NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

July 21, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Exempt Modification Application
2-4 Volunteer Drive, Windsor Locks, CT 06096
Latitude: 41.928105
Longitude: -72.646783
Site #: CT22108-A_CT11319C_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 2-4 Volunteer Drive, Windsor Locks, CT 06096. T-Mobile currently maintains nine (9) antennas at the 135-foot level of the existing 195-foot monopole tower. The property is owned by the Town of Windsor Locks, and the tower is owned by SBA. T-Mobile now intends to replace three (3) antennas. The new antennas would be installed at the 135-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable.

T-Mobile Planned Modifications:
Remove:
(4) Coax – 1-5/8" *

Remove and Replace:
(3) RFS APX16DWV-16DWV-S-E-A20 Antennas (REMOVE) - (3) ERICSSON AIR6419 B41 Antennas (REPLACE)

Install New:
(3) ERICSSON 4460 B25+B66 RRU
(3) Hybrid Line – 1.9"

Existing to Remain:
(3) RFS APXVAARR24_43-U-NA20 Antennas
(3) ERICSSON AIR32 KRD901146-1 B66 Antennas
(3) ERICSSON 4449 B71+B85 RRU
(3) ERICSSON KRY 112 144/2 TMAs *
(11) Coax – 1-5/8" *
(3) Hybrid Line – 1-1/4"

*Equipment shown for entitlement purposes only

NORTHEAST SITE SOLUTIONS

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The facility was approved by the Town of Windsor Locks, Building Permit #23004 on June 29, 1999. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Paul Harrington, First Selectman and Benjamin Winter, Town Planner for the Town of Windsor Locks, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

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

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

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

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

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

Sincerely,

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Paul Harrington, First Selectman & Property Owner
Town of Windsor Locks
50 Church Street
Windsor Locks, CT 06096

Benjamin Winter, Town Planner
Town of Windsor Locks
50 Church Street
Windsor Locks, CT 06096

SBA - Tower Owner

Exhibit A

Original Facility Approval

TOWN OF WINDSOR LOCKS, CT
BUILDING PERMIT

№ 23004

DATE June 29, 1999
CHECK NO waived **CASH**
C.O. FEE waived

ESTIMATED COST/VALUE $ 60,000
(EXCLUDING ELECTRICAL, PLUMBING & HVAC)
FEE $ WAIVED

APPLICANT
NAME Message Center Management
ADDRESS 40 Woodland Street
Hartford, CT 06105

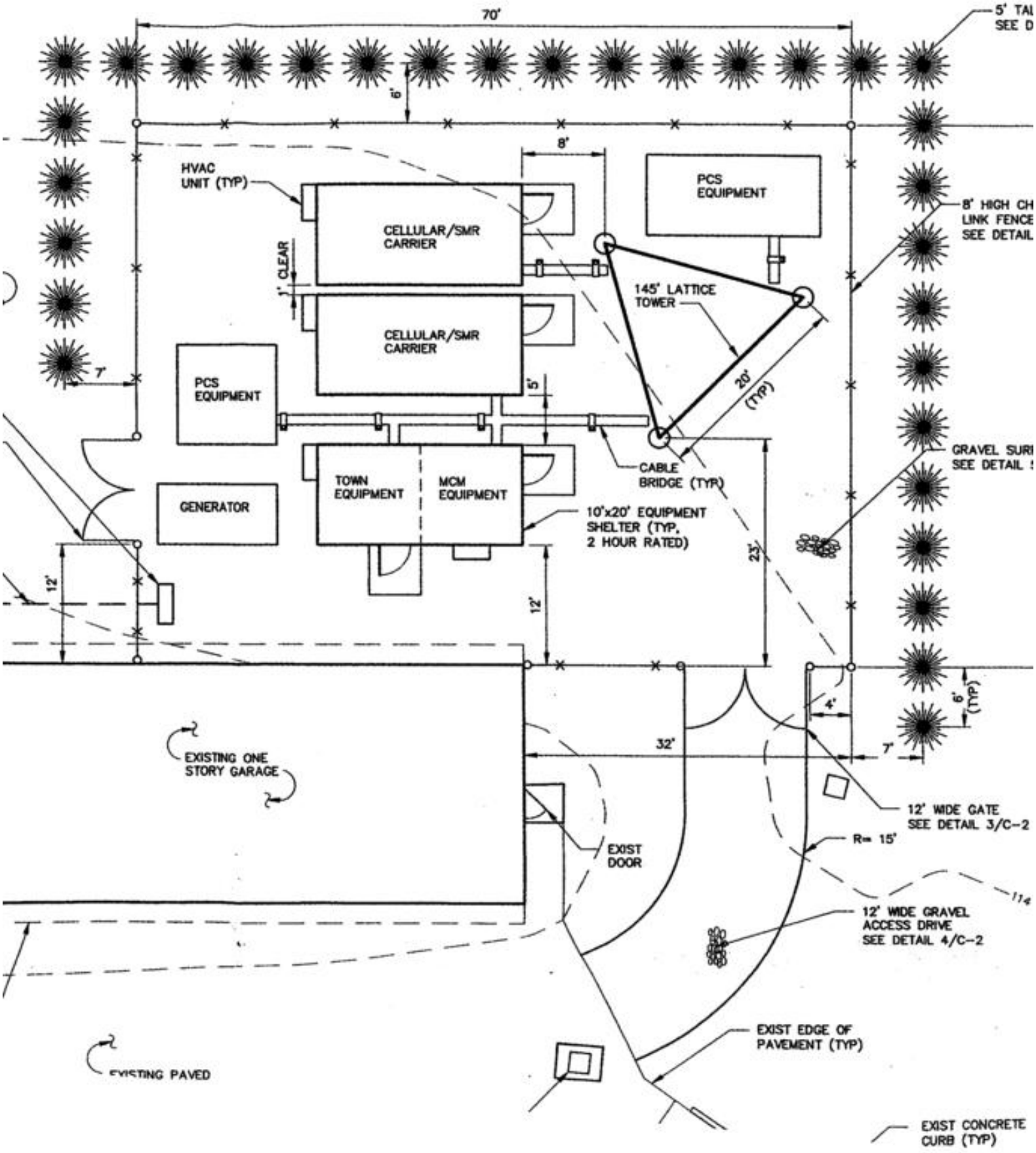
PHONE 860-418-5706 **LICENSE NO.**
OWNER 860-418-5752-Chris
NAME Town of Windsor Locks
ADDRESS 50 Church Street
Windsor Locks, CT 06096

To construct a Wireless Telecommunication Facility as per drawings at 2-4 Volunteer Drive.

Ft Front=70' Ft Deep= 54'

All work to be done in accordance with this application and plans approved by the Building Department

Building Official


70'
5' TAL
SEE D
6'
8'
HVAC
UNIT (TYP)
CELLULAR/SMR
CARRIER
PCS
EQUIPMENT
8' HIGH CH
LINK FENCE
SEE DETAIL
1' CLEAR
145' LATTICE
TOWER
CELLULAR/SMR
CARRIER
7'
PCS
EQUIPMENT
5'
20'
(TYP)
GRAVEL SURF
SEE DETAIL
CABLE
BRIDGE (TYP)
TOWN
EQUIPMENT
MCM
EQUIPMENT
GENERATOR
10'x20' EQUIPMENT
SHELTER (TYP,
2 HOUR RATED)
23'
12'
12'
6'
(TYP)
4'
32'
7'
EXISTING ONE
STORY GARAGE
12' WIDE GATE
SEE DETAIL 3/C-2
R= 15'
EXIST
DOOR
114
12' WIDE GRAVEL
ACCESS DRIVE
SEE DETAIL 4/C-2
EXIST EDGE OF
PAVEMENT (TYP)
EXISTING PAVED
EXIST CONCRETE
CURB (TYP)

TOWN OF WINDSOR LOCKS, CT
BUILDING PERMIT

DATE June 29, 1999
CHECK NO waived CASH
C.O. FEE waived

MS 23004

ESTIMATED COST/VALUE $ 60,000
(EXCLUDING ELECTRICAL, PLUMBING & HVAC)
FEE $ WAIVED

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Building Official

BUILDING DEPARTMENT
TOWN OF WINDSOR LOCKS, CONNECTICUT

CERTIFICATE OF OCCUPANCY

FEE PAID: $10.00

ZONE: Res A

DATED: May 22 19 2000

This to certify that 2-4 Volunteer Drive, Windsor Locks, CT 06096

constructed under permit No. 23004 conforms substantially to the requirements of the building ordinances and the zoning regulations of the Town of Windsor Locks and is hereby approved for occupancy as indicated below.

Approved for Occupancy- As a wireless telecommunication facility

Use Group:
Constr. Type:

Building Official

Notice: If this certificate is lost or destroyed, a duplicate should be obtained immediately from the Building Department.

Any change or extension of the use herein approved requires a new certificate of occupancy.

Exhibit B

Property Card

Windsor Locks, CT : Assessor Database

Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
			4	VOLUNTEER DRIVE

Search Reset

Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
00023300	034-062-080-0004	1	1	VOLUNTEER DRIVE	4	RESA	Municipal Indus	11.20

Owner Information:

Owner 1 Name:	WINDSOR LOCKS TOWN OF
Owner 2 Name:	
Street 1:	50 CHURCH ST
Street 2:	
City:	WINDSOR LOCKS
State:	CT
Zip:	06096
Volume:	113
Page:	299
Deed Date:	0000-00-00

Building Information:

Building Number:	1
Units:	0
Structure Type:	POLICE/FIRE STATION
Grade:	C
Identical Units:	1
Year Built:	1975

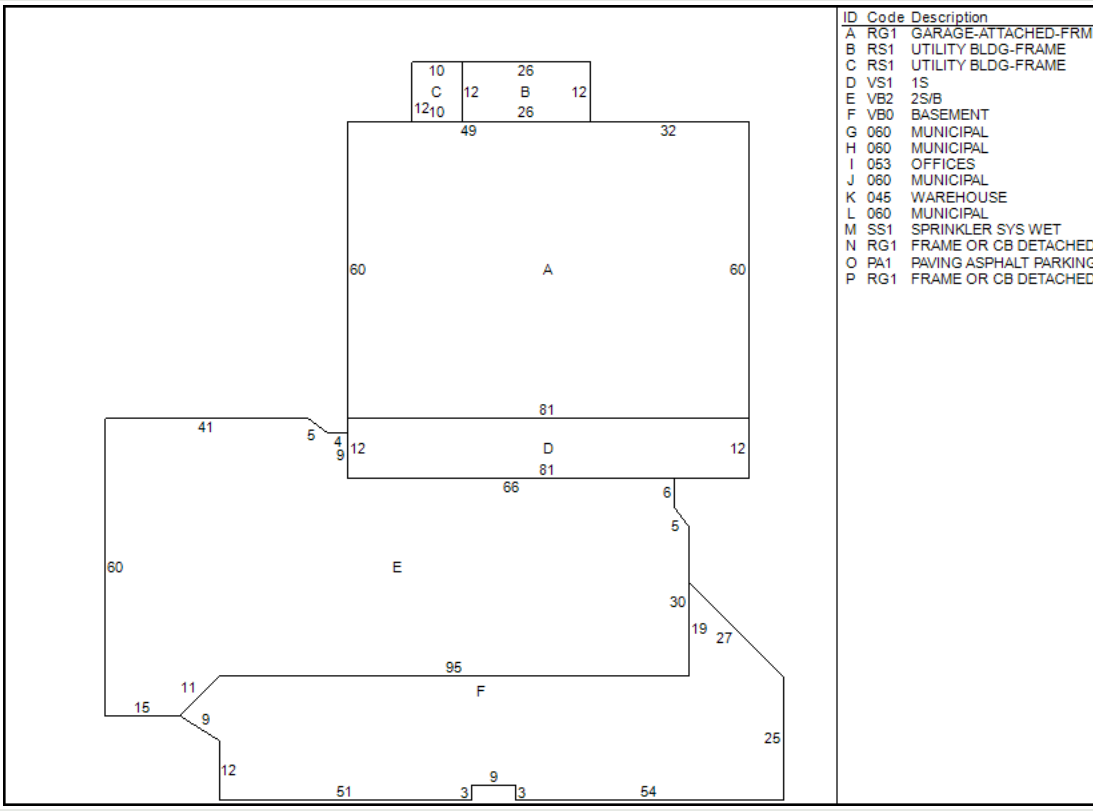
Valuation:

Appraised Land:	$562,200.00
Appraised Land PA490:	$0.00
Appraised Bldg:	$2,373,700.00
Appraised Total:	$2,935,900.00
Total Assessment:	$2,055,130.00

Property Images:

Picture:

Sketch:

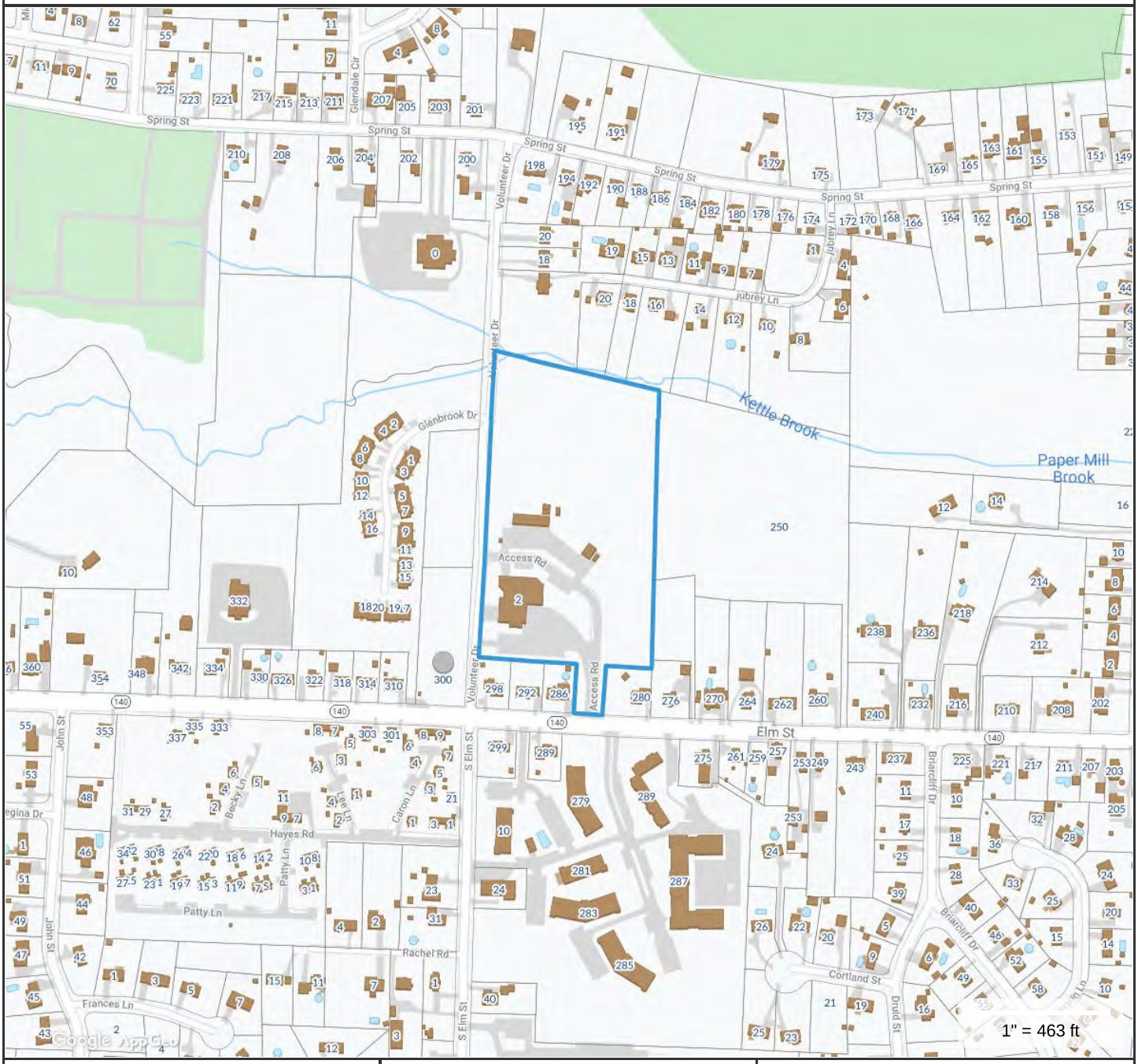


Sales History:

Book:	Page:	Sale Date:	Price:	Validity:	Sale Type:
113	299	11/16/1972			

Out-Buildings:

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Conditio
RG1	FRAME OR CB DETACHED GARAGE	1	1999	0	0	2592	C	GOOD
PA1	PAVING ASPHALT PARKING	1	1999	0	0	46600	C	AVERAGE
RG1	FRAME OR CB DETACHED GARAGE	1	1999	0	0	800	C	GOOD



Property Information

Property ID	23300
Location	2 VOLUNTEER DRIVE
Owner	WINDSOR LOCKS TOWN OF

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Windsor Locks, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 11/15/2017
Data updated 11/15/2017

Exhibit C

Construction Drawings

CT11319C

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

SITE NO.: CT11319C

RF DESIGN GUIDELINE: 67D5A997DB HYBRID

SCOPE OF WORK

REMOVE:
- 3 ANTENNAS
- 6 TMAs
- 12 COAX CABLES
- 1 EQUIPMENT CABINET

INSTALL:
- 3 ANTENNAS
- 3 RRUs
- 1 B160 BATTERY CABINET
- 1 6160 CABINET
- 1 SLACKBOX
- 3 HYBRID CABLE
- 1 100A-2P BREAKER
- 1 20A-1P BREAKER

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

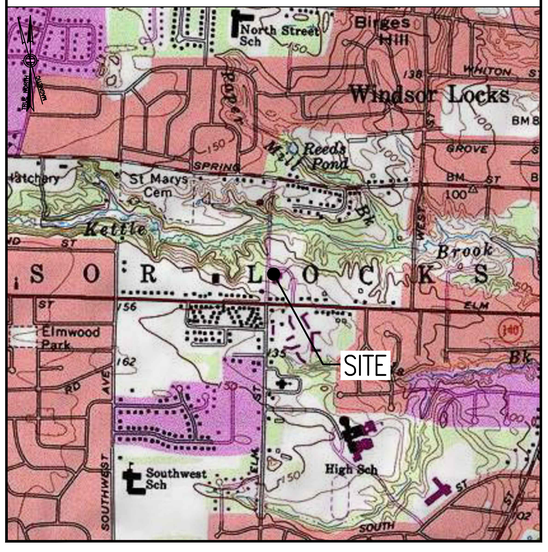
GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 22 TO MERGE ONTO I-90 WEST. TAKE EXIT 45 TO MERGE ONTO I-91 NORTH. TAKE EXIT 51 FOR I-291 TOWARD SPRINGFIELD/HARTFORD. KEEP RIGHT TO CONTINUE TOWARD I-291 WEST. TURN LEFT ONTO I-291 WEST. TAKE EXIT 1A-2A TO MERGE ONTO I-91 SOUTH. TAKE EXIT 42 FOR CT-159 TOWARD WINDSOR LOCKS. TURN LEFT ONTO CT-159 NORTH/SOUTH MAIN STREET. TURN LEFT ONTO ELM STREET. TURN RIGHT ONTO VOLUNTEER DRIVE. SITE WILL BE ON THE RIGHT.

SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
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A-2	TOWER ELEVATION & ANTENNA PLANS	2
A-3	SITE DETAILS	2
A-4	ANTENNA & FEEDLINE CHARTS	2
E-1	ELECTRIC & GROUNDING DETAILS	2

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SITE NUMBER:	CT11319C
SBA SITE NUMBER:	CT22108-A
SBA SITE NAME:	WINDSOR LOCKS @ VOLUNTEER DRIVE
SITE ADDRESS:	2-4 VOLUNTEER DRIVE WINDSOR LOCKS, CT 06096
PROPERTY OWNER:	TOWN OF WINDSOR LOCKS 50 CHURCH STREET WINDSOR LOCKS, CT 06096
TOWER OWNER:	SBA PROPERTIES, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	HARTFORD COUNTY
ZONING DISTRICT:	R2 - RESIDENTIAL
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	200'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.928033° N.41°55'40.92" LONGITUDE W.72.646797° W.72°38'48.47"

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
5/27/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/27/22	ISSUED FOR CONSTRUCTION	JRV
1	06/28/21	ISSUED FOR CONSTRUCTION	CMC
0	03/04/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11319C

SITE ADDRESS:
2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.188

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
5/27/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/27/22	ISSUED FOR CONSTRUCTION	JRV
1	06/28/21	ISSUED FOR CONSTRUCTION	CMC
0	03/04/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11319C

SITE ADDRESS:
2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

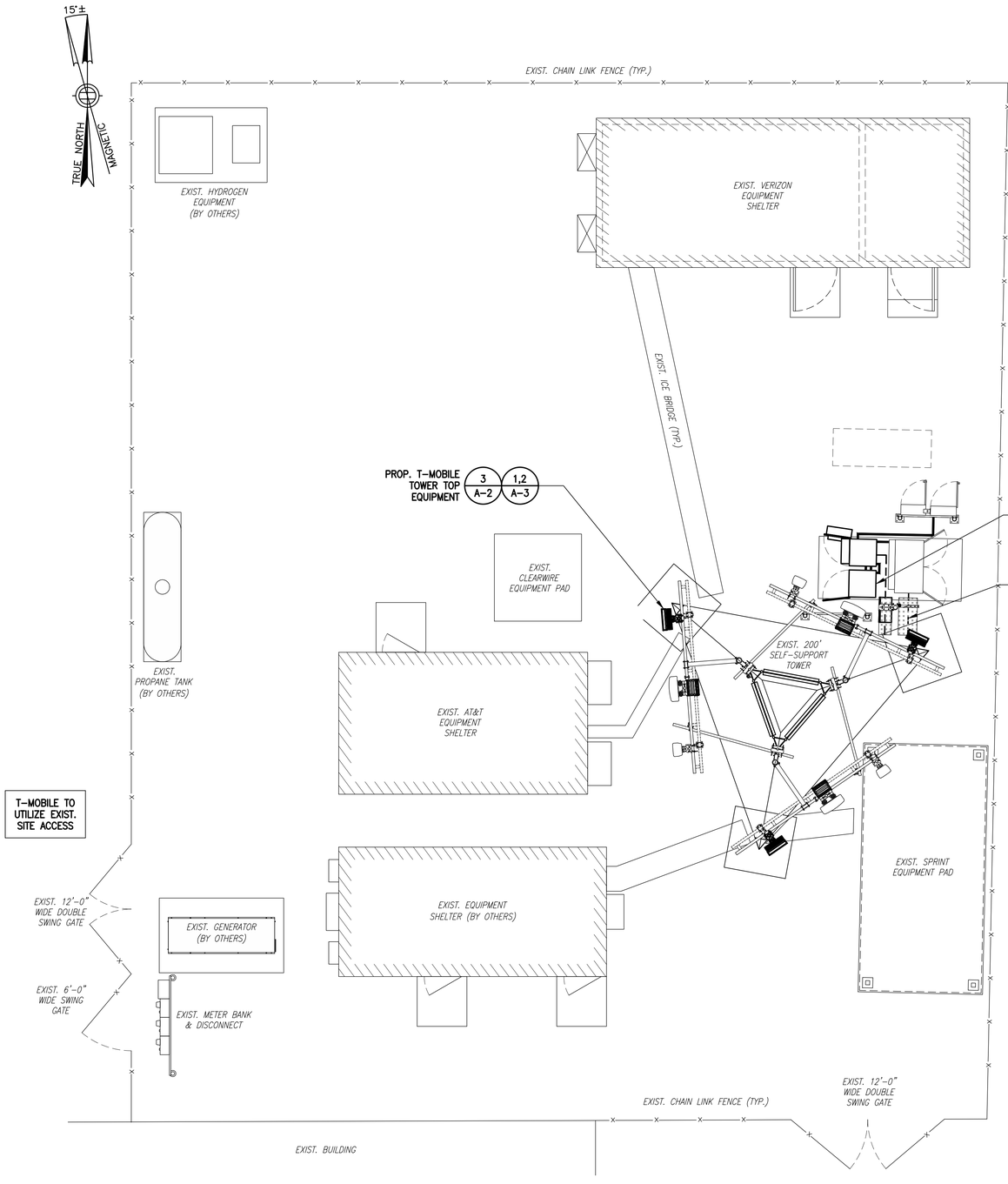
SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

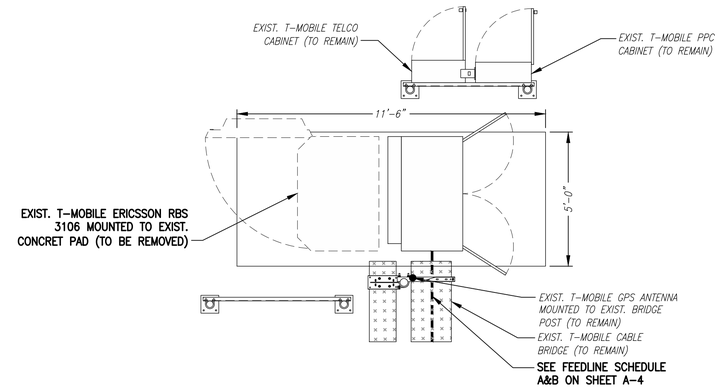
1815.188

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

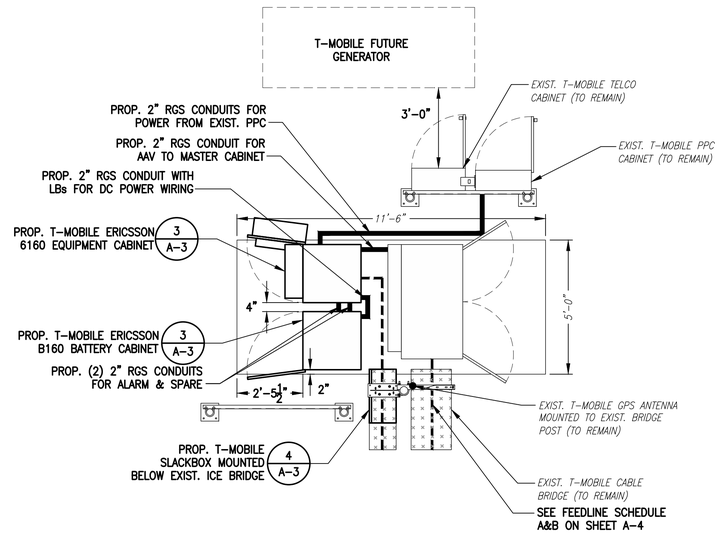
SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).



