Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

July 19, 2019

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

Notice of Exempt Modification
31 Chestnut Hill Road, Colchester, CT
Latitude: 41.571327
Longitude: -72.302322
T-Mobile #: CT11255E_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 164.5-foot level of the existing 180-foot Monopole Tower at 31 Chestnut Hill Road in Colchester, CT. The tower is owned by SBA Towers, LLC. The property is owned by John Jr & Mary Przyborowski. T-Mobile now intends to replace three (3) existing antennas with three (3) new 600/700/1900/2100 MHz antennas. The new antennas would be installed at the 164.5-foot level of the tower.

Planned Modifications:

TOWER

Remove: N/A

Remove and Replace:

- (3) Commscope - LNX-65651DS – Panel (Remove) – (3) RFS - APXVAARR24_43-U-NA20 – Panel 600/700/1900/2100 MHz (Replace)
- (3) TMA (Remove) – (3) Twin TMA (Replace) *(please note: shown on SA as proposed due to entitlements not having been previously captured)*

Install New:

- (3) Twin TMA
- (3) Ericsson Radio 4449 B71+B12
- Added to Low Profile Platform: support rail kit with T-Arm MS-P-TARM and new heavy collar mount MS-H1436
- (1) 1-5/8" fiber

Existing Equipment to Remain (including Entitlements):

- (3) EMS - RR901782DP – Panel (dormant)

- (3) Kathrein - 782 11056 - Bias T
- (1) Low Profile Platform
- (12) 1-5/8" lines

GROUND

Install New:

- Upgrade equipment inside existing 6201 cabinet
- (3) 4415 B66A RRUs mounted to proposed (2) unistruts U-bolted to existing ice bridge posts

This facility was originally approved by the Town of Colchester on November 3, 1999, prior to the Council's jurisdiction. The Planning & Zoning Commission issued approval under Site Development Plan 99-238. Per Section 12.10.1 of the Zoning Regulations, 25% of the total cost was to be posted as bond. No post construction stipulations were set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Colchester's First Selectman, Art Shilosky, and Town Planner, Randall Benson, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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 modification 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 modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T / 508.366.2610 + F
kpelletier@sbasite.com

Attachments

cc: Art Shilosky, First Selectman / with attachments
Town of Colchester, 127 Norwich Avenue, Colchester, CT 06415
Randall Benson, Town Planner / with attachments
Town of Colchester, 127 Norwich Avenue, Colchester, CT 06415
John Jr & Mary Przyborowski / with attachments
3560 Oriental Ave, Box 602, Fishers Island, NY 06390; and
2500 Montauk Ave., #352, Fishers Island, NY 06390 (SBA alternate overnight address on file)

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	
Exhibit 3	Property Card	
Exhibit 4	Property Map	
Exhibit 5	Original Zoning Approval	Town of Colchester Z&P Commission 11/3/99
Exhibit 6	Construction Drawings	Chappell Engineering dated 7/18/19
Exhibit 7	Structural Analysis	TES dated 7/17/19
Exhibit 8	Post-Mod Mount Analysis	TES dated 6/28/19
Exhibit 9	Mt Mod Design	TES dated 7/2/19
Exhibit 10	EME Report	Transcom dated 7/16/19

EXHIBIT 1

EXHIBIT 2

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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

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EXHIBIT 3

Town of Colchester, CT

Property Listing Report

Map Block Lot	4W-01/004-000	Account	P0499600	PID	4018

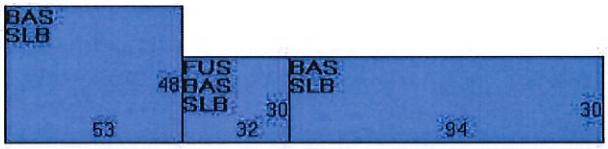
Property Information

Property Location	31 CHESTNUT HILL RD
Owner	PRZYBOROWSKI JOHN JR + MARY
Co-Owner	
Mailing Address	3560 ORIENTAL AVE BOX 602 FISHERS ISLAND NY 06390
Land Use	4010 Ind Whse MDL-96
Land Class	I
Zoning Code	GC
Census Tract	
Sub Lot	

Neighborhood	1000
Acreage	40.25
Utilities	Well,Septic
Lot Setting/Desc	Suburban
Survey Map	
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1952
Stories	2
Building Style	Warehouse
Building Use	Commercial
Building Condition	C
Floors	Concrete Slab
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable
Roof Cover	Metal/Tin

Exterior Walls	Wood Shingle
Interior Walls	Minimum
Heating Type	None
Heating Fuel	Coal or Wood
AC Type	None
Gross Bldg Area	13608
Total Living Area	7284

Report Created On 5/10/2019

Town of Colchester, CT

Property Listing Report | Map Block Lot 4W-01/004-000 | Account P0499600

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	66600	46600
Extras	0	0
Outbuildings	5600	3900
Land	642900	296700
Total	715100	347200

Outbuilding and Extra Items

Type	Description
Fence 6' Chain	77.00 L.F.
Cabin-Minimal	696.00 S.F.
Kennel GD	376.00 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	6324	6324
Slab	6324	0
Upper Story, Finished	960	960
Total Area	13608	7284

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
PRZYBOROWSKI JOHN JR + MARY	997/ 101	3/4/2008	0
PRZYBOROWSKI JOHN JR	80/ 485	7/13/1986	0

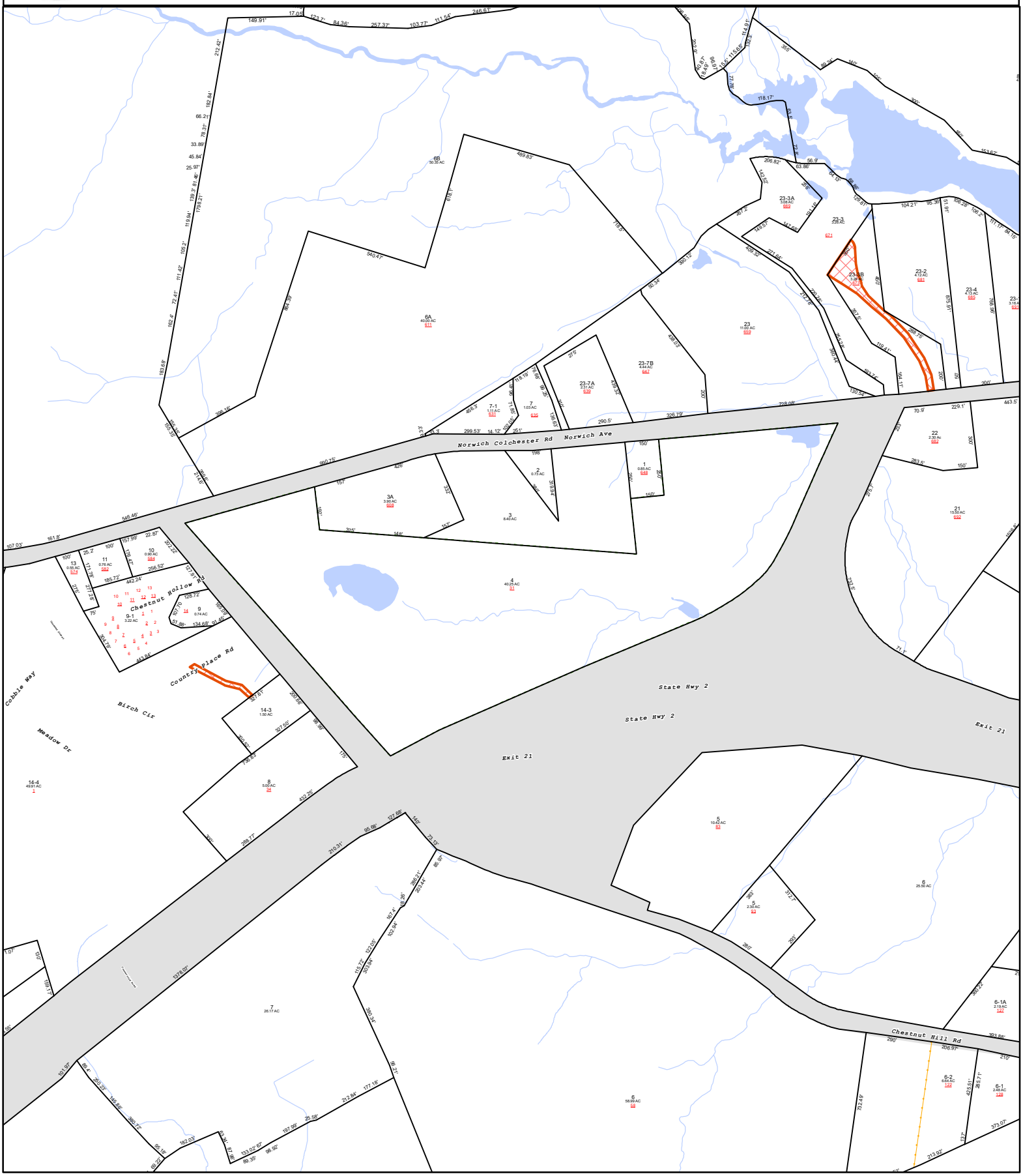
Report Created On 5/10/2019

EXHIBIT 4

Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 4W-01-004-000

Address: 31 CHESTNUT HILL RD



Approximate Scale: **1 inch = 550 feet**

0 280 560 840 1,120 Feet

Map Produced: September 2018 / Grand List: 2017

EXHIBIT 5

SITE ID #10125-020

SITE NAME: Colchester 2

CTO 2220-S

JOB COST #002220

ZONING/PERMITTING COMPLETION FORM

Zoning Classification for Site: I- Industrial

Special Relief (setback, height variance, special use permit, wetlands permit etc.):

Site Development Plan Approval

* Date of Zoning Decision: 11/03/99

Summary of zoning conditions **(Include details of any conditions relative to time restrictions, expiration dates, renewal obligations, monetary obligations, performance obligation, inspection fees).**

See attached.

Submitted by: Esther McNany

Title: Territory Manager

Territory Manager Approval:

* Attach a copy of the Zoning decision and forward to the Regional Compliance Manager as soon as possible, after the decision.

Planning and Zoning
Planning Director
Town Engineer
Code Administration
Health Director
Building Official
Fire Marshal
Registered Sanitarian
Zoning Enforcement
Wetlands Enforcement

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 4, 1999

Ms. Esther McNany
SBA Inc.
125 Shaw Street
New London, CT 06320

RE: SDP#99-238, SBA/Omnipoint Communications, 31 Chestnut Hill Road, Communications Tower, Site Development Plan prepared by Goodkind & O'Dea Inc (Job#CT10125-020) dated 9/28/99 revised through 10/19/99

Dear Ms. McNany:

The above referenced site development plan was approved by the Zoning & Planning Commission at their regular meeting held November 3, 1999.

Per Section 12.10.1 of the Zoning Regulations, a bond in the amount of 25% of the total cost of site improvements must be posted prior to the endorsement of this plan and/or commencement of work. A bond estimate must be submitted to the Town Engineer for his review and approval.

If you have any questions, please call me at 537-7283.

Very truly yours,

Alicia Lathrop
Zoning Enforcement Officer

127 NORWICH AVENUE ❖ COLCHESTER, CT 06415 ❖ (860) 537-7280 ❖ FAX (860) 537-7287

COLCHESTER ZONING AND PLANNING COMMISSION
WEDNESDAY, OCTOBER 20, 1999
TOWN HALL, 127 NORWICH AVENUE, COLCHESTER, CT

MINUTES OF MEETING

MEMBERS PRESENT: Chairman Robert Weeks, Michel Ciccone, James Ford, John Gagnon, L. Kieft-Robitaille, John Mahoney, Mark Noniewicz, Ronald Vasquez

MEMBERS ABSENT: Joseph Mathieu

STAFF PRESENT: Larry Dunkin, AICP, Planning Director, Alicia Lathrop, Zoning Enforcement Officer and Deanna Rhodes, Clerk

1. CALL MEETING TO ORDER

The regular meeting of the Zoning and planning Commission was called to order at 7:02 p.m. by Chairman Robert Weeks.

2. ADDITIONS TO AGENDA

A. Lathrop requested the order of the agenda be changed for Item 6A, Pending Applications, to be addressed with Item 7C, New Applications.

MOTION by J. Ford, SECOND by J. Mahoney to move Item 6A to be addressed concurrently with Item 7C. **MOTION CARRIED UNANIMOUSLY.**

3. PUBLIC HEARINGS

A. Lathrop read the legal warning.

A. SE#99-138, H. Waltmire, 328 West Road, Accessory Apartment

Public Hearing Record Items
a. Application SE#99-138, W. Henry Waltmire applicant
b. Floor plan, proposed accessory apartment and plot plan showing proposed addition
c. Staff Report, Alicia Lathrop, Zoning Enforcement Officer, dated 10/19/99
d. Sign-off/Approval by Director of Health, Wendy S. Mis, dated 10/13/99
e. Staff Report, Larry L. Dunkin, Planning Director, dated 10/20/99

A. Lathrop gave an overview of the proposed accessory apartment, which is to be located over an existing garage planned for expansion from two to three-bays. She stated that the main entrance to the apartment would be through the primary dwelling, with the second means of egress from the second story rear deck. She noted an additional third means of egress is proposed from the interior of the garage and that the Planning Director and her have differing opinions about allowing the access through the garage. She noted the applicant was not present, but that Mrs. Peterson, the proposed tenant was.

L. Dunkin voiced concern that the egress from the garage would undermine the regulation requiring the main access to be from the primary dwelling unit. A. Lathrop stated that the zoning requirement has been met and clarified that no additional front door will exist. L.

Dunkin stated the off-street parking shown on the plan needs to be corrected and increased to meet the requirements.

Speaking in Favor: Sally Peterson, mother of the applicant, stated she will be the tenant of the apartment and is in favor of the application.

Speaking in Opposition: No one spoke.

MOTION by J. Mahoney, SECOND by M. Ciccone to CLOSE THE PUBLIC HEARING. **MOTION CARRIED UNANIMOUSLY.**

4. FIVE-MINUTE SESSION FOR THE PUBLIC - No one spoke.

5. MINUTES OF THE PREVIOUS MEETING – 10/6/99 Mtg.

MOTION by M. Ciccone, SECOND by J. Gagnon to APPROVE 10/06/99 minutes. ABSTAINED: J. Mahoney, M. Noniewicz and L. Kieft-Robitaille. VOTING IN FAVOR: All others present. **MOTION CARRIED.**

6. PENDING APPLICATIONS

B. SE#99-138, H. Waltmire, 328 West Road, Accessory Apartment (DRD 65 days close PH)

MOTION by J. Mahoney, SECOND by J. Gagnon to APPROVE SE#99-138 conditional upon the off-street parking meeting the zoning requirements. **MOTION CARRIED UNANIMOUSLY.**

C. SDP#99-237, BRG Interests, 119 Broadway, Modified site plan (DRD 12/10/99)

A. Lathrop explained that this application is for a modification to a previously approved site plan for which a bond has already been placed. She stated the modified site plan reverts to the original parking configuration and eliminates from the current proposal the construction of the second building.

Bruce Goldstein, owner of the property, stated there will be a single tenant instead of three and there will be only one handicapped ramp.

A. Lathrop clarified to the Commission that the site plan presented is the build out of Phase I and the required drainage. The Town Engineer's comments have been addressed and approval was given by the State of Connecticut Department of Transportation.

MOTION by J. Mahoney, SECOND by J. Gagnon to APPROVE SDP#99-237. **MOTION CARRIED UNANIMOUSLY.**

7. NEW APPLICATIONS

A. SUB#99-303, L. Savitsky, 314 Westchester Road, 1 lot re-subdivision

B. SUB#99-304, G. Gallucci, Taylor Road, 3 lot re-subdivision

MOTION BY J. Mahoney, SECOND by J. Ford to SET PUBLIC HEARINGS for November 17, 1999. **MOTION CARRIED UNANIMOUSLY.**

C. SDP#99-238, SBA/Omnipoint Communications, 31 Chestnut Hill Road, Site Development Plan, Communications Tower (DRD 12/24/99)
SDP#99-235, SBA/Omnipoint Communications, 48 Westchester Road, Site Development Plan, Communications Tower (DRD 11/5/99)

A. Lathrop gave an overview of the applications which are for two separate telecommunications towers, one behind Carefree Building on Westchester Road and the other location on Chestnut Hill Road near Exit 21 off Route 2. She stated that the Westchester Road location has received approval from the Conservation Commission for the wetlands crossing and that the applicant is requesting an exception to exceed the height restriction for both locations.

Esther McNany, representing SBA, Inc. and Omnipoint, addressed the Commission and stated that SBA, Inc. will be the site manager and owner of the proposed towers and Omnipoint will lease space on the towers. She presented information displaying coverage gaps in and around Colchester and clarified that the main purpose of the towers is to service customers using portable phones while in transport along main roadway corridors throughout the State.

Jim Ford voiced concern about multiple towers within close proximity to each other and sharing of towers by carriers. A discussion ensued.

L. Dunkin reminded the Commission that the regulations allow for telecommunication towers in all zones as public utilities. A. Lathrop stated that both site plans meet the zoning regulations.

MOTION by J. Ford, SECOND by J. Mahoney to TABLE SDP#99-235 and SDP#99-238. VOTING IN FAVOR: J. Gagnon, R. Vasquez, J. Ford, J. Mahoney and R. Weeks, VOTING IN OPPOSITION: M. Ciccone, M. Noniewicz and L. Kieft-Robitaille. **MOTION CARRIED.**

8. OLD BUSINESS - None

9. NEW BUSINESS - None

10. COMMUNICATIONS

A. Lathrop distributed information compiled regarding "Transitional Living Facilities"', Fair Housing Act and cellular towers. She also distributed a draft of the Zoning and Planning Commission Year 2000 meeting schedule.

R. Weeks stated that a new member, Joseph Mathieu, has been appointed to the Commission.

11. ZONING ENFORCEMENT OFFICER'S REPORT

J. Ford questioned A. Lathrop about enforcement regarding an addition to a tower on Old Hartford Road. A. Lathrop stated that an exception to the height limit was granted at the time of approval and that a specific height limit was not stated. She noted a building permit has been issued for the additional tower on the silo. A discussion ensued regarding creating cellular tower regulations.

12. PLANNING ISSUES & DISCUSSION

L. Dunkin stated that the next regular meeting for the Subcommittee for the Plan of Conservation and Development will meet on November 10, 1999.

13. ADJOURNMENT

MOTION by J. Mahoney, SECOND by M. Noniewicz to ADJOURN. **MOTION CARRIED UNANIMOUSLY.** The meeting was adjourned at 8:32 p.m.

Deanna Rhodes

Deanna Rhodes, Clerk

CT2220-5

CT 33XC575 Colchester SBA

TOWN OF COLCHESTER

BUILDING PERMIT

OFFICE USE ONLY
Street 31 Chestnut Hill
Map ____ Lot ____
Date Feb 23 2000
PERMIT No 8319

FEES PAID					
	Structural 450	Plumbing ____	Misc. (4 @ 50)	7.20
	Septic ____	Heating ____	Misc. (5 @ 10)	10
	Electrical ____	Well ____	Total Fee Paid	~~460~~ 467.20

PERMISSION IS HEREBY GRANTED TO SPRINT PCS
to: erect 1, alter ____, enlarge ____, repair ____, move ____, demolish ____, a ANTENNA
located at 31 Chestnut Hill on land
owned by John Patty Borowski
Said: erection 1, alteration ____, enlargement ____, repairs ____, removal ____, demolition ____, to be occupied as Communications Equipment
as described in Application No. ____ and to conform with plans and specifications filed with application, all provisions of the Connecticut Building Code and to comply with all other laws and rules relating to this subject. If no work is performed within six months from the time of issuance, this permit shall expire by limitation as provided by law.

REMARKS Antenna & Associated Equipment

Receipt No. 1163

Approved by Timothy E York
Timothy E. York
Building Inspector

Please refer to notice on reverse side of this permit
WHITE: Applicant CANARY: Assessor PINK: Gen. File GOLDENROD: Street File

SITE # 10125-020
FILE TYPE CO-LO,
SECTION SPRINT.

ATTention: Steve Mauro
201-684-4141

SBA
Ed Dupont
860-659-9140

EXHIBIT 6

COLCHESTER/RT 2

31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

SITE NO.: CT11255E

SITE TYPE: 180'± MONOPOLE

RF DESIGN GUIDELINE: CUSTOM

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

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.
   - PORTABLE 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-H STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

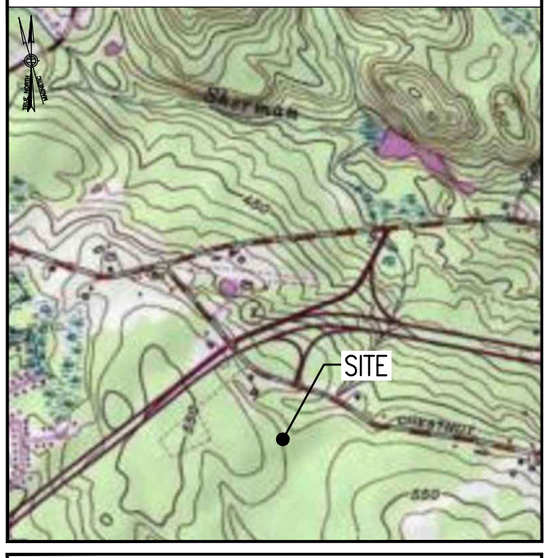
GENERAL NOTES

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"



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.

SHEET INDEX

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A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
E-1	ELECTRIC & GROUNDING DETAILS	1

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).

