NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

March 31, 2022

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

RE: Exempt Modification Application
101 Burbank Road, Ellington CT 06029
Latitude: 41. 939764
Longitude: -72.387069
Site#: CT10008-A-SBA_CT11292A_ SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 101 Burbank Road, Ellington CT 06029. T-Mobile currently maintains six (6) antenna at the 186-foot level of the existing 189-foot tower. The 180' tower sits on foundational piers, making for a 189' AGL, with appropriately identified RAD heights.The property is owned by Bernard and Jane Asumadu, and the tower is owned by SBA. T-Mobile now intends to remove three (3) existing antenna and replace with three (3) new antenna and add three (3) new antenna. The new antennas would be installed at the 186-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and **5G** capable. Antenna mount modifications will be completed as per attached Tower Engineering Solutions mount analysis dated March 14, 2022.

T-Mobile Planned Modifications:
Remove:
(3) KRY 112 489/2 TMA*
(3) KRY 112 144/1 TMA*
(12) Coax

Remove and Replace:
(3) EMS RR90-17-02DP antenna (Remove) – (3) AIR 6419 B41 2500 MHz antenna (Replace)

Install New:
(3) Commscope VV-65A-R1 1900/2100 MHz antenna
(3) 440 B25+B66 RRU
(2) Fiber lines

Existing to Remain:
(3) APXVAARR24 600/700 MHz antenna
(3) Kathrein 782 Bias-T's*
(3) 4449 B71+B12 RRU

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*Equipment listed for entitlement purposed only

This facility was approved by the Town of Ellington on December 10, 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 Lori L. Spielman, First Selectman and Lisa M. Houlihan, Town Planner 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, Verizon Wireless 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: Lori L. Spielman, First Selectman
Town of Ellington
55 Main Street
Ellington, CT 06029

Lisa M. Houlihan, Town Planner
Town of Ellington
55 Main Street
Ellington, CT 06029

Bernard and Jane Asumadu – Property Owners
101 Burbank Road
Ellington, CT 06029

SBA – Tower Owner

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT • COUNTY OF TOLLAND
INCORPORATED 1786

TOWN OF ELLINGTON

55 MAIN STREET • P.O. BOX 187
ELLINGTON, CONNECTICUT 06029

December 10, 1999

Crossroads Site Management LLC
1050 Buckley Highway
Union CT 06076

Dear Sirs:

The Ellington Planning and Zoning Commission, at their meeting on Monday, October 25, 1999, approved your application with the following motion:

MOVED (AUCTER) SECONDED (SPIELMAN) CARRIED UNANIMOUSLY (AYES: ZAHNER, AUCTER, SPIELMAN, KUPECKY, HEIDARI, HARFORD) (NAYES: 0) TO APPROVE #Z9939 SUBJECT TO THE RECOMMENDATIONS OF THE TOWN ENGINEER'S LETTER OF 10/25/99.

I am enclosing a copy of the Legal Notice for your records.

Very truly yours,
Cornelia B. Nichols
Cornelia B. Nichols, Clerk
Planning and Zoning Commission

enclosure

VOL. 257 PAGE 238

2773

RECEIVED
Nov 2 11 52 AM '99

TOWN OF ELLINGTON
CERTIFICATE OF VARIANCE

Notice is hereby given that the Zoning Board of Appeals of the Town of Ellington, at its Meeting on Monday, October 4, 1999, granted a Variance to Donald & Rosalie Stavens, 101 Burbank Road, Ellington, Connecticut 06029 as follows:

NATURE OF VARIANCE(S)

The Zoning Board of Appeals granted a Variance to allow construction of a communication tower with the condition that it be available to other providers and the Public Safety Agencies of the Town of Ellington.

ZONING REGULATION(S) VARIED

Ellington Zoning Regulations, Section 5.2, Area & Yard Requirements. Height Requirements 35' to 190'.

NAME OF OWNER(S) OF PROPERTY

Donald & Rosalie Stavens, 101 Burbank Road. Ellington, Connecticut 06029.

Dated at Ellington, Connecticut, this 29th day of October 1999.

I hereby certify that the above is a true and attested copy of the aforesaid Variance from the records of the Zoning Board of Appeals.

Signed Michael Riley, Chairman
Michael Riley, Chairman

Signed Cornelia B. Nicholas
Cornelia B. Nicholas, Clerk

Recorded-Ellington Land Records

on Nov 2, 1999

@ Volume 257 Page 238 Attest: Town Clerk

In order to issue a Zoning Permit involving this property, a copy of this document listing the date same was recorded in the Ellington Land Records, must be presented to the Zoning Enforcement Officer.

Town of Ellington
Planning and Zoning Commission
Application

Application # Z 9939
Date Received 10/5/99

Type of Application:

☐ Change of Zone ☐ Amendment to Regulations ☑ Site Plan Approval
☐ Special Permit ☐ Earth Excavation

Applicant's Information:

Name Crossroads Site Management, LLC

Mailing Address
1050 Buckley Hwy
Union, CT 06076

Telephone
Work 860-684-3060
Home 860-684-7747

Owner's Information:

Name Donald E Stavens Rosalie M. Stavens

Mailing Address
101 Burbank Road
Ellington, Connecticut

Telephone
Work
Home 875-8937

Property Description:

Street Address 101 Burbank Road, Ellington, CT
Assessor's Parcel Number 148-017-0000
Zone: Present RA Proposed
Is the parcel within 500 feet of any municipal boundary? ☐ Yes ☑ No

Description of Request:

Site Approval And Zoning Permit To Construct Telecommunications Tower And Related Equipment Buildings

Please Note: Zoning Board of Appeals variance (V9915) approval granted October 4, 1999 listed under "David Smith" the engineer.

Adjoining Property Owners: Please indicate on an attached list the names of property owners within 500 feet of the parcel which is the subject of this application, their mailing addresses (including zip code), and location. This information may be provided by a registered land surveyor, professional engineer, or attorney. The applicant shall be responsible for notifying all property owners within this area by US Postal Service Certificate of Mailing. Evidence of the mailing of the notification shall be delivered to the Planning Department no later than the Wednesday prior to the scheduled public hearing. The Planning Department will provide the applicant with a cop of the legal notice to be enclosed with the mailing.

Statement of Accuracy and Permission: I hereby certify that all information submitted with this application is true and accurate to the best of my knowledge. The applicant understands that this application is to be considered complete only when all information and documents required by the Commission have been submitted. The applicant grants permission for the members of the Planning and Zoning Commission and their designated agents to inspect the property which is the subject of this application.

October 4, 1999
Date

Donald E Stavens Rosalie M. Stavens
Signature of Petitioner CSM, LLC.
(Must be owner or holder of an option to purchase)

Section 7.3 Communication Tower

A. The applicant will be required to take reasonable steps to mitigate any adverse visual impact from all new communication tower facilities. Steps shall include but are not limited to: landscaping, fencing, painting or similar measures as appropriate to camouflage the communication tower.

B. A communication tower must comply with the setback requirements of the zone in which it is located or be set back from the property lines a distance equal to the height of the tower, whichever is greater.

C. Towers shall not exceed 190 feet in height above the ground.

D. To discourage unauthorized trespassing and provide for the public safety, the base of any ground-mounted tower shall be secured by fence enclosure to a height of 6 feet above the ground.

E. No lighting of any communication tower will be permitted, with the exception of ground lighting for maintenance purposes, except as required by the Federal Communications Commission, Federal Aviation Administration, or the Connecticut Siting Council.

F. No advertising or signs shall be permitted on any communication tower.

G. To avoid unnecessary proliferation of communication towers, new towers will not be approved unless there is a need demonstrated such as all available space on existing or approved towers covering the same geographic area has been utilized or that there is an area within Ellington or immediately adjacent to Ellington which is not served by existing facilities; i.e. a hole exists in a propagation mapped area.

H. To protect the public health from the unknown effects of electromagnetic fields, all communication transmitters much comply with FCC emissions regulations.

I. Communication towers shall provide space for municipal emergency service transmission antennas as required by the town.

J. The facility owner at their expense shall remove a communication tower facility not in use for 12 consecutive months. This removal shall occur within 20 days of the end of such a 12 month period. The commission may require a bond or other security to the Town of Ellington valid for the life of the tower to guarantee removal.

K. All utilities installed in conjunction with any communication tower site shall be installed underground unless otherwise approved by the commission.

Section 7.4 Composting Facility

A. A complete site development plan as required under Section 8.2 of these Regulations shall be submitted for any proposed composting facility. In addition, this site development plan shall show the following items.

1. The location of all wetlands, watercourses, and wells within 1,000 feet of the lot where the composting facility is located. Wetlands may be plotted using data obtained from USDA Soil Conservation Service soil surveys.
2. Existing and proposed topographic contours on the project site shall be shown on separate sheets at intervals of 2 feet or less, unless otherwise directed by the Commission.

November 6, 2000

Sandy M. Carter
Verizon Wireless
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492

RE: **TS-VER-048-001013** - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 101 Burbank Road, Ellington, Connecticut.

Dear Ms. Carter:

At a public meeting held November 2, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated October 12, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Honorable Michael P. Stupinski, First Selectman, Town of Ellington
Wayne Kemp, Crossroads Site Management LLC

Exhibit B

Property Card


Search
Selection
Themes
Markup
Abutters
1.38 AC
105
148-010-0000
1.38 AC
103
ACCESS EASEMENT
148-012-0000
3.08 AC
99
148-013-0000
0.69 AC
97
BURBANK RD
148-014-0000
1.38 AC
95
148-015-0000
1.38 AC
93
148-006-0000
14.01 AC
148-016-0000
2.06 AC
91
94
148-004-0000
101
148-017-0000
6.2 AC
41.935295,-72.385822
Keyboard shortcuts
Map data ©2021
100 ft
Terms of Use

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.

Information on the Property Records for the Municipality of Ellington was last updated on 12/7/2021.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Permits

Parcel Information

Location:	101 BURBANK RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00396900	Map Block Lot:	148 017 0000	Acres:	6.20
490 Acres:	0.00	Zone:	RAR	Volume / Page:	0484/0677
Developers Map / Lot:	3600SF LEASE PCL; 21	Census:	5352		

Value Information

	Appraised Value	Assessed Value
Land	333,260	233,280
Buildings	372,200	260,540
Detached Outbuildings	26,390	18,480
Total	731,850	512,300

Owner's Information

Owner's Data
ASUMADU BERNARD + JANE K 101 BURBANK RD ELLINGTON, CT 06029

Exhibit C

Construction Drawings

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).

ELLINGTON/RT 30

101 BURBANK ROAD
ELLINGTON, CT 06029
TOLLAND COUNTY

SITE NO.: CT11292A

SITE TYPE: 189'± SELF-SUPPORT TOWER

RF DESIGN GUIDELINE: 67D5D998E ODE+6160

SCOPE OF WORK

REMOVE:
- 3 ANTENNAS
- 6 TMAs
- 3 RADIOS
- 1 RBS6201 ODE
- 1 BATTERY CABINET
- ALL COAX CABLES

INSTALL:
- 6 ANTENNAS
- 3 RADIOS
- 1 B160 BATTERY CABINET
- 1 6160 CABINET
- 2 HYBRID CABLES

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

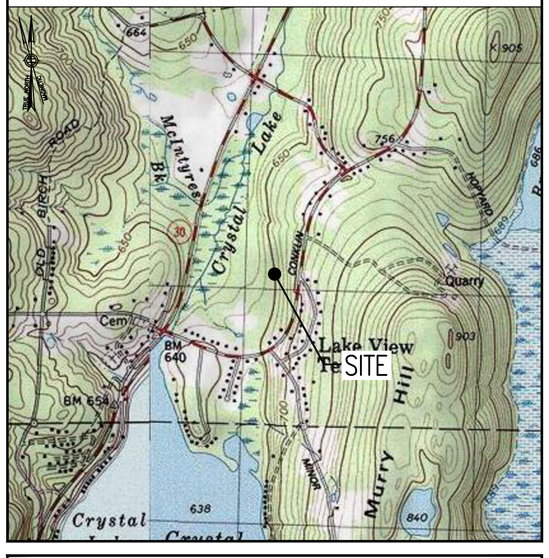
GENERAL NOTES

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

MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 58 TOWARD I-90 WEST. TAKE EXIT 78 TOWARD I-84. TAKE EXIT 73 FOR CT-190 WEST. AT THE TRAFFIC CIRCLE, TAKE THE FIRST EXIT ONTO MAIN STREET. SLIGHT LEFT ONTO PARK STREET. SLIGHT RIGHT ONTO PARK STREET. CONTINUE ONTO CT-140 WEST. CONTINUE ONTO SANDY BEACH ROAD. CONTINUE ONTO CRYSTAL LAKE ROAD. TURN RIGHT ONTO BURBANK ROAD. SITE IS LOCATED ON THE RIGHT SIDE.

SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
A-4	ANTENNA & FEEDLINE CHARTS	1
E-1	ELECTRIC & GROUNDING DETAILS	1

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:	CT11292A
SITE NAME:	TORRINGTON/RT 202/RT 183
SBA SITE NUMBER:	CT10008-A
SBA SITE NAME:	ELLINGTON
SITE ADDRESS:	101 BURBANK ROAD ELLINGTON CT, 06029
PROPERTY OWNER:	ASUMADU BERNARD & JANE K. 101 BURBANK ROAD ELLINGTON, CT 06029
TOWER OWNER:	SBA TOWERS V, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	TOLLAND
ZONING DISTRICT:	RAR (RURAL AGRICULTURAL RESIDENTIAL)
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	189'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
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.41.936257° N.41°56'10.53" LONGITUDE W.72.385383° W.72°23'07.38"

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
2/28/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/28/22	ISSUED FOR CONSTRUCTION	JRV
0	02/17/22	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.420

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

2/28/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/28/22	ISSUED FOR CONSTRUCTION	JRV
0	02/17/22	ISSUED FOR REVIEW	JRV

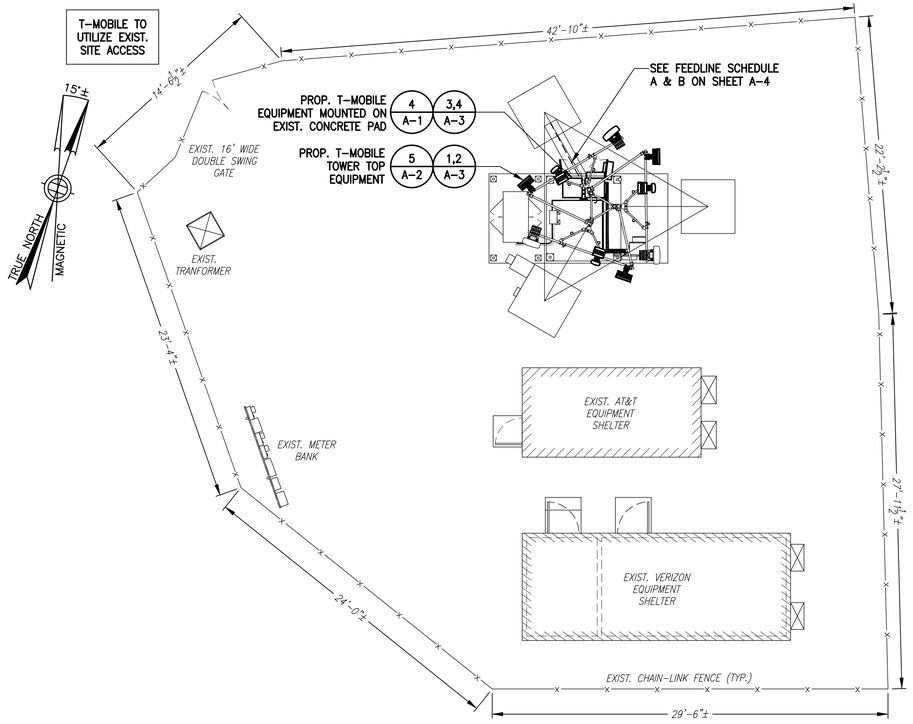
SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

1815.420



COMPOUND PLAN

1 A-1

SCALE: 1" = 8'-0"

0 8'-0" 16'-0 24'-0"

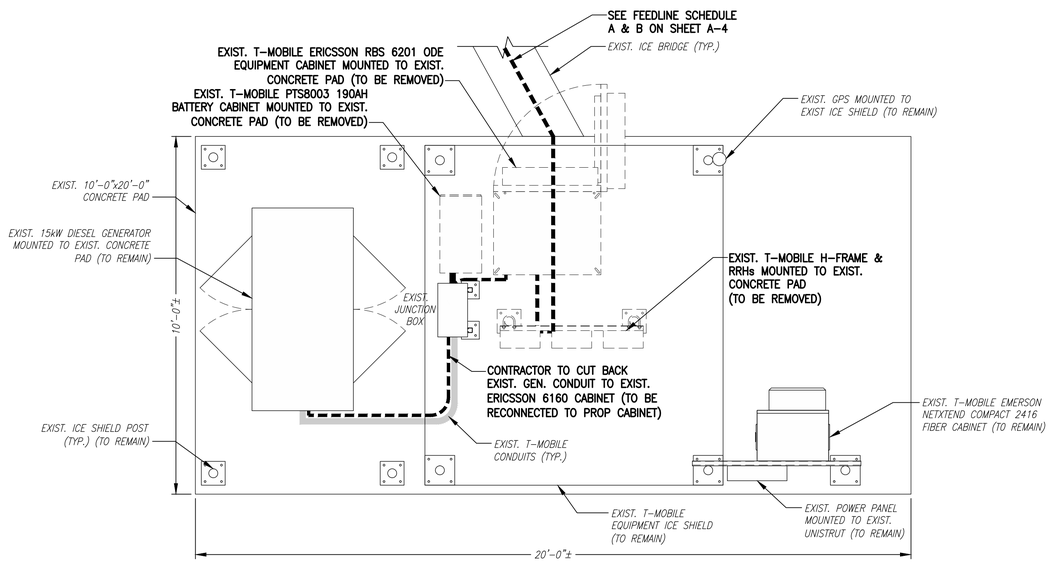
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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

EXISTING EQUIPMENT PHOTO

2 A-1

SCALE: N.T.S.



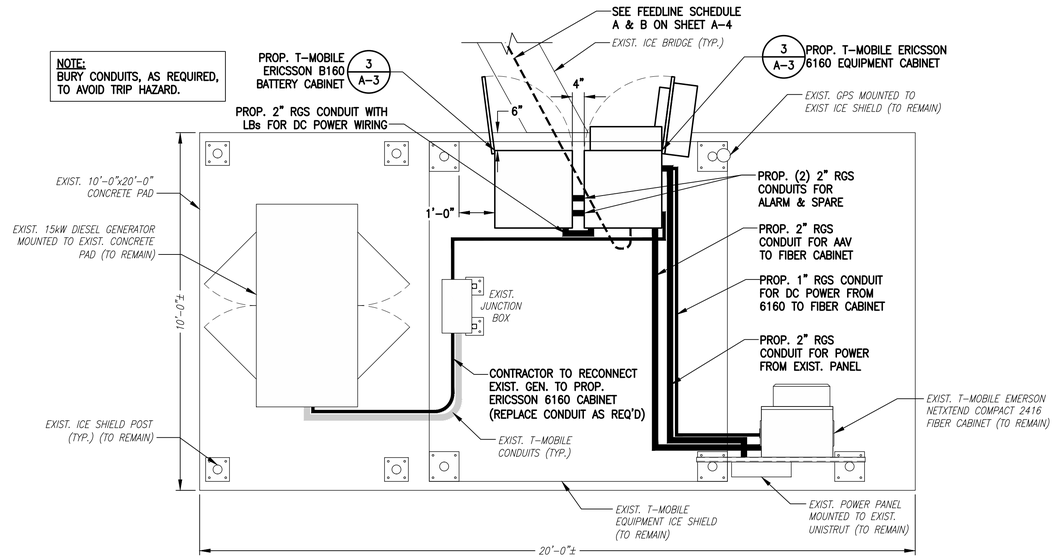
EXISTING EQUIPMENT PLAN

3 A-1

SCALE: 1/2" = 1'-0"

0 2'-0" 4'-0" 6'-0"

NOTE:
BURY CONDUITS, AS REQUIRED, TO AVOID TRIP HAZARD.



PROPOSED EQUIPMENT PLAN

4 A-1

SCALE: 1/2" = 1'-0"

0 2'-0" 4'-0" 6'-0"

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SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
COMPOUND & EQUIPMENT PLANS

SHEET NUMBER
A-1

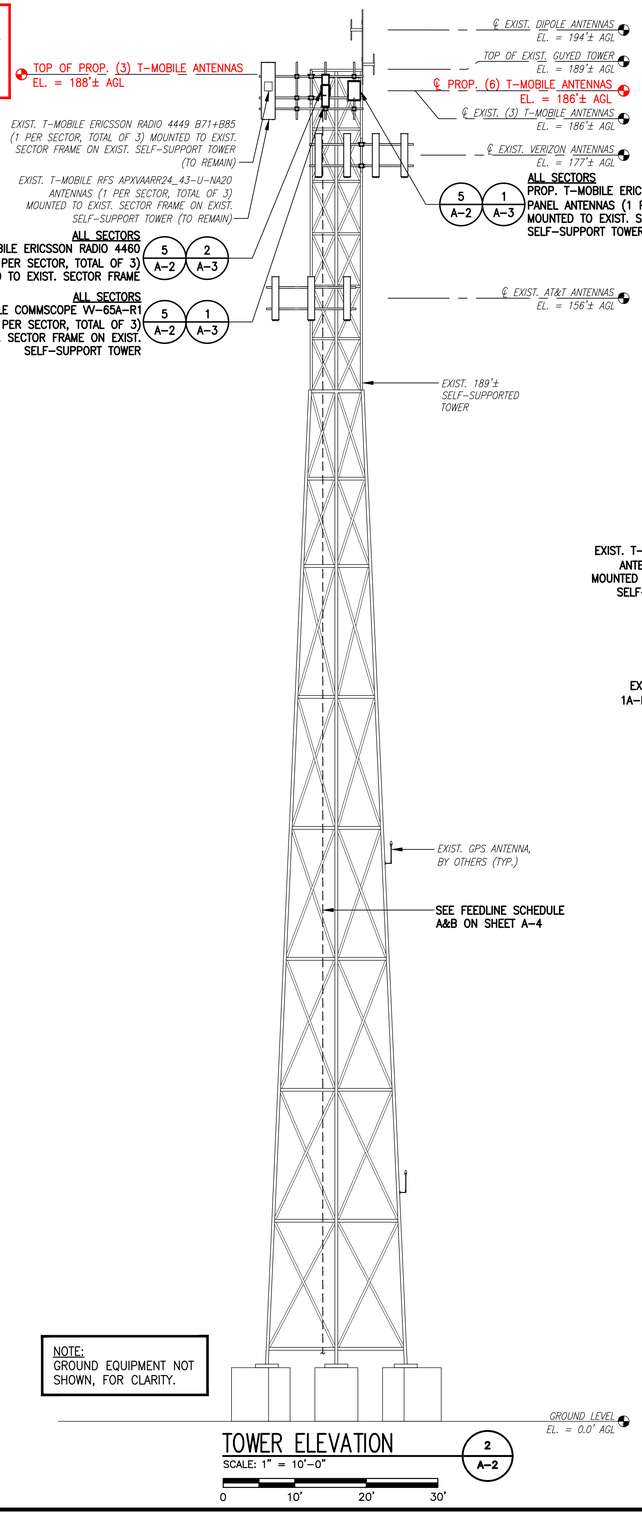
1815.420

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).

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.

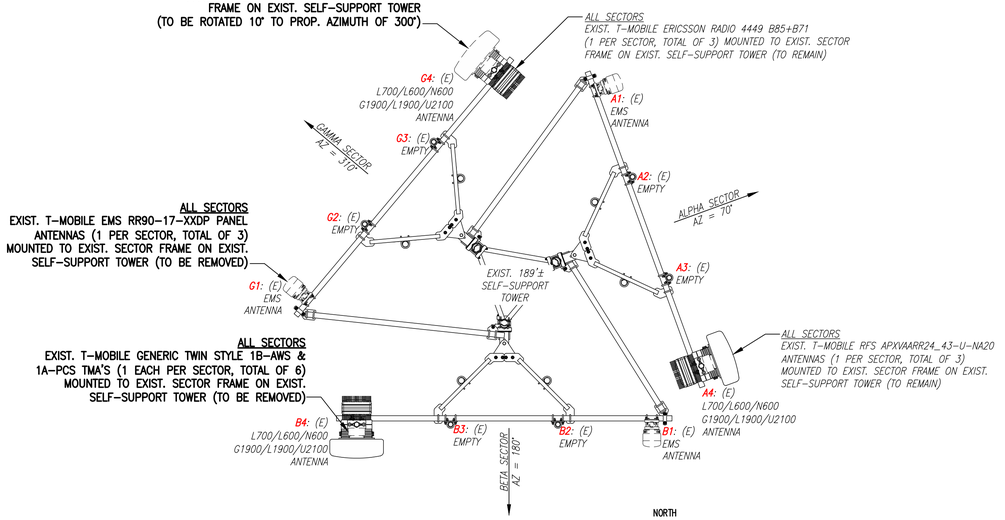
EXISTING TOWER PHOTO (1 / A-2)
SCALE: N.T.S.



