of the tower. Crown Castle has authorized T-Mobile to apply for all necessary permits and approvals that may be required to share the existing tower. (See Owner’s authorization letter).

T-Mobile proposes to install twelve (12) antennas at a height of 130 feet above ground level. T-Mobile will also install four (4) hybrid fiber cables, twelve (12) RRHs, six (6) diplexers, one (1) GPS dish with corresponding line, and one (1) MW dish with corresponding line. Propose equipment on the ground, four cabinets, one (1) APU generator that will go on a proposed 8' x 13' pad. There will be a 3 x 3' pad for the propane tank with a 79 sq. ft. lease area that goes around the pad, which will represent the 5' safety

The Foundation for a Wireless World.

CrownCastle.com

clearance/spark zone. Included in the Construction Drawings are T-Mobile's project specifications for locations of all proposed site improvements.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." T-Mobile respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Crown Castle tower is structurally capable of supporting T-Mobile's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support T-Mobile's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of twelve (12) antennas, twelve (12) RRHs, six (6) diplexers, and one (1) GPS dish at a height of 130 feet above ground level, would have no visual impact on the area of the tower. T-Mobile's cabinets, generator and propane tank will be installed within the facility compound. T-Mobile's shared use of this tower therefore, does not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of T-Mobile's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that T-Mobile's proposed facility will operate well within the FCC RF emissions safety standards.
3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or

discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

- D. Economic Feasibility.** As previously mentioned, T-Mobile has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)
- E. Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting T-Mobile's full array of twelve (12) antennas, twelve (12) RRHs, six (6) diplexers, one (1) GPS dish and all related equipment. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 151 Young Street satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

Amanda Cornwall
Real Estate Specialist
12 Gill Street, Suite 5800,
Woburn, MA 01801
339-205-7017
Amanda.Cornwall@crowncastle.com

Attachments:

- Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

Melanie A. Bachman

February 26, 2018

Page 4

Copies to:

Michael Maniscalca-Town Manager
20 East High Street
East Hampton, CT 06424

Jeremy DeCarli- Planning & Zoning Official
20 East High Street
East Hampton, CT 06424

Crown Castle (Tower Owner)
12 Gill Street, Suite 5800
Worburn, MA 01801

Kevin and Kim Kiely
151 Young Street
East Hampton, CT 06424

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Crown Castle
Amanda Cornwall
Suite 5800
12 Gill St
Woburn, MA US 01801
339 205-7017

Town of East Hampton
Michael Maniscalca-Town
Manager
20 East High Street
EAST HAMPTON, CT US
06424
860 267-4468

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Crown Castle
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Suite 5800
12 Gill St
Woburn, MA US 01801
339 205-7017

Town of East Hampton
Jeremy DeCarli- Planning & Zoning O
20 East High Street
EAST HAMPTON, CT US 06424
860 267-9601

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 Amanda Cornwall
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 339 205-7017

Kevin and Kim Kiely
 151 Young Street
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DOCKET NO. 253 - AT&T Wireless PCS, LLC d/b/a AT&T	}	Connecticut
Wireless application for a Certificate of Environmental	}	Siting
Compatibility and Public Need for the construction, maintenance	}	Council
and operation of a wireless telecommunications facility at 151	}	
Young Street or 162 Young Street, East Hampton, Connecticut.	}	
		October 29, 2003

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site A, 151 Young Street, East Hampton, Connecticut. The Council denies certification of Site B, 162 Young Street, East Hampton, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level.
2. The tower foundation shall be of sufficient capacity to support a monopole extension to 150 feet above ground level.
3. Panel antennas shall be installed on the monopole using a flush mount or T-arm mount design.
4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, and landscaping;
 - b) specifications for the tower, tower foundation, antennas, equipment building, and security fence; and
 - c) construction plans for site clearing, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
 - d) visual simulations of the monopole and appropriate monopole stealth options including a flagpole and tree tower design.

5. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
8. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
9. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and ceases to function.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

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

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

The parties and intervenors to this proceeding are:

Applicant

AT&T Wireless PCS, LLC
d/b/a AT&T Wireless

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, New York 10601
(914) 761-1300

151 YOUNG ST

Location 151 YOUNG ST

Mblu 13/ 32/ 7/ 1/

Acct# R02394

Owner KIELY KEVIN G + KIM S

Assessment \$353,910

Appraisal \$505,570

PID 2270

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$414,610	\$90,960	\$505,570

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$290,230	\$63,680	\$353,910

Owner of Record

Owner KIELY KEVIN G + KIM S

Sale Price \$0

Co-Owner

Certificate

Address 151 YOUNG ST

Book & Page 150/ 331

EAST HAMPTON, CT 06424

Sale Date 08/27/1980

Instrument 29

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
KIELY KEVIN G + KIM S	\$0		150/ 331	29	08/27/1980

Building Information

Building 1 : Section 1

Year Built: 1710

Living Area: 3,704

Replacement Cost: \$376,914

Building Percent 84

Good:

Replacement Cost

Less Depreciation: \$316,610

Building Attributes	
Field	Description

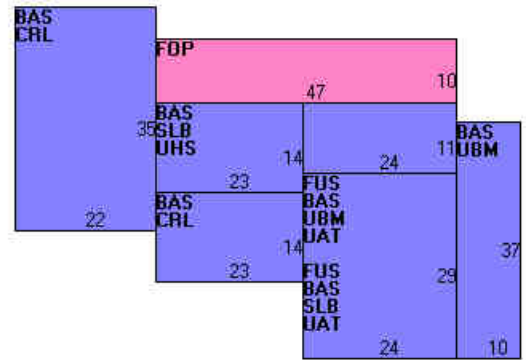
Style	Family Duplex
Model	Residential
Grade:	B+
Story Height	2 Stories
Foundation	Stone
Exterior Wall 1	Clapboard
Exterior Wall 2	
Roof Structure:	Gable
Roof Cover	Wood Shingle
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Pine/Soft Wood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	5 Bedrooms
Total Bthrms:	3
Total Half Baths:	0
# Extra Fixtures	1
Total Rooms:	9
Bath Style:	Average
Kitchen Style:	Average
Fireplace	0
Fin Basement	0
Fin Bsmt Qual	
Bsmt. Garages	0
Gas Fireplace	Gas

Building Photo



(http://images.vgsi.com/photos/EastHamptonCTPhotos//\00\00\00\

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,744	2,744
FUS	Finished Upper Story	960	960
CRL	Crawl Space	1,092	0
FOP	Framed Open Porch	470	0
SLB	Slab	586	0
UAT	Unfinished Attic	960	0
UBM	Unfin Basement	1,066	0
UHS	Unfinished Half Story	322	0
		8,200	3,704

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 101
Description Single Family
Zone R-4
Neighborhood 200
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 2
Frontage
Depth
Assessed Value \$63,680
Appraised Value \$90,960

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN1	Barn 1 Story	FR	Frame	1672 S.F.	\$49,660	1
SPL1	InGround Pool			512 S.F.	\$13,820	1
GAR1	Garage	FR	Frame	950 S.F.	\$21,380	1
SHD1	Shed	FR	Frame	100 S.F.	\$1,500	1
BRN8	Pole Barn	FR	Frame	529 S.F.	\$11,640	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$414,610	\$90,960	\$505,570
2014	\$477,290	\$100,510	\$577,800
2012	\$477,290	\$100,510	\$577,800

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$290,230	\$63,680	\$353,910
2014	\$334,100	\$70,360	\$404,460
2012	\$334,100	\$70,360	\$404,460

151 Young St



Imagery ©2018 Google, Map data ©2018 Google 100 ft



151 Young St
East Hampton, CT 06424





Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle, does hereby authorize T-Mobile and its authorized contractors/agents to act as “Applicant” in the processing of all applications, permits, research and other related activities associated with the processing, planning, design review, permitting, entitlement and construction of additional equipment, antennas and site improvements for the Crown Castle existing wireless communications facility described as follows:

Customer Site Name:	CTHA602A	Crown Castle Site ID Number:	845994
Site Address:	151 YOUNG STREET EAST HAMPTON, CT 06424	Crown Castle Site Name:	EAST HAMPTON - YOUNG STREET

This authorization is fully contingent upon T-Mobile authorized contractors/agents’ compliance with the following conditions:

1. Crown Castle must review the application prior to submittal. Crown Castle must be provided all applications, narratives, drawings and attachments at least 72 hours in advance of their submittal to the locality. Use of email and electronic attachments is encouraged. A Crown Castle Zoning Subject Matter Expert (SME) will review and provide written comment to the customer within 48 hours of receipt of a complete set of application materials. If Crown Castle indicates that changes are required, submissions shall be altered in accordance with Crown Castle comments prior to submission to the locality. Verification of corrections should also be accomplished via emails and attachments.
2. In no event may T-Mobile encourage, suggest, participate in, or permit the imposition of any restrictions or additional obligations whatsoever on the tower site or Crown Castle’s current or future use or ability to license space at the tower site as part of or in exchange for obtaining any approval, permit, exception or variance.
3. A copy of the final permit and/or a written summary of the zoning/entitlement decision rendered by the locality and any/all conditions placed on that decision shall be communicated in detail to Crown Castle well within the appeal period provided by the locality (typically 10-15 days).
4. All conditions of approval pertinent to the construction of the proposed project must be included in the construction drawings for the project. The conditions of approval pertinent to the construction of the project shall be copied verbatim from the zoning permit approval language, and shall be present in the drawings prior to submission for building permits and contractor bidding. Crown Castle shall verify the inclusion of appropriate conditions of approval in the construction drawing redline process.
5. Crown Castle will provide a Notice To Proceed (NTP) to construction to the customer upon receipt of the final approved zoning permit and the approved Building Permit.

By Crown Castle:

Signature:
Amanda Cornwall
Printed Name: Amanda Cornwall
Title: Real Estate Specialist – East Area

Date: February 22, 2018



T-MOBILE SITE NUMBER: CTHA602A
T-MOBILE SITE NAME: UCTHA602A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 140'-0"

CROWN CASTLE BU #: 845994
SITE ADDRESS: 151 YOUNG STREET
 EAST HAMPTON, CT 06424
COUNTY: MIDDLESEX
JURISDICTION: TOWN OF EAST HAMPTON

T-MOBILE 2018 NSD

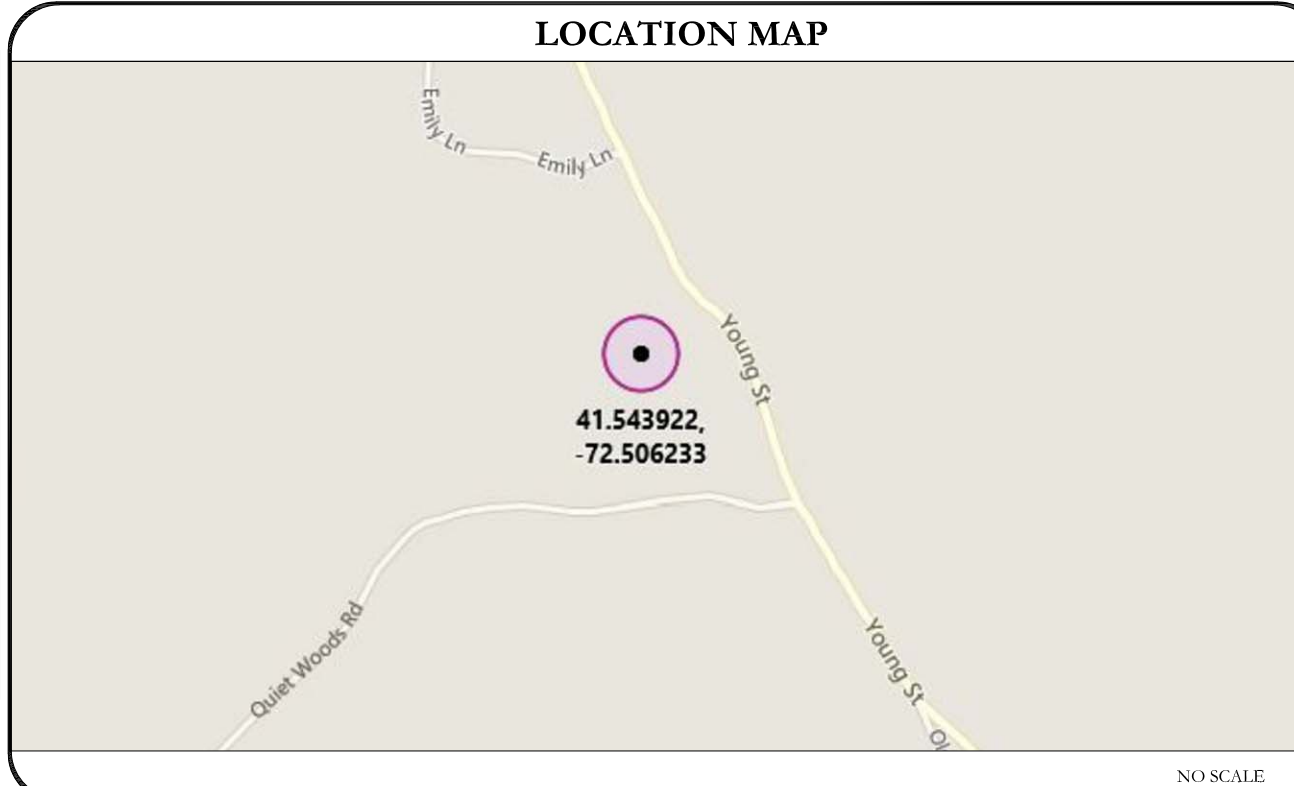


T-MOBILE SITE NUMBER: CTHA602A
BU #: 845994
EAST HAMPTON - YOUNG STREET
 151 YOUNG STREET
 EAST HAMPTON, CT 06424
 EXISTING 140'-0" MONOPOLE

SITE INFORMATION	
CROWN CASTLE SITE NAME:	EAST HAMPTON - YOUNG STREET
SITE ADDRESS:	151 YOUNG STREET EAST HAMPTON, CT 06424
COUNTY:	MIDDLESEX
MAP/PARCEL #:	17/32/7
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 32' 38.12"
LONGITUDE:	-72° 30' 22.44"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	482 FT.
CURRENT ZONING:	NOT AVAILABLE
JURISDICTION:	TOWN OF EAST HAMPTON
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	KEVIN G & KIM S KIELY 151 YOUNG STREET EAST HAMPTON, CT 06424
TOWER OWNER:	CCATT LLC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 2004 WESTPORT CENTER DRIVE ST. LOUIS, MO 63146
CROWN CASTLE APPLICATION ID:	419627
ELECTRIC PROVIDER:	NORTHEAST UTILITIES (800) 286-2000
TELCO PROVIDER:	AT&T (866) 620-6900

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	FINAL SITE PLAN
C-2	EQUIPMENT PLAN
C-3	EQUIPMENT ELEVATIONS & DETAILS
C-4	TOWER ELEVATION & ANTENNA PLAN
C-5	EQUIPMENT DETAILS
C-6	EQUIPMENT DETAILS
C-7	EQUIPMENT DETAILS
C-8	EQUIPMENT DETAILS
C-9	EQUIPMENT DETAILS
E-1	ELECTRICAL SITE PLAN
E-2	UTILITY FRAME AND WIRING DETAILS
E-3	ELECTRICAL SIGN DETAILS
E-4	POWER DIAGRAM & ONE-LINE DIAGRAM
G-1	EQUIPMENT & ANTENNA GROUNDING PLANS
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



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.

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	2016 CT STATE BUILDING CODE/2012 IBC W/ CT AMENDMENTS
MECHANICAL	2016 CT STATE BUILDING CODE/2012 IMC W/ CT AMENDMENTS
ELECTRICAL	2016 CT STATE BUILDING CODE/2014 NEC W/ CT AMENDMENTS

REFERENCE DOCUMENTS:
 STRUCTURAL ANALYSIS: TECTONIC DATED JANUARY 15, 2018
 MOUNT ANALYSIS: BY OTHERS

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

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE.

TOWER SCOPE OF WORK:

- INSTALL (12) PANEL ANTENNAS ON NEW ANTENNA MOUNT
- INSTALL (1) MW
- INSTALL (1) GPS
- INSTALL (12) RRU's
- INSTALL (6) DIPLEXERS
- INSTALL (3) NEW PORT HOLES
- INSTALL (2) 1/2" FEEDLINES
- INSTALL (4) 1-1/4" HYBRID CABLE LINES

GROUND SCOPE OF WORK:

- INSTALLATION OF NEW 10'-0"x15'-0" CONCRETE EQUIPMENT PAD WITHIN A NEW 10'-0"x26'-0" LEASE AREA WITHIN THE EXISTING FENCED COMPOUND
- INSTALLATION OF NEW ELECTRICAL SERVICE TO T-MOBILE EQUIPMENT
- INSTALLATION OF NEW FIBER SERVICE TO T-MOBILE EQUIPMENT
- INSTALLATION OF NEW GENERATOR
- INSTALLATION OF NEW LPG TANK

DESIGN PACKAGE BASED ON THE APPLICATION
 ID: 419627
 REVISION: 1

INSTALLER NOTE:
 PORT HOLE DESIGN AND INSTALLATION AT 124'-0" REQUIRED. CROWN CASTLE CONSTRUCTION MANAGER & MODIFICATION PROJECT MANAGER TO COORDINATE.

PROJECT TEAM

CROWN CASTLE A&E FIRM:
 CROWN CASTLE
 2000 CORPORATE DRIVE
 CANONSBURG, PA 15317
 CROWN.AE.APPROVAL@CROWNCastle.COM

CROWN CASTLE CONTACTS:
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

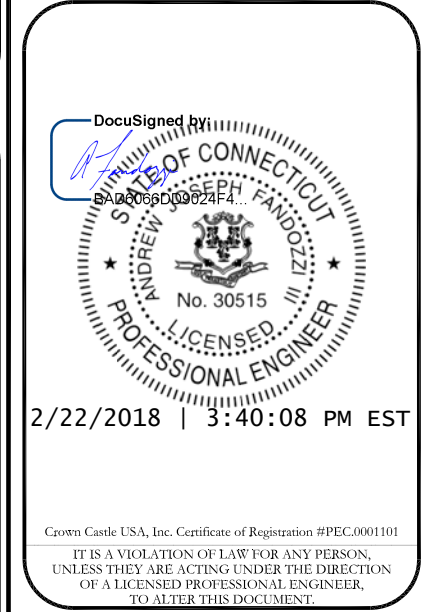
CHRISTINE TROTTA - PROJECT MANAGER
 (518) 373-3511
 JASON D'AMICO - CONSTRUCTION MANAGER
 (860) 209-0104

DASHANNA HANLON - A&E PROJECT MANAGER
 DASHANNA.HANLON@CROWNCastle.COM
 (781) 970-0067

DAN VADNEY - MODIFICATION PROJECT MANAGER
 DAN.VADNEY@CROWNCastle.COM
 (518) 373-3510

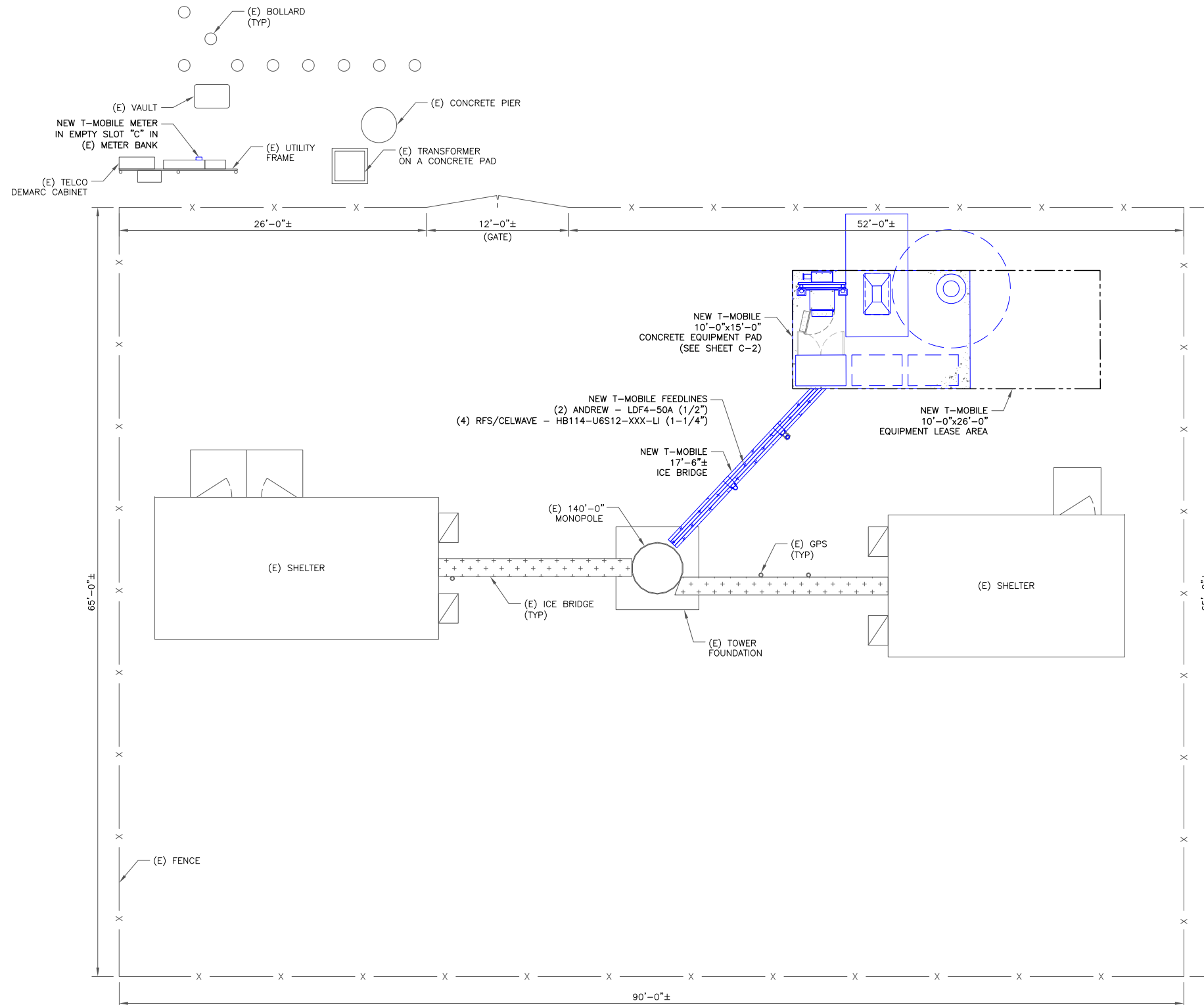
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	02/02/18	BWT	PRELIMINARY	ZTK
0	02/22/18	BWT	CONSTRUCTION	AJF



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SHEET NUMBER: T-1
REVISION: 0



T-Mobile
 12920 SE 38TH STREET
 BELLEVUE, WA 98006

CROWN CASTLE
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

T-MOBILE SITE NUMBER:
CTHA602A

BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
 EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

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

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CROWN CASTLE
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

T-MOBILE SITE NUMBER:
CTHA602A

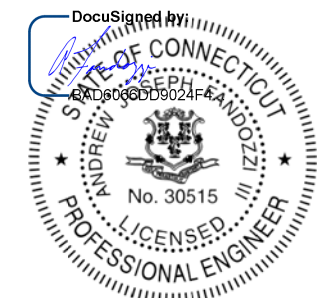
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
 EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