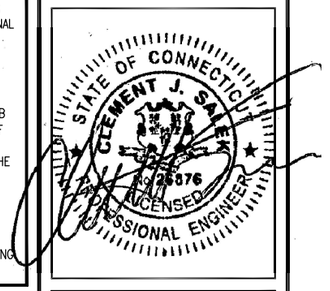
PROJECT SUMMARY

SITE NUMBER:	CT11255E
SBA SITE NUMBER:	CT02220-S
SBA SITE NAME:	COLCHESTER 2 CT
SITE ADDRESS:	31 CHESTNUT HILL ROAD COLCHESTER, CT 06415
PROPERTY OWNER:	JOHN JR. & MARY PZYBORROWSKI FISHER ISLAND, NY 06390
TOWER OWNER:	SBA TOWERS, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	FDD, FUTURE GROWTH DISTRICT
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	180'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.571311° LONGITUDE W.-72.302383°

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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/18/19	ISSUED FOR CONSTRUCTION	CMC
0	05/11/19	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CT11255E

SITE ADDRESS:
31 CHESNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.060

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
CLEMENT J. SALEK
No. 25876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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0	05/11/19	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CT11255E

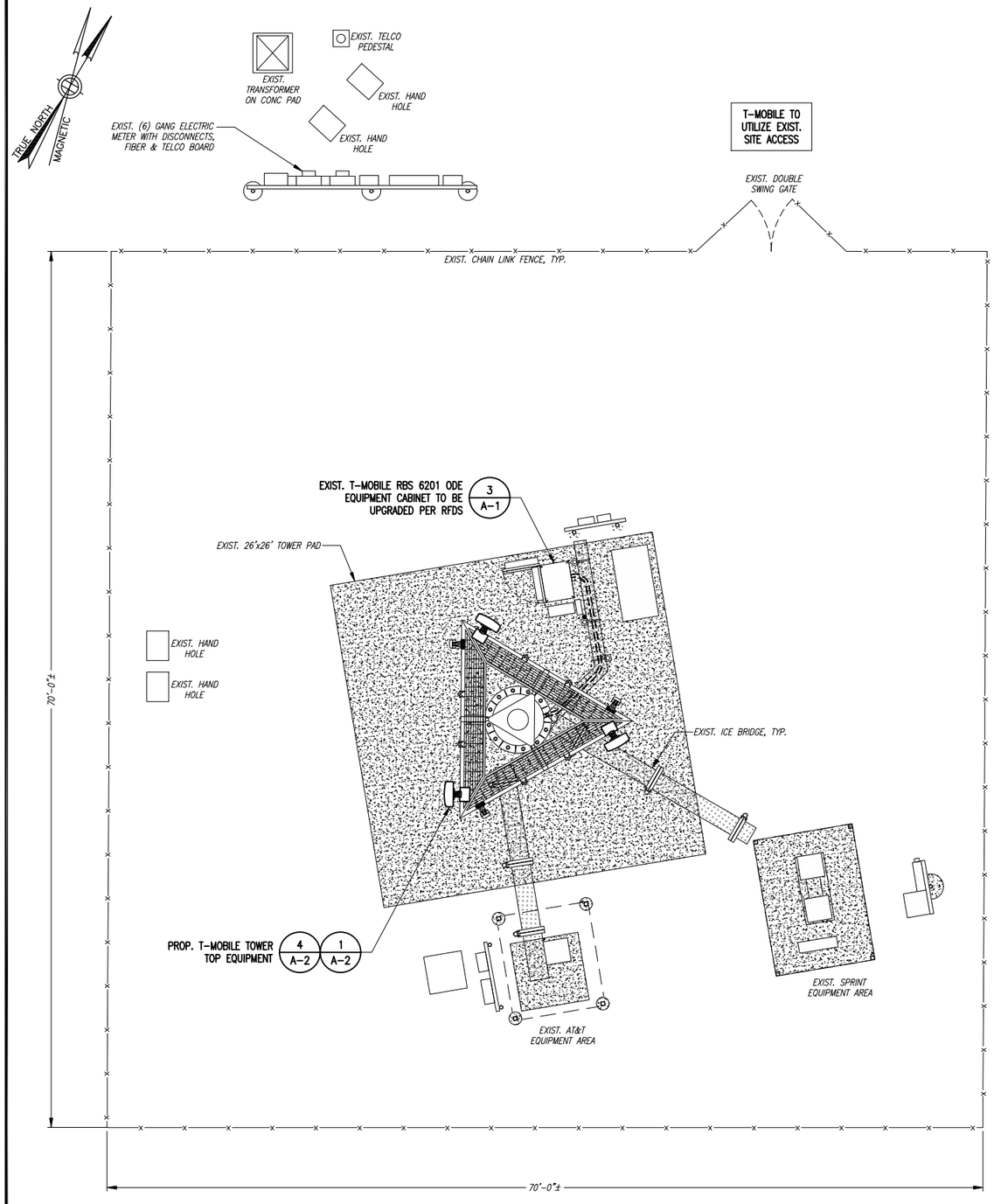
SITE ADDRESS:
31 CHESNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

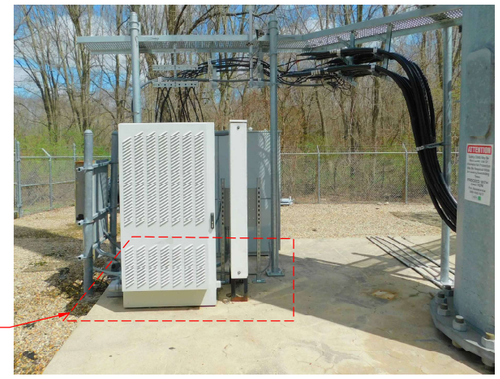
1815.060

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.

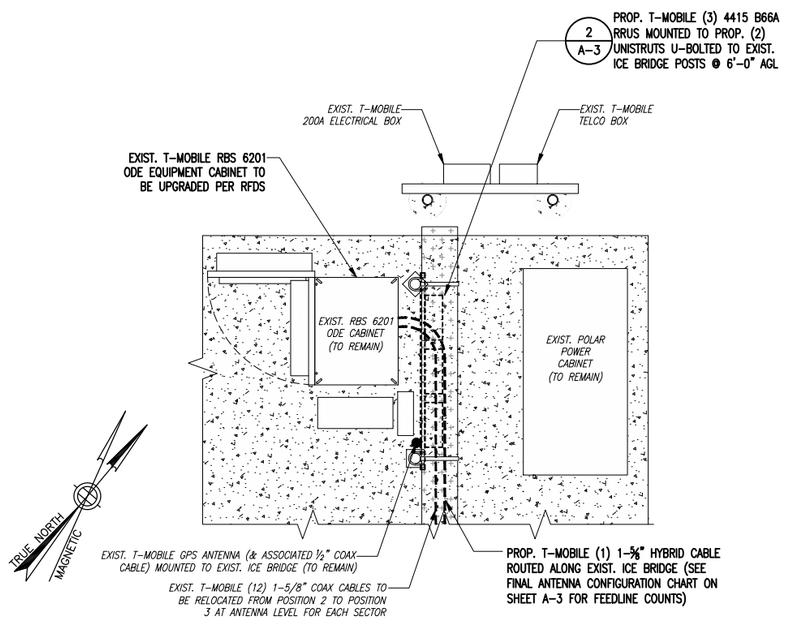


COMPOUND PLAN 1 A-1
SCALE: 1" = 5'-0"
0 5'-0" 10'-0" 15'-0"

EXIST. EQUIPMENT AREA 3 A-1



EQUIPMENT AREA PHOTO 2 A-1
SCALE: N.T.S.



PROPOSED EQUIPMENT PLAN 3 A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

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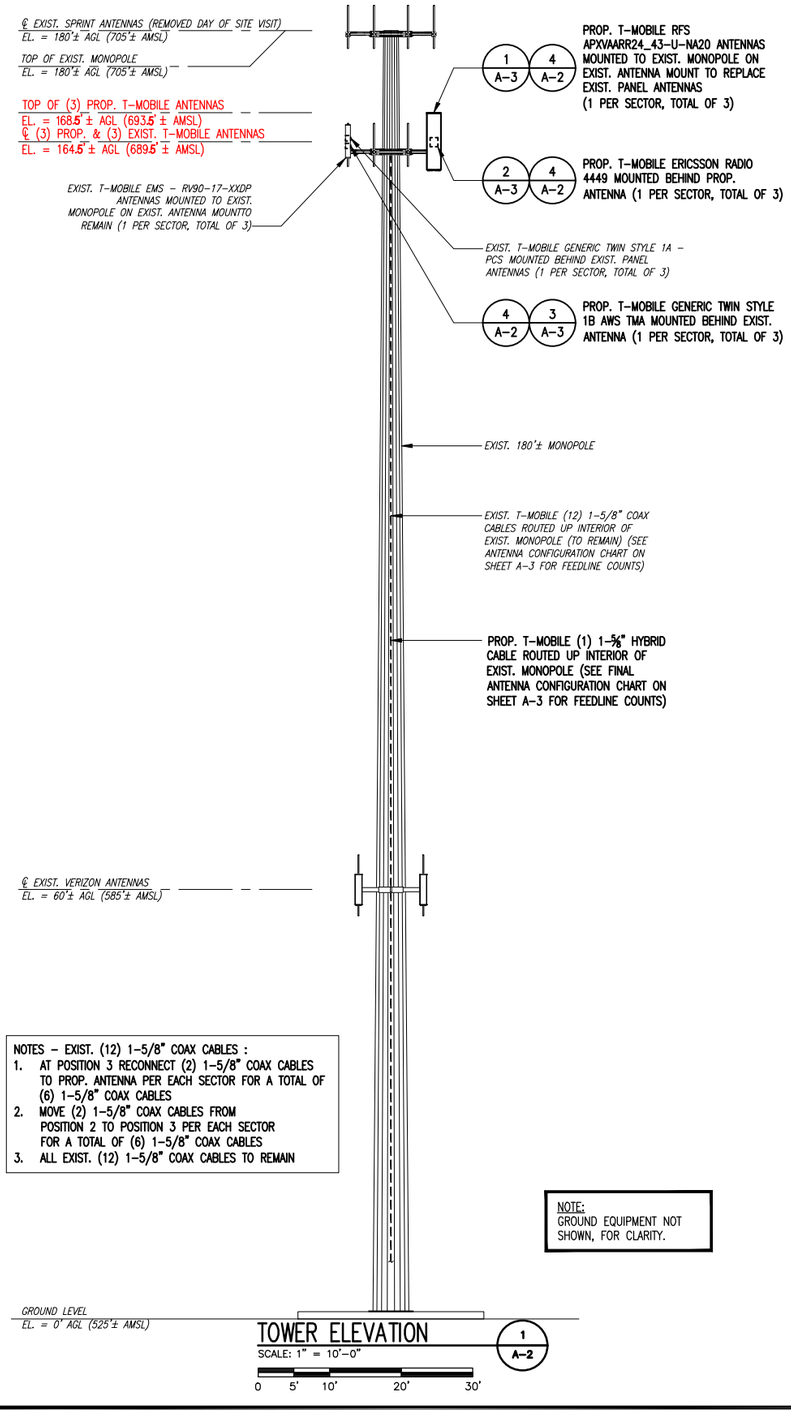
SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

1815.060

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

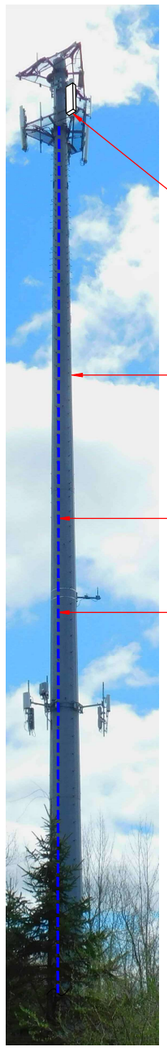
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



TOWER ELEVATION 1 A-2
SCALE: 1" = 10'-0"
0 5' 10' 20' 30'

NOTES - EXIST. (12) 1-5/8" COAX CABLES :
1. AT POSITION 3 RECONNECT (2) 1-5/8" COAX CABLES TO PROP. ANTENNA PER EACH SECTOR FOR A TOTAL OF (6) 1-5/8" COAX CABLES
2. MOVE (2) 1-5/8" COAX CABLES FROM POSITION 2 TO POSITION 3 PER EACH SECTOR FOR A TOTAL OF (6) 1-5/8" COAX CABLES
3. ALL EXIST. (12) 1-5/8" COAX CABLES TO REMAIN

NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

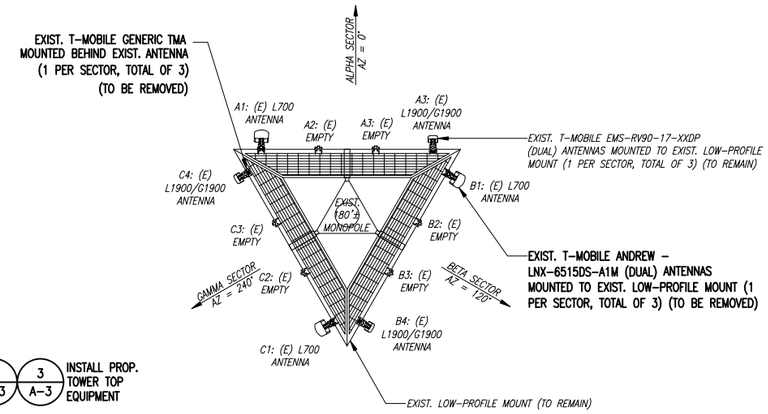


SOURCE: CEA SITE VISIT 04.23.2019

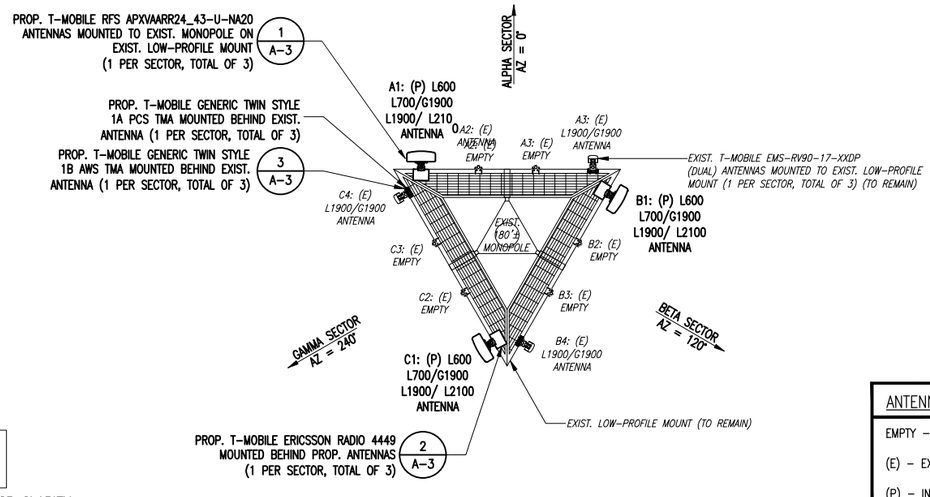
NOTE:
PROPOSED T-MOBILE RRH'S NOT SHOWN, FOR CLARITY.

NOTE: ONE SECTOR SHOWN FOR CLARITY

TOWER PHOTO 2 A-2
SCALE: N.T.S.



EXISTING ANTENNA PLAN 3 A-2
SCALE: N.T.S.
NORTH



PROPOSED ANTENNA PLAN 4 A-2
SCALE: N.T.S.
NORTH

ANTENNA LEGEND:
EMPTY - EMPTY PIPE
(E) - EXISTING
(P) - INSTALL

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

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COLCHESTER, CT 06415

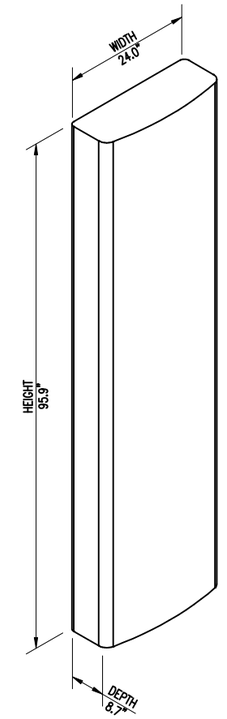
SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

SHEET NUMBER
A-2

1815.060

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	*EMPTY*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	EMS-RV90-17-XXDP	*164.5'± AGL*	*0°*	*0°*	*2°*	*N/A*	*N/A*	*N/A*
	RFS APXVAARR24_43-U-NA20	164.5'± AGL	0°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 HCS CABLE (SHARED) (4) 1⅝" COAX CABLE
						L1900/G1900	TWIN STYLE 1A PCS TMA	
						L2100	RADIO 4415 B66A (AT CABINET) TWIN STYLE 1B AWS TMA	
	EMPTY	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
BETA	*EMPTY*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	EMS-RV90-17-XXDP	*164.5'± AGL*	*120°*	*0°*	*2°*	*N/A*	*N/A*	*N/A*
	RFS APXVAARR24_43-U-NA20	164.5'± AGL	120°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 HCS CABLE (SHARED) (4) 1⅝" COAX CABLE
						L1900/G1900	TWIN STYLE 1A PCS TMA	
						L2100	RADIO 4415 B66A (AT CABINET) TWIN STYLE 1B AWS TMA	
	EMPTY	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
GAMMA	*EMPTY*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	EMS-RV90-17-XXDP	*164.5'± AGL*	*240°*	*0°*	*2°*	*N/A*	*N/A*	*N/A*
	RFS APXVAARR24_43-U-NA20	164.5'± AGL	240°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 HCS CABLE (SHARED) (4) 1⅝" COAX CABLE
						L1900/G1900	TWIN STYLE 1A PCS TMA	
						L2100	RADIO 4415 B66A (AT CABINET) TWIN STYLE 1B AWS TMA	
	EMPTY	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*



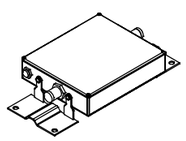
RFS APXVAARR24_43-U-NA20 PANEL ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 LBS
1 PER SECTOR, TOTAL OF 3

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

ERICSSON RADIO 4449 B12+B71
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 LBS
1 PER SECTOR, TOTAL OF 3

ERICSSON RADIO 4415 B66
DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 45.0 LBS
1 PER SECTOR, TOTAL OF 3

RRU DETAIL (2 / A-3)
SCALE: N.T.S.



TMA 17/21
DIMENSIONS: 7.7"H x 7.5"W x 3.4"D
WEIGHT: 11.0 LBS
2 PER SECTOR, TOTAL OF 6

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

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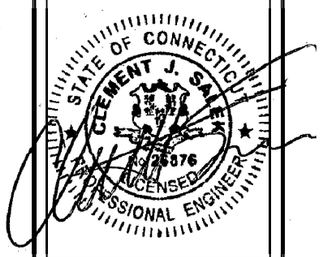

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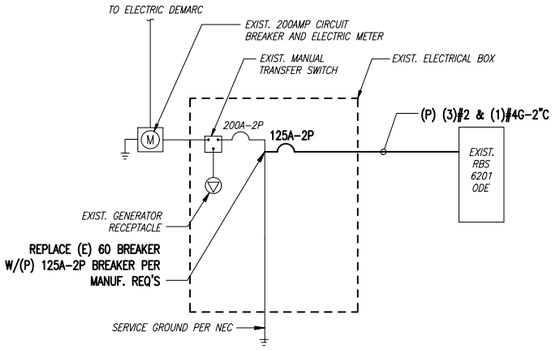
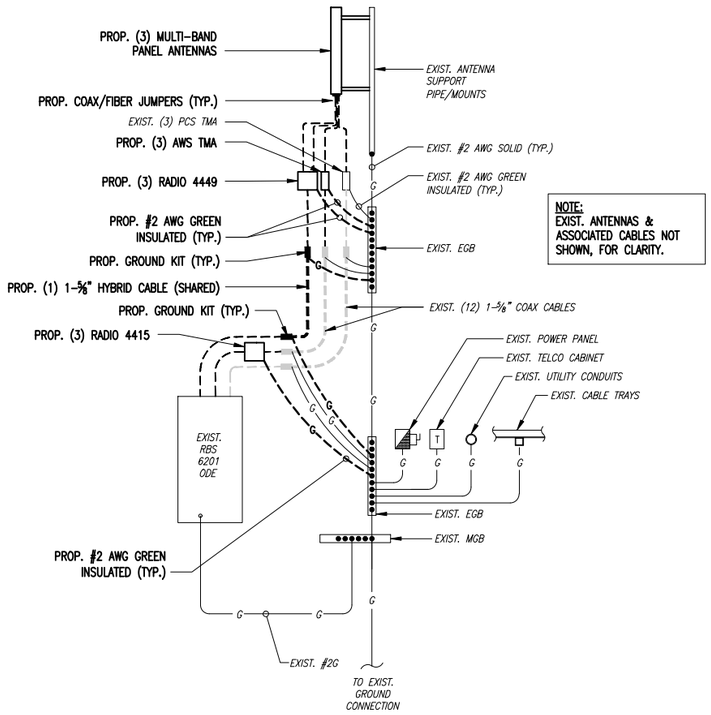
SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

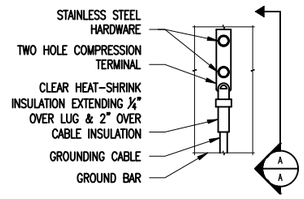
1815.060



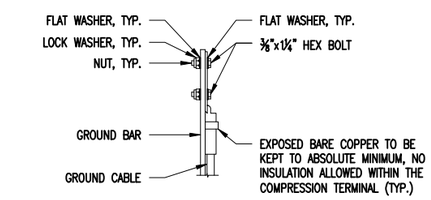
ONE LINE DIAGRAM (1 / E-1)
SCALE: NOT TO SCALE



GROUNDING RISER DIAGRAM (2 / E-1)
SCALE: NOT TO SCALE



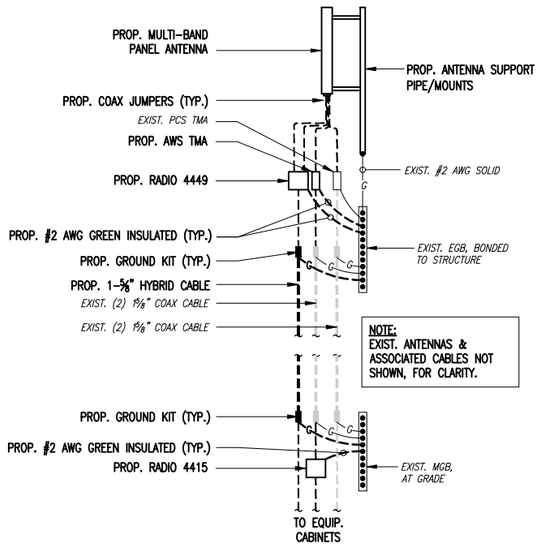
ELEVATION



SECTION A-A

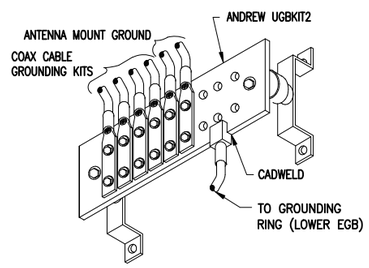
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

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



L600/L700

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



GROUND BAR (EGB) (5 / 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 THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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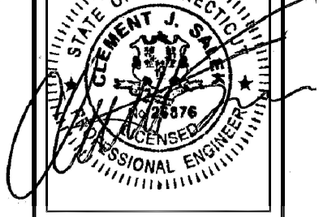

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SHEET NUMBER
E-1

1815.060

EXHIBIT 7

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 Valmont Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT02220-S
Customer Site Name: Colchester 2 CT
Carrier Name: T-Mobile (App#: 115953-1)
Carrier Site ID / Name: CT11255E / Colchester
Site Location: 31 Chestnut Hill Road
Colchester, Connecticut
New London County
Latitude: 41.571327
Longitude: -72.302322

Analysis Result:

Max Structural Usage: 70.6% [Pass]
Max Foundation Usage: 58.0% [Pass]
Additional Usage Caused by Mount Modification: +2

Report Prepared By : Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Valmont Monopole 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	Tower design prepared by Valmont, job # 19539-99, dated 11/30/1999
Foundation Drawing	Foundation design prepared by Valmont, job # 19539-99, dated 11/29/1999
Geotechnical Report	Geotechnical report prepared by 1207126EG1, dated 08/10/2012
Modification Drawings	Modification inspection prepared by FDH, job # 15BSZU1700, dated 10/14/2015

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** 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} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.174, S_1 = 0.061

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	180.0	3	RFS - APXVTM14-C-I20 - Panel	Low Profile Platform + (1)Handrail Kit (SitePro HRK-14) +(1) V-Brace Kit (SitePro PRK-SFS) + (1) Platform Reinforcement Kit (SitePro PRK-1245-L)	(4) 1-1/4" Fiber	Sprint Nextel
2		3	CommScope - NNVV-65B-R4 - Panel			
3		3	ALU 1900 Mhz RRUs			
4		6	ALU 800 Mhz RRUs			
5		3	ALU TD-RRH8x20-25 RRUs			
6	164.5	3	EMS - RR901782DP - Panel	Low Profile Platform	(12) 1 5/8"	T-Mobile
7		3	Commscope - LNX-65651DS - Panel			
8		3	Kathrein - 782 11056 - Bias T			
9	60.0	2	Commscope - HBX-6513DS-A1M - Panel	(3) Standoff	(1) 1 5/8" Fiber	Verizon
10		2	ALU - RRH2x60-AWS			

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
6	164.5	3	EMS - RR90-17-82DP - Panel	Modified Low Profile Platform with support rail kit with T-Arm MS-P-TARM and new heavy collar mount MS-H1436	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
7		3	RFS - APXVAARR24_43-U-NA20 - Panel			
8		3	Ericsson KRY 112 489/2			
9		3	Ericsson KRY 112 144/2			
10		3	Ericsson Radio 4449 B71+B12			
11		3	Kathrein 782 11056 Bias Ts			

All transmission lines are considered running inside of the pole shafts.