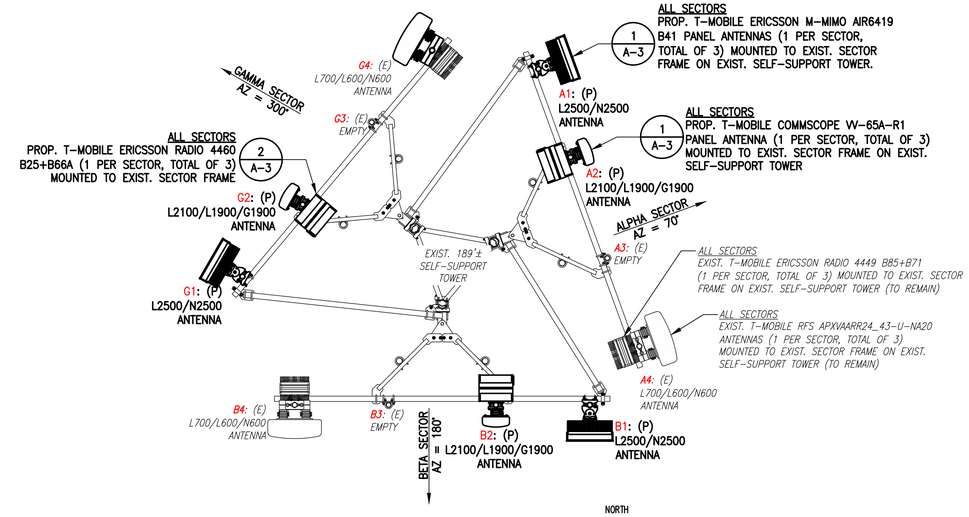
NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION (2 / A-2)
SCALE: 1" = 10'-0"
0 10' 20' 30'

EXISTING ANTENNA PHOTO (3 / A-2)
SCALE: N.T.S.



EXISTING ANTENNA PLAN (4 / A-2)
SCALE: 3/8" = 1'-0"
NORTH



PROPOSED ANTENNA PLAN (5 / A-2)
SCALE: 3/8" = 1'-0"
NORTH

ANTENNA STATUS LEGEND:

EMPTY – EMPTY PIPE

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

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

T-MOBILE NORTHEAST LLC
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SBA COMMUNICATIONS CORP.
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(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED PROFESSIONAL CIVIL ENGINEER
2/28/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/28/22	ISSUED FOR CONSTRUCTION	JRV
0	02/17/22	ISSUED FOR REVIEW	JRV

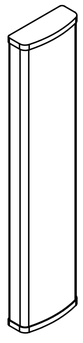
SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLANS

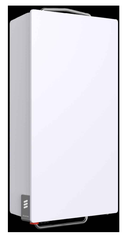
SHEET NUMBER
A-2

1815.420



COMMSCOPE VV-65A-R1 ANTENNA

DIMENSIONS: 54.7"H x 12.1"W x 4.6"D
WEIGHT: 23.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



ERICSSON M-MIMO AIR6419 B41 ANTENNA

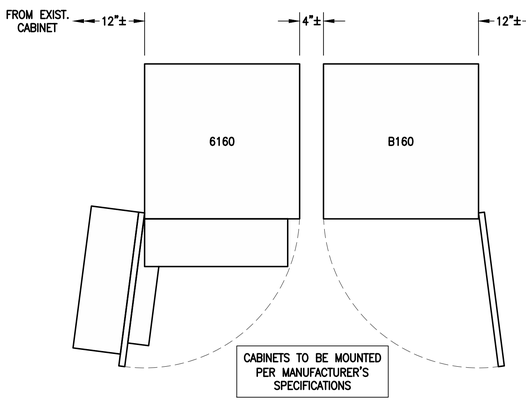
DIMENSIONS: 36.3"H x 20.9"W x 9.0"D
WEIGHT: 83.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

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

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
SCALE: N.T.S.
2 / A-3



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
SCALE: N.T.S.
3 / A-3

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER

3/29/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/28/22	ISSUED FOR CONSTRUCTION	JRV
0	02/17/22	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.420

FINAL ANTENNA CONFIGURATION

SECTOR		ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1	ERICSSON M-MIMO AIR6419 B41	186'± AGL	70°	0°	2°	L2500/N2500	–	(1) 1-5/8" (6x12) HCS FIBER CABLE (2) 2" (6x24) HCS FIBER CABLES
	A2	COMMSCOPE VV-65A-R1	186'± AGL	70°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	
	A3	EMPTY PIPE	–	–	–	–	–	–	
	A4	RFS APXVAARR24_43-U-NA20	186'± AGL	70°	0°	2°	L700/L600/N600	RADIO 4449 B71+B85	
BETA	B1	ERICSSON M-MIMO AIR6419 B41	186'± AGL	180°	0°	2°	L2500/N2500	–	
	B2	COMMSCOPE VV-65A-R1	186'± AGL	180°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	
	B3	EMPTY PIPE	–	–	–	–	–	–	
	B4	RFS APXVAARR24_43-U-NA20	186'± AGL	180°	0°	2°	L700/L600/N600	RADIO 4449 B71+B85	
GAMMA	G1	ERICSSON M-MIMO AIR6419 B41	186'± AGL	300°	0°	2°	L2500/N2500	–	
	G2	COMMSCOPE VV-65A-R1	186'± AGL	300°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	
	G3	EMPTY PIPE	–	–	–	–	–	–	
	G4	RFS APXVAARR24_43-U-NA20	186'± AGL	300°	0°	2°	L700/L600/N600	RADIO 4449 B71+B85	

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

NOTE: RFDS REV4 – 01/18/22

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) ½" COAX CABLE FOR GPS ANTENNA (1) 1-5/8" (6x12) HCS FIBER CABLE	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED: ALL 1-5/8" COAX CABLES	
B	PROPOSED: (2) 2" (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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0	02/17/22	ISSUED FOR REVIEW	JRV

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SITE ADDRESS:
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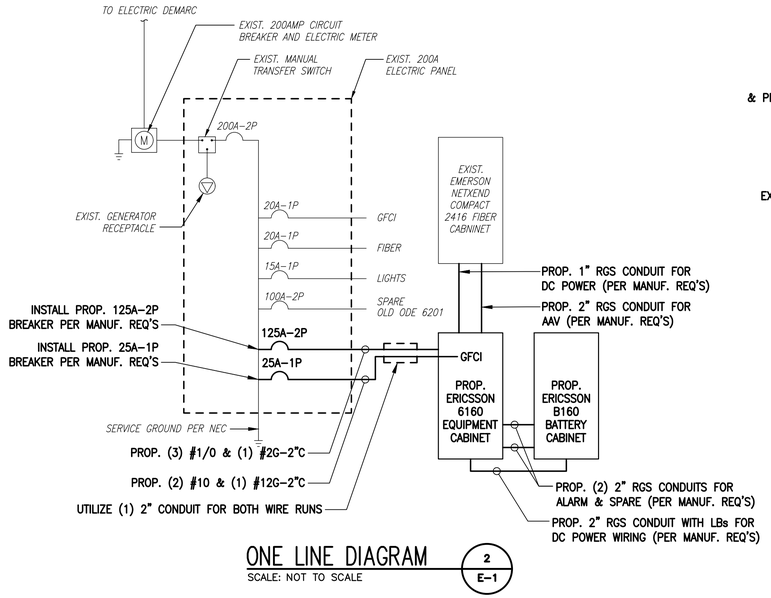
ELLINGTON, CT 06029

SHEET TITLE
ANTENNA & FEEDLINE CHARTS

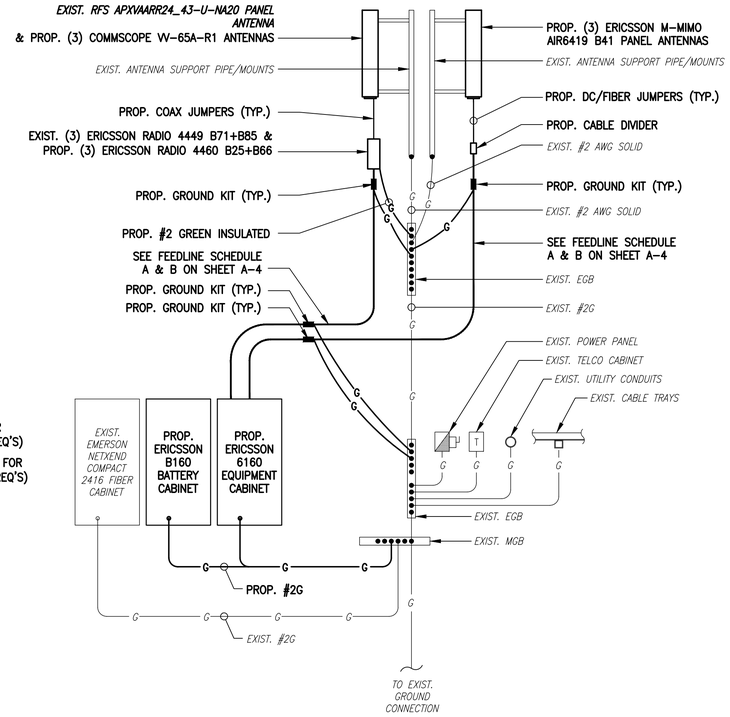
SHEET NUMBER
A-4

1815.420

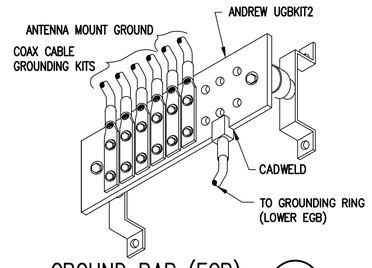
EXISTING POWER PANEL PHOTOS (1 / E-1)
SCALE: NOT TO SCALE



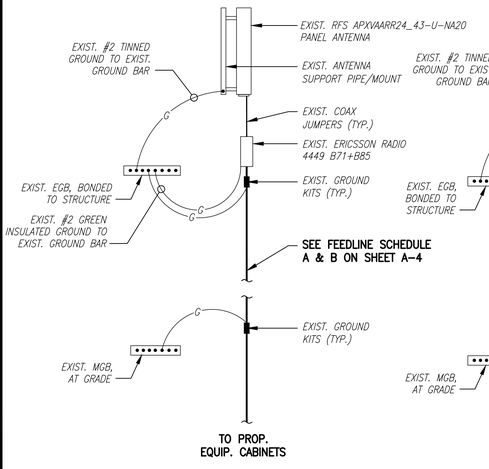
ONE LINE DIAGRAM (2 / E-1)
SCALE: NOT TO SCALE



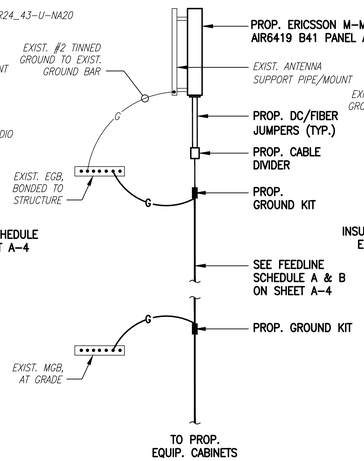
GROUNDING RISER DIAGRAM (3 / E-1)
SCALE: NOT TO SCALE



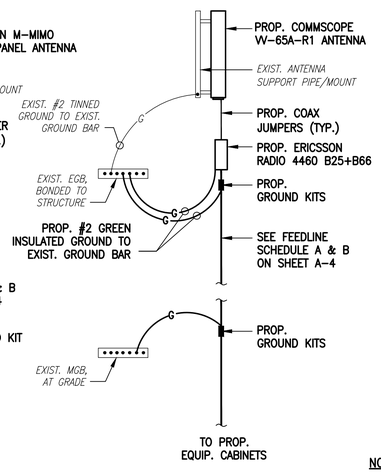
GROUND BAR (EGB) (5 / E-1)
SCALE: NOT TO SCALE



L700/L600/N600 ANTENNA

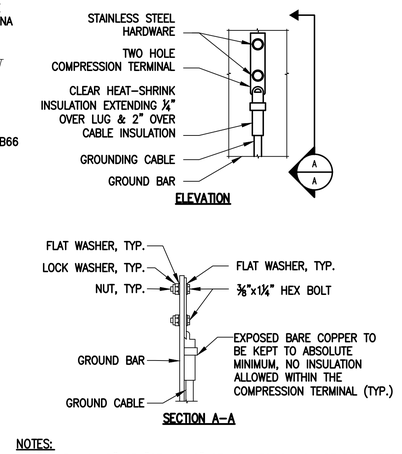


L2500/N2500 ANTENNA



L2100/L1900/G1900 ANTENNA

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



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 (6 / E-1)
SCALE: NOT TO SCALE

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 THININSULATION.
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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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
2/28/2022

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/28/22	ISSUED FOR CONSTRUCTION	JRV
0	02/17/22	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11292A

SITE ADDRESS:
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.420

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 180 ft Rohn Self Supporting Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT10008-A
Customer Site Name: Ellington
Carrier Name: T-Mobile (App#: 188237-1)
Carrier Site ID / Name: CT11292A / Ellington
Site Location: 101 Burbank Road
Ellington, Connecticut
Tolland County
Latitude: 41.939764
Longitude: -72.387069

Analysis Result:

Max Structural Usage: 75.4% [Pass]
Max Foundation Usage: 31.9% [Pass]
Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Tawfeeq Alajaj

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

Structural Analysis Report

Existing 180 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10008-A

Customer Site Name: Ellington

Carrier Name: T-Mobile (App#: 188237-1)

Carrier Site ID / Name: CT11292A / Ellington

Site Location: 101 Burbank Road

Ellington, Connecticut

Tolland County

Latitude: 41.939764

Longitude: -72.387069

Analysis Result:

Max Structural Usage: 75.4% [Pass]

Max Foundation Usage: 31.9% [Pass]

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

Report Prepared By : Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Rohn 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	Rohn File Number: 42895AE, dated: 05/30/2000.
Foundation Drawing	Rohn File Number: 42895AE, dated: 05/30/2000.
Geotechnical Report	Applied Earth Technologies (Site Address 101 Burbank Rd. Ellington ,CT) Report on Subsurface Investigation, dated February 14, 2000.
Modification Drawings	N/A
Mount Analysis	Verizon MA by Maser Consulting Connecticut Project #: 21777298A. Dated 09/03/2021. T-Mobile MA by TES# 125958. Dated 03/14/2022.

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:	B
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	189.0	1	Decibel DB222-A Dipole	Direct Mount	(1) 1 1/4"	NE Site Management
2	186.0	3	EMS RR90-17-02DP - Panels	(3) Sector Frames w/modifications	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
3		3	RFS APXVAARR24_43-U-NA20 - Panels			
4		3	Ericsson KRY 112 144/1 - TMAs			
5		3	Ericsson KRY 112 489/2 -TMAs			
6		3	Ericsson Radio 4449 B71+B12 -RRUs			
7		3	Kathrein 782 11056 - Bias Ts			
8	177.0	6	CommScope - NHH-65B-R2B - Panel	(3) Sector Frames with (3) CommScope BSAMNT-SBS-1-2	(12) 1 5/8" (1) 1 5/8" Hybrid	Verizon
9		3	Samsung - MT6407-77A - Panel			
10		3	Antel - BXA-70080-4CF - Panel			
11		3	Samsung RF4439d-25A_AWS-PCS -			
12		3	Samsung RF4440d-13A_700-850MHz -			
13		1	Raycap RVZDC-6627-PF-48 - OVP			
14	157.0	3	Kathrein 800-10121	(3) Sector Frames	(12) 1 5/8" (1) 3" Flex Conduit (1) 3/8" RET	AT&T
15		4	Powerwave P65-17-XLH-RR			
16		2	KMW AM-X-CD-16-65-005-RET			
17		3	Powerwave 7770.00			
18		6	Powerwave TT19-08BP111-001			
19		6	CCI DTMABP7819VG12A			
20		6	Kathrein 860-10025			
21		6	Ericsson RRUS-11			
22		1	DC6-48-60-18-8F			
23	147.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/HRK (1) Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
24		3	Fujitsu TA08025-B605 -			
25		3	Fujitsu TA08025-B604 -			
26		1	Raycap RDIDC-9181-PF-48-OVP - OVP			
27	78.0	1	Andrew GPS	Pipe Mount	(1) 1/2"	Verizon
28	32.0	1	GPS	Pipe Mount	(1) 1/2"	AT&T

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
2	186.0	3	RFS - APXVAARR24_43-U-NA20 - Panel	(3) Sector Frames w/modifications	(9) 1 5/8" (1) 1 5/8" Fiber (2) 1.9" Fiber	T-Mobile
3		3	Ericsson - Air 6419 B41 - Panel			
4		3	Commscope - VV-65A-R1 - Panel			
5		3	Ericsson KRY 112 489/2			
6		3	Ericsson KRY 112 144/1			
7		3	Ericsson 4449 B71 + B85			
8		3	Ericsson 4460 B25 + B66			
9		3	Kathrein 782 11056 Bias			

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:	**75.4%**	**66.4%**	**5.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Original Design Reactions	369.0	332.7	58.9
Analysis Reactions	330.6	288.6	32.8
Factored Reactions*	498.2	449.1	79.5
% of Design Reactions	66.4%	64.3%	41.2%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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 0.3355 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: CT10008-A-SBA

Site Name:	Ellington			**Code:**	TIA-222-G	3/17/2022
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	180.00 (ft)	**Base Width:**	21.12	**Basic Ice WS:**	50.00	
Base Elev:	9.00 (ft)	**Top Width:**	4.58	**Operational WS:**	60.00	Page: 1

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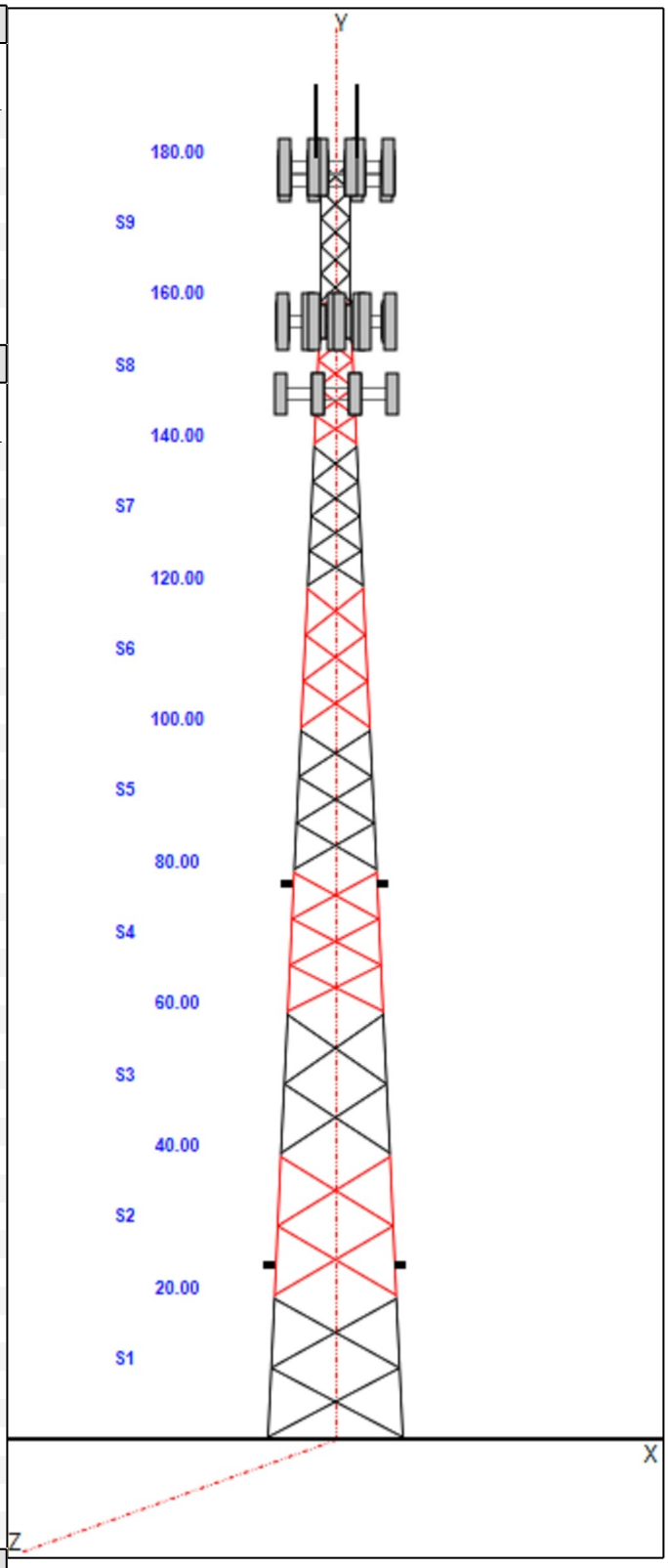
Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 8" DIA PIPE	SAE 4X4X0.25	
3	PSP ROHN 8 EHS	SAE 3.5X3.5X0.25	
4	PX 6" DIA PIPE	SAE 3X3X0.25	
5	PSP ROHN 6 EHS	SAE 2.5X2.5X0.25	
6	PX 5" DIA PIPE	SAE 2.5X2.5X0.25	
7	PX 4" DIA PIPE	SAE 2X2X0.25	
8	PX 3" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25
9	PST 2-1/2" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.00	185.29	1	Decibel DB222-A Dipole
179.00	179.00	3	Light Sector Frame-Flat
179.00	179.00	1	(3) Stabilizer Kit (12' FW) + Suport Rail
179.00	179.00	1	(3) HR w/ Double V-Brace Kits
179.00	179.00	3	APXVAARR24_43-U-NA20
179.00	179.00	3	Air 6419 B41
179.00	179.00	3	VV-65A-R1
179.00	179.00	3	Ericsson KRY 112 489/2
179.00	179.00	3	Ericsson KRY 112 144/1
179.00	179.00	3	Ericsson 4449 B71 + B85
179.00	179.00	3	Ericsson 4460 B25 + B66
179.00	179.00	3	Kathrein 782 11056 Bias Ts
177.00	177.00	3	Light Sector Frame-Flat
177.00	177.00	6	NHH-65B-R2B
177.00	177.00	3	MT6407-77A
177.00	177.00	3	BXA-70080-4CF
177.00	177.00	3	RF4439d-25A_AWS-PCS
177.00	177.00	3	RF4440d-13A_700-850MHz
177.00	177.00	1	Raycap RVZDC-6627-PF-48
177.00	177.00	1	BSAMNT-SBS-1-2
157.00	157.00	3	Light Sector Frame-Flat
157.00	157.00	3	Kathrein 800-10121
157.00	157.00	4	Powerwave P65-17-XLH-RR
157.00	157.00	2	KMW AM-X-CD-16-65-005-RET
157.00	157.00	3	Powerwave 7770.00
157.00	157.00	6	Powerwave TT19-08BP111-001
157.00	157.00	6	CCI DTMABP7819VG12A
157.00	157.00	6	Kathrein 860-10025
157.00	157.00	6	Ericsson RRUS-11
157.00	157.00	1	DC6-48-60-18-8F
147.00	147.00	3	JMA Wireless MX08FRO665-21
147.00	147.00	1	(3) MTC3975083
147.00	147.00	3	Fujitsu TA08025-B605
147.00	147.00	3	Fujitsu TA08025-B604
147.00	147.00	1	Raycap RDIDC-9181-PF-48-OVP
78.00	78.00	1	Andrew GPS
78.00	78.00	1	Pipe Mount
24.50	24.50	1	GPS
24.50	24.50	1	Pipe Mount