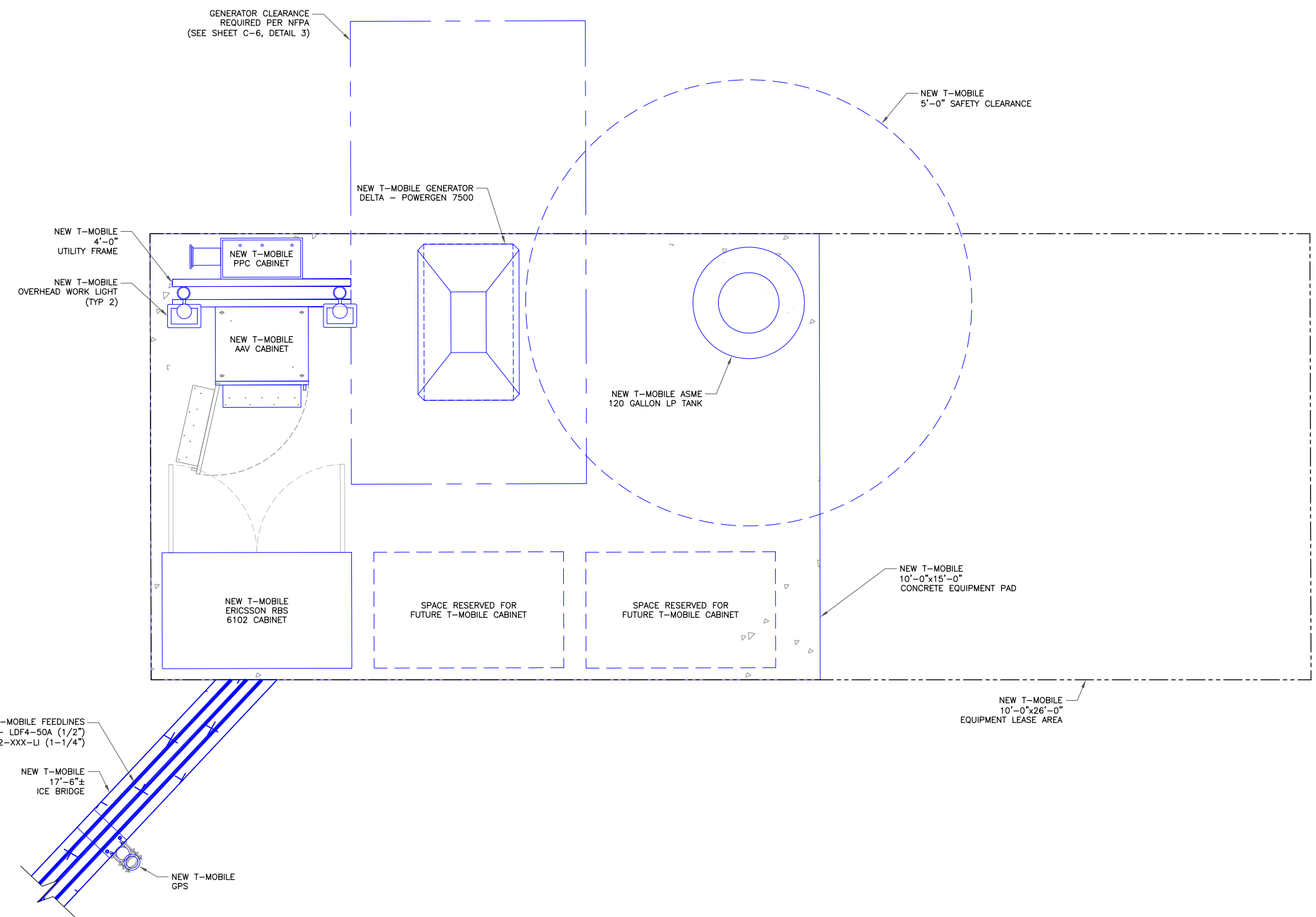
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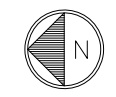
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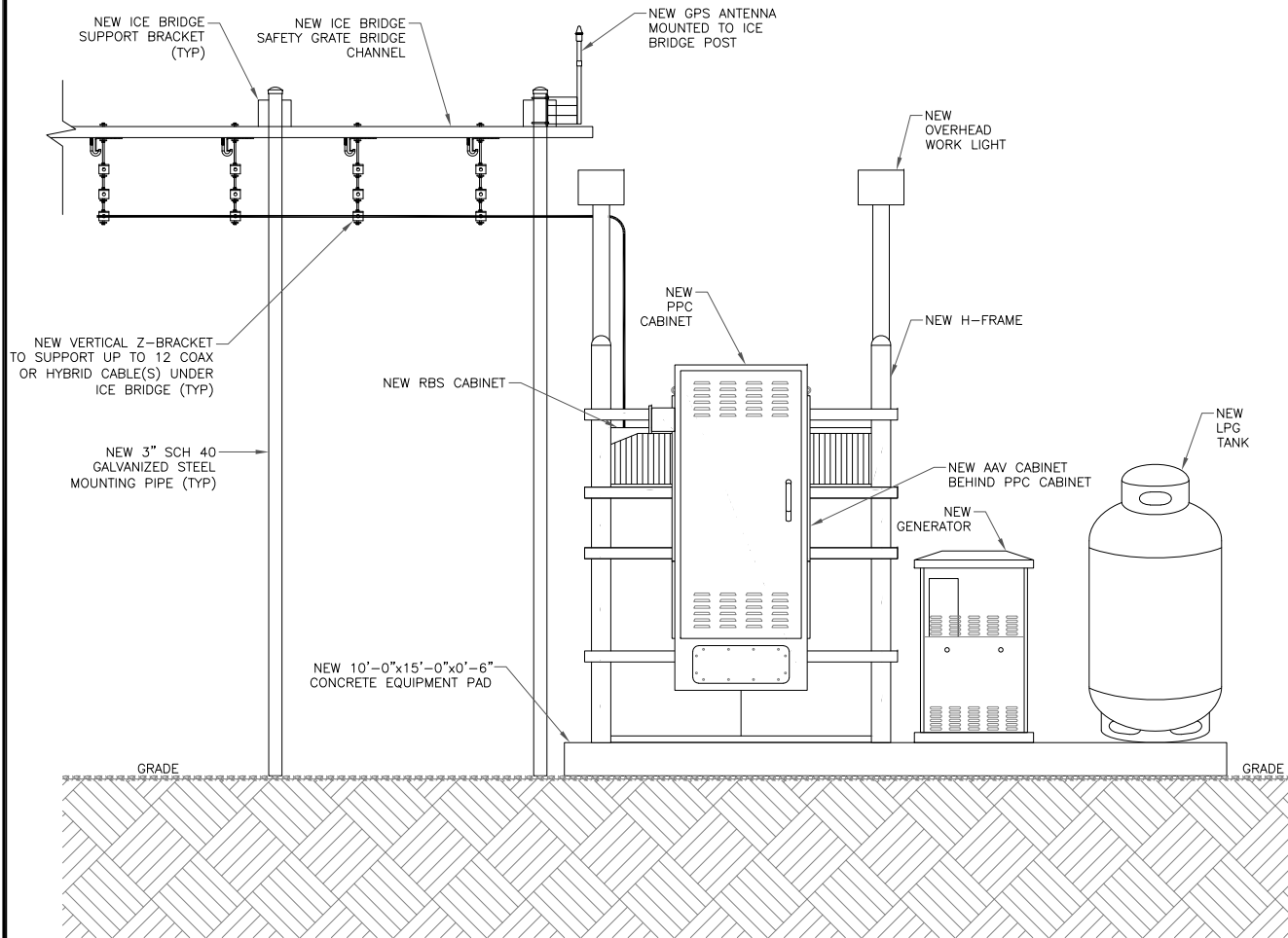
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SHEET NUMBER: **C-2** REVISION: **0**

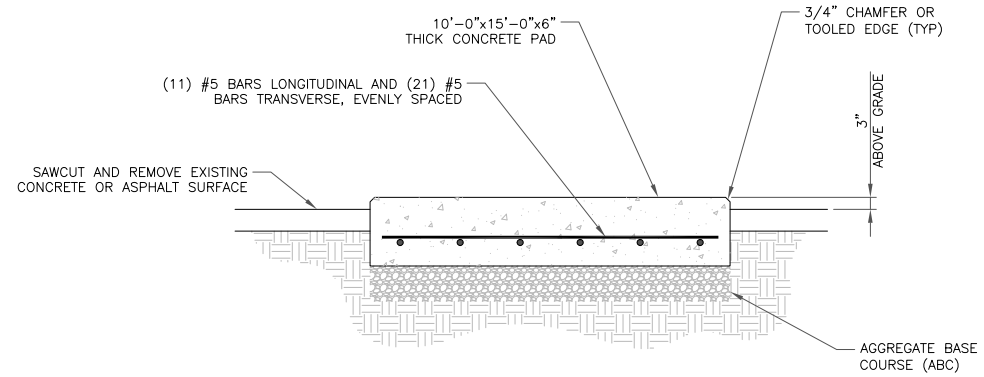


1 EQUIPMENT PLAN
 SCALE: 3/4"=1'-0" (FULL SIZE)
 3/8"=1'-0" (11x17)





1 EQUIPMENT ELEVATION - GROUND LEVEL
SCALE: NOT TO SCALE



NOTES:

- 1) MINIMUM CONCRETE STRENGTH (f'c) TO BE 4,500 psi UNLESS NOTED OTHERWISE. CONCRETE MIX SHALL BE DESIGNED BY A CERTIFIED LABORATORY. CONCRETE EXPOSED TO FREEZE-THAW CYCLES TO 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 WATER-TO-CEMENT RATIO (W/C) NOT TO EXCEED 0.45.
- 2) CONCRETE PAD SHALL BEAR ON A MINIMUM OF 8" OF AGGREGATE BASE COURSE (ABC) MATERIAL COMPACTED TO 98% OF MAXIMUM DENSITY DETERMINED BY ASTM D1557 (MODIFIED PROCTOR). MATERIAL SHOULD BE WITHIN 3% OF OPTIMUM MOISTURE AT TIME OF COMPACTION.
- 3) ALL REINFORCING TO MAINTAIN 3" COVER WHEN CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.

2 CONCRETE PAD DETAIL
SCALE: NOT TO SCALE

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CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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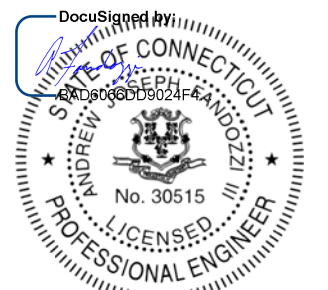
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

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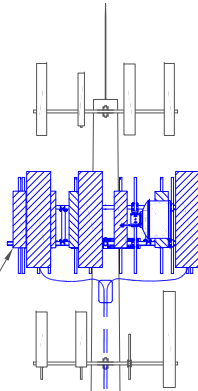
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SHEET NUMBER: **C-3** REVISION: **0**

- STRUCTURE W/ APPURTENANCE
ELEV. = 148'-0"
- HEIGHT OF STRUCTURE
ELEV. = 140'-0"
- TIP OF ANTENNAS
ELEV. = 134'-0"
- TOWER DIAMETER (2'-0")
ELEV. = 128'-0"
- NEW PORT HOLE DESIGN BY OTHERS
ELEV. = 124'-0"



- EXISTING MCL
ELEV. = 139'-0"
- NEW T-MOBILE RAD CENTER
ELEV. = 130'-0"
- NEW T-MOBILE MCL
ELEV. = 128'-0"
- EXISTING MCL
ELEV. = 118'-0"

- NEW T-MOBILE EQUIPMENT:
- (12) ANTENNAS
 - (1) MW DISH
 - (1) GPS
 - (12) RRU's
 - (6) DIPLEXERS
 - (1) ANTENNA PLATFORM W/ HANDRAIL

T-MOBILE EQUIPMENT
ANTENNA CL: 130'-0"
MOUNT CL: 128'-0"

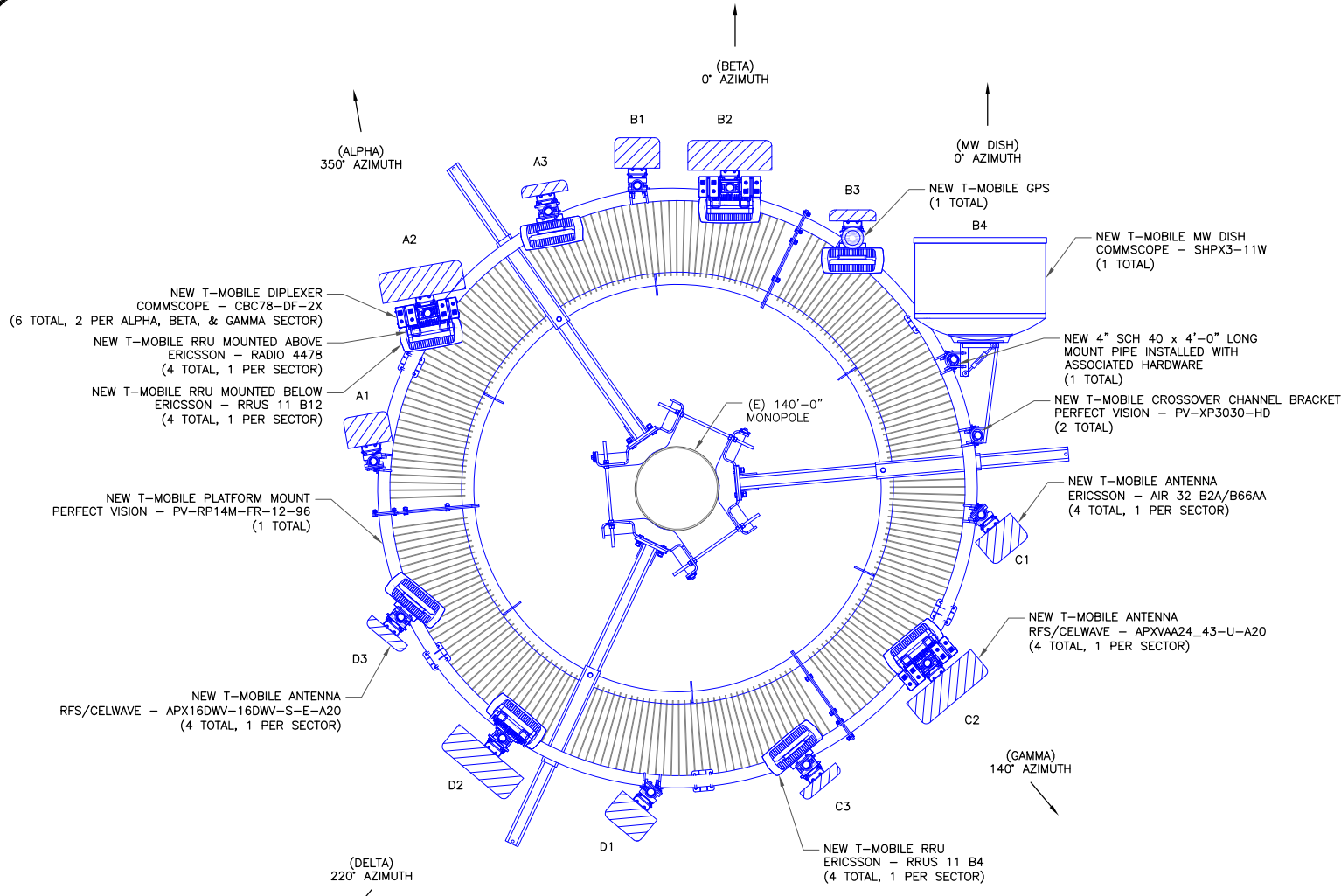
- (E) 140'-0" MONOPOLE
- NEW T-MOBILE FEEDLINES
- (2) ANDREW - LDF4-50A (1/2")
- (4) RFS/CELWAVE - HB114-U6S12-XXX-LI (1-1/4")
ROUTED INSIDE MONOPOLE

- INSTALLER NOTE:
- DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB.
 - TWIST AND SWAY LIMITATIONS OF TIA 222 G ANNEX D FOR THIS DISH DO NOT MEET THE ALLOWABLE 3 DB DEGRADATION OR THE 10 DB DEGRADATION LIMIT.
 - PORT HOLE DESIGN AND INSTALLATION AT 124'-0" REQUIRED. CROWN CASTLE CONSTRUCTION MANAGER & MODIFICATION PROJECT MANAGER TO COORDINATE.

1 FINAL ELEVATION
SCALE: NOT TO SCALE

ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	-	130'-0"	350'	ERICSSON	AIR 32 B2A/B66AA	-	-	-	HYBRID (180'-0")
ALPHA	A2	-	130'-0"	350'	RFS/CELWAVE	APXVAA24_43-U-A20	-	-	(2) COMMSCOPE - CBC78-DF-2X (1) ERICSSON - RRUS 11 B12 (1) ERICSSON - RADIO 4478	HYBRID (180'-0")
ALPHA	A3	-	130'-0"	350'	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	-	-	(1) ERICSSON - RRUS 11 B4	HYBRID (180'-0")
BETA	B1	-	130'-0"	0'	ERICSSON	AIR 32 B2A/B66AA	-	-	-	HYBRID (180'-0")
BETA	B2	-	130'-0"	0'	RFS/CELWAVE	APXVAA24_43-U-A20	-	-	(2) COMMSCOPE - CBC78-DF-2X (1) ERICSSON - RRUS 11 B12 (1) ERICSSON - RADIO 4478	HYBRID (180'-0")
BETA	B3	-	130'-0"	0'	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	-	-	(1) ERICSSON - RRUS 11 B4	HYBRID (180'-0")
BETA	B4	-	130'-0"	0'	COMMSCOPE	SHPX3-11W	-	-	(1) GPS	COAX (180'-0")
GAMMA	C1	-	130'-0"	140'	ERICSSON	AIR 32 B2A/B66AA	-	-	-	HYBRID (180'-0")
GAMMA	C2	-	130'-0"	140'	RFS/CELWAVE	APXVAA24_43-U-A20	-	-	(2) COMMSCOPE - CBC78-DF-2X (1) ERICSSON - RRUS 11 B12 (1) ERICSSON - RADIO 4478	HYBRID (180'-0")
GAMMA	C3	-	130'-0"	140'	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	-	-	(1) ERICSSON - RRUS 11 B4	HYBRID (180'-0")
DELTA	D1	-	130'-0"	220'	ERICSSON	AIR 32 B2A/B66AA	-	-	-	HYBRID (180'-0")
DELTA	D2	-	130'-0"	220'	RFS/CELWAVE	APXVAA24_43-U-A20	-	-	(1) ERICSSON - RRUS 11 B12 (1) ERICSSON - RADIO 4478	HYBRID (180'-0")
DELTA	D3	-	130'-0"	220'	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	-	-	(1) ERICSSON - RRUS 11 B4	HYBRID (180'-0")

2 ANTENNA SCHEDULE
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
CTHA602A

BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

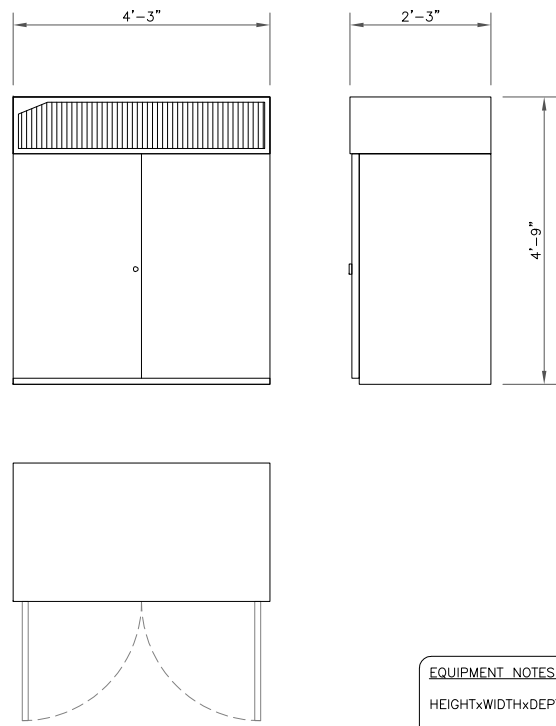
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0	02/22/18	BWT	CONSTRUCTION	AJF

DocuSigned by:
ANDREW J. ANDOZZI
No. 30515
LICENSED PROFESSIONAL ENGINEER

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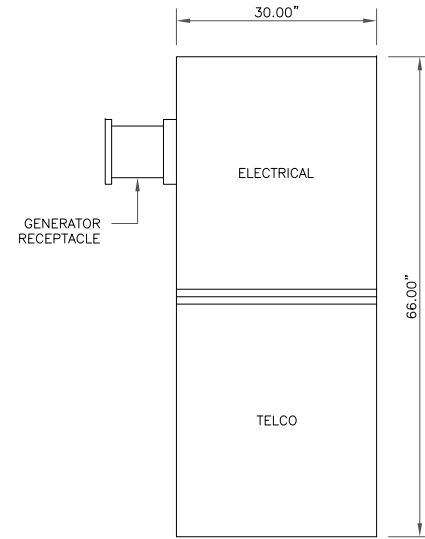
SHEET NUMBER: **C-4** REVISION: **0**



EQUIPMENT NOTES:
 HEIGHTxWIDTHxDEPTH: 57.08" x 51.00" x 27.55"
 (1450.0mm x 1300.0mm x 700.0mm)
 APPROX. MAX. WEIGHT: 859 LBS (390 kg)

1 ERICSSON - RBS 6102
 SCALE: NOT TO SCALE

EMERSON SPECIFICATIONS (CS2S2-W736 PPC)
 DIMENSIONS (HxWxD): 66.00" x 30.00" x 10.00"
 WEIGHT: APPROXIMATELY 150 LBS
 VOLTAGE: 240/120 VAC, SINGLE PHASE
 AMPERAGE: 200A
 FAULT CURRENT RATING: 65kAIC
 MAIN BREAKERS: 200A SQUARE D, OQ TYPE
 TRANSFER TYPE: SLIDE BAR MECHANICAL INTERLOCK
 DISTRIBUTION: 24 POSITION, 200A LOAD CENTER
 BRANCH BREAKERS: 60A, 240VAC, SQUARE D (TVSS)
 20A, 120VAC, SQUARE D (CONVENIENCE OUTLETS)
 10A, 120VAC, SQUARE D (COOLING FAN)
 GENERATOR RECEPTACLE: 200A APPLETON (LEFT OR RIGHT MOUNT)



EQUIPMENT NOTES:
 THE PPC CAN BE ORDERED WITH THE GENERATOR RECEPTACLE ON EITHER SIDE. SEE PLANS FOR SIDE NEEDED PRIOR TO ORDERING THE PPC.

2 EMERSON - CS2S2-W736
 SCALE: NOT TO SCALE



T-MOBILE SITE NUMBER:
CTHA602A

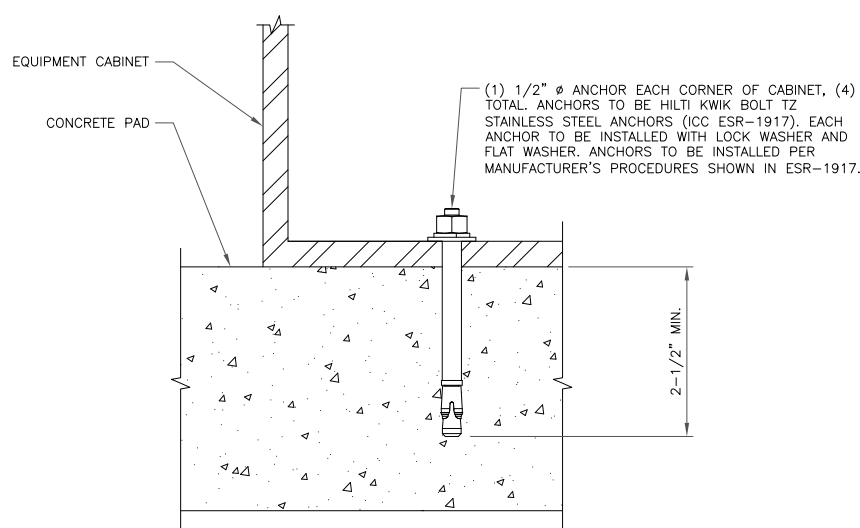
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
 EAST HAMPTON, CT 06424

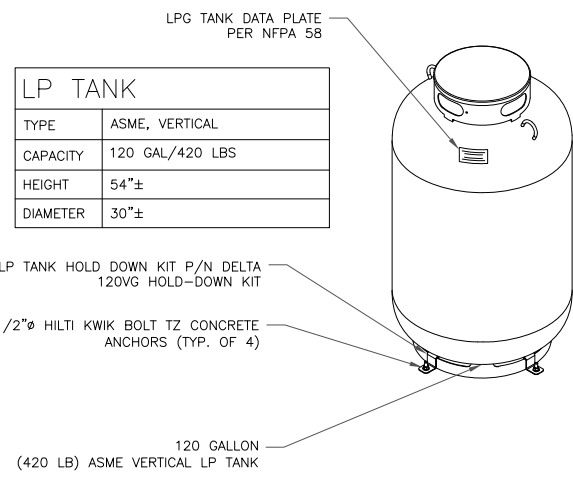
EXISTING 140'-0" MONOPOLE

ISSUED FOR:

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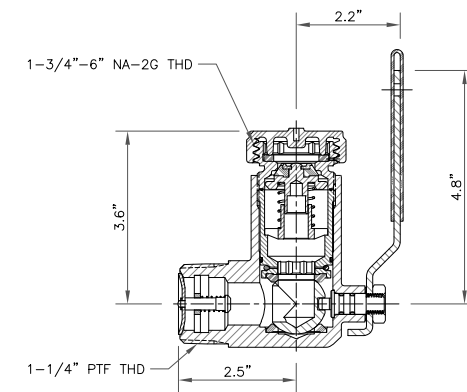


3 CABINET ANCHOR DETAIL
 SCALE: NOT TO SCALE



LP TANK	
TYPE	ASME, VERTICAL
CAPACITY	120 GAL/420 LBS
HEIGHT	54"±
DIAMETER	30"±

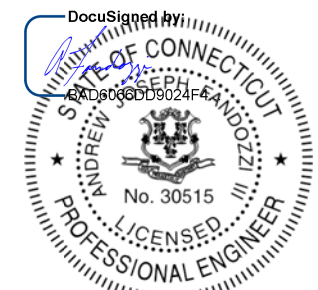
4 LP TANK DETAILS
 SCALE: NOT TO SCALE



REGO - 7502 1-1/4" M-NPT FILLER VALVE W/ MANUAL SHUTOFF

MATERIALS:
 SHUTOFF LEVER.....STEEL
 SHUTOFF BALL.....STAINLESS STEEL
 SHUTOFF PACKING.....TEFLON
 UPPER BODY.....BRASS
 LOWER BODY.....BRASS
 SPRINGS.....STAINLESS STEEL
 WASHER AND SEAT DISC.....SYNTHETIC RUBBER
 CAP.....MOLDED PLASTIC