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:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**70.6%**	**60.4%**	**47.2%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	5045.0	39.5
Analysis Reactions	4292.1	33.4
Factored Reactions*	6810.8	53.3
% of Design Reactions	63.0%	62.7%

* 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 ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.4212 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 ANSI/TIA/EIA 222-G 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 EIA/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.

Usage Diagram - Max Ratio 70.64% at 132.3ft

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

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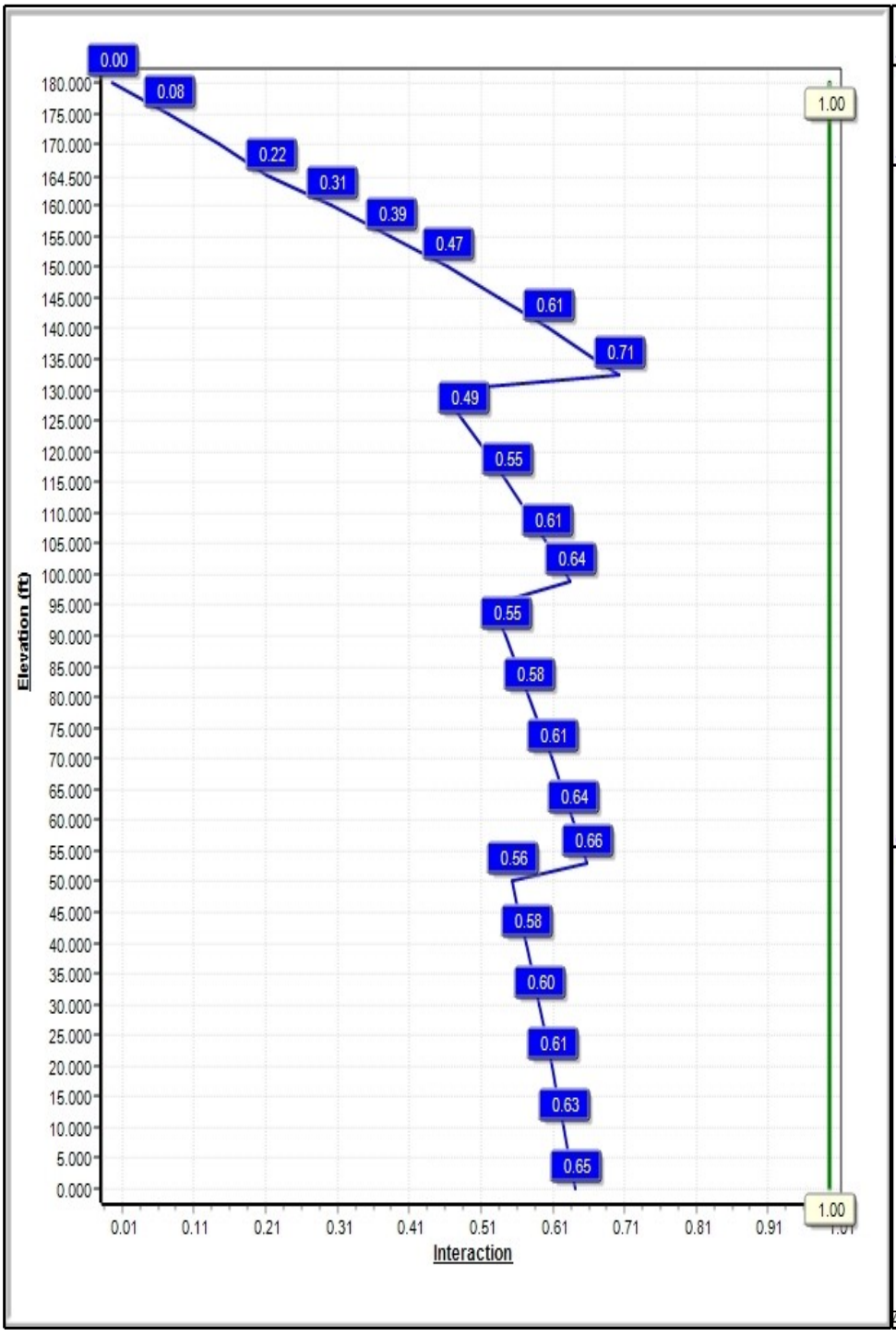
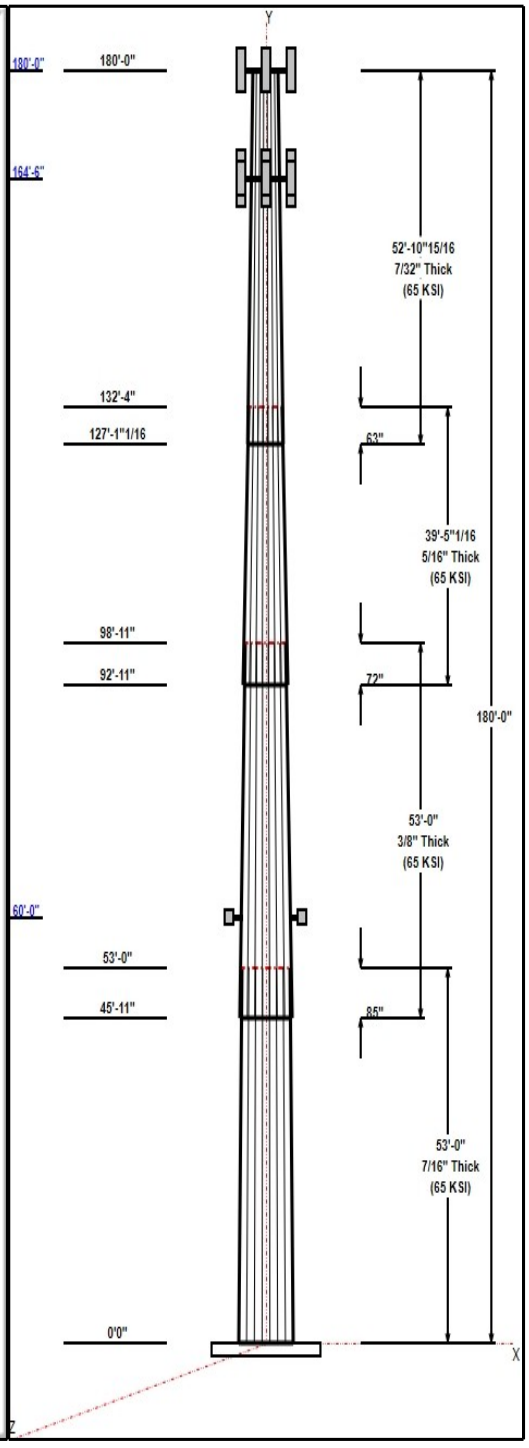
Dead Load Factor:	1.20	**Iterations:**	25
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 101 mph Wind





Structure: CT02220-S-SBA

Type: Tapered
Site Name: Colchester 2 CT
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

7/8/2019

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	49.13	60.00	0.439		0.20502	65
2	53.00	40.47	51.34	0.375	Slip	0.20502	65
3	39.42	34.24	42.33	0.313	Slip	0.20502	65
4	52.91	24.91	35.76	0.219	Slip	0.20502	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
180.00	180.00	3	NNVV-65B-R4	Sprint Nextel
180.00	180.00	3	APXVTM14-C-I20	Sprint Nextel
180.00	180.00	3	ALU 1900 Mhz RRUs	Sprint Nextel
180.00	180.00	6	ALU 800 Mhz RRUs	Sprint Nextel
180.00	180.00	3	ALU TD-RRH8x20-25	Sprint Nextel
180.00	180.00	1	Low Profile Platform	Sprint Nextel
180.00	180.00	1	HRK-14	Sprint Nextel
180.00	180.00	1	PRK-SFS	Sprint Nextel
180.00	180.00	1	PRK-1245L	Sprint Nextel
164.50	164.50	3	RR90-17-82DP	T-Mobile
164.50	164.50	3	APXVAARR24_43-U-NA20	T-Mobile
164.50	164.50	3	Ericsson KRY 112 489/2	T-Mobile
164.50	164.50	3	Ericsson KRY 112 144/2	T-Mobile
164.50	164.50	3	Ericsson Radio 4449	T-Mobile
164.50	164.50	3	Kathrein 782 11056 Bias	T-Mobile
164.50	164.50	1	Bracing	T-Mobile
164.50	164.50	1	Low Profile Platform	T-Mobile
60.00	60.00	2	HBX-6513DS-A1M	Verizon
60.00	60.00	2	RRH2x40-AWS	Verizon
60.00	60.00	3	3 ft Standoff	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	180.00	Inside	1-1/4" Fiber	Sprint Nextel
0.00	164.50	Inside	1 5/8" Coax	T-Mobile
0.00	164.50	Inside	1 5/8" Fiber	T-Mobile
0.00	60.00	Inside	1 5/8" Fiber	Verizon

Anchor Bolts

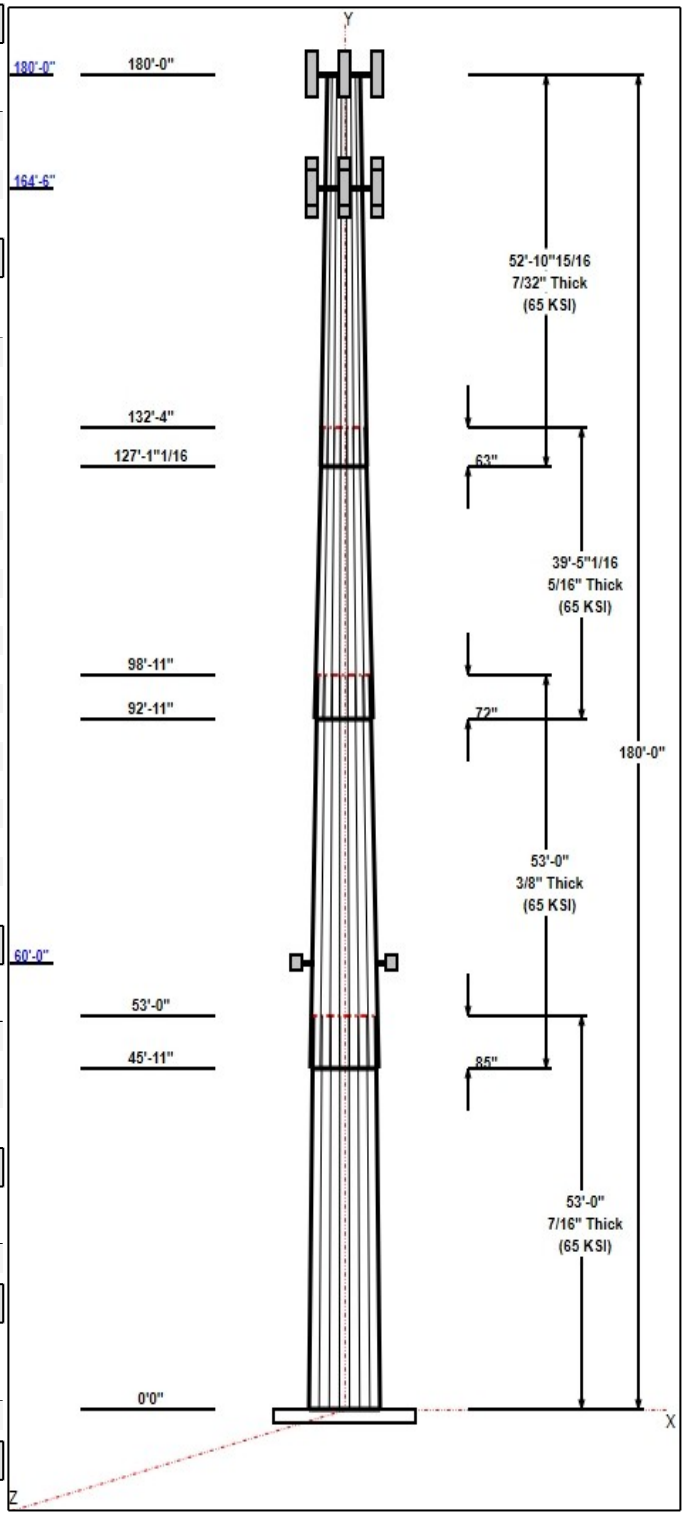
Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	74.6	60.0	Polygon

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	4292.1	33.4	49.4
0.9D + 1.6W 101 mph Wind	4250.0	33.4	37.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1088.9	8.4	72.3
1.2D + 1.0E	269.3	2.0	49.5



0.9D + 1.0E	266.5	2.0	37.1
1.0D + 1.0W 60 mph Wind	941.9	7.4	41.2

Structure: CT02220-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Colchester 2 CT
Height: 180.00 (ft)

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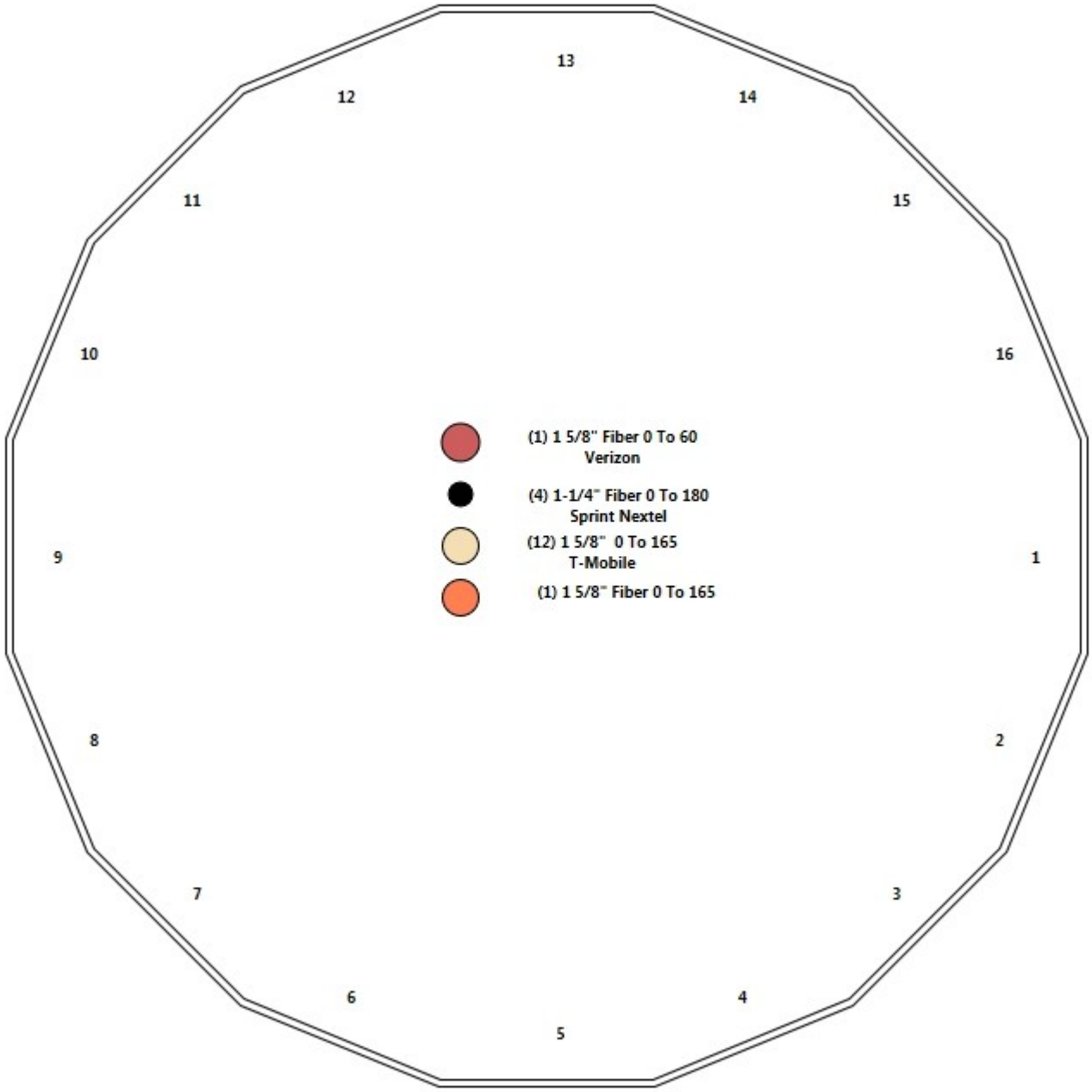

Shaft Properties

Structure:	CT02220-S-SBA		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	53.000	0.4390	65		0.00	13,671
2	16	53.000	0.3750	65	Slip	85.00	9,822
3	16	39.420	0.3130	65	Slip	72.00	5,086
4	16	52.913	0.2190	65	Slip	63.00	3,788
					Total Shaft Weight:		**32,367**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	60.00	0.00	83.41	37381.40	25.59	136.67	49.13	53.00	68.19	20427.6	20.67	111.9	0.205022
2	51.34	45.92	60.96	20001.00	25.64	136.90	40.47	98.92	47.96	9740.99	19.88	107.9	0.205022
3	42.33	92.92	41.95	9354.08	25.31	135.23	34.24	132.34	33.88	4927.66	20.17	109.4	0.205022
4	35.76	127.0	24.83	3961.68	30.89	163.28	24.91	180.00	17.25	1328.51	21.03	113.7	0.205022

Load Summary

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	180.00	NNVV-65B-R4	3	77.40	12.27	0.74	368.21	13.753	0.74	0.00	0.00
2	180.00	APXVTM14-C-I20	3	56.20	6.34	0.77	220.17	7.475	0.77	0.00	0.00
3	180.00	ALU 1900 Mhz RRUs	3	44.00	3.80	0.67	155.17	5.216	0.67	0.00	0.00
4	180.00	ALU 800 Mhz RRUs	6	53.00	2.49	0.67	128.32	3.655	0.67	0.00	0.00
5	180.00	ALU TD-RRH8x20-25 RRUs	3	70.00	4.05	0.67	182.93	4.879	0.67	0.00	0.00
6	180.00	Low Profile Platform	1	1200.00	25.00	1.00	2266.40	46.328	1.00	0.00	0.00
7	180.00	HRK-14	1	302.00	6.00	1.00	570.38	13.123	1.00	0.00	0.00
8	180.00	PRK-SFS	1	170.00	13.00	1.00	347.73	20.109	1.00	0.00	0.00
9	180.00	PRK-1245L	1	464.91	11.84	1.00	795.43	24.466	1.00	0.00	0.00
10	164.50	RR90-17-82DP	3	18.00	4.36	0.68	117.89	5.356	0.68	0.00	0.00
11	164.50	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	550.30	22.158	0.70	0.00	0.00
12	164.50	Ericsson KRY 112 489/2	3	15.40	0.64	0.83	33.21	1.255	0.83	0.00	0.00
13	164.50	Ericsson KRY 112 144/2	3	15.40	0.64	0.83	33.21	1.255	0.83	0.00	0.00
14	164.50	Ericsson Radio 4449 B71+B12	3	70.00	1.65	0.67	139.04	2.193	0.67	0.00	0.00
15	164.50	Kathrein 782 11056 Bias Ts	3	5.30	0.13	0.87	14.83	0.318	0.87	0.00	0.00
16	164.50	Bracing	1	500.00	20.00	1.00	1098.87	39.728	1.00	0.00	0.00
17	164.50	Low Profile Platform	1	1200.00	25.00	1.00	2256.84	46.137	1.00	0.00	0.00
18	60.00	HBX-6513DS-A1M	2	5.70	1.58	0.80	39.57	2.566	0.80	0.00	0.00
19	60.00	RRH2x40-AWS	2	44.00	2.16	0.67	99.41	3.116	0.67	0.00	0.00
20	60.00	3 ft Standoff	3	40.00	2.63	0.75	113.25	8.076	0.75	0.00	0.00
		Totals:	**49**	**5,873.41**			**14,168.16**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	180.00	(4) 1-1/4" Fiber	0.00	Inside
0.00	164.50	(12) 1 5/8" Coax	0.00	Inside
0.00	164.50	(1) 1 5/8" Fiber	0.00	Inside
0.00	60.00	(1) 1 5/8" Fiber	0.00	Inside

Shaft Section Properties

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.4390	60.000	83.410	37381.4	25.59	136.67	73.6	1222.	0.0
5.00		0.4390	58.975	81.974	35484.3	25.13	134.34	74.1	1180.	1406.9
10.00		0.4390	57.950	80.539	33652.5	24.67	132.00	74.7	1139.	1382.5
15.00		0.4390	56.925	79.103	31884.8	24.20	129.67	75.2	1098.	1358.1
20.00		0.4390	55.900	77.668	30180.2	23.74	127.33	75.7	1059.	1333.6
25.00		0.4390	54.874	76.232	28537.4	23.27	125.00	76.2	1020.	1309.2
30.00		0.4390	53.849	74.796	26955.4	22.81	122.66	76.8	981.9	1284.8
35.00		0.4390	52.824	73.361	25432.9	22.34	120.33	77.3	944.4	1260.4
40.00		0.4390	51.799	71.925	23968.9	21.88	117.99	77.8	907.7	1235.9
45.00		0.4390	50.774	70.490	22562.1	21.41	115.66	78.3	871.7	1211.5
45.92	Bot - Section 2	0.4390	50.586	70.226	22310.3	21.33	115.23	78.4	865.1	219.5
50.00		0.4390	49.749	69.054	21211.5	20.95	113.32	78.9	836.4	1807.7
53.00	Top - Section 1	0.3750	49.884	59.225	18339.4	24.87	133.02	0.0	0.0	1308.9
55.00		0.3750	49.474	58.734	17887.4	24.65	131.93	74.7	709.2	401.4
60.00		0.3750	48.449	57.508	16790.3	24.11	129.20	75.3	679.8	988.9
65.00		0.3750	47.424	56.282	15738.9	23.56	126.46	75.9	651.0	968.0
70.00		0.3750	46.398	55.056	14732.4	23.02	123.73	76.5	622.8	947.1
75.00		0.3750	45.373	53.829	13769.7	22.48	121.00	77.1	595.3	926.3
80.00		0.3750	44.348	52.603	12849.9	21.93	118.26	77.8	568.4	905.4
85.00		0.3750	43.323	51.377	11972.0	21.39	115.53	78.4	542.1	884.5
90.00		0.3750	42.298	50.150	11135.1	20.84	112.79	79.0	516.4	863.7
92.92	Bot - Section 3	0.3750	41.700	49.435	10665.4	20.53	111.20	79.3	501.7	494.2
95.00		0.3750	41.273	48.924	10338.1	20.30	110.06	79.6	491.3	644.5
98.92	Top - Section 2	0.3130	41.096	40.720	8556.2	24.53	131.30	0.0	0.0	1193.7
100.00		0.3130	40.874	40.499	8417.2	24.38	130.59	75.0	403.9	149.7
105.00		0.3130	39.849	39.475	7795.0	23.73	127.31	75.7	383.7	680.3
110.00		0.3130	38.824	38.452	7204.2	23.08	124.04	76.5	364.0	662.9
115.00		0.3130	37.798	37.428	6644.1	22.43	120.76	77.2	344.8	645.5
120.00		0.3130	36.773	36.405	6113.8	21.78	117.49	77.9	326.1	628.1
125.00		0.3130	35.748	35.381	5612.5	21.13	114.21	78.7	308.0	610.7
127.09	Bot - Section 4	0.3130	35.320	34.954	5411.6	20.85	112.84	79.0	300.5	249.7
130.00		0.3130	34.723	34.357	5139.3	20.48	110.94	79.4	290.3	587.6
132.34	Top - Section 3	0.2190	34.682	24.076	3612.5	29.91	158.37	0.0	0.0	464.0
135.00		0.2190	34.136	23.695	3443.5	29.41	155.87	69.3	197.9	216.5
140.00		0.2190	33.111	22.979	3140.6	28.48	151.19	70.3	186.1	397.0
145.00		0.2190	32.086	22.262	2856.0	27.55	146.51	71.4	174.6	384.9
150.00		0.2190	31.061	21.546	2589.2	26.62	141.83	72.5	163.5	372.7
155.00		0.2190	30.036	20.830	2339.5	25.69	137.15	73.5	152.8	360.5
160.00		0.2190	29.010	20.114	2106.4	24.76	132.47	74.6	142.4	348.3
164.50		0.2190	28.088	19.469	1910.3	23.92	128.25	75.5	133.4	303.1
165.00		0.2190	27.985	19.398	1889.3	23.83	127.79	75.6	132.4	33.1
170.00		0.2190	26.960	18.682	1687.7	22.90	123.11	76.7	122.8	323.9
175.00		0.2190	25.935	17.966	1500.9	21.96	118.43	77.7	113.5	311.8
180.00		0.2190	24.910	17.249	1328.5	21.03	113.74	78.8	104.6	299.6
										32366.5