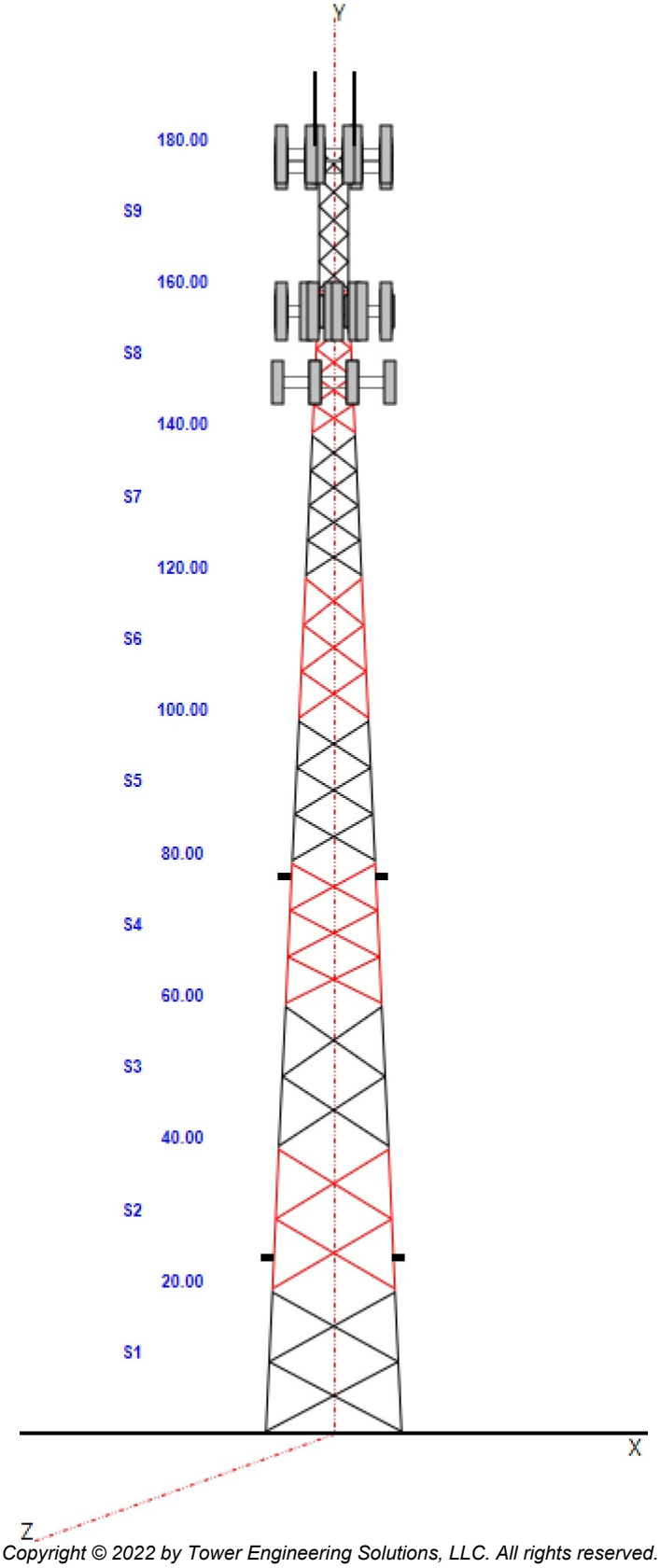
Linear Appurtenances



Elev From (ft)	Elev To (ft)	Qty	Description
0.00	180.00	1	1 1/4" Coax
0.00	180.00	1	Safety Cable
0.00	178.50	9	1 5/8" Coax
0.00	178.50	1	1 5/8" Fiber
0.00	178.50	2	1.9" Fiber
0.00	178.50	1	W/G Ladder
0.00	177.00	12	1 5/8" Coax
0.00	177.00	1	1 5/8" Hybrid
0.00	177.00	1	W/G Ladder
0.00	157.00	12	1 5/8" Coax
0.00	157.00	1	3" Flex Conduit
0.00	157.00	1	3/8" RET
0.00	157.00	1	W/G Ladder
0.00	147.00	1	1.6" Hybrid
0.00	78.00	1	1/2" Coax
0.00	24.50	1	1/2" Coax

Base Reactions

Leg			Overturning	
Max Uplift:	-288.58 (kips	Moment:	5716.80	(ft-kips)
Max Down:	330.65 (kips	Total Down:	54.27	(kips)
Max Shear:	32.76 (kips	Total Shear:	52.65	(kips)



Structure: CT10008-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Ellington
Height: 180.00 (ft)

3/17/2022

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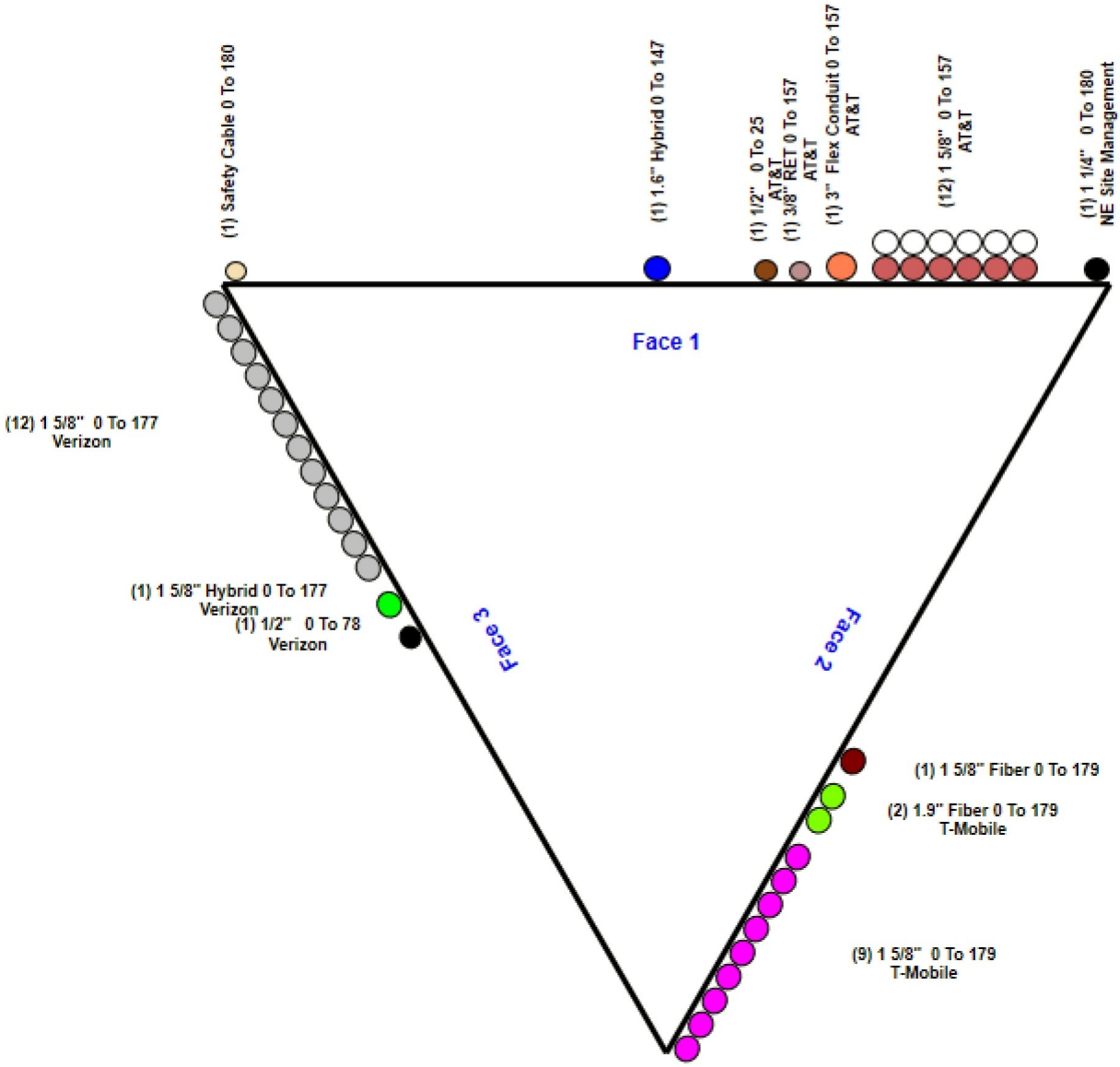

Loading Summary

Structure:	CT10008-A-SBA		**Code:**	TIA-222-G	3/17/2022
Site Name:	Ellington		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	9.000 (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)
180.00	Decibel DB222-A Dipole	1	16.00	2.250	110.06	10.476	127.000	0.000	0.000	1.00	1.00	5.292
179.00	Light Sector Frame-Flat	3	500.00	17.500	1447.38	36.400	0.000	0.000	0.000	0.75	0.75	0.000
179.00	(3) Stabilizer Kit (12' FW) + Suport	1	180.00	8.000	486.95	19.369	0.000	0.000	0.000	1.00	1.00	0.000
179.00	(3) HR w/ Double V-Brace Kits	1	650.00	15.500	1758.43	37.527	0.000	0.000	0.000	1.00	1.00	0.000
179.00	APXVAARR24_43-U-NA20	3	128.00	20.240	738.41	22.853	95.900	24.000	8.700	1.00	0.72	0.000
179.00	Air 6419 B41	3	83.30	6.320	233.79	7.763	36.300	20.900	9.000	1.00	0.76	0.000
179.00	VV-65A-R1	3	23.81	5.920	143.02	6.873	54.720	12.080	4.640	1.00	0.76	0.000
179.00	Ericsson KRY 112 489/2	3	15.40	0.640	39.34	1.467	11.000	6.000	4.000	1.00	0.83	0.000
179.00	Ericsson KRY 112 144/1	3	11.00	0.410	25.63	1.055	6.900	6.100	2.700	1.00	0.70	0.000
179.00	Ericsson 4449 B71 + B85	3	73.20	1.970	151.56	2.743	17.900	13.200	10.600	1.00	0.67	0.000
179.00	Ericsson 4460 B25 + B66	3	109.00	2.850	206.58	3.765	21.800	15.700	7.500	1.00	0.67	0.000
179.00	Kathrein 782 11056 Bias Ts	3	2.60	0.280	11.46	0.825	5.700	5.000	1.500	1.00	0.65	0.000
177.00	Light Sector Frame-Flat	3	500.00	17.500	1447.38	36.400	0.000	0.000	0.000	0.75	0.75	0.000
177.00	NHH-65B-R2B	6	43.70	8.080	336.29	9.877	72.000	11.900	7.100	0.80	0.83	0.000
177.00	MT6407-77A	3	79.40	4.690	254.05	5.997	35.100	16.100	5.500	0.80	0.70	0.000
177.00	BXA-70080-4CF	3	12.00	3.560	131.92	6.066	47.500	8.000	6.100	0.80	0.88	0.000
177.00	RF4439d-25A_AWS-PCS	3	84.40	1.880	153.96	2.628	15.000	15.000	10.000	0.80	0.67	0.000
177.00	RF4440d-13A_700-850MHz	3	70.30	1.880	136.30	2.628	15.000	15.000	8.100	0.80	0.67	0.000
177.00	Raycap RVZDC-6627-PF-48	1	32.00	4.060	186.61	5.175	29.500	16.500	12.600	0.80	1.00	0.000
177.00	BSAMNT-SBS-1-2	1	25.35	0.000	49.37	0.000	0.000	0.000	0.000	0.75	1.00	0.000
157.00	Light Sector Frame-Flat	3	500.00	17.500	1436.22	36.178	0.000	0.000	0.000	0.75	0.75	0.000
157.00	Kathrein 800-10121	3	44.10	5.150	198.14	7.975	54.500	10.300	5.900	0.80	0.79	0.000
157.00	Powerwave P65-17-XLH-RR	4	59.00	11.440	349.49	15.778	96.000	12.000	6.000	0.80	0.75	0.000
157.00	KMW AM-X-CD-16-65-005-RET	2	41.80	8.020	259.46	11.767	72.000	11.800	5.900	0.80	0.75	0.000
157.00	Powerwave 7770.00	3	35.00	5.500	230.59	6.961	55.000	11.000	5.000	0.80	0.73	0.000
157.00	Powerwave TT19-08BP111-001	6	16.00	0.640	43.14	1.435	9.900	6.700	5.400	0.80	0.67	0.000
157.00	CCI DTMABP7819VG12A	6	19.20	1.140	53.43	2.172	10.600	11.000	3.800	0.80	0.67	0.000
157.00	Kathrein 860-10025	6	1.10	0.160	8.30	0.626	6.900	2.400	2.000	0.80	0.67	0.000
157.00	Ericsson RRUS-11	6	51.00	2.520	147.93	3.369	17.000	17.800	7.200	0.80	0.67	0.000
157.00	DC6-48-60-18-8F	1	31.80	0.920	114.71	1.507	24.000	11.000	11.000	0.80	0.67	0.000
147.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	454.60	14.454	72.000	20.000	8.000	0.80	0.74	0.000
147.00	(3) MTC3975083	1	1242.0	28.050	2869.90	75.320	0.000	0.000	0.000	0.75	1.00	0.000
147.00	Fujitsu TA08025-B605	3	75.00	1.960	145.15	2.712	15.800	15.000	9.100	0.80	0.67	0.000
147.00	Fujitsu TA08025-B604	3	63.90	1.960	131.80	2.712	15.800	15.000	7.900	0.80	0.67	0.000
147.00	Raycap RDIDC-9181-PF-48-OVP	1	21.90	2.010	93.31	2.772	16.600	14.600	8.500	1.00	1.00	0.000
78.00	Andrew GPS	1	10.00	0.160	16.93	0.640	8.000	2.000	2.000	1.00	1.00	0.000
78.00	Pipe Mount	1	350.00	1.500	716.65	2.809	0.000	0.000	0.000	1.00	1.00	0.000
24.50	GPS	1	10.00	0.160	16.46	0.608	8.000	2.000	2.000	1.00	1.00	0.000
24.50	Pipe Mount	1	350.00	1.500	691.66	2.720	0.000	0.000	0.000	1.00	1.00	0.000
	Totals:	**108**	**11,449.38**		**35,714.34**						**Number of Appurtenances :**	**39**

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
0.00	180.00	1 1/4" Coax	1	1.55	0.66	100.00	1	Individual NR		N	1.00	1.00	
0.00	180.00	Safety Cable	1	0.38	0.27	100.00	1	Individual NR		N	1.00	1.00	
0.00	178.50	1 5/8" Coax	9	1.98	1.04	100.00	2	Individual IR		N	1.00	1.00	
0.00	178.50	1 5/8" Fiber	1	2.00	1.10	100.00	2	Individual NR		N	1.00	1.00	
0.00	178.50	1.9" Fiber	2	1.90	1.10	100.00	2	Individual NR		N	1.00	1.00	
0.00	178.50	W/G Ladder	1	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	177.00	1 5/8" Coax	12	1.98	1.04	100.00	3	Individual IR		N	1.00	1.00	
0.00	177.00	1 5/8" Hybrid	1	2.00	1.10	100.00	3	Individual NR		N	1.00	1.00	
0.00	177.00	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	157.00	1 5/8" Coax	12	1.98	1.04	50.00	1	Block		N	0.50	1.00	
0.00	157.00	3" Flex Conduit	1	3.02	1.78	100.00	1	Individual NR		N	1.00	1.00	
0.00	157.00	3/8" RET	1	0.38	0.06	100.00	1	Individual NR		N	1.00	1.00	
0.00	157.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	147.00	1.6" Hybrid	1	1.60	1.82	100.00	1	Individual NR		N	1.00	1.00	
0.00	78.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	24.50	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

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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	14.33	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.49	129.97	0.00	6,733.5	0.0	2275.62	2001.55	4,277.18
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.89	129.13	0.00	6,559.4	0.0	2275.46	2146.47	4,421.93
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	128.88	0.00	5,427.4	0.0	2172.48	2411.82	4,584.30
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.79	128.78	0.00	5,161.3	0.0	2327.77	2619.60	4,947.37
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	26.62	127.80	0.00	4,316.0	0.0	2012.13	2774.81	4,786.94
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	23.46	127.80	0.00	4,007.2	0.0	1855.13	2924.59	4,779.72
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.77	127.80	0.00	3,386.3	0.0	1622.06	3057.32	4,679.38
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	121.12	0.00	2,947.0	0.0	1499.63	2998.14	4,497.77
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	82.03	0.00	1,996.4	0.0	1326.96	2011.68	3,338.64
														40,534.6	**0.0**			**40,313.22**

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	14.33	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.72	129.97	0.00	6,733.5	0.0	1959.57	2001.55	3,961.13
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.61	129.13	0.00	6,559.4	0.0	1966.33	2146.47	4,112.80
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	128.88	0.00	5,427.4	0.0	1896.22	2411.82	4,308.05
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.35	128.78	0.00	5,161.3	0.0	2012.37	2619.60	4,631.97
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	23.38	127.80	0.00	4,316.0	0.0	1767.18	2774.81	4,541.99
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	20.65	127.80	0.00	4,007.2	0.0	1632.82	2924.59	4,557.41
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.45	127.80	0.00	3,386.3	0.0	1431.56	3057.32	4,488.88
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	121.12	0.00	2,947.0	0.0	1309.47	2998.14	4,307.61
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	82.03	0.00	1,996.4	0.0	1153.85	2011.68	3,165.53
														40,534.6	**0.0**			**38,075.35**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

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
Dead Load Factor: 1.20
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	14.33	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.16	129.97	0.00	6,733.5	0.0	2038.59	2001.55	4,040.14
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.93	129.13	0.00	6,559.4	0.0	2043.61	2146.47	4,190.08
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	128.88	0.00	5,427.4	0.0	1965.28	2411.82	4,377.11
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.46	128.78	0.00	5,161.3	0.0	2091.22	2619.60	4,710.82
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	24.19	127.80	0.00	4,316.0	0.0	1828.42	2774.81	4,603.23
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	21.35	127.80	0.00	4,007.2	0.0	1688.39	2924.59	4,612.98
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.03	127.80	0.00	3,386.3	0.0	1479.18	3057.32	4,536.50
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	121.12	0.00	2,947.0	0.0	1357.01	2998.14	4,355.15
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	82.03	0.00	1,996.4	0.0	1197.13	2011.68	3,208.81
														40,534.6	**0.0**			**38,634.82**

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

Wind Load Factor: 1.60
Dead Load Factor: 0.90
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	14.33	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.49	129.97	0.00	5,050.2	0.0	2275.62	2001.55	4,277.18
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.89	129.13	0.00	4,919.6	0.0	2275.46	2146.47	4,421.93
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	128.88	0.00	4,070.5	0.0	2172.48	2411.82	4,584.30
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.79	128.78	0.00	3,871.0	0.0	2327.77	2619.60	4,947.37
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	26.62	127.80	0.00	3,237.0	0.0	2012.13	2774.81	4,786.94
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	23.46	127.80	0.00	3,005.4	0.0	1855.13	2924.59	4,779.72
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.77	127.80	0.00	2,539.7	0.0	1622.06	3057.32	4,679.38
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	121.12	0.00	2,210.3	0.0	1499.63	2998.14	4,497.77
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	82.03	0.00	1,497.3	0.0	1326.96	2011.68	3,338.64
														30,400.9	**0.0**			**40,313.22**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

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	14.33	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.72	129.97	0.00	5,050.2	0.0	1959.57	2001.55	3,961.13
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.61	129.13	0.00	4,919.6	0.0	1966.33	2146.47	4,112.80
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	128.88	0.00	4,070.5	0.0	1896.22	2411.82	4,308.05
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.35	128.78	0.00	3,871.0	0.0	2012.37	2619.60	4,631.97
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	23.38	127.80	0.00	3,237.0	0.0	1767.18	2774.81	4,541.99
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	20.65	127.80	0.00	3,005.4	0.0	1632.82	2924.59	4,557.41
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.45	127.80	0.00	2,539.7	0.0	1431.56	3057.32	4,488.88
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	121.12	0.00	2,210.3	0.0	1309.47	2998.14	4,307.61
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	82.03	0.00	1,497.3	0.0	1153.85	2011.68	3,165.53
														30,400.9	**0.0**			**38,075.35**

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	14.33	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.16	129.97	0.00	5,050.2	0.0	2038.59	2001.55	4,040.14
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.93	129.13	0.00	4,919.6	0.0	2043.61	2146.47	4,190.08
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	128.88	0.00	4,070.5	0.0	1965.28	2411.82	4,377.11
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.46	128.78	0.00	3,871.0	0.0	2091.22	2619.60	4,710.82
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	24.19	127.80	0.00	3,237.0	0.0	1828.42	2774.81	4,603.23
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	21.35	127.80	0.00	3,005.4	0.0	1688.39	2924.59	4,612.98
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.03	127.80	0.00	2,539.7	0.0	1479.18	3057.32	4,536.50
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	121.12	0.00	2,210.3	0.0	1357.01	2998.14	4,355.15
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	82.03	0.00	1,497.3	0.0	1197.13	2011.68	3,208.81
														30,400.9	**0.0**			**38,634.82**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	

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	3.81	28.808	69.61	40.81	0.23	2.49	1.00	1.00	1.89	69.25	199.48	69.39	17,699.	10966.3	558.01	817.69	1,375.70
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	1.00	1.00	2.03	67.54	201.47	69.31	18,060.	11500.9	572.93	881.66	1,454.60
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	1.00	1.00	2.12	61.93	202.94	70.65	16,753.	11326.4	582.52	997.75	1,580.26
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	1.00	1.00	2.18	64.53	204.09	72.02	16,894.	11733.0	624.53	1071.56	1,696.09
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	1.00	1.00	2.23	57.04	204.11	66.97	15,342.	11026.6	578.98	1117.51	1,696.49
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	1.00	1.00	2.27	51.30	204.94	68.21	14,692.	10685.6	533.82	1173.25	1,707.07
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	1.00	1.00	2.31	49.19	205.65	69.28	13,804.	10418.0	502.05	1175.01	1,677.06
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	1.00	1.00	2.34	50.95	197.26	62.80	12,980.	10033.5	493.76	921.08	1,377.51
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	1.00	1.00	2.37	47.83	137.98	44.41	9,712.0	7715.6	467.77	591.41	1,059.19
														135,940.4	**95405.8**			**13,623.95**

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	3.81	28.808	69.61	40.81	0.23	2.49	0.80	1.00	1.89	63.49	199.48	69.39	17,699.	10966.3	511.58	817.69	1,329.27
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	0.80	1.00	2.03	62.25	201.47	69.31	18,060.	11500.9	528.11	881.66	1,409.78
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	0.80	1.00	2.12	57.72	202.94	70.65	16,753.	11326.4	542.95	997.75	1,540.70
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	0.80	1.00	2.18	60.09	204.09	72.02	16,894.	11733.0	581.54	1071.56	1,653.09
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	0.80	1.00	2.23	53.80	204.11	66.97	15,342.	11026.6	546.08	1117.51	1,663.59
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	0.80	1.00	2.27	48.49	204.94	68.21	14,692.	10685.6	504.57	1173.25	1,677.81
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	0.80	1.00	2.31	46.87	205.65	69.28	13,804.	10418.0	478.35	1175.01	1,653.36
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	0.80	1.00	2.34	48.63	197.26	62.80	12,980.	10033.5	471.23	921.08	1,392.31
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	0.80	1.00	2.37	45.76	137.98	44.41	9,712.0	7715.6	447.53	591.41	1,038.94
														135,940.4	**95405.8**			**13,358.85**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

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	3.81	28.808	69.61	40.81	0.23	2.49	0.85	1.00	1.89	64.93	199.48	69.39	17,699.	10966.3	523.19	817.69	1,340.88
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	0.85	1.00	2.03	63.57	201.47	69.31	18,060.	11500.9	539.32	881.66	1,420.98
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	0.85	1.00	2.12	58.77	202.94	70.65	16,753.	11326.4	552.84	997.75	1,550.59
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	0.85	1.00	2.18	61.20	204.09	72.02	16,894.	11733.0	592.29	1071.56	1,663.84
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	0.85	1.00	2.23	54.61	204.11	66.97	15,342.	11026.6	554.31	1117.51	1,671.81
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	0.85	1.00	2.27	49.19	204.94	68.21	14,692.	10685.6	511.88	1173.25	1,685.13
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	0.85	1.00	2.31	47.45	205.65	69.28	13,804.	10418.0	484.27	1175.01	1,659.28
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	0.85	1.00	2.34	49.21	197.26	62.80	12,980.	10033.5	476.86	921.08	1,397.94
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	0.85	1.00	2.37	46.28	137.98	44.41	9,712.0	7715.6	452.59	591.41	1,044.00
														135,940.4	**95405.8**			**13,434.46**

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	5.48	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	44.56	129.97	0.00	5,611.3	0.0	584.51	478.64	1,063.14
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	42.01	129.13	0.00	5,466.2	0.0	587.80	513.29	1,101.09
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	36.33	128.88	0.00	4,522.8	0.0	570.66	576.75	1,147.41
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	34.78	128.78	0.00	4,301.1	0.0	590.36	626.43	1,216.79
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	28.68	127.80	0.00	3,596.7	0.0	518.41	663.55	1,181.96
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	24.62	127.80	0.00	3,339.3	0.0	465.60	699.36	1,164.96
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	20.16	127.80	0.00	2,821.9	0.0	395.63	731.11	1,126.74
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	121.12	0.00	2,455.8	0.0	358.61	716.95	1,075.56
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	82.03	0.00	1,663.6	0.0	317.32	481.06	798.38
														33,778.8	**0.0**			**9,876.04**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