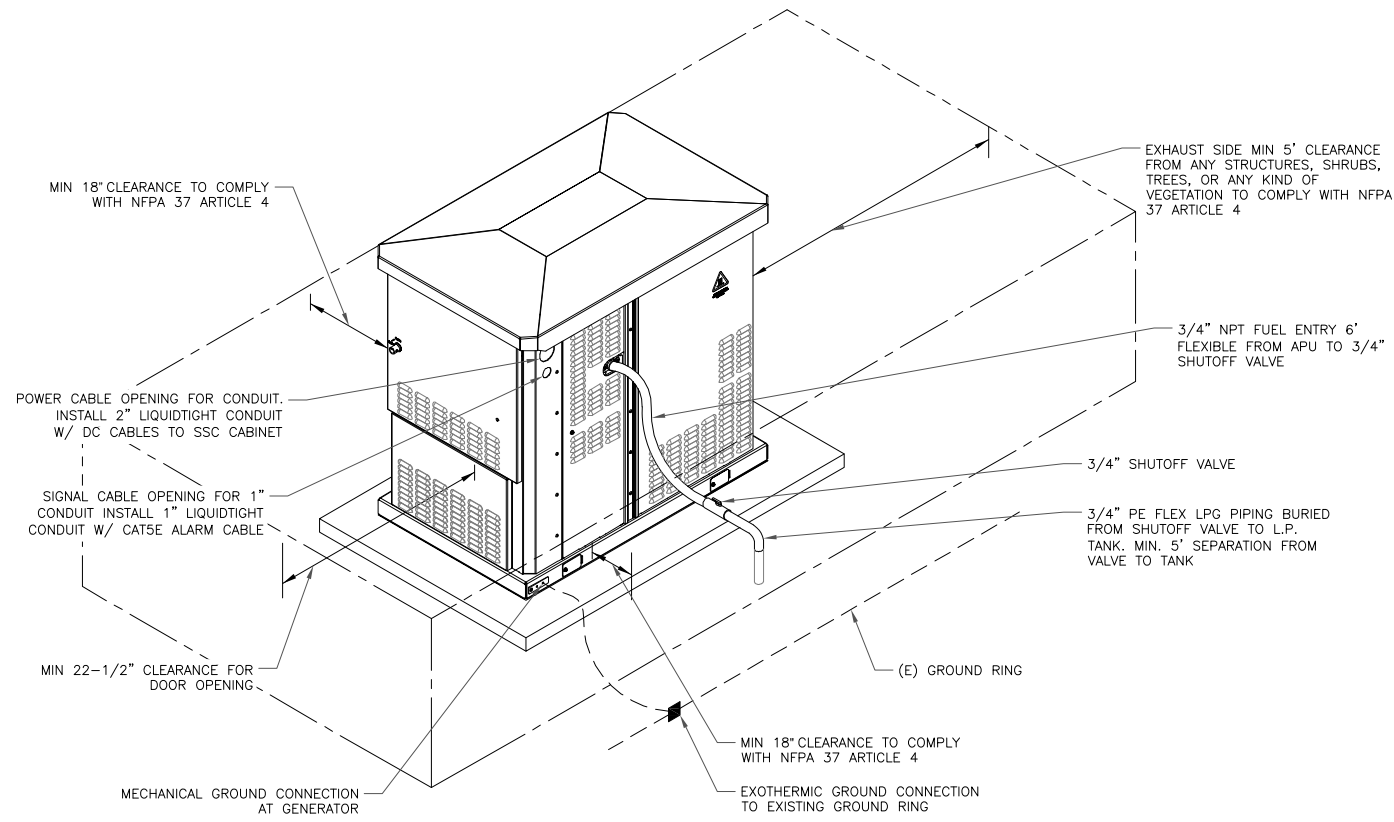
5 REGO - 7502 1-1/4" M-NPT FILLER VALVE W/ MANUAL SHUTOFF
 SCALE: NOT TO SCALE



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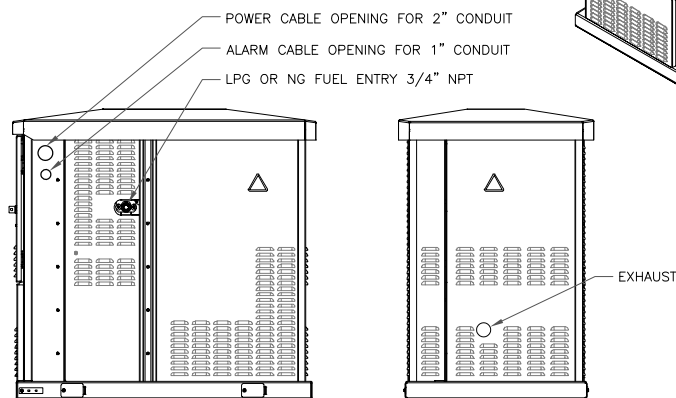
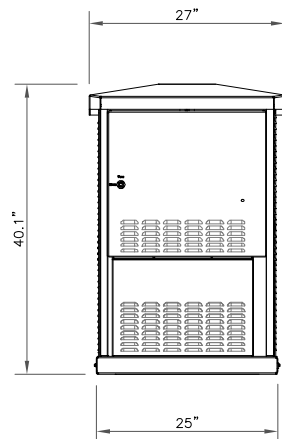
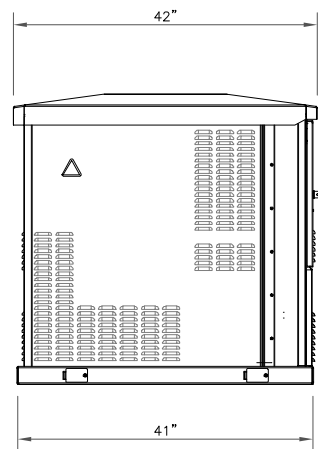
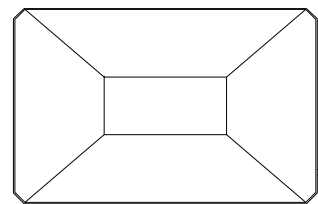
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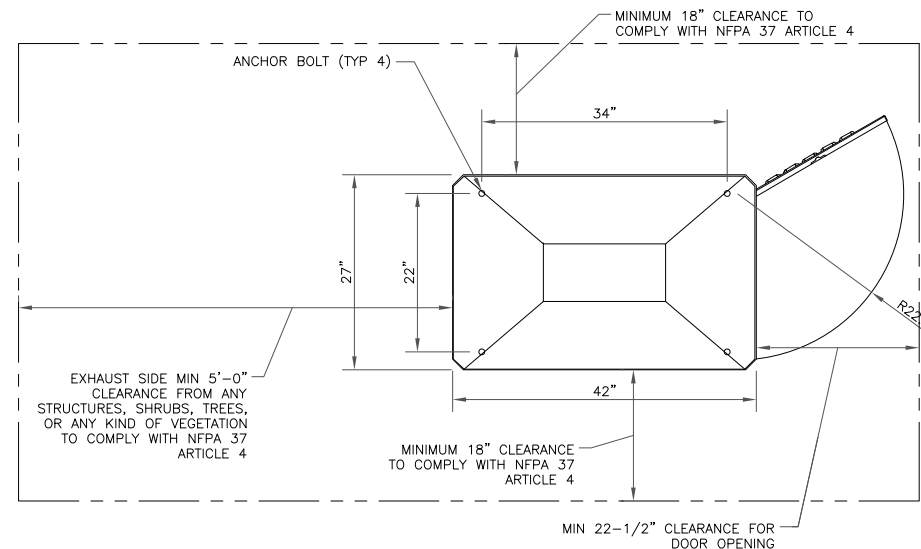
1 UTILITY ENTRY DETAIL
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



7.5KW GENERATOR FUEL REQUIREMENTS: 56.4 CF/H (LP VAPOR)
WEIGHT: 635 LBS MAX (WITH BATTERY-PYL12V100FS x 4PCS)
OPTIONAL STANDBY SYSTEM
AGENCY LISTINGS: UL 2200

3 APU DC GENSET 7.5 KW (ESOG150-PCAXX)
SCALE: NOT TO SCALE



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BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
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EXISTING 140'-0" MONOPOLE

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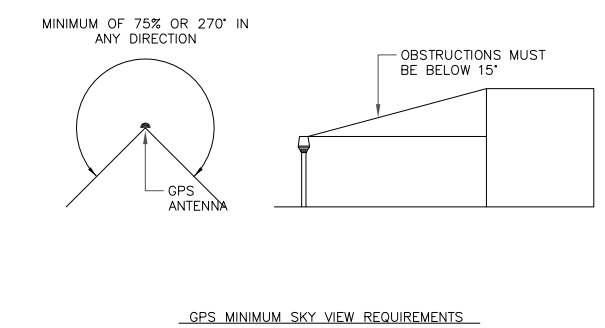
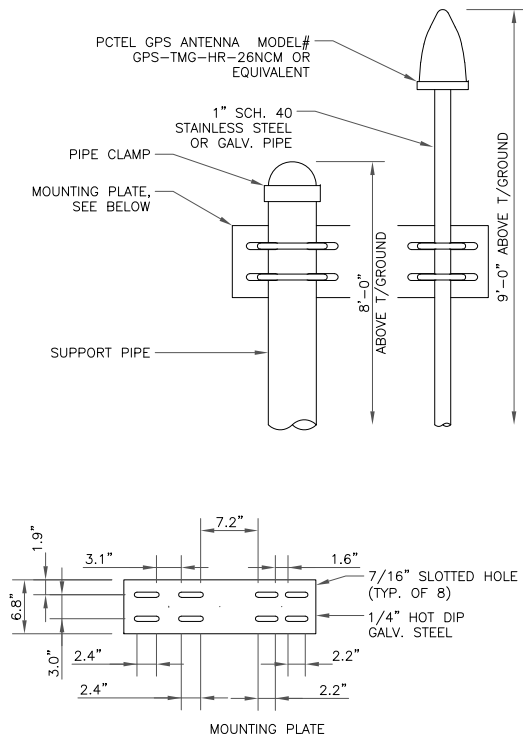
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DocuSigned by:
ANDREW S. SEPTE
ANDREW S. SEPTE
No. 30515
LICENSED PROFESSIONAL ENGINEER

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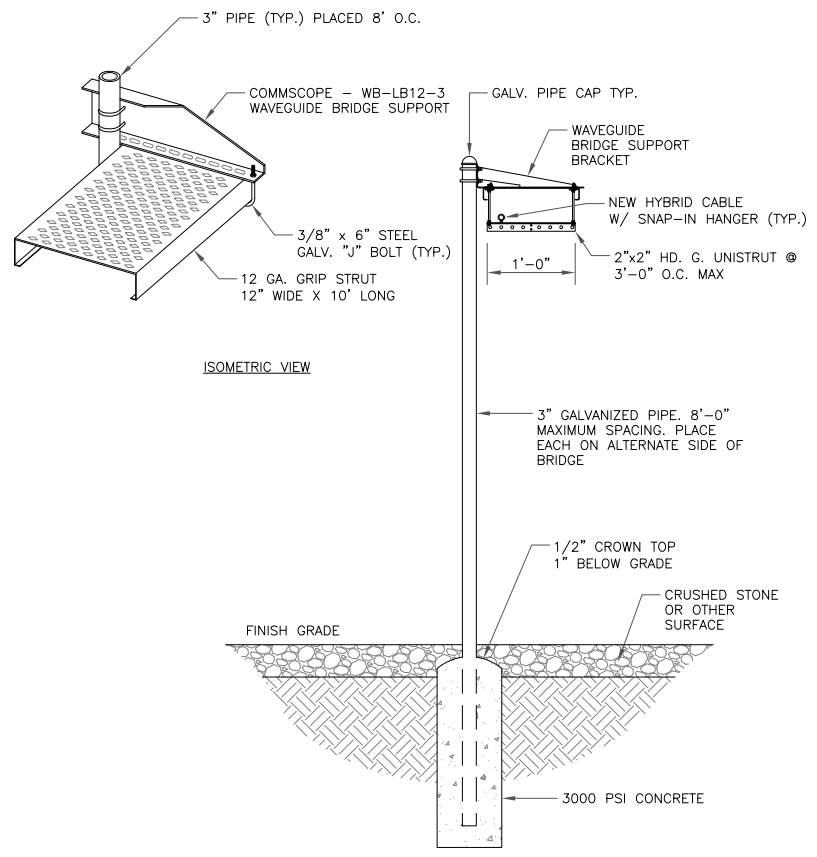
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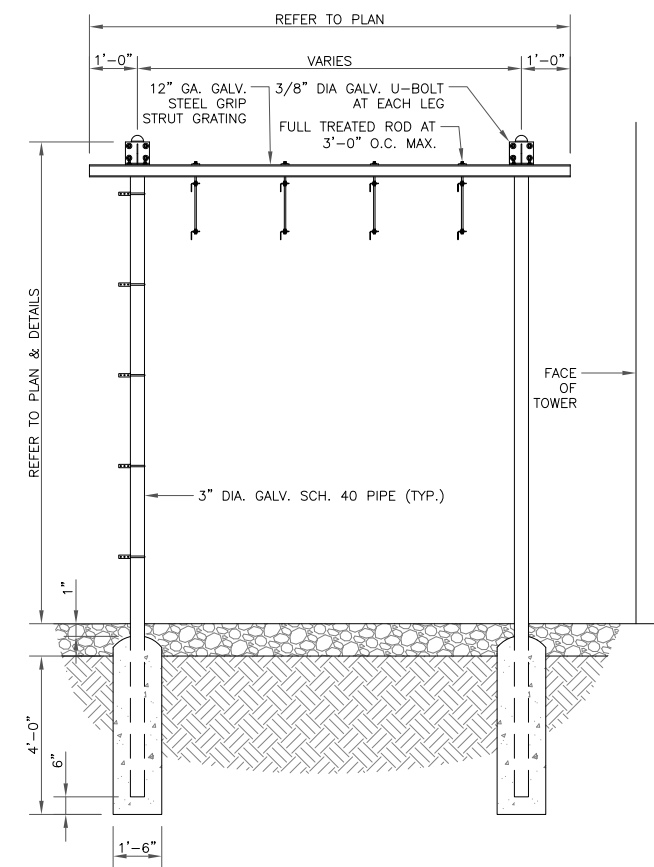


- NOTES:**
1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
 2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" O.D. SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 18 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBARRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
 3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
 4. DO NOT SWEEP TEST GPS ANTENNA.

1 GPS ANTENNA DETAIL
SCALE: NOT TO SCALE



2 ICE BRIDGE DETAIL
SCALE: NOT TO SCALE



T-Mobile
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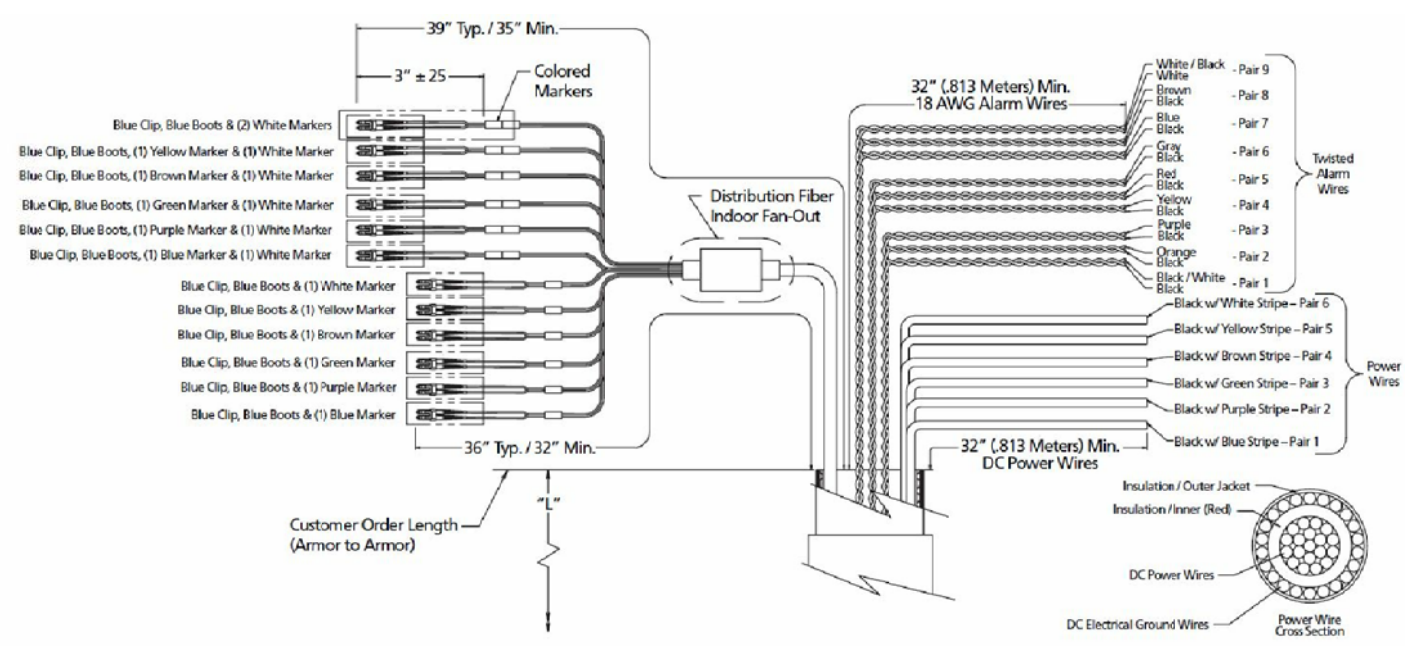
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4 HYBRID CABLE SPECIFICATIONS
SCALE: NOT TO SCALE

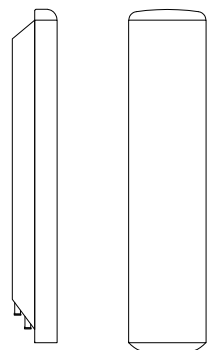
3 NOT USED
SCALE: NOT TO SCALE

DocuSigned by:
ANDREW S. JOSEPH ANDOZZI
No. 30515
PROFESSIONAL ENGINEER

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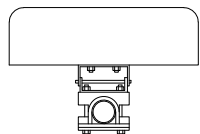
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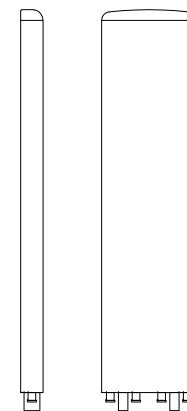
ERICSSON - AIR 32 B2A/B66AA
 WEIGHT (WITHOUT MOUNTING HARDWARE): 132.2 LBS
 SIZE (HxWxD): 56.6x12.9x8.7 IN.
 RATED WIND VELOCITY: 150.0 MPH

1 ERICSSON - AIR 32 B2A/B66AA
 SCALE: NOT TO SCALE



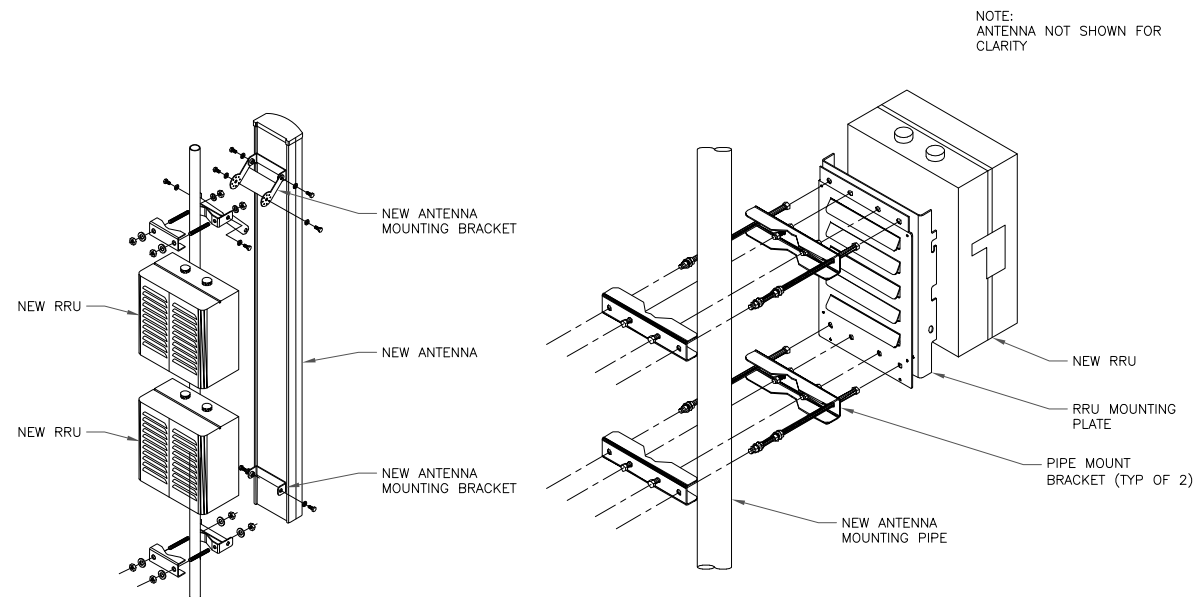
RFS/CELWAVE - APXVAA24_43-U-A20
 WEIGHT (WITHOUT MOUNTING HARDWARE): 101.4 LBS
 SIZE (HxWxD): 96.0x24.0x8.5 IN.

2 RFS/CELWAVE - APXVAA24_43-U-A20
 SCALE: NOT TO SCALE



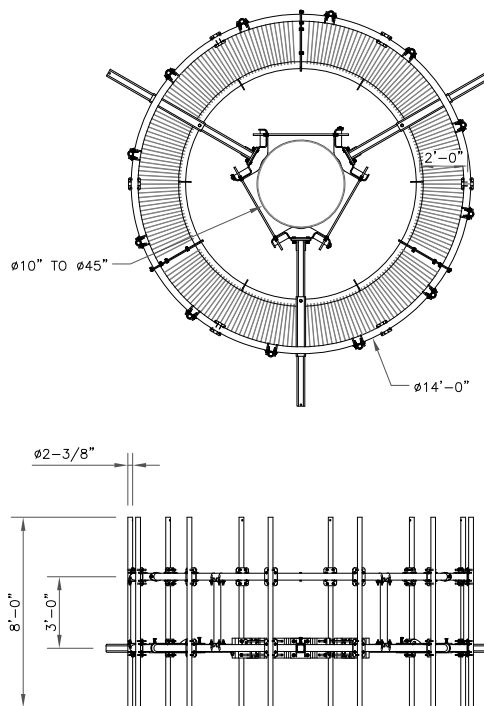
RFS/CELWAVE - APX16DW-16DW-S-E-A20
 WEIGHT (WITHOUT MOUNTING HARDWARE): 40.7 LBS
 SIZE (HxWxD): 55.9x13.3x3.15 IN.
 MOUNTING HARDWARE P/N: APM40-2 + APM40-E2
 RATED WIND VELOCITY: 160 MPH

3 RFS/CELWAVE - APX16DW-16DW-S-E-A20
 SCALE: NOT TO SCALE

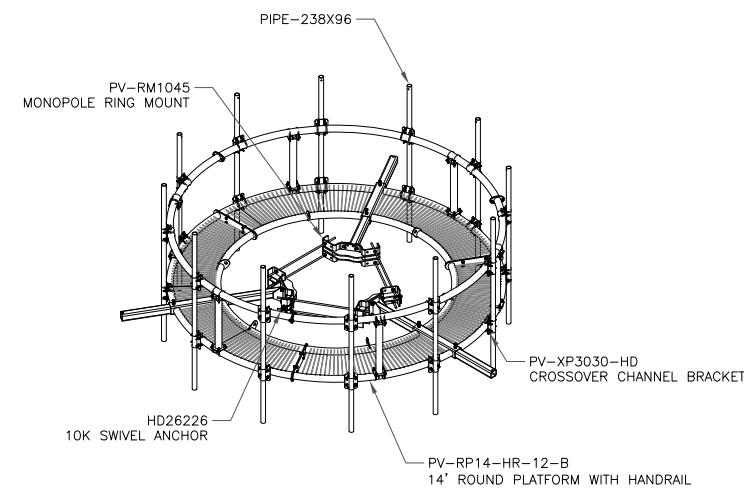


NOTE: ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE

4 ANTENNA & RRU MOUNTING DETAIL
 SCALE: NOT TO SCALE



5 PERFECT VISION - PV-RP14M-FR-12-96
 SCALE: NOT TO SCALE



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CROWN CASTLE
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

T-MOBILE SITE NUMBER:
CTHA602A

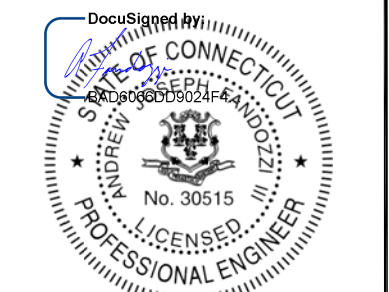
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
 EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	02/02/18	BWT	PRELIMINARY	ZTK
0	02/22/18	BWT	CONSTRUCTION	AJF

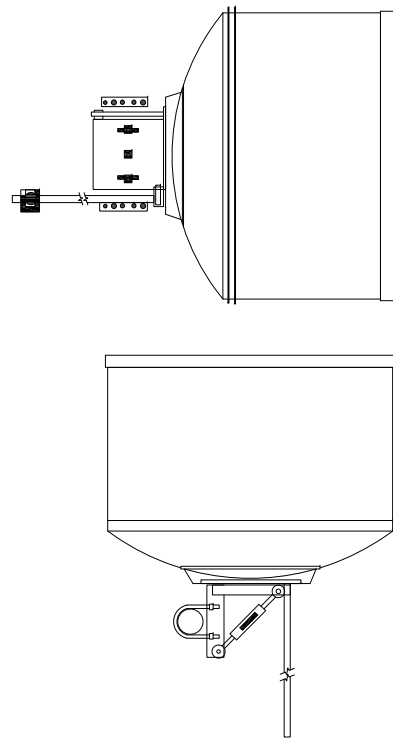


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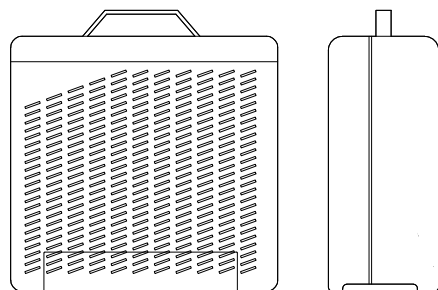
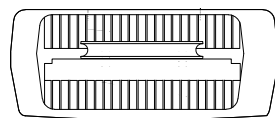
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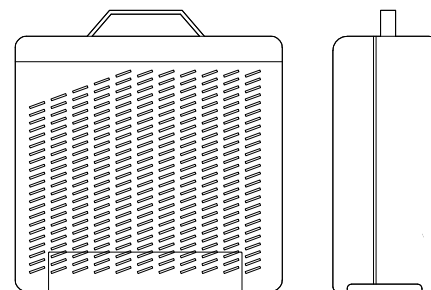
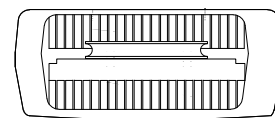
COMMSCOPE - SHPX3-11W
WEIGHT: 67.0 LBS
SIZE (HxWxD): 39.0x39.0x35.0 IN.