Wind Loading - Shaft

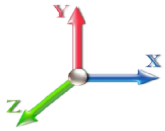
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	430.79	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	423.43	0.750	0.000	5.00	25.272	18.95	579.3	0.0	1688.3
10.00		1.00	0.70	17.366	19.10	416.07	0.750	0.000	5.00	24.837	18.63	569.3	0.0	1659.0
15.00		1.00	0.70	17.366	19.10	408.71	0.750	0.000	5.00	24.401	18.30	559.4	0.0	1629.7
20.00		1.00	0.70	17.366	19.10	401.35	0.750	0.000	5.00	23.966	17.97	549.4	0.0	1600.4
25.00		1.00	0.70	17.366	19.10	393.99	0.750	0.000	5.00	23.530	17.65	539.4	0.0	1571.1
30.00		1.00	0.70	17.381	19.12	386.79	0.750	0.000	5.00	23.095	17.32	529.9	0.0	1541.7
35.00		1.00	0.73	18.163	19.98	387.88	0.750	0.000	5.00	22.659	16.99	543.3	0.0	1512.4
40.00		1.00	0.76	18.870	20.76	387.68	0.750	0.000	5.00	22.224	16.67	553.5	0.0	1483.1
45.00		1.00	0.79	19.516	21.47	386.45	0.750	0.000	5.00	21.788	16.34	561.3	0.0	1453.8
45.92	Bot - Section 2	1.00	0.79	19.628	21.59	386.13	0.750	0.000	0.92	3.947	2.96	102.3	0.0	263.4
50.00		1.00	0.81	20.112	22.12	384.39	0.750	0.000	4.08	17.666	13.25	469.0	0.0	2169.3
53.00	Top - Section 1	1.00	0.82	20.450	22.49	382.81	0.750	0.000	3.00	12.794	9.60	345.3	0.0	1570.6
55.00		1.00	0.83	20.667	22.73	387.51	0.750	0.000	2.00	8.442	6.33	230.3	0.0	481.7
60.00	Appurtenance(s)	1.00	0.85	21.187	23.31	384.22	0.750	0.000	5.00	20.800	15.60	581.7	0.0	1186.6
65.00		1.00	0.87	21.678	23.85	380.42	0.750	0.000	5.00	20.365	15.27	582.7	0.0	1161.6
70.00		1.00	0.89	22.142	24.36	376.16	0.750	0.000	5.00	19.929	14.95	582.5	0.0	1136.6
75.00		1.00	0.91	22.582	24.84	371.49	0.750	0.000	5.00	19.494	14.62	581.1	0.0	1111.5
80.00		1.00	0.93	23.003	25.30	366.46	0.750	0.000	5.00	19.058	14.29	578.7	0.0	1086.5
85.00		1.00	0.94	23.404	25.74	361.10	0.750	0.000	5.00	18.623	13.97	575.3	0.0	1061.5
90.00		1.00	0.96	23.790	26.17	355.45	0.750	0.000	5.00	18.187	13.64	571.1	0.0	1036.4
92.92	Bot - Section 3	1.00	0.97	24.008	26.41	352.03	0.750	0.000	2.92	10.408	7.81	329.8	0.0	593.0
95.00		1.00	0.97	24.160	26.58	349.52	0.750	0.000	2.08	7.454	5.59	237.7	0.0	773.4
98.92	Top - Section 2	1.00	0.99	24.441	26.88	344.71	0.750	0.000	3.92	13.810	10.36	445.5	0.0	1432.4
100.00		1.00	0.99	24.517	26.97	348.69	0.750	0.000	1.08	3.773	2.83	122.1	0.0	179.6
105.00		1.00	1.00	24.861	27.35	342.32	0.750	0.000	5.00	17.147	12.86	562.7	0.0	816.4
110.00		1.00	1.02	25.194	27.71	335.74	0.750	0.000	5.00	16.711	12.53	555.7	0.0	795.5
115.00		1.00	1.03	25.516	28.07	328.96	0.750	0.000	5.00	16.276	12.21	548.2	0.0	774.6
120.00		1.00	1.04	25.828	28.41	321.99	0.750	0.000	5.00	15.840	11.88	540.0	0.0	753.7
125.00		1.00	1.05	26.131	28.74	314.84	0.750	0.000	5.00	15.405	11.55	531.3	0.0	732.8
127.09	Bot - Section 4	1.00	1.06	26.255	28.88	311.81	0.750	0.000	2.09	6.300	4.73	218.3	0.0	299.6
130.00		1.00	1.07	26.425	29.07	307.53	0.750	0.000	2.91	8.777	6.58	306.2	0.0	705.1
132.34	Top - Section 3	1.00	1.07	26.560	29.22	304.06	0.750	0.000	2.34	6.933	5.20	243.1	0.0	556.9
135.00		1.00	1.08	26.712	29.38	303.97	0.750	0.000	2.66	7.787	5.84	274.5	0.0	259.8
140.00		1.00	1.09	26.991	29.69	296.38	0.750	0.000	5.00	14.284	10.71	508.9	0.0	476.5
145.00		1.00	1.10	27.263	29.99	288.64	0.750	0.000	5.00	13.849	10.39	498.4	0.0	461.8
150.00		1.00	1.11	27.528	30.28	280.78	0.750	0.000	5.00	13.413	10.06	487.4	0.0	447.2
155.00		1.00	1.12	27.787	30.57	272.79	0.750	0.000	5.00	12.978	9.73	476.0	0.0	432.6
160.00		1.00	1.13	28.040	30.84	264.67	0.750	0.000	5.00	12.542	9.41	464.2	0.0	418.0
164.50	Appurtenance(s)	1.00	1.14	28.264	31.09	257.27	0.750	0.000	4.50	10.916	8.19	407.2	0.0	363.7
165.00		1.00	1.14	28.288	31.12	256.45	0.750	0.000	0.50	1.191	0.89	44.5	0.0	39.7
170.00		1.00	1.15	28.530	31.38	248.11	0.750	0.000	5.00	11.671	8.75	439.5	0.0	388.7
175.00		1.00	1.16	28.768	31.64	239.66	0.750	0.000	5.00	11.236	8.43	426.7	0.0	374.1
180.00	Appurtenance(s)	1.00	1.17	29.000	31.90	231.12	0.750	0.000	5.00	10.800	8.10	413.4	0.0	359.5
								Totals:	**180.00**			**19,266.3**		**38,839.8**

Discrete Appurtenance Forces

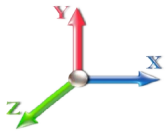
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	PRK-1245L	1	29.000	31.900	1.00	1.00	11.84	557.89	0.000	0.000	604.32	0.00	0.00
2	180.00	PRK-SFS	1	29.000	31.900	1.00	1.00	13.00	204.00	0.000	0.000	663.52	0.00	0.00
3	180.00	HRK-14	1	29.000	31.900	1.00	1.00	6.00	362.40	0.000	0.000	306.24	0.00	0.00
4	180.00	Low Profile Platform	1	29.000	31.900	1.00	1.00	25.00	1440.00	0.000	0.000	1276.01	0.00	0.00
5	180.00	ALU TD-RRH8x20-25	3	29.000	31.900	0.50	0.75	6.11	252.00	0.000	0.000	311.62	0.00	0.00
6	180.00	ALU 800 Mhz RRUs	6	29.000	31.900	0.50	0.75	7.51	381.60	0.000	0.000	383.18	0.00	0.00
7	180.00	ALU 1900 Mhz RRUs	3	29.000	31.900	7.20	10.75	82.11	158.40	0.000	0.000	4190.84	0.00	0.00
8	180.00	APXVTM14-C-I20	3	29.000	31.900	0.58	0.75	10.98	202.32	0.000	0.000	560.63	0.00	0.00
9	180.00	NNVV-65B-R4	3	29.000	31.900	0.55	0.75	20.43	278.64	0.000	0.000	1042.73	0.00	0.00
10	164.50	Low Profile Platform	1	28.264	31.090	1.00	1.00	25.00	1440.00	0.000	0.000	1243.60	0.00	0.00
11	164.50	Bracing	1	28.264	31.090	1.00	1.00	20.00	600.00	0.000	0.000	994.88	0.00	0.00
12	164.50	Kathrein 782 11056 Bias	3	28.264	31.090	0.65	0.75	0.25	19.08	0.000	0.000	12.66	0.00	0.00
13	164.50	Ericsson Radio 4449	3	28.264	31.090	0.50	0.75	2.49	252.00	0.000	0.000	123.73	0.00	0.00
14	164.50	Ericsson KRY 112 144/2	3	28.264	31.090	0.62	0.75	1.20	55.44	0.000	0.000	59.45	0.00	0.00
15	164.50	Ericsson KRY 112 489/2	3	28.264	31.090	0.62	0.75	1.20	55.44	0.000	0.000	59.45	0.00	0.00
16	164.50	APXVAARR24_43-U-NA2	3	28.264	31.090	0.52	0.75	31.88	460.80	0.000	0.000	1585.73	0.00	0.00
17	164.50	RR90-17-82DP	3	28.264	31.090	0.51	0.75	6.67	64.80	0.000	0.000	331.83	0.00	0.00
18	60.00	3 ft Standoff	3	21.187	23.306	0.56	0.75	4.44	144.00	0.000	0.000	165.50	0.00	0.00
19	60.00	RRH2x40-AWS	2	21.187	23.306	0.54	0.80	2.32	105.60	0.000	0.000	86.35	0.00	0.00
20	60.00	HBX-6513DS-A1M	2	21.187	23.306	0.64	0.80	2.02	13.68	0.000	0.000	75.42	0.00	0.00
							Totals:		**7,048.09**			**14,077.67**		

Total Applied Force Summary

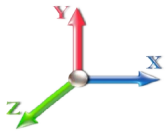
Structure:	CT02220-S-SBA		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		579.32	1798.91	0.00	0.00
10.00		569.34	1769.60	0.00	0.00
15.00		559.35	1740.29	0.00	0.00
20.00		549.37	1710.98	0.00	0.00
25.00		539.39	1681.67	0.00	0.00
30.00		529.85	1652.36	0.00	0.00
35.00		543.27	1623.05	0.00	0.00
40.00		553.55	1593.74	0.00	0.00
45.00		561.27	1564.43	0.00	0.00
45.92		102.27	283.63	0.00	0.00
50.00		468.98	2259.60	0.00	0.00
53.00		345.35	1637.02	0.00	0.00
55.00		230.30	525.91	0.00	0.00
60.00	(7) attachments	908.99	1560.54	0.00	0.00
65.00		582.72	1265.62	0.00	0.00
70.00		582.47	1240.59	0.00	0.00
75.00		581.08	1215.55	0.00	0.00
80.00		578.67	1190.51	0.00	0.00
85.00		575.33	1165.47	0.00	0.00
90.00		571.12	1140.44	0.00	0.00
92.92		329.83	653.69	0.00	0.00
95.00		237.73	816.75	0.00	0.00
98.92		445.52	1513.90	0.00	0.00
100.00		122.09	202.18	0.00	0.00
105.00		562.69	920.42	0.00	0.00
110.00		555.74	899.52	0.00	0.00
115.00		548.18	878.62	0.00	0.00
120.00		540.03	857.72	0.00	0.00
125.00		531.35	836.83	0.00	0.00
127.09		218.34	343.06	0.00	0.00
130.00		306.17	765.75	0.00	0.00
132.34		243.07	605.46	0.00	0.00
135.00		274.55	315.17	0.00	0.00
140.00		508.92	580.47	0.00	0.00
145.00		498.37	565.85	0.00	0.00
150.00		487.40	551.23	0.00	0.00
155.00		476.01	536.61	0.00	0.00
160.00		464.23	521.99	0.00	0.00
164.50	(20) attachments	4818.58	3404.85	0.00	0.00
165.00		44.48	41.97	0.00	0.00
170.00		439.54	411.62	0.00	0.00
175.00		426.66	397.00	0.00	0.00
180.00	(22) attachments	9752.51	4219.63	0.00	0.00
	Totals:	**33,343.99**	**49,460.23**	**0.00**	**0.00**

Calculated Forces

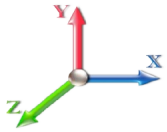
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-49.41	-33.41	0.00	-4292.1	0.00	4292.12	5525.87	2762.94	13590.7	6747.00	0.00	0.000	0.000	0.645
5.00	-47.52	-32.97	0.00	-4125.0	0.00	4125.05	5469.54	2734.77	13218.9	6562.44	0.09	-0.160	0.000	0.637
10.00	-45.66	-32.52	0.00	-3960.2	0.00	3960.23	5411.85	2705.92	12848.7	6378.66	0.34	-0.322	0.000	0.629
15.00	-43.83	-32.07	0.00	-3797.6	0.00	3797.63	5352.80	2676.40	12480.3	6195.75	0.77	-0.486	0.000	0.621
20.00	-42.04	-31.63	0.00	-3637.2	0.00	3637.27	5292.39	2646.19	12113.8	6013.80	1.36	-0.652	0.000	0.613
25.00	-40.27	-31.19	0.00	-3479.1	0.00	3479.12	5230.62	2615.31	11749.3	5832.89	2.14	-0.820	0.000	0.604
30.00	-38.54	-30.75	0.00	-3323.1	0.00	3323.18	5167.50	2583.75	11387.2	5653.11	3.09	-0.989	0.000	0.595
35.00	-36.83	-30.28	0.00	-3169.4	0.00	3169.45	5103.02	2551.51	11027.5	5474.55	4.22	-1.161	0.000	0.586
40.00	-35.16	-29.80	0.00	-3018.0	0.00	3018.03	5037.18	2518.59	10670.5	5297.29	5.52	-1.334	0.000	0.577
45.00	-33.56	-29.26	0.00	-2869.0	0.00	2869.02	4969.98	2484.99	10316.2	5121.42	7.01	-1.508	0.000	0.567
45.92	-33.23	-29.21	0.00	-2842.2	0.00	2842.20	4957.51	2478.76	10251.6	5089.33	7.31	-1.541	0.000	0.565
50.00	-30.92	-28.74	0.00	-2722.9	0.00	2722.95	4901.42	2450.71	9964.95	4947.02	8.69	-1.686	0.000	0.557
53.00	-29.25	-28.39	0.00	-2636.7	0.00	2636.73	3967.43	1983.71	8109.29	4025.79	9.78	-1.794	0.000	0.663
55.00	-28.67	-28.21	0.00	-2579.9	0.00	2579.94	3947.58	1973.79	8001.39	3972.23	10.55	-1.867	0.000	0.657
60.00	-27.04	-27.35	0.00	-2438.8	0.00	2438.88	3897.00	1948.50	7732.70	3838.84	12.61	-2.066	0.000	0.642
65.00	-25.71	-26.81	0.00	-2302.1	0.00	2302.15	3845.06	1922.53	7465.70	3706.29	14.88	-2.267	0.000	0.628
70.00	-24.40	-26.26	0.00	-2168.1	0.00	2168.12	3791.77	1895.89	7200.54	3574.65	17.37	-2.469	0.000	0.613
75.00	-23.12	-25.71	0.00	-2036.8	0.00	2036.82	3737.12	1868.56	6937.41	3444.02	20.06	-2.672	0.000	0.598
80.00	-21.87	-25.15	0.00	-1908.2	0.00	1908.29	3681.11	1840.56	6676.48	3314.49	22.97	-2.876	0.000	0.582
85.00	-20.65	-24.59	0.00	-1782.5	0.00	1782.55	3623.74	1811.87	6417.92	3186.13	26.09	-3.080	0.000	0.565
90.00	-19.47	-24.01	0.00	-1659.6	0.00	1659.61	3565.02	1782.51	6161.91	3059.03	29.42	-3.285	0.000	0.548
92.92	-18.80	-23.68	0.00	-1589.5	0.00	1589.58	3530.13	1765.07	6013.81	2985.51	31.46	-3.406	0.000	0.538
95.00	-17.94	-23.43	0.00	-1540.2	0.00	1540.26	3504.93	1752.47	5908.61	2933.28	32.97	-3.493	0.000	0.530
98.92	-16.42	-22.92	0.00	-1448.5	0.00	1448.50	2742.07	1371.04	4616.42	2291.78	35.90	-3.654	0.000	0.638
100.00	-16.17	-22.82	0.00	-1423.6	0.00	1423.67	2732.96	1366.48	4575.83	2271.63	36.74	-3.699	0.000	0.633
105.00	-15.20	-22.26	0.00	-1309.5	0.00	1309.55	2690.08	1345.04	4389.32	2179.04	40.73	-3.930	0.000	0.607
110.00	-14.26	-21.70	0.00	-1198.2	0.00	1198.24	2645.83	1322.92	4204.31	2087.20	44.97	-4.159	0.000	0.580
115.00	-13.34	-21.14	0.00	-1089.7	0.00	1089.73	2600.23	1300.12	4020.98	1996.19	49.44	-4.385	0.000	0.551
120.00	-12.45	-20.58	0.00	-984.03	0.00	984.03	2553.28	1276.64	3839.50	1906.09	54.15	-4.607	0.000	0.521
125.00	-11.60	-20.02	0.00	-881.11	0.00	881.11	2504.96	1252.48	3660.03	1816.99	59.09	-4.824	0.000	0.490
127.09	-11.24	-19.79	0.00	-839.35	0.00	839.35	2484.39	1242.20	3585.78	1780.13	61.21	-4.915	0.000	0.476
130.00	-10.47	-19.44	0.00	-781.69	0.00	781.69	2455.29	1227.64	3482.76	1728.99	64.25	-5.039	0.000	0.457
132.34	-9.85	-19.16	0.00	-736.27	0.00	736.27	1489.26	744.63	2121.49	1053.20	66.73	-5.137	0.000	0.706
135.00	-9.50	-18.89	0.00	-685.23	0.00	685.23	1477.63	738.82	2071.36	1028.31	69.63	-5.247	0.000	0.673
140.00	-8.89	-18.37	0.00	-590.78	0.00	590.78	1454.76	727.38	1977.27	981.60	75.26	-5.510	0.000	0.609
145.00	-8.30	-17.85	0.00	-498.93	0.00	498.93	1430.53	715.26	1883.34	934.97	81.16	-5.757	0.000	0.540
150.00	-7.74	-17.34	0.00	-409.67	0.00	409.67	1404.94	702.47	1789.74	888.50	87.30	-5.983	0.000	0.467
155.00	-7.20	-16.83	0.00	-322.96	0.00	322.96	1377.99	688.99	1696.65	842.29	93.67	-6.184	0.000	0.389
160.00	-6.69	-16.33	0.00	-238.79	0.00	238.79	1349.68	674.84	1604.25	796.42	100.23	-6.355	0.000	0.305
164.50	-3.83	-11.17	0.00	-165.30	0.00	165.30	1323.05	661.52	1521.82	755.50	106.27	-6.478	0.000	0.222
165.00	-3.79	-11.12	0.00	-159.72	0.00	159.72	1320.02	660.01	1512.71	750.97	106.94	-6.490	0.000	0.216
170.00	-3.41	-10.64	0.00	-104.10	0.00	104.10	1289.00	644.50	1422.20	706.04	113.78	-6.589	0.000	0.150
175.00	-3.06	-10.18	0.00	-50.88	0.00	50.88	1256.62	628.31	1332.89	661.70	120.71	-6.655	0.000	0.080
180.00	0.00	-9.75	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	127.68	-6.679	0.000	0.000