COMPOUND PLAN 1 / A-1
SCALE: 1" = 5'-0"
0 5'-0" 10'-0 15'-0"



EXISTING EQUIPMENT PLAN 2 / A-1
SCALE: 3/8" = 1'-0"
0 2'-8" 5'-4" 8'-0"



PROPOSED EQUIPMENT PLAN 3 / A-1
SCALE: 3/8" = 1'-0"
0 2'-8" 5'-4" 8'-0"

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
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APPROVED BY: JMT

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SITE ADDRESS:
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WINDSOR LOCKS, CT 06096

SHEET TITLE
COMPOUND & EQUIPMENT PLAN

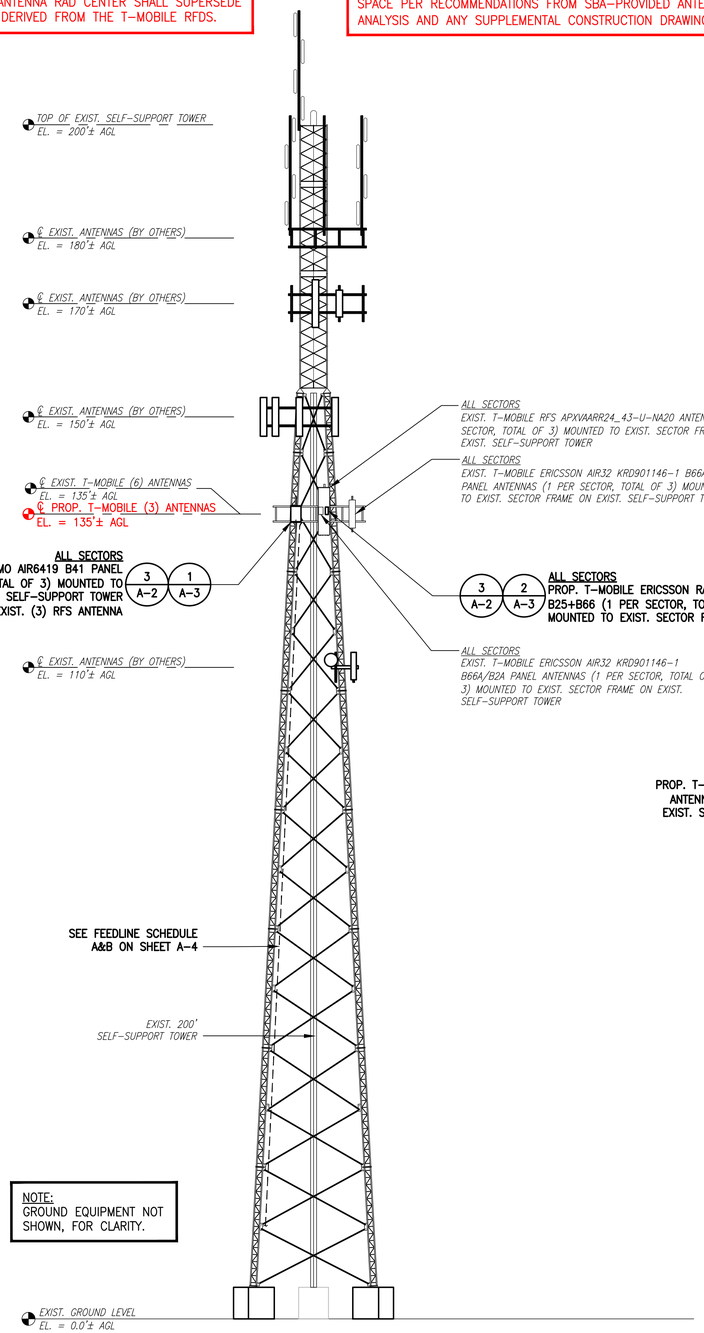
SHEET NUMBER
A-1

1815.188

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

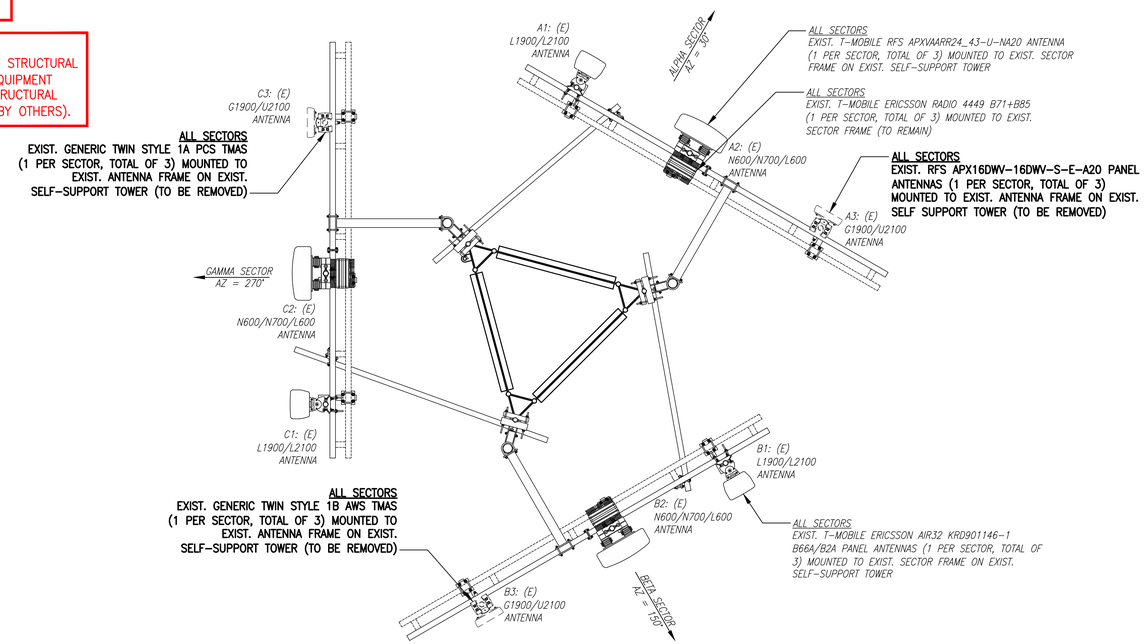
RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

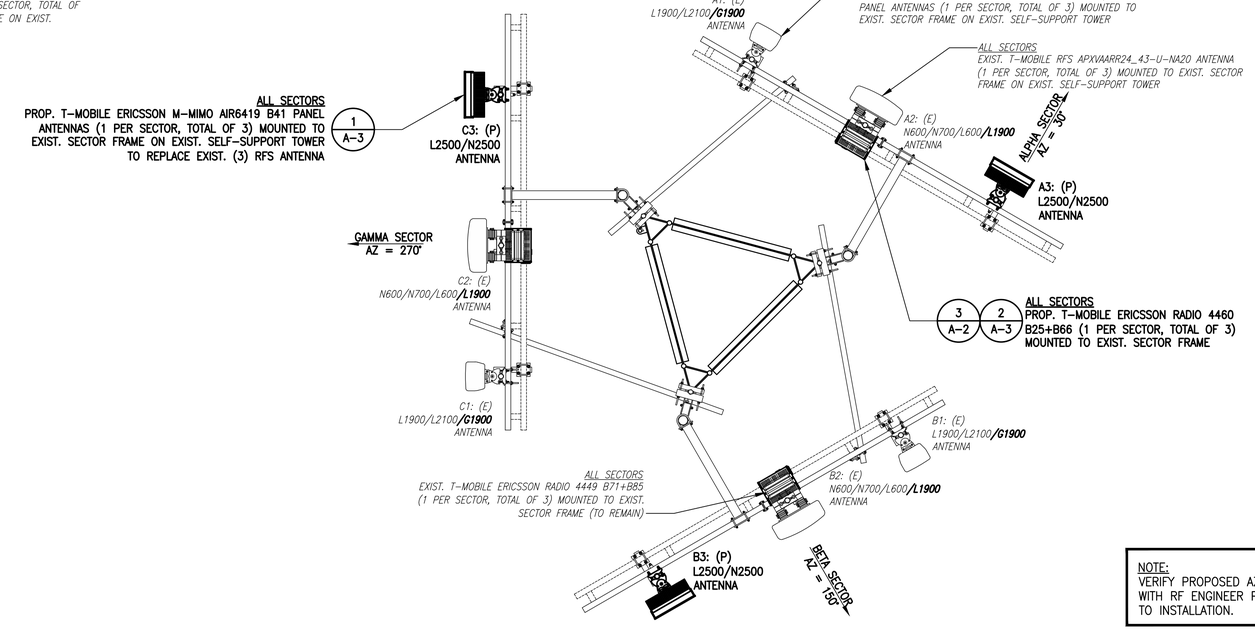


TOWER ELEVATION 1 A-2
SCALE: 1" =12'-0"
0 12' 24' 36'

NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.



EXISTING ANTENNA PLAN 2 A-2
SCALE: 3/8" = 1'-0"
NORTH



PROPOSED ANTENNA PLAN 3 A-2
SCALE: 3/8" = 1'-0"
NORTH

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA STATUS LEGEND:

EMPTY – EMPTY PIPE

(E) – EXISTING
(P) – INSTALL
(F) – FUTURE

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SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

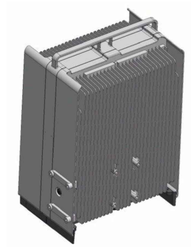
SHEET NUMBER
A-2

1815.188

ERICSSON M-MIMO AIR6419 B41 ANTENNA

DIMENSIONS: 36.3"H x 20.9"W x 9.0"D
WEIGHT: 83.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

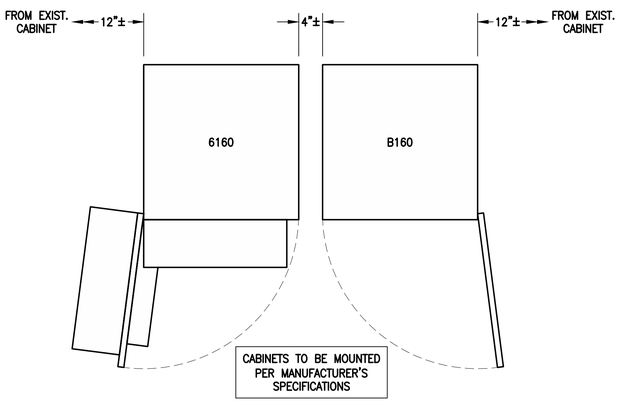
ANTENNA DETAILS (1 / A-3)
SCALE: N.T.S.



ERICSSON RADIO 4460 B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAILS (2 / A-3)
SCALE: N.T.S.



ERICSSON 6160 SITE SUPPORT CABINET

DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
WEIGHT: 680.0 lbs
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
WEIGHT: 1771.0 lbs
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL (3 / A-3)
SCALE: N.T.S.

SLACK BLOX

MODEL: 32FH91 OR EQUAL
QUANTITY: TOTAL OF 1

SLACKBOX DETAIL (4 / A-3)
SCALE: N.T.S.

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www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
5/27/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/27/22	ISSUED FOR CONSTRUCTION	JRV
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0	03/04/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11319C

SITE ADDRESS:
2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.188

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*135'± AGL*	*30°*	*0°*	*4°*	*L2100/L1900/**G1900***	–	*(3) 1-5/8" (6x12) HCS CABLES* **(3) 1-5/8" (6x24) HCS FIBER CABLES (165'±)**
	A2 *RFS APXVAARR24_43-U-NA20*	*135'± AGL*	*30°*	*0°*	*4°*	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					2°	**L1900**	**RADIO 4460 B25+B66**	
	A4 **ERICSSON M-MIMO AIR6419 B41**	**135'± AGL**	**30°**	**0°**	**4°**	**L2500/N2500**	**–**	
BETA	B1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*135'± AGL*	*150°*	*0°*	*4°*	*L2100/L1900/**G1900***	–	
	B2 *RFS APXVAARR24_43-U-NA20*	*135'± AGL*	*150°*	*0°*	*4°*	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					2°	**L1900**	**RADIO 4460 B25+B66**	
	B4 **ERICSSON M-MIMO AIR6419 B41**	**135'± AGL**	**150°**	**0°**	**4°**	**L2500/N2500**	**–**	
GAMMA	G1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*135'± AGL*	*270°*	*0°*	*4°*	*L2100/L1900/**G1900***	–	
	G2 *RFS APXVAARR24_43-U-NA20*	*135'± AGL*	*270°*	*0°*	*4°*	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					2°	**L1900**	**RADIO 4460 B25+B66**	
	G4 **ERICSSON M-MIMO AIR6419 B41**	**135'± AGL**	**270°**	**0°**	**4°**	**L2500/N2500**	**–**	

CABLE NOTE: EXISTING (12) 1-5/8" COAX CABLES TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

ANCILLARY NOTE: EXISTING (3) GENERIC TWIN STYLE 1A PCS TMAS & (3) GENERIC TWIN STYLE 1B AWS TMAS TO BE REMOVED

NOTE: RFDS REV5 – 01/19/21

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	*EXISTING TO REMAIN:*	*(1) 1/2" COAX CABLE FOR GPS ANTENNA* *(3) 1-5/8" (6x12) HCS FIBER CABLES*	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	*(12) 1-5/8" COAX CABLES*	
B	**PROPOSED:**	**(3) 1-5/8" (6x24) HCS FIBER CABLES**	

NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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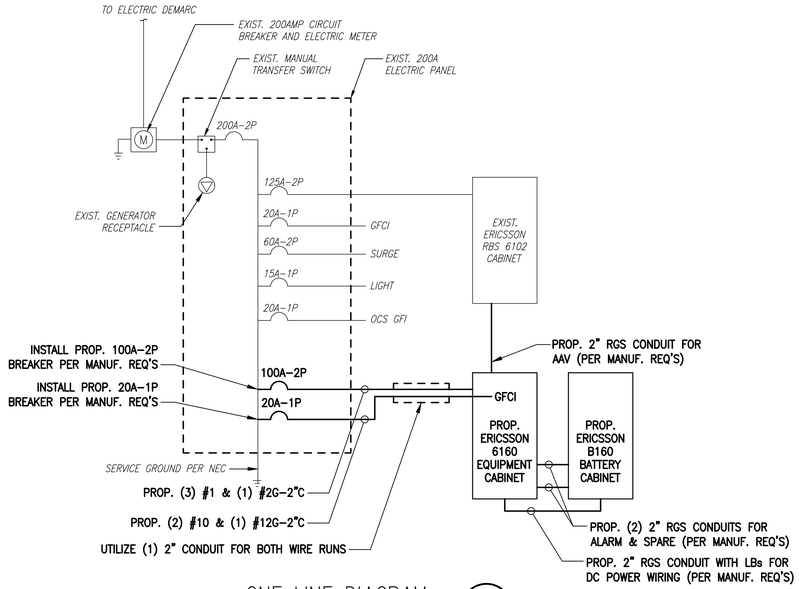
WINDSOR LOCKS, CT 06096

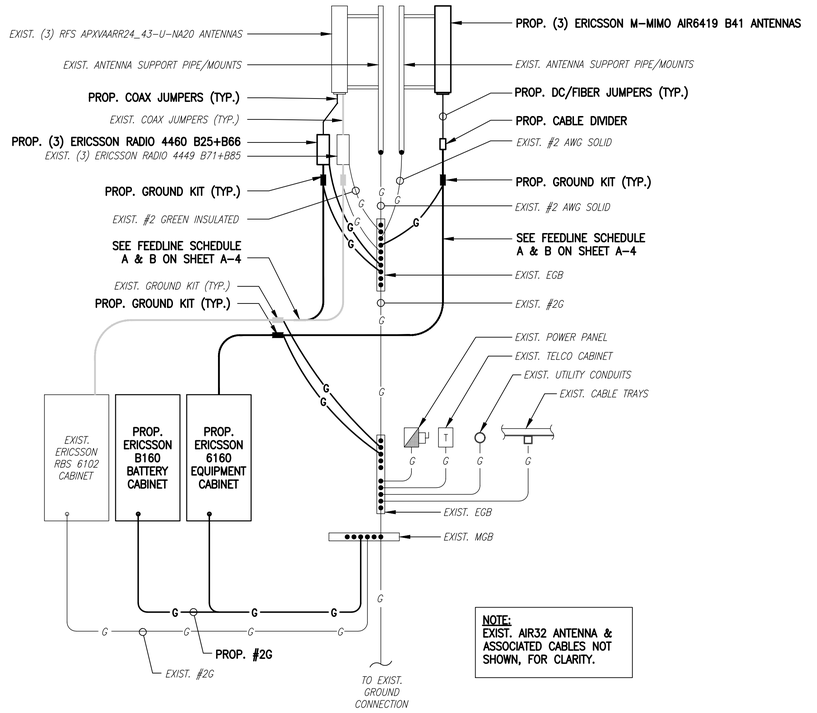
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-4

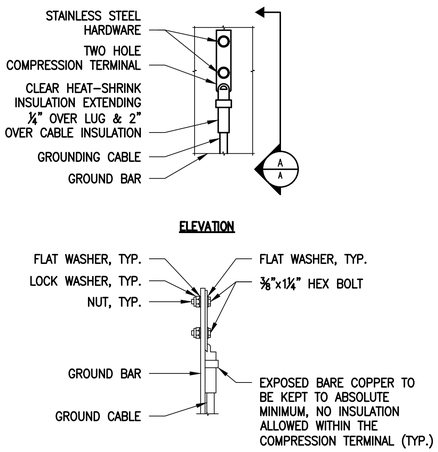
1815.188



ONE LINE DIAGRAM
SCALE: NOT TO SCALE
1 E-1

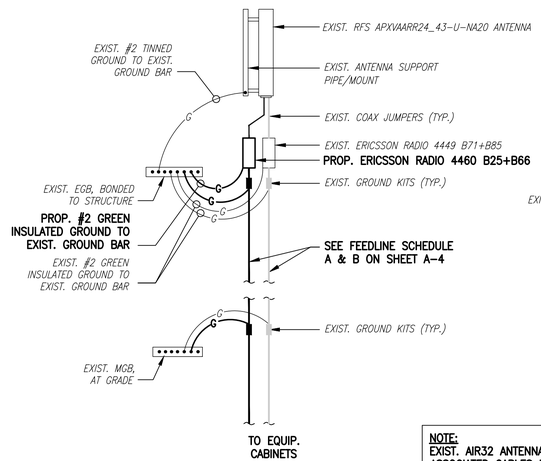


GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE
2 E-1



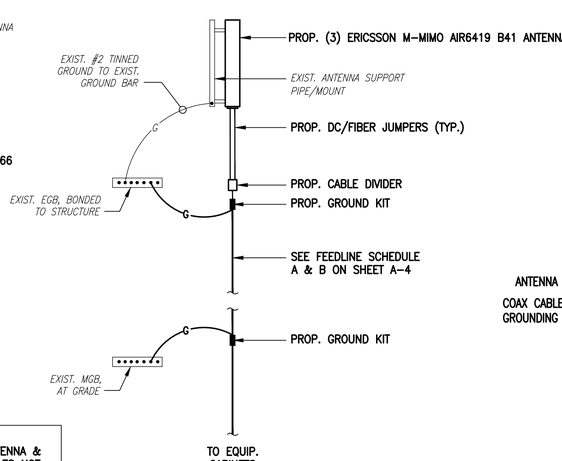
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE
3 E-1



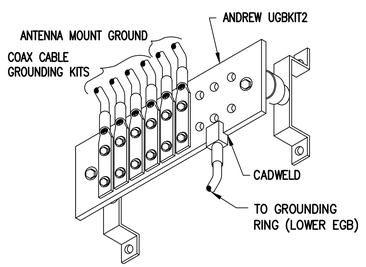
L700/L600/N600/L1900 ANTENNA

NOTE: EXIST. AIR32 ANTENNA & ASSOCIATED CABLES NOT SHOWN, FOR CLARITY.



L2500/N2500 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE
4 E-1



GROUND BAR (EGB)
SCALE: NOT TO SCALE
5 E-1

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. 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.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. 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.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS 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.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.188

Exhibit D

Structural Analysis Report

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 195 ft PIROD Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT22108-A

Customer Site Name: Windsor Locks @ Volunteer Drive

Carrier Name: T-Mobile (App#: 197406-2)

Carrier Site ID / Name: CT11319C / Windsor Locks/Rt 20

Site Location: 2-4 Volunteer Drive

Windsor Locks, Connecticut

HARTFORD County

Latitude: 41.928100

Longitude: -72.646800

Analysis Result:

Max Structural Usage: 99.4% [Pass]

Max Foundation Usage: 68.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Mohammed Al Rubaye

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
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Report Prepared By: Mohammed Al Rubaye

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft PIROD Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	PiROD Eng. File #A-115761-1, Archive #F-0078802, dated 10/06/00
Foundation Drawing	PiROD Eng. File #A-115761-1, Archive #F-0078802, dated 10/06/00
Geotechnical Report	Tectonic Engineering Consultants W.O. #2295 01, dated 05/18/99
Modification Drawings	N/A
Mount Analysis	TES Job# 129930. Dated 06/01/2022

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESTowers,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	203.4	1	Andrew - DB224-A	Direct	(1) 7/8"	WLPD
2	183.7	5	Andrew - 20' Dipoles w/ (4) Element	(3) T-Frame	(8) 7/8"	
3	182.8	1	2.5" Ø x 20.0' Omni			
4	180.6	1	1.3" Ø x 13.0' Omni			
5	179.1	1	1.3" Ø x 10.0' Omni			
6	164.0	3	CCI - TPA-65R-LCUUUU-H8 - Panel	(3) Modified Sector Frame with new standoff 2" and 3" SCH.40 pipes at each sector and 3" SCH. 40 vertical pipe per sector	(9) 1 5/8" (1) 2" Conduit** (1) 3" Conduit**	AT&T
7		6	CCI - TPA65R-BU8D - Panel			
8		3	Powerwave LGP21401 TMA			
9		3	Kaelus DBCT108F1V92-1 Diplexer			
10		6	Kathrein 860 10025 RET			
11		3	Ericsson RRUS 32 B30			
12		3	Ericsson 4449 B5/B12			
13		3	Ericsson RRUS 8843 B2 B66A			
14		3	Ericsson RRUS 4478 B14			
15		2	Raycap DC6-48-60-18-8F - OVP			
16	150.0	3	Amphenol BXA-70063-6CF-5 - Panel	(3) Sector Frames w/ Mods [(9) Site Pro VZWSMART-SFK3 V-BRACING KIT & (6) 156" P2.5 STD]	(2) 1 5/8" Hybrid (12) 1 5/8"	Verizon
17		6	Commscope SBNHH-1D65B - Panel			
18		3	Samsung MT6407-77A - Panel			
19		6	RFS FD9R6004/2C-3L Diplexer			
20		3	Samsung LTE AWS/PCS RFV01U-D1A - RRU			
21		3	Samsung LTE 700/850 MHz RFV01U-D2A - RRU			
22		2	RFS DB-T1-6Z-8AB-0Z - DC Surge			
-	135.0	3	Ericsson - AIR32 KRD901146-1_B66A (Octa) - Panel	(3) T-Frame w/ Mods	(15) 1 5/8" (3) 1 1/4" Hybrid	T-Mobile
-		3	RFS - APX16DWV-16DWVS-E-A20 - Panel			
-		3	RFS - APXVAARR24_43-U-NA20 (Octa) - Panel			
-		6	Ericsson - KRY 112 144/2 - TMA			
-		3	Ericsson - Radio 4449 B71 + B12 - RRU			
29	116.8	3	RFS - APXVSPP18-C-A20 - Panel	(3) T- Frame	(4) 1-1/4" Fiber	Sprint Nextel
30	115.0	3	RFS - APXVTM14-C-I20 - Panel			
31		3	Alcatel-Lucent - TD-RRH8x20-25 - RRH			
32	110.3	3	Alcatel-Lucent - 800 MHz RRH	Direct		
33	107.6	3	Alcatel-Lucent - 1900 MHz RRH	Direct		

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
34	104.6	1	Andrew - 3.3' Dish	(3) Standoffs	(2) 1/2" (1) 1-5/16" Conduit	Clearwire
35	104.0	1	Andrew - VHLP1-23-DW1			
36		3	Argus - LLPX310R-V1 - Panel			
37	103.8	3	Alcatel-Lucent - SPI-22132825WB -			
38	102.4	1	12" x 12" x 6.38" Junction Box	Direct		
39	75.9	1	3.5" Ø x 8" GPS	(1) Standoff	(1) 1/2"	Unknown
40	60.0	1	PCTEL - GPS-TMG-HR-26N - GPS	Direct	(1) 1/2"	Sprint Nextel

*Inside (1) 3" Conduit

**3" (housing (2) 0.78" DC Power & (1) 0.39" Fiber).

**2" (housing (2) 0.78" DC Power & (1) 0.39" Fiber)

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
23	135.0	3	RFS - APXVAARR24_43-U-NA20 (Octa) - Panel	(3) Reinforced T-Frames	(11) 1 5/8" (3) 1-1/4" Hybrid (3) 1.9" Fiber	T-Mobile
24		3	Ericsson - AIR6419 B41 - Panel			
25		3	Ericsson - AIR32 KRD901146-1_B66A (Octa) - Panel			
26		6	Ericsson - KRY 112 144/2 TMA			
27		3	Ericsson - 4449 B71 + B85 - RRU			
28		3	Ericsson - 4460 B25 + B66 - RRU			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**82.8%**	**99.4%**	**34.9%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	423.9	372.3	41.6

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2434 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT22108-A-SBA

Site Name:	Windsor Locks @ Volunteer Drive			**Code:**	TIA-222-G	6/8/2022
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	195.00 (ft)	**Base Width:**	20.00	**Basic Ice WS:**	50.00	
Base Elev:	5.00 (ft)	**Top Width:**	4.50	**Operational WS:**	60.00	Page: 1

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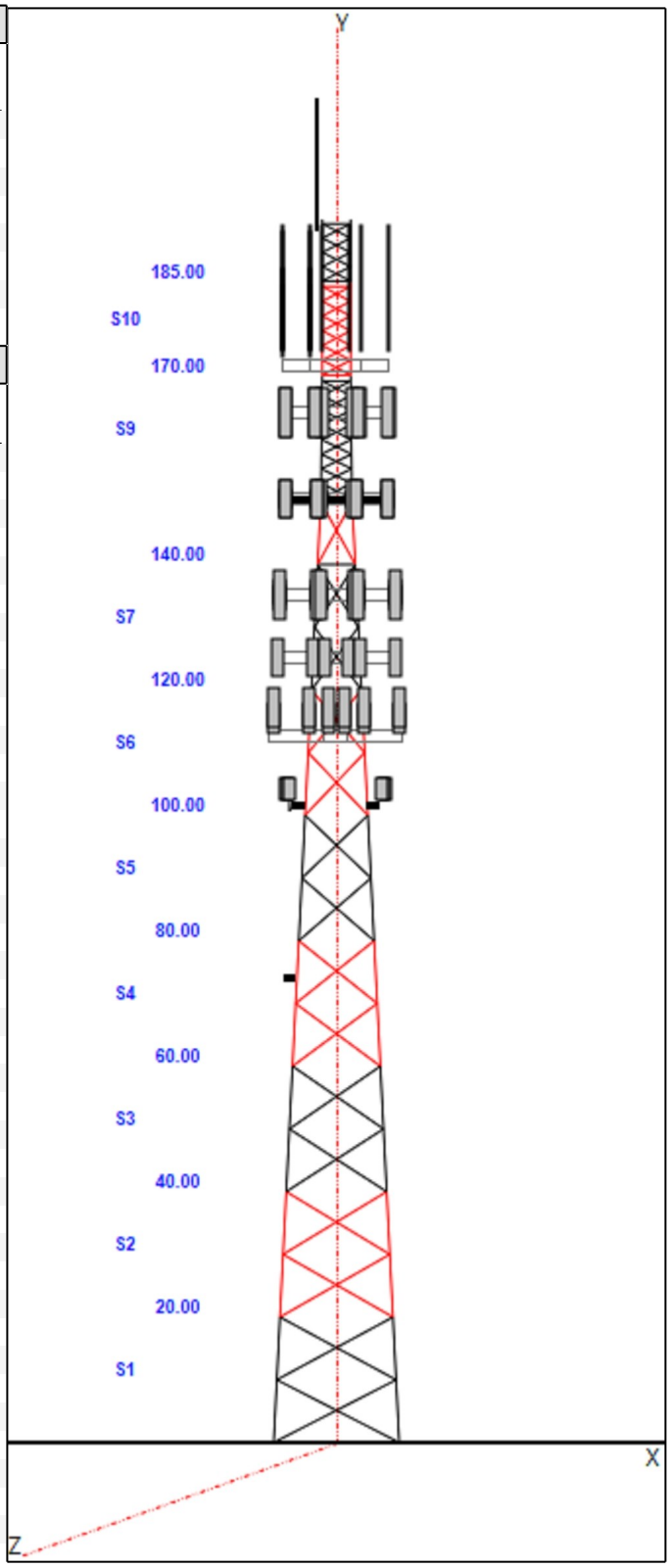
Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	12B 12"BD 2.25"	SAE 3.5X3.5X0.3125	
3-4	12B 12"BD 2"	SAE 3X3X0.3125	
5	12B 12"BD 1.75"	SAE 3X3X0.3125	
6	12B 12"BD 1.75"	SAE 3X3X0.1875	
7	12B 12"BD 1.5"	SAE 2.5X2.5X0.1875	SAE 2.5X2.5X0.1875
8	12B 12"BD 1.25"	SAE 2.5X2.5X0.1875	
9	SOL 2" SOLID	SOL 7/8" SOLID	SOL 7/8" SOLID
10-11	SOL 1 3/4" SOLID	SOL 3/4" SOLID	SOL 7/8" SOLID

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
195.00	195.00	1	Lightning Rod
195.00	195.00	1	Beacon
195.00	203.40	1	Andrew - DB224-A
171.50	171.50	1	15' T-Frame
171.50	183.70	5	Andrew - 20' Dipoles w/ (4) Element
171.50	182.80	1	2.5" Ø x 20.0' Omni
171.50	180.60	1	1.3" Ø x 13.0' Omni
171.50	179.10	1	1.3" Ø x 10.0' Omni
164.00	164.00	1	T-Frame
164.00	164.00	1	Mount Mods
164.00	164.00	3	TPA-65R-LCUUUU-H8
164.00	164.00	6	TPA65R-BU8D
164.00	164.00	3	Powerwave LGP21401 TMA
164.00	164.00	3	Kaelus DBCT108F1V92-1 Diplexer
164.00	164.00	6	Kathrein 860 10025 RET
164.00	164.00	3	RRUS 32 B30
164.00	164.00	3	Ericsson 4449 B5/B12
164.00	164.00	3	Ericsson RRUS 8843 B2 B66A
164.00	164.00	3	Ericsson RRUS 4478 B14
164.00	164.00	2	Raycap DC6-48-60-18-8F
150.00	150.00	3	Sector Frame
150.00	150.00	3	Amphenol - BXA-70063/6CF-EDIN
150.00	150.00	6	Commscope SBNHH-1D65B
150.00	150.00	3	Samsung MT6407-77A
150.00	150.00	6	RFS FD9R6004/2C-3L Diplexer
150.00	150.00	3	Samsung LTE AWS/PCS RFV01U-D1A
150.00	150.00	3	Samsung LTE 700/850 MHz RFV01U
150.00	150.00	2	RFS DB-T1-6Z-8AB-0Z
150.00	150.00	2	(3) 12.5' - 2.5" Horizontal Pi
150.00	150.00	3	(3) SFS-H (V-Braces)
135.00	135.00	1	(3) T-Frames
135.00	135.00	3	APXVAARR24_43-U-NA20 (Octa)
135.00	135.00	3	AIR6419 B41
135.00	135.00	3	AIR32 KRD901146-1_B66A (Octa)
135.00	135.00	6	KRY 112 144/2 TMA
135.00	135.00	3	4449 B71 + B85
135.00	135.00	3	4460 B25 + B66
135.00	135.00	1	T-arms Mods
125.00	125.00	3	JMA Wireless MX08FRO665-21
125.00	125.00	3	Fujitsu TA08025-B604
125.00	125.00	3	Fujitsu TA08025-B605



125.00	125.00	1	Raycap RDIDC-9181-PF-48
125.00	125.00	1	(3) Commscope MTC3975083
112.30	112.30	3	Sector Frame
112.30	116.80	3	RFS - APXVSPP18-C-A20
112.30	115.00	3	RFS - APXVTM14-C-I20
112.30	115.00	3	Alcatel-Lucent - TD-RRH8x20-25 - RRH
110.30	110.30	3	Alcatel-Lucent - 800 MHz RRH
107.60	107.60	3	Alcatel-Lucent - 1900 MHz RRH
102.40	102.40	1	12" x 12" x 6.38" Junction Box
101.40	101.40	3	Standoffs
101.40	104.60	1	Andrew - 3.3' Dish
101.40	104.00	1	Andrew - VHLP1-23-DW1
101.40	104.00	3	Argus - LLPX310R-V4
101.40	103.80	3	Alcatel-Lucent - SPI-22132825WB
74.00	75.90	1	3.5" Ø x 8" GPS
74.00	74.00	1	Standoff
60.00	60.00	1	PCTEL - GPS-TMG-HR-26N - GPS