1 COMMSCOPE - SHPX3-11W
SCALE: NOT TO SCALE



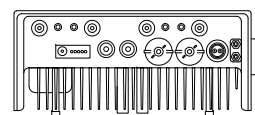
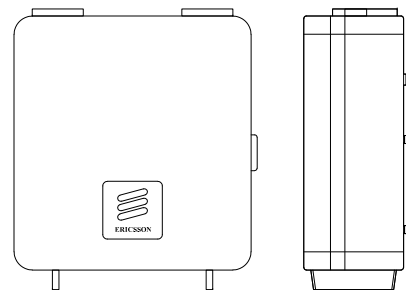
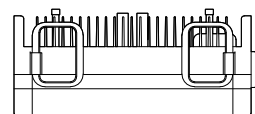
ERICSSON - RRUS 11 B4
WEIGHT (FULLY EQUIPPED): 50.7 LBS
SIZE (HxWxD): 19.7x17.0x7.2 IN.

2 ERICSSON - RRUS 11 B4
SCALE: NOT TO SCALE



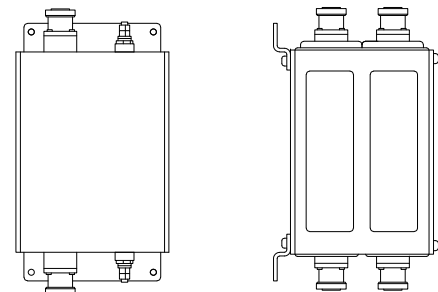
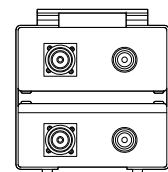
ERICSSON - RRUS 11 B12
WEIGHT (FULLY EQUIPPED): 50.7 LBS
SIZE (HxWxD): 19.7x17.0x7.2 IN.

3 ERICSSON - RRUS 11 B12
SCALE: NOT TO SCALE



ERICSSON - RADIO 4478
WEIGHT: 60.0 LBS
SIZE (HxWxD): 15.0x13.0x8.0 IN.

4 ERICSSON - RADIO 4478
SCALE: NOT TO SCALE



COMMSCOPE - CBC78DF-2X
WEIGHT: 13.9 LBS
SIZE (HxWxD): 7.9x5.9x5.7 IN.

5 COMMSCOPE - CBC78-DF-2X
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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3 CORPORATE PARK DRIVE, SUITE 101
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T-MOBILE SITE NUMBER:
CTHA602A

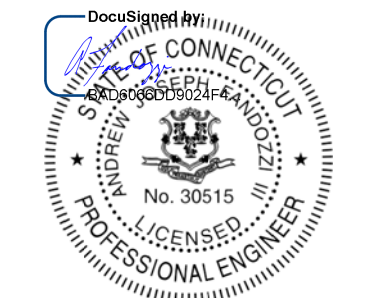
BU #: **845994**
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

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0	02/22/18	BWT	CONSTRUCTION	AJF



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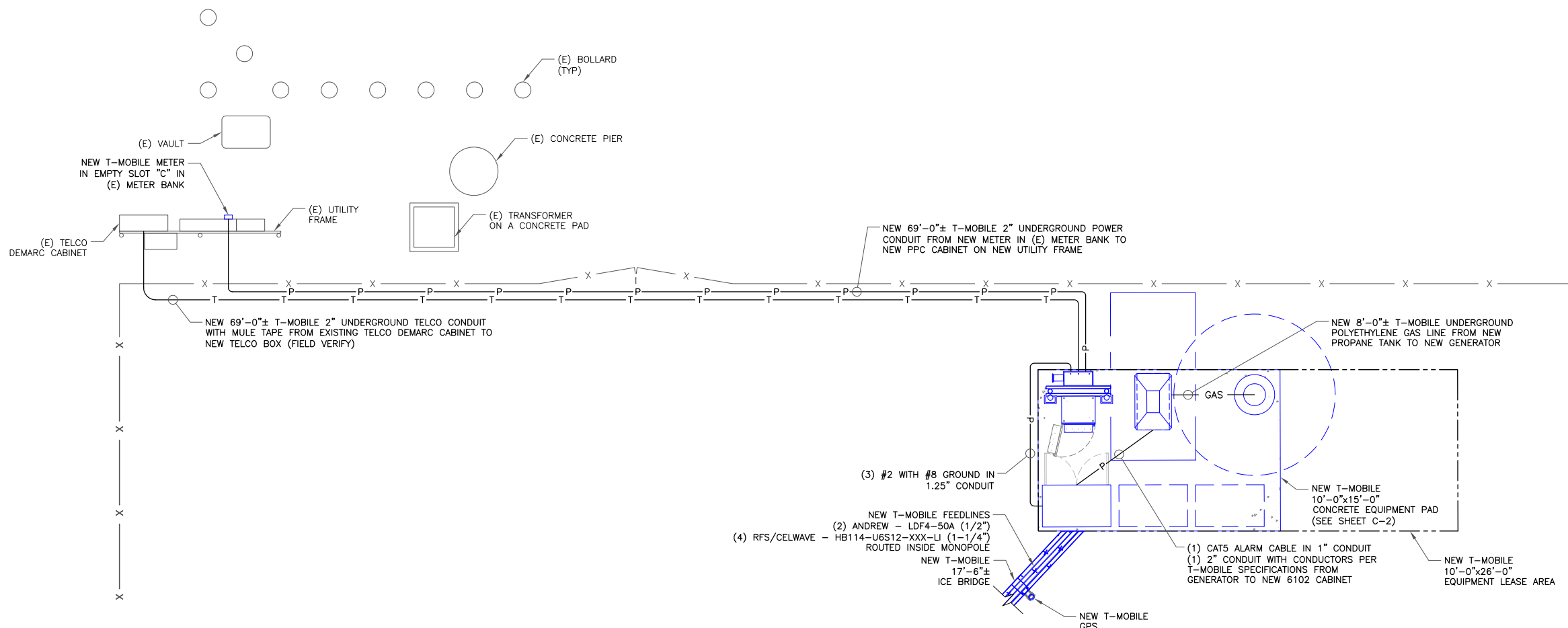
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SHEET NUMBER: **C-9** REVISION: **0**

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHOULD PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING AT EXPOSED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING OR RIGID NONMETALLIC TUBING (RIGID SCHEDULE 40 PVC OR RIGID SCHEDULE 80 PVC FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) (AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING AT CONCEALED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING, ELECTRICAL NONMETALLIC TUBING OR RIGID MONOMETALLIC TUBING (RIGID SCHEDULE 40 PVC (AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING, ABOVE GRADE AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUCTS (RGS) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUCTS.
- BURIED CONDUIT SHALL BE RIGID NONMETALLIC CONDUIT (RIGID SCHEDULE 40 PVC); DIRECT BURIED IN AREAS OF OCCASIONAL LIGHT TRAFFIC, ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY TRAFFIC.
- LIQUIDTIGHT FLEXIBLE METAL LMFC CONDUIT SHALL BE USED INDOORS AND OUTDOORS IN AREAS WHERE VIBRATION OCCURS AND FLEXIBILITY IS NEEDED.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE THHN, THWN-2, OR THIN INSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT (AT UTILITY POLE) AND CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING, AND LIGHTING PROTECTION SHALL BE DONE IN ACCORDANCE WITH METRO MOD CELL SITE GROUNDING STANDARDS.
- GROUND CABLE SHIELD MINIMUM AT BOTH ENDS USING MANUFACTURERS CABLE GROUNDING KITS SUPPLIED BY T-MOBILE.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL POWER AND GROUND CONNECTIONS TO BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY HARGER (OR APPROVED EQUAL) RATED FOR OPERATION AT NO LESS THAN 75°C OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHABITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHABITING COMPOUND TO ALL MECHANICAL GROUND CONNECTIONS.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, CABLE, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE-OUT.
- THE T-MOBILE ELECTRICAL EQUIPMENT INCLUDING PANEL, SWITCH GEAR AND DISCONNECT ARE TO BE LABELED WITH ENGRAVED BAKELITE LABELS.



1 ELECTRICAL SITE PLAN
 SCALE: 1/4"=1'-0" (FULL SIZE)
 1/8"=1'-0" (11x17)



T-MOBILE SITE NUMBER:
CTHA602A

BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
 EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

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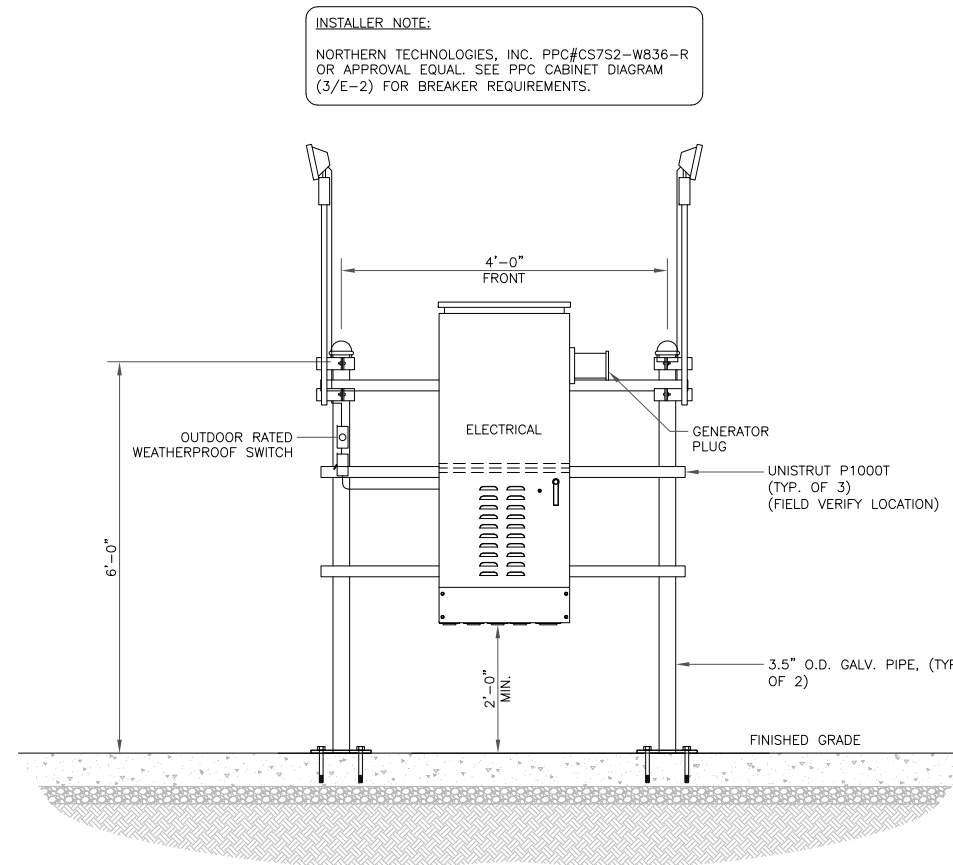
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SHEET NUMBER:
E-1

REVISION:
0

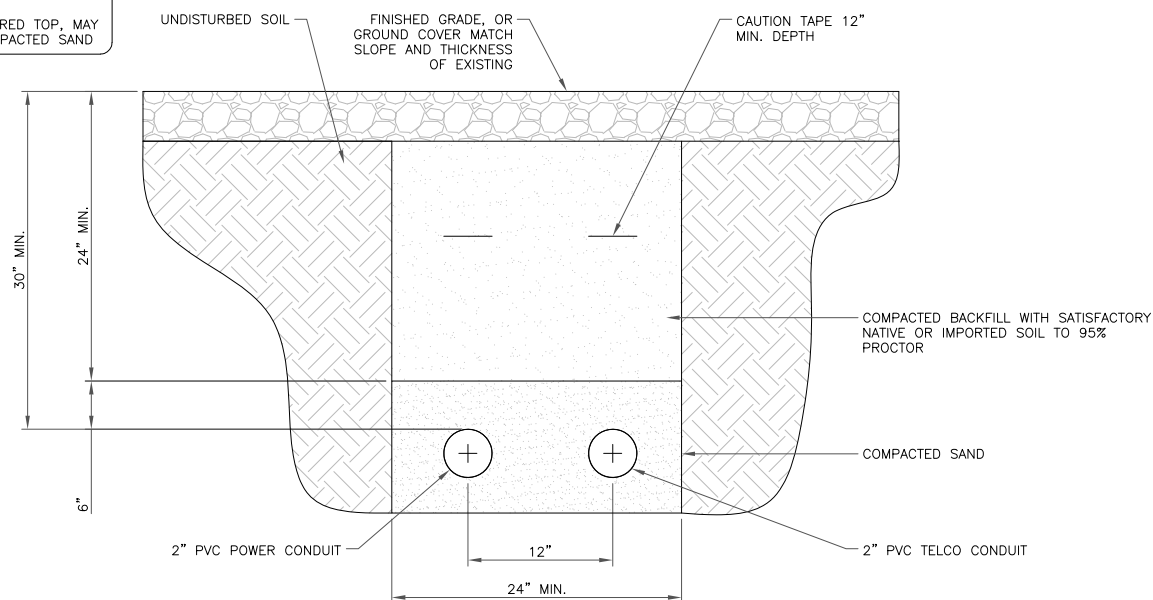
PANEL A											
VOLTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE											
MAIN: 200 AMP MAIN BREAKER											
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	LOAD (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A-PHASE	B-PHASE					
SURGE ARRESTOR	0	NC	60/2	1	435		2	20	NC	435	GFI RECEPTACLE/FLOOD LIGHT
	0	NC		3		0	4				SPACE
T-MOBILE EQUIPMENT CABINET (RBS 6102)	2800	C	60/2	5	2800		6				SPACE
	2800	C		7		2800	8				SPACE
SPACE				9	0		10				SPACE
SPACE				11	0	0	12				SPACE
SPACE				13	0		14				SPACE
SPACE				15	0	0	16				SPACE
SPACE				17	0		18				SPACE
SPACE				19	0	0	20				SPACE
SPACE				21	0		22	30/2	C		AAV
				23	0		24		C		
BASE LOAD (VA) =					3235	2800					
25% OF CONTINUOUS LOAD (VA) =					700	700	"C" DESIGNATION IDENTIFIES CONTINUOUS LOADS AND MOTOR LOADS AS REQUIRED BY SECTIONS 230.42 AND 430.24 OF THE NEC				
TOTAL LOAD (VA) =					3935	3500					
TOTAL LOAD (A) =					33	30					

1 ELECTRICAL PANEL
SCALE: NOT TO SCALE

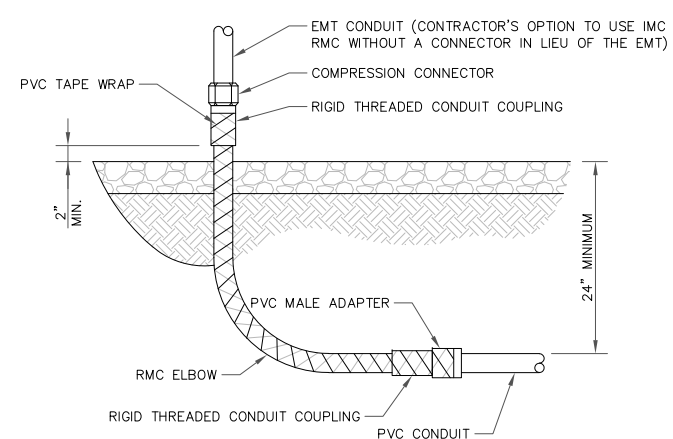


2 H-FRAME DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:
LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND



3 TYPICAL ELECTRIC & TELCO TRENCH DETAIL
SCALE: NOT TO SCALE



ALL METAL CONDUIT INSTALLED IN DIRECT CONTACT WITH THE EARTH SHALL BE CONSIDERED TO BE INSTALLED IN A SEVERELY CORROSIVE ENVIRONMENT AND IS REQUIRED TO HAVE SUPPLEMENTAL PROTECTION AGAINST CORROSION (NEC ARTICLE 342.10(B) & 344.10(B)(1)). THIS PROTECTION SHALL EITHER BE AN APPROVED MANUFACTURER INSTALLED PROTECTIVE COATING ON THE CONDUIT OR SHALL BE (2) LAYERS OF 10 MIL PVC PIPE WRAP TAPE INSTALLED USING OPPOSING SPIRAL WRAPS. ON VERTICAL PIPE THE OUTSIDE LAYER OF TAPE SHALL BE WRAPPED SO AS TO PROVIDE SHEDDING OF WATER (I.E. TAPE SHOULD WRAP IN AN UPWARD DIRECTION WITH LOWER WRAP BEING BENEATH THE WRAP ABOVE). SPIRAL WRAPS SHALL HAVE A MINIMUM OF 1/4" OVERLAP WITH THE PRECEDING TAPE WRAP. ANY OTHER METHODS OF CORROSION PROTECTION SHALL REQUIRE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO BEING USED.

4 UNDERGROUND CONDUIT STUB UP
SCALE: NOT TO SCALE

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3 CORPORATE PARK DRIVE, SUITE 101
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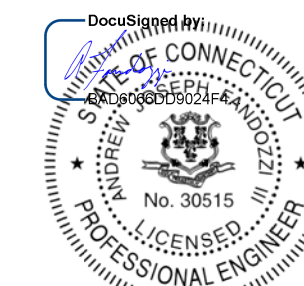
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

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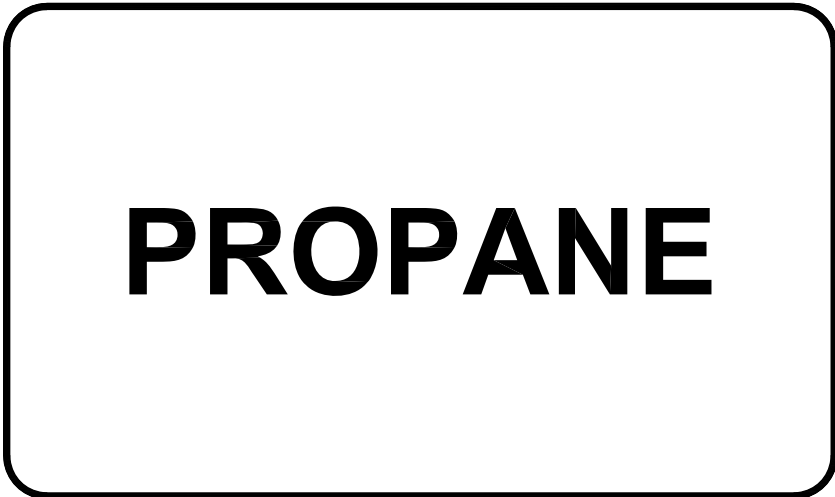
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SHEET NUMBER: **E-2** REVISION: **0**

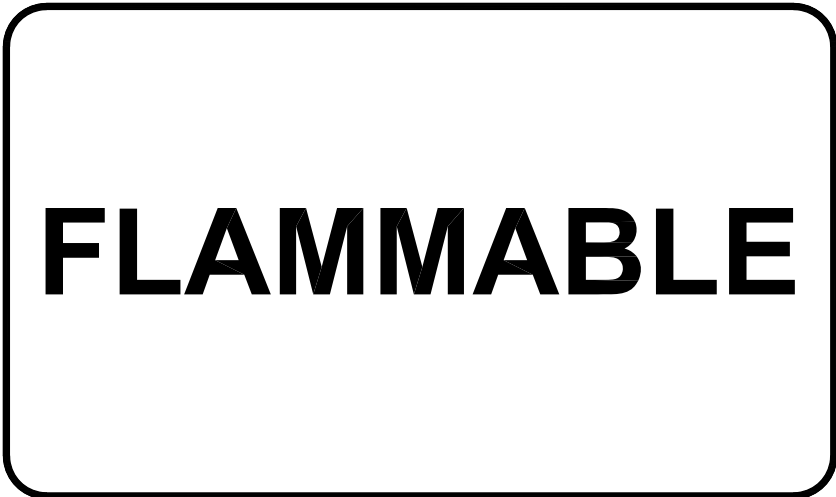
SIGNAGE REQUIREMENTS:

1. STORAGE CONTAINER MUST HAVE A DATAPLATE. (PROVIDED BY TANK MANUFACTURER DURING TANK FABRICATION)
NFPA 58:5.2.8.3
2. STORAGE CONTAINER MUST BE MARKED DESCRIBING THE CONTENTS (PROPANE OR LIQUEFIED PETROLEUM GAS) AND A STATEMENT OF THE HAZARD (FLAMMABLE).
NFPA 1:60.1.13 & IFC:2703.5
3. STORAGE CONTAINER MUST BE MARKED WITH HAZMAT ID. (CERTAIN ENTRANCES TO STORAGE OR DISPENSING AREAS MAY ALSO REQUIRE HAZMAT ID MARKING)
NFPA 1:60.1.13, NFPA 704:1.3 & IFC:2703.5
4. NO SMOKING SIGNS MUST BE POSTED IN AREAS OR SITES WHERE FLAMMABLE GASES ARE USED OR STORED. NO SMOKING OR OPEN FLAMES WITHIN 25 FT. OF POINT OF TRANSFER.
NFPA 1:60.1.13, IFC:3807.2, IFC:2703.7, & NFPA 58:7.2.3.2(B)
5. THE MAXIMUM PERMITTED PERCENTAGE (%) OF TANK CAPACITY MUST BE MARKED EITHER ON THE DATAPLATE OR ADJACENT TO THE FIXED MAXIMUM LIQUID LEVEL GAUGE.
NFPA 58:5.7.5.4

1 SIGNAGE REQUIREMENTS
SCALE: NOT TO SCALE



2 PROPANE SIGN
SCALE: NOT TO SCALE



3 FLAMMABLE SIGN
SCALE: NOT TO SCALE



4 LIQUID PETROLEUM GAS
SCALE: NOT TO SCALE



5 HAZARD LEVEL INDICATOR SIGN
SCALE: NOT TO SCALE



6 NO SMOKING SIGN
SCALE: NOT TO SCALE

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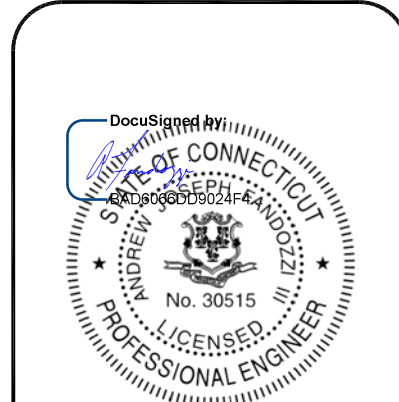
BU #: **845994**
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