Wind Loading - Shaft

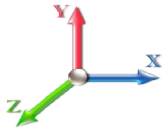
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	430.79	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	423.43	0.750	0.000	5.00	25.272	18.95	579.3	0.0	1266.2
10.00		1.00	0.70	17.366	19.10	416.07	0.750	0.000	5.00	24.837	18.63	569.3	0.0	1244.2
15.00		1.00	0.70	17.366	19.10	408.71	0.750	0.000	5.00	24.401	18.30	559.4	0.0	1222.3
20.00		1.00	0.70	17.366	19.10	401.35	0.750	0.000	5.00	23.966	17.97	549.4	0.0	1200.3
25.00		1.00	0.70	17.366	19.10	393.99	0.750	0.000	5.00	23.530	17.65	539.4	0.0	1178.3
30.00		1.00	0.70	17.381	19.12	386.79	0.750	0.000	5.00	23.095	17.32	529.9	0.0	1156.3
35.00		1.00	0.73	18.163	19.98	387.88	0.750	0.000	5.00	22.659	16.99	543.3	0.0	1134.3
40.00		1.00	0.76	18.870	20.76	387.68	0.750	0.000	5.00	22.224	16.67	553.5	0.0	1112.3
45.00		1.00	0.79	19.516	21.47	386.45	0.750	0.000	5.00	21.788	16.34	561.3	0.0	1090.4
45.92	Bot - Section 2	1.00	0.79	19.628	21.59	386.13	0.750	0.000	0.92	3.947	2.96	102.3	0.0	197.5
50.00		1.00	0.81	20.112	22.12	384.39	0.750	0.000	4.08	17.666	13.25	469.0	0.0	1626.9
53.00	Top - Section 1	1.00	0.82	20.450	22.49	382.81	0.750	0.000	3.00	12.794	9.60	345.3	0.0	1178.0
55.00		1.00	0.83	20.667	22.73	387.51	0.750	0.000	2.00	8.442	6.33	230.3	0.0	361.3
60.00	Appurtenance(s)	1.00	0.85	21.187	23.31	384.22	0.750	0.000	5.00	20.800	15.60	581.7	0.0	890.0
65.00		1.00	0.87	21.678	23.85	380.42	0.750	0.000	5.00	20.365	15.27	582.7	0.0	871.2
70.00		1.00	0.89	22.142	24.36	376.16	0.750	0.000	5.00	19.929	14.95	582.5	0.0	852.4
75.00		1.00	0.91	22.582	24.84	371.49	0.750	0.000	5.00	19.494	14.62	581.1	0.0	833.6
80.00		1.00	0.93	23.003	25.30	366.46	0.750	0.000	5.00	19.058	14.29	578.7	0.0	814.9
85.00		1.00	0.94	23.404	25.74	361.10	0.750	0.000	5.00	18.623	13.97	575.3	0.0	796.1
90.00		1.00	0.96	23.790	26.17	355.45	0.750	0.000	5.00	18.187	13.64	571.1	0.0	777.3
92.92	Bot - Section 3	1.00	0.97	24.008	26.41	352.03	0.750	0.000	2.92	10.408	7.81	329.8	0.0	444.8
95.00		1.00	0.97	24.160	26.58	349.52	0.750	0.000	2.08	7.454	5.59	237.7	0.0	580.1
98.92	Top - Section 2	1.00	0.99	24.441	26.88	344.71	0.750	0.000	3.92	13.810	10.36	445.5	0.0	1074.3
100.00		1.00	0.99	24.517	26.97	348.69	0.750	0.000	1.08	3.773	2.83	122.1	0.0	134.7
105.00		1.00	1.00	24.861	27.35	342.32	0.750	0.000	5.00	17.147	12.86	562.7	0.0	612.3
110.00		1.00	1.02	25.194	27.71	335.74	0.750	0.000	5.00	16.711	12.53	555.7	0.0	596.6
115.00		1.00	1.03	25.516	28.07	328.96	0.750	0.000	5.00	16.276	12.21	548.2	0.0	581.0
120.00		1.00	1.04	25.828	28.41	321.99	0.750	0.000	5.00	15.840	11.88	540.0	0.0	565.3
125.00		1.00	1.05	26.131	28.74	314.84	0.750	0.000	5.00	15.405	11.55	531.3	0.0	549.6
127.09	Bot - Section 4	1.00	1.06	26.255	28.88	311.81	0.750	0.000	2.09	6.300	4.73	218.3	0.0	224.7
130.00		1.00	1.07	26.425	29.07	307.53	0.750	0.000	2.91	8.777	6.58	306.2	0.0	528.9
132.34	Top - Section 3	1.00	1.07	26.560	29.22	304.06	0.750	0.000	2.34	6.933	5.20	243.1	0.0	417.6
135.00		1.00	1.08	26.712	29.38	303.97	0.750	0.000	2.66	7.787	5.84	274.5	0.0	194.8
140.00		1.00	1.09	26.991	29.69	296.38	0.750	0.000	5.00	14.284	10.71	508.9	0.0	357.3
145.00		1.00	1.10	27.263	29.99	288.64	0.750	0.000	5.00	13.849	10.39	498.4	0.0	346.4
150.00		1.00	1.11	27.528	30.28	280.78	0.750	0.000	5.00	13.413	10.06	487.4	0.0	335.4
155.00		1.00	1.12	27.787	30.57	272.79	0.750	0.000	5.00	12.978	9.73	476.0	0.0	324.4
160.00		1.00	1.13	28.040	30.84	264.67	0.750	0.000	5.00	12.542	9.41	464.2	0.0	313.5
164.50	Appurtenance(s)	1.00	1.14	28.264	31.09	257.27	0.750	0.000	4.50	10.916	8.19	407.2	0.0	272.8
165.00		1.00	1.14	28.288	31.12	256.45	0.750	0.000	0.50	1.191	0.89	44.5	0.0	29.8
170.00		1.00	1.15	28.530	31.38	248.11	0.750	0.000	5.00	11.671	8.75	439.5	0.0	291.5
175.00		1.00	1.16	28.768	31.64	239.66	0.750	0.000	5.00	11.236	8.43	426.7	0.0	280.6
180.00	Appurtenance(s)	1.00	1.17	29.000	31.90	231.12	0.750	0.000	5.00	10.800	8.10	413.4	0.0	269.6
								Totals:	**180.00**			**19,266.3**		**29,129.9**

Discrete Appurtenance Forces

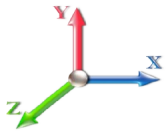
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	PRK-1245L	1	29.000	31.900	1.00	1.00	11.84	418.42	0.000	0.000	604.32	0.00	0.00
2	180.00	PRK-SFS	1	29.000	31.900	1.00	1.00	13.00	153.00	0.000	0.000	663.52	0.00	0.00
3	180.00	HRK-14	1	29.000	31.900	1.00	1.00	6.00	271.80	0.000	0.000	306.24	0.00	0.00
4	180.00	Low Profile Platform	1	29.000	31.900	1.00	1.00	25.00	1080.00	0.000	0.000	1276.01	0.00	0.00
5	180.00	ALU TD-RRH8x20-25	3	29.000	31.900	0.50	0.75	6.11	189.00	0.000	0.000	311.62	0.00	0.00
6	180.00	ALU 800 Mhz RRUs	6	29.000	31.900	0.50	0.75	7.51	286.20	0.000	0.000	383.18	0.00	0.00
7	180.00	ALU 1900 Mhz RRUs	3	29.000	31.900	7.20	10.75	82.11	118.80	0.000	0.000	4190.84	0.00	0.00
8	180.00	APXVTM14-C-I20	3	29.000	31.900	0.58	0.75	10.98	151.74	0.000	0.000	560.63	0.00	0.00
9	180.00	NNVV-65B-R4	3	29.000	31.900	0.55	0.75	20.43	208.98	0.000	0.000	1042.73	0.00	0.00
10	164.50	Low Profile Platform	1	28.264	31.090	1.00	1.00	25.00	1080.00	0.000	0.000	1243.60	0.00	0.00
11	164.50	Bracing	1	28.264	31.090	1.00	1.00	20.00	450.00	0.000	0.000	994.88	0.00	0.00
12	164.50	Kathrein 782 11056 Bias	3	28.264	31.090	0.65	0.75	0.25	14.31	0.000	0.000	12.66	0.00	0.00
13	164.50	Ericsson Radio 4449	3	28.264	31.090	0.50	0.75	2.49	189.00	0.000	0.000	123.73	0.00	0.00
14	164.50	Ericsson KRY 112 144/2	3	28.264	31.090	0.62	0.75	1.20	41.58	0.000	0.000	59.45	0.00	0.00
15	164.50	Ericsson KRY 112 489/2	3	28.264	31.090	0.62	0.75	1.20	41.58	0.000	0.000	59.45	0.00	0.00
16	164.50	APXVAARR24_43-U-NA2	3	28.264	31.090	0.52	0.75	31.88	345.60	0.000	0.000	1585.73	0.00	0.00
17	164.50	RR90-17-82DP	3	28.264	31.090	0.51	0.75	6.67	48.60	0.000	0.000	331.83	0.00	0.00
18	60.00	3 ft Standoff	3	21.187	23.306	0.56	0.75	4.44	108.00	0.000	0.000	165.50	0.00	0.00
19	60.00	RRH2x40-AWS	2	21.187	23.306	0.54	0.80	2.32	79.20	0.000	0.000	86.35	0.00	0.00
20	60.00	HBX-6513DS-A1M	2	21.187	23.306	0.64	0.80	2.02	10.26	0.000	0.000	75.42	0.00	0.00
							Totals:		**5,286.07**			**14,077.67**		

Total Applied Force Summary

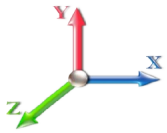
Structure:	CT02220-S-SBA		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		579.32	1349.18	0.00	0.00
10.00		569.34	1327.20	0.00	0.00
15.00		559.35	1305.22	0.00	0.00
20.00		549.37	1283.24	0.00	0.00
25.00		539.39	1261.25	0.00	0.00
30.00		529.85	1239.27	0.00	0.00
35.00		543.27	1217.29	0.00	0.00
40.00		553.55	1195.31	0.00	0.00
45.00		561.27	1173.33	0.00	0.00
45.92		102.27	212.73	0.00	0.00
50.00		468.98	1694.70	0.00	0.00
53.00		345.35	1227.76	0.00	0.00
55.00		230.30	394.44	0.00	0.00
60.00	(7) attachments	908.99	1170.40	0.00	0.00
65.00		582.72	949.22	0.00	0.00
70.00		582.47	930.44	0.00	0.00
75.00		581.08	911.66	0.00	0.00
80.00		578.67	892.88	0.00	0.00
85.00		575.33	874.11	0.00	0.00
90.00		571.12	855.33	0.00	0.00
92.92		329.83	490.27	0.00	0.00
95.00		237.73	612.56	0.00	0.00
98.92		445.52	1135.43	0.00	0.00
100.00		122.09	151.63	0.00	0.00
105.00		562.69	690.31	0.00	0.00
110.00		555.74	674.64	0.00	0.00
115.00		548.18	658.97	0.00	0.00
120.00		540.03	643.29	0.00	0.00
125.00		531.35	627.62	0.00	0.00
127.09		218.34	257.29	0.00	0.00
130.00		306.17	574.31	0.00	0.00
132.34		243.07	454.10	0.00	0.00
135.00		274.55	236.38	0.00	0.00
140.00		508.92	435.35	0.00	0.00
145.00		498.37	424.39	0.00	0.00
150.00		487.40	413.42	0.00	0.00
155.00		476.01	402.46	0.00	0.00
160.00		464.23	391.49	0.00	0.00
164.50	(20) attachments	4818.58	2553.64	0.00	0.00
165.00		44.48	31.47	0.00	0.00
170.00		439.54	308.72	0.00	0.00
175.00		426.66	297.75	0.00	0.00
180.00	(22) attachments	9752.51	3164.73	0.00	0.00
	Totals:	**33,343.99**	**37,095.18**	**0.00**	**0.00**

Calculated Forces

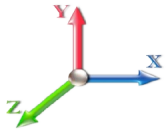
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.05	-33.40	0.00	-4250.0	0.00	4250.03	5525.87	2762.94	13590.7	6747.00	0.00	0.000	0.000	0.637
5.00	-35.61	-32.91	0.00	-4083.0	0.00	4083.05	5469.54	2734.77	13218.9	6562.44	0.09	-0.159	0.000	0.629
10.00	-34.19	-32.44	0.00	-3918.4	0.00	3918.49	5411.85	2705.92	12848.7	6378.66	0.34	-0.319	0.000	0.621
15.00	-32.80	-31.96	0.00	-3756.3	0.00	3756.31	5352.80	2676.40	12480.3	6195.75	0.76	-0.481	0.000	0.613
20.00	-31.43	-31.49	0.00	-3596.5	0.00	3596.51	5292.39	2646.19	12113.8	6013.80	1.35	-0.645	0.000	0.604
25.00	-30.09	-31.02	0.00	-3439.0	0.00	3439.07	5230.62	2615.31	11749.3	5832.89	2.12	-0.811	0.000	0.595
30.00	-28.77	-30.56	0.00	-3283.9	0.00	3283.96	5167.50	2583.75	11387.2	5653.11	3.05	-0.979	0.000	0.587
35.00	-27.47	-30.07	0.00	-3131.1	0.00	3131.18	5103.02	2551.51	11027.5	5474.55	4.17	-1.148	0.000	0.577
40.00	-26.20	-29.57	0.00	-2980.8	0.00	2980.81	5037.18	2518.59	10670.5	5297.29	5.46	-1.319	0.000	0.568
45.00	-24.99	-29.03	0.00	-2832.9	0.00	2832.95	4969.98	2484.99	10316.2	5121.42	6.94	-1.491	0.000	0.558
45.92	-24.73	-28.96	0.00	-2806.3	0.00	2806.35	4957.51	2478.76	10251.6	5089.33	7.23	-1.524	0.000	0.557
50.00	-22.99	-28.49	0.00	-2688.1	0.00	2688.11	4901.42	2450.71	9964.95	4947.02	8.59	-1.667	0.000	0.548
53.00	-21.73	-28.14	0.00	-2602.6	0.00	2602.63	3967.43	1983.71	8109.29	4025.79	9.68	-1.773	0.000	0.652
55.00	-21.28	-27.95	0.00	-2546.3	0.00	2546.35	3947.58	1973.79	8001.39	3972.23	10.43	-1.845	0.000	0.647
60.00	-20.05	-27.07	0.00	-2406.6	0.00	2406.60	3897.00	1948.50	7732.70	3838.84	12.47	-2.042	0.000	0.632
65.00	-19.03	-26.52	0.00	-2271.2	0.00	2271.24	3845.06	1922.53	7465.70	3706.29	14.72	-2.240	0.000	0.618
70.00	-18.03	-25.96	0.00	-2138.6	0.00	2138.64	3791.77	1895.89	7200.54	3574.65	17.17	-2.439	0.000	0.603
75.00	-17.06	-25.40	0.00	-2008.8	0.00	2008.83	3737.12	1868.56	6937.41	3444.02	19.83	-2.640	0.000	0.588
80.00	-16.11	-24.84	0.00	-1881.8	0.00	1881.82	3681.11	1840.56	6676.48	3314.49	22.70	-2.841	0.000	0.572
85.00	-15.18	-24.27	0.00	-1757.6	0.00	1757.63	3623.74	1811.87	6417.92	3186.13	25.78	-3.042	0.000	0.556
90.00	-14.29	-23.69	0.00	-1636.2	0.00	1636.27	3565.02	1782.51	6161.91	3059.03	29.08	-3.244	0.000	0.539
92.92	-13.78	-23.36	0.00	-1567.1	0.00	1567.16	3530.13	1765.07	6013.81	2985.51	31.09	-3.363	0.000	0.529
95.00	-13.13	-23.12	0.00	-1518.4	0.00	1518.49	3504.93	1752.47	5908.61	2933.28	32.58	-3.449	0.000	0.522
98.92	-11.98	-22.62	0.00	-1427.9	0.00	1427.95	2742.07	1371.04	4616.42	2291.78	35.48	-3.608	0.000	0.628
100.00	-11.79	-22.52	0.00	-1403.4	0.00	1403.44	2732.96	1366.48	4575.83	2271.63	36.30	-3.652	0.000	0.622
105.00	-11.05	-21.96	0.00	-1290.8	0.00	1290.85	2690.08	1345.04	4389.32	2179.04	40.24	-3.880	0.000	0.597
110.00	-10.33	-21.40	0.00	-1181.0	0.00	1181.06	2645.83	1322.92	4204.31	2087.20	44.43	-4.106	0.000	0.570
115.00	-9.63	-20.84	0.00	-1074.0	0.00	1074.08	2600.23	1300.12	4020.98	1996.19	48.84	-4.328	0.000	0.542
120.00	-8.96	-20.28	0.00	-969.89	0.00	969.89	2553.28	1276.64	3839.50	1906.09	53.49	-4.547	0.000	0.513
125.00	-8.32	-19.73	0.00	-868.47	0.00	868.47	2504.96	1252.48	3660.03	1816.99	58.36	-4.761	0.000	0.482
127.09	-8.05	-19.50	0.00	-827.31	0.00	827.31	2484.39	1242.20	3585.78	1780.13	60.46	-4.851	0.000	0.468
130.00	-7.46	-19.16	0.00	-770.50	0.00	770.50	2455.29	1227.64	3482.76	1728.99	63.46	-4.973	0.000	0.449
132.34	-7.00	-18.89	0.00	-725.72	0.00	725.72	1489.26	744.63	2121.49	1053.20	65.91	-5.070	0.000	0.694
135.00	-6.73	-18.62	0.00	-675.41	0.00	675.41	1477.63	738.82	2071.36	1028.31	68.77	-5.178	0.000	0.662
140.00	-6.26	-18.10	0.00	-582.31	0.00	582.31	1454.76	727.38	1977.27	981.60	74.32	-5.437	0.000	0.598
145.00	-5.82	-17.59	0.00	-491.81	0.00	491.81	1430.53	715.26	1883.34	934.97	80.14	-5.681	0.000	0.531
150.00	-5.39	-17.08	0.00	-403.88	0.00	403.88	1404.94	702.47	1789.74	888.50	86.20	-5.904	0.000	0.459
155.00	-4.99	-16.58	0.00	-318.48	0.00	318.48	1377.99	688.99	1696.65	842.29	92.49	-6.102	0.000	0.382
160.00	-4.61	-16.09	0.00	-235.58	0.00	235.58	1349.68	674.84	1604.25	796.42	98.96	-6.270	0.000	0.300
164.50	-2.59	-11.02	0.00	-163.18	0.00	163.18	1323.05	661.52	1521.82	755.50	104.92	-6.392	0.000	0.218
165.00	-2.55	-10.98	0.00	-157.67	0.00	157.67	1320.02	660.01	1512.71	750.97	105.59	-6.404	0.000	0.212
170.00	-2.28	-10.51	0.00	-102.79	0.00	102.79	1289.00	644.50	1422.20	706.04	112.34	-6.502	0.000	0.148
175.00	-2.03	-10.05	0.00	-50.25	0.00	50.25	1256.62	628.31	1332.89	661.70	119.17	-6.566	0.000	0.078
180.00	0.00	-9.75	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	126.05	-6.590	0.000	0.000

Wind Loading - Shaft

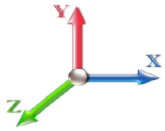
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	26.307	31.57	147.8	472.8	2161.1
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	25.946	31.14	145.8	498.9	2157.8
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	25.556	30.67	143.6	511.0	2140.7
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	25.154	30.19	141.3	517.0	2117.4
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	24.746	29.69	139.0	519.5	2090.6
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	24.333	29.20	136.8	519.7	2061.4
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	23.916	28.70	140.5	518.2	2030.6
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	23.498	28.20	143.4	515.4	1998.6
45.00		1.00	0.79	4.783	5.26	0.00	1.200	1.547	5.00	23.077	27.69	145.7	511.7	1965.5
45.92	Bot - Section 2	1.00	0.79	4.810	5.29	0.00	1.200	1.550	0.92	4.184	5.02	26.6	93.7	357.0
50.00		1.00	0.81	4.929	5.42	0.00	1.200	1.564	4.08	18.730	22.48	121.9	420.2	2589.5
53.00	Top - Section 1	1.00	0.82	5.012	5.51	0.00	1.200	1.573	3.00	13.580	16.30	89.8	306.9	1877.6
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	2.00	8.968	10.76	60.0	203.8	685.4
60.00	Appurtenance(s)	1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	22.127	26.55	151.7	503.6	1690.3
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	21.702	26.04	152.2	497.4	1659.0
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	21.277	25.53	152.4	490.8	1627.3
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	20.851	25.02	152.3	483.7	1595.2
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	20.424	24.51	152.0	476.3	1562.8
85.00		1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	19.997	24.00	151.4	468.6	1530.1
90.00		1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	19.569	23.48	150.6	460.7	1497.1
92.92	Bot - Section 3	1.00	0.97	5.884	6.47	0.00	1.200	1.664	2.92	11.217	13.46	87.1	265.9	859.0
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	2.08	8.033	9.64	62.8	191.3	964.7
98.92	Top - Section 2	1.00	0.99	5.990	6.59	0.00	1.200	1.674	3.92	14.902	17.88	117.8	354.4	1786.9
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	1.08	4.075	4.89	32.3	97.6	277.3
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	18.550	22.26	149.2	442.0	1258.4
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	5.00	18.121	21.75	147.7	433.2	1228.7
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	17.692	21.23	146.0	424.2	1198.8
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	5.00	17.262	20.71	144.2	415.0	1168.7
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	16.833	20.20	142.3	405.6	1138.5
127.09	Bot - Section 4	1.00	1.06	6.434	7.08	0.00	1.200	1.717	2.09	6.897	8.28	58.6	167.6	467.3
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	2.91	9.613	11.54	82.2	233.6	938.8
132.34	Top - Section 3	1.00	1.07	6.509	7.16	0.00	1.200	1.723	2.34	7.604	9.13	65.3	185.3	742.1
135.00		1.00	1.08	6.546	7.20	0.00	1.200	1.727	2.66	8.553	10.26	73.9	208.4	468.2
140.00		1.00	1.09	6.615	7.28	0.00	1.200	1.733	5.00	15.729	18.87	137.3	381.6	858.0
145.00		1.00	1.10	6.681	7.35	0.00	1.200	1.739	5.00	15.298	18.36	134.9	371.7	833.5
150.00		1.00	1.11	6.746	7.42	0.00	1.200	1.745	5.00	14.868	17.84	132.4	361.7	808.9
155.00		1.00	1.12	6.810	7.49	0.00	1.200	1.751	5.00	14.437	17.32	129.8	351.6	784.2
160.00		1.00	1.13	6.872	7.56	0.00	1.200	1.757	5.00	14.006	16.81	127.0	341.4	759.4
164.50	Appurtenance(s)	1.00	1.14	6.927	7.62	0.00	1.200	1.761	4.50	12.237	14.68	111.9	298.9	662.6
165.00		1.00	1.14	6.933	7.63	0.00	1.200	1.762	0.50	1.338	1.61	12.2	33.1	72.8
170.00		1.00	1.15	6.992	7.69	0.00	1.200	1.767	5.00	13.144	15.77	121.3	320.7	709.4
175.00		1.00	1.16	7.050	7.76	0.00	1.200	1.772	5.00	12.713	15.26	118.3	310.2	684.3
180.00	Appurtenance(s)	1.00	1.17	7.107	7.82	0.00	1.200	1.777	5.00	12.281	14.74	115.2	299.6	659.1
								Totals:	**180.00**			**5,094.6**		**54,724.5**

Discrete Appurtenance Forces

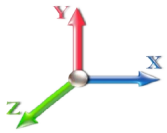
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	PRK-1245L	1	7.107	7.818	1.00	1.00	24.47	793.32	0.000	0.000	191.27	0.00	0.00
2	180.00	PRK-SFS	1	7.107	7.818	1.00	1.00	20.11	331.73	0.000	0.000	157.21	0.00	0.00
3	180.00	HRK-14	1	7.107	7.818	1.00	1.00	13.12	732.78	0.000	0.000	102.60	0.00	0.00
4	180.00	Low Profile Platform	1	7.107	7.818	1.00	1.00	46.33	2206.40	0.000	0.000	362.19	0.00	0.00
5	180.00	ALU TD-RRH8x20-25	3	7.107	7.818	0.50	0.75	7.36	590.78	0.000	0.000	57.51	0.00	0.00
6	180.00	ALU 800 Mhz RRUs	6	7.107	7.818	0.50	0.75	11.02	706.93	0.000	0.000	86.15	0.00	0.00
7	180.00	ALU 1900 Mhz RRUs	3	7.107	7.818	7.20	10.75	112.70	398.32	0.000	0.000	881.05	0.00	0.00
8	180.00	APXVTM14-C-I20	3	7.107	7.818	0.58	0.75	12.95	694.23	0.000	0.000	101.25	0.00	0.00
9	180.00	NNVV-65B-R4	3	7.107	7.818	0.55	0.75	22.90	953.68	0.000	0.000	179.02	0.00	0.00
10	164.50	Low Profile Platform	1	6.927	7.619	1.00	1.00	46.14	2196.84	0.000	0.000	351.53	0.00	0.00
11	164.50	Bracing	1	6.927	7.619	1.00	1.00	39.73	1048.87	0.000	0.000	302.70	0.00	0.00
12	164.50	Kathrein 782 11056 Bias	3	6.927	7.619	0.65	0.75	0.62	39.58	0.000	0.000	4.74	0.00	0.00
13	164.50	Ericsson Radio 4449	3	6.927	7.619	0.50	0.75	3.31	459.13	0.000	0.000	25.19	0.00	0.00
14	164.50	Ericsson KRY 112 144/2	3	6.927	7.619	0.62	0.75	2.34	93.86	0.000	0.000	17.86	0.00	0.00
15	164.50	Ericsson KRY 112 489/2	3	6.927	7.619	0.62	0.75	2.34	93.86	0.000	0.000	17.86	0.00	0.00
16	164.50	APXVAARR24_43-U-NA2	3	6.927	7.619	0.52	0.75	34.90	1727.71	0.000	0.000	265.91	0.00	0.00
17	164.50	RR90-17-82DP	3	6.927	7.619	0.51	0.75	8.19	364.46	0.000	0.000	62.44	0.00	0.00
18	60.00	3 ft Standoff	3	5.193	5.712	0.56	0.75	13.63	294.75	0.000	0.000	77.84	0.00	0.00
19	60.00	RRH2x40-AWS	2	5.193	5.712	0.54	0.80	3.34	181.62	0.000	0.000	19.08	0.00	0.00
20	60.00	HBX-6513DS-A1M	2	5.193	5.712	0.64	0.80	3.28	60.22	0.000	0.000	18.76	0.00	0.00
							Totals:		**13,969.05**			**3,282.15**		