Linear Appurtenances

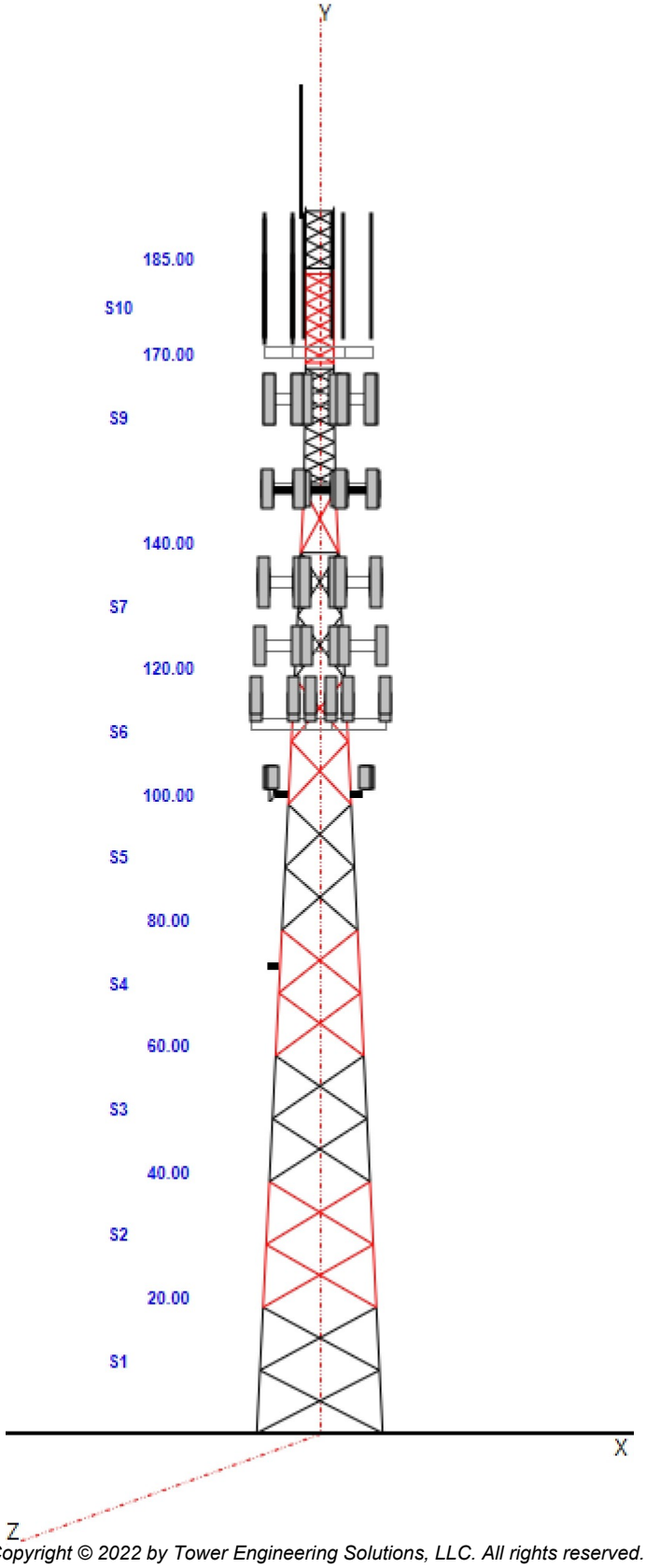
Elev From (ft)	Elev To (ft)	Qty	Description
171.50	195.00	1	7/8" Coax
0.00	171.50	8	7/8" Coax
0.00	164.00	9	1 5/8" Coax
0.00	164.00	1	2" Conduit
0.00	164.00	1	3" Conduit
0.00	150.00	12	1 5/8" Coax
0.00	150.00	2	1 5/8" Hybrid
0.00	135.00	11	1 5/8" Coax
0.00	135.00	3	1-1/4" Hybrid
0.00	135.00	3	1.9" Fiber
0.00	125.00	1	1.6" Hybrid
0.00	125.00	1	W/G Ladder
0.00	112.30	4	1-1/4" Fiber
0.00	101.40	1	1-5/16" Conduit
0.00	101.40	2	1/2" Coax
0.00	74.00	1	1/2" Coax
0.00	60.00	1	1/2" Coax

Base Reactions

Leg		Overturning	
Max Uplift:	-372.27 (kips	Moment:	6952.68 (ft-kips)
Max Down:	423.91 (kips	Total Down:	67.48 (kips)
Max Shear:	41.60 (kips	Total Shear:	64.07 (kips)

Structure: CT22108-A-SBA

Site Name:	Windsor Locks @ Volunteer Drive			**Code:**	TIA-222-G	6/8/2022
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	195.00 (ft)	**Base Width:**	20.00	**Basic Ice WS:**	50.00	
Base Elev:	5.00 (ft)	**Top Width:**	4.50	**Operational WS:**	60.00	Page: 3



Structure: CT22108-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Windsor Locks @ Volunteer Drive
Height: 195.00 (ft)

6/8/2022

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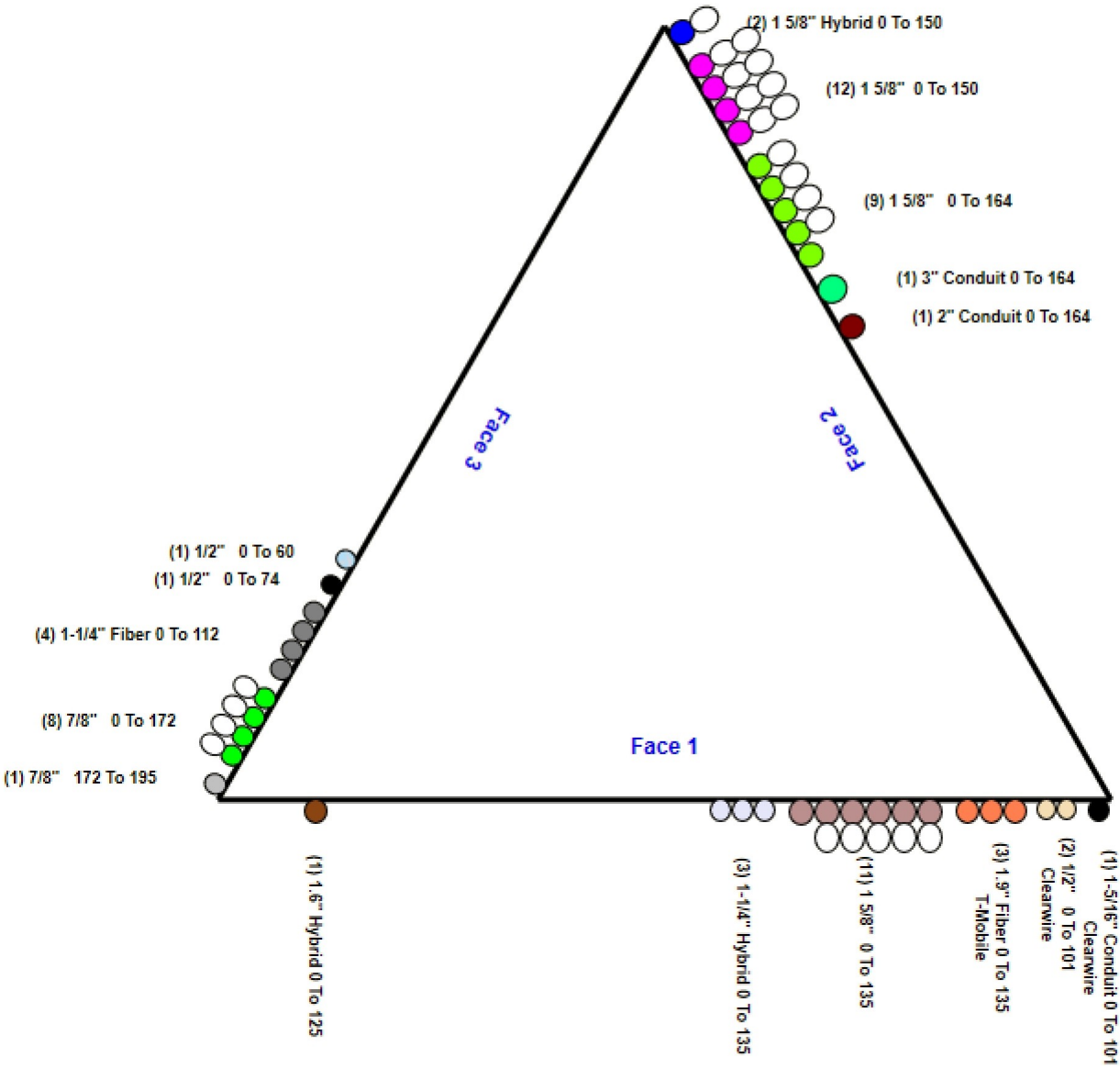

Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 5	

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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
195.00	Lightning Rod	1	5.00	0.500	33.67	2.889	72.000	1.000	1.000	1.00	1.00	0.000
195.00	Beacon	1	36.00	2.720	218.31	4.019	28.000	17.500	17.500	1.00	1.00	0.000
195.00	Andrew - DB224-A	1	35.00	5.650	275.06	29.777	255.000	0.000	0.000	1.00	1.00	8.400
171.50	15' T-Frame	1	1500.0	44.000	2923.82	96.207	0.000	0.000	0.000	0.75	1.00	0.000
171.50	Andrew - 20' Dipoles w/ (4) Element	5	60.00	7.520	361.51	23.681	240.000	3.000	3.000	1.00	1.00	12.20
171.50	2.5" Ø x 20.0' Omni	1	55.00	5.000	259.86	13.040	240.000	3.000	3.000	1.00	1.00	11.30
171.50	1.3" Ø x 13.0' Omni	1	40.00	2.600	173.84	6.818	156.000	3.000	3.000	1.00	1.00	9.100
171.50	1.3" Ø x 10.0' Omni	1	25.00	1.380	128.42	3.636	120.000	3.000	3.000	1.00	1.00	7.600
164.00	T-Frame	1	1500.0	40.500	2909.54	88.072	0.000	0.000	0.000	0.75	1.00	0.000
164.00	Mount Mods	1	512.00	10.000	1474.25	24.095	0.000	0.000	0.000	0.75	1.00	0.000
164.00	TPA-65R-LCUUUU-H8	3	75.00	13.300	518.55	15.563	96.000	14.400	8.600	0.80	0.83	0.000
164.00	TPA65R-BU8D	6	82.50	17.870	616.34	20.288	96.000	20.700	7.700	0.80	0.72	0.000
164.00	Powerwave LGP21401 TMA	3	14.10	1.290	47.75	2.415	14.400	9.200	2.600	0.80	1.00	0.000
164.00	Kaelus DBCT108F1V92-1 Diplexer	3	19.80	0.700	65.75	1.228	10.600	7.900	4.700	0.80	0.80	0.000
164.00	Kathrein 860 10025 RET	6	1.10	0.160	8.33	0.628	6.900	2.400	2.000	0.80	0.92	0.000
164.00	RRUS 32 B30	3	53.00	2.740	181.49	3.748	27.200	12.100	7.000	0.80	0.50	0.000
164.00	Ericsson 4449 B5/B12	3	71.00	1.970	142.86	2.707	17.900	13.200	9.400	0.80	0.50	0.000
164.00	Ericsson RRUS 8843 B2 B66A	3	75.00	1.650	184.29	2.401	15.000	13.200	11.100	0.80	0.50	0.000
164.00	Ericsson RRUS 4478 B14	3	59.40	1.650	115.22	2.348	15.000	13.200	7.300	0.80	0.50	0.000
164.00	Raycap DC6-48-60-18-8F	2	31.80	0.920	115.02	1.510	24.000	11.000	11.000	0.80	1.00	0.000
150.00	Sector Frame	3	500.00	23.000	1430.78	47.405	0.000	0.000	0.000	0.75	0.75	0.000
150.00	Amphenol - BXA-70063/6CF-EDIN	3	17.00	7.570	214.73	11.255	71.000	11.200	5.200	0.80	0.78	0.000
150.00	Commscope SBNHH-1D65B	6	40.60	8.080	326.81	9.842	72.000	11.900	7.100	0.80	0.83	0.000
150.00	Samsung MT6407-77A	3	79.40	4.690	250.17	5.973	35.100	16.100	5.500	0.80	0.70	0.000
150.00	RFS FD9R6004/2C-3L Diplexer	6	3.10	0.360	13.80	0.951	5.800	6.500	1.500	0.80	0.50	0.000
150.00	Samsung LTE AWS/PCS	3	84.40	1.880	152.75	2.615	15.000	15.000	10.000	0.80	0.50	0.000
150.00	Samsung LTE 700/850 MHz	3	70.30	1.880	135.15	2.615	15.000	15.000	8.100	0.80	0.50	0.000
150.00	RFS DB-T1-6Z-8AB-0Z	2	18.90	4.800	180.34	6.140	24.000	24.000	10.000	0.80	0.71	0.000
150.00	(3) 12.5' - 2.5" Horizontal Pi	2	217.50	7.188	500.92	19.230	0.000	0.000	0.000	0.75	1.00	0.000
150.00	(3) SFS-H (V-Braces)	3	197.00	6.300	563.73	15.096	0.000	0.000	0.000	0.75	1.00	0.000
135.00	(3) T-Frames	1	1598.0	40.500	4541.60	96.452	0.000	0.000	0.000	0.75	1.00	0.000
135.00	APXVAARR24_43-U-NA20 (Octa)	3	128.00	20.240	701.99	22.777	95.900	24.000	7.800	0.80	0.70	0.000
135.00	AIR6419 B41	3	103.00	6.320	283.91	7.723	33.100	20.500	8.300	0.80	0.71	0.000
135.00	AIR32 KRD901146-1_B66A (Octa)	3	132.20	6.510	389.88	8.081	57.000	12.900	8.700	0.80	0.87	0.000
135.00	KRY 112 144/2 TMA	6	11.00	0.410	25.22	1.037	6.900	6.100	2.700	0.80	0.70	0.000
135.00	4449 B71 + B85	3	73.20	1.970	149.38	2.721	17.900	13.200	10.600	0.80	0.67	0.000
135.00	4460 B25 + B66	3	109.00	2.850	203.87	3.740	21.800	15.700	7.500	0.00	0.00	0.000
135.00	T-arms Mods	1	180.00	19.400	478.41	46.202	0.000	0.000	0.000	0.75	1.00	0.000
125.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	442.16	14.392	72.000	20.000	8.000	0.80	0.74	0.000
125.00	Fujitsu TA08025-B604	3	63.90	1.960	129.64	2.688	15.800	15.000	7.900	0.80	0.67	0.000
125.00	Fujitsu TA08025-B605	3	75.00	1.960	142.91	2.688	15.800	15.000	9.100	0.80	0.67	0.000
125.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	91.04	2.748	16.600	14.600	8.500	1.00	1.00	0.000
125.00	(3) Commscope MTC3975083	1	1242.0	28.050	2818.01	73.813	0.000	0.000	0.000	0.75	1.00	0.000
112.30	Sector Frame	3	450.00	24.500	906.81	40.489	0.000	0.000	0.000	0.75	0.75	0.000
112.30	RFS - APXVSPP18-C-A20	3	57.00	8.020	281.43	11.647	72.000	11.800	7.000	0.80	0.83	4.500
112.30	RFS - APXVTM14-C-I20	3	56.20	6.340	269.07	7.811	56.300	12.600	6.300	0.80	0.78	2.700
112.30	Alcatel-Lucent - TD-RRH8x20-25 -	3	70.00	4.050	196.89	5.885	26.100	18.600	6.700	0.80	0.50	2.700
110.30	Alcatel-Lucent - 800 MHz RRH	3	53.00	2.490	149.03	3.975	19.700	13.000	10.800	0.80	0.50	0.000

Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 6	

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107.60	Alcatel-Lucent - 1900 MHz RRH	3	44.00	3.800	185.74	5.605	23.000	13.000	17.000	0.80	0.50	0.000
102.40	12" x 12" x 6.38" Junction Box	1	10.00	1.400	63.17	2.481	12.000	12.000	8.000	1.00	1.00	0.000
101.40	Standoffs	3	120.00	4.500	253.38	11.182	0.000	0.000	0.000	0.75	0.75	0.000
101.40	Andrew - 3.3' Dish	1	140.00	8.920	372.43	11.157	36.000	36.000	0.000	1.00	1.00	3.200
101.40	Andrew - VHLP1-23-DW1	1	14.00	1.610	59.10	2.576	15.300	15.300	8.700	1.00	1.00	2.600
101.40	Argus - LLPX310R-V4	3	28.70	4.310	144.33	6.426	42.100	11.800	4.500	0.80	0.73	2.600
101.40	Alcatel-Lucent - SPI-22132825WB	3	33.10	1.820	89.05	3.063	16.100	11.600	6.000	0.80	0.67	2.400
74.00	3.5" Ø x 8" GPS	1	10.00	0.160	16.90	0.638	8.000	2.000	2.000	1.00	1.00	1.900
74.00	Standoff	1	120.00	2.500	250.27	6.126	0.000	0.000	0.000	1.00	1.00	0.000
60.00	PCTEL - GPS-TMG-HR-26N - GPS	1	0.60	0.090	6.45	0.308	5.000	3.200	3.200	1.00	1.00	0.000
	Totals:	**150**	**17,639.30**		**53,205.25**				**Number of Appurtenances :**			**58**

Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

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Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
171.50	195.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	171.50	7/8" Coax	8	1.11	0.52	50.00	3	Block		N	0.25	1.00	
0.00	164.00	1 5/8" Coax	9	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	164.00	2" Conduit	1	2.00	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	164.00	3" Conduit	1	3.02	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.00	1 5/8" Coax	12	1.98	1.04	33.30	2	Block		N	0.25	1.00	
0.00	150.00	1 5/8" Hybrid	2	2.00	1.10	50.00	2	Block		N	0.25	1.00	
0.00	135.00	1 5/8" Coax	11	1.98	1.04	50.00	1	Block		N	0.25	1.00	
0.00	135.00	1-1/4" Hybrid	3	1.25	0.95	100.00	1	Individual NR		N	1.00	1.00	0
0.00	135.00	1.9" Fiber	3	1.90	0.95	33.30	1	Individual IR		N	0.25	1.00	
0.00	125.00	1.6" Hybrid	1	1.60	1.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	125.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	112.30	1-1/4" Fiber	4	1.25	0.95	100.00	3	Individual IR		N	0.50	0.59	
0.00	101.40	1-5/16" Conduit	1	1.38	1.13	100.00	1	Individual NR		N	1.00	1.00	0
0.00	101.40	1/2" Coax	2	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	0
0.00	74.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	0
0.00	60.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	0

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

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Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.27	110.23	0.00	7,679.8	0.0	2400.35	2018.49	4,418.83
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.73	110.23	0.00	7,498.6	0.0	2630.08	2409.48	5,039.56
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	27.28	110.23	0.00	6,388.2	0.0	2422.68	2650.02	5,072.70
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.58	108.83	0.00	6,240.4	0.0	2383.53	2828.27	5,211.80
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.37	108.07	0.00	5,331.3	0.0	2273.88	2972.26	5,246.14
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	22.05	100.70	0.00	4,676.5	0.0	2165.60	3008.61	5,174.20
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	19.67	82.94	0.00	3,818.9	0.0	1942.09	2594.28	4,536.38
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.71	28.98	0.00	1,462.8	0.0	856.41	972.27	1,828.68
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	30.72	0.00	1,780.6	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,316.6	**0.0**			**39,475.74**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.40	110.23	0.00	7,679.8	0.0	2068.74	2018.49	4,087.23
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.27	110.23	0.00	7,498.6	0.0	2271.30	2409.48	4,680.78
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	23.79	110.23	0.00	6,388.2	0.0	2112.37	2650.02	4,762.39
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.41	108.83	0.00	6,240.4	0.0	2088.01	2828.27	4,916.28
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.50	108.07	0.00	5,331.3	0.0	1994.01	2972.26	4,966.28
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	19.45	100.70	0.00	4,676.5	0.0	1910.39	3008.61	4,918.99
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	17.47	82.94	0.00	3,818.9	0.0	1725.36	2594.28	4,319.64
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.79	28.98	0.00	1,462.8	0.0	766.25	972.27	1,738.51
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	30.72	0.00	1,780.6	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,316.6	**0.0**			**37,337.57**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.62	110.23	0.00	7,679.8	0.0	2151.64	2018.49	4,170.13
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.38	110.23	0.00	7,498.6	0.0	2360.99	2409.48	4,770.48
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	24.66	110.23	0.00	6,388.2	0.0	2189.95	2650.02	4,839.97
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.20	108.83	0.00	6,240.4	0.0	2161.89	2828.27	4,990.16
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.21	108.07	0.00	5,331.3	0.0	2063.98	2972.26	5,036.24
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	20.10	100.70	0.00	4,676.5	0.0	1974.19	3008.61	4,982.80
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	18.02	82.94	0.00	3,818.9	0.0	1779.54	2594.28	4,373.83
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.02	28.98	0.00	1,462.8	0.0	788.79	972.27	1,761.05
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	30.72	0.00	1,780.6	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,316.6	**0.0**			**37,872.11**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.27	110.23	0.00	5,759.8	0.0	2400.35	2018.49	4,418.83
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.73	110.23	0.00	5,624.0	0.0	2630.08	2409.48	5,039.56
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	27.28	110.23	0.00	4,791.2	0.0	2422.68	2650.02	5,072.70
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.58	108.83	0.00	4,680.3	0.0	2383.53	2828.27	5,211.80
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.37	108.07	0.00	3,998.5	0.0	2273.88	2972.26	5,246.14
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	22.05	100.70	0.00	3,507.4	0.0	2165.60	3008.61	5,174.20
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	19.67	82.94	0.00	2,864.2	0.0	1942.09	2594.28	4,536.38
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.71	28.98	0.00	1,097.1	0.0	856.41	972.27	1,828.68
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	30.72	0.00	1,335.5	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,737.4	**0.0**			**39,475.74**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	

IES Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.40	110.23	0.00	5,759.8	0.0	2068.74	2018.49	4,087.23
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.27	110.23	0.00	5,624.0	0.0	2271.30	2409.48	4,680.78
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	23.79	110.23	0.00	4,791.2	0.0	2112.37	2650.02	4,762.39
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.41	108.83	0.00	4,680.3	0.0	2088.01	2828.27	4,916.28
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.50	108.07	0.00	3,998.5	0.0	1994.01	2972.26	4,966.28
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	19.45	100.70	0.00	3,507.4	0.0	1910.39	3008.61	4,918.99
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	17.47	82.94	0.00	2,864.2	0.0	1725.36	2594.28	4,319.64
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.79	28.98	0.00	1,097.1	0.0	766.25	972.27	1,738.51
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	30.72	0.00	1,335.5	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,737.4	**0.0**			**37,337.57**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.62	110.23	0.00	5,759.8	0.0	2151.64	2018.49	4,170.13
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.38	110.23	0.00	5,624.0	0.0	2360.99	2409.48	4,770.48
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	24.66	110.23	0.00	4,791.2	0.0	2189.95	2650.02	4,839.97
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.20	108.83	0.00	4,680.3	0.0	2161.89	2828.27	4,990.16
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.21	108.07	0.00	3,998.5	0.0	2063.98	2972.26	5,036.24
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	20.10	100.70	0.00	3,507.4	0.0	1974.19	3008.61	4,982.80
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	18.02	82.94	0.00	2,864.2	0.0	1779.54	2594.28	4,373.83
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.02	28.98	0.00	1,097.1	0.0	788.79	972.27	1,761.05
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	30.72	0.00	1,335.5	0.0	848.17	1041.50	1,889.67
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,737.4	**0.0**			**37,872.11**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	1.00	1.00	1.85	60.45	162.02	67.77	16,928.	9248.2	602.67	586.86	1,189.53
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	1.00	1.00	2.01	59.33	166.38	73.77	17,515.	10016.3	687.43	722.46	1,409.89
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	1.00	1.00	2.10	53.36	168.86	77.18	16,280.	9892.1	672.79	808.84	1,481.63
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	1.00	1.00	2.17	51.49	169.22	70.20	16,084.	9844.0	671.80	869.24	1,541.04
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	1.00	1.00	2.22	47.69	169.85	66.69	14,961.	9630.1	636.78	917.86	1,554.64
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	1.00	1.00	2.27	46.28	159.76	46.90	13,644.	8967.8	611.10	928.32	1,539.42
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	1.00	1.00	2.30	45.44	127.07	34.54	11,551.	7732.8	577.18	743.61	1,320.79
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	1.00	1.00	2.33	20.85	44.50	7.76	4,453.5	2990.6	259.60	256.33	515.93
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	1.00	1.00	2.35	50.02	44.04	10.96	6,533.0	4752.4	583.15	191.16	774.31
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	1.00	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	1.00	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														123,840.5	**77524.0**			**12,122.37**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	0.80	1.00	1.85	55.58	162.02	67.77	16,928.	9248.2	554.09	586.86	1,140.95
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	0.80	1.00	2.01	54.87	166.38	73.77	17,515.	10016.3	635.69	722.46	1,358.16
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	0.80	1.00	2.10	49.86	168.86	77.18	16,280.	9892.1	628.73	808.84	1,437.57
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	0.80	1.00	2.17	48.32	169.22	70.20	16,084.	9844.0	630.42	869.24	1,499.66
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	0.80	1.00	2.22	44.81	169.85	66.69	14,961.	9630.1	598.37	917.86	1,516.23
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	0.80	1.00	2.27	43.68	159.76	46.90	13,644.	8967.8	576.79	928.32	1,505.11
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	0.80	1.00	2.30	43.24	127.07	34.54	11,551.	7732.8	549.30	743.61	1,292.91
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	0.80	1.00	2.33	19.93	44.50	7.76	4,453.5	2990.6	248.18	256.33	504.51
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	0.80	1.00	2.35	50.02	44.04	10.96	6,533.0	4752.4	583.15	191.16	774.31
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	0.80	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	0.80	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														123,840.5	**77524.0**			**11,824.59**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	0.85	1.00	1.85	56.80	162.02	67.77	16,928.	9248.2	566.23	586.86	1,153.09
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	0.85	1.00	2.01	55.98	166.38	73.77	17,515.	10016.3	648.63	722.46	1,371.09
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	0.85	1.00	2.10	50.74	168.86	77.18	16,280.	9892.1	639.74	808.84	1,448.58
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	0.85	1.00	2.17	49.12	169.22	70.20	16,084.	9844.0	640.77	869.24	1,510.01
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	0.85	1.00	2.22	45.53	169.85	66.69	14,961.	9630.1	607.97	917.86	1,525.83
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	0.85	1.00	2.27	44.33	159.76	46.90	13,644.	8967.8	585.37	928.32	1,513.69
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	0.85	1.00	2.30	43.79	127.07	34.54	11,551.	7732.8	556.27	743.61	1,299.88
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	0.85	1.00	2.33	20.16	44.50	7.76	4,453.5	2990.6	251.03	256.33	507.36
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	0.85	1.00	2.35	50.02	44.04	10.96	6,533.0	4752.4	583.15	191.16	774.31
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	0.85	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	0.85	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														123,840.5	**77524.0**			**11,899.03**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	37.65	110.23	0.00	6,399.8	0.0	612.73	482.69	1,095.41
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	35.28	110.23	0.00	6,248.9	0.0	677.86	576.19	1,254.04
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	29.62	110.23	0.00	5,323.5	0.0	629.08	633.71	1,262.78
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	27.92	108.83	0.00	5,200.4	0.0	622.12	676.33	1,298.45
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	25.06	108.07	0.00	4,442.8	0.0	583.06	710.77	1,293.82
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	23.70	100.70	0.00	3,897.1	0.0	556.70	719.46	1,276.16
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	20.84	82.94	0.00	3,182.5	0.0	492.15	620.38	1,112.53
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	9.09	28.98	0.00	1,219.0	0.0	213.67	232.50	446.17
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	30.72	0.00	1,483.8	0.0	202.83	249.06	451.88
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,597.1	**0.0**			**9,744.21**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	32.78	110.23	0.00	6,399.8	0.0	533.43	482.69	1,016.11
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	30.81	110.23	0.00	6,248.9	0.0	592.06	576.19	1,168.25
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	26.13	110.23	0.00	5,323.5	0.0	554.87	633.71	1,188.58
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	24.75	108.83	0.00	5,200.4	0.0	551.45	676.33	1,227.79
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	22.18	108.07	0.00	4,442.8	0.0	516.13	710.77	1,226.90
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	21.10	100.70	0.00	3,897.1	0.0	495.68	719.46	1,215.13
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	18.65	82.94	0.00	3,182.5	0.0	440.33	620.38	1,060.70
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	8.17	28.98	0.00	1,219.0	0.0	192.11	232.50	424.61
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	30.72	0.00	1,483.8	0.0	202.83	249.06	451.88
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,597.1	**0.0**			**9,232.90**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	34.00	110.23	0.00	6,399.8	0.0	553.25	482.69	1,035.94
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	31.93	110.23	0.00	6,248.9	0.0	613.51	576.19	1,189.70
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	27.00	110.23	0.00	5,323.5	0.0	573.42	633.71	1,207.13
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	25.54	108.83	0.00	5,200.4	0.0	569.12	676.33	1,245.45
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	22.90	108.07	0.00	4,442.8	0.0	532.86	710.77	1,243.63
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	21.75	100.70	0.00	3,897.1	0.0	510.93	719.46	1,230.39
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	19.20	82.94	0.00	3,182.5	0.0	453.28	620.38	1,073.66
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.40	28.98	0.00	1,219.0	0.0	197.50	232.50	430.00
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	30.72	0.00	1,483.8	0.0	202.83	249.06	451.88
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,597.1	**0.0**			**9,360.73**

Force/Stress Compression Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	12B - 12"BD 2.25"	-414.24	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.38	50.00	514.03	80.6	Member X
2	40	12B - 12"BD 2.25"	-377.96	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.38	50.00	514.03	73.5	Member X
3	60	12B - 12"BD 2"	-335.89	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.41	50.00	405.83	82.8	Member X
4	80	12B - 12"BD 2"	-291.24	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.41	50.00	405.83	71.8	Member X
5	100	12B - 12"BD 1.75"	-242.07	1.2D + 1.6W Normal Wind	10.02	100	100	100	25.99	50.00	308.82	78.4	Member X
6	120	12B - 12"BD 1.75"	-186.03	1.2D + 1.6W Normal Wind	10.02	100	100	100	25.99	50.00	308.82	60.2	Member X
7	140	12B - 12"BD 1.5"	-128.24	1.2D + 1.6W Normal Wind	10.02	100	100	100	30.32	50.00	222.99	57.5	Member X
8	150	12B - 12"BD 1.25"	-70.06	1.2D + 1.6W Normal Wind	10.02	100	100	100	36.38	50.00	150.33	46.6	Member X
9	170	SOL - 2" SOLID	-57.47	1.2D + 1.6W Normal Wind	2.33	100	100	100	56.01	50.00	112.40	51.1	Member X
10	185	SOL - 1 3/4" SOLID	-13.11	1.2D + 1.6W Normal Wind	2.35	100	100	100	64.48	50.00	79.87	16.4	Member X
11	195	SOL - 1 3/4" SOLID	-2.71	1.2D + 1.0Di + 1.0Wi Normal	0.21	100	100	100	5.71	50.00	107.98	2.7	Bolt Shear