IES 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	5.48	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	38.80	129.97	0.00	5,611.3	0.0	508.93	478.64	987.57
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	36.73	129.13	0.00	5,466.2	0.0	513.88	513.29	1,027.17
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	32.13	128.88	0.00	4,522.8	0.0	504.60	576.75	1,081.35
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	30.33	128.78	0.00	4,301.1	0.0	514.94	626.43	1,141.37
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	25.44	127.80	0.00	3,596.7	0.0	459.83	663.55	1,123.38
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	21.81	127.80	0.00	3,339.3	0.0	412.44	699.36	1,111.80
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.84	127.80	0.00	2,821.9	0.0	350.08	731.11	1,081.18
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	121.12	0.00	2,455.8	0.0	313.14	716.95	1,030.09
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	82.03	0.00	1,663.6	0.0	275.92	481.06	756.98
														33,778.8	**0.0**			**9,340.89**

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	5.48	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	40.24	129.97	0.00	5,611.3	0.0	527.82	478.64	1,006.46
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	38.05	129.13	0.00	5,466.2	0.0	532.36	513.29	1,045.65
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	33.18	128.88	0.00	4,522.8	0.0	521.12	576.75	1,097.86
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	31.44	128.78	0.00	4,301.1	0.0	533.79	626.43	1,160.23
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	26.25	127.80	0.00	3,596.7	0.0	474.48	663.55	1,138.03
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	22.51	127.80	0.00	3,339.3	0.0	425.73	699.36	1,125.09
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.42	127.80	0.00	2,821.9	0.0	361.46	731.11	1,092.57
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	121.12	0.00	2,455.8	0.0	324.51	716.95	1,041.46
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	82.03	0.00	1,663.6	0.0	286.27	481.06	767.33
														33,778.8	**0.0**			**9,474.68**

Force/Stress Compression Summary

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

TES 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	PX - 8" DIA PIPE	-323.60	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.73	50.00	508.62	63.6	Member X
2	40	PX - 8" DIA PIPE	-293.80	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.72	50.00	508.65	57.8	Member X
3	60	PSP - ROHN 8 EHS	-262.12	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.15	50.00	388.77	67.4	Member X
4	80	PX - 6" DIA PIPE	-233.54	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.68	50.00	344.41	67.8	Member X
5	100	PSP - ROHN 6 EHS	-200.01	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.12	50.00	276.03	72.5	Member X
6	120	PX - 5" DIA PIPE	-166.71	1.2D + 1.6W Normal Wind	6.51	100	100	100	42.47	50.00	240.98	69.2	Member X
7	140	PX - 4" DIA PIPE	-131.88	1.2D + 1.6W Normal Wind	4.88	100	100	100	39.60	50.00	176.96	74.5	Member X
8	160	PX - 3" DIA PIPE	-90.53	1.2D + 1.6W Normal Wind	3.91	100	100	100	41.12	50.00	120.09	75.4	Member X
9	180	PST - 2-1/2" DIA PIPE	-41.60	1.2D + 1.6W Normal Wind	3.90	100	100	100	49.42	50.00	64.14	64.9	Member X

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	303.57	0.00	0.0			1.2D + 1.6W Normal Wind	331.55	0.00			
2	40	1.2D + 1.6W Normal Wind	270.58	0.00	0.0			1.2D + 1.6W Normal Wind	303.57	0.00		1 A325	8
3	60	1.2D + 1.6W Normal Wind	240.18	0.00	0.0			1.2D + 1.6W Normal Wind	270.58	0.00		1 A325	8
4	80	1.2D + 1.6W Normal Wind	206.37	0.00	0.0			1.2D + 1.6W Normal Wind	240.18	0.00		1 A325	8
5	100	1.2D + 1.6W Normal Wind	173.43	0.00	0.0			1.2D + 1.6W Normal Wind	206.37	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	137.45	0.00	0.0			1.2D + 1.6W Normal Wind	173.43	0.00		1 A325	6
7	140	1.2D + 1.6W Normal Wind	95.81	0.00	0.0			1.2D + 1.6W Normal Wind	137.45	0.00		1 A325	4
8	160	1.2D + 1.6W Normal Wind	47.92	0.00	0.0			1.2D + 1.6W Normal Wind	95.81	0.00		7/8 A325	4
9	180	1.2D + 1.0Di + 1.0Wi 60° Wind	0.49	0.00	0.0			1.2D + 1.6W Normal Wind	47.92	0.00		3/4 A325	4

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										0.00	0	0				
8	160	SAE - 2X2X0.25	-0.55	0.9D + 1.6W Normal Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	5	Member Z
9	180	SAE - 2X2X0.25	-0.35	0.9D + 1.6W 60° Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	3	Member Z

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 - 4X4X0.25	-8.86	0.9D + 1.6W 90° Wind	21.87	49	49	49	161.75	50.00	16.75	1	1	17.89	16.0	55	Bolt Bear
2	40	SAE - 4X4X0.25	-9.09	0.9D + 1.6W 90° Wind	20.11	49	49	49	148.76	50.00	19.80	1	1	17.89	16.0	56	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	-7.66	0.9D + 1.6W 90° Wind	19.20	49	49	49	162.65	50.00	14.43	1	1	17.89	16.0	53	Member Z
4	80	SAE - 3X3X0.25	-7.10	1.2D + 1.6W 90° Wind	15.95	49	49	49	158.46	50.00	12.96	1	1	17.89	16.0	55	Member Z
5	100	SAE - 2.5X2.5X0.25	-6.24	1.2D + 1.6W 90° Wind	14.12	49	49	49	169.14	36.00	9.40	1	1	12.43	13.0	66	Member Z
6	120	SAE - 2.5X2.5X0.25	-6.28	1.2D + 1.6W 90° Wind	11.14	50	50	50	136.16	36.00	14.50	1	1	12.43	13.0	51	Bolt Shear
7	140	SAE - 2X2X0.25	-5.26	1.2D + 1.6W 90° Wind	9.72	50	50	50	149.11	36.00	9.55	1	1	12.43	13.0	55	Member Z
8	160	SAE - 2X2X0.25	-5.01	1.2D + 1.6W 90° Wind	7.50	50	50	50	116.31	36.00	14.94	1	1	12.43	13.0	40	Bolt Shear
9	180	SAE - 2X2X0.25	-4.85	1.2D + 1.6W 90° Wind	6.02	50	50	50	99.23	36.00	18.14	1	1	12.43	13.0	39	Bolt Shear

Force/Stress Compression Summary

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

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

Force/Stress Tension Summary

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	290.16	0.9D + 1.6W 60° Wind	50	574.20	50.5	Member
2	40	PX - 8" DIA PIPE	266.28	0.9D + 1.6W 60° Wind	50	574.20	46.4	Member
3	60	PSP - ROHN 8 EHS	238.90	0.9D + 1.6W 60° Wind	50	437.40	54.6	Member
4	80	PX - 6" DIA PIPE	212.97	0.9D + 1.6W 60° Wind	50	378.00	56.3	Member
5	100	PSP - ROHN 6 EHS	183.93	0.9D + 1.6W 60° Wind	50	302.09	60.9	Member
6	120	PX - 5" DIA PIPE	154.67	0.9D + 1.6W 60° Wind	50	274.95	56.3	Member
7	140	PX - 4" DIA PIPE	122.14	0.9D + 1.6W 60° Wind	50	198.45	61.5	Member
8	160	PX - 3" DIA PIPE	83.61	0.9D + 1.6W 60° Wind	50	135.90	61.5	Member
9	180	PST - 2-1/2" DIA PIPE	41.32	0.9D + 1.6W 60° Wind	50	76.68	53.9	Member

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	266.00	0.00	0.0			0.9D + 1.6W 60° Wind	290.1	0.00			
2	40	0.9D + 1.6W 60° Wind	238.44	0.00	0.0			0.9D + 1.6W 60° Wind	266.0	424.08	62.7	1 A325	8
3	60	0.9D + 1.6W 60° Wind	212.70	0.00	0.0			0.9D + 1.6W 60° Wind	238.4	424.08	56.2	1 A325	8
4	80	0.9D + 1.6W 60° Wind	183.66	0.00	0.0			0.9D + 1.6W 60° Wind	212.7	424.08	50.2	1 A325	8
5	100	0.9D + 1.6W 60° Wind	154.49	0.00	0.0			0.9D + 1.6W 60° Wind	183.6	318.06	57.7	1 A325	6
6	120	0.9D + 1.6W 60° Wind	121.97	0.00	0.0			0.9D + 1.6W 60° Wind	154.4	318.06	48.6	1 A325	6
7	140	0.9D + 1.6W 60° Wind	83.49	0.00	0.0			0.9D + 1.6W 60° Wind	121.9	212.04	57.5	1 A325	4
8	160	0.9D + 1.6W 60° Wind	41.43	0.00	0.0			0.9D + 1.6W 60° Wind	83.49	166.24	50.2	7/8 A325	4
9	180		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	41.43	120.40	34.4	3/4 A325	4

HORIZONTAL MEMBERS

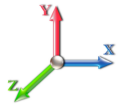
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			50	0.00	0	0					
2	40	-			50	0.00	0	0					
3	60	-			50	0.00	0	0					
4	80	-			50	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	-			36	0.00	0	0					
8	160	SAE - 2X2X0.25	0.53	1.2D + 1.6W 60° Wind	36	30.46	1	1	12.43	13.05	9.99	5.3	Blck Shear
9	180	SAE - 2X2X0.25	0.47	1.2D + 1.6W Normal Wi	36	30.46	1	1	12.43	13.05	9.99	4.7	Blck Shear

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 - 4X4X0.25	8.64	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	53.7	Bolt Bear
2	40	SAE - 4X4X0.25	8.93	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	55.5	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	7.50	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	16.09	18.89	46.6	Bolt Bear
4	80	SAE - 3X3X0.25	7.12	1.2D + 1.6W 90° Wind	50	44.65	1	1	17.89	16.09	15.84	44.9	Blck Shear
5	100	SAE - 2.5X2.5X0.25	6.23	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	50.1	Bolt Shear
6	120	SAE - 2.5X2.5X0.25	6.05	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	48.7	Bolt Shear
7	140	SAE - 2X2X0.25	5.72	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	57.2	Blck Shear
8	160	SAE - 2X2X0.25	4.96	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	49.6	Blck Shear
9	180	SAE - 2X2X0.25	4.67	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	46.7	Blck Shear

Support Forces Summary

Structure:	CT10008-A-SBA	**Code:**	TIA-222-G	3/17/2022	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	330.65	-32.76	
	1a	11.29	-138.19	-9.94	
	1b	-11.29	-138.19	-9.94	
1.2D + 1.6W 60° Wind	1	-2.71	169.41	-16.33	
	1a	-15.50	169.38	5.81	
	1b	-25.44	-284.52	-14.69	
1.2D + 1.6W 90° Wind	1	-3.22	18.10	-1.13	
	1a	-24.79	282.29	12.49	
	1b	-22.96	-246.12	-11.36	
0.9D + 1.6W Normal Wind	1	0.00	325.65	-32.46	
	1a	11.54	-142.47	-10.10	
	1b	-11.54	-142.47	-10.10	
0.9D + 1.6W 60° Wind	1	-2.72	164.66	-16.03	
	1a	-15.24	164.62	5.66	
	1b	-25.69	-288.58	-14.83	
0.9D + 1.6W 90° Wind	1	-3.23	13.57	-0.83	
	1a	-24.53	277.36	12.33	
	1b	-23.21	-250.23	-11.50	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	156.14	-10.65	
	1a	3.59	6.68	-3.19	
	1b	-3.59	6.68	-3.19	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.93	105.84	-5.47	
	1a	-5.20	105.81	1.93	
	1b	-8.38	-42.14	-4.84	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.09	56.50	-0.42	
	1a	-8.23	142.19	4.13	
	1b	-7.51	-29.19	-3.71	
1.0D + 1.0W Normal Wind	1	0.00	90.43	-8.68	
	1a	2.12	-22.60	-2.07	
	1b	-2.12	-22.60	-2.07	
1.0D + 1.0W 60° Wind	1	-0.68	51.53	-4.68	
	1a	-4.39	51.52	1.75	
	1b	-5.56	-57.82	-3.21	
1.0D + 1.0W 90° Wind	1	-0.80	15.08	-0.98	
	1a	-6.65	78.79	3.38	
	1b	-4.96	-48.64	-2.40	

Max Reactions

Leg			Overturning		
Max Uplift:	-288.58	(kips)	Moment:	5716.80	(ft-kips)
Max Down:	330.65	(kips)	Total Down:	54.27	(kips)
Max Shear:	32.76	(kips)	Total Shear:	52.65	(kips)

Analysis Summary

Structure:	CT10008-A-SBA		**Code:**	TIA-222-G	3/17/2022
Site Name:	Ellington		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	9.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 17

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Max Reactions

Leg			Overturning		
Max Uplift:	-288.58	(kips)	Moment:	5716.80	(ft-kips)
Max Down:	330.65	(kips)	Total Down:	54.27	(kips)
Max Shear:	32.76	(kips)	Total Shear:	52.65	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	10
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00
Detail Type:	A		

Interaction Ratio: 0.54

Max Usages

Max Leg: 75.4% (1.2D + 1.6W Normal Wind - Sect 8)
Max Diag: 66.4% (1.2D + 1.6W 90° Wind - Sect 5)
Max Horiz: 5.3% (1.2D + 1.6W 60° Wind - Sect 8)

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	20.25	0.0214	0.0056	0.1171
	79.75	0.2613	0.0200	0.4209
	148.05	1.0644	0.0465	1.0268
	155.85	1.2106	0.0487	1.1052
	175.85	1.6453	0.0638	1.3382
	179.75	1.7356	0.0661	1.3429
	180.00	1.7415	0.0662	1.3431
0.9D + 1.6W 97 mph Wind at 90° From Face	20.25	0.0213	-0.0062	0.1162
	79.75	0.2629	-0.0219	0.4197
	148.05	1.0704	-0.0469	1.0317
	155.85	1.2173	-0.0478	1.1173
	175.85	1.6541	-0.0521	1.3528
	179.75	1.7448	-0.0521	1.3234
	180.00	1.7506	-0.0521	1.3194
0.9D + 1.6W 97 mph Wind at Normal To Face	20.25	0.0223	0.0055	0.1217
	79.75	0.2691	0.0193	0.4336
	148.05	1.0905	0.0412	1.0483
	155.85	1.2398	-0.0422	1.1283
	175.85	1.6838	0.0457	1.3535
	179.75	1.7760	0.0449	1.4091
	180.00	1.7821	-0.0448	1.4183

1.0D + 1.0W 60 mph Wind at 60° From Face	20.25	0.0052	0.0013	0.0286
	79.75	0.0629	0.0045	0.1013
	148.05	0.2553	0.0094	0.2460
	155.85	0.2903	0.0095	0.2642
	175.85	0.3944	0.0105	0.3200
	179.75	0.4160	0.0106	0.3236
	180.00	0.4174	0.0106	0.3239
1.0D + 1.0W 60 mph Wind at 90° From Face	20.25	0.0052	-0.0015	0.0284
	79.75	0.0635	-0.0052	0.1010
	148.05	0.2572	-0.0108	0.2476
	155.85	0.2925	-0.0109	0.2679
	175.85	0.3971	-0.0115	0.3243
	179.75	0.4189	-0.0115	0.3192
	180.00	0.4202	-0.0115	0.3184
1.0D + 1.0W 60 mph Wind at Normal To Face	20.25	0.0055	0.0013	0.0293
	79.75	0.0650	0.0046	0.1043
	148.05	0.2623	0.0094	0.2517
	155.85	0.2981	0.0095	0.2709
	175.85	0.4044	0.0101	0.3248
	179.75	0.4265	0.0100	0.3355
	180.00	0.4279	0.0100	0.3375
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	20.25	0.0083	0.0018	0.0380
	79.75	0.0862	0.0064	0.1367
	148.05	0.3397	0.0139	0.3216
	155.85	0.3850	0.0145	0.3423
	175.85	0.5193	0.0181	0.4127
	179.75	0.5473	0.0185	0.4168
	180.00	0.5491	0.0185	0.4164
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	20.25	0.0081	-0.0020	0.0404
	79.75	0.0862	-0.0070	0.1354
	148.05	0.3403	-0.0144	0.3219
	155.85	0.3856	-0.0145	0.3460
	175.85	0.5202	-0.0157	0.4183
	179.75	0.5482	-0.0156	0.4013
	180.00	0.5499	-0.0156	0.3979
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	20.25	0.0075	-0.0018	0.0418
	79.75	0.0861	0.0061	0.1375
	148.05	0.3416	-0.0124	0.3229
	155.85	0.3872	0.0125	0.3468
	175.85	0.5227	-0.0133	0.4096
	179.75	0.5510	0.0132	0.4394
	180.00	0.5529	0.0132	0.4446
1.2D + 1.6W 97 mph Wind at 60° From Face	20.25	0.0214	0.0056	0.1172
	79.75	0.2618	0.0200	0.4218
	148.05	1.0670	0.0467	1.0301
	155.85	1.2137	0.0488	1.1089
	175.85	1.6500	0.0640	1.3431
	179.75	1.7406	0.0663	1.3488
	180.00	1.7465	0.0664	1.3491
1.2D + 1.6W 97 mph Wind at 90° From Face	20.25	0.0214	-0.0062	0.1162
	79.75	0.2634	-0.0219	0.4206
	148.05	1.0731	-0.0471	1.0351
	155.85	1.2204	-0.0479	1.1212
	175.85	1.6588	-0.0523	1.3578
	179.75	1.7498	-0.0522	1.3292
	180.00	1.7556	-0.0522	1.3252
1.2D + 1.6W 97 mph Wind at Normal To Face	20.25	0.0224	0.0055	0.1217
	79.75	0.2696	0.0193	0.4345
	148.05	1.0932	-0.0413	1.0518
	155.85	1.2430	-0.0424	1.1323
	175.85	1.6886	0.0458	1.3587
	179.75	1.7812	0.0450	1.4133
	180.00	1.7872	0.0449	1.4225

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 180-Ft Self Support Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10008-A-SBA

Customer Site Name: Ellington

Carrier Name: T-Mobile (App#: 188237-1)

Carrier Site ID / Name: CT11292A / Ellington

Site Location: 101 Burbank Road

Ellington, Connecticut

Tolland County

Latitude: 41.939764

Longitude: -72.387069

Analysis Result:

Max Structural Usage: 53.3 % [Pass]

Report Prepared By: Sandesh Khawas Bhujel

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Analysis Result:

Max Structural Usage: 53.3 % [Pass]

Report Prepared By: Sandesh Khawas Bhujel

Introduction

The purpose of this report is to summarize the analysis results on the (3) Modified Sector Frames at 186.00' 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 Full Metal Tower Services, dated 4/29/2019
Antenna Loading	SBA Application #: 188237, v1, dated 3/11/2022
Existing Modifications	TES Job #83029, dated 8/8/2019
Construction Drawings	CD by Chappell Engineering Associates, LLC, dated 2/28/2022

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 125 mph (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: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC
Exposure Category: B
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) Modified Sector Frames at 186.00' elevation

Final Antenna Configuration

3	RFS APXVAARR24_43-U-NA20
3	Ericsson Air 6419 B41
3	Commscope VV-65A-R1
3	Ericsson KRY 112 489/2
3	Ericsson KRY 112 144/1
3	Ericsson 4449 B71 + B85
3	Ericsson 4460 B25 + B66
3	Kathrein 782 11056

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 53.3%, which occurs in the support rail. 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.

Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Mount Mapping Information
4. 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: CT10008-A-SBA - Ellington

Sector: A

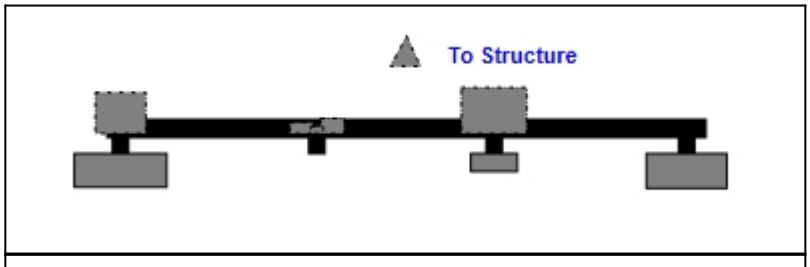
Structure Type: Self Support

Mount Elev: 186.00

3/14/2022

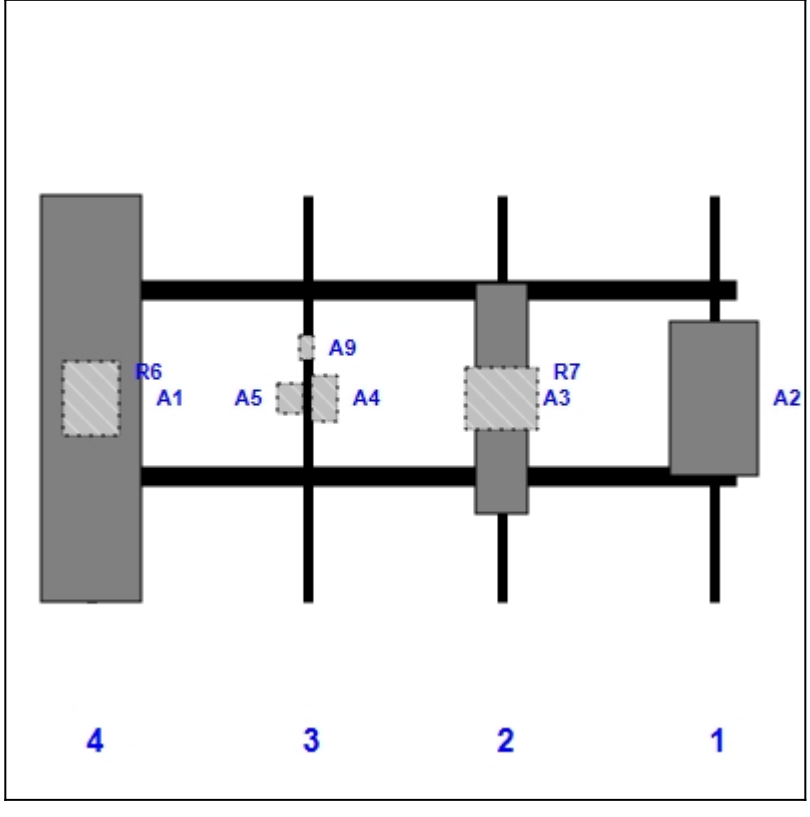
Tower Engineering Solutions

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
A2	Air 6419 B41	36.30	20.90	151.00	1	a	Front	48.00		Added	
A3	VV-65A-R1	54.72	12.08	101.00	2	a	Front	48.00		Added	
R7	4460 B25 + B66	15.10	17.00	101.00	2	a	Behind	48.00		Added	
A4	KRY 112 489/2	11.00	6.10	55.00	3	a	Behind	48.00	4.00	Retained	
A5	KRY 112 144/1	6.93	6.10	55.00	3	a	Behind	48.00	-4.00	Retained	
A9	782 11056	5.50	3.20	55.00	3	a	Behind	36.00		Retained	
A1	APXVAARR24_43-U-NA20	95.90	24.00	4.00	4	a	Front	48.00		Retained	
R6	4449 B71 + B85	17.90	13.10	4.00	4	a	Behind	48.00		Added	