Total Applied Force Summary

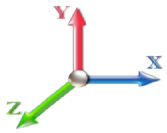
Structure:	CT02220-S-SBA		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		147.79	2271.73	0.00	0.00
10.00		145.76	2268.46	0.00	0.00
15.00		143.57	2251.28	0.00	0.00
20.00		141.32	2228.00	0.00	0.00
25.00		139.02	2201.19	0.00	0.00
30.00		136.81	2172.05	0.00	0.00
35.00		140.53	2141.25	0.00	0.00
40.00		143.44	2109.18	0.00	0.00
45.00		145.69	2076.12	0.00	0.00
45.92		26.57	377.30	0.00	0.00
50.00		121.86	2679.81	0.00	0.00
53.00		89.84	1943.93	0.00	0.00
55.00		59.96	729.67	0.00	0.00
60.00	(7) attachments	267.35	2337.50	0.00	0.00
65.00		152.19	1763.04	0.00	0.00
70.00		152.40	1731.34	0.00	0.00
75.00		152.32	1699.26	0.00	0.00
80.00		151.98	1666.83	0.00	0.00
85.00		151.40	1634.10	0.00	0.00
90.00		150.60	1601.10	0.00	0.00
92.92		87.11	919.63	0.00	0.00
95.00		62.79	1008.02	0.00	0.00
98.92		117.83	1868.34	0.00	0.00
100.00		32.32	299.81	0.00	0.00
105.00		149.19	1362.42	0.00	0.00
110.00		147.69	1332.69	0.00	0.00
115.00		146.03	1302.79	0.00	0.00
120.00		144.23	1272.71	0.00	0.00
125.00		142.29	1242.48	0.00	0.00
127.09		58.58	510.70	0.00	0.00
130.00		82.18	999.36	0.00	0.00
132.34		65.34	790.74	0.00	0.00
135.00		73.91	523.61	0.00	0.00
140.00		137.33	962.05	0.00	0.00
145.00		134.92	937.56	0.00	0.00
150.00		132.40	912.95	0.00	0.00
155.00		129.77	888.22	0.00	0.00
160.00		127.05	863.39	0.00	0.00
164.50	(20) attachments	1160.11	6780.51	0.00	0.00
165.00		12.24	75.08	0.00	0.00
170.00		121.31	732.31	0.00	0.00
175.00		118.31	707.19	0.00	0.00
180.00	(22) attachments	2233.45	8090.13	0.00	0.00
	Totals:	**8,376.80**	**72,265.82**	**0.00**	**0.00**

Calculated Forces

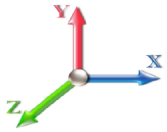
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

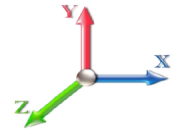
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-72.26	-8.40	0.00	-1088.9	0.00	1088.91	5525.87	2762.94	13590.7	6747.00	0.00	0.000	0.000	0.174
5.00	-69.99	-8.30	0.00	-1046.9	0.00	1046.90	5469.54	2734.77	13218.9	6562.44	0.02	-0.041	0.000	0.172
10.00	-67.71	-8.20	0.00	-1005.3	0.00	1005.38	5411.85	2705.92	12848.7	6378.66	0.09	-0.082	0.000	0.170
15.00	-65.45	-8.10	0.00	-964.36	0.00	964.36	5352.80	2676.40	12480.3	6195.75	0.19	-0.123	0.000	0.168
20.00	-63.22	-8.00	0.00	-923.84	0.00	923.84	5292.39	2646.19	12113.8	6013.80	0.35	-0.166	0.000	0.166
25.00	-61.01	-7.90	0.00	-883.82	0.00	883.82	5230.62	2615.31	11749.3	5832.89	0.54	-0.208	0.000	0.163
30.00	-58.84	-7.80	0.00	-844.30	0.00	844.30	5167.50	2583.75	11387.2	5653.11	0.78	-0.251	0.000	0.161
35.00	-56.69	-7.70	0.00	-805.28	0.00	805.28	5103.02	2551.51	11027.5	5474.55	1.07	-0.295	0.000	0.158
40.00	-54.58	-7.58	0.00	-766.81	0.00	766.81	5037.18	2518.59	10670.5	5297.29	1.40	-0.339	0.000	0.156
45.00	-52.50	-7.45	0.00	-728.90	0.00	728.90	4969.98	2484.99	10316.2	5121.42	1.78	-0.383	0.000	0.153
45.92	-52.12	-7.44	0.00	-722.07	0.00	722.07	4957.51	2478.76	10251.6	5089.33	1.86	-0.391	0.000	0.152
50.00	-49.43	-7.33	0.00	-691.69	0.00	691.69	4901.42	2450.71	9964.95	4947.02	2.21	-0.428	0.000	0.150
53.00	-47.49	-7.24	0.00	-669.72	0.00	669.72	3967.43	1983.71	8109.29	4025.79	2.48	-0.456	0.000	0.178
55.00	-46.75	-7.20	0.00	-655.24	0.00	655.24	3947.58	1973.79	8001.39	3972.23	2.68	-0.474	0.000	0.177
60.00	-44.41	-6.95	0.00	-619.23	0.00	619.23	3897.00	1948.50	7732.70	3838.84	3.20	-0.525	0.000	0.173
65.00	-42.65	-6.82	0.00	-584.46	0.00	584.46	3845.06	1922.53	7465.70	3706.29	3.78	-0.576	0.000	0.169
70.00	-40.91	-6.69	0.00	-550.34	0.00	550.34	3791.77	1895.89	7200.54	3574.65	4.41	-0.627	0.000	0.165
75.00	-39.21	-6.55	0.00	-516.90	0.00	516.90	3737.12	1868.56	6937.41	3444.02	5.09	-0.679	0.000	0.161
80.00	-37.54	-6.41	0.00	-484.13	0.00	484.13	3681.11	1840.56	6676.48	3314.49	5.83	-0.730	0.000	0.156
85.00	-35.90	-6.27	0.00	-452.06	0.00	452.06	3623.74	1811.87	6417.92	3186.13	6.63	-0.782	0.000	0.152
90.00	-34.30	-6.13	0.00	-420.70	0.00	420.70	3565.02	1782.51	6161.91	3059.03	7.47	-0.834	0.000	0.147
92.92	-33.37	-6.04	0.00	-402.83	0.00	402.83	3530.13	1765.07	6013.81	2985.51	7.99	-0.865	0.000	0.144
95.00	-32.36	-5.98	0.00	-390.25	0.00	390.25	3504.93	1752.47	5908.61	2933.28	8.37	-0.887	0.000	0.142
98.92	-30.50	-5.85	0.00	-366.83	0.00	366.83	2742.07	1371.04	4616.42	2291.78	9.12	-0.927	0.000	0.171
100.00	-30.19	-5.83	0.00	-360.50	0.00	360.50	2732.96	1366.48	4575.83	2271.63	9.33	-0.939	0.000	0.170
105.00	-28.83	-5.68	0.00	-331.36	0.00	331.36	2690.08	1345.04	4389.32	2179.04	10.35	-0.997	0.000	0.163
110.00	-27.49	-5.54	0.00	-302.94	0.00	302.94	2645.83	1322.92	4204.31	2087.20	11.42	-1.055	0.000	0.156
115.00	-26.19	-5.40	0.00	-275.24	0.00	275.24	2600.23	1300.12	4020.98	1996.19	12.56	-1.112	0.000	0.148
120.00	-24.91	-5.25	0.00	-248.26	0.00	248.26	2553.28	1276.64	3839.50	1906.09	13.75	-1.168	0.000	0.140
125.00	-23.67	-5.10	0.00	-222.01	0.00	222.01	2504.96	1252.48	3660.03	1816.99	15.01	-1.223	0.000	0.132
127.09	-23.16	-5.04	0.00	-211.37	0.00	211.37	2484.39	1242.20	3585.78	1780.13	15.55	-1.246	0.000	0.128
130.00	-22.16	-4.95	0.00	-196.69	0.00	196.69	2455.29	1227.64	3482.76	1728.99	16.32	-1.277	0.000	0.123
132.34	-21.37	-4.87	0.00	-185.13	0.00	185.13	1489.26	744.63	2121.49	1053.20	16.95	-1.302	0.000	0.190
135.00	-20.84	-4.80	0.00	-172.16	0.00	172.16	1477.63	738.82	2071.36	1028.31	17.68	-1.329	0.000	0.182
140.00	-19.88	-4.67	0.00	-148.14	0.00	148.14	1454.76	727.38	1977.27	981.60	19.11	-1.396	0.000	0.165
145.00	-18.94	-4.53	0.00	-124.81	0.00	124.81	1430.53	715.26	1883.34	934.97	20.61	-1.457	0.000	0.147
150.00	-18.03	-4.39	0.00	-102.17	0.00	102.17	1404.94	702.47	1789.74	888.50	22.16	-1.514	0.000	0.128
155.00	-17.14	-4.25	0.00	-80.23	0.00	80.23	1377.99	688.99	1696.65	842.29	23.78	-1.564	0.000	0.108
160.00	-16.28	-4.11	0.00	-58.99	0.00	58.99	1349.68	674.84	1604.25	796.42	25.44	-1.606	0.000	0.086
164.50	-9.53	-2.76	0.00	-40.50	0.00	40.50	1323.05	661.52	1521.82	755.50	26.97	-1.637	0.000	0.061
165.00	-9.45	-2.75	0.00	-39.12	0.00	39.12	1320.02	660.01	1512.71	750.97	27.14	-1.640	0.000	0.059
170.00	-8.72	-2.61	0.00	-25.39	0.00	25.39	1289.00	644.50	1422.20	706.04	28.87	-1.664	0.000	0.043
175.00	-8.02	-2.47	0.00	-12.35	0.00	12.35	1256.62	628.31	1332.89	661.70	30.62	-1.680	0.000	0.025
180.00	0.00	-2.23	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	32.39	-1.686	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.03	**Seismic Importance Factor**	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1406.9	0.00	0.03	0.02	22.16	
10.00		1382.4	0.01	0.05	0.03	32.79	
15.00		1358.0	0.01	0.06	0.03	38.14	
20.00		1333.6	0.02	0.07	0.04	40.73	
25.00		1309.2	0.04	0.07	0.04	41.88	
30.00		1284.7	0.05	0.07	0.04	42.30	
35.00		1260.3	0.07	0.07	0.04	42.43	
40.00		1235.9	0.09	0.07	0.04	42.47	
45.00		1211.5	0.12	0.07	0.03	42.46	
45.92	Bot - Section 2	219.46	0.12	0.07	0.03	7.72	
50.00		1807.7	0.15	0.07	0.03	64.46	
53.00	Top - Section 1	1308.8	0.16	0.07	0.03	47.04	
55.00		401.39	0.18	0.07	0.03	14.47	
60.00	Appurtenance(s)	1208.2	0.21	0.06	0.02	43.48	
65.00		968.00	0.25	0.06	0.02	33.99	
70.00		947.14	0.29	0.05	0.01	31.30	
75.00		926.28	0.33	0.04	0.01	27.19	
80.00		905.41	0.37	0.03	0.01	21.40	
85.00		884.55	0.42	0.01	0.01	13.94	
90.00		863.69	0.47	-0.01	0.01	5.17	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-0.15	
95.00		644.51	0.53	-0.03	0.01	-3.15	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-15.97	
100.00		149.70	0.58	-0.05	0.01	-2.34	
105.00		680.33	0.64	-0.07	0.02	-16.92	
110.00		662.92	0.71	-0.09	0.03	-20.92	
115.00		645.50	0.77	-0.11	0.05	-22.65	
120.00		628.09	0.84	-0.12	0.07	-22.09	
125.00		610.68	0.91	-0.12	0.09	-19.39	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-7.32	
130.00		587.62	0.99	-0.11	0.12	-14.62	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-9.51	
135.00		216.47	1.06	-0.09	0.17	-3.16	
140.00		397.05	1.14	-0.04	0.21	-0.37	
145.00		384.86	1.23	0.03	0.27	6.21	
150.00		372.68	1.31	0.14	0.35	13.63	
155.00		360.49	1.40	0.29	0.43	21.79	
160.00		348.31	1.49	0.48	0.53	30.58	
164.50	Appurtenance(s)	2759.3	1.58	0.71	0.64	318.61	
165.00		33.06	1.59	0.74	0.65	3.93	
170.00		323.94	1.69	1.07	0.79	49.64	
175.00		311.76	1.79	1.48	0.95	59.69	
180.00	Appurtenance(s)	3497.2	1.89	1.98	1.14	816.30	
	Totals:	**38,239.9**				**1,817.4**	**Total Wind:** **33,344.0**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.03	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-49.46	-1.98	0.00	-269.29	0.00	269.29	5525.87	2762.94	13590.7	6747.00		0.00	0.00	0.049
5.00	-47.66	-1.97	0.00	-259.40	0.00	259.40	5469.54	2734.77	13218.9	6562.44		0.01	-0.01	0.048
10.00	-45.89	-1.94	0.00	-249.57	0.00	249.57	5411.85	2705.92	12848.7	6378.66		0.02	-0.02	0.048
15.00	-44.15	-1.91	0.00	-239.87	0.00	239.87	5352.80	2676.40	12480.3	6195.75		0.05	-0.03	0.047
20.00	-42.44	-1.88	0.00	-230.33	0.00	230.33	5292.39	2646.19	12113.8	6013.80		0.09	-0.04	0.046
25.00	-40.76	-1.84	0.00	-220.95	0.00	220.95	5230.62	2615.31	11749.3	5832.89		0.13	-0.05	0.046
30.00	-39.10	-1.80	0.00	-211.75	0.00	211.75	5167.50	2583.75	11387.2	5653.11		0.19	-0.06	0.045
35.00	-37.48	-1.77	0.00	-202.74	0.00	202.74	5103.02	2551.51	11027.5	5474.55		0.27	-0.07	0.044
40.00	-35.89	-1.73	0.00	-193.91	0.00	193.91	5037.18	2518.59	10670.5	5297.29		0.35	-0.08	0.044
45.00	-34.32	-1.69	0.00	-185.27	0.00	185.27	4969.98	2484.99	10316.2	5121.42		0.44	-0.10	0.043
45.92	-34.04	-1.68	0.00	-183.72	0.00	183.72	4957.51	2478.76	10251.6	5089.33		0.46	-0.10	0.043
50.00	-31.78	-1.62	0.00	-176.85	0.00	176.85	4901.42	2450.71	9964.95	4947.02		0.55	-0.11	0.042
53.00	-30.14	-1.57	0.00	-172.00	0.00	172.00	3967.43	1983.71	8109.29	4025.79		0.62	-0.11	0.050
55.00	-29.62	-1.56	0.00	-168.85	0.00	168.85	3947.58	1973.79	8001.39	3972.23		0.67	-0.12	0.050
60.00	-28.05	-1.52	0.00	-161.05	0.00	161.05	3897.00	1948.50	7732.70	3838.84		0.80	-0.13	0.049
65.00	-26.79	-1.49	0.00	-153.45	0.00	153.45	3845.06	1922.53	7465.70	3706.29		0.95	-0.15	0.048
70.00	-25.55	-1.46	0.00	-146.00	0.00	146.00	3791.77	1895.89	7200.54	3574.65		1.11	-0.16	0.048
75.00	-24.33	-1.44	0.00	-138.70	0.00	138.70	3737.12	1868.56	6937.41	3444.02		1.28	-0.17	0.047
80.00	-23.14	-1.42	0.00	-131.52	0.00	131.52	3681.11	1840.56	6676.48	3314.49		1.47	-0.19	0.046
85.00	-21.98	-1.40	0.00	-124.44	0.00	124.44	3623.74	1811.87	6417.92	3186.13		1.67	-0.20	0.045
90.00	-20.84	-1.40	0.00	-117.42	0.00	117.42	3565.02	1782.51	6161.91	3059.03		1.89	-0.22	0.044
92.92	-20.18	-1.40	0.00	-113.34	0.00	113.34	3530.13	1765.07	6013.81	2985.51		2.02	-0.22	0.044
95.00	-19.36	-1.40	0.00	-110.42	0.00	110.42	3504.93	1752.47	5908.61	2933.28		2.12	-0.23	0.043
98.92	-17.85	-1.40	0.00	-104.94	0.00	104.94	2742.07	1371.04	4616.42	2291.78		2.32	-0.24	0.052
100.00	-17.65	-1.40	0.00	-103.43	0.00	103.43	2732.96	1366.48	4575.83	2271.63		2.37	-0.25	0.052
105.00	-16.73	-1.40	0.00	-96.44	0.00	96.44	2690.08	1345.04	4389.32	2179.04		2.64	-0.26	0.050
110.00	-15.83	-1.40	0.00	-89.45	0.00	89.45	2645.83	1322.92	4204.31	2087.20		2.92	-0.28	0.049
115.00	-14.95	-1.40	0.00	-82.46	0.00	82.46	2600.23	1300.12	4020.98	1996.19		3.22	-0.30	0.047
120.00	-14.09	-1.40	0.00	-75.46	0.00	75.46	2553.28	1276.64	3839.50	1906.09		3.54	-0.31	0.045
125.00	-13.25	-1.40	0.00	-68.47	0.00	68.47	2504.96	1252.48	3660.03	1816.99		3.88	-0.33	0.043
127.09	-12.91	-1.40	0.00	-65.56	0.00	65.56	2484.39	1242.20	3585.78	1780.13		4.02	-0.34	0.042
130.00	-12.14	-1.39	0.00	-61.49	0.00	61.49	2455.29	1227.64	3482.76	1728.99		4.23	-0.35	0.041
132.34	-11.54	-1.39	0.00	-58.23	0.00	58.23	1489.26	744.63	2121.49	1053.20		4.40	-0.35	0.063
135.00	-11.22	-1.39	0.00	-54.53	0.00	54.53	1477.63	738.82	2071.36	1028.31		4.60	-0.36	0.061
140.00	-10.64	-1.39	0.00	-47.56	0.00	47.56	1454.76	727.38	1977.27	981.60		4.99	-0.38	0.056
145.00	-10.08	-1.39	0.00	-40.60	0.00	40.60	1430.53	715.26	1883.34	934.97		5.41	-0.40	0.050
150.00	-9.52	-1.37	0.00	-33.67	0.00	33.67	1404.94	702.47	1789.74	888.50		5.84	-0.42	0.045
155.00	-8.99	-1.35	0.00	-26.81	0.00	26.81	1377.99	688.99	1696.65	842.29		6.29	-0.44	0.038
160.00	-8.46	-1.32	0.00	-20.07	0.00	20.07	1349.68	674.84	1604.25	796.42		6.76	-0.45	0.031
164.50	-5.06	-0.97	0.00	-14.15	0.00	14.15	1323.05	661.52	1521.82	755.50		7.19	-0.46	0.023
165.00	-5.02	-0.97	0.00	-13.66	0.00	13.66	1320.02	660.01	1512.71	750.97		7.24	-0.46	0.022
170.00	-4.61	-0.91	0.00	-8.83	0.00	8.83	1289.00	644.50	1422.20	706.04		7.73	-0.47	0.016
175.00	-4.21	-0.85	0.00	-4.26	0.00	4.26	1256.62	628.31	1332.89	661.70		8.23	-0.48	0.010
180.00	0.00	-0.82	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05		8.73	-0.48	0.000

Seismic Segment Forces (Factored)

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

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Load Case:	0.9D + 1.0E					**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.03	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1406.9	0.00	0.03	0.02	22.16	
10.00		1382.4	0.01	0.05	0.03	32.79	
15.00		1358.0	0.01	0.06	0.03	38.14	
20.00		1333.6	0.02	0.07	0.04	40.73	
25.00		1309.2	0.04	0.07	0.04	41.88	
30.00		1284.7	0.05	0.07	0.04	42.30	
35.00		1260.3	0.07	0.07	0.04	42.43	
40.00		1235.9	0.09	0.07	0.04	42.47	
45.00		1211.5	0.12	0.07	0.03	42.46	
45.92	Bot - Section 2	219.46	0.12	0.07	0.03	7.72	
50.00		1807.7	0.15	0.07	0.03	64.46	
53.00	Top - Section 1	1308.8	0.16	0.07	0.03	47.04	
55.00		401.39	0.18	0.07	0.03	14.47	
60.00	Appurtenance(s)	1208.2	0.21	0.06	0.02	43.48	
65.00		968.00	0.25	0.06	0.02	33.99	
70.00		947.14	0.29	0.05	0.01	31.30	
75.00		926.28	0.33	0.04	0.01	27.19	
80.00		905.41	0.37	0.03	0.01	21.40	
85.00		884.55	0.42	0.01	0.01	13.94	
90.00		863.69	0.47	-0.01	0.01	5.17	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-0.15	
95.00		644.51	0.53	-0.03	0.01	-3.15	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-15.97	
100.00		149.70	0.58	-0.05	0.01	-2.34	
105.00		680.33	0.64	-0.07	0.02	-16.92	
110.00		662.92	0.71	-0.09	0.03	-20.92	
115.00		645.50	0.77	-0.11	0.05	-22.65	
120.00		628.09	0.84	-0.12	0.07	-22.09	
125.00		610.68	0.91	-0.12	0.09	-19.39	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-7.32	
130.00		587.62	0.99	-0.11	0.12	-14.62	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-9.51	
135.00		216.47	1.06	-0.09	0.17	-3.16	
140.00		397.05	1.14	-0.04	0.21	-0.37	
145.00		384.86	1.23	0.03	0.27	6.21	
150.00		372.68	1.31	0.14	0.35	13.63	
155.00		360.49	1.40	0.29	0.43	21.79	
160.00		348.31	1.49	0.48	0.53	30.58	
164.50	Appurtenance(s)	2759.3	1.58	0.71	0.64	318.61	
165.00		33.06	1.59	0.74	0.65	3.93	
170.00		323.94	1.69	1.07	0.79	49.64	
175.00		311.76	1.79	1.48	0.95	59.69	
180.00	Appurtenance(s)	3497.2	1.89	1.98	1.14	816.30	
	Totals:	**38,239.9**				**1,817.4**	**Total Wind:** **33,344.0**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