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	387.90	0.00	0.0			1.2D + 1.6W Normal Wind	424.71	0.00			
2	40	1.2D + 1.6W Normal Wind	347.04	0.00	0.0			1.2D + 1.6W Normal Wind	387.90	0.00		1/4 A325	6
3	60	1.2D + 1.6W Normal Wind	303.24	0.00	0.0			1.2D + 1.6W Normal Wind	347.04	0.00		1/4 A325	6
4	80	1.2D + 1.6W Normal Wind	255.52	0.00	0.0			1.2D + 1.6W Normal Wind	303.24	0.00		1/4 A325	6
5	100	1.2D + 1.6W Normal Wind	201.41	0.00	0.0			1.2D + 1.6W Normal Wind	255.52	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	143.49	0.00	0.0			1.2D + 1.6W Normal Wind	201.41	0.00		1 A325	6
7	140	1.2D + 1.6W Normal Wind	90.25	0.00	0.0			1.2D + 1.6W Normal Wind	143.49	0.00		1 A325	6
8	150	1.2D + 1.6W Normal Wind	62.58	0.00	0.0			1.2D + 1.6W Normal Wind	90.25	0.00		1 A325	6
9	170	1.2D + 1.6W Normal Wind	16.46	0.00	0.0			1.2D + 1.6W Normal Wind	62.58	0.00		1 A325	6
10	185	1.2D + 1.0Di + 1.0Wi Normal Wi	2.85	0.00	0.0			1.2D + 1.6W Normal Wind	16.46	0.00			
11	195	1.2D + 1.0Di + 1.0Wi 90° Wind	0.40	0.00	0.0			1.2D + 1.0Di + 1.0Wi Normal Wi	2.85	0.00			

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	140	SAE - 2.5X2.5X0.1875	-3.33	0.9D + 1.6W Normal Wind	6.00	100	100	100	145.45	36.00	9.63	1	1	31.81	17.94	35	Member Z
8	150										0.00	0	0				
9	170	SOL - 7/8" SOLID	-1.31	1.2D + 1.6W 60° Wind	4.52	100	100	100	173.48	50.00	4.51	0	0			29	Member X
10	185	SOL - 7/8" SOLID	-1.54	1.2D + 1.6W Normal Wind	4.50	100	100	100	172.76	50.00	4.55	0	0			34	Member X
11	195	SOL - 7/8" SOLID	-0.73	0.9D + 1.6W 90° Wind	4.50	100	100	100	172.76	50.00	4.55	0	0			16	Member X

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.3125	-10.4	1.2D + 1.6W Normal Wind	21.92	47	47	47	179.14	36.00	14.71	1	1	43.49	37.5	71	Member Z
2	40	SAE - 3.5X3.5X0.3125	-10.9	1.2D + 1.6W 90° Wind	20.16	47	47	47	164.77	36.00	17.39	1	1	43.49	37.5	63	Member Z
3	60	SAE - 3X3X0.3125	-10.8	1.2D + 1.6W 90° Wind	18.45	47	47	47	176.65	36.00	12.89	1	1	43.49	37.5	84	Member Z

Force/Stress Compression Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

IES
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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
4	80	SAE - 3X3X0.3125	-10.8	1.2D + 1.6W 90° Wind	16.80	47	47	47	160.90	36.00	15.53	1	1	43.49	37.5	70	Member Z
5	100	SAE - 3X3X0.3125	-11.1	1.2D + 1.6W 90° Wind	15.24	47	47	47	145.96	36.00	18.88	1	1	31.81	29.9	59	Member Z
6	120	SAE - 3X3X0.1875	-11.0	1.2D + 1.6W 90° Wind	13.80	45	45	45	125.00	36.00	15.51	1	1	31.81	17.9	71	Member Z
7	140	SAE - 2.5X2.5X0.1875	-10.0	1.2D + 1.6W 90° Wind	12.50	44	44	44	133.37	36.00	11.46	1	1	31.81	17.9	88	Member Z
8	150	SAE - 2.5X2.5X0.1875	-11.4	1.2D + 1.6W Normal Wind	11.42	44	44	44	121.77	36.00	13.39	1	1	31.81	17.9	86	Member Z
9	170	SOL - 7/8" SOLID	-4.38	1.2D + 1.6W 90° Wind	5.48	50	50	50	135.20	50.00	7.43	0	0			59	Member X
10	185	SOL - 3/4" SOLID	-3.54	1.2D + 1.6W Normal Wind	5.08	50	50	50	146.22	50.00	4.67	0	0			76	Member X
11	195	SOL - 3/4" SOLID	-1.15	1.2D + 1.6W 60° Wind	5.04	50	50	50	145.23	50.00	4.73	0	0			24	Member X

Force/Stress Tension Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	12B - 12"BD 2.25"	364.93	0.9D + 1.6W 60° Wind	50	536.85	68.0	Member
2	40	12B - 12"BD 2.25"	332.72	0.9D + 1.6W 60° Wind	50	536.85	62.0	Member
3	60	12B - 12"BD 2"	296.29	0.9D + 1.6W 60° Wind	50	423.90	69.9	Member
4	80	12B - 12"BD 2"	256.32	0.9D + 1.6W 60° Wind	50	423.90	60.5	Member
5	100	12B - 12"BD 1.75"	211.83	0.9D + 1.6W 60° Wind	50	324.45	65.3	Member
6	120	12B - 12"BD 1.75"	160.15	0.9D + 1.6W 60° Wind	50	324.45	49.4	Member
7	140	12B - 12"BD 1.5"	108.43	0.9D + 1.6W 60° Wind	50	238.50	45.5	Member
8	150	12B - 12"BD 1.25"	55.53	0.9D + 1.6W 60° Wind	50	165.60	33.5	Member
9	170	SOL - 2" SOLID	46.53	0.9D + 1.6W 60° Wind	50	141.37	32.9	Member
10	185	SOL - 1 3/4" SOLID	6.64	0.9D + 1.6W Normal Wind	50	108.24	6.1	Member
11	195	SOL - 1 3/4" SOLID	1.19	0.9D + 1.6W 60° Wind	50	108.24	1.2	Bolt Shear

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	340.50	0.00	0.0			0.9D + 1.6W 60° Wind	374.4	0.00			
2	40	0.9D + 1.6W 60° Wind	304.54	0.00	0.0			0.9D + 1.6W 60° Wind	340.5	457.92	74.4	1 1/4 A325	6
3	60	0.9D + 1.6W 60° Wind	265.84	0.00	0.0			0.9D + 1.6W 60° Wind	304.5	457.92	66.5	1 1/4 A325	6
4	80	0.9D + 1.6W 60° Wind	222.77	0.00	0.0			0.9D + 1.6W 60° Wind	265.8	457.92	58.1	1 1/4 A325	6
5	100	0.9D + 1.6W 60° Wind	172.62	0.00	0.0			0.9D + 1.6W 60° Wind	222.7	318.06	70.0	1 A325	6
6	120	0.9D + 1.6W 60° Wind	120.78	0.00	0.0			0.9D + 1.6W 60° Wind	172.6	318.06	54.3	1 A325	6
7	140	0.9D + 1.6W 60° Wind	72.79	0.00	0.0			0.9D + 1.6W 60° Wind	120.7	318.06	38.0	1 A325	6
8	150	0.9D + 1.6W 60° Wind	44.87	0.00	0.0			0.9D + 1.6W 60° Wind	72.79	318.06	22.9	1 A325	6
9	170	0.9D + 1.6W Normal Wind	6.61	0.00	0.0			0.9D + 1.6W 60° Wind	44.87	318.06	14.1	1 A325	6
10	185	0.9D + 1.6W 60° Wind	1.17	0.00	0.0			0.9D + 1.6W Normal Wind	6.61	0.00			
11	195		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	1.17	0.00			

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE - 2.5X2.5X0.1875	3.72	1.2D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	34.9	Blck Shear
8	150	-			36	0.00	0	0					
9	170	SOL - 7/8" SOLID	1.31	1.2D + 1.6W 90° Wind	50	27.06	0	0				4.8	Member
10	185	SOL - 7/8" SOLID	0.88	1.2D + 1.6W 60° Wind	50	27.06	0	0				3.3	Member
11	195	SOL - 7/8" SOLID	0.98	0.9D + 1.6W 60° Wind	50	27.06	0	0				3.6	Member

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.3125	10.43	1.2D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	44.0	Blck Shear
2	40	SAE - 3.5X3.5X0.3125	10.62	0.9D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	44.8	Blck Shear
3	60	SAE - 3X3X0.3125	10.40	1.2D + 1.6W 90° Wind	36	44.05	1	1	43.49	37.52	20.30	51.2	Blck Shear
4	80	SAE - 3X3X0.3125	10.50	1.2D + 1.6W 90° Wind	36	44.05	1	1	43.49	37.52	20.30	51.7	Blck Shear

Force/Stress Tension Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 17	

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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
5	100	SAE - 3X3X0.3125	11.16	1.2D + 1.6W 90° Wind	36	46.60	1	1	31.81	29.91	19.47	57.3	Blck Shear
6	120	SAE - 3X3X0.1875	10.61	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	90.8	Blck Shear
7	140	SAE - 2.5X2.5X0.1875	9.74	1.2D + 1.6W 90° Wind	36	22.55	1	1	31.81	17.94	10.66	91.4	Blck Shear
8	150	SAE - 2.5X2.5X0.1875	10.59	0.9D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	99.4	Blck Shear
9	170	SOL - 7/8" SOLID	4.37	1.2D + 1.6W 90° Wind	50	27.06	0	0				16.1	Member
10	185	SOL - 3/4" SOLID	3.81	1.2D + 1.6W Normal Wi	50	19.88	0	0				19.2	Member
11	195	SOL - 3/4" SOLID	0.84	0.9D + 1.6W 90° Wind	50	19.88	0	0				4.2	Member

Support Forces Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 18	

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	-0.01	423.91	-41.60	
	1a	14.82	-178.22	-11.23	
	1b	-14.81	-178.21	-11.24	
1.2D + 1.6W 60° Wind	1	-2.12	218.83	-21.07	
	1a	-19.19	216.01	8.77	
	1b	-32.33	-367.36	-18.67	
1.2D + 1.6W 90° Wind	1	-2.57	22.59	-1.66	
	1a	-31.24	361.16	16.71	
	1b	-28.65	-316.27	-15.05	
0.9D + 1.6W Normal Wind	1	-0.01	417.53	-41.16	
	1a	15.17	-183.46	-11.45	
	1b	-15.16	-183.46	-11.46	
0.9D + 1.6W 60° Wind	1	-2.13	212.82	-20.63	
	1a	-18.82	210.05	8.54	
	1b	-32.69	-372.27	-18.88	
0.9D + 1.6W 90° Wind	1	-2.59	16.94	-1.23	
	1a	-30.86	354.94	16.48	
	1b	-29.01	-321.27	-15.25	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	189.06	-11.76	
	1a	5.70	-5.98	-3.89	
	1b	-5.70	-5.93	-3.89	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.55	123.53	-5.47	
	1a	-4.94	121.95	2.30	
	1b	-11.18	-68.33	-6.46	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.64	59.21	0.66	
	1a	-8.75	169.09	4.74	
	1b	-9.93	-51.15	-5.39	
1.0D + 1.0W Normal Wind	1	0.00	115.94	-11.18	
	1a	2.72	-29.86	-2.22	
	1b	-2.72	-29.85	-2.23	
1.0D + 1.0W 60° Wind	1	-0.55	66.32	-6.16	
	1a	-5.57	65.58	2.62	
	1b	-6.97	-75.66	-4.02	
1.0D + 1.0W 90° Wind	1	-0.65	18.81	-1.42	
	1a	-8.51	100.50	4.56	
	1b	-6.07	-63.07	-3.14	

Max Reactions

Leg			Overturning		
Max Uplift:	-372.27	(kips)	Moment:	6952.68	(ft-kips)
Max Down:	423.91	(kips)	Total Down:	67.48	(kips)
Max Shear:	41.60	(kips)	Total Shear:	64.07	(kips)

Max Reactions

Leg			Overturning		
Max Uplift:	-372.27	(kips)	Moment:	6952.68	(ft-kips)
Max Down:	423.91	(kips)	Total Down:	67.48	(kips)
Max Shear:	41.60	(kips)	Total Shear:	64.07	(kips)

Anchor Bolts

Bolt Size (in.):	1.25	Number Bolts:	6
Yield Strength (Ksi):	105.00	Tensile Strength (Ksi):	150.00
Detail Type:	C		

Interaction Ratio: 0.64

Max Usages

Max Leg: 82.8% (1.2D + 1.6W Normal Wind - Sect 3)
Max Diag: 99.4% (0.9D + 1.6W 60° Wind - Sect 8)
Max Horiz: 34.9% (1.2D + 1.6W 60° Wind - Sect 7)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 97 mph Wind at 60° From Face	60.00	0.2052	0.0286	0.3886
	70.00	0.2764	-0.0097	0.4573
	100.00	0.5808	0.0537	0.7130
	110.00	0.7132	0.0604	0.7973
	120.00	0.8591	0.0657	0.8700
	130.00	1.0208	0.0751	0.9762
	150.00	1.3879	0.0956	1.1709
	164.58	1.6945	1.2111	1.2723
	172.56	1.8739	1.9793	1.6923
	195.00	2.3543	2.7005	1.6997
0.9D + 1.6W 97 mph Wind at 90° From Face	60.00	0.2046	-0.0279	0.3895
	70.00	0.2762	-0.0328	0.4569
	100.00	0.5800	-0.0516	0.7116
	110.00	0.7122	-0.0568	0.7922
	120.00	0.8575	-0.0593	0.8661
	130.00	1.0184	-0.0631	0.9719
	150.00	1.3852	-0.0647	1.1564
	164.58	1.6878	0.0221	1.2333
	172.56	1.8662	0.0298	0.5066
	195.00	2.3330	0.0364	1.2580

0.9D + 1.6W 97 mph Wind at Normal To Face	60.00	0.2109	0.0085	0.3989
	70.00	0.2867	0.0000	0.4683
	100.00	0.5965	0.0143	0.7353
	110.00	0.7327	0.0163	0.8269
	120.00	0.8829	0.0185	0.8952
	130.00	1.0497	0.0234	1.0064
	150.00	1.4302	0.0281	1.2135
	164.58	1.7528	-0.1343	1.3086
	172.56	1.9363	-0.1773	2.8866
	195.00	2.4737	-0.1797	3.1003
1.0D + 1.0W 60 mph Wind at 60° From Face	60.00	0.0496	-0.0049	0.0938
	70.00	0.0671	-0.0057	0.1104
	100.00	0.1403	-0.0089	0.1718
	110.00	0.1722	-0.0097	0.1924
	120.00	0.2074	0.0102	0.2094
	130.00	0.2463	0.0114	0.2345
	150.00	0.3352	0.0132	0.2827
	164.58	0.4090	0.0704	0.3012
	172.56	0.4521	0.1137	0.3640
	195.00	0.5676	0.1548	0.3795
1.0D + 1.0W 60 mph Wind at 90° From Face	60.00	0.0496	-0.0067	0.0940
	70.00	0.0668	-0.0079	0.1102
	100.00	0.1401	-0.0124	0.1713
	110.00	0.1719	-0.0136	0.1908
	120.00	0.2068	-0.0142	0.2086
	130.00	0.2456	-0.0151	0.2334
	150.00	0.3334	-0.0155	0.2778
	164.58	0.4059	-0.0019	0.2953
	172.56	0.4485	-0.0015	0.1209
	195.00	0.5600	0.0020	0.3005
1.0D + 1.0W 60 mph Wind at Normal To Face	60.00	0.0514	0.0020	0.0968
	70.00	0.0697	0.0000	0.1133
	100.00	0.1448	0.0034	0.1779
	110.00	0.1777	0.0039	0.2000
	120.00	0.2140	0.0044	0.2167
	130.00	0.2544	0.0055	0.2434
	150.00	0.3457	0.0066	0.2918
	164.58	0.4235	-0.0286	0.3153
	172.56	0.4678	-0.0366	0.6929
	195.00	0.5975	-0.0364	0.7440
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	60.00	0.0680	0.0072	0.1285
	70.00	0.0905	-0.0037	0.1522
	100.00	0.1933	0.0136	0.2409
	110.00	0.2382	0.0153	0.2726
	120.00	0.2880	0.0167	0.2984
	130.00	0.3435	0.0192	0.3397
	150.00	0.4740	0.0238	0.4224
	164.58	0.5864	0.2885	0.4702
	172.56	0.6552	0.4695	0.7596
	195.00	0.8371	0.7317	1.3210
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	60.00	0.0674	-0.0076	0.1287
	70.00	0.0904	-0.0089	0.1516
	100.00	0.1920	-0.0141	0.2401
	110.00	0.2366	-0.0156	0.2699
	120.00	0.2860	-0.0164	0.2977
	130.00	0.3418	-0.0176	0.3375
	150.00	0.4707	-0.0179	0.4137
	164.58	0.5808	0.0072	0.4582
	172.56	0.6489	0.0113	0.4255
	195.00	0.8216	0.0119	0.9174

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	60.00	0.0679	0.0034	0.1320
	70.00	0.0928	0.0000	0.1551
	100.00	0.1973	0.0061	0.2488
	110.00	0.2435	0.0070	0.2818
	120.00	0.2952	0.0078	0.3104
	130.00	0.3537	0.0095	0.3533
	150.00	0.4883	0.0115	0.4354
	164.58	0.6085	-0.0621	0.4970
	172.56	0.6791	-0.0814	1.3036
	195.00	0.8964	-0.0818	2.0707
1.2D + 1.6W 97 mph Wind at 60° From Face	60.00	0.2055	0.0287	0.3894
	70.00	0.2769	-0.0097	0.4584
	100.00	0.5821	0.0539	0.7150
	110.00	0.7148	0.0606	0.7995
	120.00	0.8612	0.0659	0.8724
	130.00	1.0233	0.0753	0.9791
	150.00	1.3918	0.0959	1.1751
	164.58	1.6993	1.2148	1.2767
	172.56	1.8793	1.9856	1.6945
	195.00	2.3615	2.7091	1.7021
1.2D + 1.6W 97 mph Wind at 90° From Face	60.00	0.2050	-0.0279	0.3904
	70.00	0.2767	-0.0328	0.4580
	100.00	0.5812	-0.0517	0.7136
	110.00	0.7138	-0.0569	0.7946
	120.00	0.8596	-0.0594	0.8687
	130.00	1.0209	-0.0632	0.9748
	150.00	1.3889	-0.0648	1.1604
	164.58	1.6926	0.0224	1.2376
	172.56	1.8716	0.0302	0.5029
	195.00	2.3400	0.0368	1.2623
1.2D + 1.6W 97 mph Wind at Normal To Face	60.00	0.2114	0.0086	0.3999
	70.00	0.2874	0.0000	0.4694
	100.00	0.5980	0.0144	0.7374
	110.00	0.7345	0.0164	0.8294
	120.00	0.8852	0.0186	0.8980
	130.00	1.0525	0.0235	1.0096
	150.00	1.4342	0.0282	1.2173
	164.58	1.7578	-0.1346	1.3131
	172.56	1.9420	-0.1776	2.8908
	195.00	2.4812	-0.1800	3.1053

Mat Foundation Design for Self Supporting Tower

			Date: 6/8/2022
Customer Name:	SBA Communications Corp	TIA Standard:	TIA-222-G
Site Name:		Structure Height (Ft.):	195
Site Nmber:	CT22108-A-SBA	Engineer Name:	J. Tibbetts
Engr. Number:	130128	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

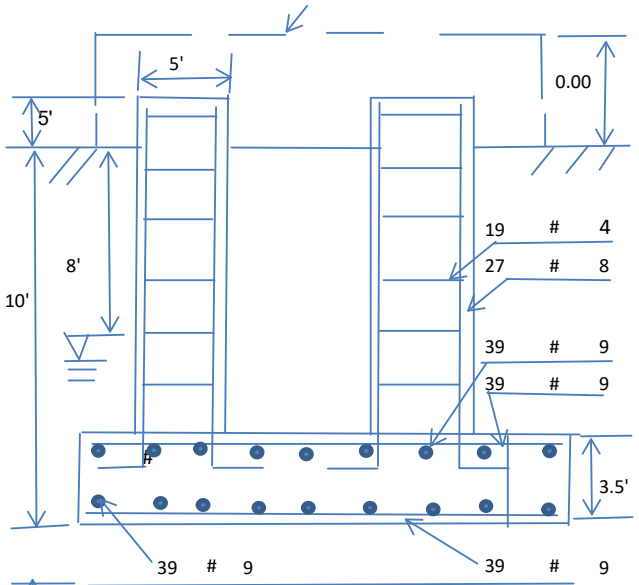
Axial Load (Kips):	423.9	Uplift Force (Kips):	372.3
Shear Force (Kips):	41.6		

(2). Tower Base:

Total Vertical Load (Kips):	67.5	Total Shear Force (Kips):	64.1
Moment (Kips-ft):	6952.7		

Foundation Geometries:

Leg distance (Center-to-Center ft.):		20.0	Mods required -Yes/No ?:	No	
Diameter of Pier (ft.):	Square	5.0	Pier Height A. G. (ft.):	5.00	
Tower center to mat center (ft):		2.89	Depth of Base BG (ft.):	10.0	
Length of Pad (ft.):		29.5	Width of Pad (ft.):	29.5	
Thickness of Pad (ft):		3.50			



Material Properties and Reabr Info:

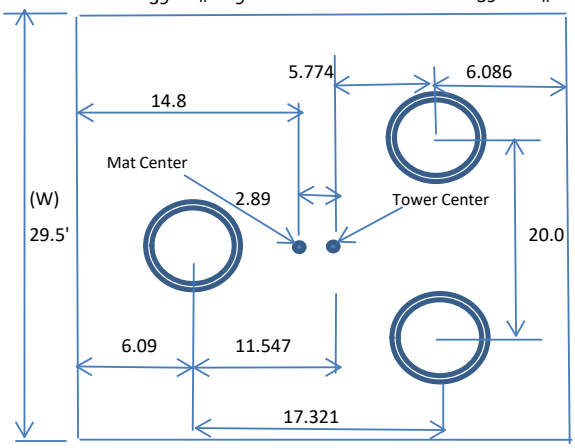
Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	27	Tie Spacing (in):	10.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	39	Qty. of Rebar in Pad (W):	39

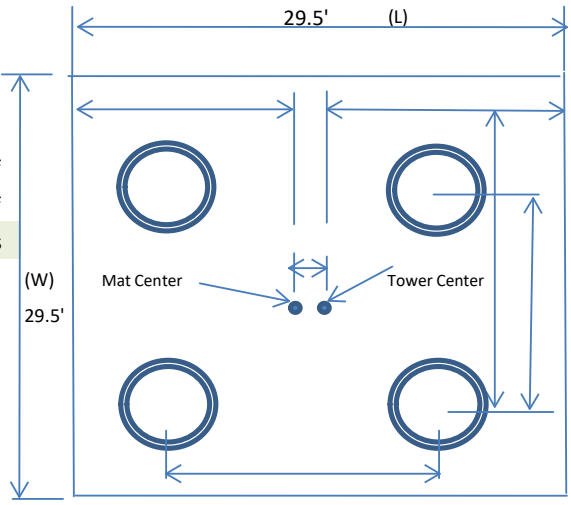
Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	39	Qty. of Rebar in Pad (W):	39



Soil Design Parameters:

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	8.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	7000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	No			



Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design:	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75			
Total Dry Soil Volume (cu. Ft.):		5169.13	Total Dry Soil Weight (Kips):	516.91			
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00			
Total Effective Soil Weight (Kips):		516.91	Weight from the Concrete Block at Top (K):	0.00			
Total Dry Concrete Volume (cu. Ft.):		2167.88	Total Dry Concrete Weight (Kips):	325.18			
Total Buoyant Concrete Volume (cu. Ft.):		1740.50	Total Buoyant Concrete Weight (Kips):	152.47			
Total Effective Concrete Weight (Kips):		477.65	Total Vertical Load on Base (Kips):	1062.05			
Check Soil Capacities:						Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):		3573.04	<	Allowable Factored Soil Bearing (psf):	5250	0.68	OK!
Allowable Foundation Overturning Resistance (kips-ft.):		14198.2	>	Design Factored Momont (kips-ft):	8109	0.57	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):		1.75	OK!				
Check the capacities of Reinforceing Concrete:							
Strength reduction factor (Flexure and axial tension):		0.90	Strength reduction factor (Shear):		0.75		
Strength reduction factor (Axial compresion):		0.65	Wind Load Factor on Concrete Design:		1.00		
(1) Concrete Pier:						Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):		0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):		1828.1	>	Design Factored Moment (Mu, Kips-Ft)	478.4	0.26	OK!
Calculated Shear Capacity (Kips):		322.6	>	Design Factored Shear (Kips):	41.6	0.13	OK!
Calculated Tension Capacity (Tn, Kips):		1151.8	>	Design Factored Tension (Tu Kips):	372.3	0.32	OK!
Calculated Compression Capacity (Pn, Kips):		4745.3	>	Design Factored Axial Load (Pu Kips):	423.9	0.09	OK!
Moment & Tension Strength Combination:		0.26	OK!	Check Tie Spacing (Design/Req'd):	0.83		
Pier Reinforcement Ratio:		0.006	Reinforcement Ratio is satisfied per ACI				
(2).Concrete Pad:							
One-Way Design Shear Capacity (L or W Direction, Kips):		1117.9	>	One-Way Factored Shear (L/W-Dir Kips	228.0	0.20	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):		857.3	>	One-Way Factored Shear (Dia. Dir, Kips	317.1	0.37	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):		0.0029		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0026		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):		6518.3	>	Moment at Bottom (L-Direct. K-Ft):	860.9	0.13	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):		6147.7	>	Moment at Bottom (Dia. Dir. K-Ft):	1363.1	0.22	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):		0.0029		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0026		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):		6518.3	>	Moment at the top (L-Dir Kips-Ft):	240.1	0.04	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):		6147.7	>	Moment at the top (Dia. Dir., K-Ft):	534.1	0.09	OK!
Punching Failure Capacity (Kips):		1973.2	>	Punch. Failure Factored Shear (K):	423.9	0.21	OK!

Exhibit E

Mount Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Antenna Mount Analysis Report

Existing Self Support Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT22108-A-SBA

Customer Site Name: Windsor Locks @ Volunteer Drive

Carrier Name: T-Mobile (App#: 197406, V2)

Carrier Site ID / Name: CT11319C / Windsor Locks/Rt 20

Site Location: 2-4 Volunteer Drive

Windsor Locks, Connecticut

HARTFORD County

Latitude: 41.928100

Longitude: -72.646800

Analysis Result:

Max Structural Usage: 50.7% [Pass]

Report Prepared By: Venkata Annamreddy

NOTE: The proposed modification by TES, project no.# 107815 was assumed to be installed as per drawing instruction. The analysis results are void if the proposed modification is not installed in accordance with modification drawing listed in the source of information.

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Introduction

The purpose of this report is to summarize the analysis results on the (3) Reinforced T-Arms at 135.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount Mapping by ProVertic Dated: 07/30/18
Antenna Loading	SBA, Application #:197406, v2; dated:5/31/2022
Modification Drawings	Modifications by Hudson Design Group LLC Site#: CT11319C Dated: 10/23/18
Proposed Modification	TES Project No. 107815; dated: 06/11/2021

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 125mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 97 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(3) Reinforced T-Arms at 135.00' elevation

Final Antenna Configuration

3	RFS APXVAARR24_43-U-NA20 (Octa)
3	Ericsson AIR6449 B41
3	Ericsson AIR32 KRD901146-1_B66A (Octa)
6	Ericsson KRY 112 144/2
3	Ericsson Radio 4449 B71 + B85
3	Ericsson 4460 B25 + B66

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 50.7%, which occurs in the front face horizontal. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

NOTE: The proposed modification by TES, project no.# 107815 was assumed to be installed as per drawing instruction. The analysis results are void if the proposed modification is not installed in accordance with modification drawing listed in the source of information.

Attachments

1. Mount Photos Before Modifications
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

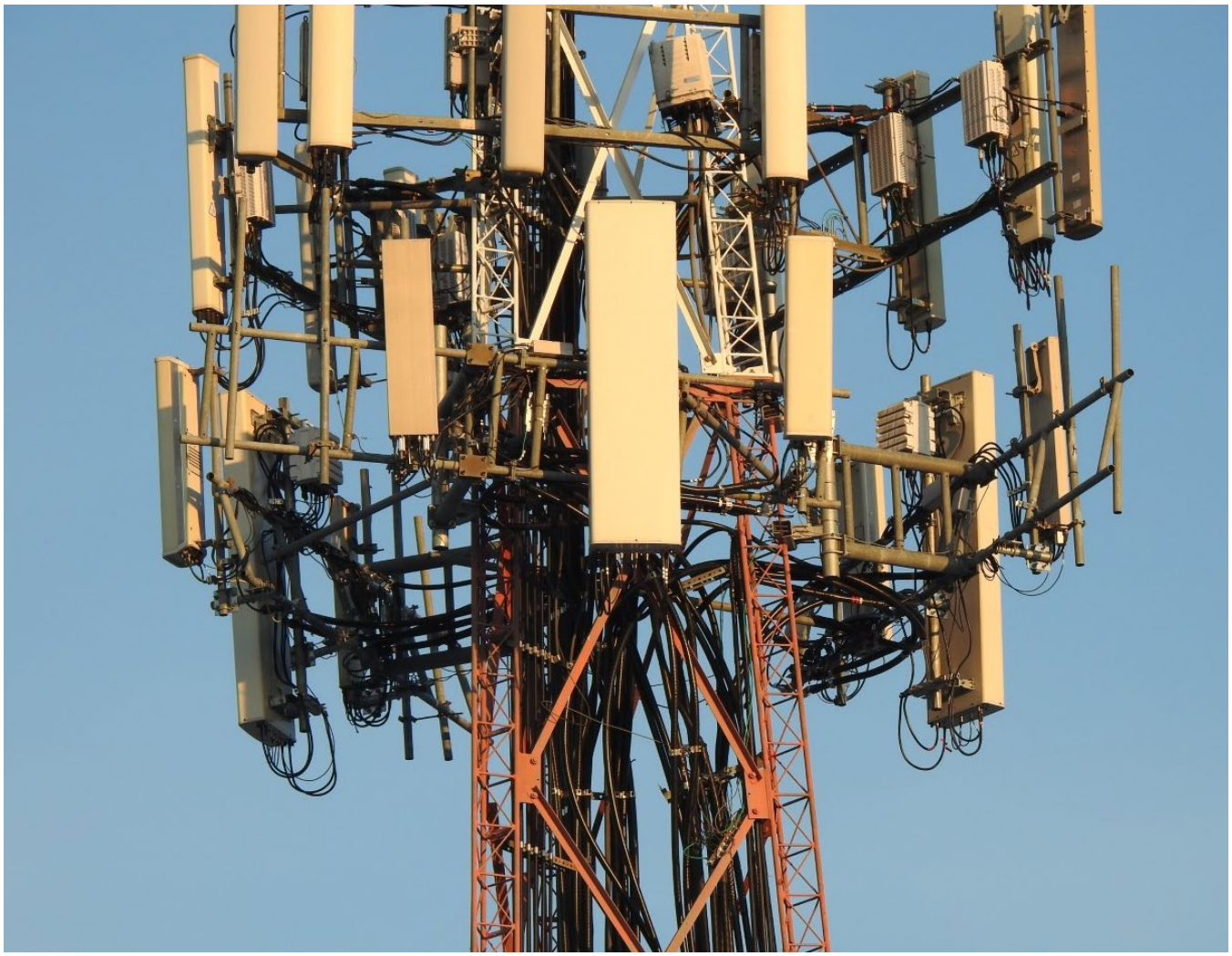
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.