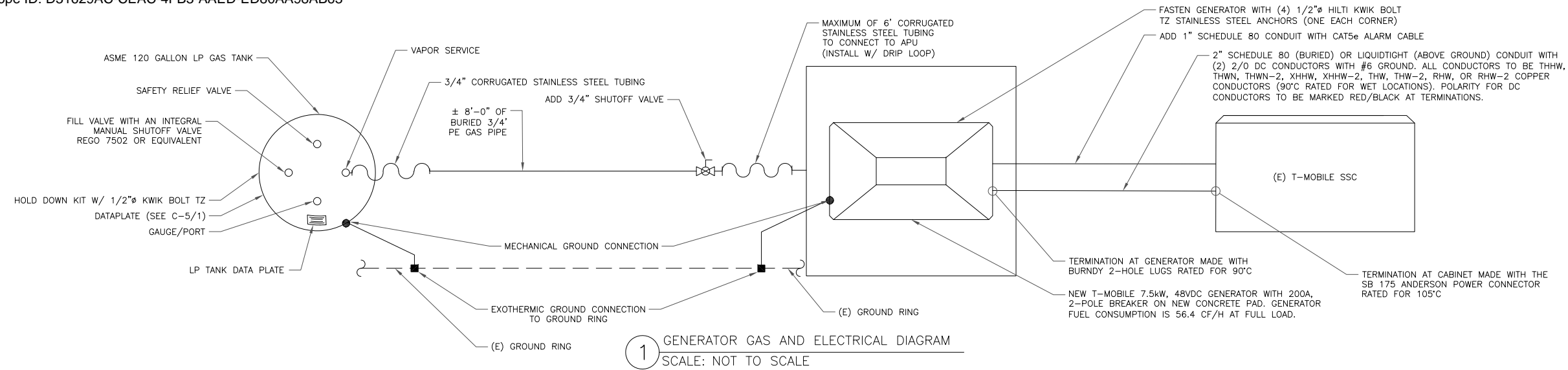
REV	DATE	DRWN	DESCRIPTION	DES./QA
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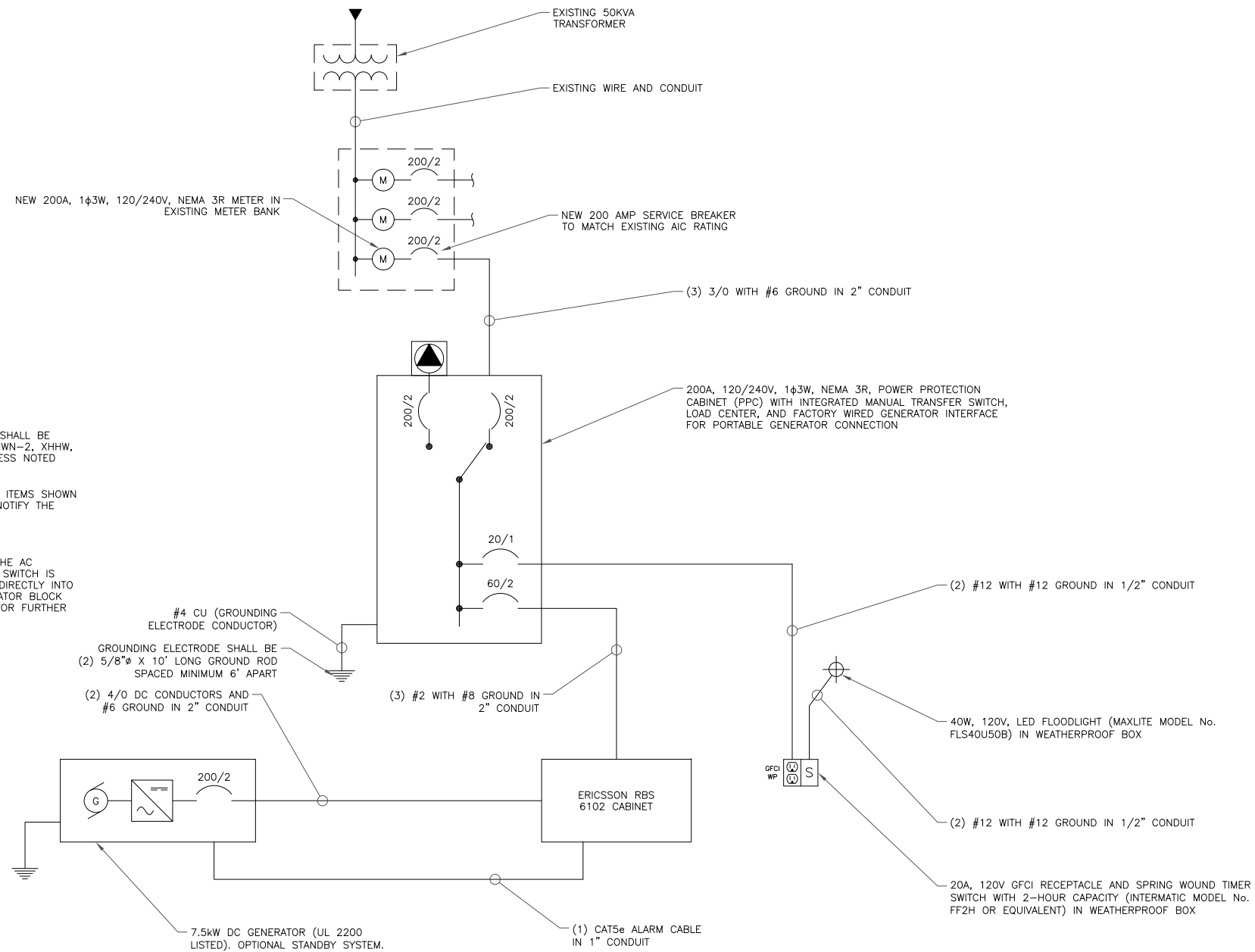
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SHEET NUMBER: **E-3** REVISION: **0**



1 GENERATOR GAS AND ELECTRICAL DIAGRAM
SCALE: NOT TO SCALE



2 ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTOR WIRE TO BE INSTALLED SHALL BE COPPER. ALL WIRE SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.
4. THE GENERATOR SHOWN DOES NOT TIE INTO THE AC ELECTRICAL SYSTEM THEREFORE NO TRANSFER SWITCH IS REQUIRED. GENERATOR IS DC ONLY AND TIES DIRECTLY INTO THE DC BUS FOR THE BATTERIES. SEE GENERATOR BLOCK DIAGRAM AND GENERATOR OPERATING MODES FOR FURTHER INFORMATION.



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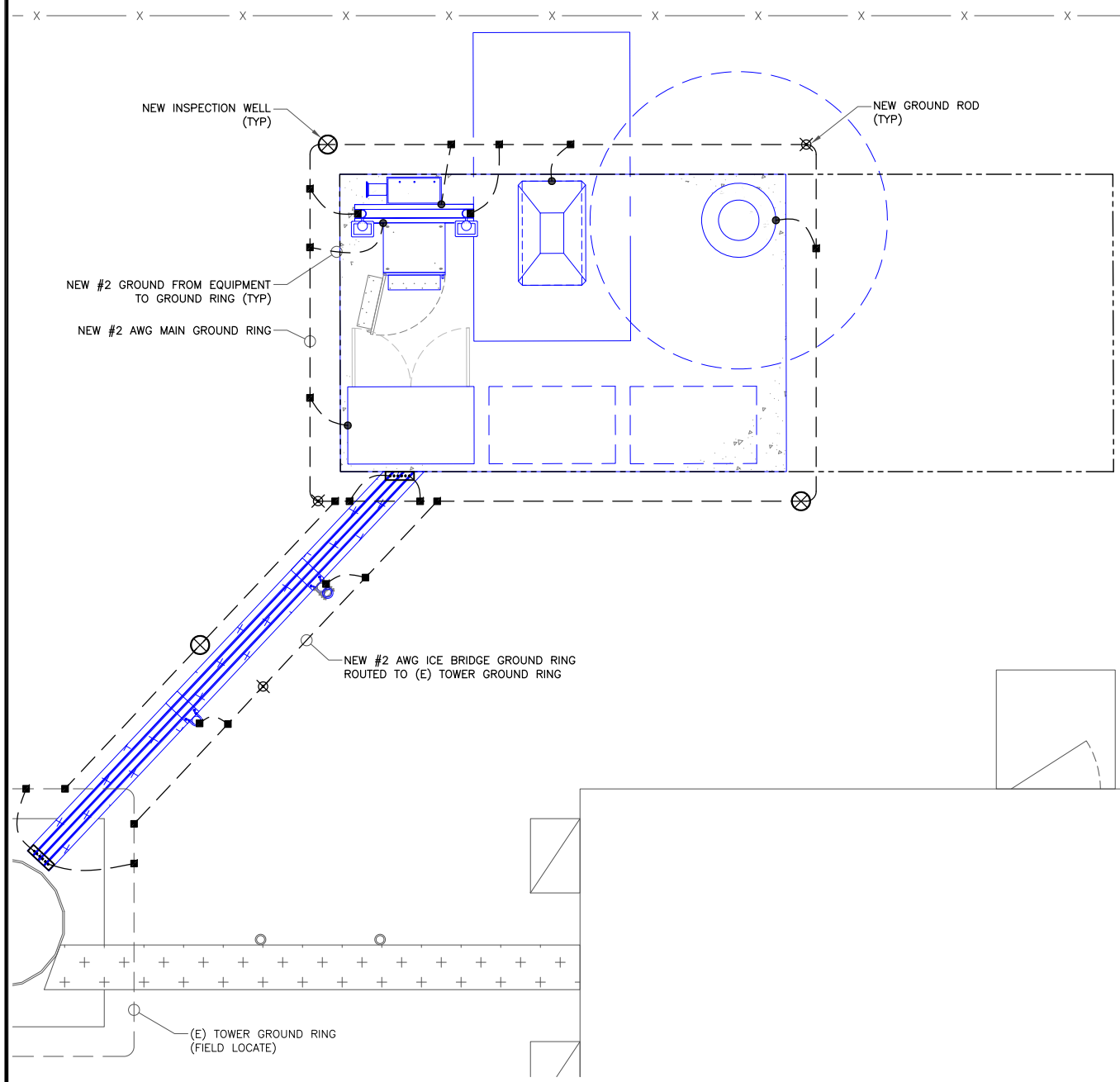
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	02/02/18	BWT	PRELIMINARY	ZTK
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DocuSigned by:
ANDREW SEBASTIAN ANDOZZI
No. 30515
LICENSED PROFESSIONAL ENGINEER

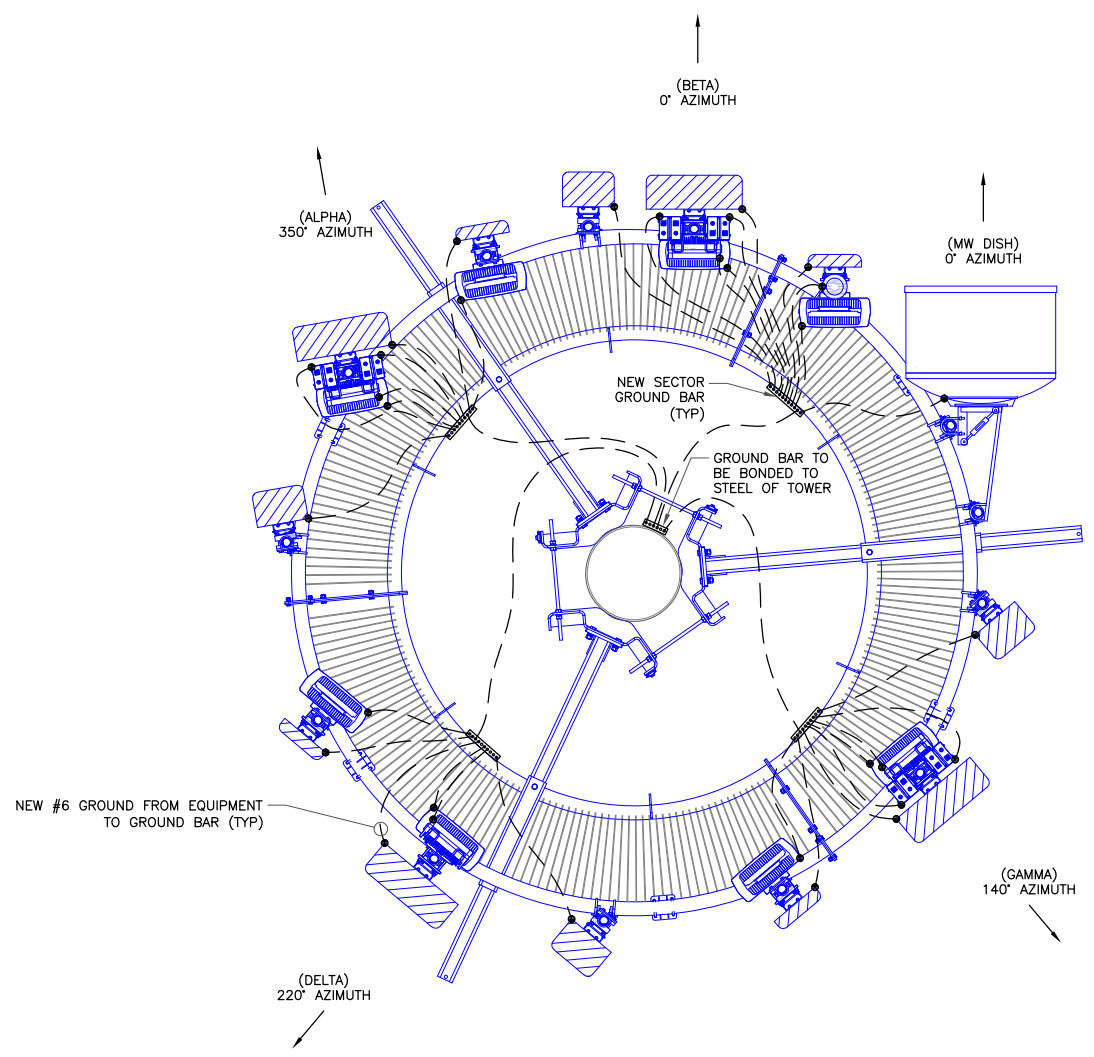
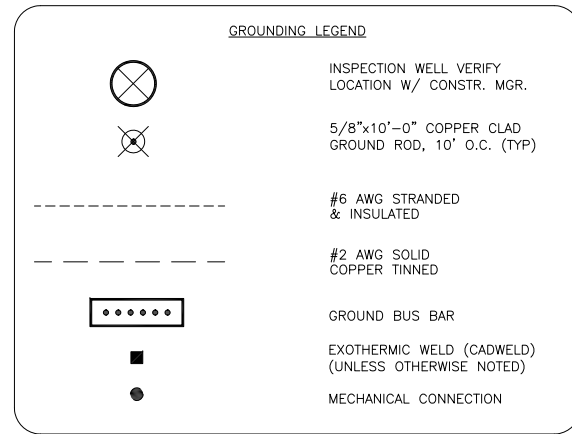
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1 EQUIPMENT GROUNDING PLAN
SCALE: NOT TO SCALE



2 ANTENNA GROUNDING PLAN
SCALE: NOT TO SCALE



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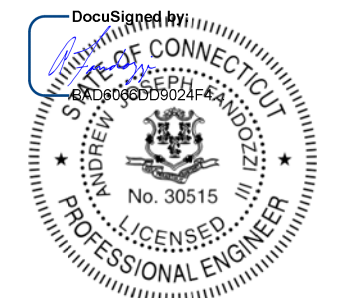
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EXISTING 140'-0" MONOPOLE

ISSUED FOR:

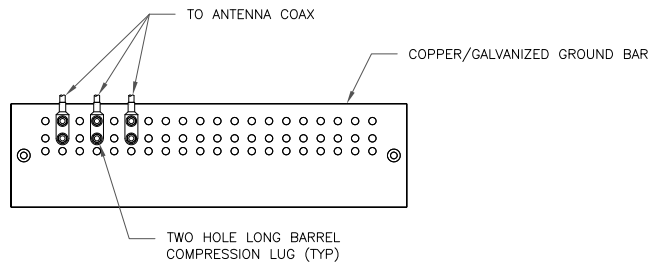
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A	02/02/18	BWT	PRELIMINARY	ZTK
0	02/22/18	BWT	CONSTRUCTION	AJF



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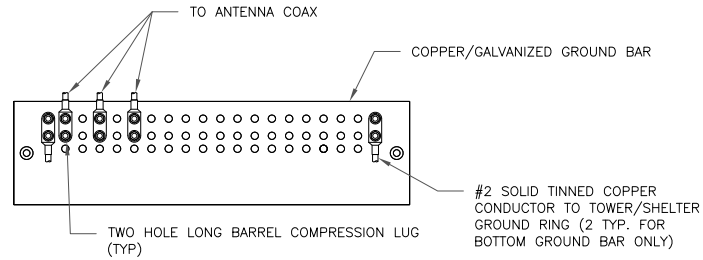
SHEET NUMBER: **G-1** REVISION: **0**



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 TOWER STEEL.

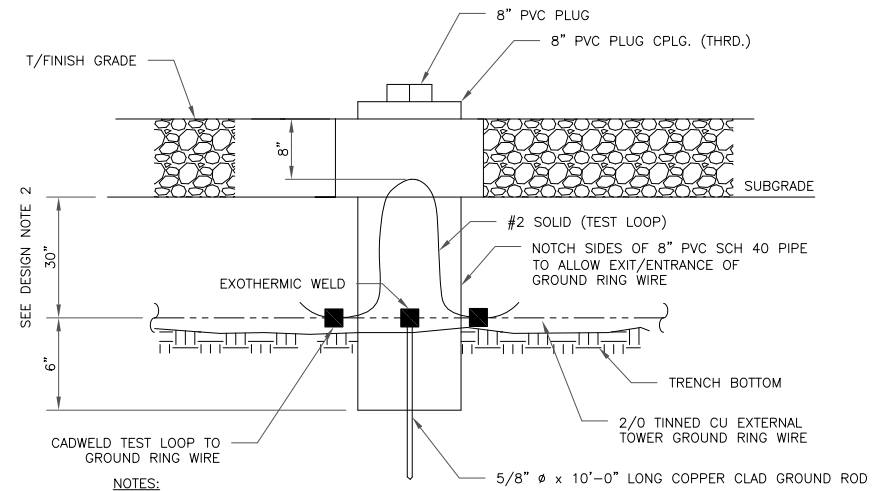
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

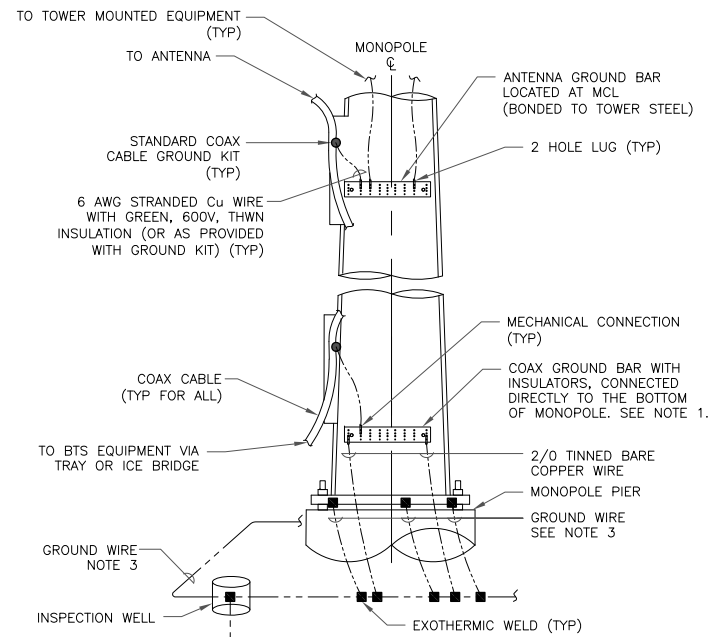
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



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)

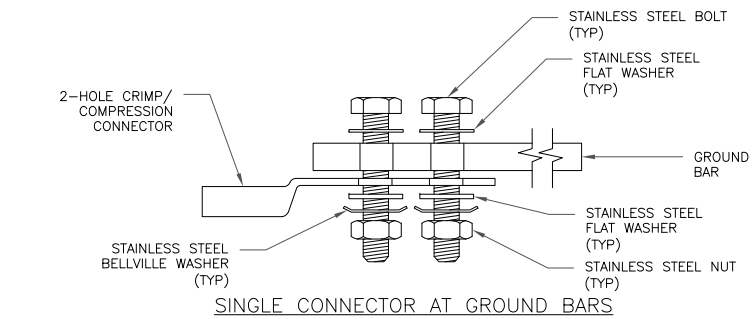
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



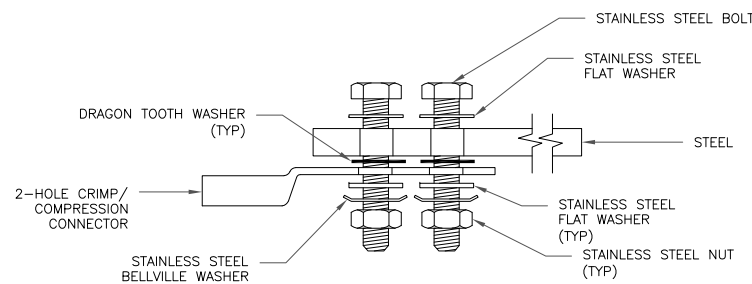
NOTES:

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 TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

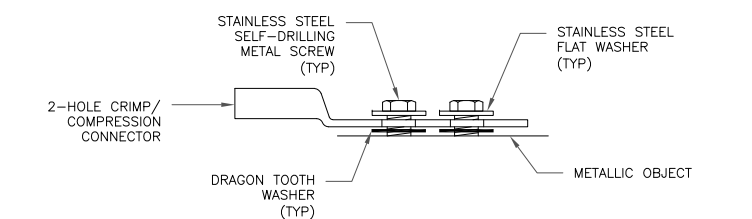
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

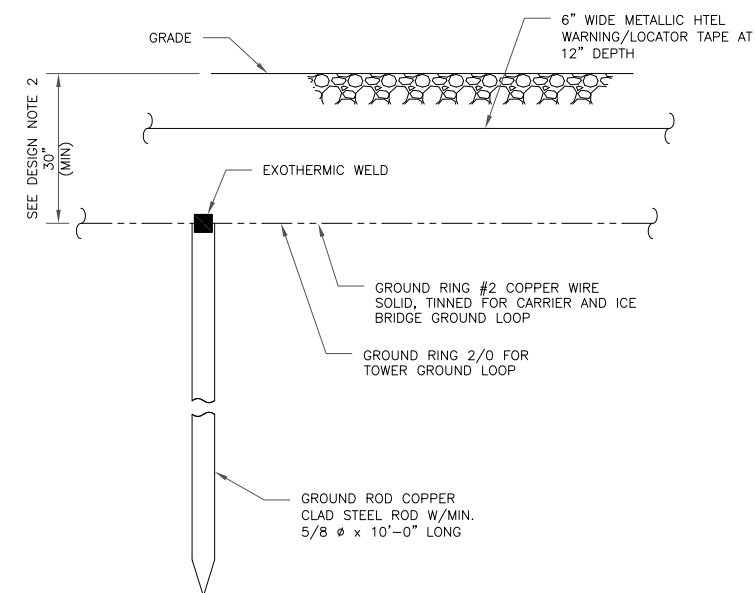


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE



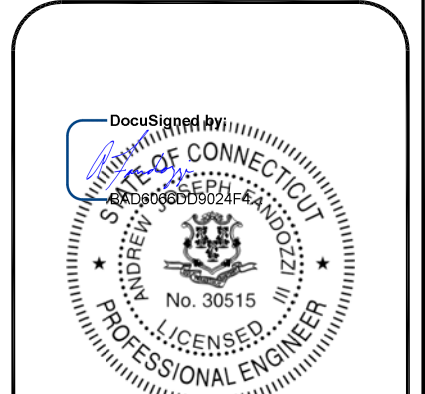
T-MOBILE SITE NUMBER:
CTHA602A

BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

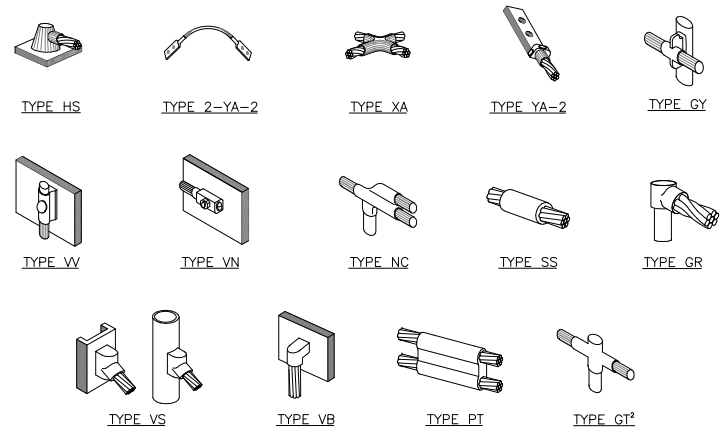
ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
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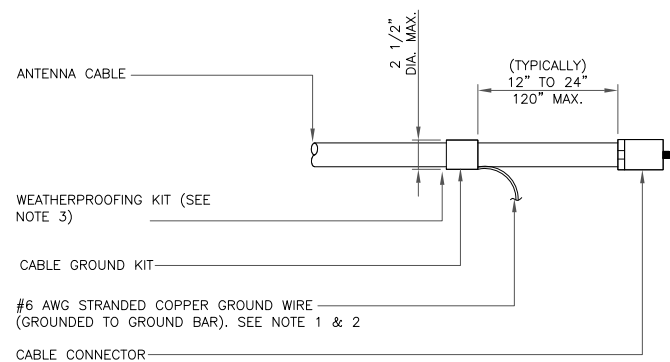
SHEET NUMBER: **G-2** REVISION: **0**



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.

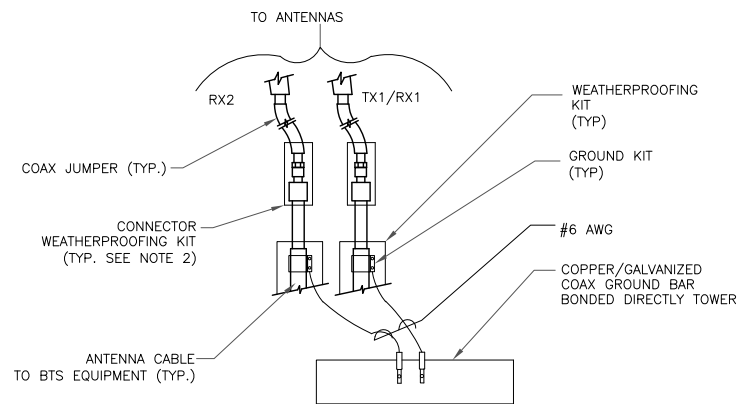
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



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.