IES Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	22
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.17
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.03			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.09	-1.98	0.00	-266.48	0.00	266.48	5525.87	2762.94	13590.7	6747.00		0.00	0.00	0.046
5.00	-35.75	-1.96	0.00	-256.59	0.00	256.59	5469.54	2734.77	13218.9	6562.44		0.01	-0.01	0.046
10.00	-34.42	-1.93	0.00	-246.78	0.00	246.78	5411.85	2705.92	12848.7	6378.66		0.02	-0.02	0.045
15.00	-33.11	-1.90	0.00	-237.11	0.00	237.11	5352.80	2676.40	12480.3	6195.75		0.05	-0.03	0.044
20.00	-31.83	-1.87	0.00	-227.60	0.00	227.60	5292.39	2646.19	12113.8	6013.80		0.08	-0.04	0.044
25.00	-30.57	-1.83	0.00	-218.27	0.00	218.27	5230.62	2615.31	11749.3	5832.89		0.13	-0.05	0.043
30.00	-29.33	-1.79	0.00	-209.12	0.00	209.12	5167.50	2583.75	11387.2	5653.11		0.19	-0.06	0.043
35.00	-28.11	-1.75	0.00	-200.17	0.00	200.17	5103.02	2551.51	11027.5	5474.55		0.26	-0.07	0.042
40.00	-26.91	-1.71	0.00	-191.40	0.00	191.40	5037.18	2518.59	10670.5	5297.29		0.34	-0.08	0.041
45.00	-25.74	-1.67	0.00	-182.84	0.00	182.84	4969.98	2484.99	10316.2	5121.42		0.44	-0.09	0.041
45.92	-25.53	-1.67	0.00	-181.30	0.00	181.30	4957.51	2478.76	10251.6	5089.33		0.46	-0.10	0.041
50.00	-23.83	-1.60	0.00	-174.50	0.00	174.50	4901.42	2450.71	9964.95	4947.02		0.54	-0.11	0.040
53.00	-22.61	-1.56	0.00	-169.69	0.00	169.69	3967.43	1983.71	8109.29	4025.79		0.61	-0.11	0.048
55.00	-22.21	-1.54	0.00	-166.58	0.00	166.58	3947.58	1973.79	8001.39	3972.23		0.66	-0.12	0.048
60.00	-21.04	-1.50	0.00	-158.86	0.00	158.86	3897.00	1948.50	7732.70	3838.84		0.79	-0.13	0.047
65.00	-20.09	-1.47	0.00	-151.35	0.00	151.35	3845.06	1922.53	7465.70	3706.29		0.93	-0.14	0.046
70.00	-19.16	-1.44	0.00	-143.99	0.00	143.99	3791.77	1895.89	7200.54	3574.65		1.09	-0.16	0.045
75.00	-18.25	-1.42	0.00	-136.78	0.00	136.78	3737.12	1868.56	6937.41	3444.02		1.26	-0.17	0.045
80.00	-17.36	-1.40	0.00	-129.70	0.00	129.70	3681.11	1840.56	6676.48	3314.49		1.45	-0.18	0.044
85.00	-16.48	-1.38	0.00	-122.72	0.00	122.72	3623.74	1811.87	6417.92	3186.13		1.65	-0.20	0.043
90.00	-15.63	-1.38	0.00	-115.80	0.00	115.80	3565.02	1782.51	6161.91	3059.03		1.87	-0.21	0.042
92.92	-15.13	-1.38	0.00	-111.78	0.00	111.78	3530.13	1765.07	6013.81	2985.51		2.00	-0.22	0.042
95.00	-14.52	-1.38	0.00	-108.91	0.00	108.91	3504.93	1752.47	5908.61	2933.28		2.10	-0.23	0.041
98.92	-13.39	-1.38	0.00	-103.51	0.00	103.51	2742.07	1371.04	4616.42	2291.78		2.29	-0.24	0.050
100.00	-13.23	-1.38	0.00	-102.02	0.00	102.02	2732.96	1366.48	4575.83	2271.63		2.34	-0.24	0.050
105.00	-12.54	-1.38	0.00	-95.14	0.00	95.14	2690.08	1345.04	4389.32	2179.04		2.60	-0.26	0.048
110.00	-11.87	-1.38	0.00	-88.25	0.00	88.25	2645.83	1322.92	4204.31	2087.20		2.88	-0.28	0.047
115.00	-11.21	-1.38	0.00	-81.36	0.00	81.36	2600.23	1300.12	4020.98	1996.19		3.18	-0.29	0.045
120.00	-10.57	-1.38	0.00	-74.47	0.00	74.47	2553.28	1276.64	3839.50	1906.09		3.50	-0.31	0.043
125.00	-9.94	-1.38	0.00	-67.58	0.00	67.58	2504.96	1252.48	3660.03	1816.99		3.83	-0.33	0.041
127.09	-9.68	-1.38	0.00	-64.70	0.00	64.70	2484.39	1242.20	3585.78	1780.13		3.97	-0.33	0.040
130.00	-9.11	-1.37	0.00	-60.69	0.00	60.69	2455.29	1227.64	3482.76	1728.99		4.18	-0.34	0.039
132.34	-8.65	-1.37	0.00	-57.48	0.00	57.48	1489.26	744.63	2121.49	1053.20		4.35	-0.35	0.060
135.00	-8.41	-1.37	0.00	-53.82	0.00	53.82	1477.63	738.82	2071.36	1028.31		4.54	-0.36	0.058
140.00	-7.98	-1.37	0.00	-46.96	0.00	46.96	1454.76	727.38	1977.27	981.60		4.93	-0.38	0.053
145.00	-7.55	-1.37	0.00	-40.09	0.00	40.09	1430.53	715.26	1883.34	934.97		5.34	-0.40	0.048
150.00	-7.14	-1.35	0.00	-33.25	0.00	33.25	1404.94	702.47	1789.74	888.50		5.77	-0.42	0.043
155.00	-6.74	-1.33	0.00	-26.48	0.00	26.48	1377.99	688.99	1696.65	842.29		6.21	-0.43	0.036
160.00	-6.35	-1.30	0.00	-19.83	0.00	19.83	1349.68	674.84	1604.25	796.42		6.67	-0.45	0.030
164.50	-3.80	-0.96	0.00	-13.99	0.00	13.99	1323.05	661.52	1521.82	755.50		7.10	-0.46	0.021
165.00	-3.76	-0.96	0.00	-13.51	0.00	13.51	1320.02	660.01	1512.71	750.97		7.15	-0.46	0.021
170.00	-3.46	-0.90	0.00	-8.73	0.00	8.73	1289.00	644.50	1422.20	706.04		7.63	-0.47	0.015
175.00	-3.16	-0.84	0.00	-4.21	0.00	4.21	1256.62	628.31	1332.89	661.70		8.12	-0.47	0.009
180.00	0.00	-0.82	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05		8.62	-0.47	0.000

Wind Loading - Shaft

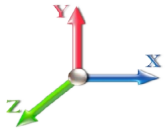
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	255.92	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	251.54	0.750	0.000	5.00	25.272	18.95	127.8	0.0	1406.9
10.00		1.00	0.70	6.129	6.74	247.17	0.750	0.000	5.00	24.837	18.63	125.6	0.0	1382.5
15.00		1.00	0.70	6.129	6.74	242.80	0.750	0.000	5.00	24.401	18.30	123.4	0.0	1358.1
20.00		1.00	0.70	6.129	6.74	238.43	0.750	0.000	5.00	23.966	17.97	121.2	0.0	1333.6
25.00		1.00	0.70	6.129	6.74	234.05	0.750	0.000	5.00	23.530	17.65	119.0	0.0	1309.2
30.00		1.00	0.70	6.134	6.75	229.78	0.750	0.000	5.00	23.095	17.32	116.9	0.0	1284.8
35.00		1.00	0.73	6.410	7.05	230.42	0.750	0.000	5.00	22.659	16.99	119.8	0.0	1260.4
40.00		1.00	0.76	6.659	7.33	230.30	0.750	0.000	5.00	22.224	16.67	122.1	0.0	1235.9
45.00		1.00	0.79	6.887	7.58	229.58	0.750	0.000	5.00	21.788	16.34	123.8	0.0	1211.5
45.92	Bot - Section 2	1.00	0.79	6.927	7.62	229.39	0.750	0.000	0.92	3.947	2.96	22.6	0.0	219.5
50.00		1.00	0.81	7.098	7.81	228.35	0.750	0.000	4.08	17.666	13.25	103.4	0.0	1807.7
53.00	Top - Section 1	1.00	0.82	7.217	7.94	227.41	0.750	0.000	3.00	12.794	9.60	76.2	0.0	1308.9
55.00		1.00	0.83	7.294	8.02	230.20	0.750	0.000	2.00	8.442	6.33	50.8	0.0	401.4
60.00	Appurtenance(s)	1.00	0.85	7.477	8.22	228.25	0.750	0.000	5.00	20.800	15.60	128.3	0.0	988.9
65.00		1.00	0.87	7.650	8.42	225.99	0.750	0.000	5.00	20.365	15.27	128.5	0.0	968.0
70.00		1.00	0.89	7.814	8.60	223.46	0.750	0.000	5.00	19.929	14.95	128.5	0.0	947.1
75.00		1.00	0.91	7.969	8.77	220.69	0.750	0.000	5.00	19.494	14.62	128.2	0.0	926.3
80.00		1.00	0.93	8.118	8.93	217.70	0.750	0.000	5.00	19.058	14.29	127.6	0.0	905.4
85.00		1.00	0.94	8.260	9.09	214.52	0.750	0.000	5.00	18.623	13.97	126.9	0.0	884.5
90.00		1.00	0.96	8.396	9.24	211.16	0.750	0.000	5.00	18.187	13.64	126.0	0.0	863.7
92.92	Bot - Section 3	1.00	0.97	8.472	9.32	209.12	0.750	0.000	2.92	10.408	7.81	72.8	0.0	494.2
95.00		1.00	0.97	8.526	9.38	207.64	0.750	0.000	2.08	7.454	5.59	52.4	0.0	644.5
98.92	Top - Section 2	1.00	0.99	8.625	9.49	204.78	0.750	0.000	3.92	13.810	10.36	98.3	0.0	1193.7
100.00		1.00	0.99	8.652	9.52	207.14	0.750	0.000	1.08	3.773	2.83	26.9	0.0	149.7
105.00		1.00	1.00	8.774	9.65	203.36	0.750	0.000	5.00	17.147	12.86	124.1	0.0	680.3
110.00		1.00	1.02	8.891	9.78	199.45	0.750	0.000	5.00	16.711	12.53	122.6	0.0	662.9
115.00		1.00	1.03	9.005	9.91	195.42	0.750	0.000	5.00	16.276	12.21	120.9	0.0	645.5
120.00		1.00	1.04	9.115	10.03	191.28	0.750	0.000	5.00	15.840	11.88	119.1	0.0	628.1
125.00		1.00	1.05	9.222	10.14	187.04	0.750	0.000	5.00	15.405	11.55	117.2	0.0	610.7
127.09	Bot - Section 4	1.00	1.06	9.265	10.19	185.23	0.750	0.000	2.09	6.300	4.73	48.2	0.0	249.7
130.00		1.00	1.07	9.326	10.26	182.69	0.750	0.000	2.91	8.777	6.58	67.5	0.0	587.6
132.34	Top - Section 3	1.00	1.07	9.373	10.31	180.63	0.750	0.000	2.34	6.933	5.20	53.6	0.0	464.0
135.00		1.00	1.08	9.427	10.37	180.57	0.750	0.000	2.66	7.787	5.84	60.6	0.0	216.5
140.00		1.00	1.09	9.525	10.48	176.06	0.750	0.000	5.00	14.284	10.71	112.3	0.0	397.0
145.00		1.00	1.10	9.621	10.58	171.47	0.750	0.000	5.00	13.849	10.39	109.9	0.0	384.9
150.00		1.00	1.11	9.715	10.69	166.80	0.750	0.000	5.00	13.413	10.06	107.5	0.0	372.7
155.00		1.00	1.12	9.806	10.79	162.05	0.750	0.000	5.00	12.978	9.73	105.0	0.0	360.5
160.00		1.00	1.13	9.896	10.89	157.23	0.750	0.000	5.00	12.542	9.41	102.4	0.0	348.3
164.50	Appurtenance(s)	1.00	1.14	9.974	10.97	152.84	0.750	0.000	4.50	10.916	8.19	89.8	0.0	303.1
165.00		1.00	1.14	9.983	10.98	152.34	0.750	0.000	0.50	1.191	0.89	9.8	0.0	33.1
170.00		1.00	1.15	10.069	11.08	147.39	0.750	0.000	5.00	11.671	8.75	96.9	0.0	323.9
175.00		1.00	1.16	10.152	11.17	142.37	0.750	0.000	5.00	11.236	8.43	94.1	0.0	311.8
180.00	Appurtenance(s)	1.00	1.17	10.234	11.26	137.30	0.750	0.000	5.00	10.800	8.10	91.2	0.0	299.6
								Totals:	**180.00**			**4,249.5**		**32,366.5**

Discrete Appurtenance Forces

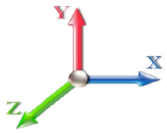
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	PRK-1245L	1	10.234	11.258	1.00	1.00	11.84	464.91	0.000	0.000	133.29	0.00	0.00
2	180.00	PRK-SFS	1	10.234	11.258	1.00	1.00	13.00	170.00	0.000	0.000	146.35	0.00	0.00
3	180.00	HRK-14	1	10.234	11.258	1.00	1.00	6.00	302.00	0.000	0.000	67.55	0.00	0.00
4	180.00	Low Profile Platform	1	10.234	11.258	1.00	1.00	25.00	1200.00	0.000	0.000	281.44	0.00	0.00
5	180.00	ALU TD-RRH8x20-25	3	10.234	11.258	0.50	0.75	6.11	210.00	0.000	0.000	68.73	0.00	0.00
6	180.00	ALU 800 Mhz RRUs	6	10.234	11.258	0.50	0.75	7.51	318.00	0.000	0.000	84.52	0.00	0.00
7	180.00	ALU 1900 Mhz RRUs	3	10.234	11.258	7.20	10.75	82.11	132.00	0.000	0.000	924.36	0.00	0.00
8	180.00	APXVTM14-C-I20	3	10.234	11.258	0.58	0.75	10.98	168.60	0.000	0.000	123.66	0.00	0.00
9	180.00	NNVV-65B-R4	3	10.234	11.258	0.55	0.75	20.43	232.20	0.000	0.000	229.99	0.00	0.00
10	164.50	Low Profile Platform	1	9.974	10.972	1.00	1.00	25.00	1200.00	0.000	0.000	274.30	0.00	0.00
11	164.50	Bracing	1	9.974	10.972	1.00	1.00	20.00	500.00	0.000	0.000	219.44	0.00	0.00
12	164.50	Kathrein 782 11056 Bias	3	9.974	10.972	0.65	0.75	0.25	15.90	0.000	0.000	2.79	0.00	0.00
13	164.50	Ericsson Radio 4449	3	9.974	10.972	0.50	0.75	2.49	210.00	0.000	0.000	27.29	0.00	0.00
14	164.50	Ericsson KRY 112 144/2	3	9.974	10.972	0.62	0.75	1.20	46.20	0.000	0.000	13.11	0.00	0.00
15	164.50	Ericsson KRY 112 489/2	3	9.974	10.972	0.62	0.75	1.20	46.20	0.000	0.000	13.11	0.00	0.00
16	164.50	APXVAARR24_43-U-NA2	3	9.974	10.972	0.52	0.75	31.88	384.00	0.000	0.000	349.76	0.00	0.00
17	164.50	RR90-17-82DP	3	9.974	10.972	0.51	0.75	6.67	54.00	0.000	0.000	73.19	0.00	0.00
18	60.00	3 ft Standoff	3	7.477	8.225	0.56	0.75	4.44	120.00	0.000	0.000	36.50	0.00	0.00
19	60.00	RRH2x40-AWS	2	7.477	8.225	0.54	0.80	2.32	88.00	0.000	0.000	19.04	0.00	0.00
20	60.00	HBX-6513DS-A1M	2	7.477	8.225	0.64	0.80	2.02	11.40	0.000	0.000	16.63	0.00	0.00
							Totals:		**5,873.41**			**3,105.06**		

Total Applied Force Summary

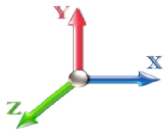
Structure:	CT02220-S-SBA		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		127.78	1499.09	0.00	0.00
10.00		125.58	1474.67	0.00	0.00
15.00		123.37	1450.24	0.00	0.00
20.00		121.17	1425.82	0.00	0.00
25.00		118.97	1401.39	0.00	0.00
30.00		116.87	1376.97	0.00	0.00
35.00		119.83	1352.54	0.00	0.00
40.00		122.09	1328.12	0.00	0.00
45.00		123.80	1303.70	0.00	0.00
45.92		22.56	236.36	0.00	0.00
50.00		103.44	1883.00	0.00	0.00
53.00		76.17	1364.18	0.00	0.00
55.00		50.80	438.26	0.00	0.00
60.00	(7) attachments	200.49	1300.45	0.00	0.00
65.00		128.53	1054.68	0.00	0.00
70.00		128.47	1033.82	0.00	0.00
75.00		128.17	1012.96	0.00	0.00
80.00		127.64	992.09	0.00	0.00
85.00		126.90	971.23	0.00	0.00
90.00		125.97	950.37	0.00	0.00
92.92		72.75	544.74	0.00	0.00
95.00		52.44	680.62	0.00	0.00
98.92		98.27	1261.58	0.00	0.00
100.00		26.93	168.48	0.00	0.00
105.00		124.11	767.01	0.00	0.00
110.00		122.58	749.60	0.00	0.00
115.00		120.91	732.18	0.00	0.00
120.00		119.11	714.77	0.00	0.00
125.00		117.20	697.36	0.00	0.00
127.09		48.16	285.88	0.00	0.00
130.00		67.53	638.13	0.00	0.00
132.34		53.61	504.55	0.00	0.00
135.00		60.56	262.64	0.00	0.00
140.00		112.25	483.73	0.00	0.00
145.00		109.92	471.54	0.00	0.00
150.00		107.50	459.36	0.00	0.00
155.00		104.99	447.17	0.00	0.00
160.00		102.39	434.99	0.00	0.00
164.50	(20) attachments	1062.82	2837.37	0.00	0.00
165.00		9.81	34.97	0.00	0.00
170.00		96.95	343.02	0.00	0.00
175.00		94.11	330.84	0.00	0.00
180.00	(22) attachments	2151.08	3516.36	0.00	0.00
	Totals:	**7,354.57**	**41,216.86**	**0.00**	**0.00**

Calculated Forces

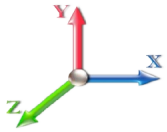
Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.21	-7.37	0.00	-941.94	0.00	941.94	5525.87	2762.94	13590.7	6747.00	0.00	0.000	0.000	0.147
5.00	-39.71	-7.26	0.00	-905.11	0.00	905.11	5469.54	2734.77	13218.9	6562.44	0.02	-0.035	0.000	0.145
10.00	-38.23	-7.16	0.00	-868.80	0.00	868.80	5411.85	2705.92	12848.7	6378.66	0.07	-0.071	0.000	0.143
15.00	-36.78	-7.06	0.00	-833.00	0.00	833.00	5352.80	2676.40	12480.3	6195.75	0.17	-0.107	0.000	0.141
20.00	-35.35	-6.96	0.00	-797.72	0.00	797.72	5292.39	2646.19	12113.8	6013.80	0.30	-0.143	0.000	0.139
25.00	-33.94	-6.85	0.00	-762.94	0.00	762.94	5230.62	2615.31	11749.3	5832.89	0.47	-0.180	0.000	0.137
30.00	-32.56	-6.75	0.00	-728.67	0.00	728.67	5167.50	2583.75	11387.2	5653.11	0.68	-0.217	0.000	0.135
35.00	-31.20	-6.65	0.00	-694.90	0.00	694.90	5103.02	2551.51	11027.5	5474.55	0.92	-0.255	0.000	0.133
40.00	-29.87	-6.54	0.00	-661.66	0.00	661.66	5037.18	2518.59	10670.5	5297.29	1.21	-0.293	0.000	0.131
45.00	-28.57	-6.42	0.00	-628.96	0.00	628.96	4969.98	2484.99	10316.2	5121.42	1.54	-0.331	0.000	0.129
45.92	-28.33	-6.41	0.00	-623.07	0.00	623.07	4957.51	2478.76	10251.6	5089.33	1.60	-0.338	0.000	0.128
50.00	-26.44	-6.30	0.00	-596.91	0.00	596.91	4901.42	2450.71	9964.95	4947.02	1.91	-0.370	0.000	0.126
53.00	-25.08	-6.23	0.00	-578.00	0.00	578.00	3967.43	1983.71	8109.29	4025.79	2.15	-0.393	0.000	0.150
55.00	-24.64	-6.19	0.00	-565.55	0.00	565.55	3947.58	1973.79	8001.39	3972.23	2.31	-0.409	0.000	0.149
60.00	-23.33	-5.99	0.00	-534.61	0.00	534.61	3897.00	1948.50	7732.70	3838.84	2.77	-0.453	0.000	0.145
65.00	-22.27	-5.87	0.00	-504.64	0.00	504.64	3845.06	1922.53	7465.70	3706.29	3.26	-0.497	0.000	0.142
70.00	-21.24	-5.75	0.00	-475.27	0.00	475.27	3791.77	1895.89	7200.54	3574.65	3.81	-0.541	0.000	0.139
75.00	-20.22	-5.63	0.00	-446.51	0.00	446.51	3737.12	1868.56	6937.41	3444.02	4.40	-0.586	0.000	0.135
80.00	-19.23	-5.51	0.00	-418.36	0.00	418.36	3681.11	1840.56	6676.48	3314.49	5.04	-0.631	0.000	0.131
85.00	-18.25	-5.38	0.00	-390.82	0.00	390.82	3623.74	1811.87	6417.92	3186.13	5.72	-0.675	0.000	0.128
90.00	-17.30	-5.26	0.00	-363.90	0.00	363.90	3565.02	1782.51	6161.91	3059.03	6.45	-0.720	0.000	0.124
92.92	-16.76	-5.18	0.00	-348.57	0.00	348.57	3530.13	1765.07	6013.81	2985.51	6.90	-0.747	0.000	0.122
95.00	-16.07	-5.13	0.00	-337.77	0.00	337.77	3504.93	1752.47	5908.61	2933.28	7.23	-0.766	0.000	0.120
98.92	-14.81	-5.02	0.00	-317.68	0.00	317.68	2742.07	1371.04	4616.42	2291.78	7.88	-0.801	0.000	0.144
100.00	-14.64	-5.00	0.00	-312.24	0.00	312.24	2732.96	1366.48	4575.83	2271.63	8.06	-0.811	0.000	0.143
105.00	-13.87	-4.88	0.00	-287.25	0.00	287.25	2690.08	1345.04	4389.32	2179.04	8.94	-0.862	0.000	0.137
110.00	-13.12	-4.75	0.00	-262.87	0.00	262.87	2645.83	1322.92	4204.31	2087.20	9.86	-0.912	0.000	0.131
115.00	-12.38	-4.63	0.00	-239.10	0.00	239.10	2600.23	1300.12	4020.98	1996.19	10.85	-0.962	0.000	0.125
120.00	-11.67	-4.51	0.00	-215.95	0.00	215.95	2553.28	1276.64	3839.50	1906.09	11.88	-1.010	0.000	0.118
125.00	-10.97	-4.39	0.00	-193.40	0.00	193.40	2504.96	1252.48	3660.03	1816.99	12.96	-1.058	0.000	0.111
127.09	-10.68	-4.34	0.00	-184.25	0.00	184.25	2484.39	1242.20	3585.78	1780.13	13.43	-1.078	0.000	0.108
130.00	-10.05	-4.26	0.00	-171.62	0.00	171.62	2455.29	1227.64	3482.76	1728.99	14.10	-1.105	0.000	0.103
132.34	-9.54	-4.20	0.00	-161.66	0.00	161.66	1489.26	744.63	2121.49	1053.20	14.64	-1.127	0.000	0.160
135.00	-9.28	-4.14	0.00	-150.47	0.00	150.47	1477.63	738.82	2071.36	1028.31	15.28	-1.151	0.000	0.153
140.00	-8.79	-4.03	0.00	-129.75	0.00	129.75	1454.76	727.38	1977.27	981.60	16.52	-1.209	0.000	0.138
145.00	-8.32	-3.92	0.00	-109.60	0.00	109.60	1430.53	715.26	1883.34	934.97	17.81	-1.263	0.000	0.123
150.00	-7.86	-3.81	0.00	-90.02	0.00	90.02	1404.94	702.47	1789.74	888.50	19.16	-1.312	0.000	0.107
155.00	-7.41	-3.70	0.00	-70.99	0.00	70.99	1377.99	688.99	1696.65	842.29	20.56	-1.357	0.000	0.090
160.00	-6.98	-3.59	0.00	-52.51	0.00	52.51	1349.68	674.84	1604.25	796.42	22.00	-1.394	0.000	0.071
164.50	-4.17	-2.46	0.00	-36.37	0.00	36.37	1323.05	661.52	1521.82	755.50	23.33	-1.421	0.000	0.051
165.00	-4.13	-2.45	0.00	-35.14	0.00	35.14	1320.02	660.01	1512.71	750.97	23.48	-1.424	0.000	0.050
170.00	-3.79	-2.34	0.00	-22.91	0.00	22.91	1289.00	644.50	1422.20	706.04	24.98	-1.446	0.000	0.035
175.00	-3.46	-2.24	0.00	-11.20	0.00	11.20	1256.62	628.31	1332.89	661.70	26.50	-1.460	0.000	0.020
180.00	0.00	-2.15	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	28.04	-1.465	0.000	0.000