Structure: CT10008-A-SBA - Ellington

Sector: B

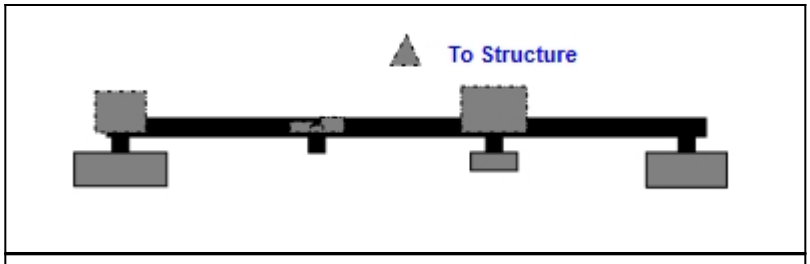
Structure Type: Self Support

Mount Elev: 186.00

3/14/2022

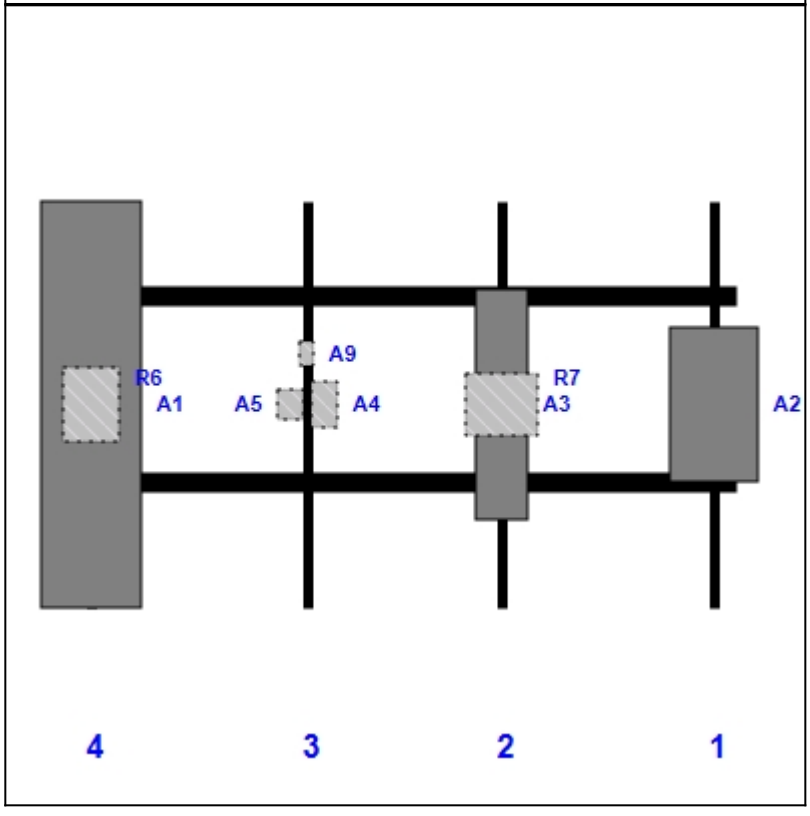
Tower Engineering Solutions

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
A2	Air 6419 B41	36.30	20.90	151.00	1	a	Front	48.00		Added	
A3	VV-65A-R1	54.72	12.08	101.00	2	a	Front	48.00		Added	
R7	4460 B25 + B66	15.10	17.00	101.00	2	a	Behind	48.00		Added	
A4	KRY 112 489/2	11.00	6.10	55.00	3	a	Behind	48.00	4.00	Retained	
A5	KRY 112 144/1	6.93	6.10	55.00	3	a	Behind	48.00	-4.00	Retained	
A9	782 11056	5.50	3.20	55.00	3	a	Behind	36.00		Retained	
A1	APXVAARR24_43-U-NA20	95.90	24.00	4.00	4	a	Front	48.00		Retained	
R6	4449 B71 + B85	17.90	13.10	4.00	4	a	Behind	48.00		Added	

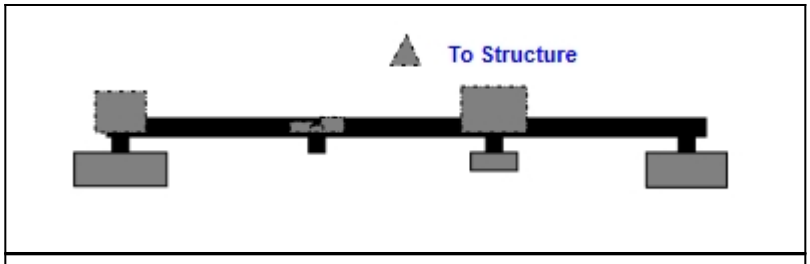
Structure: CT10008-A-SBA - Ellington

Sector: C
Structure Type: Self Support
Mount Elev: 186.00

3/14/2022

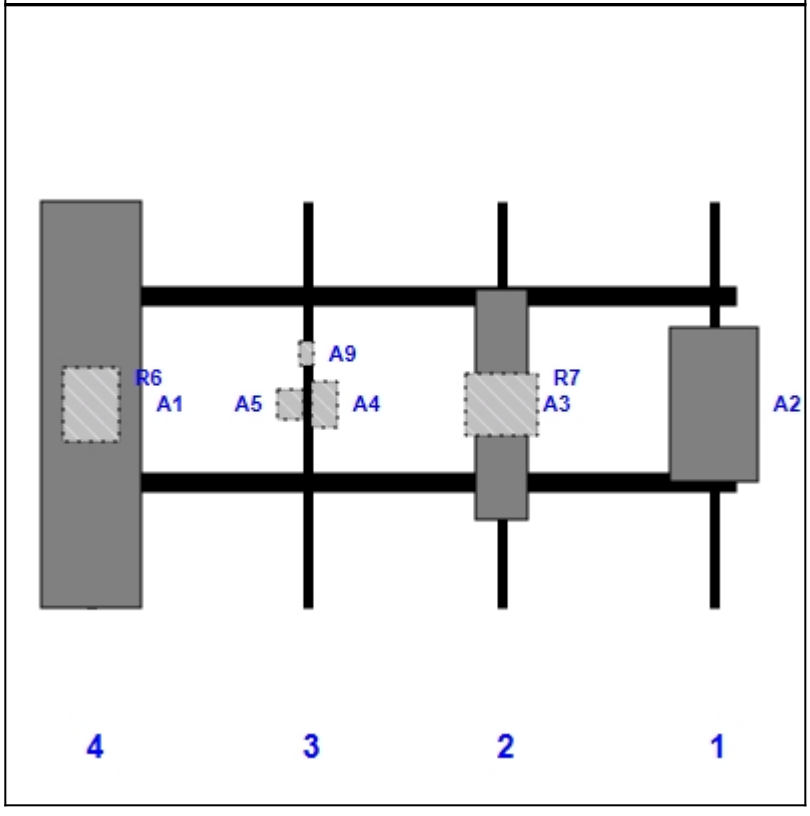
Tower Engineering Solutions

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
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A3	VV-65A-R1	54.72	12.08	101.00	2	a	Front	48.00		Added	
R7	4460 B25 + B66	15.10	17.00	101.00	2	a	Behind	48.00		Added	
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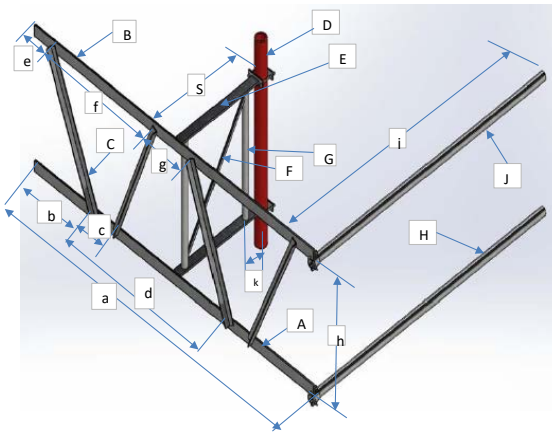
A5	KRY 112 144/1	6.93	6.10	55.00	3	a	Behind	48.00	-4.00	Retained	
A9	782 11056	5.50	3.20	55.00	3	a	Behind	36.00		Retained	
A1	APXVAARR24_43-U-NA20	95.90	24.00	4.00	4	a	Front	48.00		Retained	
R6	4449 B71 + B85	17.90	13.10	4.00	4	a	Behind	48.00		Added	

Antenna Mount Type "MT-C" Mapping Form (PATENT PENDING)

FCC # Not Posted

Tower Owner:	SBA Communications	**Mapping Date:**	4/29/19
Site Name:	Ellington	**Structure Type:**	3-Sided S.S. Tower
Site Number or ID:	CT10008-A-SBA	**Structure Height (Ft.):**	187
Mapping Contractor:	Full Metal Tower Services	**Mount Height (Ft.):**	185.7



Geometries (Unit: inches)

a	156	**e**	45	**j**	97.5	**o**	N/A	**s**	35
b	12	**f**	0	**k**	N/A	**p**	N/A	**t**	N/A
c	0	**g**	64	**m**	N/A	**q**	N/A	**u ***	54
d	132	**h**	32	**n**	N/A	**r**	N/A	**v ***	73

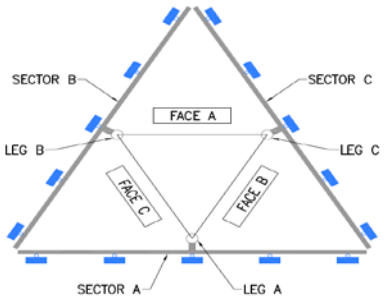
Members (Unit: inches) — *** - See Ant. Layout for "u", "v" and member "K" (pipe)**

Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	L3x3x3/8	3	3	0.375	**F**	0.75" Solid Rod	0.75	0.75	N/A
B	L3x3x3/8	3	3	0.375	**G**	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
C	L2x2x3/16	2	2	0.1875	**H**	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
D	2.875 OD x 0.203 Pipe	2.875	2.469	0.203	**J**	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
E	L3x3x3/8	3	3	0.375	**K (pipe)***	2.375 OD x 0.154 Pipe	2.375	2.067	0.154

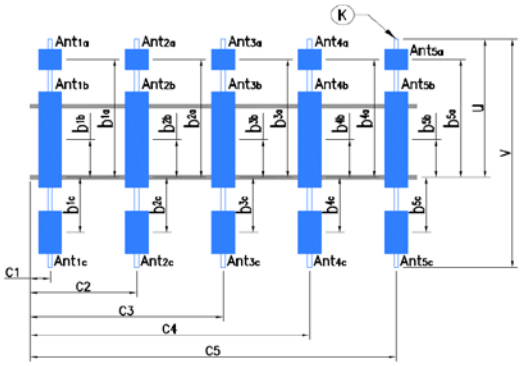
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)	N/A
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)	5'

Please enter the infomation below if members can't be found from the drop down lists

Tower Face Width at the mount (ft.):	56"	Tower Leg Size at the mount (in.):	2.875" OD x 0.203" Pipe



Climbing facility is On Leg C, at 220° Degree Azimuth

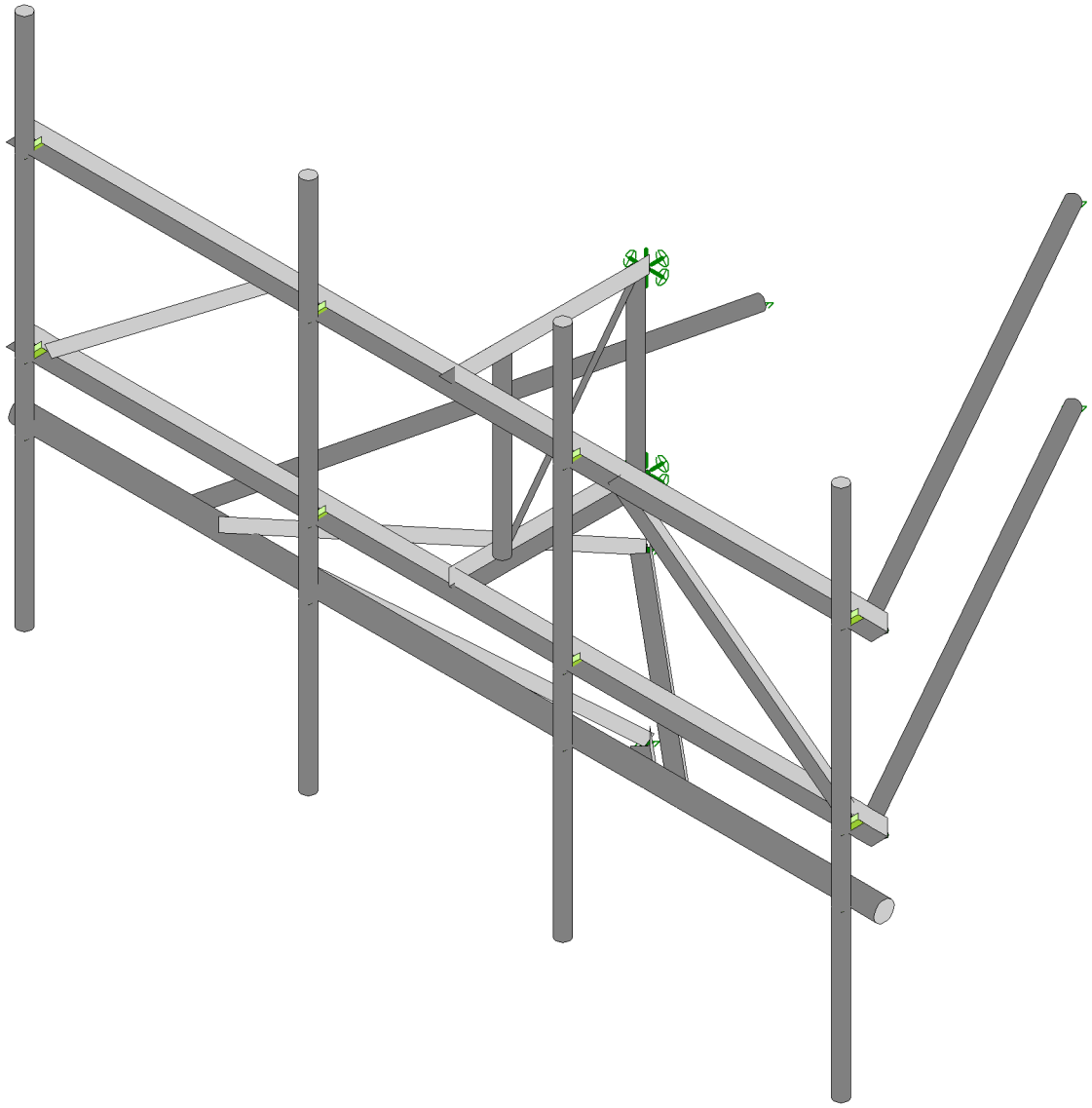


Antenna Layout

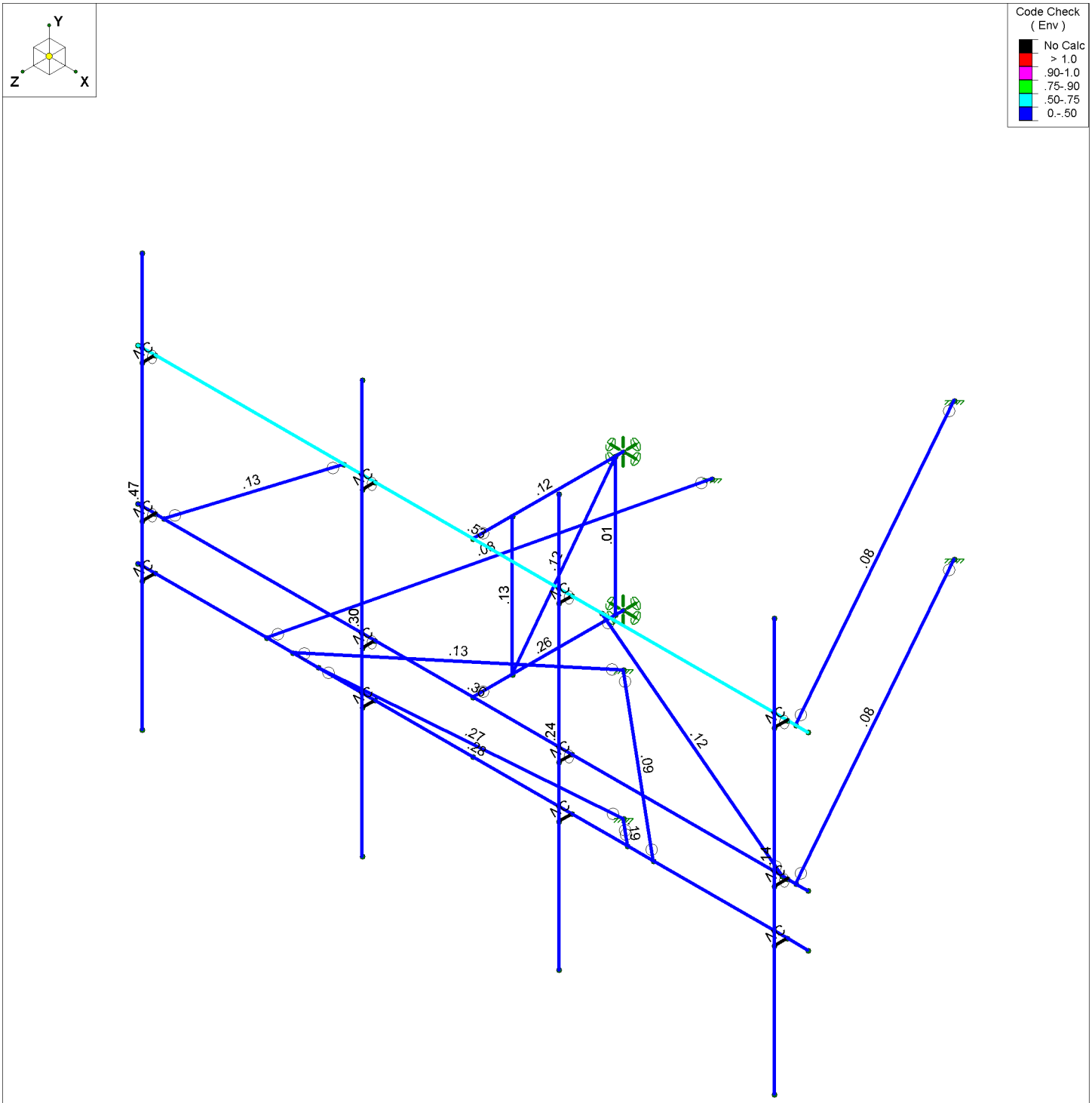
Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.					Mounting Locations (Unit: inches)			Photos of antennas
	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b},..." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" (in.)	Photo Numbers
Sector A									
Ant_{1a}									
Ant_{1b}	Antenna A	8.5	3	56	1/2" (2)	+28"	6	5	
Ant_{1c}	TMA A	6	4	12	1/2" (2)	+22"	N/A	5	
Ant_{2a}									
Ant_{2b}	Empty Mast	N/A	N/A	N/A	N/A	N/A	N/A	54	
Ant_{2c}									
Ant_{3a}									
Ant_{3b}	Empty Mast	N/A	N/A	N/A	N/A	N/A	N/A	102	
Ant_{3c}									
Ant_{4a}									
Ant_{4b}	Antenna B	12	7.5	96.5	1/2" (2)	+34"	7	152	
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?		Yes	**Antennas on Sector B are the same as Sector A**						

Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	60°	Deg	
Sector B:	180°	Deg	
Sector C:	325°	Deg	
Climbing	220°	Deg	On Leg C
Climbing Facility	Corrosion Type:		No corrosion observed
	Access:		Climbing path was unobstructed.
	Condition:		N/A

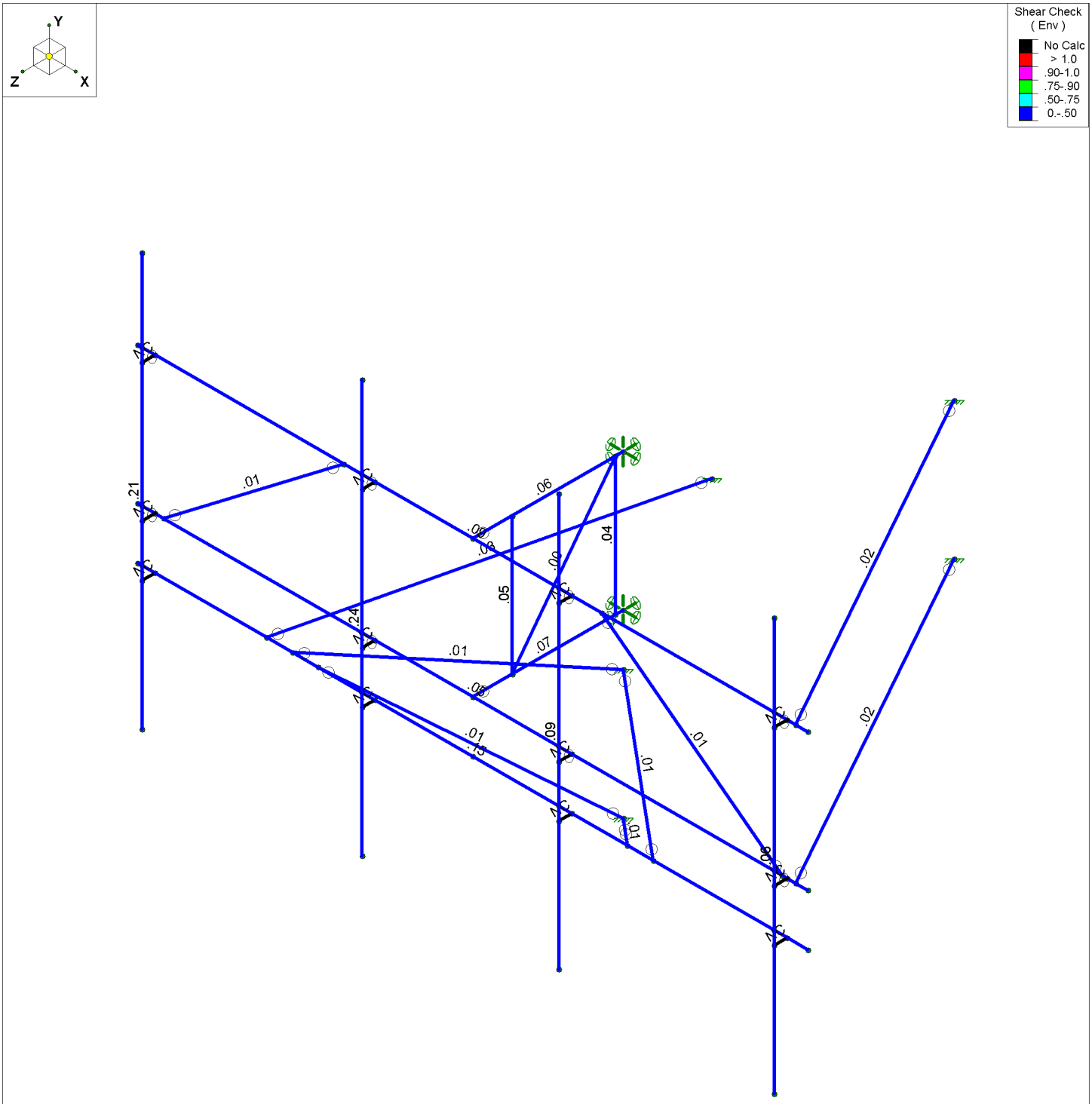


Tower Engineering Solutio...	CT10008-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 1
		Mar 14, 2022 at 10:31 AM
TES Project No. 125958		CT10008-A-SBA_125958_G_RISA_...



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

Tower Engineering Solutio...	CT10008-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
		Mar 14, 2022 at 10:31 AM
TES Project No. 125958		CT10008-A-SBA_125958_G_RISA_...