Structure: CT22108-A-SBA - Windsor Locks @ Volunteer Drive

Sector: A

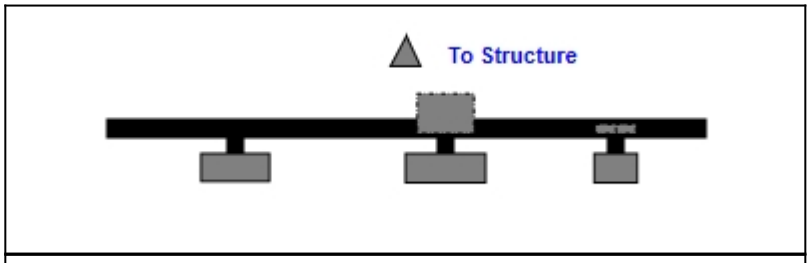
Structure Type: Self Support

Mount Elev: 135.00

6/1/2022

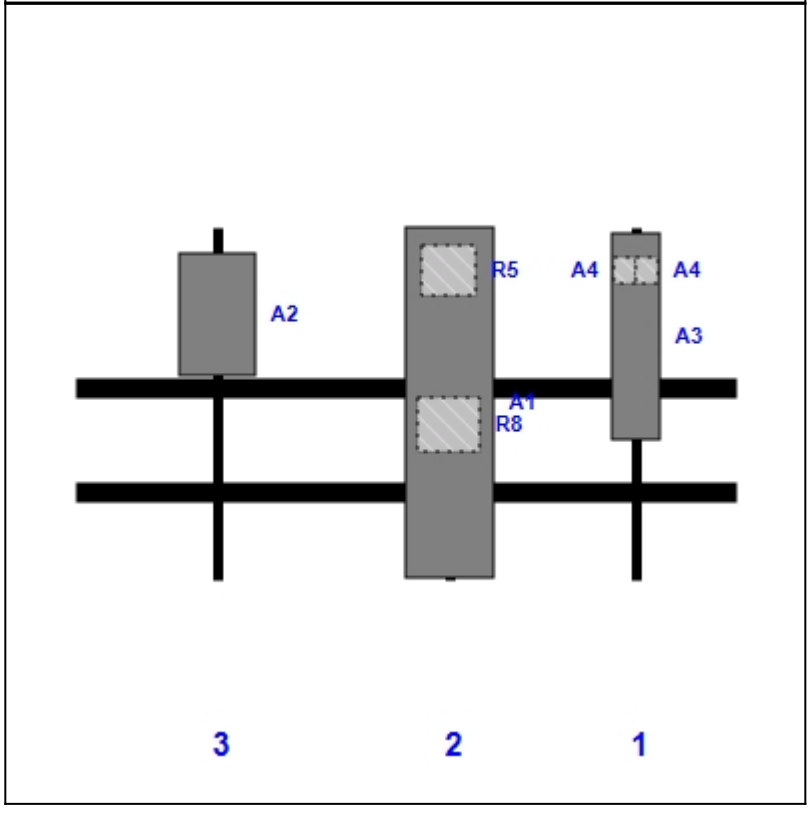
Tower Engineering Solutions

Plan View



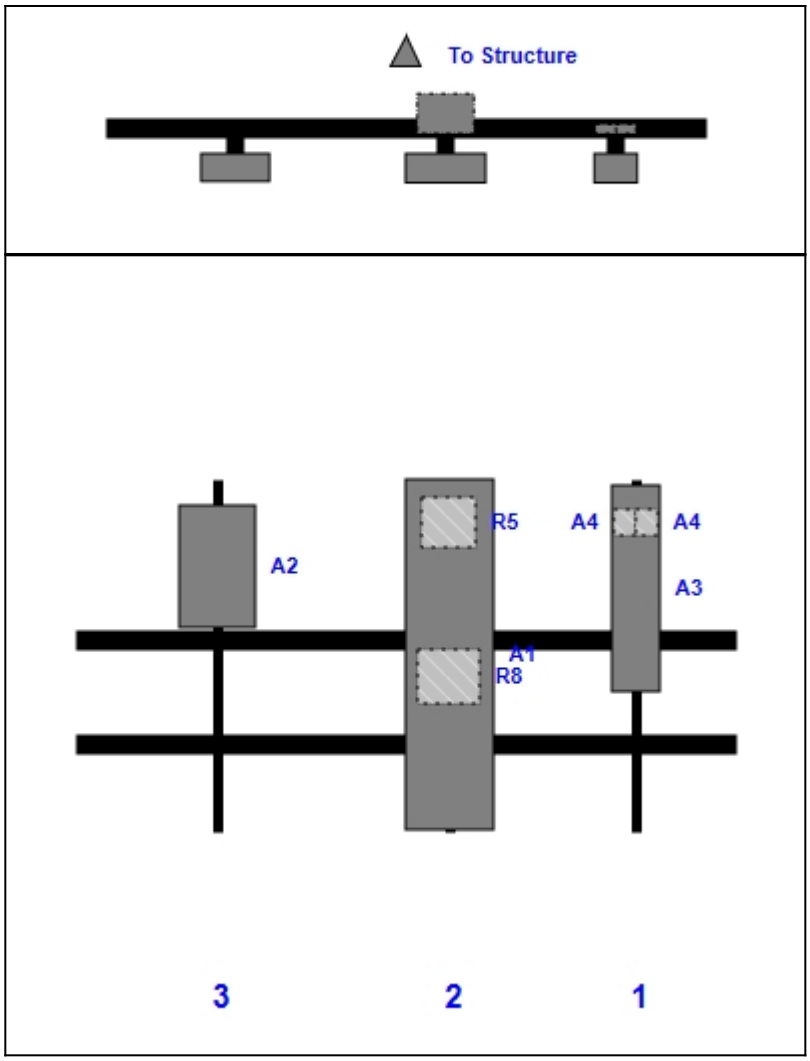
Front View

Looking Toward Structure



Ref	Model	Height (in)	Width (in)	H Dist Left	Pipe	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	AIR32 KRD901146-1_B66A	56.60	12.90	153.00	1	a	Front	30.00		Leased	
A4	KRY 112 144/2	6.93	6.10	153.00	1	a	Behind	12.00	-3.00	Leased	
A4	KRY 112 144/2	6.93	6.10	153.00	1	b	Behind	12.00	3.00	Leased	
A1	APXVAARR24_43-U-NA20 (Octa)	95.90	24.00	102.00	2	a	Front	48.00		Leased	
R5	Radio 4449 B71 + B85	13.10	14.90	102.00	2	a	Behind	12.00		Added	
R8	4460 B25 + B66	15.10	17.00	102.00	2	a	Behind	54.00		Added	
A2	AIR6449 B41	33.10	20.50	39.00	3	a	Front	24.00		Added	

Plan View



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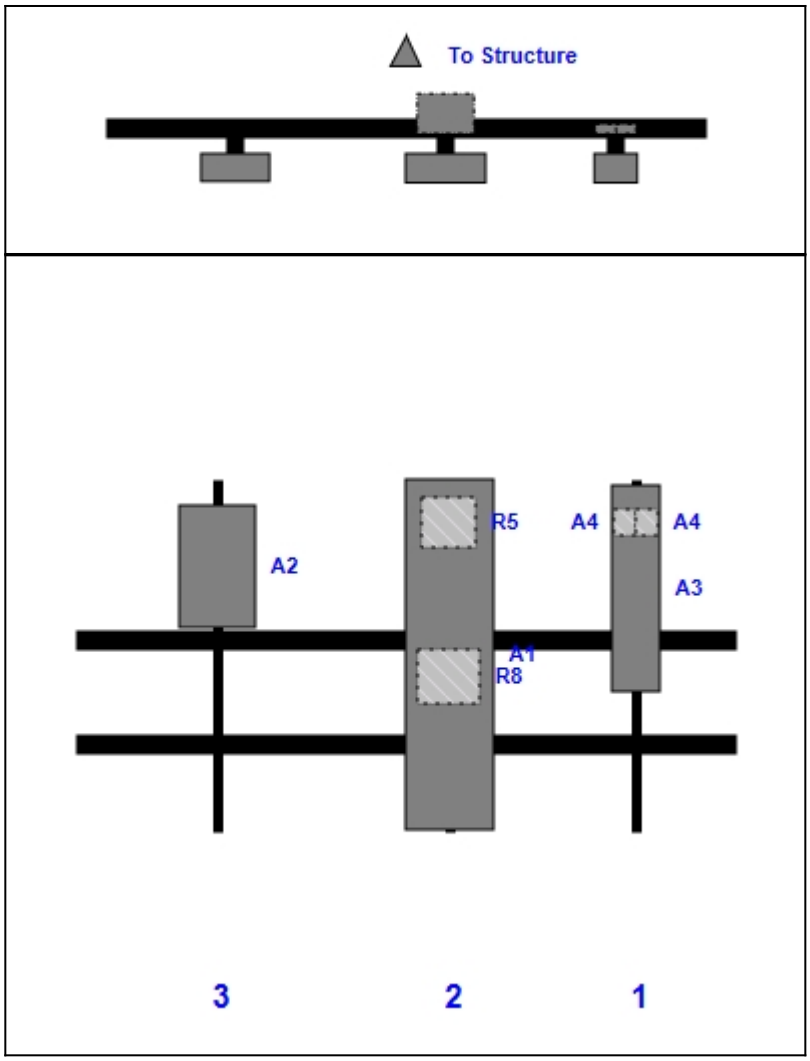
Plan View



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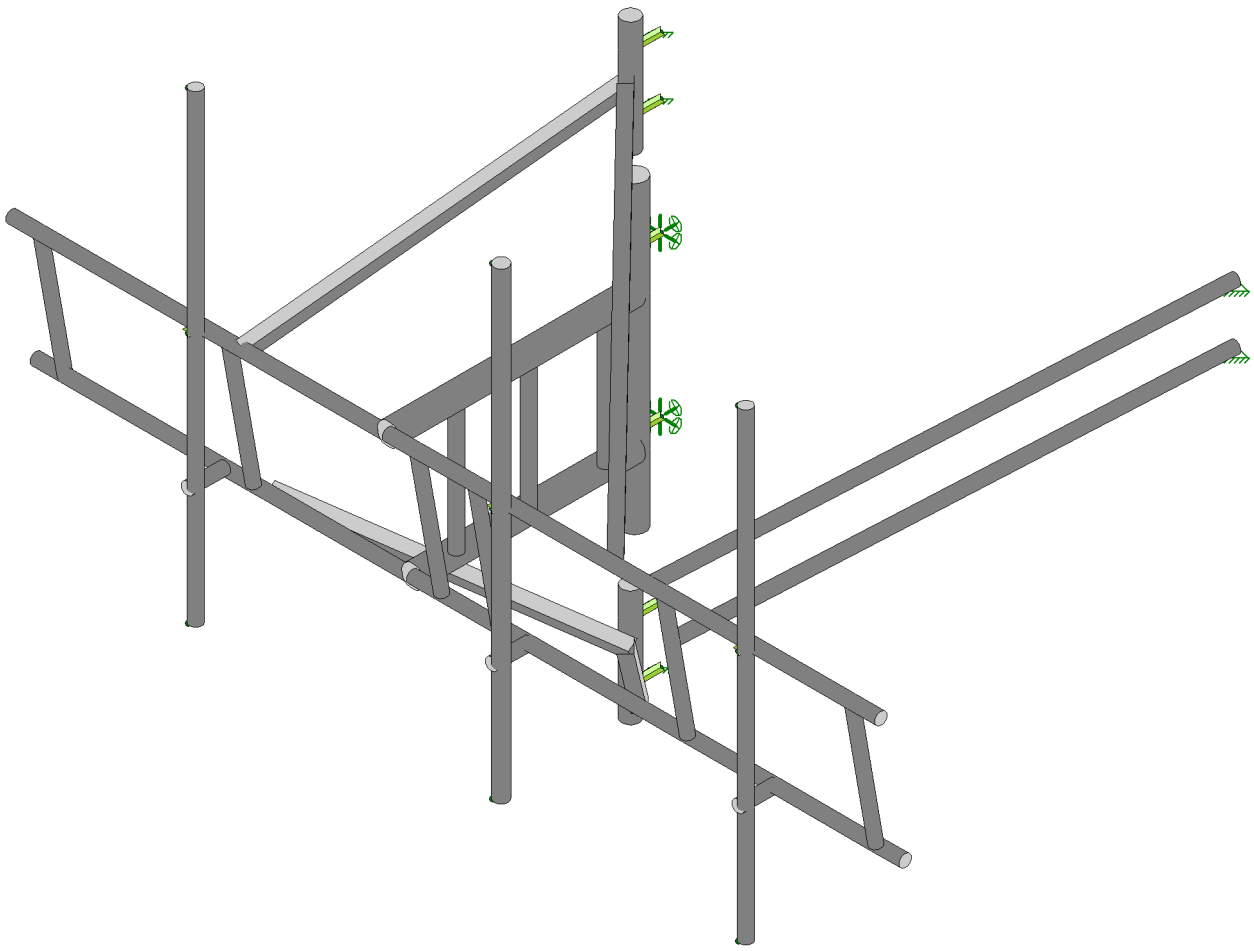
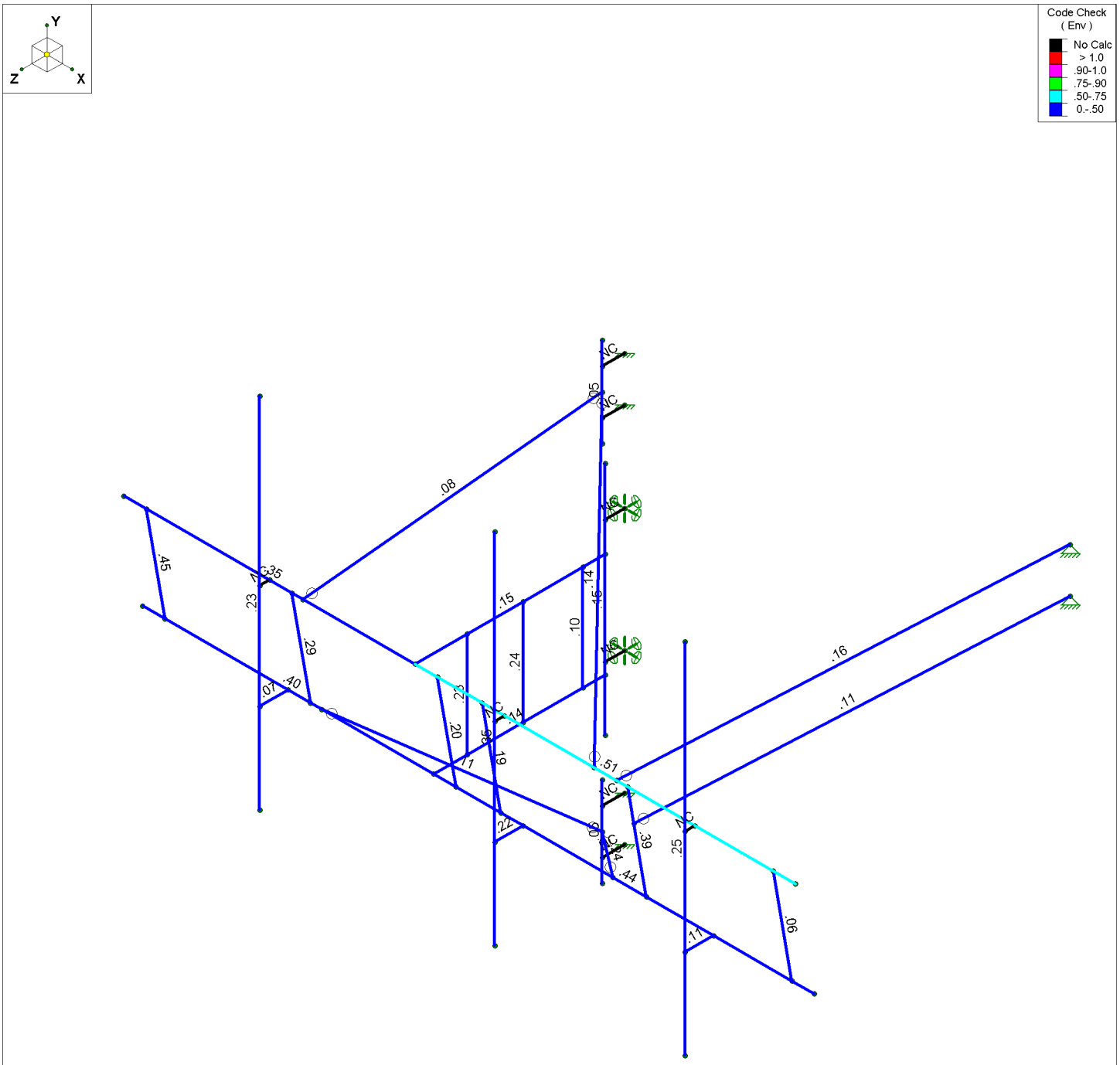
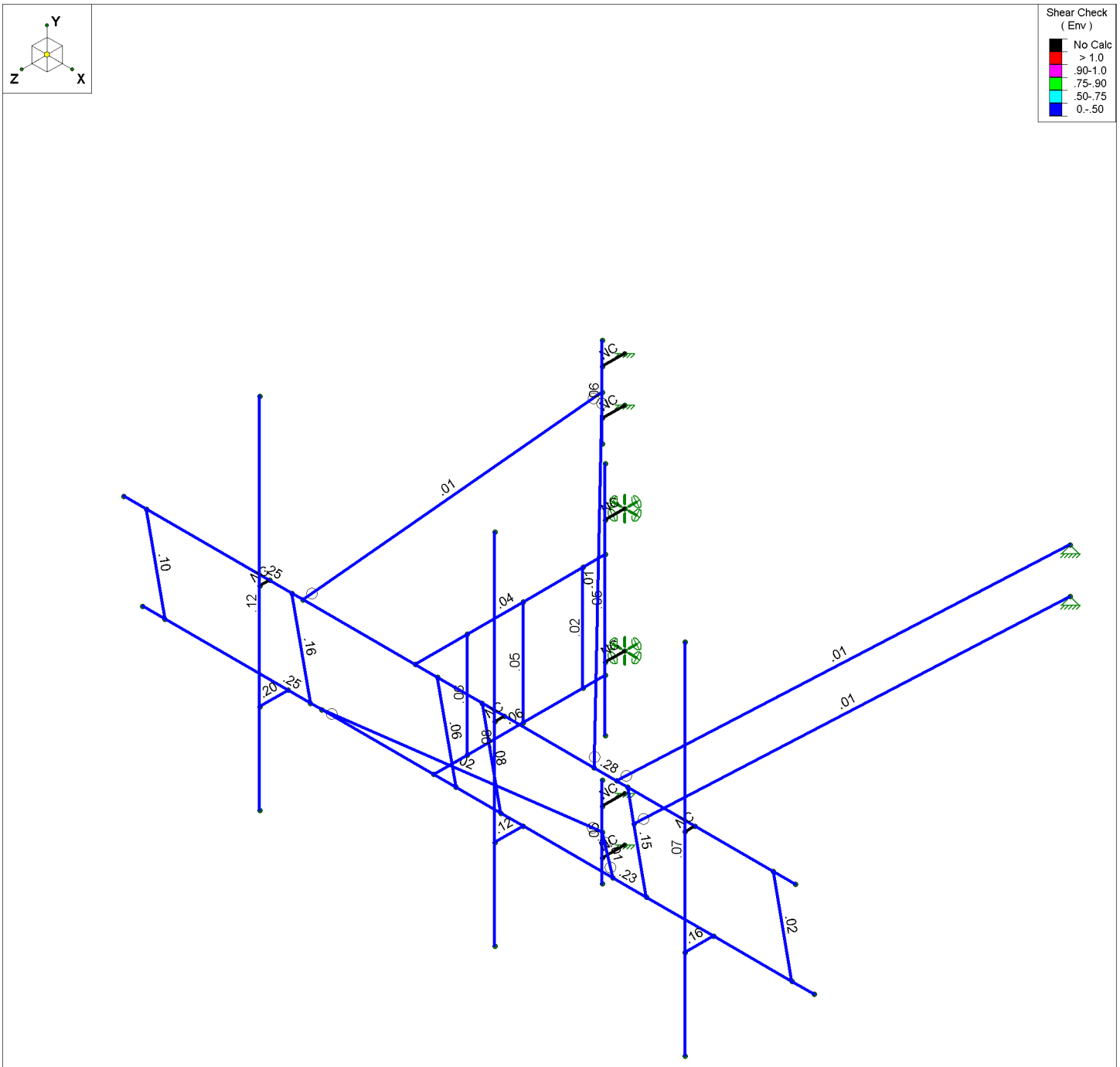


Tower Engineering Solutio...	CT22108-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
		June 1, 2022 at 2:34 PM
TES Project No. 129930		CT22108-A-SBA_129930_G_RISA_...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT22108-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
		June 1, 2022 at 2:34 PM
TES Project No. 129930		CT22108-A-SBA_129930_G_RISA_...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT22108-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 4
		June 1, 2022 at 2:35 PM
TES Project No. 129930		CT22108-A-SBA_129930_G_RISA_...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Antenna D	None					10			
2	Antenna Di	None					10			
3	Antenna W Front	None					10			
4	Antenna Wi Front	None					10			
5	Antenna W Side	None					10			
6	Antenna Wi Side	None					10			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1						
10	Structure Di	None						30		
11	Structure W Front	None						30		
12	Structure Wi Front	None						30		
13	Structure W Side	None						30		
14	Structure Wi Side	None						30		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16										
11	1.4D	Yes	Y		1	1.4	9	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	2.333333	0.87561	0	
2	N2	0	0	0.87561	0	
3	N9	0	2.333333	5.12561	0	
4	N10	0	0	4.708943	0	
5	N11	-6.5	2.333333	5.12561	0	
6	N12	-6.5	0	4.708943	0	
7	N13	-6	2.333333	5.12561	0	
8	N14	-6	0	4.708943	0	
9	N15	-2.75	2.333333	5.12561	0	
10	N16	-2.75	0	4.708943	0	
11	N23	8.5	2.333333	5.12561	0	
12	N24	8.5	0	4.708943	0	
13	NP1	-3.249993	6	5.34561	0	
14	NP2	-3.249993	-1.999997	5.34561	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N31	.5	2.333333	5.12561	0	
16	N32	.5	0	4.708943	0	
17	N27	1.5	2.333333	5.12561	0	
18	N28	1.5	0	4.708943	0	
19	N29	4.75	2.333333	5.12561	0	
20	N30	4.75	0	4.708943	0	
21	N31A	8	2.333333	5.12561	0	
22	N32A	8	0	4.708943	0	
23	N27A	0	0	3.958943	0	
24	N28A	0	0	2.708943	0	
25	N29A	0	0	1.375613	0	
26	N30A	0	2.333333	3.958943	0	
27	N31B	0	2.333333	2.708943	0	
28	N32B	0	2.333333	1.375613	0	
29	N35	-3.249993	2.333333	5.12561	0	
30	N73	0	4.083333	0.87561	0	
31	N74	0	-1.166667	0.87561	0	
32	N75	0	3.000033	0.87561	0	
33	N76A	0	.25	0.87561	0	
34	N93	0	3.000033	0.442049	0	
35	N94	0	.25	0.442049	0	
36	N57A	-3.249993	2.333333	5.34561	0	
37	N57B	1.99967	6	5.34561	0	
38	N58A	1.99967	-1.999997	5.34561	0	
39	N59	1.99967	2.333333	5.12561	0	
40	N60	1.99967	2.333333	5.34561	0	
41	N61A	6.25	6	5.34561	0	
42	N62A	6.25	-1.999997	5.34561	0	
43	N63A	6.25	2.333333	5.12561	0	
44	N64	6.25	2.333333	5.34561	0	
45	N80	6	2.3333	-3.5	0	
46	N76	6.25	0	4.708943	0	
47	N53A	4.75	1.555556	4.986721	0	
48	N49	-3.249993	0	4.708943	0	
49	N50	1.99967	.000333	4.708943	0	
50	N50A	6.25	0	5.345613	0	
51	N51	-3.249993	0	5.345613	0	
52	N52	1.99967	.000333	5.345613	0	
53	N53	0	5.5	0.942049	0	
54	N54	4	2.333333	5.12561	0	
55	N55	4	0	4.708943	0	
56	N56	-2.5	2.333333	5.12561	0	
57	N57	-2.5	0	4.708943	0	
58	N58	0	-3	0.942049	0	
59	N61	0	6	0.942049	0	
60	N62	0	-2.5	0.942049	0	
61	N63	0	6	0.442049	0	
62	N64A	0	-2.5	0.442049	0	
63	N65	0	5	0.942049	0	
64	N66	0	-3.5	0.942049	0	
65	N67	0	5	0.442049	0	
66	N68	0	-3.5	0.442049	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
67	N67A	0	4.5	0.942049	0	
68	N68A	0	-4	0.942049	0	
69	N69	0	6.5	0.942049	0	
70	N70	0	-2	0.942049	0	
71	N71	4.5	2.333333	5.12561	0	
72	N72	6	3.3333	-3.5	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	SA TUBE	HSS2.5X2.5X3	Beam	Tube	A500 Gr....	Typical	1.54	1.35	1.35	2.25
2	Stabilizer	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	SA	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Main Pipe	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
5	SA V	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	FF	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	MP	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	FF V	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
9	SA RECT	PL1/2x2	Beam	RECT	A36 Gr.36	Typical	1	.021	.333	.07
10	N SR	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
11	N V Brace	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
12	Leveling Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
13	N Stabilizer	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N11	N9			FF	Beam	Pipe	A53 Gr.B	Typical
2	M2	N12	N10			FF	Beam	Pipe	A53 Gr.B	Typical
3	MP5A	N1	N9			SA	Beam	Pipe	A53 Gr.B	Typical
4	M4	N2	N10			SA	Beam	Pipe	A53 Gr.B	Typical
5	M8	N13	N14			FF V	Beam	Pipe	A53 Gr.B	Typical
6	M9	N15	N16			FF V	Beam	Pipe	A53 Gr.B	Typical
7	MP3A	NP1	NP2			MP	Beam	Pipe	A53 Gr.B	Typical
8	M16	N31	N32			FF V	Beam	Pipe	A53 Gr.B	Typical
9	M14	N27	N28			FF V	Beam	Pipe	A53 Gr.B	Typical
10	M15	N29	N30			FF V	Beam	Pipe	A53 Gr.B	Typical
11	M16A	N31A	N32A			FF V	Beam	Pipe	A53 Gr.B	Typical
12	M14A	N32B	N29A			SA V	Beam	Pipe	A53 Gr.B	Typical
13	MP55A	N31B	N28A			SA V	Beam	Pipe	A53 Gr.B	Typical
14	M16B	N30A	N27A			SA V	Beam	Pipe	A53 Gr.B	Typical
15	M112	N9	N23			FF	Beam	Pipe	A53 Gr.B	Typical
16	M113	N10	N24			FF	Beam	Pipe	A53 Gr.B	Typical
17	M44	N73	N74			Main Pipe	Beam	Pipe	A53 Gr.B	Typical
18	M45	N75	N93			RIGID	Beam	None	RIGID	DR1
19	M46	N76A	N94			RIGID	Beam	None	RIGID	DR1
20	M29	N35	N57A			RIGID	Beam	None	RIGID	DR1
21	MP2A	N57B	N58A			PIPE_2.5	Beam	Pipe	A53 Gr.B	DR1_1
22	M32	N59	N60			RIGID	Beam	None	RIGID	DR1
23	MP1A	N61A	N62A			MP	Beam	Pipe	A53 Gr.B	Typical
24	M34A	N63A	N64			RIGID	Beam	None	RIGID	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
25	M41A	N80	N53A			N Stabilizer	Beam	Pipe	A53 Gr.B	Typical
26	M26	N49	N51			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
27	M27	N50	N52			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
28	M28	N76	N50A			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
29	M29A	N56	N53			N V Brace	Beam	Single Angle	A36 Gr.36	Typical
30	M30	N53	N54			N V Brace	Beam	Single Angle	A36 Gr.36	Typical
31	M31	N57	N58			N V Brace	Beam	Single Angle	A36 Gr.36	Typical
32	M32A	N58	N55			N V Brace	Beam	Single Angle	A36 Gr.36	Typical
33	M35	N63	N61			RIGID	Beam	None	RIGID	DR1
34	M36	N64A	N62			RIGID	Beam	None	RIGID	DR1
35	M37	N67	N65			RIGID	Beam	None	RIGID	DR1
36	M38	N68	N66			RIGID	Beam	None	RIGID	DR1
37	M37A	N69	N67A			Leveling Pipe	Beam	Pipe	A53 Gr.B	Typical
38	M38A	N70	N68A			Leveling Pipe	Beam	Pipe	A53 Gr.B	Typical
39	M39	N71	N72			N Stabilizer	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	MP5A						Yes				None
4	M4						Yes				None
5	M8						Yes				None
6	M9						Yes				None
7	MP3A						Yes		-z		None
8	M16						Yes				None
9	M14						Yes				None
10	M15						Yes				None
11	M16A						Yes				None
12	M14A						Yes				None
13	MP55A						Yes				None
14	M16B						Yes				None
15	M112						Yes				None
16	M113						Yes				None
17	M44						Yes				None
18	M45						Yes				None
19	M46						Yes				None
20	M29						Yes				None
21	MP2A						Yes		-z		None
22	M32						Yes				None
23	MP1A						Yes		-z		None
24	M34A						Yes				None
25	M41A		BenPIN				Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29A	BenPIN	BenPIN				Yes				None
30	M30	BenPIN	BenPIN				Yes				None
31	M31	BenPIN	BenPIN				Yes				None
32	M32A	BenPIN	BenPIN				Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
33	M35						Yes				None
34	M36						Yes				None
35	M37						Yes				None
36	M38						Yes				None
37	M37A						Yes				None
38	M38A						Yes				None
39	M39	BenPIN					Yes				None