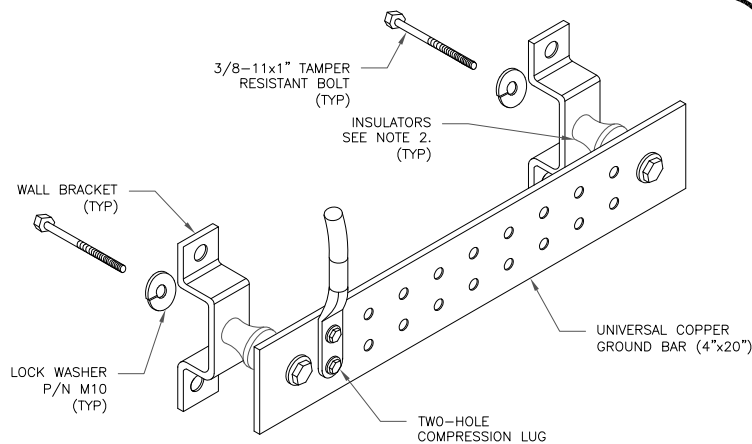
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



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.

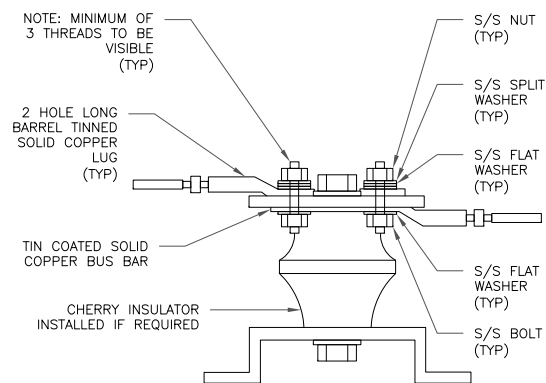
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

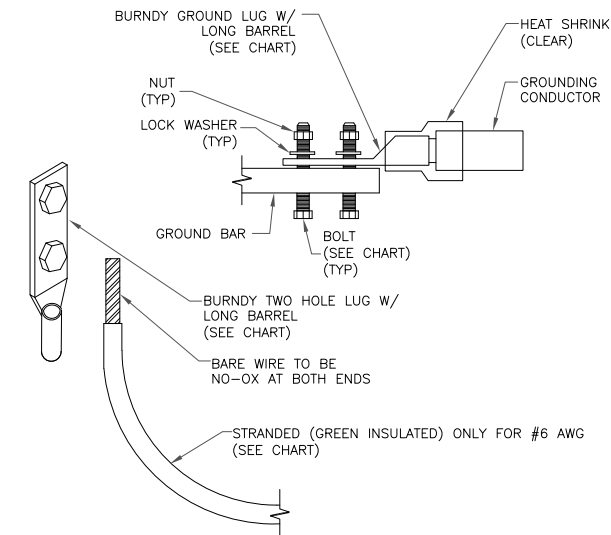
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STG-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING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

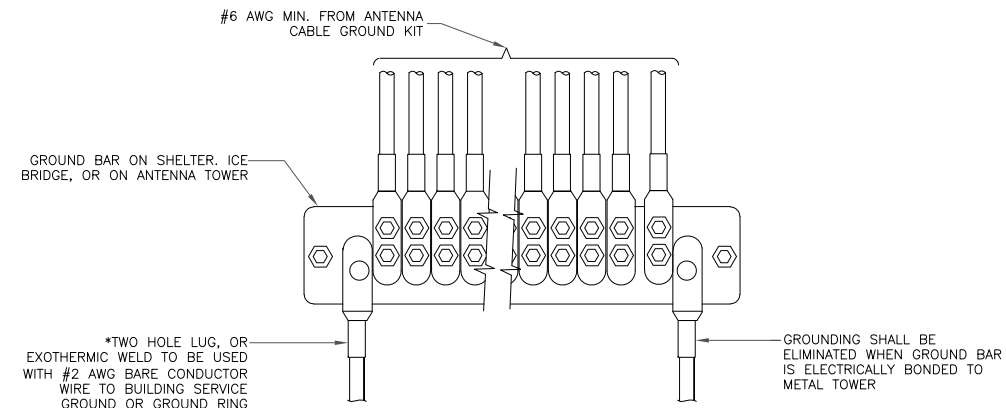
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



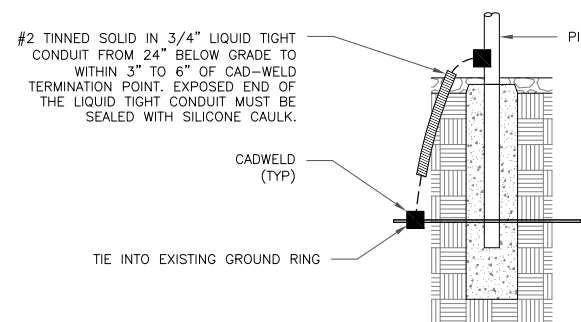
NOTES:

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:
CTHA602A

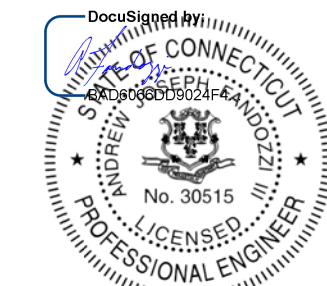
BU #: 845994
EAST HAMPTON - YOUNG STREET

151 YOUNG STREET
EAST HAMPTON, CT 06424

EXISTING 140'-0" MONOPOLE

ISSUED FOR:

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SHEET NUMBER: **G-3** REVISION: **0**

Date: January 15, 2018

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Tectonic

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Tectonic
1279 Route 300
Newburgh, NY 12550
(845) 567-6656

Subject: Structural Analysis Report

Carrier Designation:

T-Mobile Co-Locate
Carrier Site Number:
Carrier Site Name:

CTHA602A
UCTHA602A

Crown Castle Designation:

Crown Castle BU Number: 845994
Crown Castle Site Name: EAST HAMPTON - YOUNG STREET
Crown Castle JDE Job Number: 476098
Crown Castle Work Order Number: 1510872
Crown Castle Application Number: 419627 Rev. 0

Engineering Firm Designation:

Tectonic Project Number: 6500.845994

Site Data:

151 YOUNG STREET, EAST HAMPTON, Middlesex County, CT
Latitude 41° 32' 38.12", Longitude -72° 30' 22.44"
140 Foot - Monopole Tower

Dear Charles McGuirt,

Tectonic is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1128121, in accordance with application 419627, revision 0.

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: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.00 and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Tectonic appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Mahesh Chaudhary, P.E.

Respectfully submitted by:

Antonio A. Gualtieri, P.E.
Sr. Vice President



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1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by PENNSUMMIT TUBULAR, LLC in September of 2005. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-Fand with a future 30 ft extension for a final height of 150 ft.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	130.0	6	commscope	CBC78-DF-2X	2 4	1/2 1-1/4	-
		1	commscope	SHPX3-11W			
		4	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe			
		4	ericsson	RADIO 4478			
		4	ericsson	RRUS 11 B12			
		4	ericsson	RRUS 11 B4			
		1	gps	GPS_A			
		4	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe			
	4	rfs celwave	APXVAA24_43-U-A20 w/ Mount Pipe				
	128.0	4	valmont	VFA14-HD			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
139.0	140.0	3	alcatel lucent	B13 RRH 4X30	2	1-5/8	2
		3	alcatel lucent	B66A RRH4X45			
		6	antel	LPA-80063-6CF-EDIN w/ Mount Pipe			
		6	commscope	JAAH-65B-R3B w/ Mount Pipe			
		3	nokia	AIRSCALE RRH 4T4R B5 160W			
		2	raycap	RC3DC-3315-PF-48			
		139.0	1	crown mounts			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
118.0	120.0	3	ericsson	RRUS-11	12	1-5/8 3/8 7/8	1
		2	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
	1	raycap	DC6-48-60-18-8F				
	118.0	1	crown mounts	SM 901-3			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
149.5	149.5	9	generic	48"x12"x3" Panel Antenna	-	-
140.0	140.0	9	generic	48"x12"x3" Panel Antenna	-	-
130.0	130.0	9	generic	48"x12"x3" Panel Antenna	-	-
119.5	119.5	6	powerwave	7770 Panel	-	-
		6	powerwave	LGP13519		
		6	powerwave	LGP21401		
110.0	110.0	9	generic	48"x12"x3" Panel Antenna	-	-
100.0	100.0	9	generic	48"x12"x3" Panel Antenna	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Velocitel	6109303	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PennSummit Tubular, LLC	4301090	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PennSummit Tubular, LLC	5236444	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	GPD Group	4301091	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) Tectonic did not analyze the antenna supporting mounts as a part of this analysis report and assumed they are structurally sufficient. It is the carrier's responsibility to ensure structural compliance of their existing and/or proposed antenna supporting mounts.
- 5) The geometry and grade of the 120' to 140' section are based on the previous analysis report by GPD Group referenced above.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	140 - 120	Pole	TP24x24x0.375	1	-9.41	876.73	42.7	Pass
L2	120 - 100	Pole	TP32.271x24x0.2188	2	-14.23	1460.75	65.5	Pass
L3	100 - 80	Pole	TP36.379x32.271x0.2188	3	-16.63	1539.51	86.1	Pass
L4	80 - 69.5	Pole	TP38.0983x35.0172x0.3125	4	-20.10	2638.89	63.4	Pass
L5	69.5 - 54.5	Pole	TP41.1797x38.0983x0.3125	5	-23.38	2779.62	70.9	Pass
L6	54.5 - 39.5	Pole	TP44.261x41.1797x0.3125	6	-25.58	2862.94	75.0	Pass
L7	39.5 - 30	Pole	TP45.5873x42.5062x0.375	7	-30.57	3792.54	64.6	Pass
L8	30 - 15	Pole	TP48.6687x45.5873x0.375	8	-34.90	3963.02	68.0	Pass
L9	15 - 0	Pole	TP51.75x48.6687x0.375	9	-39.19	4122.27	70.9	Pass
							Summary	
						Pole (L3)	86.1	Pass
						Rating =	86.1	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	61.8	Pass
1	Base Plate	0	54.9	Pass
1	Base Foundation	0	50.3	Pass
1	Base Foundation Soil Interaction	0	45.8	Pass
1	Flange Bolts	120	65.7	Pass
1	Flange Plates	120	58.2	Pass

Structure Rating (max from all components) =	86.1%
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Notes:

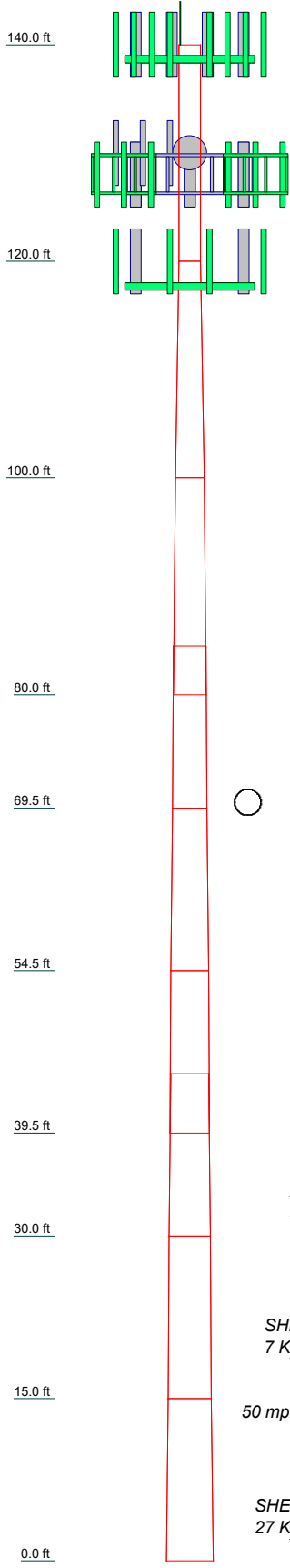
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9	19.3
Length (ft)	20.00	20.00	20.00	15.00	15.00	15.00	15.00	15.00	15.00	19.3
Number of Sides	1	18	18	18	18	18	18	18	18	
Thickness (in)	0.3750	0.2188	0.2188	0.3125	0.3125	0.3125	0.3750	0.3750	0.3750	
Socket Length (ft)		4.50				5.50				
Top Dia (in)	24.0000	24.0000	32.2710	35.0172	38.0983	41.1797	42.5062	45.5873	48.6687	
Bot Dia (in)	24.0000	32.2710	36.3790	38.0983	41.1797	44.2610	45.5873	48.6687	51.7500	
Grade	A53-B-35									
Weight (K)	1.9	1.3	1.6	1.8	2.0	2.1	2.7	2.8	3.0	



DESIGNED APPURTENANCE LOADING

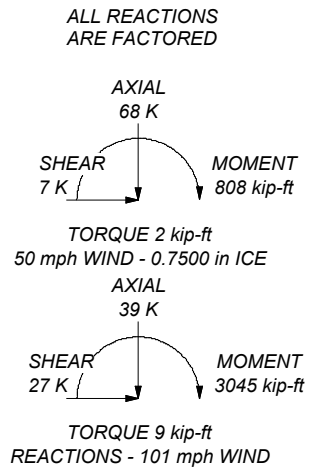
TYPE	ELEVATION	TYPE	ELEVATION
4' Lightning Rod	140	APXVAA24_43-U-A20 w/ Mount Pipe	128
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	139	APXVAA24_43-U-A20 w/ Mount Pipe	128
		GPS_A	128
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	139	(2) RADIO 4478	128
		RADIO 4478	128
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	139	RADIO 4478	128
		RRUS 11 B12	128
(2) JAHH-65B-R3B w/ Mount Pipe	139	RRUS 11 B12	128
		(2) RRUS 11 B12	128
(2) JAHH-65B-R3B w/ Mount Pipe	139	(2) RRUS 11 B4	128
B13 RRH 4X30	139	RRUS 11 B4	128
B13 RRH 4X30	139	RRUS 11 B4	128
B13 RRH 4X30	139	RRUS 11 B4	128
AIRSCALE RRH 4T4R B5 160W	139	(4) CBC78-DF-2X	128
AIRSCALE RRH 4T4R B5 160W	139	(2) CBC78-DF-2X	128
AIRSCALE RRH 4T4R B5 160W	139	6' x 2.5" STD Pipe	128
B66A RRH4X45	139	VFA14-HD	128
B66A RRH4X45	139	VFA14-HD	128
B66A RRH4X45	139	VFA14-HD	128
RC3DC-3315-PF-48	139	VFA14-HD	128
RC3DC-3315-PF-48	139	SHPX3-11W	128
TA 602-3	139	(2) 7770.00 w/ Mount Pipe	118
AIR 32 B2A/B66AA w/ Mount Pipe	128	(2) 7770.00 w/ Mount Pipe	118
AIR 32 B2A/B66AA w/ Mount Pipe	128	P65-17-XLH-RR w/ Mount Pipe	118
AIR 32 B2A/B66AA w/ Mount Pipe	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	RRUS-11	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	RRUS-11	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	RRUS-11	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	(2) LGP21401	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	(2) LGP21401	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	(2) LGP21401	118
APXVAA24_43-U-A20 w/ Mount Pipe	128	DC6-48-60-18-8F	118
APXVAA24_43-U-A20 w/ Mount Pipe	128	SM 901-3	118
		(2) 7770.00 w/ Mount Pipe	118

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86.1%



<p>Tectonic PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.</p>	<p>Tectonic</p> <p>1279 Route 300 Newburgh, NY 12550 Phone: (845) 567-6656 FAX: (845) 567-8703</p>		<p>Job: 6500.845994</p>
	<p>Project: BU 845994 - EAST HAMPTON - YOUNG STREET</p>		
	<p>Client: Crown Castle</p>	<p>Drawn by: Veronica Elson</p>	<p>App'd:</p>
	<p>Code: TIA-222-G</p>	<p>Date: 01/15/18</p>	<p>Scale: NTS</p>
	<p>Path:</p>	<p>Dwg No. E-1</p>	

Tower Input Data

There is a pole section.
 This tower is designed using the TIA-222-G standard.
 The following design criteria apply:

- 3) Tower is located in Middlesex County, Connecticut.
- 4) Basic wind speed of 101 mph.
- 5) Structure Class II.
- 6) Exposure Category B.
- 7) Topographic Category 1.
- 8) Crest Height 0.00 ft.
- 9) Nominal ice thickness of 0.7500 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.
- 18) 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 | 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-G Bracing Resist.
Exemption
Use TIA-222-G 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 |
|--|--|---|

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	140.00-120.00	20.00	0.00	Round	24.0000	24.0000	0.3750		A53-B-35 (35 ksi)
L2	120.00-100.00	20.00	0.00	18	24.0000	32.2710	0.2188	0.8750	A572-65 (65 ksi)
L3	100.00-80.00	20.00	4.50	18	32.2710	36.3790	0.2188	0.8750	A572-65 (65 ksi)
L4	80.00-69.50	15.00	0.00	18	35.0172	38.0983	0.3125	1.2500	A572-65 (65 ksi)
L5	69.50-54.50	15.00	0.00	18	38.0983	41.1797	0.3125	1.2500	A572-65 (65 ksi)
L6	54.50-39.50	15.00	5.50	18	41.1797	44.2610	0.3125	1.2500	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L7	39.50-30.00	15.00	0.00	18	42.5062	45.5873	0.3750	1.5000	(65 ksi) A572-65
L8	30.00-15.00	15.00	0.00	18	45.5873	48.6687	0.3750	1.5000	(65 ksi) A572-65
L9	15.00-0.00	15.00		18	48.6687	51.7500	0.3750	1.5000	(65 ksi) A572-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L2	24.3702	16.5116	1179.7676	8.4423	12.1920	96.7657	2361.0876	8.2574	3.8390	17.55
	32.7688	22.2543	2888.4709	11.3785	16.3937	176.1943	5780.7426	11.1293	5.2947	24.204
L3	32.7688	22.2543	2888.4709	11.3785	16.3937	176.1943	5780.7426	11.1293	5.2947	24.204
	36.9402	25.1065	4147.5030	12.8369	18.4805	224.4255	8300.4634	12.5556	6.0177	27.51
L4	36.4960	34.4227	5237.9250	12.3202	17.7887	294.4518	10482.742	17.2146	5.6130	17.962
	38.6860	37.4788	6760.5224	13.4140	19.3539	349.3099	13529.940	18.7430	6.1553	19.697
L5	38.6860	37.4788	6760.5224	13.4140	19.3539	349.3099	13529.940	18.7430	6.1553	19.697
	41.8150	40.5352	8553.0113	14.5079	20.9193	408.8577	17117.276	20.2714	6.6976	21.432
L6	41.8150	40.5352	8553.0113	14.5079	20.9193	408.8577	17117.276	20.2714	6.6976	21.432
	44.9438	43.5914	10637.181	15.6017	22.4846	473.0877	21288.359	21.7999	7.2399	23.168
L7	44.3091	50.1466	11245.708	14.9566	21.5931	520.7999	22506.214	25.0781	6.8211	18.19
	46.2906	53.8139	13897.780	16.0504	23.1583	600.1197	27813.847	26.9121	7.3634	19.636
L8	46.2906	53.8139	13897.780	16.0504	23.1583	600.1197	27813.847	26.9121	7.3634	19.636
	49.4195	57.4816	16937.413	17.1443	24.7237	685.0679	33897.112	28.7463	7.9057	21.082
L9	49.4195	57.4816	16937.413	17.1443	24.7237	685.0679	33897.112	28.7463	7.9057	21.082
	52.5483	61.1491	20390.653	18.2381	26.2890	775.6344	40808.137	30.5804	8.4480	22.528

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 140.00- 120.00				1	1	1			
L2 120.00- 100.00				1	1	1			
L3 100.00- 80.00				1	1	1			
L4 80.00- 69.50				1	1	1			
L5 69.50- 54.50				1	1	1			
L6 54.50- 39.50				1	1	1			
L7 39.50- 30.00				1	1	1			
L8 30.00- 15.00				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L9 15.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Section	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
Safety Line 3/8	B	Surface Ar (CaAa)	140.00 - 8.00	1	1	0.400 0.400	0.3750		0.22
Step Bolts	B	Surface Ar (CaAa)	140.00 - 8.00	1	1	0.400 0.400	0.3750		2.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_{AA}	Weight
				ft			ft ² /ft	plf

LDF7-50A(1-5/8)	C	No	Inside Pole	139.00 - 8.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	139.00 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.30 1.30 1.30

LDF4-50A(1/2)	B	No	Inside Pole	128.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.15 0.15 0.15
HB114-U6S12-XXX-LI(1-1/4)	B	No	Inside Pole	128.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.70 1.70 1.70

2" Conduit	B	No	Inside Pole	118.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	2.40 2.40 2.40
LDF2-50A(3/8)	B	No	Inside Pole	118.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.08 0.08 0.08
LDF5-50A(7/8)	B	No	Inside Pole	118.00 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33
LDF7-50A(1-5/8)	B	No	Inside Pole	118.00 - 8.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation	Face	A_R	A_F	C_{AA} In Face	C_{AA} Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
L1	140.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.500	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.24
L2	120.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.500	0.000	0.42

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L3	100.00-80.00	C	0.000	0.000	0.000	0.000	0.25
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.500	0.000	0.45
L4	80.00-69.50	C	0.000	0.000	0.000	0.000	0.25
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.787	0.000	0.23
L5	69.50-54.50	C	0.000	0.000	0.000	0.000	0.13
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.125	0.000	0.33
L6	54.50-39.50	C	0.000	0.000	0.000	0.000	0.19
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.125	0.000	0.33
L7	39.50-30.00	C	0.000	0.000	0.000	0.000	0.19
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.713	0.000	0.21
L8	30.00-15.00	C	0.000	0.000	0.000	0.000	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.125	0.000	0.33
L9	15.00-0.00	C	0.000	0.000	0.000	0.000	0.19
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.525	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.09

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	140.00-120.00	A	1.720	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	15.263	0.000	0.28
		C		0.000	0.000	0.000	0.000	0.24
L2	120.00-100.00	A	1.691	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	15.029	0.000	0.59
		C		0.000	0.000	0.000	0.000	0.25
L3	100.00-80.00	A	1.658	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	14.763	0.000	0.61
		C		0.000	0.000	0.000	0.000	0.25
L4	80.00-69.50	A	1.628	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	7.751	0.000	0.32
		C		0.000	0.000	0.000	0.000	0.13
L5	69.50-54.50	A	1.597	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	10.709	0.000	0.45
		C		0.000	0.000	0.000	0.000	0.19
L6	54.50-39.50	A	1.554	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	10.447	0.000	0.44
		C		0.000	0.000	0.000	0.000	0.19
L7	39.50-30.00	A	1.508	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.617	0.000	0.28
		C		0.000	0.000	0.000	0.000	0.12
L8	30.00-15.00	A	1.443	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	9.784	0.000	0.43
		C		0.000	0.000	0.000	0.000	0.19
L9	15.00-0.00	A	1.292	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	4.143	0.000	0.25
		C		0.000	0.000	0.000	0.000	0.09

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	140.00-120.00	0.1047	0.0340	0.7251	0.2356

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L2	120.00-100.00	0.1035	0.0336	0.7460	0.2424
L3	100.00-80.00	0.1038	0.0337	0.7770	0.2525
L4	80.00-69.50	0.1039	0.0338	0.7913	0.2571
L5	69.50-54.50	0.1040	0.0338	0.7836	0.2546
L6	54.50-39.50	0.1041	0.0338	0.7807	0.2537
L7	39.50-30.00	0.1042	0.0339	0.7874	0.2558
L8	30.00-15.00	0.1042	0.0339	0.7547	0.2452
L9	15.00-0.00	0.0483	0.0157	0.3447	0.1120

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	1	Safety Line 3/8	120.00 - 140.00	1.0000	1.0000
L1	2	Step Bolts	120.00 - 140.00	1.0000	1.0000
L2	1	Safety Line 3/8	100.00 - 120.00	1.0000	1.0000
L2	2	Step Bolts	100.00 - 120.00	1.0000	1.0000
L3	1	Safety Line 3/8	80.00 - 100.00	1.0000	1.0000
L3	2	Step Bolts	80.00 - 100.00	1.0000	1.0000
L5	1	Safety Line 3/8	54.50 - 69.50	1.0000	1.0000
L5	2	Step Bolts	54.50 - 69.50	1.0000	1.0000
L6	1	Safety Line 3/8	39.50 - 54.50	1.0000	1.0000
L6	2	Step Bolts	39.50 - 54.50	1.0000	1.0000
L8	1	Safety Line 3/8	15.00 - 30.00	1.0000	1.0000
L8	2	Step Bolts	15.00 - 30.00	1.0000	1.0000
L9	1	Safety Line 3/8	8.00 - 15.00	1.0000	1.0000
L9	2	Step Bolts	8.00 - 15.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t	Placement ft	C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K	
4' Lightning Rod	C	From Leg	0.00	0.0000	140.00	No Ice	0.25	0.25	0.01
			0.00			1/2"	0.66	0.66	0.01
			2.00			Ice	0.97	0.97	0.02
						1" Ice			