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

Tower Engineering Solutio...	CT10008-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
		Mar 14, 2022 at 10:31 AM
TES Project No. 125958		CT10008-A-SBA_125958_G_RISA_...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					11			
2	Antenna Di	None					11			
3	Antenna W Front	None					11			
4	Antenna Wi Front	None					11			
5	Antenna W Side	None					11			
6	Antenna Wi Side	None					11			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1						
10	Structure Di	None						21		
11	Structure W Front	None						21		
12	Structure Wi Front	None						21		
13	Structure W Side	None						21		
14	Structure Wi Side	None						21		

Load Combinations

	Description	So...P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
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	-2e-14	0	-0.000078	0	
2	N2	0	0	2.919	0	
3	N3	6.5	0	2.919	0	
4	N4	-6.5	0	2.919	0	
5	N5	0	0	0.15233	0	
6	N6	5e-14	0	2.1523	0	
7	N7	0	-2.66333	0.15233	0	
8	N8	5e-14	-2.66333	2.1523	0	
9	N9	-2e-14	-2.66333	-0.000078	0	
10	N10	0	-2.66333	2.919	0	
11	N11	6.5	-2.66333	2.919	0	
12	N12	-6.5	-2.66333	2.919	0	
13	N13	-6	-2.66333	2.919	0	
14	N14	6	-2.66333	2.919	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N15	-2.5	0	2.919	0	
16	N16	2.5	0	2.919	0	
17	N17	-6.1667	0	3.169	0	
18	N18	-6.1667	-2.66333	3.169	0	
19	N19	-1.9	0	3.169	0	
20	N20	-1.9	-2.66333	3.169	0	
21	N21	1.92	0	3.169	0	
22	N22	1.92	-2.66333	3.169	0	
23	N23	6.1	0	3.169	0	
24	N24	6.1	-2.66333	3.169	0	
25	N25	-6.1667	-6.16333	3.169	0	
26	N26	-6.1667	1.84	3.169	0	
27	N27	-1.9	1.84	3.169	0	
28	N28	1.92	1.84	3.169	0	
29	N29	6.1	1.84	3.169	0	
30	N30	-1.9	-6.16	3.169	0	
31	N31	1.92	-6.16	3.169	0	
32	N32	6.1	-6.16	3.169	0	
33	N34	2.35	0	-4.070397	0	
34	N35	2.35	-2.66333	-4.070397	0	
35	N36	-2e-14	-3.66333	-0.000078	0	
36	N37	-2e-14	-6.16333	-0.000078	0	
37	N38	6.5	-3.66333	2.919	0	
38	N39	-6.5	-3.66333	2.919	0	
39	N40	0	-3.66333	2.919	0	
40	N41	3	-3.66333	2.919	0	
41	N42	3.5	-3.66333	2.919	0	
42	N43	-3.5	-3.66333	2.919	0	
43	N44	-3	-3.66333	2.919	0	
44	N45	-4	-3.66333	2.919	0	
45	N46	-2.35	-3.66333	-4.070397	0	
46	N47	-6.1667	-3.66333	3.169	0	
47	N48	-1.9	-3.66333	3.169	0	
48	N49	1.92	-3.66333	3.169	0	
49	N50	6.1	-3.66333	3.169	0	
50	N51	-6.1667	0	2.919	0	
51	N52	-6.1667	-2.66333	2.919	0	
52	N53	-1.9	0	2.919	0	
53	N54	-1.9	-2.66333	2.919	0	
54	N55	1.92	0	2.919	0	
55	N56	1.92	-2.66333	2.919	0	
56	N57	6.1	0	2.919	0	
57	N58	-6.1667	-3.66333	2.919	0	
58	N59	-1.9	-3.66333	2.919	0	
59	N60	1.92	-3.66333	2.919	0	
60	N61	6.1	-3.66333	2.919	0	
61	N62	6.1	-2.66333	2.919	0	
62	N63	6.266667	0	2.919	0	
63	N64	6.266667	-2.66333	2.919	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	MS-C1B (V-brace kits)	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
2	MS-HR-35 (SR Kits)	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	Standoff	L3X3X6	Beam	Single Angle	A36 Gr.36	Typical	2.11	1.75	1.75	.101
4	Standoff Diagonal	SR_0.75	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
5	Standoff Vertical	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Face Horizontal	L3X3X6	Beam	Single Angle	A36 Gr.36	Typical	2.11	1.75	1.75	.101
7	FH diagonals	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
8	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
9	All thread rods	0.5_All_Th...	Beam	BAR	A36 Gr.36	Typical	.142	.002	.002	.003
10	Stabilizer	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N4	N3			Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N1	N2			Standoff	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N6	N8			Standoff Vertical	Beam	Pipe	A53 Gr.B	Typical
4	M4	N5	N7			Standoff Vertical	Beam	Pipe	A53 Gr.B	Typical
5	M5	N12	N11			Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N10	N9			Standoff	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N5	N8			Standoff Diagonal	Beam	BAR	A36 Gr.36	Typical
8	M8	N15	N13			FH diagonals	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N16	N14			FH diagonals	Beam	Single Angle	A36 Gr.36	Typical
10	MP4A	N26	N25			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
11	MP3A	N27	N30			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
12	MP2A	N28	N31			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
13	MP1A	N29	N32			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
14	M16	N63	N34			Stabilizer	Beam	Pipe	A53 Gr.B	Typical
15	M16A	N64	N35			Stabilizer	Beam	Pipe	A53 Gr.B	Typical
16	M16B	N39	N38			MS-HR-35 (SR Kits)	Beam	Pipe	A53 Gr.B	Typical
17	M17	N36	N43			MS-C1B (V-brace kits)	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N36	N42			MS-C1B (V-brace kits)	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N37	N44			MS-C1B (V-brace kits)	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N37	N41			MS-C1B (V-brace kits)	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N45	N46			Stabilizer	Beam	Pipe	A53 Gr.B	Typical
22	M22	N17	N51			RIGID	None	None	RIGID	Typical
23	M23	N18	N52			RIGID	None	None	RIGID	Typical
24	M24	N47	N58			RIGID	None	None	RIGID	Typical
25	M25	N19	N53			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
26	M26	N20	N54			RIGID	None	None	RIGID	Typical
27	M27	N48	N59			RIGID	None	None	RIGID	Typical
28	M28	N21	N55			RIGID	None	None	RIGID	Typical
29	M29	N22	N56			RIGID	None	None	RIGID	Typical
30	M30	N49	N60			RIGID	None	None	RIGID	Typical
31	M31	N23	N57			RIGID	None	None	RIGID	Typical
32	M33	N50	N61			RIGID	None	None	RIGID	Typical
33	M33A	N24	N62			RIGID	None	None	RIGID	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		BenPIN				Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6	BenPIN					Yes				None
7	M7						Yes				None
8	M8	BenPIN	BenPIN				Yes				None
9	M9	BenPIN	BenPIN				Yes				None
10	MP4A						Yes				None
11	MP3A						Yes				None
12	MP2A						Yes				None
13	MP1A						Yes				None
14	M16	BenPIN	BenPIN				Yes				None
15	M16A	BenPIN	BenPIN				Yes				None
16	M16B						Yes				None
17	M17	BenPIN	BenPIN				Yes				None
18	M18	BenPIN	BenPIN				Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20	BenPIN	BenPIN				Yes				None
21	M21	BenPIN	BenPIN				Yes				None
22	M22	OOOXOO					Yes	** NA **			None
23	M23	OOOXOO					Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25	OOOXOO					Yes	** NA **			None
26	M26	OOOXOO					Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28	OOOXOO					Yes	** NA **			None
29	M29	OOOXOO					Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31	OOOXOO					Yes	** NA **			None
32	M33						Yes	** NA **			None
33	M33A	OOOXOO					Yes	** NA **			None

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	Face Horizo...	13			Lbyy						Lateral
2	M2	Standoff	2.919			Lbyy						Lateral
3	M3	Standoff Ve...	2.663			Lbyy						Lateral
4	M4	Standoff Ve...	2.663			Lbyy						Lateral
5	M5	Face Horizo...	13			Lbyy						Lateral
6	M6	Standoff	2.919			Lbyy						Lateral
7	M7	Standoff Dia...	3.331			Lbyy						Lateral
8	M8	FH diagonals	4.398			Lbyy						Lateral
9	M9	FH diagonals	4.398			Lbyy						Lateral
10	MP4A	Mount Pipe	8.003			Lbyy						Lateral
11	MP3A	Mount Pipe	8			Lbyy						Lateral
12	MP2A	Mount Pipe	8			Lbyy						Lateral
13	MP1A	Mount Pipe	8			Lbyy						Lateral
14	M16	Stabilizer	8.012			Lbyy						Lateral
15	M16A	Stabilizer	8.012			Lbyy						Lateral
16	M16B	MS-HR-35 (...	13			Lbyy						Lateral
17	M17	MS-C1B (V-...	4.558			Lbyy						Lateral
18	M18	MS-C1B (V-...	4.558			Lbyy						Lateral
19	M19	MS-C1B (V-...	4.876			Lbyy						Lateral
20	M20	MS-C1B (V-...	4.876			Lbyy						Lateral
21	M21	Stabilizer	7.182			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	Reaction	Reaction	Reaction	Reaction		Reaction
2	N5						
3	N6						
4	N7						
5	N8						
6	N9	Reaction	Reaction	Reaction	Reaction		Reaction
7	N34	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N35	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N36	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N37	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N46	Reaction	Reaction	Reaction	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	N1	max	70.78	4	1120.064	6	724.799	1	-.032	2	0	11	0	3
2		min	-56.93	3	231.606	1	-1292.261	6	-.25	5	0	1	-.006	7
3	N9	max	7.514	4	782.453	10	299.449	9	.052	1	0	11	.004	3
4		min	-37.723	7	6.695	1	-71.435	1	-.187	9	0	1	-.007	8
5	N34	max	48.829	4	71.991	8	50.724	5	.007	3	0	11	.012	3
6		min	-42.04	3	16.684	10	-26.316	3	-.012	8	0	1	-.021	8
7	N35	max	219.342	1	72	6	406.578	1	.004	3	0	11	.008	3
8		min	-221.844	2	16.602	3	-411.363	2	-.011	8	0	1	-.02	8
9	N36	max	2282.393	4	87.834	8	153.362	3	.002	1	0	11	.001	2
10		min	-1909.967	3	22.107	2	-2993.865	8	-.002	2	0	1	-.002	1
11	N37	max	394.809	3	3166.034	5	3616.457	5	0	1	0	2	0	2

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
12		min	-1137.484	8	768.994	2	816.378	2	-.001	2	0	1	0	1
13	N46	max	320.879	2	64.738	7	1375.409	1	.009	5	0	11	.016	2
14		min	-322.968	1	14.369	1	-1364.864	2	-.004	2	0	1	-.038	5
15	Totals:	max	1400.646	4	4637.855	8	2512.217	1						
16		min	-1400.646	3	1290.737	3	-2512.213	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	254.073	3	102.272	1	288.445	2	.041	2	.167	7	.495	2
4			min	-242.625	4	-96.434	2	-267.44	1	-.039	1	-.072	1	-.545	1
5		3	max	-110.101	2	226.282	6	447.412	1	.018	2	.453	2	1.371	2
6			min	-1156.849	5	-92.777	1	-428.064	2	-.019	1	-.585	1	-1.191	1
7		4	max	60.794	4	63.004	2	117.683	1	.003	1	.26	8	.278	2
8			min	-67.059	3	-99.245	1	-136.963	2	-.005	2	-.004	3	-.377	1
9		5	max	0	11	0	11	0	11	0	11	0	11	0	11
10			min	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	724.799	1	1119.83	6	56.477	3	0	3	-.022	2	.177	5
12			min	-1292.261	6	231.65	1	-70.072	4	-.006	7	-.177	5	.022	2
13		2	max	880.277	1	107.136	1	30.301	3	.002	3	.003	1	.071	6
14			min	-914.989	2	-79.739	2	-44.375	4	-.005	8	-.015	6	.013	1
15		3	max	880.277	1	100.848	1	18.313	3	.002	3	.05	1	.066	2
16			min	-914.989	2	-86.026	2	-38.928	8	-.005	8	-.055	2	-.047	1
17		4	max	896.169	1	326.734	2	2.182	3	.017	8	.106	1	.175	6
18			min	-846.493	2	-185.983	1	-45.997	8	-.006	3	-.164	2	-.09	1
19		5	max	896.169	1	320.446	2	-5.924	2	.017	8	0	11	0	11
20			min	-846.493	2	-192.271	1	-45.387	7	-.006	3	0	1	0	1
21	M3	1	max	419.751	2	15.989	7	159.716	6	.051	8	.008	1	.022	8
22			min	-279.976	1	2.279	1	15.888	1	-.032	3	-.18	6	-.008	3
23		2	max	422.524	2	13.939	6	157.125	6	.051	8	.02	1	.014	8
24			min	-277.203	1	-1.028	3	16.746	9	-.032	3	-.074	6	-.009	3
25		3	max	425.297	2	16.183	8	154.535	6	.051	8	.041	5	.007	4
26			min	-274.43	1	-6.224	3	17.266	9	-.032	3	-.017	2	-.007	3
27		4	max	428.07	2	18.773	8	151.945	6	.051	8	.137	5	0	3
28			min	-271.656	1	-11.419	3	17.785	9	-.032	3	.008	9	-.011	7
29		5	max	430.844	2	23.219	4	149.355	6	.051	8	.235	5	.008	3
30			min	-268.883	1	-16.615	3	18.305	9	-.032	3	.02	9	-.021	8
31	M4	1	max	222.922	5	10.106	3	16.681	9	.072	8	-.003	1	0	3
32			min	16.909	2	-10.121	4	-7.856	1	-.021	3	-.021	9	-.001	4
33		2	max	234.887	5	4.911	3	17.201	9	.072	8	0	2	.004	4
34			min	19.682	2	-4.925	4	-2.66	1	-.021	3	-.013	5	-.004	3
35		3	max	246.852	5	.469	8	17.72	9	.072	8	.004	2	.005	4
36			min	22.455	2	-.663	7	1.218	3	-.021	3	-.007	5	-.006	3
37		4	max	258.817	5	5.466	4	18.24	9	.072	8	.014	9	.003	4
38			min	25.228	2	-5.48	3	-2.208	2	-.021	3	-.003	1	-.004	3
39		5	max	270.782	5	10.661	4	18.759	9	.072	8	.026	9	.002	3
40			min	28.001	2	-10.676	3	-7.404	2	-.021	3	0	3	-.002	4
41	M5	1	max	0	11	0	11	0	11	0	11	0	11	0	11
42			min	0	1	0	1	0	1	0	1	0	1	0	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
43		2	max	588.218	7	83.603	1	40.321	2	.02	2	.062	2	.339	2
44			min	28.136	4	-76.588	2	-65.13	1	-.018	1	-.104	5	-.406	1
45		3	max	861.933	8	455.567	8	266.646	1	.014	2	.146	2	.851	6
46			min	77.288	3	-233.875	1	-522.306	6	-.014	1	-.107	1	.05	1
47		4	max	963.506	8	27.536	3	57.604	5	0	3	.052	8	.033	3
48			min	-173.187	3	-83.97	8	-6.015	2	-.004	5	-.028	3	-.26	8
49		5	max	0	11	0	11	0	11	0	11	0	11	0	11
50			min	0	1	0	1	0	1	0	1	0	1	0	1
51	M6	1	max	-200.345	4	-51.468	2	78.414	4	.018	8	0	11	0	11
52			min	-976.011	7	-750.517	5	-57.665	3	-.007	3	0	1	0	1
53		2	max	-200.345	4	-57.756	2	66.426	4	.018	8	-.025	2	.415	5
54			min	-976.011	7	-768.11	5	-45.677	3	-.007	3	-.369	5	.031	2
55		3	max	280.69	9	299.866	9	34.92	8	.002	3	.122	9	.155	8
56			min	-84.362	1	-23.446	2	-13.295	3	-.005	8	-.129	5	-.122	9
57		4	max	280.69	9	171.371	5	31.036	8	.002	3	.007	4	.09	8
58			min	-84.362	1	-263.843	9	-1.307	3	-.005	8	-.027	7	-.017	3
59		5	max	299.449	9	-6.697	1	37.756	7	.004	3	.037	1	.132	9
60			min	-71.435	1	-301.073	9	-7.615	4	-.007	8	-.132	9	-.037	1
61	M7	1	max	-276.676	1	12.279	5	5.54	7	0	4	0	4	.006	5
62			min	-1595.249	6	-.852	2	-4.511	8	0	3	-.004	7	0	2
63		2	max	-276.46	1	5.235	5	3.039	7	0	4	0	3	0	2
64			min	-1586.798	6	-.442	2	-2.01	8	0	3	-.002	8	-.002	5
65		3	max	-276.244	1	.005	9	.538	7	0	4	.002	3	0	2
66			min	-1578.347	6	-1.808	5	-.006	9	0	3	-.003	8	-.003	5
67		4	max	-276.028	1	.378	2	2.992	8	0	4	.001	3	.002	6
68			min	-1569.896	6	-8.851	5	-1.963	7	0	3	-.002	4	0	9
69		5	max	-275.812	1	.788	2	5.493	8	0	4	.002	8	.012	5
70			min	-1561.445	6	-15.895	5	-4.464	7	0	3	-.003	7	0	2
71	M8	1	max	-61.288	4	29.357	7	24.083	2	0	6	0	11	0	11
72			min	-1557.131	7	-3.672	4	-24.083	1	0	1	0	1	0	1
73		2	max	-53.522	4	14.678	7	12.042	2	0	6	.021	6	.011	2
74			min	-1549.654	7	-1.836	4	-12.042	1	0	1	-.011	1	-.021	5
75		3	max	-45.756	4	0	11	0	11	0	6	.028	6	.015	2
76			min	-1542.177	7	0	1	0	1	0	1	-.015	1	-.028	5
77		4	max	-37.99	4	1.836	4	12.042	1	0	6	.021	6	.011	2
78			min	-1534.7	7	-14.678	7	-12.042	2	0	1	-.011	1	-.021	5
79		5	max	-30.224	4	3.672	4	24.083	1	0	6	0	11	0	11
80			min	-1527.223	7	-29.357	7	-24.083	2	0	1	0	1	0	1
81	M9	1	max	-87.192	3	29.357	8	24.083	1	0	1	0	11	0	11
82			min	-1438.257	8	-3.672	3	-24.083	2	0	6	0	1	0	1
83		2	max	-79.426	3	14.678	8	12.042	1	0	1	.021	5	.011	1
84			min	-1430.78	8	-1.836	3	-12.042	2	0	6	-.011	2	-.021	6
85		3	max	-71.66	3	0	11	0	11	0	1	.028	5	.015	1
86			min	-1423.302	8	0	1	0	1	0	6	-.015	2	-.028	6
87		4	max	-63.894	3	1.836	3	12.042	2	0	1	.021	5	.011	1
88			min	-1415.825	8	-14.678	8	-12.042	1	0	6	-.011	2	-.021	6
89		5	max	-56.128	3	3.672	3	24.083	2	0	1	0	11	0	11
90			min	-1408.348	8	-29.357	8	-24.083	1	0	6	0	1	0	1
91	MP4A	1	max	0	11	.473	8	1.418	5	0	11	0	11	0	11
92			min	0	1	-.099	3	-1.436	6	0	1	0	1	0	1
93		2	max	535.416	5	92.229	3	140.91	1	.267	1	.312	1	.121	3
94			min	16.718	2	-80.784	4	-114.284	2	-.31	2	-.287	2	-.123	4

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
95		3	max	764.711	5	34.57	1	215.903	1	.267	1	.61	1	.049	2
96			min	107.621	2	-22.832	2	-189.277	2	-.31	2	-.532	2	-.075	1
97		4	max	-85.133	10	161.58	3	348.395	2	0	11	.348	1	.161	3
98			min	-419.326	5	-161.644	4	-348.35	1	0	1	-.348	2	-.161	4
99		5	max	0	11	-.015	4	.873	6	0	11	0	11	0	11
100			min	0	1	-.654	8	-.244	1	0	1	0	1	0	1
101	MP3A	1	max	0	11	.035	8	.074	5	0	11	0	11	0	11
102			min	0	1	-.004	2	-.023	2	0	1	0	1	0	1
103		2	max	1021.742	5	34.662	3	36.325	2	.378	1	.233	5	.008	3
104			min	69.359	2	-30.417	4	-113.104	5	-.347	2	-.015	2	-.008	4
105		3	max	1160.643	5	17.331	1	-10.985	4	.378	1	.034	2	.034	4
106			min	107.033	2	-12.904	2	-98.549	7	-.347	2	-.025	1	-.043	3
107		4	max	-8.33	10	15.608	3	15.637	2	0	11	.016	1	.016	3
108			min	-35.94	5	-15.607	4	-15.635	1	0	1	-.016	2	-.016	4
109		5	max	0	11	.006	7	.055	6	0	11	0	11	0	11
110			min	0	1	-.001	4	-.029	1	0	1	0	1	0	1
111	MP2A	1	max	0	11	.028	8	.046	6	0	11	0	11	0	11
112			min	0	1	-.003	3	-.007	1	0	1	0	1	0	1
113		2	max	815.002	5	38.308	3	119.661	2	.009	1	.163	5	.003	7
114			min	17.267	2	-39.592	4	-157.622	1	-.048	6	-.006	2	-.002	8
115		3	max	1100.208	5	28.714	4	20.099	2	.009	1	.17	2	.041	4
116			min	135.929	2	-29.998	3	-75.043	5	-.048	6	-.166	1	-.038	3
117		4	max	-21.222	10	56.375	3	107.389	2	0	11	.016	1	.016	3
118			min	-141.539	5	-56.382	4	-107.385	1	0	1	-.016	2	-.016	4
119		5	max	0	11	0	2	.074	6	0	11	0	11	0	11
120			min	0	1	-.092	5	-.013	1	0	1	0	1	0	1
121	MP1A	1	max	0	11	.034	8	.011	7	0	11	0	11	0	11
122			min	0	1	-.003	3	-.002	4	0	1	0	1	0	1
123		2	max	282.762	5	38.897	3	57.059	2	.088	6	.08	5	.007	3
124			min	-9.989	2	-39.248	4	-49.257	1	-.041	1	-.006	2	-.007	4
125		3	max	492.799	5	23.622	4	70.335	1	.088	6	.11	7	.017	2
126			min	48.321	2	-23.973	3	-62.534	2	-.041	1	-.017	4	-.017	1
127		4	max	-8.33	10	15.613	3	15.607	2	0	11	.016	1	.016	3
128			min	-35.94	5	-15.613	4	-15.603	1	0	1	-.016	2	-.016	4
129		5	max	0	11	.007	3	.037	5	0	11	0	11	0	11
130			min	0	1	-.018	8	0	4	0	1	0	1	0	1
131	M16	1	max	42.748	5	71.987	8	23.789	4	.014	3	0	11	0	11
132			min	-16.847	3	16.685	1	-23.789	3	-.025	8	0	1	0	1
133		2	max	46.071	5	35.994	8	11.895	4	.014	3	.036	4	-.025	10
134			min	-23.512	3	8.342	1	-11.895	3	-.025	8	-.036	3	-.108	5
135		3	max	49.394	5	0	11	0	11	.014	3	.048	4	-.033	10
136			min	-30.178	3	0	1	0	1	-.025	8	-.048	3	-.144	5
137		4	max	52.717	5	-8.342	10	11.895	3	.014	3	.036	4	-.025	10
138			min	-36.843	3	-35.994	5	-11.895	4	-.025	8	-.036	3	-.108	5
139		5	max	57.511	4	-16.685	10	23.789	3	.014	3	0	11	0	11
140			min	-43.508	3	-71.987	5	-23.789	4	-.025	8	0	1	0	1
141	M16A	1	max	435.25	1	71.987	8	23.789	4	.009	3	0	11	0	11
142			min	-440.647	2	16.685	1	-23.789	3	-.023	8	0	1	0	1
143		2	max	441.915	1	35.994	8	11.895	4	.009	3	.036	4	-.025	10
144			min	-447.312	2	8.342	1	-11.895	3	-.023	8	-.036	3	-.108	5
145		3	max	448.581	1	0	11	0	11	.009	3	.048	4	-.033	10
146			min	-453.978	2	0	1	0	1	-.023	8	-.048	3	-.144	5