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	FF	6.5			Lbyy			2.1	2.1		Lateral
2	M2	FF	6.5			Lbyy			2.1	2.1		Lateral
3	MP5A	SA	4.25			Lbyy						Gravity
4	M4	SA	3.833			Lbyy						Gravity
5	M8	FF V	2.37			Lbyy						Gravity
6	M9	FF V	2.37			Lbyy						Gravity
7	MP3A	MP	8			Lbyy						Lateral
8	M16	FF V	2.37			Lbyy						Gravity
9	M14	FF V	2.37			Lbyy						Gravity
10	M15	FF V	2.37			Lbyy						Gravity
11	M16A	FF V	2.37			Lbyy						Gravity
12	M14A	SA V	2.333			Lbyy						Lateral
13	MP55A	SA V	2.333			Lbyy						Gravity
14	M16B	SA V	2.333			Lbyy						Lateral
15	M112	FF	8.5			Lbyy			2.1	2.1		Lateral
16	M113	FF	8.5			Lbyy			2.1	2.1		Lateral
17	M44	Main Pipe	5.25			Lbyy						Lateral
18	MP2A	PIPE_2.5	8			Lbyy						Lateral
19	MP1A	MP	8			Lbyy						Lateral
20	M41A	N Stabilizer	8.613			Lbyy						Lateral
21	M26	PIPE_2.0	.637			Lbyy						Lateral
22	M27	PIPE_2.0	.637			Lbyy						Lateral
23	M28	PIPE_2.0	.637			Lbyy						Lateral
24	M29A	N V Brace	5.812			Lbyy						Lateral
25	M30	N V Brace	6.598			Lbyy						Lateral
26	M31	N V Brace	5.426			Lbyy						Lateral
27	M32A	N V Brace	6.26			Lbyy						Lateral
28	M37A	Leveling Pipe	2			Lbyy						Lateral
29	M38A	Leveling Pipe	2			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
30	M39	N Stabilizer	8.812			Lbyy						Lateral

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1						
2	N2						
3	N73						
4	N74						
5	N75						
6	N76A						
7	N93	Reaction	Reaction	Reaction	Reaction		Reaction
8	N94	Reaction	Reaction	Reaction	Reaction		Reaction
9	N80	Reaction	Reaction	Reaction			
10	N53						
11	N58						
12	N61						
13	N62						
14	N63	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	N64A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
16	N65						
17	N66						
18	N67	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
19	N68	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
20	N67A						
21	N68A						
22	N69						
23	N70						
24	N72	Reaction	Reaction	Reaction			

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N93	max	44.868	1	752.361	8	-107.775	3	.077	2	0	11	.036	8
2		min	-87.497	2	137.895	2	-1221.489	8	-.455	5	0	1	-.155	9
3	N94	max	86.3	4	1084.879	5	1247.029	5	-.27	2	0	11	.179	8
4		min	-54.866	3	132.93	2	123.702	2	-1.773	8	0	1	-.28	9
5	N80	max	261.003	8	226.717	8	182.214	3	0	11	0	11	0	11
6		min	-64.753	3	1.236	3	-1641.308	8	0	1	0	1	0	1
7	N63	max	375.1	4	802.12	7	205.312	4	.015	4	.187	4	.09	4
8		min	-599.158	3	-131.509	4	-950.611	7	-.163	7	-.299	3	-.146	3
9	N64A	max	487.927	8	750.44	5	867.993	5	-.013	3	.244	8	.12	8
10		min	-150.482	3	25.149	3	-27.888	2	-.59	5	-.075	3	-.034	9
11	N67	max	375.473	4	802.12	7	203.851	4	.117	4	.188	4	.146	3
12		min	-599.983	3	-131.509	4	-951.203	7	-.639	7	-.3	3	-.09	4
13	N68	max	487.67	8	750.44	5	865.124	5	-.012	3	.244	8	.034	9
14		min	-151.559	3	25.149	3	-27.921	2	-.162	8	-.076	3	-.12	8
15	N72	max	59.938	4	52.995	2	1629.546	7	0	11	0	11	0	11
16		min	-302.533	7	-117.632	1	-306.586	2	0	1	0	1	0	1
17	Totals:	max	1888.477	4	4628.916	5	2482.355	1						
18		min	-1888.476	3	1401.04	2	-2482.354	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	0	11	0	11	0	11	0	11	0	11	0	11
2			min	0	1	0	1	0	1	0	1	0	1	0	1
3		2	max	1.134	3	3.122	4	30.194	6	-.004	1	.176	9	.009	3
4			min	-615.759	9	-438.454	9	-7.265	1	-.098	9	.003	3	-.136	9
5		3	max	149.334	3	51.392	2	418.803	2	.172	2	.246	9	.582	9
6			min	-903.819	9	-600.234	9	-348.939	1	-.185	1	.024	11	-.111	3
7		4	max	358.933	2	75.489	2	-19.096	1	.035	2	.201	9	.121	9
8			min	-949.7	9	-116.896	10	-453.581	9	-.318	9	-.1	1	-.017	1
9		5	max	358.933	2	68.721	2	-33.584	1	.035	2	-.035	2	.206	10
10			min	-949.7	9	-123.664	10	-455.03	9	-.318	9	-.537	9	-.071	2
11	M2	1	max	0	11	0	11	0	11	0	11	0	11	0	11
12			min	0	1	-750	9	0	1	0	1	0	1	0	1
13		2	max	615.759	9	12.465	10	30.86	2	.02	2	.078	9	.002	2
14			min	5.651	2	-335.243	9	-42.491	1	-.103	9	-.043	1	-.062	9
15		3	max	903.819	9	144.704	1	-13.113	1	.08	2	.159	2	.489	9
16			min	26.981	2	-620.324	10	-122.132	5	-.165	9	-.165	1	-.178	10
17		4	max	1041.723	9	69.129	2	265.059	10	.014	2	.111	9	.098	9
18			min	-77.38	1	-194.625	10	-102.945	2	-.322	9	-.078	1	-.014	1
19		5	max	1041.723	9	62.361	2	263.61	10	.014	2	.458	9	.352	10
20			min	-77.38	1	-201.393	10	-88.457	2	-.322	9	-.077	2	-.073	2
21	MP5A	1	max	75.92	1	891.33	8	118.925	6	.072	8	.153	9	1.509	8
22			min	-795.611	8	142.769	2	-46.804	1	-.185	9	-.047	8	.22	2
23		2	max	143.256	1	809.496	5	118.063	6	.072	8	.23	9	.797	8
24			min	-632.52	8	100.558	2	-45.691	1	-.2	9	-.064	1	.114	2
25		3	max	306.812	1	869.61	8	107.546	6	.082	8	.332	9	.375	8
26			min	-436.057	2	90.849	2	-42.935	1	-.194	9	-.11	1	.049	3
27		4	max	455.397	9	310.41	5	90.414	10	.13	8	.452	9	.047	2
28			min	-379.157	2	-22.903	2	-43.851	1	-.15	10	-.151	1	-.12	9
29		5	max	455.397	9	277.236	5	90.414	10	.13	8	.436	9	.078	2
30			min	-379.157	2	-35.745	2	-56.289	3	-.15	10	-.198	1	-.399	5
31	M4	1	max	793.805	7	783.064	5	10.416	2	.105	8	.057	2	1.399	5
32			min	171.583	2	64.581	2	-90.506	8	-.257	9	-.152	9	.163	2
33		2	max	642.585	7	757.086	5	12.244	2	.11	8	.073	2	.858	8
34			min	166.108	2	72.618	2	-89.411	5	-.272	9	-.218	9	.112	2
35		3	max	289.047	7	596.13	5	30.126	4	.13	8	.089	2	.611	8
36			min	10.881	10	48.168	2	-99.222	10	-.277	9	-.311	9	.081	3
37		4	max	289.047	7	566.208	5	46.315	4	.13	8	.109	2	.066	6
38			min	10.881	10	36.585	2	-99.222	10	-.277	9	-.366	9	-.035	9
39		5	max	95.703	2	1027.965	8	101.698	4	.191	8	.145	2	.011	2
40			min	-169.769	10	116.193	2	-119.738	3	-.197	9	-.427	9	-.431	5
41	M8	1	max	11.499	4	84.288	9	616.593	9	.053	9	-.015	2	.098	9
42			min	-427.594	9	4.783	3	-1.134	3	-.012	2	-.646	9	.004	1
43		2	max	13.929	4	84.366	9	616.593	9	.053	9	-.003	4	.048	9
44			min	-425.073	9	1.751	2	4.149	3	-.012	2	-.281	9	0	1
45		3	max	16.359	4	84.444	9	616.593	9	.053	9	.084	9	.008	2
46			min	-422.552	9	-3.803	2	5.65	2	-.012	2	-.013	10	-.009	1
47		4	max	18.788	4	84.523	9	616.593	9	.053	9	.45	9	.012	2
48			min	-420.031	9	-9.356	2	5.65	2	-.012	2	-.006	3	-.053	9
49		5	max	28.313	8	84.601	9	616.593	9	.053	9	.815	9	.02	2
50			min	-417.51	9	-14.91	2	5.65	2	-.012	2	-.002	2	-.103	9
51	M9	1	max	535.9	1	154.529	6	435.902	9	.189	9	.034	2	.184	6

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
52			min	-406.798	2	-15.47	1	-21.115	2	-.058	2	-.524	9	-.041	1
53		2	max	539.243	1	150.226	6	435.902	9	.189	9	.022	2	.093	6
54			min	-405.282	2	-10.784	1	-21.115	2	-.058	2	-.266	9	-.034	1
55		3	max	542.587	1	145.922	6	435.902	9	.189	9	.028	10	.029	2
56			min	-403.767	2	-6.098	1	-21.115	2	-.058	2	-.01	1	-.029	1
57		4	max	545.931	1	141.619	6	435.902	9	.189	9	.251	9	-.013	3
58			min	-402.252	2	-1.412	1	-21.115	2	-.058	2	-.004	2	-.083	9
59		5	max	549.275	1	137.316	6	435.902	9	.189	9	.509	9	-.027	1
60			min	-400.736	2	3.274	1	-21.115	2	-.058	2	-.016	2	-.162	6
61	MP3A	1	max	0	11	.391	9	1.164	5	0	3	0	11	0	11
62			min	0	9	-.134	3	-.402	2	0	9	0	1	0	1
63		2	max	203.131	6	63.349	4	124.444	1	0	3	.125	1	.063	3
64			min	70.13	9	-63.304	3	-124.281	2	0	9	-.125	2	-.064	4
65		3	max	221.691	2	21.852	3	137.491	2	.15	9	.101	1	.036	3
66			min	-194.796	1	-288.098	9	-80.225	1	-.039	2	-.16	2	-.299	9
67		4	max	230.021	2	4.021	3	119.66	2	.15	9	.105	6	.278	9
68			min	-186.466	1	-288.098	9	-62.393	1	-.039	2	-.042	1	.018	3
69		5	max	0	11	0	4	.004	2	0	9	0	11	0	11
70			min	0	9	-.018	9	-.086	5	0	4	0	1	0	1
71	M16	1	max	345.527	6	113.584	6	-41.849	3	.051	9	.288	8	.121	6
72			min	-86.397	1	8.763	1	-257.958	5	-.048	1	.035	3	0	1
73		2	max	355.186	6	109.281	6	-36.566	3	.051	9	.134	8	.055	6
74			min	-83.053	1	13.449	1	-260.147	8	-.048	1	.012	3	-.007	1
75		3	max	364.845	6	105.119	8	-31.283	3	.051	9	.002	2	.01	2
76			min	-79.71	1	18.135	1	-262.726	8	-.048	1	-.024	5	-.016	1
77		4	max	374.504	6	103.314	8	-26	3	.051	9	-.025	2	-.014	2
78			min	-76.366	1	21.566	3	-265.304	8	-.048	1	-.177	8	-.072	8
79		5	max	384.163	6	101.972	5	-20.717	3	.051	9	-.039	3	-.029	3
80			min	-73.022	1	21.132	3	-267.882	8	-.048	1	-.335	8	-.133	8
81	M14	1	max	895.932	1	104.626	2	-28.132	2	.028	2	.337	5	.172	2
82			min	-799.169	2	-80.714	1	-258.762	5	-.082	5	-.011	2	-.146	1
83		2	max	899.276	1	99.072	2	-28.132	2	.028	2	.184	5	.111	2
84			min	-797.654	2	-76.028	1	-258.762	5	-.082	5	-.028	2	-.1	1
85		3	max	902.62	1	93.518	2	-28.132	2	.028	2	.057	1	.054	2
86			min	-796.139	2	-71.342	1	-259.052	8	-.082	5	-.045	2	-.056	1
87		4	max	905.964	1	87.965	2	-28.132	2	.028	2	-.013	1	.009	4
88			min	-794.623	2	-66.656	1	-261.63	8	-.082	5	-.14	9	-.027	7
89		5	max	909.308	1	82.411	2	-28.132	2	.028	2	-.037	3	.023	1
90			min	-793.108	2	-61.97	1	-264.209	8	-.082	5	-.29	8	-.05	2
91	M15	1	max	421.159	4	130.315	3	-104.055	3	.111	2	.482	5	.189	2
92			min	-359.97	3	-968.714	8	-537.321	8	-.076	1	.095	2	-.206	1
93		2	max	423.588	4	129.881	3	-98.772	3	.111	2	.17	7	.528	8
94			min	-357.541	3	-970.518	8	-539.899	8	-.076	1	.024	4	-.058	3
95		3	max	531.653	4	659.389	8	-47.094	2	.111	2	.025	3	.459	8
96			min	-353.043	3	-55.844	3	-329.324	5	-.076	1	-.082	8	-.061	3
97		4	max	534.083	4	657.584	8	-47.094	2	.111	2	-.022	3	.069	8
98			min	-350.614	3	-56.278	3	-329.324	5	-.076	1	-.272	8	-.028	3
99		5	max	536.513	4	655.78	8	-47.094	2	.111	2	-.062	2	.005	3
100			min	-348.184	3	-56.711	3	-329.324	5	-.076	1	-.463	8	-.321	8
101	M16A	1	max	43.681	3	12.3	1	6.331	4	.033	2	.117	7	.033	8
102			min	-60.182	4	-7.391	2	-101.996	7	-.026	1	.025	4	-.011	3
103		2	max	46.111	3	16.986	1	1.048	4	.033	2	.065	8	.028	8

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
104			min	-57.753	4	-12.944	2	-99.418	7	-.026	1	.004	1	-.012	1
105		3	max	48.541	3	21.672	1	-4.235	4	.033	2	.026	4	.034	2
106			min	-55.323	4	-18.498	2	-96.839	7	-.026	1	-.023	1	-.023	1
107		4	max	50.97	3	26.358	1	-6.612	2	.033	2	.022	2	.046	2
108			min	-52.893	4	-24.052	2	-96.354	5	-.026	1	-.058	7	-.038	1
109		5	max	53.863	1	31.044	1	-6.612	2	.033	2	.018	2	.062	2
110			min	-50.683	2	-29.605	2	-96.354	5	-.026	1	-.114	5	-.055	1
111	M14A	1	max	3.407	1	6.662	3	163.091	8	.018	9	-.022	2	.003	2
112			min	-49.845	6	-13.208	9	26.278	2	-.007	8	-.19	8	-.015	9
113		2	max	5.837	1	1.929	7	163.091	8	.018	9	-.009	2	.003	4
114			min	-39.74	6	-13.208	9	21.077	2	-.007	8	-.096	5	-.007	9
115		3	max	8.267	1	4.474	4	164.31	5	.018	9	.002	2	.002	4
116			min	-29.634	6	-13.208	9	15.876	2	-.007	8	-.002	1	-.002	3
117		4	max	10.696	1	9.675	4	166.848	5	.018	9	.096	5	.008	9
118			min	-22.037	2	-13.208	9	10.675	2	-.007	8	.01	2	-.002	4
119		5	max	13.126	1	14.876	4	169.386	5	.018	9	.194	5	.016	9
120			min	-19.607	2	-14.141	3	5.475	2	-.007	8	.015	2	-.009	4
121	MP55A	1	max	92.969	8	11.652	7	383.287	8	.036	9	-.056	2	.012	4
122			min	3.153	2	-30.292	10	55.11	2	-.003	2	-.447	8	-.033	10
123		2	max	103.074	8	10.461	6	383.287	8	.036	9	-.026	2	.008	4
124			min	5.583	2	-30.292	10	49.909	2	-.003	2	-.224	5	-.016	10
125		3	max	113.18	8	14.416	4	383.695	5	.036	9	.002	2	.005	9
126			min	8.012	2	-30.292	10	44.709	2	-.003	2	-.002	1	-.004	7
127		4	max	123.285	8	19.616	4	386.233	5	.036	9	.223	8	.02	10
128			min	10.442	2	-30.292	10	39.508	2	-.003	2	.027	2	-.01	8
129		5	max	133.39	8	24.817	4	388.771	5	.036	9	.449	5	.037	10
130			min	12.871	2	-30.292	10	34.307	2	-.003	2	.048	2	-.022	4
131	M16B	1	max	-58.295	3	75.707	9	346.726	8	.063	9	-.057	2	.097	9
132			min	-542.298	8	-14.705	10	50.901	3	0	4	-.396	8	-.014	10
133		2	max	-55.866	3	75.707	9	346.726	8	.063	9	-.025	2	.053	9
134			min	-532.192	8	-14.705	10	50.901	3	0	4	-.194	8	-.006	10
135		3	max	-53.436	3	75.707	9	346.726	8	.063	9	.009	6	.008	9
136			min	-522.087	8	-14.705	10	46.502	2	0	4	0	3	-.005	5
137		4	max	-51.006	3	75.707	9	347.978	5	.063	9	.21	8	.012	10
138			min	-511.982	8	-14.705	10	41.301	2	0	4	.029	2	-.036	9
139		5	max	-48.577	3	75.707	9	350.516	5	.063	9	.413	5	.02	10
140			min	-501.876	8	-14.705	10	36.1	2	0	4	.052	2	-.08	9
141	M112	1	max	320.27	3	264.521	8	412.642	1	.193	5	.356	2	.152	8
142			min	-935.025	9	22.592	3	-487.521	2	-.043	2	-.341	1	-.003	3
143		2	max	748.416	3	182.014	4	479.746	2	.048	4	.21	1	.162	9
144			min	-467.696	4	-326.99	3	-280.54	1	-.031	3	-.365	2	-.281	3
145		3	max	36.461	4	652.13	7	616.372	4	.048	4	.541	2	.193	3
146			min	-640.069	7	-275.459	4	-1078.324	3	-.032	3	-.438	1	-.114	4
147		4	max	6.324	4	88.424	8	5.353	4	.033	8	.042	1	.081	4
148			min	-101.996	7	-34.24	3	-10.245	6	-.011	3	-.034	2	-.101	3
149		5	max	0	11	0	11	0	11	0	11	0	11	0	11
150			min	0	1	0	1	0	1	0	1	0	1	0	1
151	M113	1	max	1023.575	9	917.165	8	173.205	9	.218	8	.209	4	.384	8
152			min	-149.502	4	87.376	3	-59.27	4	.004	2	-.151	3	.021	3
153		2	max	330.839	9	147.337	9	73.097	2	.2	8	.212	7	.171	9
154			min	-631.185	8	-192.752	8	-367.644	5	-.045	3	-.047	4	-.149	2
155		3	max	634.729	5	661.149	8	836.422	8	.2	8	.178	2	.12	6

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
156			min	123.154	2	-138.046	3	-96.181	3	-.045	3	-.318	5	-.133	9
157		4	max	96.354	5	61.795	3	58.975	1	.055	1	.111	2	.023	3
158			min	6.61	2	-41.47	4	-57.231	2	-.062	2	-.097	1	-.062	8
159		5	max	0	11	0	11	0	11	0	11	0	11	0	11
160			min	0	1	0	1	0	1	0	1	0	1	0	1
161	M44	1	max	0	11	0	11	0	11	0	11	0	11	0	11
162			min	0	1	0	1	0	1	0	1	0	1	0	1
163		2	max	-122.031	2	87.497	2	1221.518	8	.019	1	.39	5	.146	9
164			min	-711.381	8	-44.868	1	107.777	3	-.038	2	-.023	2	-.054	8
165		3	max	221.408	8	1.889	1	441.106	5	.137	9	-.007	2	.017	4
166			min	36.634	2	-34.922	7	-3.538	2	-.071	8	-.237	5	-.047	9
167		4	max	-80.432	2	13.943	3	-149.409	2	.152	9	1.519	5	.25	9
168			min	-823.556	5	-97.268	8	-798.296	5	-.057	2	.174	2	-.123	8
169		5	max	0	11	0	8	.006	5	0	11	0	11	0	11
170			min	0	1	0	9	0	2	0	1	0	1	0	1
171	M45	1	max	-107.775	3	-137.895	2	87.263	2	.036	8	.019	1	.198	9
172			min	-1221.489	8	-752.361	8	-44.787	1	-.155	9	-.038	2	-.136	2
173		2	max	-107.775	3	-137.895	2	87.263	2	.036	8	.015	1	.244	9
174			min	-1221.489	8	-752.361	8	-44.787	1	-.155	9	-.028	2	-.121	2
175		3	max	-107.775	3	-137.895	2	87.263	2	.036	8	.01	1	.292	5
176			min	-1221.489	8	-752.361	8	-44.787	1	-.155	9	-.019	2	-.106	2
177		4	max	-107.775	3	-137.895	2	87.263	2	.036	8	.005	1	.374	5
178			min	-1221.489	8	-752.361	8	-44.787	1	-.155	9	-.009	2	-.091	2
179		5	max	-107.775	3	-137.895	2	87.263	2	.036	8	0	4	.455	5
180			min	-1221.489	8	-752.361	8	-44.787	1	-.155	9	0	3	-.077	2
181	M46	1	max	1247.029	5	-132.93	2	55.124	3	.179	8	.038	4	1.307	8
182			min	123.702	2	-1084.879	5	-86.766	4	-.28	9	-.024	3	.212	2
183		2	max	1247.029	5	-132.93	2	55.124	3	.179	8	.028	4	1.424	8
184			min	123.702	2	-1084.879	5	-86.766	4	-.28	9	-.018	3	.227	2
185		3	max	1247.029	5	-132.93	2	55.124	3	.179	8	.019	4	1.54	8
186			min	123.702	2	-1084.879	5	-86.766	4	-.28	9	-.012	3	.241	2
187		4	max	1247.029	5	-132.93	2	55.124	3	.179	8	.009	4	1.657	8
188			min	123.702	2	-1084.879	5	-86.766	4	-.28	9	-.006	3	.255	2
189		5	max	1247.029	5	-132.93	2	55.124	3	.179	8	0	3	1.773	8
190			min	123.702	2	-1084.879	5	-86.766	4	-.28	9	0	4	.27	2
191	M29	1	max	327.278	1	445.23	5	148.167	3	.393	9	.046	2	.183	2
192			min	-385.473	2	-82.266	2	-288.158	9	-.102	4	-.058	9	-.181	1
193		2	max	327.278	1	445.23	5	148.167	3	.393	9	.045	2	.187	2
194			min	-385.473	2	-82.266	2	-288.158	9	-.102	4	-.074	9	-.199	1
195		3	max	327.278	1	445.23	5	148.167	3	.393	9	.044	2	.192	2
196			min	-385.473	2	-82.266	2	-288.158	9	-.102	4	-.089	9	-.217	1
197		4	max	327.278	1	445.23	5	148.167	3	.393	9	.043	2	.196	2
198			min	-385.473	2	-82.266	2	-288.158	9	-.102	4	-.105	9	-.236	1
199		5	max	327.278	1	445.23	5	148.167	3	.393	9	.041	2	.201	2
200			min	-385.473	2	-82.266	2	-288.158	9	-.102	4	-.121	9	-.254	1
201	MP2A	1	max	0	3	.258	4	.806	1	0	7	0	11	0	11
202			min	0	8	-.345	7	-.793	2	0	4	0	1	0	1
203		2	max	599.543	7	226.377	4	448.74	1	0	7	.45	1	.227	3
204			min	178.748	1	-226.405	3	-448.727	2	0	4	-.45	2	-.227	4
205		3	max	593.476	2	203.743	9	414.341	2	.029	3	.486	1	.25	9
206			min	-744.16	1	-78.231	4	-276.454	1	-.203	8	-.613	2	-.167	4
207		4	max	-89.948	3	188.356	3	401.45	2	0	9	.401	1	.188	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
208			min	-414.437	8	-188.344	4	-401.461	1	0	8	-.401	2	-.188	4
209		5	max	0	11	.165	8	.035	9	0	9	0	11	0	11
210			min	0	8	-.072	9	-.128	8	0	8	0	1	0	1
211	M32	1	max	745.077	1	989.381	5	331.929	3	.415	3	.245	4	.324	2
212			min	-884.424	2	-404.325	2	-325.853	4	-.426	4	-.142	3	-.316	1
213		2	max	745.077	1	989.381	5	331.929	3	.415	3	.227	4	.346	2
214			min	-884.424	2	-404.325	2	-325.853	4	-.426	4	-.124	3	-.367	1
215		3	max	745.077	1	989.381	5	331.929	3	.415	3	.218	8	.368	2
216			min	-884.424	2	-404.325	2	-325.853	4	-.426	4	-.106	3	-.418	1
217		4	max	745.077	1	989.381	5	331.929	3	.415	3	.214	8	.391	2
218			min	-884.424	2	-404.325	2	-325.853	4	-.426	4	-.088	3	-.47	1
219		5	max	745.077	1	989.381	5	331.929	3	.415	3	.211	8	.413	2
220			min	-884.424	2	-404.325	2	-325.853	4	-.426	4	-.069	3	-.521	1
221	MP1A	1	max	0	9	.253	4	.791	5	0	7	0	11	0	11
222			min	0	6	-.514	7	-.527	2	0	4	0	1	0	1
223		2	max	320.068	5	118.672	4	163.701	1	0	7	.164	1	.119	3
224			min	114.098	2	-118.734	3	-163.634	2	0	4	-.164	2	-.119	4
225		3	max	170.885	2	236.513	7	173.476	2	.076	2	.119	1	.256	7
226			min	-77.445	1	-31.498	4	-105.543	1	-.077	1	-.198	2	-.018	4
227		4	max	252.176	6	222.384	7	123.042	6	.076	2	.087	6	-.023	4
228			min	-46.448	1	11.609	4	-52.793	1	-.077	1	.016	4	-.197	7
229		5	max	0	9	.01	6	.011	3	0	9	0	11	0	11
230			min	0	6	-.006	9	-.073	8	0	6	0	6	0	1
231	M34A	1	max	373.367	1	417.749	5	362.168	3	.092	3	.066	4	.167	2
232			min	-442.078	2	6.319	2	-231.062	4	-.353	8	-.107	3	-.185	1
233		2	max	373.367	1	417.749	5	362.168	3	.092	3	.06	1	.166	2
234			min	-442.078	2	6.319	2	-231.062	4	-.353	8	-.095	2	-.199	1
235		3	max	373.367	1	417.749	5	362.168	3	.092	3	.064	1	.166	2
236			min	-442.078	2	6.319	2	-231.062	4	-.353	8	-.091	2	-.213	1
237		4	max	373.367	1	417.749	5	362.168	3	.092	3	.067	1	.166	2
238			min	-442.078	2	6.319	2	-231.062	4	-.353	8	-.087	2	-.227	1
239		5	max	373.367	1	417.749	5	362.168	3	.092	3	.071	1	.165	2
240			min	-442.078	2	6.319	2	-231.062	4	-.353	8	-.083	2	-.241	1
241	M41A	1	max	188.818	3	74.589	5	37.585	3	0	11	0	11	0	11
242			min	-1675.505	8	17.278	2	-37.585	4	0	1	0	1	0	1
243		2	max	186.872	3	37.295	5	18.792	3	0	11	.061	3	-.028	2
244			min	-1670.791	8	8.639	2	-18.792	4	0	1	-.061	4	-.12	5
245		3	max	184.925	3	0	11	0	11	0	11	.081	3	-.037	2
246			min	-1666.077	8	0	1	0	1	0	1	-.081	4	-.161	5
247		4	max	182.978	3	-8.639	2	18.792	4	0	11	.061	3	-.028	2
248			min	-1661.364	8	-37.295	5	-18.792	3	0	1	-.061	4	-.12	5
249		5	max	181.031	3	-17.278	2	37.585	4	0	11	0	11	0	11
250			min	-1656.65	8	-74.589	5	-37.585	3	0	1	0	1	0	1
251	M26	1	max	102.494	6	241.123	2	288.488	9	.278	9	.042	1	.061	2
252			min	-43.851	1	-175.325	1	19.516	3	-.007	3	-.063	9	-.102	10
253		2	max	102.494	6	240.46	2	288.488	9	.278	9	.046	1	.022	2
254			min	-43.851	1	-175.988	1	18.096	3	-.007	3	-.052	2	-.083	10
255		3	max	102.494	6	239.797	2	288.488	9	.278	9	.05	1	-.014	3
256			min	-43.851	1	-176.651	1	16.677	3	-.007	3	-.048	2	-.064	9
257		4	max	102.494	6	239.134	2	288.488	9	.278	9	.075	9	.014	1
258			min	-43.851	1	-177.314	1	15.258	3	-.007	3	-.045	2	-.077	6
259		5	max	102.494	6	238.471	2	288.488	9	.278	9	.121	9	.042	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
260			min	-43.851	1	-177.976	1	13.839	3	-.007	3	-.041	2	-.1	6
261	M27	1	max	250.199	5	823.96	2	187.686	3	.072	4	.085	9	.152	6
262			min	-68.41	2	-513.819	1	-203.998	9	-.158	9	-.173	7	-.034	1
263		2	max	250.199	5	823.297	2	186.267	3	.072	4	.053	9	.068	8
264			min	-68.41	2	-514.482	1	-203.998	9	-.158	9	-.172	5	-.015	2
265		3	max	250.199	5	822.634	2	184.848	3	.072	4	.02	9	.13	1
266			min	-68.41	2	-515.145	1	-203.998	9	-.158	9	-.177	5	-.145	2
267		4	max	250.199	5	821.971	2	183.429	3	.072	4	-.012	9	.212	1
268			min	-68.41	2	-515.807	1	-203.998	9	-.158	9	-.185	8	-.276	2
269		5	max	250.199	5	821.308	2	182.01	3	.072	4	.008	3	.294	1
270			min	-68.41	2	-516.47	1	-203.998	9	-.158	9	-.195	8	-.407	2
271	M28	1	max	114.062	6	297.603	6	-34.96	4	-.005	4	.168	6	.119	6
272			min	-34.576	1	-35.333	1	-211.143	7	-.206	7	-.031	1	-.004	1
273		2	max	114.062	6	294.845	6	-33.541	4	-.005	4	.135	6	.072	6
274			min	-34.576	1	-35.996	1	-211.835	7	-.206	7	-.041	1	.001	1
275		3	max	114.062	6	292.088	6	-32.122	4	-.005	4	.105	2	.025	5
276			min	-34.576	1	-36.659	1	-212.528	7	-.206	7	-.051	1	-.006	9
277		4	max	114.062	6	289.331	6	-30.703	4	-.005	4	.094	2	.013	1
278			min	-34.576	1	-37.322	1	-213.221	7	-.206	7	-.061	1	-.026	2
279		5	max	114.062	6	286.573	6	-29.284	4	-.005	4	.083	2	.019	1
280			min	-34.576	1	-37.985	1	-213.913	7	-.206	7	-.071	1	-.067	6
281	M29A	1	max	399.708	1	48.869	5	35.224	4	0	2	0	11	0	11
282			min	-906.166	6	-2.916	2	-35.224	3	-.002	9	0	1	0	1
283		2	max	407.217	1	24.434	5	17.612	4	0	2	.042	5	.027	4
284			min	-924.337	6	-1.458	2	-17.612	3	-.002	9	-.015	2	-.046	7
285		3	max	414.726	1	0	11	0	11	0	2	.056	5	.036	4
286			min	-942.507	6	0	1	0	1	-.002	9	-.02	2	-.062	7
287		4	max	422.235	1	1.458	2	17.612	3	0	2	.042	5	.027	4
288			min	-960.677	6	-24.434	5	-17.612	4	-.002	9	-.015	2	-.046	7
289		5	max	429.744	1	2.916	2	35.224	3	0	2	0	11	0	11
290			min	-978.848	6	-48.869	5	-35.224	4	-.002	9	0	1	0	1
291	M30	1	max	917.542	4	56.75	5	29.659	3	0	4	0	11	0	11
292			min	-2205.042	7	.221	2	-29.659	4	0	3	0	1	0	1
293		2	max	908.95	4	28.375	5	14.829	3	0	4	.058	5	.026	3
294			min	-2186.493	7	.111	2	-14.829	4	0	3	-.024	2	-.059	8
295		3	max	900.358	4	0	11	0	11	0	4	.077	5	.034	3
296			min	-2167.944	7	0	1	0	1	0	3	-.032	2	-.078	8
297		4	max	891.766	4	-.111	2	14.829	4	0	4	.058	5	.026	3
298			min	-2149.395	7	-28.375	5	-14.829	3	0	3	-.024	2	-.059	8
299		5	max	883.174	4	-.221	2	29.659	4	0	4	0	11	0	11
300			min	-2130.846	7	-56.75	5	-29.659	3	0	3	0	1	0	1
301	M31	1	max	801.166	5	45.466	6	31.379	4	0	4	0	11	0	11
302			min	-113.746	2	-3.085	1	-31.379	3	-.004	9	0	1	0	1
303		2	max	818.325	5	22.733	6	15.689	4	0	4	.04	8	.014	1
304			min	-120.703	2	-1.543	1	-15.689	3	-.004	9	-.023	3	-.037	6
305		3	max	835.485	5	0	11	0	11	0	4	.053	8	.019	1
306			min	-127.66	2	0	1	0	1	-.004	9	-.031	3	-.049	6
307		4	max	852.644	5	1.543	1	15.689	3	0	4	.04	8	.014	1
308			min	-134.617	2	-22.733	6	-15.689	4	-.004	9	-.023	3	-.037	6
309		5	max	869.803	5	3.085	1	31.379	3	0	4	0	11	0	11
310			min	-141.574	2	-45.466	6	-31.379	4	-.004	9	0	1	0	1
311	M32A	1	max	2014.051	8	53.871	7	28.467	1	.001	8	0	11	0	11