(2) LPA-80063-6CF-EDIN w/ Mount Pipe	A	From Leg	4.00	0.0000	139.00	No Ice	9.97	10.25	0.05
			0.00			1/2"	10.54	11.42	0.15

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
			1.00				Ice	11.08	12.31	0.25	
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	B	From Leg	4.00			0.0000	139.00	1" Ice	9.97	10.25	0.05
			0.00					No Ice	10.54	11.42	0.15
			1.00					1/2"	11.08	12.31	0.25
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	C	From Leg	4.00			0.0000	139.00	1" Ice	9.97	10.25	0.05
			0.00					No Ice	10.54	11.42	0.15
			1.00					1/2"	11.08	12.31	0.25
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00			0.0000	139.00	1" Ice	9.35	7.65	0.09
			0.00					No Ice	9.92	8.83	0.17
			1.00					1/2"	10.46	9.73	0.25
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00			0.0000	139.00	1" Ice	9.35	7.65	0.09
			0.00					No Ice	9.92	8.83	0.17
			1.00					1/2"	10.46	9.73	0.25
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00			0.0000	139.00	1" Ice	9.35	7.65	0.09
			0.00					No Ice	9.92	8.83	0.17
			1.00					1/2"	10.46	9.73	0.25
B13 RRH 4X30	A	From Leg	4.00			0.0000	139.00	1" Ice	2.06	1.32	0.06
			0.00					No Ice	2.24	1.48	0.07
			1.00					1/2"	2.43	1.64	0.09
B13 RRH 4X30	B	From Leg	4.00			0.0000	139.00	1" Ice	2.06	1.32	0.06
			0.00					No Ice	2.24	1.48	0.07
			1.00					1/2"	2.43	1.64	0.09
B13 RRH 4X30	C	From Leg	4.00			0.0000	139.00	1" Ice	2.06	1.32	0.06
			0.00					No Ice	2.24	1.48	0.07
			1.00					1/2"	2.43	1.64	0.09
AIRSCALE RRH 4T4R B5 160W	A	From Leg	4.00			0.0000	139.00	1" Ice	1.29	0.72	0.04
			0.00					No Ice	1.43	0.83	0.05
			1.00					1/2"	1.58	0.96	0.06
AIRSCALE RRH 4T4R B5 160W	B	From Leg	4.00			0.0000	139.00	1" Ice	1.29	0.72	0.04
			0.00					No Ice	1.43	0.83	0.05
			1.00					1/2"	1.58	0.96	0.06
AIRSCALE RRH 4T4R B5 160W	C	From Leg	4.00			0.0000	139.00	1" Ice	1.29	0.72	0.04
			0.00					No Ice	1.43	0.83	0.05
			1.00					1/2"	1.58	0.96	0.06
B66A RRH4X45	A	From Leg	4.00			0.0000	139.00	1" Ice	2.58	1.63	0.06
			0.00					No Ice	2.79	1.81	0.08
			1.00					1/2"	3.01	2.00	0.10
B66A RRH4X45	B	From Leg	4.00			0.0000	139.00	1" Ice	2.58	1.63	0.06
			0.00					No Ice	2.79	1.81	0.08
			1.00					1/2"	3.01	2.00	0.10
B66A RRH4X45	C	From Leg	4.00			0.0000	139.00	1" Ice	2.58	1.63	0.06
			0.00					No Ice	2.79	1.81	0.08
			1.00					1/2"	3.01	2.00	0.10
RC3DC-3315-PF-48	B	From Leg	4.00			0.0000	139.00	1" Ice	3.79	2.51	0.03
			0.00					No Ice	4.04	2.72	0.06
			1.00					1/2"	4.30	2.94	0.10
RC3DC-3315-PF-48	C	From Leg	4.00			0.0000	139.00	1" Ice	3.79	2.51	0.03
			0.00					No Ice	4.04	2.72	0.06
			1.00					1/2"	4.30	2.94	0.10

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
TA 602-3	C	None		0.0000	139.00	1" Ice No Ice 1/2" Ice 1" Ice	11.59 15.44 19.29	11.59 15.44 19.29	0.77 0.99 1.21

AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Face	4.00 0.00 2.00	50.0000	128.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	20.0000	128.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	-20.0000	128.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
APX16DWV-16DWV-S-E- A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	6.82 7.28 7.72	3.49 4.26 4.96	0.06 0.11 0.16
APX16DWV-16DWV-S-E- A20 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	50.0000	128.00	No Ice 1/2" Ice 1" Ice	6.82 7.28 7.72	3.49 4.26 4.96	0.06 0.11 0.16
APX16DWV-16DWV-S-E- A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	20.0000	128.00	No Ice 1/2" Ice 1" Ice	6.82 7.28 7.72	3.49 4.26 4.96	0.06 0.11 0.16
APX16DWV-16DWV-S-E- A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	-20.0000	128.00	No Ice 1/2" Ice 1" Ice	6.82 7.28 7.72	3.49 4.26 4.96	0.06 0.11 0.16
APXVAA24_43-U-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	20.50 21.26 22.02	10.88 12.41 13.96	0.13 0.27 0.42
APXVAA24_43-U-A20 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	50.0000	128.00	No Ice 1/2" Ice 1" Ice	20.50 21.26 22.02	10.88 12.41 13.96	0.13 0.27 0.42
APXVAA24_43-U-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	20.0000	128.00	No Ice 1/2" Ice 1" Ice	20.50 21.26 22.02	10.88 12.41 13.96	0.13 0.27 0.42
APXVAA24_43-U-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	-20.0000	128.00	No Ice 1/2" Ice 1" Ice	20.50 21.26 22.02	10.88 12.41 13.96	0.13 0.27 0.42
GPS_A	A	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
(2) RADIO 4478	A	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	1.63 1.78 1.95	1.00 1.13 1.27	0.06 0.07 0.09
RADIO 4478	B	From Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	1.63 1.78 1.95	1.00 1.13 1.27	0.06 0.07 0.09

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
RADIO 4478	C	From Leg	4.00	0.0000	128.00	1" Ice			
			0.00			No Ice	1.63	1.00	0.06
			2.00			1/2"	1.78	1.13	0.07
RRUS 11 B12	A	From Leg	4.00	0.0000	128.00	Ice	1.95	1.27	0.09
			0.00			1" Ice			
			2.00			No Ice	2.83	1.18	0.05
RRUS 11 B12	B	From Leg	4.00	0.0000	128.00	1/2"	3.04	1.33	0.07
			0.00			Ice	3.26	1.48	0.10
			2.00			1" Ice			
(2) RRUS 11 B12	C	From Leg	4.00	0.0000	128.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			2.00			Ice	3.26	1.48	0.10
(2) RRUS 11 B4	A	From Leg	4.00	0.0000	128.00	1" Ice			
			0.00			No Ice	2.83	1.18	0.05
			2.00			1/2"	3.04	1.33	0.07
RRUS 11 B4	B	From Leg	4.00	0.0000	128.00	Ice	3.26	1.48	0.10
			0.00			1" Ice			
			2.00			No Ice	2.83	1.18	0.05
RRUS 11 B4	C	From Leg	4.00	0.0000	128.00	1/2"	3.04	1.33	0.07
			0.00			Ice	3.26	1.48	0.10
			2.00			1" Ice			
(4) CBC78-DF-2X	A	From Leg	4.00	0.0000	128.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			2.00			Ice	3.26	1.48	0.10
(2) CBC78-DF-2X	B	From Leg	4.00	0.0000	128.00	1" Ice			
			0.00			No Ice	0.39	0.38	0.01
			2.00			1/2"	0.47	0.45	0.02
6' x 2.5" STD Pipe	A	From Leg	4.00	0.0000	128.00	Ice	0.56	0.54	0.02
			0.00			1" Ice			
			2.00			No Ice	0.39	0.38	0.01
VFA14-HD	A	From Leg	4.00	20.0000	128.00	1/2"	0.47	0.45	0.02
			0.00			Ice	0.56	0.54	0.02
			0.00			1" Ice			
VFA14-HD	A	From Face	2.00	-10.0000	128.00	No Ice	1.73	1.73	0.03
			0.00			1/2"	2.09	2.09	0.05
			0.00			Ice	2.46	2.46	0.06
VFA14-HD	B	From Leg	2.00	-10.0000	128.00	1" Ice			
			0.00			No Ice	14.40	9.20	0.67
			0.00			1/2"	21.40	14.60	0.83
VFA14-HD	C	From Leg	2.00	-40.0000	128.00	Ice	27.70	19.50	1.05
			0.00			1" Ice			
			0.00			No Ice	14.40	9.20	0.67
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	118.00	1/2"	21.40	14.60	0.83
			0.00			Ice	27.70	19.50	1.05
			2.00			1" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	118.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K	
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	5.75	4.25	0.06
			2.00			1/2" Ice	6.18	5.01	0.10
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	11.70	8.94	0.09
			2.00			1/2" Ice	12.42	10.45	0.18
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	8.26	6.30	0.07
			2.00			1/2" Ice	8.82	7.48	0.14
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	8.26	6.30	0.07
			2.00			1/2" Ice	8.82	7.48	0.14
RRUS-11	A	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	2.78	1.19	0.05
			2.00			1/2" Ice	2.99	1.33	0.07
RRUS-11	B	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	2.78	1.19	0.05
			2.00			1/2" Ice	2.99	1.33	0.07
RRUS-11	C	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	2.78	1.19	0.05
			2.00			1/2" Ice	2.99	1.33	0.07
(2) LGP21401	A	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	1.10	0.21	0.01
			2.00			1/2" Ice	1.24	0.27	0.02
(2) LGP21401	B	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	1.10	0.21	0.01
			2.00			1/2" Ice	1.24	0.27	0.02
(2) LGP21401	C	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	1.10	0.21	0.01
			2.00			1/2" Ice	1.24	0.27	0.02
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	118.00	1" Ice			
			0.00			No Ice	0.92	0.92	0.02
			2.00			1/2" Ice	1.46	1.46	0.04
SM 901-3	C	None		0.0000	118.00	1" Ice			
						No Ice	12.90	12.90	1.26
						1/2" Ice	17.16	17.16	1.43
					Ice	21.42	21.42	1.61	
					1" Ice				

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
SHPX3-11W	A	Paraboloid w/Shroud (HP)	From Leg	4.00	0.0000		128.00	3.25	No Ice	8.30
				0.00					1/2" Ice	8.73

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
				2.00				1" Ice	9.16	0.16

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 120	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-25.43	9.99	8.39
			Max. Mx	20	-9.66	210.77	4.12
			Max. My	2	-9.41	4.15	223.34
			Max. Vy	20	-14.69	210.77	4.12
			Max. Vx	14	16.16	2.87	-217.59
L2	120 - 100	Pole	Max. Torque	4			8.54
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.86	10.29	9.85
			Max. Mx	20	-14.45	579.46	6.73
			Max. My	2	-14.23	5.71	620.59
			Max. Vy	20	-19.21	579.46	6.73
L3	100 - 80	Pole	Max. Vx	14	20.72	1.84	-616.25
			Max. Torque	4			8.86
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.25	10.35	10.07
			Max. Mx	20	-16.81	885.59	8.53
			Max. My	2	-16.63	6.80	948.67
L4	80 - 69.5	Pole	Max. Vy	20	-20.31	885.59	8.53
			Max. Vx	14	21.82	0.94	-945.83
			Max. Torque	4			8.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.15	10.33	10.21
			Max. Mx	20	-20.26	1199.48	10.24
L5	69.5 - 54.5	Pole	Max. My	2	-20.10	7.81	1283.78
			Max. Vy	20	-21.51	1199.48	10.24
			Max. Vx	14	23.02	0.04	-1282.41
			Max. Torque	4			8.82
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.50	10.24	10.29
L6	54.5 - 39.5	Pole	Max. Mx	20	-23.50	1530.03	11.90
			Max. My	14	-23.38	-0.91	-1635.57
			Max. Vy	20	-22.59	1530.03	11.90
			Max. Vx	14	24.09	-0.91	-1635.57
			Max. Torque	4			8.81
			Max Tension	1	0.00	0.00	0.00
L7	39.5 - 30	Pole	Max. Compression	26	-50.39	10.15	10.31
			Max. Mx	20	-25.67	1747.50	12.93
			Max. My	14	-25.58	-1.53	-1867.28
			Max. Vy	20	-23.22	1747.50	12.93
			Max. Vx	14	24.71	-1.53	-1867.28
			Max. Torque	4			8.80
L8	30 - 15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.03	9.98	10.32
			Max. Mx	20	-30.64	2104.15	14.54
			Max. My	14	-30.57	-2.50	-2246.32
			Max. Vy	20	-24.29	2104.15	14.54
			Max. Vx	14	25.77	-2.50	-2246.32
L9	15 - 0	Pole	Max. Torque	4			8.79
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.45	9.75	10.26
			Max. Mx	20	-34.93	2474.85	16.11
			Max. My	14	-34.90	-3.50	-2639.17
			Max. Vy	20	-25.18	2474.85	16.11
			Max. Vx	14	26.64	-3.50	-2639.17
			Max. Torque	4			8.79
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.72	9.64	10.23
			Max. Mx	20	-39.19	2858.94	17.64
			Max. My	14	-39.19	-4.47	-3045.03
			Max. Vy	20	-26.07	2858.94	17.64
			Max. Vx	14	27.51	-4.47	-3045.03
			Max. Torque	4			8.78

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	67.72	0.00	0.00
	Max. H _x	21	29.40	26.06	0.10
	Max. H _z	3	29.40	0.06	27.40
	Max. M _x	2	3039.56	0.06	27.40
	Max. M _z	8	2851.30	-26.06	-0.02
	Max. Torsion	4	8.78	-12.92	23.73
	Min. Vert	19	29.40	22.47	-13.81
	Min. H _x	9	29.40	-26.06	-0.02
	Min. H _z	15	29.40	-0.06	-27.49
	Min. M _x	14	-3045.03	-0.06	-27.49
	Min. M _z	20	-2858.94	26.06	0.10
	Min. Torsion	16	-8.66	12.95	-23.82

Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	32.67	-0.00	-0.00	-3.02	3.12	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	39.20	-0.06	-27.40	-3039.56	12.00	-6.95
0.9 Dead+1.6 Wind 0 deg - No Ice	29.40	-0.06	-27.40	-3004.69	10.90	-6.84
1.2 Dead+1.6 Wind 30 deg - No Ice	39.20	12.92	-23.73	-2632.93	-1409.25	-8.78
0.9 Dead+1.6 Wind 30 deg - No Ice	29.40	12.92	-23.73	-2602.60	-1394.56	-8.64
1.2 Dead+1.6 Wind 60 deg - No Ice	39.20	22.49	-13.72	-1525.40	-2459.13	-8.48
0.9 Dead+1.6 Wind 60 deg - No Ice	29.40	22.49	-13.72	-1507.43	-2432.76	-8.34
1.2 Dead+1.6 Wind 90 deg - No Ice	39.20	26.06	0.02	-1.17	-2851.30	-5.92
0.9 Dead+1.6 Wind 90 deg - No Ice	29.40	26.06	0.02	-0.22	-2820.56	-5.83
1.2 Dead+1.6 Wind 120 deg - No Ice	39.20	22.53	13.92	1544.58	-2463.58	-1.17
0.9 Dead+1.6 Wind 120 deg - No Ice	29.40	22.53	13.92	1528.25	-2437.17	-1.15
1.2 Dead+1.6 Wind 150 deg - No Ice	39.20	13.05	23.88	2647.02	-1426.51	3.37
0.9 Dead+1.6 Wind 150 deg - No Ice	29.40	13.05	23.88	2618.41	-1411.62	3.32
1.2 Dead+1.6 Wind 180 deg - No Ice	39.20	0.06	27.49	3045.03	-4.47	6.94
0.9 Dead+1.6 Wind 180 deg - No Ice	29.40	0.06	27.49	3011.98	-5.37	6.83
1.2 Dead+1.6 Wind 210 deg - No Ice	39.20	-12.95	23.82	2638.87	1419.83	8.66
0.9 Dead+1.6 Wind 210 deg - No Ice	29.40	-12.95	23.82	2610.34	1403.10	8.52
1.2 Dead+1.6 Wind 240 deg - No Ice	39.20	-22.47	13.81	1530.38	2463.01	8.14
0.9 Dead+1.6 Wind 240 deg - No Ice	29.40	-22.47	13.81	1514.21	2434.65	8.00
1.2 Dead+1.6 Wind 270 deg - No Ice	39.20	-26.06	-0.10	-17.64	2858.94	5.93
0.9 Dead+1.6 Wind 270 deg - No Ice	29.40	-26.06	-0.10	-16.50	2826.16	5.84
1.2 Dead+1.6 Wind 300 deg - No Ice	39.20	-22.55	-13.83	-1539.67	2474.93	1.52
0.9 Dead+1.6 Wind 300 deg - No Ice	29.40	-22.55	-13.83	-1521.52	2446.43	1.50
1.2 Dead+1.6 Wind 330 deg	39.20	-13.03	-23.79	-2641.16	1431.05	-3.26

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
- No Ice						
0.9 Dead+1.6 Wind 330 deg	29.40	-13.03	-23.79	-2610.72	1414.17	-3.21
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	67.72	-0.00	-0.00	-10.23	9.64	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	67.72	-0.00	-7.13	-807.72	10.36	-1.78
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	67.72	3.48	-6.18	-701.32	-376.25	-2.28
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	67.72	6.03	-3.58	-410.45	-660.79	-2.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	67.72	6.98	-0.00	-10.69	-766.11	-1.56
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	67.72	6.03	3.60	393.42	-660.76	-0.37
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	67.72	3.49	6.20	683.99	-378.01	0.82
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	67.72	0.00	7.15	789.63	9.00	1.78
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	67.72	-3.48	6.20	683.32	396.20	2.27
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	67.72	-6.03	3.59	392.25	679.46	2.16
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	67.72	-6.98	-0.01	-12.05	785.48	1.55
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	67.72	-6.04	-3.58	-411.63	680.84	0.42
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	67.72	-3.48	-6.18	-702.01	396.80	-0.81
Dead+Wind 0 deg - Service	32.67	-0.01	-5.41	-598.75	4.77	-1.38
Dead+Wind 30 deg - Service	32.67	2.55	-4.68	-518.94	-274.09	-1.73
Dead+Wind 60 deg - Service	32.67	4.44	-2.71	-301.60	-480.04	-1.67
Dead+Wind 90 deg - Service	32.67	5.14	0.00	-2.57	-556.95	-1.17
Dead+Wind 120 deg - Service	32.67	4.45	2.75	300.69	-480.93	-0.24
Dead+Wind 150 deg - Service	32.67	2.58	4.71	517.04	-277.49	0.66
Dead+Wind 180 deg - Service	32.67	0.01	5.43	595.16	1.54	1.38
Dead+Wind 210 deg - Service	32.67	-2.55	4.70	515.43	281.01	1.72
Dead+Wind 240 deg - Service	32.67	-4.43	2.73	297.89	485.63	1.61
Dead+Wind 270 deg - Service	32.67	-5.14	-0.02	-5.80	563.27	1.17
Dead+Wind 300 deg - Service	32.67	-4.45	-2.73	-304.40	487.97	0.29
Dead+Wind 330 deg - Service	32.67	-2.57	-4.69	-520.55	283.20	-0.65

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	-32.67	0.00	0.00	32.67	0.00	0.000%
2	-0.06	-39.20	-27.40	0.06	39.20	27.40	0.000%
3	-0.06	-29.40	-27.40	0.06	29.40	27.40	0.000%
4	12.92	-39.20	-23.73	-12.92	39.20	23.73	0.000%
5	12.92	-29.40	-23.73	-12.92	29.40	23.73	0.000%
6	22.49	-39.20	-13.72	-22.49	39.20	13.72	0.000%
7	22.49	-29.40	-13.72	-22.49	29.40	13.72	0.000%
8	26.06	-39.20	0.02	-26.06	39.20	-0.02	0.000%
9	26.06	-29.40	0.02	-26.06	29.40	-0.02	0.000%
10	22.53	-39.20	13.92	-22.53	39.20	-13.92	0.000%
11	22.53	-29.40	13.92	-22.53	29.40	-13.92	0.000%
12	13.05	-39.20	23.88	-13.05	39.20	-23.88	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
13	13.05	-29.40	23.88	-13.05	29.40	-23.88	0.000%
14	0.06	-39.20	27.49	-0.06	39.20	-27.49	0.000%
15	0.06	-29.40	27.49	-0.06	29.40	-27.49	0.000%
16	-12.95	-39.20	23.82	12.95	39.20	-23.82	0.000%
17	-12.95	-29.40	23.82	12.95	29.40	-23.82	0.000%
18	-22.47	-39.20	13.81	22.47	39.20	-13.81	0.000%
19	-22.47	-29.40	13.81	22.47	29.40	-13.81	0.000%
20	-26.06	-39.20	-0.10	26.06	39.20	0.10	0.000%
21	-26.06	-29.40	-0.10	26.06	29.40	0.10	0.000%
22	-22.55	-39.20	-13.83	22.55	39.20	13.83	0.000%
23	-22.55	-29.40	-13.83	22.55	29.40	13.83	0.000%
24	-13.03	-39.20	-23.79	13.03	39.20	23.79	0.000%
25	-13.03	-29.40	-23.79	13.03	29.40	23.79	0.000%
26	0.00	-67.72	0.00	0.00	67.72	0.00	0.000%
27	-0.00	-67.72	-7.13	0.00	67.72	7.13	0.000%
28	3.48	-67.72	-6.18	-3.48	67.72	6.18	0.000%
29	6.03	-67.72	-3.58	-6.03	67.72	3.58	0.000%
30	6.98	-67.72	-0.00	-6.98	67.72	0.00	0.000%
31	6.03	-67.72	3.60	-6.03	67.72	-3.60	0.000%
32	3.49	-67.72	6.20	-3.49	67.72	-6.20	0.000%
33	0.00	-67.72	7.15	-0.00	67.72	-7.15	0.000%
34	-3.48	-67.72	6.20	3.48	67.72	-6.20	0.000%
35	-6.03	-67.72	3.59	6.03	67.72	-3.59	0.000%
36	-6.98	-67.72	-0.01	6.98	67.72	0.01	0.000%
37	-6.04	-67.72	-3.58	6.04	67.72	3.58	0.000%
38	-3.48	-67.72	-6.18	3.48	67.72	6.18	0.000%
39	-0.01	-32.67	-5.41	0.01	32.67	5.41	0.000%
40	2.55	-32.67	-4.68	-2.55	32.67	4.68	0.000%
41	4.44	-32.67	-2.71	-4.44	32.67	2.71	0.000%
42	5.14	-32.67	0.00	-5.14	32.67	-0.00	0.000%
43	4.45	-32.67	2.75	-4.45	32.67	-2.75	0.000%
44	2.58	-32.67	4.71	-2.58	32.67	-4.71	0.000%
45	0.01	-32.67	5.43	-0.01	32.67	-5.43	0.000%
46	-2.55	-32.67	4.70	2.55	32.67	-4.70	0.000%
47	-4.43	-32.67	2.73	4.43	32.67	-2.73	0.000%
48	-5.14	-32.67	-0.02	5.14	32.67	0.02	0.000%
49	-4.45	-32.67	-2.73	4.45	32.67	2.73	0.000%
50	-2.57	-32.67	-4.69	2.57	32.67	4.69	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000341
2	Yes	6	0.00000001	0.00007077
3	Yes	5	0.00000001	0.00061570
4	Yes	6	0.00000001	0.00021477
5	Yes	6	0.00000001	0.00006399
6	Yes	6	0.00000001	0.00030721
7	Yes	6	0.00000001	0.00009654
8	Yes	6	0.00000001	0.00005728
9	Yes	5	0.00000001	0.00050146
10	Yes	6	0.00000001	0.00024980
11	Yes	6	0.00000001	0.00007616
12	Yes	6	0.00000001	0.00023761
13	Yes	6	0.00000001	0.00007156
14	Yes	6	0.00000001	0.00006612
15	Yes	5	0.00000001	0.00057570
16	Yes	6	0.00000001	0.00032028
17	Yes	6	0.00000001	0.00009993
18	Yes	6	0.00000001	0.00022891
19	Yes	6	0.00000001	0.00006891
20	Yes	6	0.00000001	0.00006166
21	Yes	5	0.00000001	0.00053905
22	Yes	6	0.00000001	0.00026783

23	Yes	6	0.0000001	0.00008178
24	Yes	6	0.0000001	0.00028382
25	Yes	6	0.0000001	0.00008691
26	Yes	4	0.0000001	0.00062850
27	Yes	6	0.0000001	0.00025143
28	Yes	6	0.0000001	0.00029868
29	Yes	6	0.0000001	0.00033314
30	Yes	6	0.0000001	0.00022455
31	Yes	6	0.0000001	0.00027855
32	Yes	6	0.0000001	0.00027876
33	Yes	6	0.0000001	0.00023697
34	Yes	6	0.0000001	0.00034190
35	Yes	6	0.0000001	0.00029924
36	Yes	6	0.0000001	0.00023976
37	Yes	6	0.0000001	0.00033098
38	Yes	6	0.0000001	0.00033955
39	Yes	5	0.0000001	0.00006279
40	Yes	5	0.0000001	0.00006398
41	Yes	5	0.0000001	0.00010102
42	Yes	5	0.0000001	0.00004805
43	Yes	5	0.0000001	0.00004911
44	Yes	4	0.0000001	0.00096382
45	Yes	5	0.0000001	0.00006076
46	Yes	5	0.0000001	0.00011104
47	Yes	5	0.0000001	0.00006541
48	Yes	5	0.0000001	0.00005014
49	Yes	5	0.0000001	0.00006397
50	Yes	5	0.0000001	0.00007785