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
147		4	max	455.246	1	-8.342	10	11.895	3	.009	3	.036	4	-.025	10
148			min	-460.643	2	-35.994	5	-11.895	4	-.023	8	-.036	3	-.108	5
149		5	max	461.911	1	-16.685	10	23.789	3	.009	3	0	11	0	11
150			min	-467.308	2	-71.987	5	-23.789	4	-.023	8	0	1	0	1
151	M16B	1	max	0	11	0	11	0	11	0	11	0	11	0	11
152			min	0	1	0	1	0	1	0	1	0	1	0	1
153		2	max	3016.353	8	-56.45	3	50.137	1	.371	2	.797	2	1.082	8
154			min	-283.853	3	-698.626	8	-1865.603	8	-.309	1	-.976	1	.074	3
155		3	max	327.852	4	211.227	8	187.701	1	.512	2	.156	2	-.037	4
156			min	-280.747	3	-115.769	3	-147.509	2	-.501	1	-.184	1	-.174	7
157		4	max	1508.421	7	321.442	7	1046.696	7	.138	2	.172	1	.468	7
158			min	25.127	4	6.554	4	-28.687	4	-.188	1	-.245	2	-.096	4
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	M17	1	max	1352.111	3	42.161	8	18.398	2	.002	2	0	11	0	11
162			min	-3406.144	8	11.073	1	-18.398	1	-.003	1	0	1	0	1
163		2	max	1344.438	3	21.081	8	9.199	2	.002	2	.029	6	.004	2
164			min	-3403.416	8	5.536	1	-9.199	1	-.003	1	-.004	1	-.029	5
165		3	max	1336.766	3	0	11	0	11	.002	2	.039	6	.006	2
166			min	-3400.688	8	0	1	0	1	-.003	1	-.006	1	-.039	5
167		4	max	1329.094	3	-5.536	10	9.199	1	.002	2	.029	6	.004	2
168			min	-3397.96	8	-21.081	5	-9.199	2	-.003	1	-.004	1	-.029	5
169		5	max	1321.422	3	-11.073	10	18.398	1	.002	2	0	11	0	11
170			min	-3395.232	8	-42.161	5	-18.398	2	-.003	1	0	1	0	1
171	M18	1	max	164.764	4	42.161	8	18.398	1	0	1	0	11	0	11
172			min	-1708.237	7	11.073	1	-18.398	2	0	8	0	1	0	1
173		2	max	157.092	4	21.081	8	9.199	1	0	1	.029	5	.004	1
174			min	-1705.509	7	5.536	1	-9.199	2	0	8	-.004	2	-.029	6
175		3	max	149.419	4	0	11	0	11	0	1	.039	5	.006	1
176			min	-1702.781	7	0	1	0	1	0	8	-.006	2	-.039	6
177		4	max	141.747	4	-5.536	10	9.199	2	0	1	.029	5	.004	1
178			min	-1700.053	7	-21.081	5	-9.199	1	0	8	-.004	2	-.029	6
179		5	max	134.075	4	-11.073	10	18.398	2	0	1	0	11	0	11
180			min	-1697.324	7	-42.161	5	-18.398	1	0	8	0	1	0	1
181	M19	1	max	3921.94	8	42.16	8	19.157	2	.002	2	0	11	0	11
182			min	490.312	3	.502	3	-19.157	1	-.001	1	0	1	0	1
183		2	max	3913.254	8	21.08	8	9.579	2	.002	2	.032	6	.012	3
184			min	479.182	3	.251	3	-9.579	1	-.001	1	-.012	1	-.031	8
185		3	max	3904.568	8	0	11	0	11	.002	2	.042	6	.015	3
186			min	468.051	3	0	1	0	1	-.001	1	-.016	1	-.042	8
187		4	max	3895.883	8	-.251	3	9.579	1	.002	2	.032	6	.012	3
188			min	456.921	3	-21.08	8	-9.579	2	-.001	1	-.012	1	-.031	8
189		5	max	3887.197	8	-.502	3	19.157	1	.002	2	0	11	0	11
190			min	445.79	3	-42.16	8	-19.157	2	-.001	1	0	1	0	1
191	M20	1	max	2397.329	7	42.16	7	19.157	1	0	1	0	11	0	11
192			min	184.992	4	.502	4	-19.157	2	0	8	0	1	0	1
193		2	max	2388.643	7	21.08	7	9.579	1	0	1	.031	7	.012	1
194			min	173.861	4	.251	4	-9.579	2	0	8	-.012	4	-.032	6
195		3	max	2379.957	7	0	11	0	11	0	1	.042	7	.016	1
196			min	162.731	4	0	1	0	1	0	8	-.015	4	-.042	6
197		4	max	2371.271	7	-.251	4	9.579	2	0	1	.031	7	.012	1
198			min	151.6	4	-21.08	7	-9.579	1	0	8	-.012	4	-.032	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
199		5	max	2362.586	7	-.502	4	19.157	2	0	1	0	11	0	11
200			min	140.47	4	-42.16	7	-19.157	1	0	8	0	1	0	1
201	M21	1	max	1400.287	1	64.525	8	26.54	4	.017	2	0	11	0	11
202			min	-1389.544	2	14.956	1	-26.54	3	-.039	5	0	1	0	1
203		2	max	1403.42	1	32.263	8	13.27	4	.017	2	.036	4	-.02	10
204			min	-1392.677	2	7.478	1	-13.27	3	-.039	5	-.036	3	-.087	5
205		3	max	1406.553	1	0	11	0	11	.017	2	.048	4	-.027	10
206			min	-1395.81	2	0	1	0	1	-.039	5	-.048	3	-.116	5
207		4	max	1409.685	1	-7.478	10	13.27	3	.017	2	.036	4	-.02	10
208			min	-1398.942	2	-32.263	5	-13.27	4	-.039	5	-.036	3	-.087	5
209		5	max	1412.818	1	-14.956	10	26.54	3	.017	2	0	11	0	11
210			min	-1402.075	2	-64.525	5	-26.54	4	-.039	5	0	1	0	1
211	M22	1	max	213.562	1	136.532	1	254.062	3	0	11	.267	1	.032	7
212			min	-235.413	2	-61.689	2	-242.609	4	0	1	-.31	2	-.005	1
213		2	max	213.562	1	136.532	1	254.062	3	0	11	.269	1	.03	2
214			min	-235.413	2	-61.689	2	-242.609	4	0	1	-.312	2	-.014	1
215		3	max	213.562	1	136.532	1	254.062	3	0	11	.271	1	.034	2
216			min	-235.413	2	-61.689	2	-242.609	4	0	1	-.314	2	-.022	1
217		4	max	213.562	1	136.532	1	254.062	3	0	11	.273	1	.038	2
218			min	-235.413	2	-61.689	2	-242.609	4	0	1	-.315	2	-.031	1
219		5	max	213.562	1	136.532	1	254.062	3	0	11	.275	1	.041	2
220			min	-235.413	2	-61.689	2	-242.609	4	0	1	-.317	2	-.039	1
221	M23	1	max	58.922	6	-35.981	4	6.357	4	0	11	.246	2	-.005	2
222			min	-14.16	1	-790.653	7	-643.903	7	0	1	-.172	1	-.192	7
223		2	max	58.922	6	-35.981	4	6.357	4	0	11	.244	2	.002	2
224			min	-14.16	1	-790.653	7	-643.903	7	0	1	-.189	1	-.143	5
225		3	max	58.922	6	-35.981	4	6.357	4	0	11	.242	2	.008	2
226			min	-14.16	1	-790.653	7	-643.903	7	0	1	-.207	1	-.095	5
227		4	max	58.922	6	-35.981	4	6.357	4	0	11	.241	2	.014	2
228			min	-14.16	1	-790.653	7	-643.903	7	0	1	-.225	1	-.047	5
229		5	max	58.922	6	-35.981	4	6.357	4	0	11	.239	2	.02	2
230			min	-14.16	1	-790.653	7	-643.903	7	0	1	-.243	1	-.018	1
231	M24	1	max	592.88	1	-2.755	3	664.969	7	.556	8	.065	2	.351	2
232			min	-594.208	2	-505.98	8	-170.171	4	0	3	-.095	1	-.349	1
233		2	max	592.88	1	-2.755	3	664.969	7	.556	8	.067	2	.357	2
234			min	-594.208	2	-505.98	8	-170.171	4	0	3	-.08	1	-.341	1
235		3	max	592.88	1	-2.755	3	664.969	7	.556	8	.07	2	.364	2
236			min	-594.208	2	-505.98	8	-170.171	4	0	3	-.065	1	-.334	1
237		4	max	592.88	1	-2.755	3	664.969	7	.556	8	.073	2	.37	2
238			min	-594.208	2	-505.98	8	-170.171	4	0	3	-.049	1	-.326	1
239		5	max	592.88	1	-2.755	3	664.969	7	.556	8	.111	7	.377	2
240			min	-594.208	2	-505.98	8	-170.171	4	0	3	-.05	4	-.318	1
241	M25	1	max	123.562	5	986.355	5	50.62	3	0	11	.378	1	.245	5
242			min	-52.475	2	61.341	2	-46.236	4	0	1	-.347	2	-.008	2
243		2	max	123.562	5	986.355	5	50.62	3	0	11	.379	1	.183	5
244			min	-52.475	2	61.341	2	-46.236	4	0	1	-.348	2	-.012	2
245		3	max	123.562	5	986.355	5	50.62	3	0	11	.38	1	.121	5
246			min	-52.475	2	61.341	2	-46.236	4	0	1	-.349	2	-.016	2
247		4	max	123.562	5	986.355	5	50.62	3	0	11	.381	1	.06	5
248			min	-52.475	2	61.341	2	-46.236	4	0	1	-.349	2	-.019	2
249		5	max	123.562	5	986.355	5	50.62	3	0	11	.382	1	.02	1
250			min	-52.475	2	61.341	2	-46.236	4	0	1	-.35	2	-.023	2

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
251	M26	1	max	104.448	2	168.042	2	376.204	8	0	11	.064	2	.036	2
252			min	-570.927	5	-291.98	1	-232.895	3	0	1	-.161	5	-.076	5
253		2	max	104.448	2	168.042	2	376.204	8	0	11	.066	2	.026	2
254			min	-570.927	5	-291.98	1	-232.895	3	0	1	-.144	5	-.058	7
255		3	max	104.448	2	168.042	2	376.204	8	0	11	.068	2	.015	2
256			min	-570.927	5	-291.98	1	-232.895	3	0	1	-.127	1	-.04	7
257		4	max	104.448	2	168.042	2	376.204	8	0	11	.071	2	.006	4
258			min	-570.927	5	-291.98	1	-232.895	3	0	1	-.121	1	-.023	7
259		5	max	104.448	2	168.042	2	376.204	8	0	11	.073	2	.004	1
260			min	-570.927	5	-291.98	1	-232.895	3	0	1	-.114	1	-.006	2
261	M27	1	max	490.953	5	-203.901	1	264.736	3	.175	3	.283	2	.068	2
262			min	-167.616	2	-973.103	6	-408.097	4	-.388	8	-.238	1	-.364	5
263		2	max	490.953	5	-203.901	1	264.736	3	.175	3	.282	2	.087	2
264			min	-167.616	2	-973.103	6	-408.097	4	-.388	8	-.246	1	-.304	5
265		3	max	490.953	5	-203.901	1	264.736	3	.175	3	.28	2	.105	2
266			min	-167.616	2	-973.103	6	-408.097	4	-.388	8	-.253	1	-.244	5
267		4	max	490.953	5	-203.901	1	264.736	3	.175	3	.279	2	.124	2
268			min	-167.616	2	-973.103	6	-408.097	4	-.388	8	-.26	1	-.206	1
269		5	max	490.953	5	-203.901	1	264.736	3	.175	3	.277	2	.142	2
270			min	-167.616	2	-973.103	6	-408.097	4	-.388	8	-.268	1	-.194	1
271	M28	1	max	250.443	1	689.503	5	88.731	3	0	11	.009	1	.175	5
272			min	-213.093	2	-2.684	2	-90.408	4	0	1	-.048	6	-.024	2
273		2	max	250.443	1	689.503	5	88.731	3	0	11	.009	1	.132	5
274			min	-213.093	2	-2.684	2	-90.408	4	0	1	-.049	6	-.024	2
275		3	max	250.443	1	689.503	5	88.731	3	0	11	.01	1	.089	5
276			min	-213.093	2	-2.684	2	-90.408	4	0	1	-.049	6	-.024	2
277		4	max	250.443	1	689.503	5	88.731	3	0	11	.01	1	.046	5
278			min	-213.093	2	-2.684	2	-90.408	4	0	1	-.05	8	-.024	2
279		5	max	250.443	1	689.503	5	88.731	3	0	11	.011	1	.023	1
280			min	-213.093	2	-2.684	2	-90.408	4	0	1	-.052	8	-.024	2
281	M29	1	max	-101.151	3	20.611	3	264.982	4	0	11	.113	7	.005	3
282			min	-557.074	8	-460.037	8	-250.478	3	0	1	-.01	4	-.12	8
283		2	max	-101.151	3	20.611	3	264.982	4	0	11	.111	7	.003	3
284			min	-557.074	8	-460.037	8	-250.478	3	0	1	-.002	2	-.091	8
285		3	max	-101.151	3	20.611	3	264.982	4	0	11	.113	5	.002	3
286			min	-557.074	8	-460.037	8	-250.478	3	0	1	.004	2	-.063	8
287		4	max	-101.151	3	20.611	3	264.982	4	0	11	.118	8	.005	1
288			min	-557.074	8	-460.037	8	-250.478	3	0	1	.01	2	-.034	6
289		5	max	-101.151	3	20.611	3	264.982	4	0	11	.128	8	.013	1
290			min	-557.074	8	-460.037	8	-250.478	3	0	1	.004	3	-.015	2
291	M30	1	max	493.273	5	-93.782	2	363.779	3	.23	3	.042	2	.208	1
292			min	60.366	2	-910.179	5	-376.581	4	-.239	4	-.074	1	-.42	6
293		2	max	493.273	5	-93.782	2	363.779	3	.23	3	.036	2	.234	1
294			min	60.366	2	-910.179	5	-376.581	4	-.239	4	-.07	1	-.391	2
295		3	max	493.273	5	-93.782	2	363.779	3	.23	3	.031	2	.261	1
296			min	60.366	2	-910.179	5	-376.581	4	-.239	4	-.072	5	-.385	2
297		4	max	493.273	5	-93.782	2	363.779	3	.23	3	.025	2	.287	1
298			min	60.366	2	-910.179	5	-376.581	4	-.239	4	-.08	8	-.38	2
299		5	max	493.273	5	-93.782	2	363.779	3	.23	3	.04	3	.313	1
300			min	60.366	2	-910.179	5	-376.581	4	-.239	4	-.092	8	-.374	2
301	M31	1	max	64.778	1	246.825	5	54.543	3	0	11	.088	6	.077	8
302			min	-72.661	2	-18.347	2	-55.12	4	0	1	-.041	1	-.002	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
303		2	max	64.778	1	246.825	5	54.543	3	0	11	.088	6	.061	8
304			min	-72.661	2	-18.347	2	-55.12	4	0	1	-.041	1	-.004	3
305		3	max	64.778	1	246.825	5	54.543	3	0	11	.088	6	.046	8
306			min	-72.661	2	-18.347	2	-55.12	4	0	1	-.04	1	-.005	3
307		4	max	64.778	1	246.825	5	54.543	3	0	11	.088	6	.031	8
308			min	-72.661	2	-18.347	2	-55.12	4	0	1	-.04	1	-.007	3
309		5	max	64.778	1	246.825	5	54.543	3	0	11	.088	6	.016	8
310			min	-72.661	2	-18.347	2	-55.12	4	0	1	-.039	1	-.008	3
311	M33	1	max	111.823	2	31.941	4	20.18	1	0	1	.021	3	.18	1
312			min	-128.62	1	-197.529	7	-255.183	8	-.248	6	-.018	4	-.157	2
313		2	max	111.823	2	31.941	4	20.18	1	0	1	.02	3	.182	1
314			min	-128.62	1	-197.529	7	-255.183	8	-.248	6	-.026	4	-.152	2
315		3	max	111.823	2	31.941	4	20.18	1	0	1	.019	3	.184	1
316			min	-128.62	1	-197.529	7	-255.183	8	-.248	6	-.037	8	-.147	2
317		4	max	111.823	2	31.941	4	20.18	1	0	1	.017	3	.186	1
318			min	-128.62	1	-197.529	7	-255.183	8	-.248	6	-.052	8	-.143	2
319		5	max	111.823	2	31.941	4	20.18	1	0	1	.016	3	.188	1
320			min	-128.62	1	-197.529	7	-255.183	8	-.248	6	-.068	8	-.138	2
321	M33A	1	max	334.241	1	-19.925	3	251.944	6	0	11	.048	1	-.009	3
322			min	-309.559	2	-594.186	8	-27.889	1	0	1	-.095	6	-.133	8
323		2	max	334.241	1	-19.925	3	251.944	6	0	11	.046	1	-.007	3
324			min	-309.559	2	-594.186	8	-27.889	1	0	1	-.08	2	-.096	8
325		3	max	334.241	1	-19.925	3	251.944	6	0	11	.044	1	-.006	2
326			min	-309.559	2	-594.186	8	-27.889	1	0	1	-.069	2	-.058	8
327		4	max	334.241	1	-19.925	3	251.944	6	0	11	.043	1	-.003	2
328			min	-309.559	2	-594.186	8	-27.889	1	0	1	-.059	2	-.021	8
329		5	max	334.241	1	-19.925	3	251.944	6	0	11	.041	1	.016	8
330			min	-309.559	2	-594.186	8	-27.889	1	0	1	-.048	2	-.004	3

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

	Member	Shape	Code Check	Loc...	LC	Shear Check	Loc.....	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	L3X3X6	.533	6.5	1	.095	4.4...	z	2	6611.8...	68364	2.307	4.366	1...	H2-1
2	MP4A	PIPE_2.0	.474	5.5...	1	.207	4.5...		2	14906...	32130	1.872	1.872	2...	H1-1b
3	M5	L3X3X6	.355	6.5	6	.052	.406	y	6	6611.8...	68364	2.307	4.576	1...	H2-1
4	MP3A	PIPE_2.0	.301	5.5	8	.237	1.9...		1	14916...	32130	1.872	1.872	4...	H1-1b
5	M16B	PIPE_3.0	.285	3.3...	5	.146	3.3...		6	26386...	65205	5.749	5.749	1...	H1-1b
6	M19	L2.5x2.5x4	.266	2.3...	8	.009	0	y	2	17751...	38556	1.114	2.262	1...	H2-1
7	M6	L3X3X6	.262	.76	5	.067	.76	y	8	56457...	68364	2.307	5.322	1...	H2-1
8	MP2A	PIPE_2.0	.239	5.5	6	.089	5.5		5	14916...	32130	1.872	1.872	3...	H1-1b
9	M20	L2.5x2.5x4	.185	2.4...	7	.006	0	y	6	17751...	38556	1.114	2.262	1...	H2-1
10	MP1A	PIPE_2.0	.136	5.5	6	.056	1.9...		6	14916...	32130	1.872	1.872	4...	H1-1b
11	M17	L2.5x2.5x4	.132	2.2...	8	.014	0	z	1	19576...	38556	1.114	2.295	1...	H2-1
12	M3	PIPE_2.0	.130	2.6...	6	.046	2.6...		8	29510...	32130	1.872	1.872	2...	H1-1b
13	M8	L2x2x3	.128	2.1...	7	.010	0	y	7	8860.9...	23392.8	.558	1.059	1...	H2-1
14	M9	L2x2x3	.123	2.1...	8	.009	4.3...	y	8	8860.9...	23392.8	.558	1.059	1...	H2-1
15	M2	L3X3X6	.121	0	7	.061	0	y	6	56457...	68364	2.307	5.322	1...	H2-1
16	M7	SR 0.75	.117	3.3...	5	.004	3.3...		8	2196.5...	14313....	.179	.179	2...	H1-1b
17	M18	L2.5x2.5x4	.091	2.2...	7	.006	0	y	8	19576...	38556	1.114	2.295	1...	H2-1
18	M21	PIPE_2.0	.082	7.1...	1	.030	7.1...		5	17312...	32130	1.872	1.872	1...	H1-1...
19	M16A	PIPE_2.0	.081	4.0...	5	.021	0		8	14881...	32130	1.872	1.872	1...	H1-1b

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

	Member	Shape	Code Check	Loc...	LC	Shear Check	Loc.....	L..	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
20	M16	PIPE_2.0	.080	4.0...	8	.022	0	8	14881...	32130	1.872	1.872	1..	H1-1b
21	M4	PIPE_2.0	.015	2.6...	9	.045	2.6...	8	29510...	32130	1.872	1.872	2..	H1-1b

Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

February 23, 2022

Centerline Communications on behalf of T-Mobile

Site Name: Ellington / Rt 30
Site Address: 101 Burbank Road, Ellington, CT 06029

Site Compliance Summary

Compliance Status:	Compliant
Carrier MPE% of FCC General Population Allowable Limit:	3.76278200%
Composite MPE% of FCC General Population Allowable Limit:	3.76311400%

750 West Center St. Suite 301 | West Bridgewater, MA 02379

February 23, 2022

Attn: T-Mobile

Emissions Analysis for Site: **Ellington / Rt 30**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed T-Mobile facility to be located a tower near **101 Burbank Road, Ellington CT 06029** for the purpose of determining whether the emissions from the proposed facility are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). 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.

Population 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 is 400 $\mu W/cm^2$, the 700 MHz is 467 $\mu W/cm^2$, and the 1900 MHz, 2100 MHz, and 2500 MHz is 1000 $\mu W/cm^2$.

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, 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 performed for the proposed facility using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing focused omnidirectional 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 manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. This is a very conservative estimate since the gain reduction in actual applications is typically greater than 10 dB in the direction of ground immediately surrounding the facility. Real world emissions values from this facility are expected to be lower than values listed in this report at ground level. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

RRH #	Frequency Band	Technology	Channel Count	Transmit Power per Channel (W)
1	2500	LTE	1	90
1	2500	NR	1	90
1	2500	LTE	1	30
1	2500	NR	1	30
2	1900	GSM	1	15
3	1900	LTE	2	140
3	2100	LTE	2	140
4	700	LTE	4	40
4	600	LTE	2	40
4	600	NR	2	30
5	2500	LTE	1	90
5	2500	NR	1	90
5	2500	LTE	1	30
5	2500	NR	1	30
6	1900	GSM	1	15
7	1900	LTE	2	140
7	2100	LTE	2	140
8	700	LTE	4	40
8	600	LTE	2	40

8	600	NR	2	30
9	2500	LTE	1	90
9	2500	NR	1	90
9	2500	LTE	1	30
9	2500	NR	1	30
10	1900	GSM	1	15
11	1900	LTE	2	140
11	2100	LTE	2	140
12	700	LTE	4	40
12	600	LTE	2	40
12	600	NR	2	30
13	700	LTE	2	40
13	850	LTE	2	40
14	1900	LTE	4	40
13	700	LTE	2	40
13	850	LTE	2	40
14	2100	LTE	4	40
15	3550	CBRS	4	5
16	3700	NR	4	50
17	700	LTE	2	40
17	850	LTE	2	40
18	1900	LTE	4	40
17	700	LTE	2	40
17	850	LTE	2	40
18	2100	LTE	4	40
19	3550	CBRS	4	5
20	3700	NR	4	50
21	700	LTE	2	40
21	850	LTE	2	40
22	1900	LTE	4	40
21	700	LTE	2	40
21	850	LTE	2	40
22	2100	LTE	4	40
23	3550	CBRS	4	5
24	3700	NR	4	50
25	700	LTE	4	40
26	1900	LTE	4	40
25	850	LTE	4	40
26	2100	LTE	4	40

27	2300	LTE	4	25
28	3840	NR	1	67.78
29	700	LTE	4	40
30	1900	LTE	4	40
29	850	LTE	4	40
30	2100	LTE	4	40
31	2300	LTE	4	25
32	3840	NR	1	67.78
33	700	LTE	4	40
34	1900	LTE	4	40
33	850	LTE	4	40
34	2100	LTE	4	40
35	2300	LTE	4	25
36	3840	NR	1	67.78

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Table 1: Channel Data Table

The following antennas listed in Table 2 were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz, 2100 MHz, and 2500 MHz frequency bands. This is based on information from the carrier with regard to anticipated antenna selection.