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
312			min	-205.755	3	.211	4	-28.467	2	0	3	0	1	0	1
313		2	max	1996.392	8	26.936	7	14.234	1	.001	8	.052	7	.023	1
314			min	-197.368	3	.105	4	-14.234	2	0	3	-.021	4	-.053	6
315		3	max	1978.732	8	0	11	0	11	.001	8	.07	7	.031	1
316			min	-188.98	3	0	1	0	1	0	3	-.028	4	-.071	6
317		4	max	1961.073	8	-.105	4	14.234	2	.001	8	.052	7	.023	1
318			min	-180.593	3	-26.936	7	-14.234	1	0	3	-.021	4	-.053	6
319		5	max	1943.414	8	-.211	4	28.467	2	.001	8	0	11	0	11
320			min	-172.205	3	-53.871	7	-28.467	1	0	3	0	1	0	1
321	M35	1	max	205.312	4	802.12	7	599.158	3	.09	4	.187	4	.163	7
322			min	-950.611	7	-131.509	4	-375.1	4	-.146	3	-.299	3	-.015	4
323		2	max	205.312	4	802.12	7	599.158	3	.09	4	.141	4	.063	7
324			min	-950.611	7	-131.509	4	-375.1	4	-.146	3	-.225	3	.002	4
325		3	max	205.312	4	802.12	7	599.158	3	.09	4	.094	4	.021	1
326			min	-950.611	7	-131.509	4	-375.1	4	-.146	3	-.15	3	-.039	2
327		4	max	205.312	4	802.12	7	599.158	3	.09	4	.047	4	.035	4
328			min	-950.611	7	-131.509	4	-375.1	4	-.146	3	-.075	3	-.137	7
329		5	max	205.312	4	802.12	7	599.158	3	.09	4	0	9	.051	4
330			min	-950.611	7	-131.509	4	-375.1	4	-.146	3	0	2	-.238	7
331	M36	1	max	867.993	5	750.44	5	150.482	3	.12	8	.244	8	.59	5
332			min	-27.888	2	25.149	3	-487.927	8	-.034	9	-.075	3	.013	3
333		2	max	867.993	5	750.44	5	150.482	3	.12	8	.183	8	.497	5
334			min	-27.888	2	25.149	3	-487.927	8	-.034	9	-.057	3	.01	3
335		3	max	867.993	5	750.44	5	150.482	3	.12	8	.122	8	.403	5
336			min	-27.888	2	25.149	3	-487.927	8	-.034	9	-.038	3	.007	2
337		4	max	867.993	5	750.44	5	150.482	3	.12	8	.061	8	.309	5
338			min	-27.888	2	25.149	3	-487.927	8	-.034	9	-.019	3	.002	2
339		5	max	867.993	5	750.44	5	150.482	3	.12	8	0	4	.215	5
340			min	-27.888	2	25.149	3	-487.927	8	-.034	9	-.001	9	-.003	2
341	M37	1	max	203.851	4	802.12	7	599.983	3	.146	3	.188	4	.639	7
342			min	-951.203	7	-131.509	4	-375.473	4	-.09	4	-.3	3	-.117	4
343		2	max	203.851	4	802.12	7	599.983	3	.146	3	.141	4	.539	7
344			min	-951.203	7	-131.509	4	-375.473	4	-.09	4	-.225	3	-.1	4
345		3	max	203.851	4	802.12	7	599.983	3	.146	3	.094	4	.438	7
346			min	-951.203	7	-131.509	4	-375.473	4	-.09	4	-.15	3	-.084	4
347		4	max	203.851	4	802.12	7	599.983	3	.146	3	.047	4	.338	7
348			min	-951.203	7	-131.509	4	-375.473	4	-.09	4	-.075	3	-.068	4
349		5	max	203.851	4	802.12	7	599.983	3	.146	3	0	9	.238	7
350			min	-951.203	7	-131.509	4	-375.473	4	-.09	4	0	2	-.051	4
351	M38	1	max	865.124	5	750.44	5	151.559	3	.034	9	.244	8	.162	8
352			min	-27.921	2	25.149	3	-487.67	8	-.12	8	-.076	3	.012	3
353		2	max	865.124	5	750.44	5	151.559	3	.034	9	.183	8	.069	8
354			min	-27.921	2	25.149	3	-487.67	8	-.12	8	-.057	3	.009	3
355		3	max	865.124	5	750.44	5	151.559	3	.034	9	.122	8	.013	2
356			min	-27.921	2	25.149	3	-487.67	8	-.12	8	-.038	3	-.028	5
357		4	max	865.124	5	750.44	5	151.559	3	.034	9	.061	8	.008	2
358			min	-27.921	2	25.149	3	-487.67	8	-.12	8	-.019	3	-.121	5
359		5	max	865.124	5	750.44	5	151.559	3	.034	9	0	4	.003	2
360			min	-27.921	2	25.149	3	-487.67	8	-.12	8	-.001	9	-.215	5
361	M37A	1	max	0	11	0	11	0	11	0	11	0	11	0	11
362			min	0	1	0	1	0	1	0	1	0	1	0	1
363		2	max	135.736	4	592.549	3	950.517	7	0	2	.051	4	.148	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
364			min	-789.732	7	-368.537	4	-205.316	4	0	9	-.238	7	-.092	4
365		3	max	139.962	4	585.979	3	692.481	3	0	9	.238	7	.091	4
366			min	-777.345	7	-513.834	7	-951.298	7	0	2	-.051	4	-.147	3
367		4	max	789.732	7	368.897	4	203.847	4	0	9	.051	4	.148	3
368			min	-135.736	4	-593.454	3	-951.298	7	0	2	-.238	7	-.092	4
369		5	max	0	11	0	11	0	11	0	11	0	11	0	11
370			min	0	1	0	1	0	1	0	1	0	1	0	1
371	M38A	1	max	0	11	0	11	0	11	0	11	0	11	0	11
372			min	0	1	0	1	0	1	0	1	0	1	0	1
373		2	max	-20.923	3	143.912	3	21.318	2	.001	9	.216	5	.036	3
374			min	-738.052	5	-485.356	8	-865.386	5	0	4	-.005	2	-.121	8
375		3	max	725.665	5	134.834	9	14.749	2	.001	9	.004	2	.121	8
376			min	-30.146	2	-482.83	8	-862.86	5	0	4	-.216	5	-.036	9
377		4	max	738.052	5	485.188	8	862.678	5	0	4	.216	5	.036	3
378			min	20.923	3	-144.99	3	-21.352	2	-.001	9	-.005	2	-.121	8
379		5	max	0	11	0	11	0	11	0	11	0	11	0	11
380			min	0	1	0	1	0	1	0	1	0	1	0	1
381	M39	1	max	1670.394	7	76.273	5	38.136	4	0	11	0	11	0	11
382			min	-295.05	2	17.334	2	-38.136	3	0	1	0	1	0	1
383		2	max	1667.671	7	38.136	5	19.068	4	0	11	.063	4	-.029	2
384			min	-300.025	2	8.667	2	-19.068	3	0	1	-.063	3	-.126	5
385		3	max	1664.949	7	0	11	0	11	0	11	.084	4	-.038	2
386			min	-304.999	2	0	1	0	1	0	1	-.084	3	-.168	5
387		4	max	1662.226	7	-8.667	2	19.068	3	0	11	.063	4	-.029	2
388			min	-309.973	2	-38.136	5	-19.068	4	0	1	-.063	3	-.126	5
389		5	max	1659.503	7	-17.334	2	38.136	3	0	11	0	11	0	11
390			min	-314.948	2	-76.273	5	-38.136	4	0	1	0	1	0	1

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

	Member	Shape	Code Check	Loc[...	LC	Shear...	Loc[...	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M112	PIPE_2.0	.507	3.984	3	.282	1.505		1	3087.2...	32130	1.872	1.872	1...	H1-1a
2	M8	PIPE_2.0	.445	2.37	9	.096	2.37		9	30037....	32130	1.872	1.872	2...	H1-1b
3	M113	PIPE_2.0	.436	4.073	5	.231	4.073		8	3087.2...	32130	1.872	1.872	2...	H1-1a
4	M2	PIPE_2.0	.405	6.5	9	.251	3.995		9	5279.34	32130	1.872	1.872	1...	H1-1b
5	M15	PIPE_2.0	.392	.79	8	.145	.79		6	30037....	32130	1.872	1.872	1...	H1-1b
6	M1	PIPE_2.0	.352	3.25	9	.245	3.995		9	5279.34	32130	1.872	1.872	1...	H1-1b
7	MP2A	PIPE_2.5	.349	3.667	2	.079	5.917		8	30038....	50715	3.596	3.596	2...	H1-1b
8	M9	PIPE_2.0	.293	0	9	.161	2.37		9	30037....	32130	1.872	1.872	2...	H1-1b
9	MP1A	PIPE_2.0	.251	3.667	2	.074	3.667		2	14916....	32130	1.872	1.872	1...	H1-1b
10	MP55A	PIPE_2.0	.242	2.333	5	.046	2.333		9	30099....	32130	1.872	1.872	2...	H1-1b
11	M32A	L2.5x2.5x4	.242	3.065	8	.010	0	y	8	11067....	38556	1.114	2.131	1...	H2-1
12	M16B	PIPE_2.0	.231	2.333	8	.060	2.333		9	30099....	32130	1.872	1.872	2...	H1-1b
13	MP3A	PIPE_2.0	.230	3.667	2	.121	6		9	14916....	32130	1.872	1.872	1...	H1-1b
14	M27	PIPE_2.0	.219	.637	2	.116	0		9	31974....	32130	1.872	1.872	2...	H1-1b
15	M16	PIPE_2.0	.199	2.37	8	.056	2.37		9	30037....	32130	1.872	1.872	2...	H1-1b
16	M14	PIPE_2.0	.185	0	5	.076	2.37		5	30037....	32130	1.872	1.872	1...	H1-1b
17	M39	PIPE_2.0	.158	4.406	7	.008	0		7	12664....	32130	1.872	1.872	1...	H1-1b
18	M44	PIPE_4.0	.152	3.883	5	.051	1.75		8	85371....	93240	10.631	10.631	1...	H1-1b
19	MP5A	PIPE_4.0	.146	0	8	.040	1.859		9	88005....	93240	10.631	10.631	2...	H1-1b
20	M30	L2.5x2.5x4	.137	3.299	7	.007	6.598	y	8	9963.9...	38556	1.114	2.101	1...	H2-1

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

	Member	Shape	Code Check	Loc[...	LC	Shear..	Loc[..	Dir	LC	phi*Pn...	phi*Pnt..	phi*Mn...	phi*Mn..	Cb	Eqn
21	M4	PIPE_4.0	.136	0	5	.058	3.115		8	88958....	93240	10.631	10.631	2..	H1-1b
22	M41A	PIPE_2.0	.114	4.307	8	.008	8.613		7	13200....	32130	1.872	1.872	1..	H1-1b
23	M28	PIPE_2.0	.112	0	6	.160	0		7	31974....	32130	1.872	1.872	2..	H1-1b
24	M31	L2.5x2.5x4	.110	2.769	8	.019	0	y	9	14732....	38556	1.114	2.208	1..	H2-1
25	M14A	PIPE_2.0	.104	2.333	5	.022	2.333		9	30099....	32130	1.872	1.872	1..	H1-1b
26	M29A	L2.5x2.5x4	.084	2.906	5	.011	0	y	9	12839....	38556	1.114	2.171	1..	H2-1
27	M26	PIPE_2.0	.074	.637	9	.197	0		9	31974....	32130	1.872	1.872	1..	H1-1b
28	M16A	PIPE_2.0	.064	0	6	.023	2.37		2	30037....	32130	1.872	1.872	1..	H1-1b
29	M37A	PIPE_3.0	.053	1.5	7	.055	1.5		7	63823....	65205	5.749	5.749	1	H1-1b
30	M38A	PIPE_3.0	.048	1.5	8	.050	.5		8	63823....	65205	5.749	5.749	1	H1-1b

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS EXISTING SELF SUPPORTING TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: 1203277

CARRIER SITE #/NAME: CT11319C / WINDSOR LOCKS/RT 20

COORDINATES (LATITUDE: 41.928100°, LONGITUDE: -72.646800°)

PLEASE NOTE THIS SET OF DRAWINGS ARE FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
D-1	STANDARD DETAILS	0
D-2	STANDARD DETAILS	0
MS-LVPB-2375	METROSITE V-BRACING KIT	
MS-STZ-2PST	METROSITE STABILIZER KIT	
MS-STZ-2875P	METROSITE STABILIZER ADAPTER KIT	

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **106689**, DATED **04/27/2021**.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

STATE OF CONNECTICUT
JARRYD TIBBETTS
No. 34774
LICENSED
PROFESSIONAL ENGINEER
6/11/21

DRAWN BY: AB | CHECKED BY: KP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE				
2	2	MS-LVPB-2375	METROSITE V-BRACING KIT	A-1, MS-LVPB-2375	532.0	1064.0	Galvanized
3	3	MS-STZ-2PST	METROSITE STABILIZER KIT	A-1, MS-STZ-2PST	79.3	237.9	Galvanized
3	3	MS-STZ-2875P	METROSITE STABILIZER ADAPTER KIT	A-1, MS-STZ-2875P	4.3	12.9	Galvanized
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
			ALL METROSITE PARTS ARE AVAILABLE FROM METROSITE, LLC. **180 IND PARK BLVD COMMERCE, GA 30529** **OFFICE: (706) 335-7045** **FAX: (706) 335-7056**				
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.				
				TOTAL WEIGHT (LBS) =		**1314.8**	

Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA

5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

DRAWN BY: AB | CHECKED BY: KP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM

REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.
7. IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES (WITH SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
8. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESORDERS@TESTOWER.US

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2015 SECTION 1705 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

TES
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TES JOB NO:
107815

CUSTOMER SITE NO:
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CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

DRAWN BY: AB | CHECKED BY: KP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1

REV #: 0

SCOPE OF WORK

1. INSTALL NEW V-BRACING WITH LEVELING KIT. (2) PER SECTOR. SEE SHEET D-1 & MS-LVPB-2375 FOR DETAILS.
2. INSTALL NEW STABILIZER KIT AND STABILIZER ADAPTER KIT. SEE SHEETS MS-STZ-2PST, MS-STZ-2875P, & D-2 FOR DETAILS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

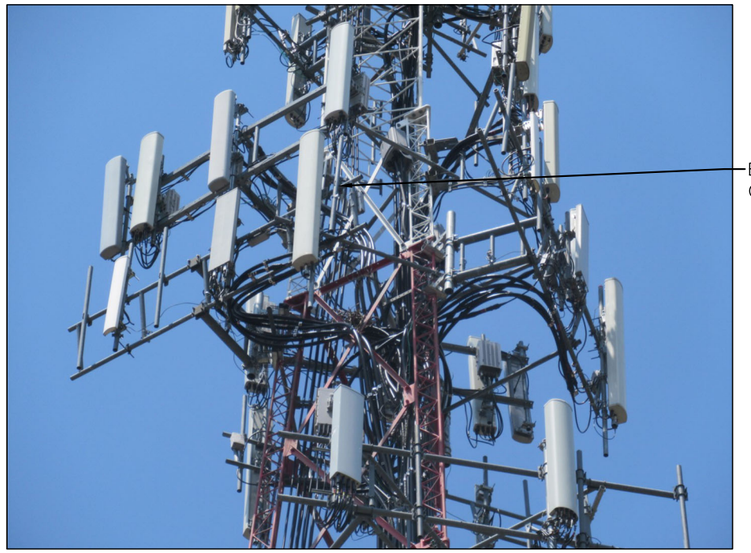
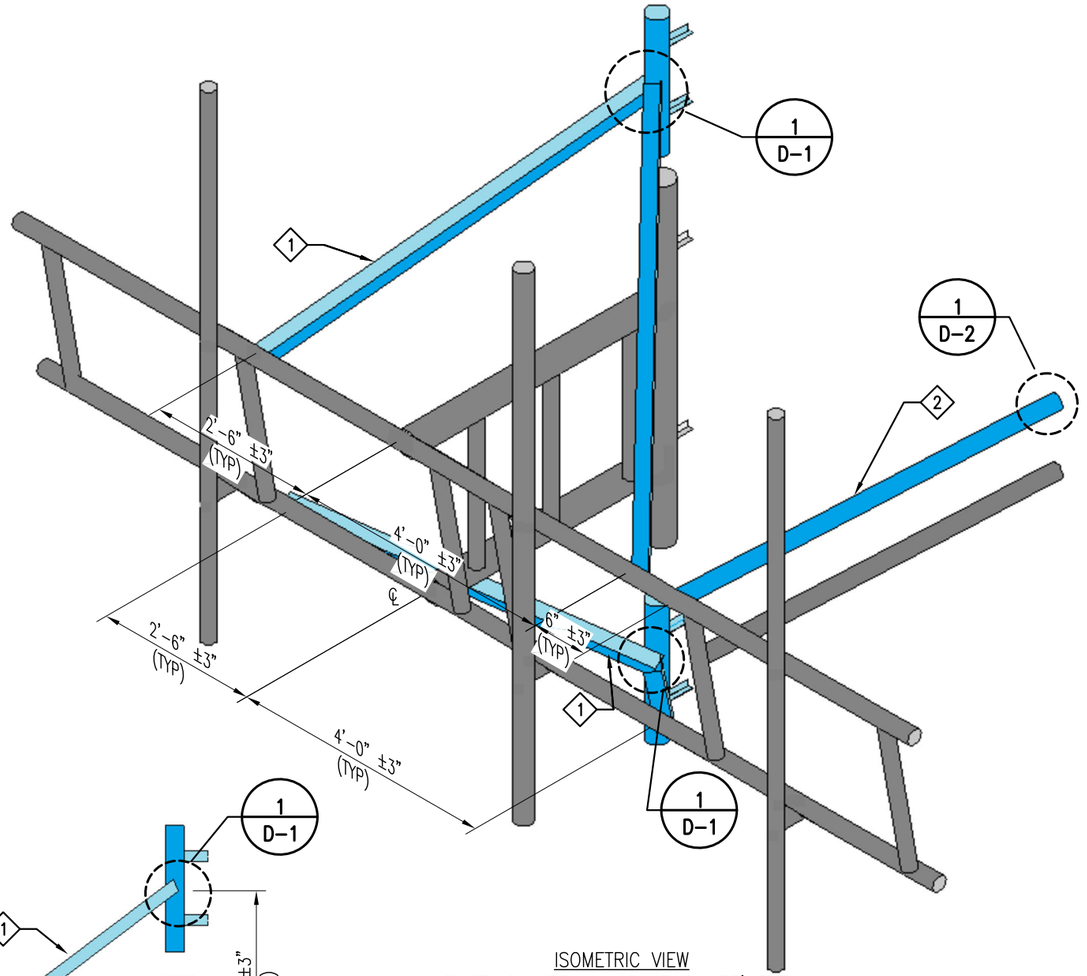
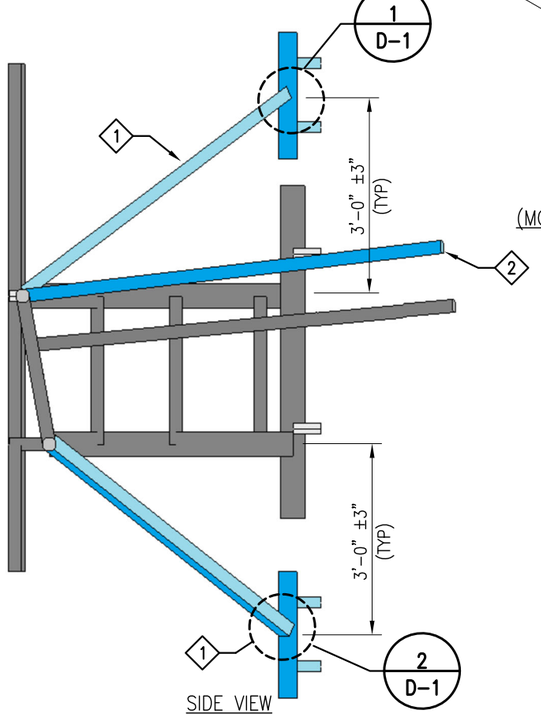


PHOTO 1



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 135' ELEV.
(MODIFICATION IS TYPICAL FOR ALL (3) SECTORS)



SIDE VIEW

CONTRACTOR NOTE:
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THERE IS NO INTERFERENCES WITH (SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
2. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESORDERS@TESTOWER.US

NOTES:
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS.
3. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. **MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS.**

NOTE:
EXISTING TOWER IS PAINTED. CONTRACTOR TO VERIFY WITH TOWER OWNER IF NEW MODIFICATION MEMBERS ARE TO BE PAINTED TO MATCH EXISTING TOWER COLOR.

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	6	MS-LVPB-2375	METROSITE V-BRACING KIT
2	3	MS-STZ-2PST	METROSITE STABILIZER KIT
3	3	MS-STZ-2875P	METROSITE STABILIZER ADAPTER KIT

TES
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(800)-487-SITE

TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

DRAWN BY: AB | CHECKED BY: KP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1
REV #: 0

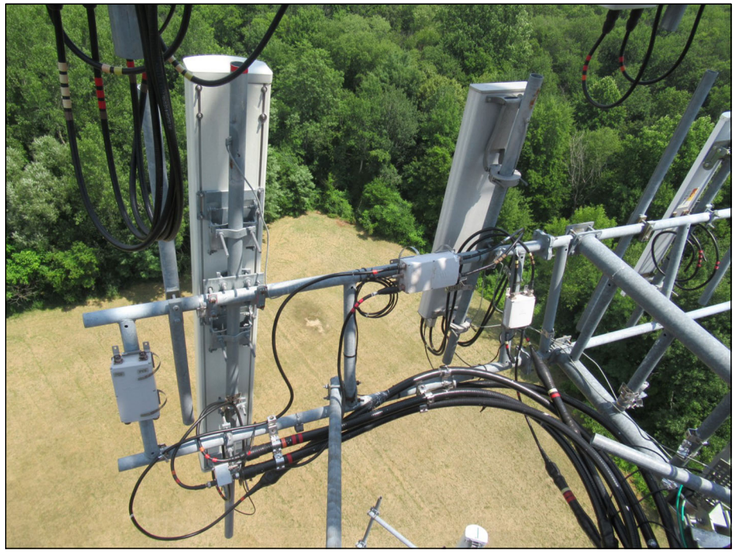

PHOTO 1

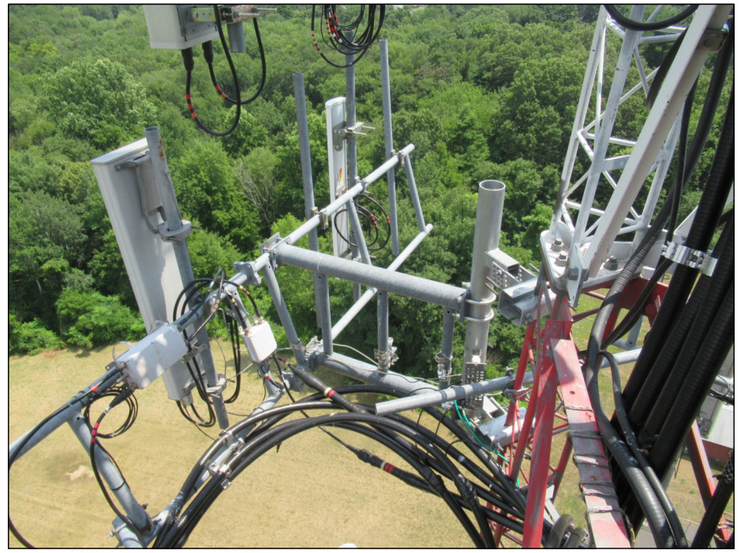

PHOTO 2

PHOTO 3

NOTE:
EXISTING RRUS/EQUIPMENT MAY BE RELOCATED ALONG THE MEMBER TO ACCOMMODATE THE INSTALLATION OF NEW MOUNT MODIFICATION

TES

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(800)-487-SITE

TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

DRAWN BY: AB | CHECKED BY: KP/HMA

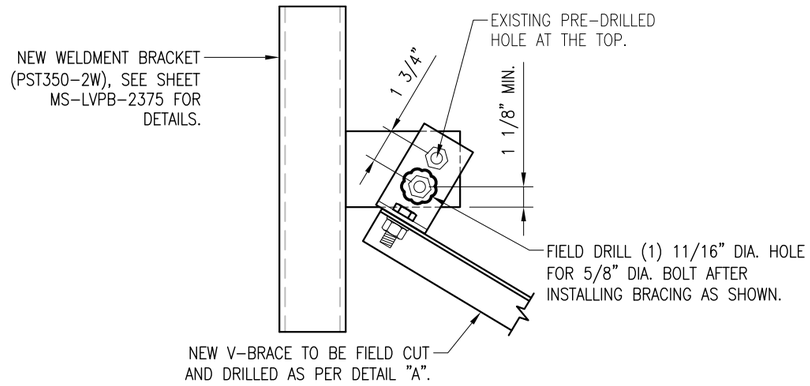
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:

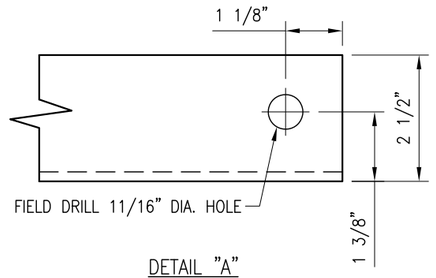
ANTENNA MOUNT PHOTOS

SHEET NUMBER: A-2

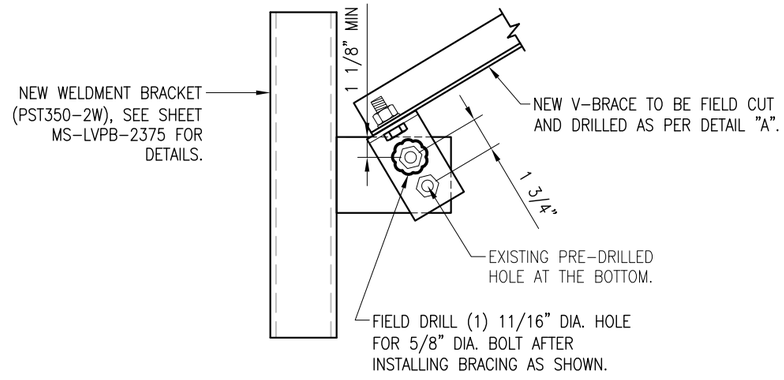
REV #: 0



1 / D-1 DETAIL



DETAIL "A"



2 / D-1 DETAIL

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. ALL HOLES ARE 11/16" DIA. U.N.O