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 120	19.455	39	1.2786	0.0170
L2	120 - 100	14.163	39	1.2257	0.0147
L3	100 - 80	9.536	39	0.9805	0.0079
L4	84.5 - 69.5	6.678	39	0.7759	0.0050
L5	69.5 - 54.5	4.433	39	0.6381	0.0037
L6	54.5 - 39.5	2.681	39	0.4771	0.0024
L7	45 - 30	1.834	39	0.3754	0.0018
L8	30 - 15	0.810	39	0.2614	0.0011
L9	15 - 0	0.200	39	0.1281	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	4' Lightning Rod	39	19.455	1.2786	0.0171	27141
139.00	(2) LPA-80063-6CF-EDIN w/ Mount Pipe	39	19.185	1.2784	0.0171	27141
130.00	SHPX3-11W	39	16.765	1.2704	0.0164	13570
128.00	AIR 32 B2A/B66AA w/ Mount Pipe	39	16.235	1.2655	0.0162	11308
118.00	(2) 7770.00 w/ Mount Pipe	39	13.660	1.2093	0.0142	6360

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 120	98.214	2	6.4299	0.0856
L2	120 - 100	71.644	2	6.1735	0.0742
L3	100 - 80	48.347	14	4.9601	0.0402
L4	84.5 - 69.5	33.894	14	3.9328	0.0254
L5	69.5 - 54.5	22.518	14	3.2381	0.0185
L6	54.5 - 39.5	13.627	14	2.4233	0.0122
L7	45 - 30	9.320	14	1.9080	0.0088
L8	30 - 15	4.120	14	1.3290	0.0057
L9	15 - 0	1.016	14	0.6513	0.0026

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	4' Lightning Rod	2	98.214	6.4299	0.0868	5816
139.00	(2) LPA-80063-6CF-EDIN w/ Mount Pipe	2	96.858	6.4290	0.0866	5816
130.00	SHPX3-11W	2	84.719	6.3916	0.0832	2907
128.00	AIR 32 B2A/B66AA w/ Mount Pipe	2	82.057	6.3681	0.0820	2422
118.00	(2) 7770.00 w/ Mount Pipe	2	69.116	6.0929	0.0716	1347

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	140 - 120 (1)	TP24x24x0.375	20.00	0.00	0.0	27.832 5	-9.41	876.73	0.011
L2	120 - 100 (2)	TP32.271x24x0.2188	20.00	0.00	0.0	22.254 3	-14.23	1460.75	0.010
L3	100 - 80 (3)	TP36.379x32.271x0.2188	20.00	0.00	0.0	24.464 8	-16.63	1539.51	0.011
L4	80 - 69.5 (4)	TP38.0983x35.0172x0.31 25	15.00	0.00	0.0	37.478 8	-20.10	2638.89	0.008
L5	69.5 - 54.5 (5)	TP41.1797x38.0983x0.31 25	15.00	0.00	0.0	40.535 2	-23.38	2779.62	0.008
L6	54.5 - 39.5 (6)	TP44.261x41.1797x0.312 5	15.00	0.00	0.0	42.470 8	-25.58	2862.94	0.009
L7	39.5 - 30 (7)	TP45.5873x42.5062x0.37 5	15.00	0.00	0.0	53.813 9	-30.57	3792.54	0.008
L8	30 - 15 (8)	TP48.6687x45.5873x0.37 5	15.00	0.00	0.0	57.481 6	-34.90	3963.02	0.009
L9	15 - 0 (9)	TP51.75x48.6687x0.375	15.00	0.00	0.0	61.149 1	-39.19	4122.27	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
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Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy} kip-ft	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$		kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	140 - 120 (1)	TP24x24x0.375	223.38	538.74	0.415	0.00	538.74	0.000
L2	120 - 100 (2)	TP32.271x24x0.2188	620.62	963.77	0.644	0.00	963.77	0.000
L3	100 - 80 (3)	TP36.379x32.271x0.2188	948.69	1117.31	0.849	0.00	1117.31	0.000
L4	80 - 69.5 (4)	TP38.0983x35.0172x0.3125	1283.81	2049.58	0.626	0.00	2049.58	0.000
L5	69.5 - 54.5 (5)	TP41.1797x38.0983x0.3125	1635.58	2336.38	0.700	0.00	2336.38	0.000
L6	54.5 - 39.5 (6)	TP44.261x41.1797x0.3125	1867.28	2522.21	0.740	0.00	2522.21	0.000
L7	39.5 - 30 (7)	TP45.5873x42.5062x0.375	2246.32	3524.46	0.637	0.00	3524.46	0.000
L8	30 - 15 (8)	TP48.6687x45.5873x0.375	2639.17	3935.95	0.671	0.00	3935.95	0.000
L9	15 - 0 (9)	TP51.75x48.6687x0.375	3045.03	4357.34	0.699	0.00	4357.34	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u	ϕV_n	Ratio	Actual T_u	ϕT_n	Ratio
			K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	140 - 120 (1)	TP24x24x0.375	16.06	438.36	0.037	7.02	849.76	0.008
L2	120 - 100 (2)	TP32.271x24x0.2188	20.63	730.37	0.028	7.00	1929.89	0.004
L3	100 - 80 (3)	TP36.379x32.271x0.2188	21.72	769.75	0.028	6.98	2237.34	0.003
L4	80 - 69.5 (4)	TP38.0983x35.0172x0.3125	22.92	1319.44	0.017	6.97	4104.18	0.002
L5	69.5 - 54.5 (5)	TP41.1797x38.0983x0.3125	24.09	1385.29	0.017	6.95	4678.49	0.001
L6	54.5 - 39.5 (6)	TP44.261x41.1797x0.3125	24.71	1426.95	0.017	6.95	5050.58	0.001
L7	39.5 - 30 (7)	TP45.5873x42.5062x0.375	25.77	1896.27	0.014	6.94	7057.53	0.001
L8	30 - 15 (8)	TP48.6687x45.5873x0.375	26.64	1981.51	0.013	6.94	7881.53	0.001
L9	15 - 0 (9)	TP51.75x48.6687x0.375	27.51	2061.13	0.013	6.94	8725.33	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	140 - 120 (1)	0.011	0.415	0.000	0.037	0.008	0.427	1.000	4.8.2
L2	120 - 100 (2)	0.010	0.644	0.000	0.028	0.004	0.655	1.000	4.8.2
L3	100 - 80 (3)	0.011	0.849	0.000	0.028	0.003	0.861	1.000	4.8.2
L4	80 - 69.5 (4)	0.008	0.626	0.000	0.017	0.002	0.634	1.000	4.8.2
L5	69.5 - 54.5 (5)	0.008	0.700	0.000	0.017	0.001	0.709	1.000	4.8.2
L6	54.5 - 39.5 (6)	0.009	0.740	0.000	0.017	0.001	0.750	1.000	4.8.2
L7	39.5 - 30 (7)	0.008	0.637	0.000	0.014	0.001	0.646	1.000	4.8.2
L8	30 - 15 (8)	0.009	0.671	0.000	0.013	0.001	0.680	1.000	4.8.2
L9	15 - 0 (9)	0.010	0.699	0.000	0.013	0.001	0.709	1.000	4.8.2

Section Capacity Table

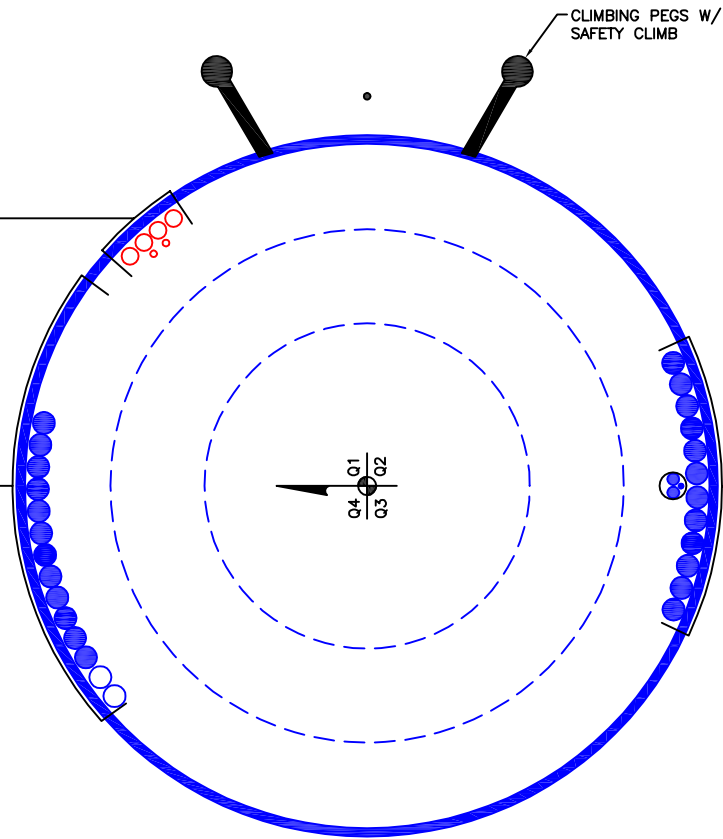
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	140 - 120	Pole	TP24x24x0.375	1	-9.41	876.73	42.7	Pass	
L2	120 - 100	Pole	TP32.271x24x0.2188	2	-14.23	1460.75	65.5	Pass	
L3	100 - 80	Pole	TP36.379x32.271x0.2188	3	-16.63	1539.51	86.1	Pass	
L4	80 - 69.5	Pole	TP38.0983x35.0172x0.3125	4	-20.10	2638.89	63.4	Pass	
L5	69.5 - 54.5	Pole	TP41.1797x38.0983x0.3125	5	-23.38	2779.62	70.9	Pass	
L6	54.5 - 39.5	Pole	TP44.261x41.1797x0.3125	6	-25.58	2862.94	75.0	Pass	
L7	39.5 - 30	Pole	TP45.5873x42.5062x0.375	7	-30.57	3792.54	64.6	Pass	
L8	30 - 15	Pole	TP48.6687x45.5873x0.375	8	-34.90	3963.02	68.0	Pass	
L9	15 - 0	Pole	TP51.75x48.6687x0.375	9	-39.19	4122.27	70.9	Pass	
							Summary		
							Pole (L3)	86.1	Pass
							RATING =	86.1	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED)
(2) 1/2" TO 128 FT LEVEL
(4) 1-1/4" TO 128 FT LEVEL

(RESERVED)
(2) 1-5/8" TO 139 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 139 FT LEVEL



(INSTALLED-IN CONDUIT)
(1) 3/8" TO 118 FT LEVEL
(2) 7/8" TO 118 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 118 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F / G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding $(1) \times (\text{Rod Diameter})$

Site Data

BU#: 845994
 Site Name: EAST HAMPTON - YOUNG STREET
 App #: 419627

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, F_y :	75	ksi
Strength, F_u :	100	ksi
Bolt Circle:	59	in
Anchor Spacing:	6	in

Plate Data

W=Side:	57	in
Thick:	3	in
Grade:	55	ksi
Clip Distance:	10	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	51.75	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, M_u :	3045	ft-kips
Factored Axial, P_u :	39	kips
Factored Shear, V_u :	28	kips

Anchor Rod Results

TIA G --> Max Rod ($C_u + V_u/\eta$): 160.7 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 61.8% **Pass**

Base Plate Results

Base Plate Stress: 27.2 ksi
 PL Design Bending Strength, $\Phi * F_y$: 49.5 ksi
 Base Plate Stress Ratio: 54.9% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	28.86
Max PL Length:	28.86

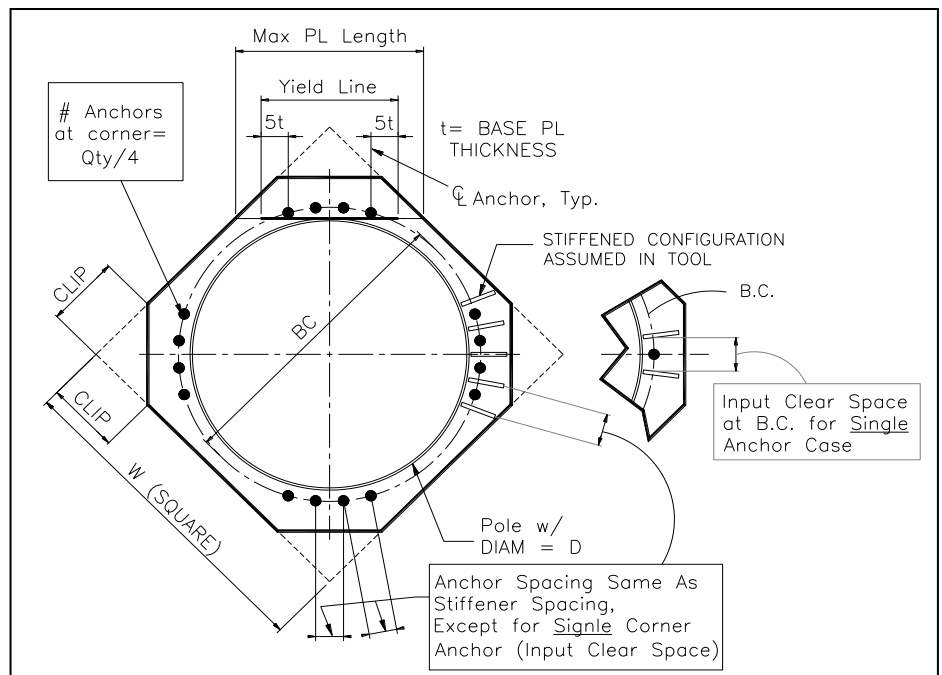
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: 845994
 Site Name: EAST HAMPTON - YOUNG STREET
 App #: 419627

Reactions		
Mu	223.38	ft-kips
Axial, Pu:	9.43	kips
Shear, Vu:	16.06	kips
Elevation:	120	feet

Bolt Threads:
X-Excluded
$\phi V_n = \phi(0.55 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
21.87

Pole Manufacturer:	Other
--------------------	-------

If No stiffeners, Criteria: **TIA G** <-Only Applicable to Unstiffened Cases

Bolt Data			
Qty:	16		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle (in.):	33		

Flange Bolt Results
 Bolt Tension Capacity, $\phi \cdot T_n, B1$: 30.06 kips
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), **B**: 30.03 kips
 Max Bolt directly applied T_u : 19.72 Kips
 Min. PL "tc" for **B cap. w/o Pry**: 1.340 in
 Min PL "treq" for actual **T w/ Pry**: 0.908 in
 Min PL "t1" for actual **T w/o Pry**: 1.086 in
 T allowable with Prying: 27.56 kips
 Prying Force, q: 0.00 kips
 Total Bolt Tension = $T_u + q$: 19.72 kips
 Prying Bolt Stress Ratio = $(T_u + q) / (B)$: 65.7% **Pass**

Non-Rigid
$\phi \cdot T_n$
$\phi T_n [1 - (V_u / \phi V_n)^2]^{0.5}$

Plate Data		
Diam:	37	in
Thick, t:	1.25	in
Grade (Fy):	50	ksi
Strength, Fu:	65	ksi
Single-Rod B-eff:	4.71	in

Exterior Flange Plate Results Flexural Check
 Compression Side Plate Stress: 26.2 ksi
 Allowable Plate Stress: 45.0 ksi
 Compression Plate Stress Ratio: 58.2% **Pass**
No Prying
 Tension Side Stress Ratio, $(t_{req}/t)^2$: 52.7% **Pass**

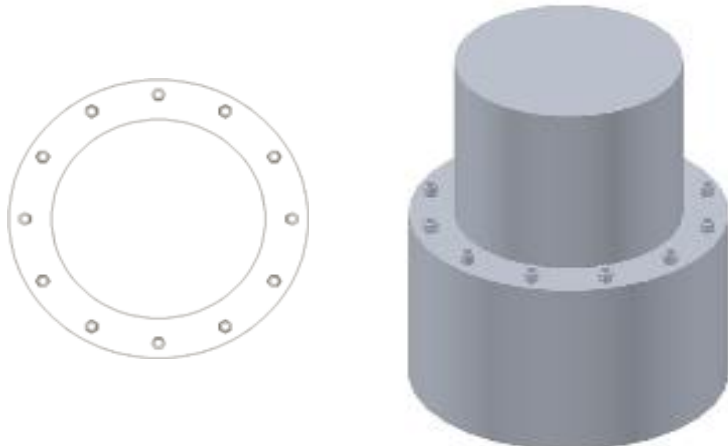
0 ≤ α' ≤ 1 case

Non-Rigid
TIA G
$\phi \cdot F_y$
Comp. Y.L. Length:
22.65

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a
Stiffener Results
 Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: n/a
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: n/a
 Plate Comp. (AISC Bracket): n/a
Pole Results
 Pole Punching Shear Check: n/a

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
 ** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Pier and Pad Foundation



BU # : 845994
Site Name: East Hampton - Young S
App. Number: 419627

TIA-222 Revision: G
Tower Type: Monopole

Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	39	kips
Base Shear, V_{u_comp} :	27	kips
Moment, M_u :	3045	ft-kips
Tower Height, H :	140	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	268.42	27.00	10.1%	Pass
<i>Bearing Pressure (ksf)</i>	22.50	1.98	8.8%	Pass
<i>Overturning (kip*ft)</i>	7111.35	3254.25	45.8%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	6301.36	3166.50	50.3%	Pass
<i>Pier Compression (kip)</i>	23390.64	78.69	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	4264.80	1093.50	25.6%	Pass
<i>Pad Shear - 1-way (kips)</i>	766.41	169.29	22.1%	Pass
<i>Pad Shear - 2-way (ksi)</i>	0.16	0.03	19.3%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7.0	ft
Ext. Above Grade, E :	0.50	ft
Pier Rebar Size, S_c :	10	
Pier Rebar Quantity, mc :	32	
Pier Tie/Spiral Size, S_t :	5	
Pier Tie/Spiral Quantity, mt :	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Soil Rating: 45.8%
Structural Rating: 50.3%

Pad Properties		
Depth, D :	7.0	ft
Pad Width, W :	25.0	ft
Pad Thickness, T :	3.0	ft
Pad Rebar Size, S_p :	10	
Pad Rebar Quantity, mp :	25	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60000	psi
Concrete Compressive Strength, F'_c :	3000	psi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	110	pcf
Ultimate Gross Bearing, Q_{ult} :	30.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	65	
Base Friction, μ :	0.4	
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	8	ft

<--Toggle between Gross and Net



A BUSINESS OF FDH VELOCITEL

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of T-Mobile

Crown Castle Site ID: 845994
Crown Castle Site Name: East Hampton - Young Street
T-Mobile Site ID: CTHA602A
T-Mobile Site Name: UCTHA602A
Application ID: 419627
151 Young St
East Hampton, CT
3/5/2018

Report Status:

T-Mobile Is Compliant



Dennis D. Abel, PE
CT PE License 23247
Velocitel, Inc.
6521 Meridien Drive
Raleigh, NC 27616
919-755-1012

Prepared By:

Sitesafe, Inc.

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
East Hampton, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Velocitel, Inc. in Raleigh, North Carolina; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle (See attached Site Summary and Carrier documents), and that T-Mobile's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "East Hampton - Young Street" ("the site"); and

That T-Mobile proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by T-Mobile and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure and, the antennas used are highly directional oriented at angles at or just below the horizontal and, that the energy present at ground level is typically so low as to be considered insignificant and have not been included in this analysis; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of T-Mobile's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed T-Mobile operation is no more than 0.938% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.283% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that T-Mobile's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

**Crown Castle
East Hampton - Young Street
Site Summary**

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.21 %
AT&T Mobility, LLC	0.421 %
T-Mobile (Proposed)	0.281 %
T-Mobile (Proposed)	0.281 %
T-Mobile (Proposed)	0.229 %
T-Mobile (Proposed)	0.147 %
Verizon Wireless	0.126 %
Verizon Wireless	0.126 %
Verizon Wireless	0.266 %
Verizon Wireless	0.196 %
Composite Site MPE:	2.283 %

AT&T Mobility, LLC East Hampton - Young Street Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.09712 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.20971 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Powerwave	7770_00_00	120	30	1170	0.444135	0.044413	0.923988	0.092399
Powerwave	7770_00_00	120	30	1170	0.444135	0.044413	0.923988	0.092399
Powerwave	7770_00_00	120	150	1170	0.444135	0.044413	0.923988	0.092399
Powerwave	7770_00_00	120	150	1170	0.444135	0.044413	0.923988	0.092399
Powerwave	7770_00_00	120	270	1170	0.444135	0.044413	0.923988	0.092399
Powerwave	7770_00_00	120	270	1170	0.444135	0.044413	0.923988	0.092399

AT&T Mobility, LLC East Hampton - Young Street Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.38722 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.42127 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Powerwave	P65-17-XLH-RR	120	30	2530	1.479501	0.261088	2.339507	0.412854
Powerwave	P65-17-XLH-RR	120	150	2530	1.458906	0.257454	2.339507	0.412854
Powerwave	P65-17-XLH-RR	120	270	2530	1.479501	0.261088	2.339507	0.412854

T-Mobile (Proposed) East Hampton - Young Street Carrier Summary

Frequency: 2140 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.80805 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.2808 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APX16DWV-16DWVS-C-A20	130	0	2536	2.148362	0.214836	2.157	0.2157
RFS	APX16DWV-16DWVS-C-A20	130	140	2536	2.148363	0.214836	2.157	0.2157
RFS	APX16DWV-16DWVS-C-A20	130	220	2536	2.147208	0.214721	2.157	0.2157

T-Mobile (Proposed) East Hampton - Young Street Carrier Summary

Frequency: 2110 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 2.80805 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.2808 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APX16DWV-16DWVS-C-A20	130	0	2536	2.148362	0.214836	2.157	0.2157
RFS	APX16DWV-16DWVS-C-A20	130	140	2536	2.148363	0.214836	2.157	0.2157
RFS	APX16DWV-16DWVS-C-A20	130	220	2536	2.147208	0.214721	2.157	0.2157

T-Mobile (Proposed) East Hampton - Young Street Carrier Summary

Frequency: 728 MHz
Maximum Permissible Exposure (MPE): 485.33 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.11329 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.22939 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APXVAA24	130	0	1497	0.545748	0.112448	0.892724	0.18394
RFS	APXVAA24	130	140	1497	0.546372	0.112577	0.892724	0.18394
RFS	APXVAA24	130	220	1497	0.546282	0.112558	0.892724	0.18394

T-Mobile (Proposed) East Hampton - Young Street Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.47355 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.14736 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Ericsson	AIR 32 B4A B2P	130	0	2313	0.667041	0.066704	0.766134	0.076613
Ericsson	AIR 32 B4A B2P	130	140	2313	0.667041	0.066704	0.766134	0.076613
Ericsson	AIR 32 B4A B2P	130	220	2313	0.667245	0.066725	0.766134	0.076613

Verizon Wireless East Hampton - Young Street Carrier Summary

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.25825 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.12582 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RYMSA	MG D3-800T0	140	0	2229	0.576665	0.057666	1.074948	0.107495
RYMSA	MG D3-800T0	140	145	2229	0.576665	0.057666	1.074948	0.107495
RYMSA	MG D3-800T0	140	240	2229	0.576665	0.057666	1.074948	0.107495

Verizon Wireless East Hampton - Young Street Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.25825 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.12582 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RYMSA	MG D3-800T0	140	0	2229	0.576665	0.057666	1.074948	0.107495
RYMSA	MG D3-800T0	140	145	2229	0.576665	0.057666	1.074948	0.107495
RYMSA	MG D3-800T0	140	240	2229	0.576665	0.057666	1.074948	0.107495

Verizon Wireless East Hampton - Young Street Carrier Summary

Frequency: 700 MHz
Maximum Permissible Exposure (MPE): 466.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.24012 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.26574 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	BXA-70063-6CF	140	0	2010	0.86361	0.185059	1.019513	0.218467
Antel	BXA-70063-6CF	140	145	2010	0.86361	0.185059	1.019513	0.218467
Antel	BXA-70063-6CF	140	240	2010	0.861412	0.184588	1.019513	0.218467

Verizon Wireless East Hampton - Young Street Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.11221 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.19627 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
ANDREW	DB846F65ZAXY	140	0	1127	0.453424	0.080016	0.475206	0.08386
ANDREW	DB846F65ZAXY	140	0	1127	0.453424	0.080016	0.475206	0.08386
ANDREW	DB846F65ZAXY	140	145	1127	0.453424	0.080016	0.475206	0.08386
ANDREW	DB846F65ZAXY	140	145	1127	0.453424	0.080016	0.475206	0.08386
ANDREW	DB846F65ZAXY	140	240	1127	0.453424	0.080016	0.475206	0.08386
ANDREW	DB846F65ZAXY	140	240	1127	0.453424	0.080016	0.475206	0.08386