Sector	Antenna Number	Make / Model	Centerline (ft)
A	1	ERICSSON SON_AIR6449 2500 LTE TB	187.7
A	1	ERICSSON SON_AIR6449 2500 NR TB	187.7
A	1	ERICSSON AIR6449 LTE BrM 02DT	187.7
A	1	ERICSSON AIR6449 NR BrM 02DT	187.7
A	2	COMMSCOPE VV-65A-R1B	187.7
A	2	COMMSCOPE VV-65A-R1B	187.7
A	2	COMMSCOPE VV-65A-R1B	187.7
A	3	RFS APXVAARR24 43-U-NA20	187.7
A	3	RFS APXVAARR24 43-U-NA20	187.7
A	3	RFS APXVAARR24 43-U-NA20	187.7
B	4	ERICSSON SON_AIR6449 2500 LTE TB	187.7
B	4	ERICSSON SON_AIR6449 2500 NR TB	187.7
B	4	ERICSSON AIR6449 LTE BrM 02DT	187.7
B	4	ERICSSON AIR6449 NR BrM 02DT	187.7
B	5	COMMSCOPE VV-65A-R1B	187.7
B	5	COMMSCOPE VV-65A-R1B	187.7
B	5	COMMSCOPE VV-65A-R1B	187.7
B	6	RFS APXVAARR24 43-U-NA20	187.7
B	6	RFS APXVAARR24 43-U-NA20	187.7
B	6	RFS APXVAARR24 43-U-NA20	187.7
C	7	ERICSSON SON_AIR6449 2500 LTE TB	187.7
C	7	ERICSSON SON_AIR6449 2500 NR TB	187.7
C	7	ERICSSON AIR6449 LTE BrM 02DT	187.7
C	7	ERICSSON AIR6449 NR BrM 02DT	187.7
C	8	COMMSCOPE VV-65A-R1B	187.7
C	8	COMMSCOPE VV-65A-R1B	187.7
C	8	COMMSCOPE VV-65A-R1B	187.7
C	9	RFS APXVAARR24 43-U-NA20	187.7
C	9	RFS APXVAARR24 43-U-NA20	187.7
C	9	RFS APXVAARR24 43-U-NA20	187.7
A	10	GENERIC PANEL	176.9
A	10	GENERIC PANEL	176.9
A	10	GENERIC PANEL	176.9

A	11	GENERIC PANEL	176.9
A	11	GENERIC PANEL	176.9
A	11	GENERIC PANEL	176.9
A	12	GENERIC PANEL	176.9
A	13	GENERIC PANEL	176.9
B	14	GENERIC PANEL	176.9
B	14	GENERIC PANEL	176.9
B	14	GENERIC PANEL	176.9
B	15	GENERIC PANEL	176.9
B	15	GENERIC PANEL	176.9
B	15	GENERIC PANEL	176.9
B	16	GENERIC PANEL	176.9
B	17	GENERIC PANEL	176.9
C	18	GENERIC PANEL	176.9
C	18	GENERIC PANEL	176.9
C	18	GENERIC PANEL	176.9
C	19	GENERIC PANEL	176.9
C	19	GENERIC PANEL	176.9
C	19	GENERIC PANEL	176.9
C	20	GENERIC PANEL	176.9
C	21	GENERIC PANEL	176.9
A	22	GENERIC PANEL	156.9
A	22	GENERIC PANEL	156.9
A	23	GENERIC PANEL	156.9
A	23	GENERIC PANEL	156.9
A	23	GENERIC PANEL	156.9
A	24	GENERIC PANEL	156.9
B	25	GENERIC PANEL	156.9
B	25	GENERIC PANEL	156.9
B	26	GENERIC PANEL	156.9
B	26	GENERIC PANEL	156.9
B	26	GENERIC PANEL	156.9
B	27	GENERIC PANEL	156.9
C	28	GENERIC PANEL	156.9
C	28	GENERIC PANEL	156.9
C	29	GENERIC PANEL	156.9
C	29	GENERIC PANEL	156.9

C	29	GENERIC PANEL	156.9
C	30	GENERIC PANEL	156.9

Table 2: Antenna Data

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

Results

Per the calculations completed for the proposed T-Mobile configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

ID	Make / Model	Frequency Band	Gain (dBd)	Centerline (ft)	Channel Count	TX Power (W)	ERP (W)	MPE %
T-Mobile A 1	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.627194000
T-Mobile A 1	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.627194000
T-Mobile A 1	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile A 1	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile A 2	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	1	15	502.4482	0.000000000
T-Mobile A 2	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	2	140	9379.0323	0.000007000
T-Mobile A 2	COMMSCOPE VV-65A-R1B	2100	15.87	187.7	2	140	10818.2754	0.000007000
T-Mobile A 3	RFS APXVAARR24 43-U-NA20	700	13.2	187.7	4	40	3342.8738	0.000009000
T-Mobile A 3	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	40	1648.5039	0.000005000
T-Mobile A 3	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	30	1236.3779	0.000004000
T-Mobile B 4	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.626952000
T-Mobile B 4	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.626952000
T-Mobile B 4	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile B 4	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile B 5	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	1	15	502.4482	0.000000000
T-Mobile B 5	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	2	140	9379.0323	0.000007000
T-Mobile B 5	COMMSCOPE VV-65A-R1B	2100	15.87	187.7	2	140	10818.2754	0.000007000
T-Mobile B 6	RFS APXVAARR24 43-U-NA20	700	13.2	187.7	4	40	3342.8738	0.000009000
T-Mobile B 6	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	40	1648.5039	0.000005000
T-Mobile B 6	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	30	1236.3779	0.000004000
T-Mobile C 7	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.627194000
T-Mobile C 7	ERICSSON AIR6449	2500	22.35	187.7	1	90	15461.1755	0.627194000
T-Mobile C 7	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile C 7	ERICSSON AIR6449	2500	15.15	187.7	1	30	982.0221	0.000001000
T-Mobile C 8	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	1	15	502.4482	0.000000000
T-Mobile C 8	COMMSCOPE VV-65A-R1B	1900	15.25	187.7	2	140	9379.0323	0.000007000
T-Mobile C 8	COMMSCOPE VV-65A-R1B	2100	15.87	187.7	2	140	10818.2754	0.000007000
T-Mobile C 9	RFS APXVAARR24 43-U-NA20	700	13.2	187.7	4	40	3342.8738	0.000009000
T-Mobile C 9	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	40	1648.5039	0.000005000
T-Mobile C 9	RFS APXVAARR24 43-U-NA20	600	13.14	187.7	2	30	1236.3779	0.000004000
							T-Mobile MPE%	**3.762782000**
Verizon A 10	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000
Verizon A 10	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon A 10	GENERIC PANEL	1900	15.84	176.9	4	40	6139.3159	0.000004000
Verizon A 11	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000
Verizon A 11	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon A 11	GENERIC PANEL	2100	16.39	176.9	4	40	6968.1900	0.000004000
Verizon A 12	GENERIC PANEL	3550	10.55	176.9	4	5	227.0022	0.000002000
Verizon A 13	GENERIC PANEL	3700	23.05	176.9	4	50	40367.3273	0.000028000
Verizon B 14	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000
Verizon B 14	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon B 14	GENERIC PANEL	1900	15.84	176.9	4	40	6139.3159	0.000004000
Verizon B 15	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000
Verizon B 15	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon B 15	GENERIC PANEL	2100	16.39	176.9	4	40	6968.1900	0.000004000
Verizon B 16	GENERIC PANEL	3550	10.55	176.9	4	5	227.0022	0.000002000
Verizon B 17	GENERIC PANEL	3700	23.05	176.9	4	50	40367.3273	0.000028000
Verizon C 18	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000

Verizon C 18	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon C 18	GENERIC PANEL	1900	15.84	176.9	4	40	6139.3159	0.000004000
Verizon C 19	GENERIC PANEL	700	12.33	176.9	2	40	1368.0123	0.000004000
Verizon C 19	GENERIC PANEL	850	12.62	176.9	2	40	1462.4802	0.000003000
Verizon C 19	GENERIC PANEL	2100	16.39	176.9	4	40	6968.1900	0.000004000
Verizon C 20	GENERIC PANEL	3550	10.55	176.9	4	5	227.0022	0.000002000
Verizon C 21	GENERIC PANEL	3700	23.05	176.9	4	50	40367.3273	0.000028000
							Verizon MPE%	**0.000156000**
AT&T A 22	GENERIC PANEL	700	12.33	156.9	4	40	2736.0245	0.000010000
AT&T A 22	GENERIC PANEL	1900	15.84	156.9	4	40	6139.3159	0.000005000
AT&T A 23	GENERIC PANEL	850	12.62	156.9	4	40	2924.9603	0.000009000
AT&T A 23	GENERIC PANEL	2100	16.39	156.9	4	40	6968.1900	0.000005000
AT&T A 23	GENERIC PANEL	2300	16.22	156.9	4	25	4187.9357	0.000003000
AT&T A 24	GENERIC PANEL	3840	22.65	156.9	1	67.78	12476.7526	0.000028000
AT&T B 25	GENERIC PANEL	700	12.33	156.9	4	40	2736.0245	0.000010000
AT&T B 25	GENERIC PANEL	1900	15.84	156.9	4	40	6139.3159	0.000005000
AT&T B 26	GENERIC PANEL	850	12.62	156.9	4	40	2924.9603	0.000009000
AT&T B 26	GENERIC PANEL	2100	16.39	156.9	4	40	6968.1900	0.000005000
AT&T B 26	GENERIC PANEL	2300	16.22	156.9	4	25	4187.9357	0.000003000
AT&T B 27	GENERIC PANEL	3840	22.65	156.9	1	67.78	12476.7526	0.000028000
AT&T C 28	GENERIC PANEL	700	12.33	156.9	4	40	2736.0245	0.000010000
AT&T C 28	GENERIC PANEL	1900	15.84	156.9	4	40	6139.3159	0.000005000
AT&T C 29	GENERIC PANEL	850	12.62	156.9	4	40	2924.9603	0.000009000
AT&T C 29	GENERIC PANEL	2100	16.39	156.9	4	40	6968.1900	0.000005000
AT&T C 29	GENERIC PANEL	2300	16.22	156.9	4	25	4187.9357	0.000003000
AT&T C 30	GENERIC PANEL	3840	22.65	156.9	1	67.78	12476.7526	0.000024000
							AT&T MPE%	**0.000176000**

Table 3: T-Mobile Antenna Inventory & Power Level

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 4* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-Mobile sector(s).

Frequency Band	Technology	Centerline (ft.)	# of Channels	ERP W (Per Channel)	Total Power Density (µW/cm²)	Allowable MPE (µW/cm²)	MPE %
2500	LTE	187.7	1	15461.17548	6.2719360	1000	0.62719400
2500	NR	187.7	1	15461.17548	6.2719360	1000	0.62719400
2500	LTE	187.7	1	982.0220846	0.0000080	1000	0.00000100
2500	NR	187.7	1	982.0220846	0.0000080	1000	0.00000100
1900	GSM	187.7	1	502.4481587	0.0000040	1000	0.00000000
1900	LTE	187.7	2	4689.516148	0.0000740	1000	0.00000700
2100	LTE	187.7	2	5409.137679	0.0000730	1000	0.00000700
700	LTE	187.7	4	835.7184523	0.0000410	467	0.00000900
600	LTE	187.7	2	824.2519653	0.0000200	400	0.00000500
600	NR	187.7	2	618.188974	0.0000150	400	0.00000400
2500	LTE	187.7	1	15461.17548	6.2695170	1000	0.62695200
2500	NR	187.7	1	15461.17548	6.2695170	1000	0.62695200
2500	LTE	187.7	1	982.0220846	0.0000080	1000	0.00000100
2500	NR	187.7	1	982.0220846	0.0000080	1000	0.00000100
1900	GSM	187.7	1	502.4481587	0.0000040	1000	0.00000000
1900	LTE	187.7	2	4689.516148	0.0000740	1000	0.00000700
2100	LTE	187.7	2	5409.137679	0.0000730	1000	0.00000700
700	LTE	187.7	4	835.7184523	0.0000410	467	0.00000900
600	LTE	187.7	2	824.2519653	0.0000200	400	0.00000500
600	NR	187.7	2	618.188974	0.0000150	400	0.00000400
2500	LTE	187.7	1	15461.17548	6.2719390	1000	0.62719400
2500	NR	187.7	1	15461.17548	6.2719390	1000	0.62719400
2500	LTE	187.7	1	982.0220846	0.0000080	1000	0.00000100
2500	NR	187.7	1	982.0220846	0.0000080	1000	0.00000100
1900	GSM	187.7	1	502.4481587	0.0000040	1000	0.00000000
1900	LTE	187.7	2	4689.516148	0.0000740	1000	0.00000700
2100	LTE	187.7	2	5409.137679	0.0000720	1000	0.00000700
700	LTE	187.7	4	835.7184523	0.0000410	467	0.00000900
600	LTE	187.7	2	824.2519653	0.0000200	400	0.00000500
600	NR	187.7	2	618.188974	0.0000150	400	0.00000400
T-Mobile MPE%							**3.76278200 %**

Table 4: T-Mobile Maximum Sector MPE Power Values

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:

Carrier	Predicted MPE %
T-Mobile	3.76278200%
Verizon	0.00015600%
AT&T	0.00017600%
Composite	**3.76311400%**

Table 5: Total Predicted MPE(%) by Carrier

Compliance Status:

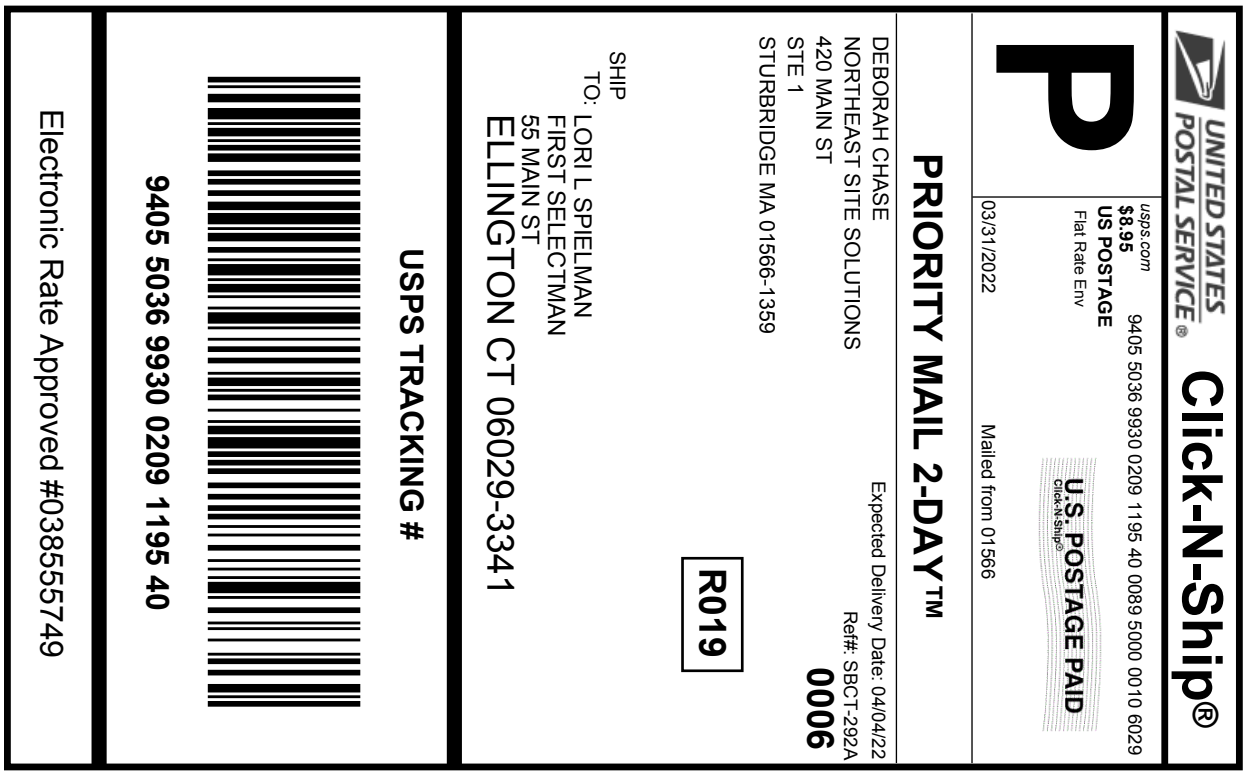
The anticipated composite MPE value for this site assuming all carriers present is **3.76311400%** of the allowable FCC established general population limit sampled at the ground level.

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.

Samuel Cosgrove
RF Compliance Consultant
Centerline Communications, LLC
750 West Center St. Suite 301
West Bridgewater, MA 02379

Exhibit G

Recipient Mailings



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Expected Delivery Date:	04/04/2022

Priority Mail® Postage:	**$8.95**
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420 MAIN ST
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STURBRIDGE MA 01566-1359

Ref#: SBCT-292A

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FIRST SELECTMAN
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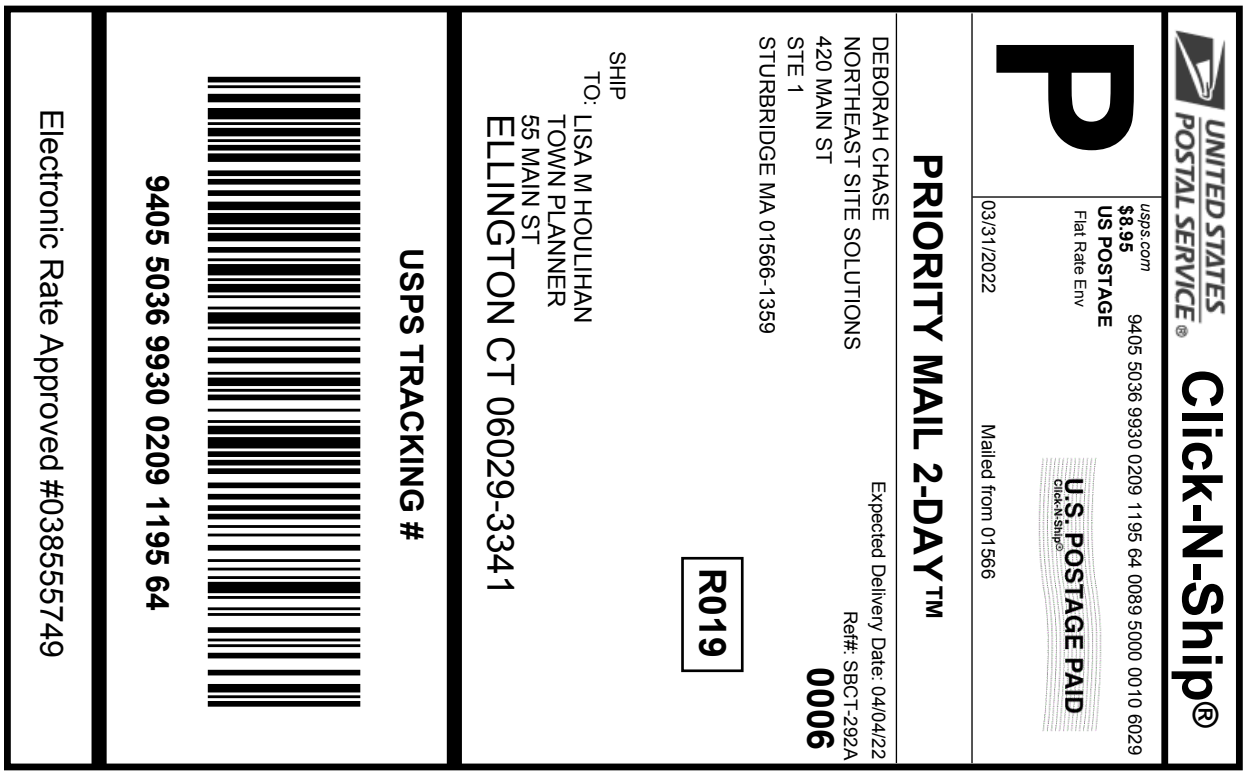

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Total:	**$8.95**

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

Ref#: SBCT-292A

To: LISA M HOULIHAN
TOWN PLANNER
55 MAIN ST
ELLINGTON CT 06029-3341

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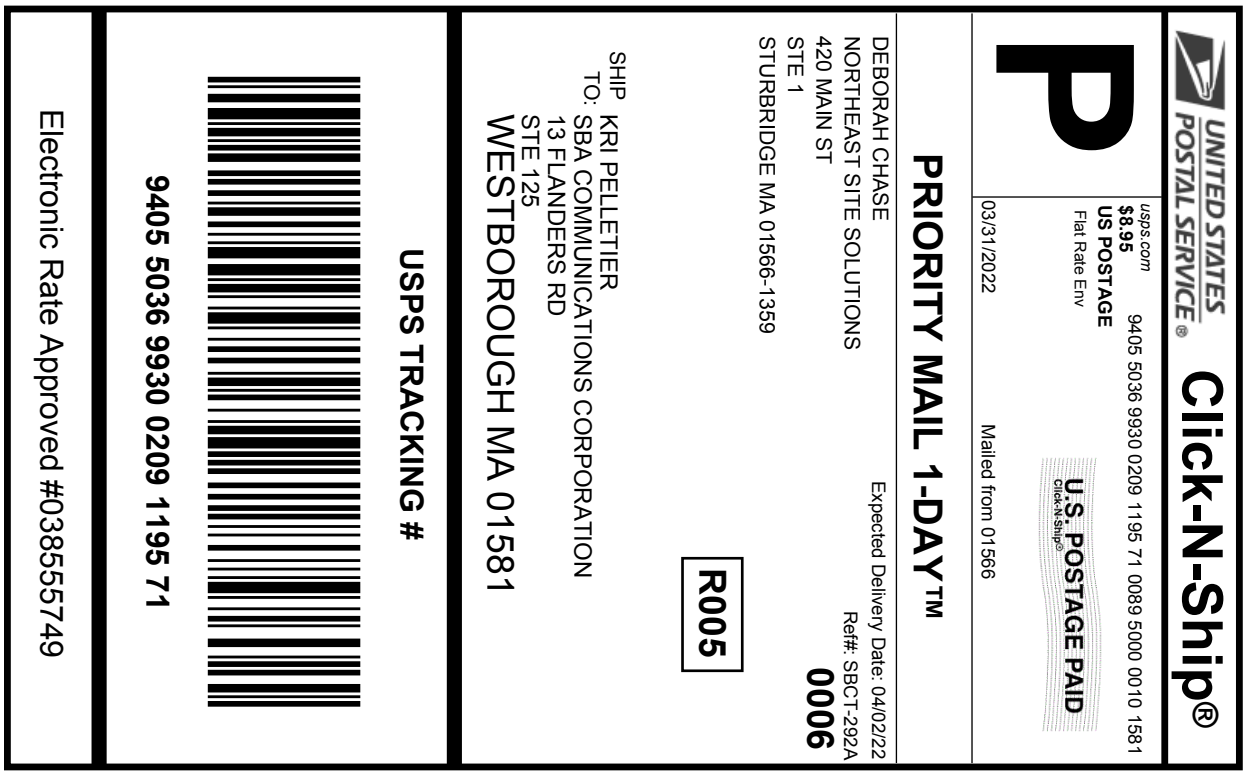

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Ship Date:	03/31/2022
Expected Delivery Date:	04/02/2022

Priority Mail® Postage:	**$8.95**
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From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBCT-292A

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

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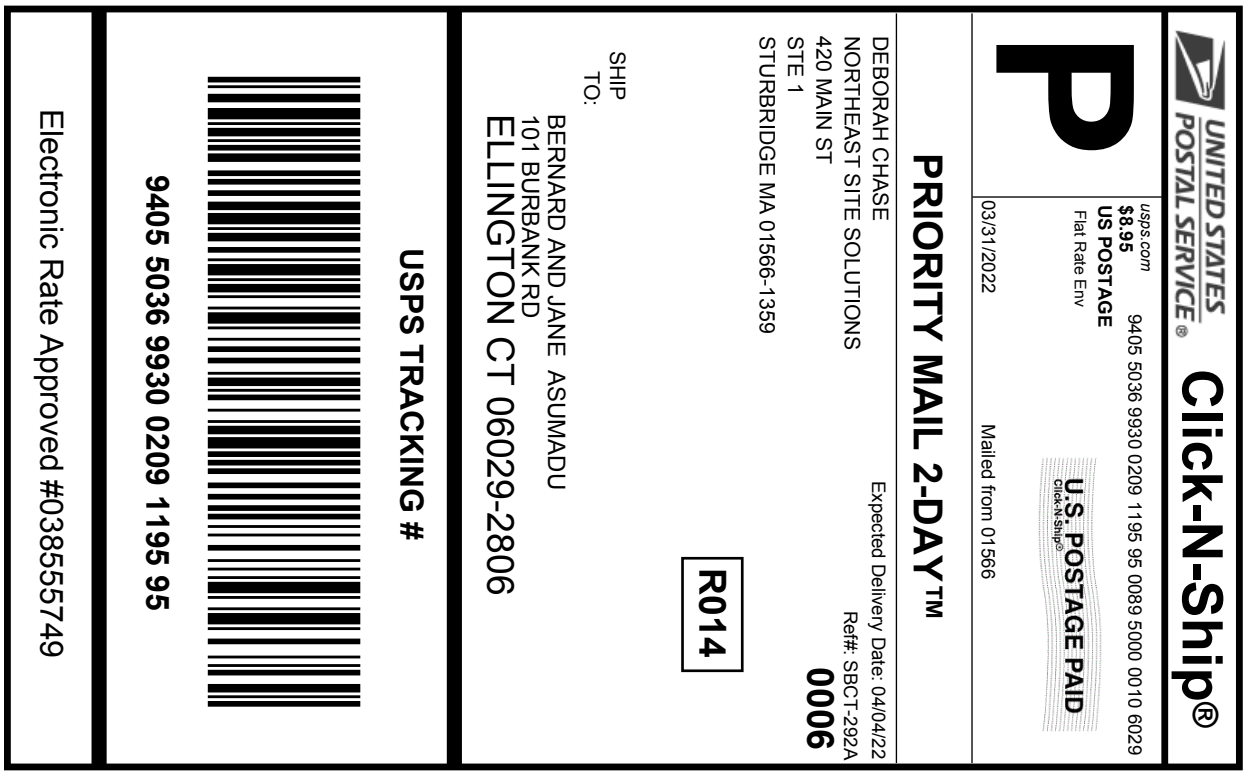

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Trans. #:	560177799
Print Date:	03/31/2022
Ship Date:	03/31/2022
Expected Delivery Date:	04/04/2022

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

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

Ref#: SBCT-292A

To: BERNARD AND JANE ASUMADU
101 BURBANK RD
ELLINGTON CT 06029-2806

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UNIONVILLE, CT 06085-9998
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04/01/2022 12:53 PM

Product	Qty	Unit Price	Price
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Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 04/01/2022 Tracking #: 9405 5036 9930 0209 1195 71	1		$0.00
Prepaid Mail Ellington, CT 06029 Weight: 0 lb 8.90 oz Acceptance Date: Fri 04/01/2022 Tracking #: 9405 5036 9930 0209 1195 95	1		$0.00
Prepaid Mail Ellington, CT 06029 Weight: 0 lb 8.80 oz Acceptance Date: Fri 04/01/2022 Tracking #: 9405 5036 9930 0209 1195 64	1		$0.00
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