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1320 GREENWAY DRIVE, SUITE 600
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(800)-487-SITE

TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

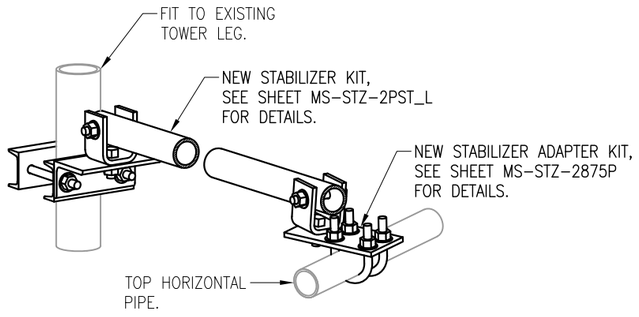
DRAWN BY: AB | CHECKED BY: KP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
STANDARD DETAILS

SHEET NUMBER: D-1

REV #: 0



1/D-2 DETAIL

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. ALL HOLES ARE 11/16" DIA. U.N.O

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TES JOB NO:
107815

CUSTOMER SITE NO:
CT22108-A-SBA

CUSTOMER SITE NAME:
WINDSOR LOCKS @ VOLUNTEER DRIVE

2-4 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096

DRAWN BY: AB | CHECKED BY: KP/HMA

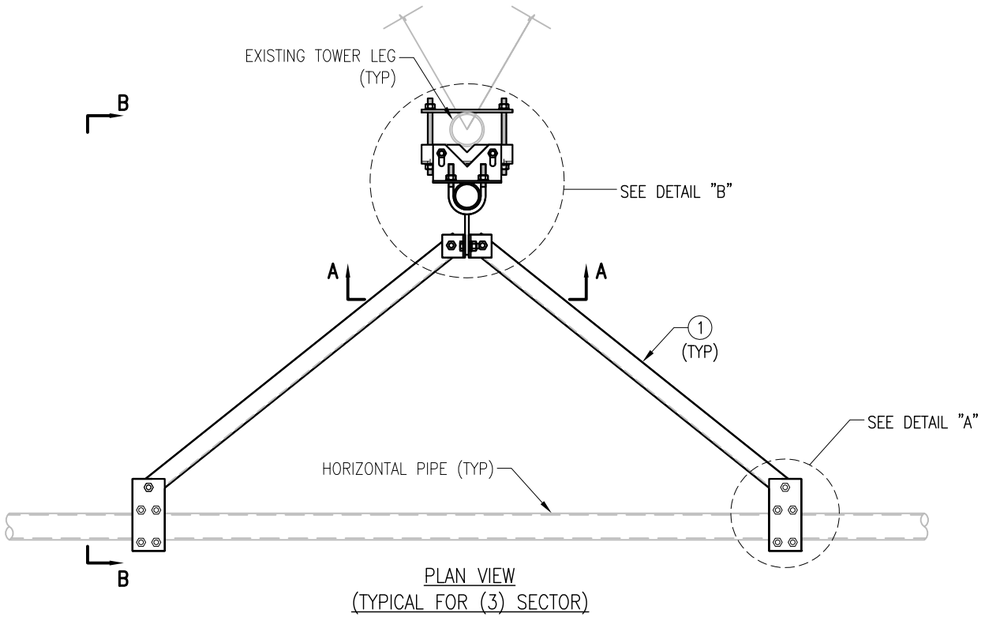
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	AB	06/11/21

SHEET TITLE:
STANDARD DETAILS

SHEET NUMBER: D-2

REV #: 0

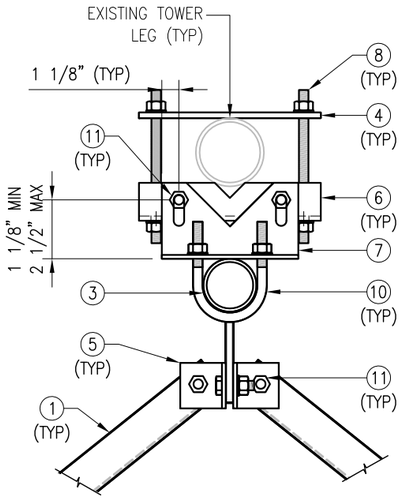
THE FOLLOWING DRAWINGS ARE INCLUDED FOR REFERENCE ONLY
PLEASE REFER TO THE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION DETAILS



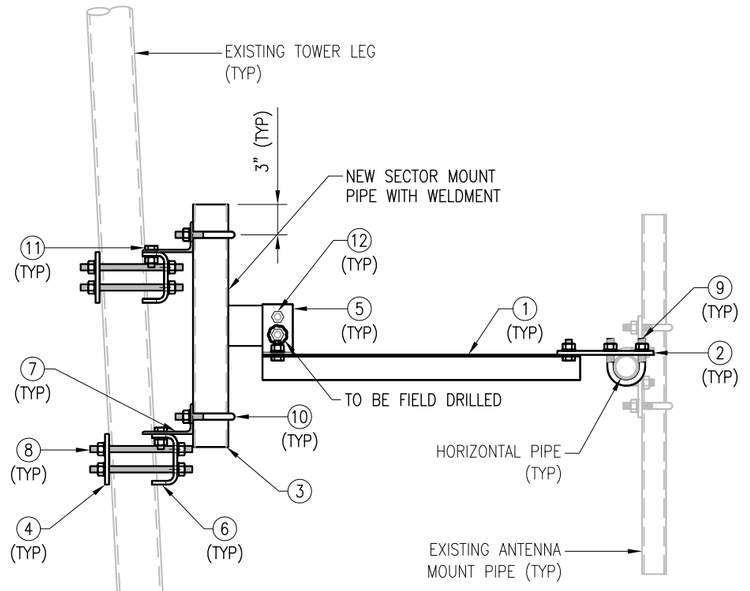
PLAN VIEW
(TYPICAL FOR (3) SECTOR)

MS-LVPB-2375

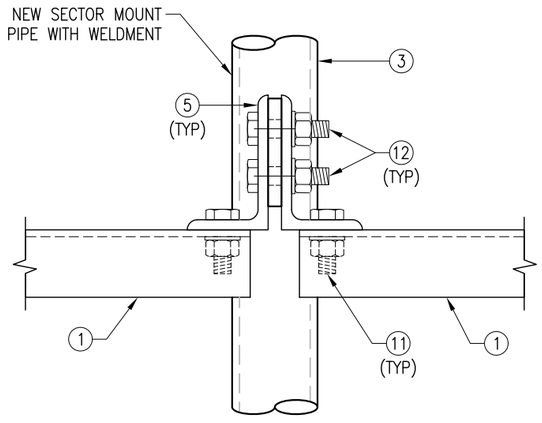
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	6	VB-25-10	L 2 1/2" X 2 1/2" X 1/4" X 10'-0"	A36	BK-1	258
2	6	PL375-42585	PL 3/8" X 4 1/4" X 8 1/2"	A36	BK-1	23.4
3	3	PST350-2W	WELDMENT PIPE	A53-GR B	PST350-2W	59.4
4	6	PL5-42512	PL 1/2" X 4 1/4" X 1'-0"	A572-50	BK-2	45.6
5	6	AL-533	L 5" X 3" X 1/4" X 3"	A36	BK-1	10.2
6	6	BPL-37512	PL 3/8" X 8 5/8" X 1'-0"	A36	BK-4	67.2
7	6	AL-5X3-9	L 5" X 3" X 3/8" X 9"	A36	BK-4	45.0
8	24	---	THREADED ROD 5/8" X 1'-0" W/ (2) HHN & LKW EA.	A36	--	--
9	12	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	---	RBC-1	14.0
10	6	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	---	RBC-1	8.7
2 11	24	---	BOLT 5/8" X 1 3/4" A325 W/ HHN & LKW EA.	---	--	--
12	6	---	BOLT 5/8" X 2 1/4" A325 W/ HHN & LKW EA.	---	---	--
					GALVANIZED WT	532



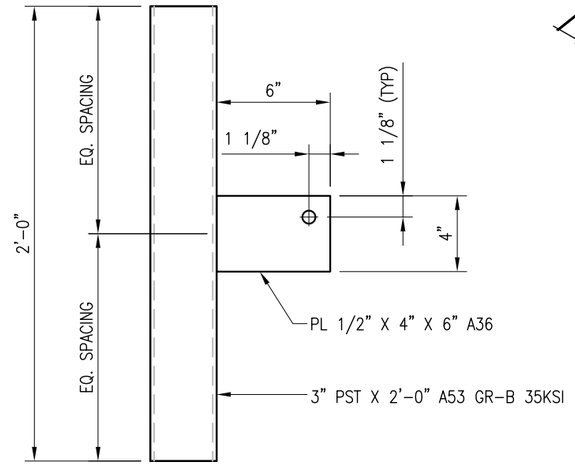
DETAIL "B"



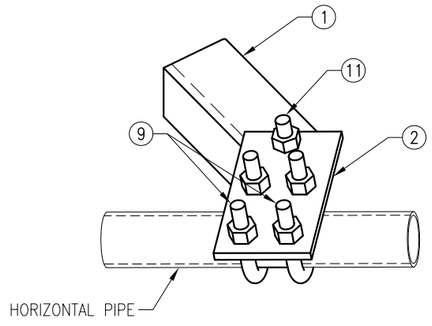
SECTION "B-B"



SECTION "A-A"



PST350-2W
WELDMENT PIPE



DETAIL "A"

NOTE:
1) FITS UP TO 6" ANGLE / 8" DIA PIPE LEG.
2) THREADED ROD MAY BE CUT TO LENGTH AS REQUIRED.
3) FIT 2 3/8" DIA O.D HORIZONTAL PIPE.

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	02/28/19
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
MS-LVPB-2375
V-BRACING KIT

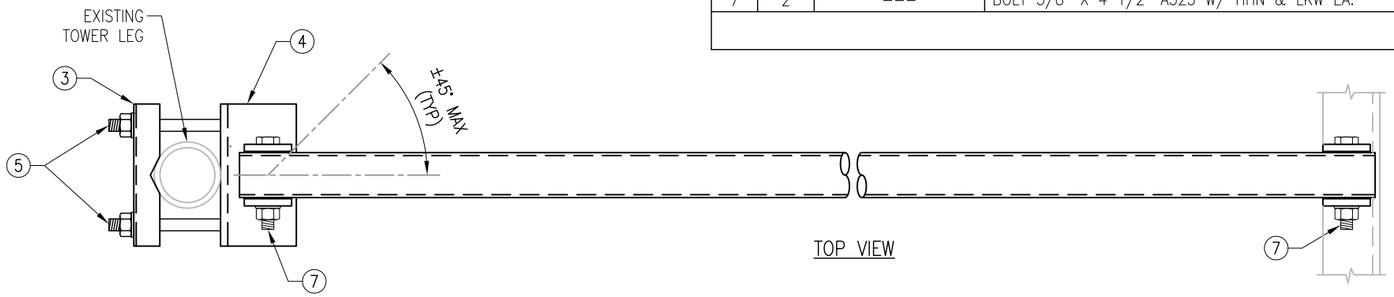
SIZE	DWG NO	REV
B	MS-LVPB-2375	2

SCALE - SHEET 1 OF 1

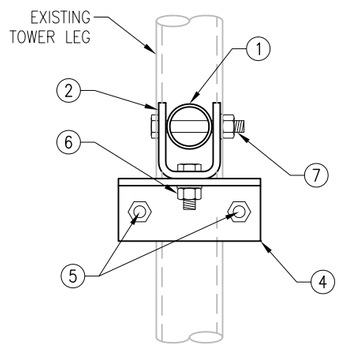
NOTES:
1) FITS 1 1/4" DIA. TO 4 1/2" DIA. LEG.
2) FIELD ASSEMBLY ALL PARTS.
3) THREADED ROD MAY BE CUT TO LENGTH AS REQUIRED.

MS-STZ-2PST

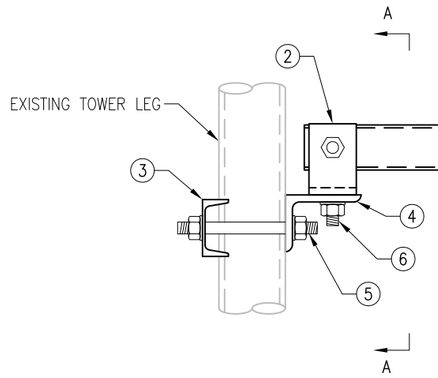
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	1	PP2375-15	2" PST PIPE (2.375" O.D. X 0.154" THICKNESS) X 15'-0"	1 A53 GR. B OR A500 GR. B/C	STZ-1	56.8
2	2	UP-2375P	PL 3/8" X 2 1/2" X 9 3/4" BENT PLATE	A36	STZ-1	19.0
3	1	C-3750	C3X6 X 0'-7 1/2"	A36	STZ-1	1.2
4	1	AL-4375	L 4" X 3" X 3/8" X 7 1/2"	A36	STZ-1	2.3
5	2	---	THREADED ROD 5/8" X 8" W/ (2) HHN & LKW EA.	A36	--	--
6	2	---	BOLT 5/8" X 2" A325 W/ HHN & LKW EA.	---	--	--
7	2	---	BOLT 5/8" X 4 1/2" A325 W/ HHN & LKW EA.	---	---	--
					GALVANIZED WT	79.3



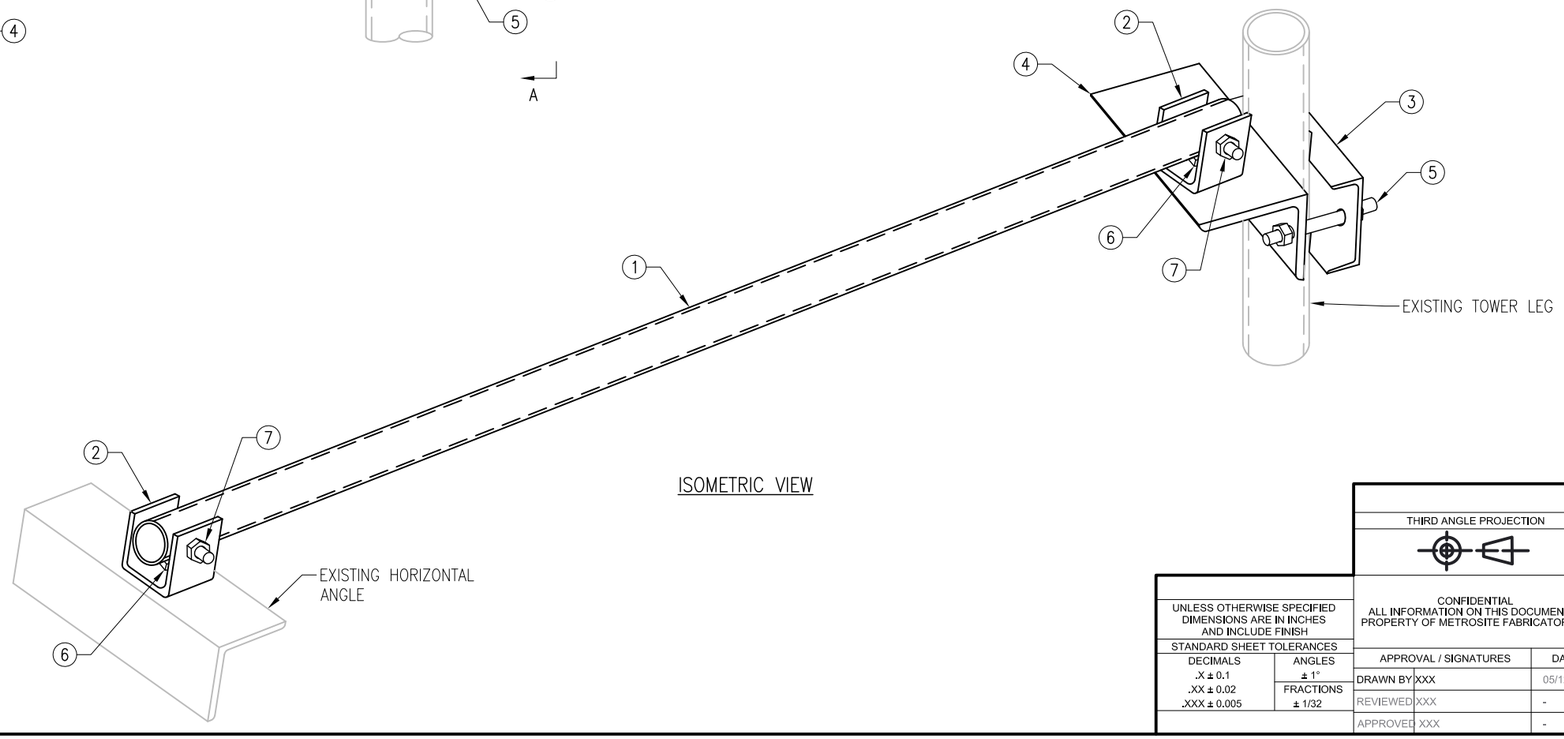
TOP VIEW



SECTION "A-A"



FRONT VIEW



ISOMETRIC VIEW

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH
STANDARD SHEET TOLERANCES
DECIMALS .X ± 0.1, .XX ± 0.02, .XXX ± 0.005
ANGLES ± 1°
FRACTIONS ± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

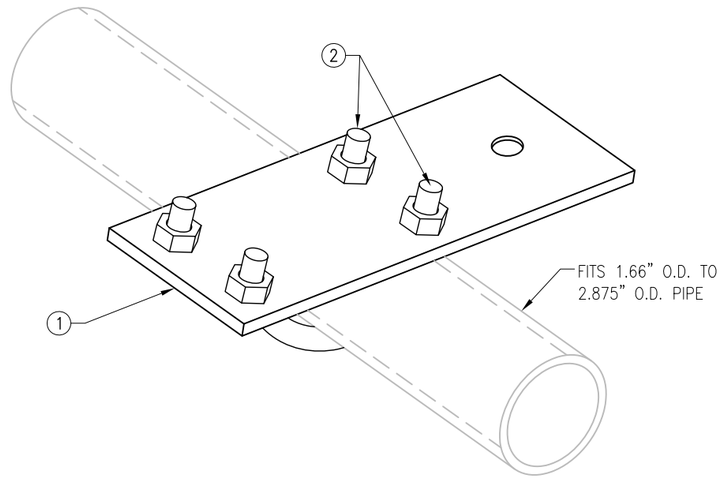
TITLE
MS-STZ-2PST
STABILIZER KIT

SIZE B | DWG NO MS-STZ-2PST | REV 1
SCALE - | SHEET 1 OF 1

NOTES:
1) FIELD ASSEMBLY ALL PARTS.
2) FITS 1.66" O.D. TO 2.875" O.D. HORIZONTAL PIPE.

MS-STZ-2875P

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	1	PL375-4259	PL 3/8" X 4 1/4" X 9"	A36	BK-2	4.3
2	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	---	RBC-1	--
					GALVANIZED WT	4.3



THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
MS-STZ-2875P
STABILIZER ADAPTER KIT

SIZE	DWG NO	REV
B	MS-STZ-2875P	1

SCALE -

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11319C

Windsor locks/Rt 20
2-4 Volunteer Drive
Windsor Locks, Connecticut 06096

July 5, 2022

EBI Project Number: 6222004259

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**43.87%**

July 5, 2022

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

Emissions Analysis for Site: CT11319C - Windsor locks/Rt 20

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **2-4 Volunteer Drive** in **Windsor Locks, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 2-4 Volunteer Drive in Windsor Locks, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

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

3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts per Channel.

4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.

5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts per Channel.

6) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.

7) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.

8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

12) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power

levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

15) The antenna mounting height centerline of the proposed antennas is 135 feet above ground level (AGL).

16) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

17) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	250.00 Watts	Total TX Power (W):	250.00 Watts	Total TX Power (W):	250.00 Watts
ERP (W):	9,071.08	ERP (W):	9,071.08	ERP (W):	9,071.08
Antenna A1 MPE %:	**1.96%**	Antenna B1 MPE %:	**1.96%**	Antenna C1 MPE %:	**1.96%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts
ERP (W):	9,108.51	ERP (W):	9,108.51	ERP (W):	9,108.51
Antenna A2 MPE %:	**2.95%**	Antenna B2 MPE %:	**2.95%**	Antenna C2 MPE %:	**2.95%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95
Antenna A3 MPE %:	**6.70%**	Antenna B3 MPE %:	**6.70%**	Antenna C3 MPE %:	**6.70%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	11.61%
Dish	1.67%
AT&T	15.53%
Verizon	8.83%
Clearwire	0.32%
Sprint	4.47%
Windsor Fire Dept	1.44%
Site Total MPE % :	43.87%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	11.61%
T-Mobile Sector B Total:	11.61%
T-Mobile Sector C Total:	11.61%
Site Total MPE % :	43.87%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	1	342.77	135.0	0.74	1900 MHz GSM	1000	0.07%
T-Mobile 1900 MHz LTE	1	4113.21	135.0	8.89	1900 MHz LTE	1000	0.89%
T-Mobile 2100 MHz LTE	1	4615.10	135.0	9.97	2100 MHz LTE	1000	1.00%
T-Mobile 600 MHz LTE	1	788.97	135.0	1.70	600 MHz LTE	400	0.43%
T-Mobile 600 MHz LTE	1	1577.94	135.0	3.41	600 MHz LTE	400	0.85%
T-Mobile 700 MHz LTE	1	865.09	135.0	1.87	700 MHz LTE	467	0.40%
T-Mobile 1900 MHz LTE	1	5876.52	135.0	12.70	1900 MHz LTE	1000	1.27%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	9619.47	135.0	20.78	2500 MHz LTE 1C & 2C Traffic	1000	2.08%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	717.84	135.0	1.55	2500 MHz LTE 1C & 2C Broadcast	1000	0.16%
T-Mobile 2500 MHz NR Traffic	1	19238.94	135.0	41.56	2500 MHz NR Traffic	1000	4.16%
T-Mobile 2500 MHz NR Broadcast	1	1435.69	135.0	3.10	2500 MHz NR Broadcast	1000	0.31%
						Total:	**11.61%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	11.61%
Sector B:	11.61%
Sector C:	11.61%
T-Mobile Maximum MPE % (Sector A):	11.61%
Site Total:	43.87%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **43.87%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Recipient Mailings

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0301 5259 73 0089 5000 0020 6096

usps.com
$8.95
US POSTAGE
Flat Rate Env

07/21/2022 Mailed from 01566

U.S. POSTAGE PAID
Click-N-Ship®

PRIORITY MAIL®

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Expected Delivery Date: 07/23/22
Ref#: SBCT-11319

0000

C013

PAUL HARRINGTON
WINDSOR LOCKS FIRST SELECTMAN
50 CHURCH ST
WINDSOR LOCKS CT 06096-2331

USPS TRACKING #

9405 5036 9930 0301 5259 73

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0301 5259 73

Trans. #:	568033924
Print Date:	07/21/2022
Ship Date:	07/21/2022
Expected Delivery Date:	07/23/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

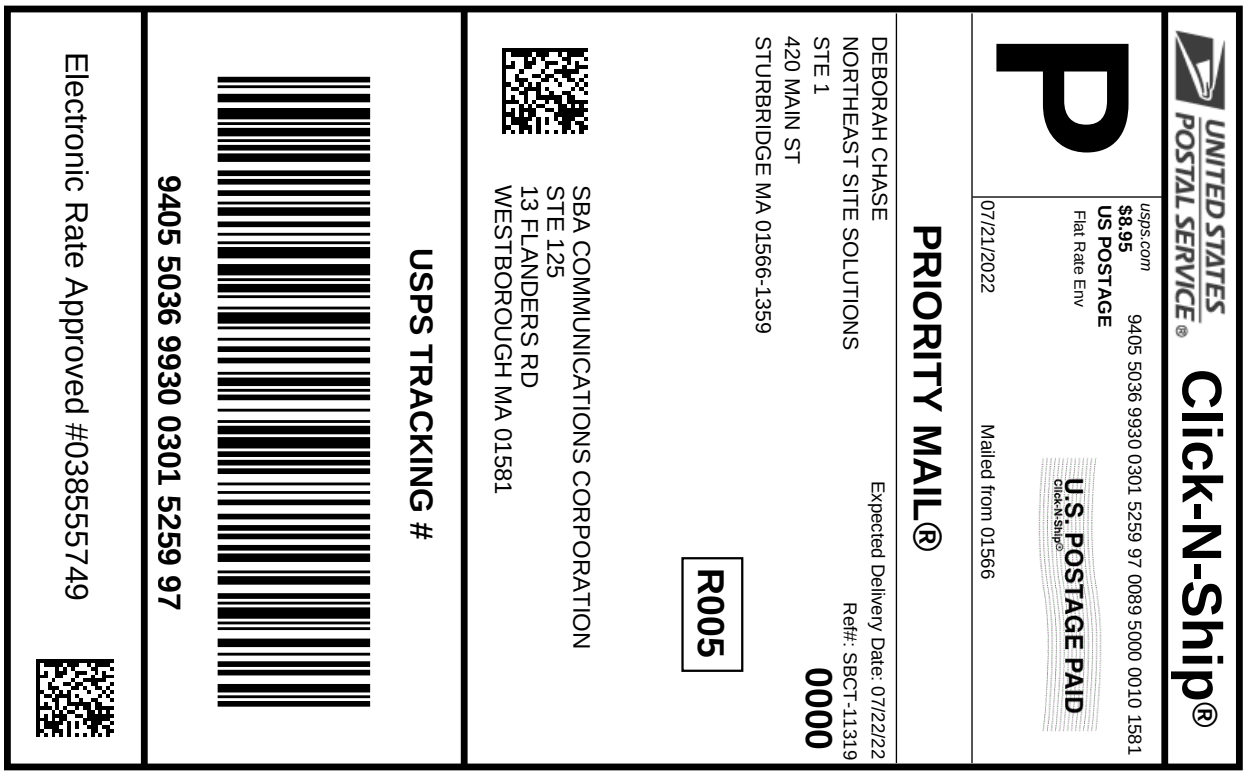
Ref#: SBCT-11319

To: PAUL HARRINGTON
WINDSOR LOCKS FIRST SELECTMAN
50 CHURCH ST
WINDSOR LOCKS CT 06096-2331

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0301 5259 97

Trans. #:	568033924
Print Date:	07/21/2022
Ship Date:	07/21/2022
Expected Delivery Date:	07/22/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

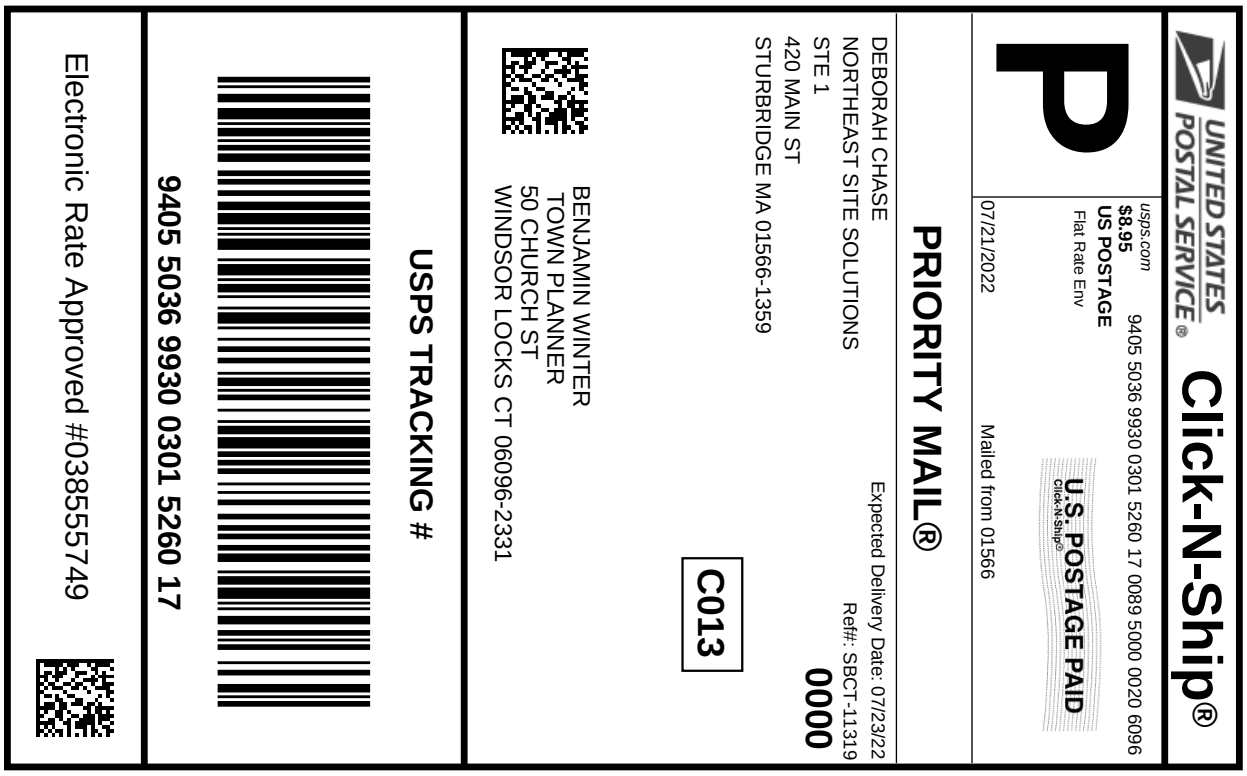
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBCT-11319

To: SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0301 5260 17

Trans. #:	568033924
Print Date:	07/21/2022
Ship Date:	07/21/2022
Expected Delivery Date:	07/23/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBCT-11319

To: BENJAMIN WINTER
TOWN PLANNER
50 CHURCH ST
WINDSOR LOCKS CT 06096-2331

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

CT113191 - TWO - SBA

UNITED STATES POSTAL SERVICE.

LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

07/21/2022 03:42 PM

Product	Qty	Unit Price	Price
Prepaid Mail Windsor Locks, CT 06096 Weight: 0 lb 13.10 oz Acceptance Date: Thu 07/21/2022 Tracking #: 9405 5036 9930 0301 5259 73	1		$0.00
Grand Total:			$0.00

CT113191 - TWO SBA

UNITED STATES POSTAL SERVICE.

LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

07/21/2022 03:42 PM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Thu 07/21/2022 Tracking #: 9405 5036 9930 0301 5259 97	1		$0.00
Prepaid Mail Windsor Locks, CT 06096 Weight: 0 lb 13.10 oz Acceptance Date: Thu 07/21/2022 Tracking #: 9405 5036 9930 0301 5260 17	1		$0.00
Grand Total:			$0.00