Final Analysis Summary

Structure:	CT02220-S-SBA	**Code:**	EIA/TIA-222-G	7/8/2019	
Site Name:	Colchester 2 CT	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	33.4	0.00	49.41	0.00	0.00	4292.12
0.9D + 1.6W 101 mph Wind	33.4	0.00	37.05	0.00	0.00	4250.03
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.4	0.00	72.26	0.00	0.00	1088.91
1.2D + 1.0E	2.0	0.00	49.46	0.00	0.00	269.29
0.9D + 1.0E	2.0	0.00	37.09	0.00	0.00	266.48
1.0D + 1.0W 60 mph Wind	7.4	0.00	41.21	0.00	0.00	941.94

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-9.85	-19.16	0.00	-736.27	0.00	-736.27	1489.26	744.63	2121.49	1053.20	132.34	0.706
0.9D + 1.6W 101 mph Wind	-7.00	-18.89	0.00	-725.72	0.00	-725.72	1489.26	744.63	2121.49	1053.20	132.34	0.694
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-21.37	-4.87	0.00	-185.13	0.00	-185.13	1489.26	744.63	2121.49	1053.20	132.34	0.190
1.2D + 1.0E	-11.54	-1.39	0.00	-58.23	0.00	-58.23	1489.26	744.63	2121.49	1053.20	132.34	0.063
0.9D + 1.0E	-8.65	-1.37	0.00	-57.48	0.00	-57.48	1489.26	744.63	2121.49	1053.20	132.34	0.060
1.0D + 1.0W 60 mph Wind	-9.54	-4.20	0.00	-161.66	0.00	-161.66	1489.26	744.63	2121.49	1053.20	132.34	0.160

Base Plate Summary

Structure:	CT02220-S-SB		**Code:**	EIA/TIA-222-G	7/8/2019
Site Name:	Colchester 2 CT		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	5045.00
Axial (kip):	56.10
Shear (kip):	39.50
Analysis	
Moment (kip-ft):	4292.12
Axial (kip):	72.26
Shear (kip):	33.41
Moment Design %:	85.08

Base Plate	
Yield (ksi):	60.00
Width (in):	74.62
Style:	Polygon
Polygon Sides:	16.00
Clip Length (in):	0.00
Effective Len (in):	14.44
Moment (kip-in):	662.58
Allow Stress (ksi):	81.00
Applied Stress (ksi):	0.00
Stress Ratio:	0.45

Anchor Bolts	
Bolt Circle:	68.62
Number Bolts:	20.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	153.73
Allowable (kip):	260.00
Ratio:	0.60
Tension	
Force (kip):	146.50
Allowable (kip):	260.00
Ratio:	0.58

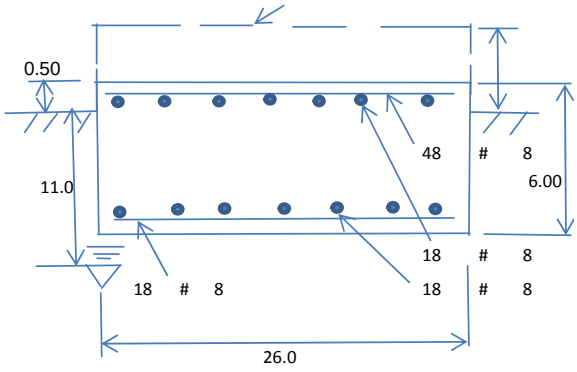
Monopole Mat Foundation Design

			Date: 5/23/2018
Customer Name:	SBA Communcations Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:	Colchester 2 CT	**Structure Height (Ft.):**	180
Site Number:	CT02220-S-SBA	**Engineer Name:**	T. Alajaj
Engr. Number:	53617	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

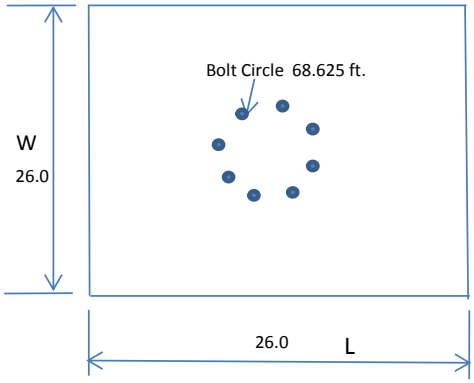


Base Reactions (Factored):

Axial Load (Kips):	49.4	Shear Force (Kips):	33.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4292.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Anchor Bolt Circle (ft.):	68.63	Depth of Base BG (ft.):	5.50
Thickness of Pad (ft):	6.00		
Length of Pad (ft.):	26	Width of Pad (ft.):	26
Final Length of pad (ft)	26.0	Final width of pad (ft):	26.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	8.0	
Pad Steel Rebar Size (#):	8			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	48	Qty. of Rebar in Pad (W):	48	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	18	Qty. of Rebar in Pad (W):	18	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Water Table B.G.S. (ft):	11.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	25000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	4056.00	Total Dry Concrete Weight (Kips):	608.40
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	608.40	Total Vertical Load on Base (Kips):	657.81

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3267	<	Allowable Factored Soil Bearing (psf): 18750	0.17	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7760.6	>	Design Factored Momont (kips-ft): 4494	0.58	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.73	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1755.9	>	One-Way Factored Shear (L-D. Kips):	0.0	0.00	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1755.9	>	One-Way Factored Shear (W-D., Kips)	0.0	0.00	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	2185.1	>	One-Way Factored Shear (C-C, Kips):	854.9	0.39	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	11444.8	>	Moment at Bottom (L-Direct. K-Ft):	0.0	0.00	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	11444.8	>	Moment at Bottom (W-Direct. K-Ft):	0.0	0.00	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	16922.6	>	Moment at Bottom (C-C Dir. K-Ft):	0.0	0.00	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0007	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0007		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	4349.0	>	Moment at the top (L-Dir Kips-Ft):	947.9	0.22	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	4349.0	>	Moment at the top (W-Dir Kips-Ft):	947.9	0.22	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	6254.1	>	Moment at the top (C-C Direc. K-Ft):	-735.8	-0.12	OK!

EXHIBIT 8

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

Post-Mod Antenna Mount Analysis Report

Existing 180-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT02220-S-SBA

Customer Site Name: Colchester 2 CT

Carrier Name: T-Mobile (App#: 115953, V1)

Carrier Site ID / Name: CT11255E / Colchester

Site Location: 31 Chestnut Hill Road

Colchester, Connecticut

New London County

Latitude: 41.571327

Longitude: -72.302322

Analysis Result:

Max Structural Usage: 88.3% [Pass]

Report Prepared By: Ishwor Dhakal

Introduction

The purpose of this report is to summarize the analysis results on the (1) Low-profile platform at 164.50' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by Full Metal Tower Services, dated 04/29/2019.
Antenna Loading	SBA, Application #: 115953, v1.
Existing Modification	N/A.
Proposed Modification	TES Project No. 80186

Analysis Criteria

Wind Speed Used in the Analysis: V_{ULT} = 130 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 101 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA-222-G
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per table 1604.5 of the 2015 IBC. 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

(1) Low-profile platform at 164.50' elevation.

Final Antenna Configuration

3 EMS RR90-17-82DP
3 RFS APXVAARR24_43-U-NA20
3 Ericsson KRY 112 489/2
3 Ericsson KRY 112 144/2
3 Ericsson Radio 4449 B71+B12

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the Low-profile platform.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 88.3%, which occurs in the pipe mount. 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 Before Modification
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.

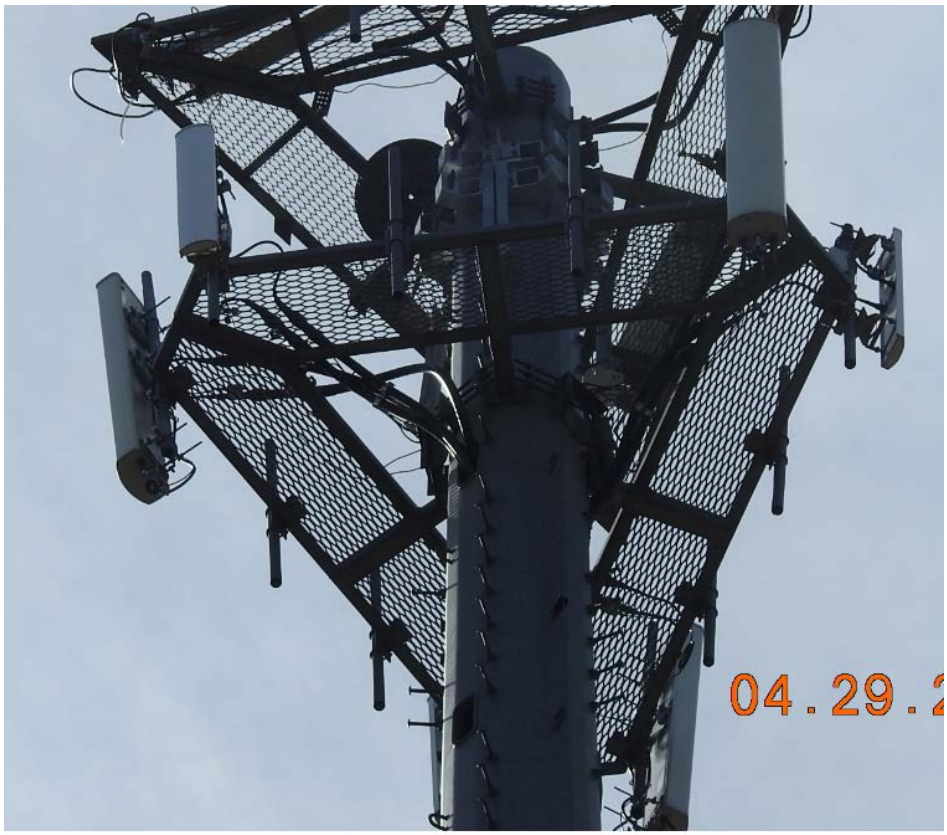
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

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.


04.29.2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Structure: CT02220-S-SBA - Colchester 2 CT

Sector: A

Structure Type: Monopole

Mount Elev: 164.50

6/28/2019

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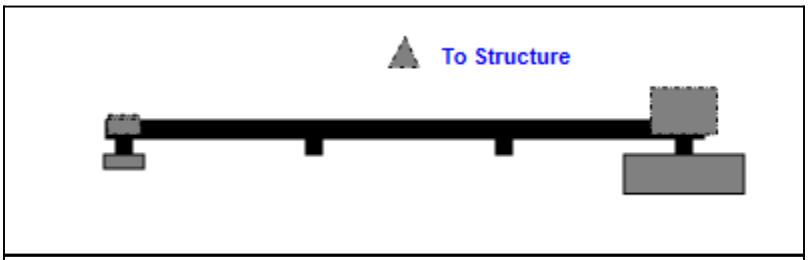
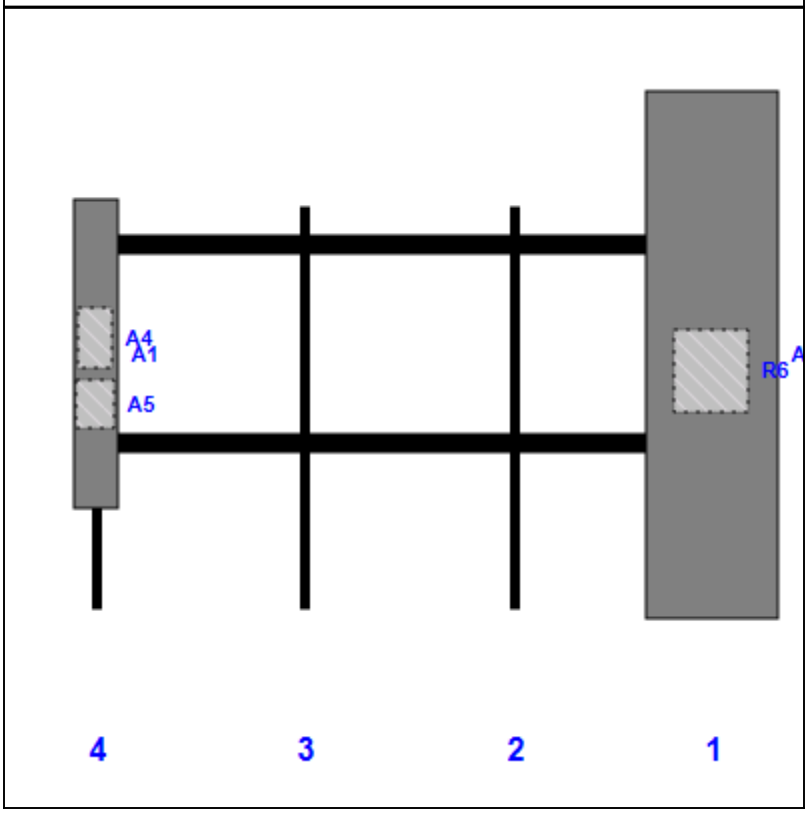
Plan View



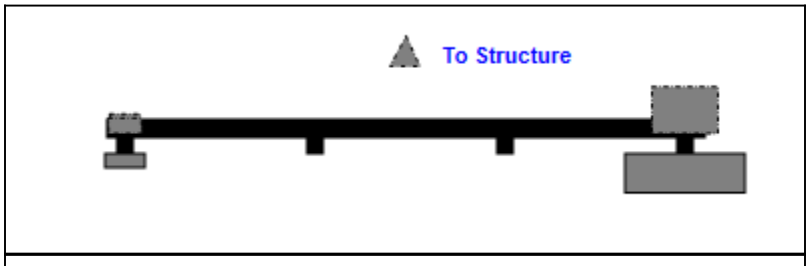
Front View

Looking Toward Structure



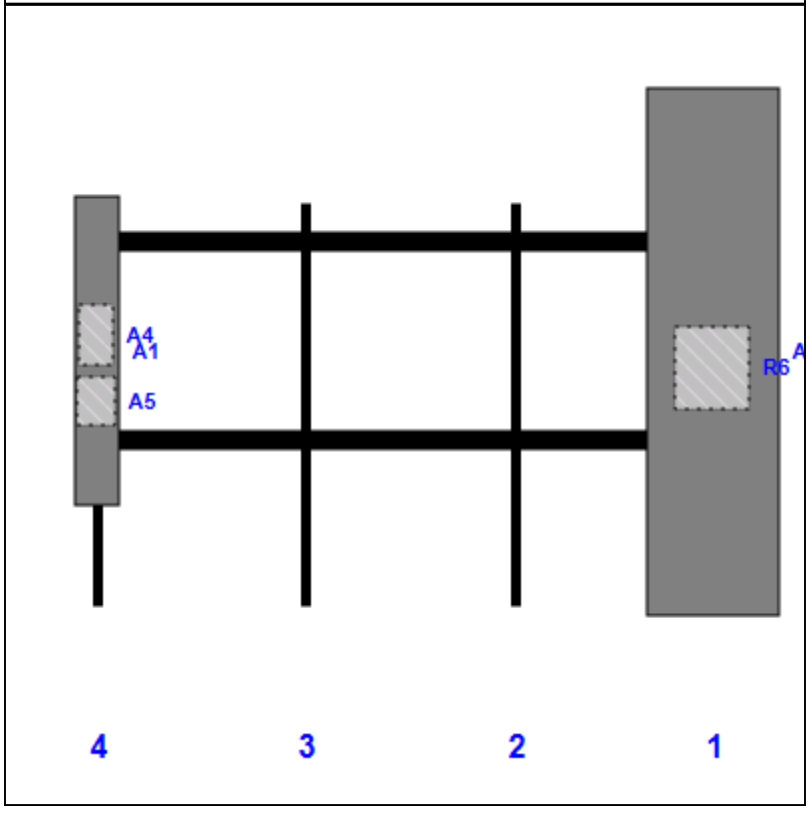
Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A2	APXVAARR24_43-U-NA20	95.90	24.00	116.00	1	a	Front	27.00	0.00
R6	Radio 4449 B71+B12	15.00	13.20	116.00	1	a	Behind	30.00	0.00
A1	RR90-17-82DP	56.00	8.00	4.00	4	a	Front	27.00	0.00
A4	KRY 112 489/2	11.00	6.10	4.00	4	a	Behind	24.00	0.00
A5	KRY 112 144/2	8.60	6.60	4.00	4	a	Behind	36.00	0.00

Plan View



Front View

Looking Toward Structure



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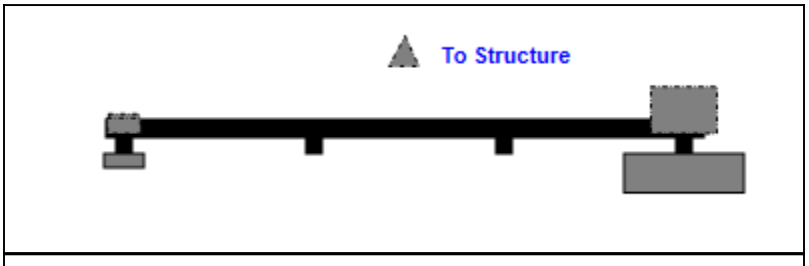
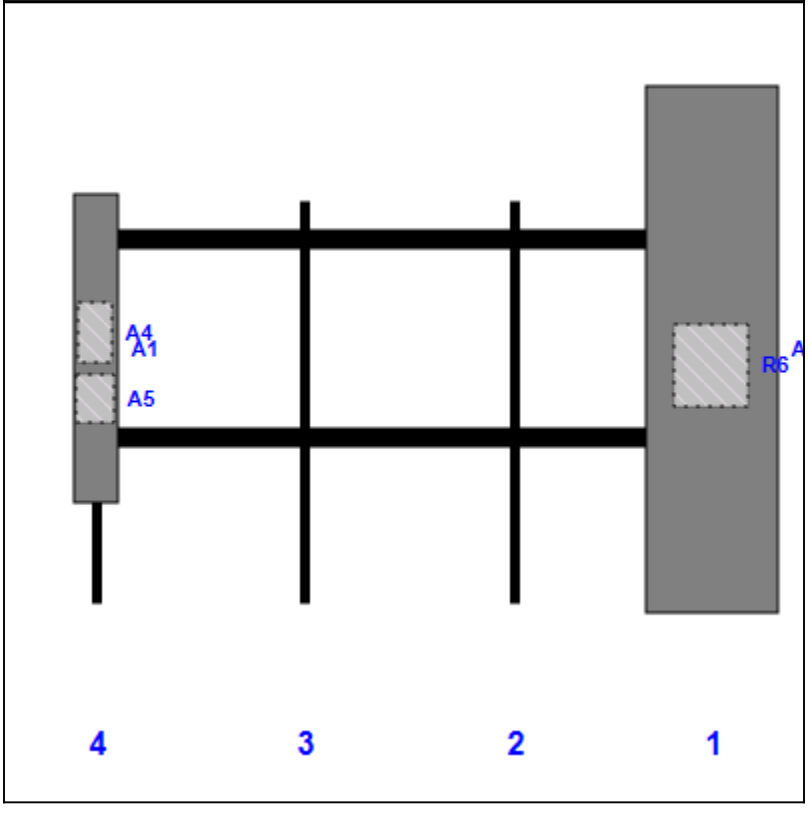
Plan View



Front View

Looking Toward Structure



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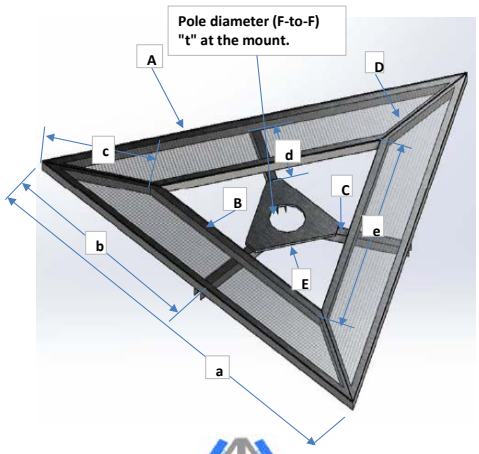
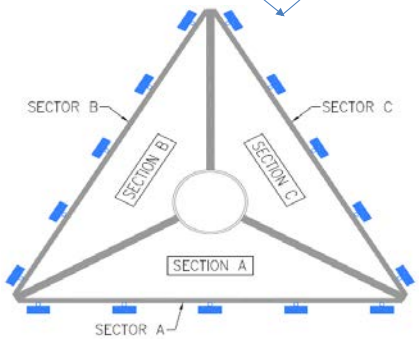
A5	KRY 112 144/2	8.60	6.60	4.00	4	a	Behind	36.00	0.00

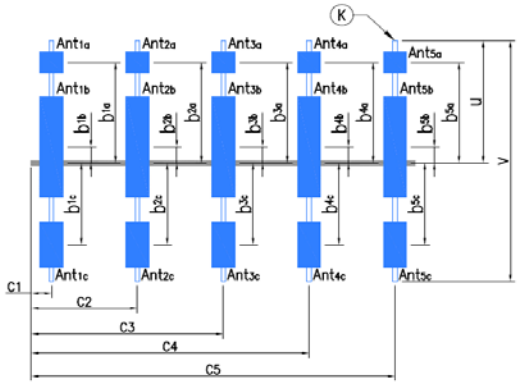
Antenna Mount Type "MT-U" Mapping Form (PATENT PENDING)

FCC #	1228075		
Tower Owner:	SBA Communications	**Mapping Date:**	4/29/19
Site Name:	Colchester 2 CT	**Structure Type:**	Monopole
Site Number or ID:	CT02220-S-SBA	**Structure Height (Ft.):**	180
Mapping Contractor:	Full Metal Tower Services	**Mount Height (Ft.):**	166.4





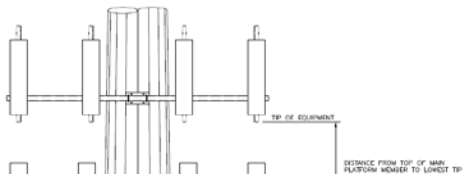
Climbing ladder is Located at Section C, at 330° Degree Azimuth



Antenna Layout

Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	0°	Deg	
Sector B:	120°	Deg	
Sector C:	240°	Deg	
Climbing	330°	Deg	Located at Section C
Climbing Facility	Corrosion Type:		Minor corrosion observed
	Access:		Climbing path was unobstructed.
	Condition:		N/A



Geometries (Unit: inches)

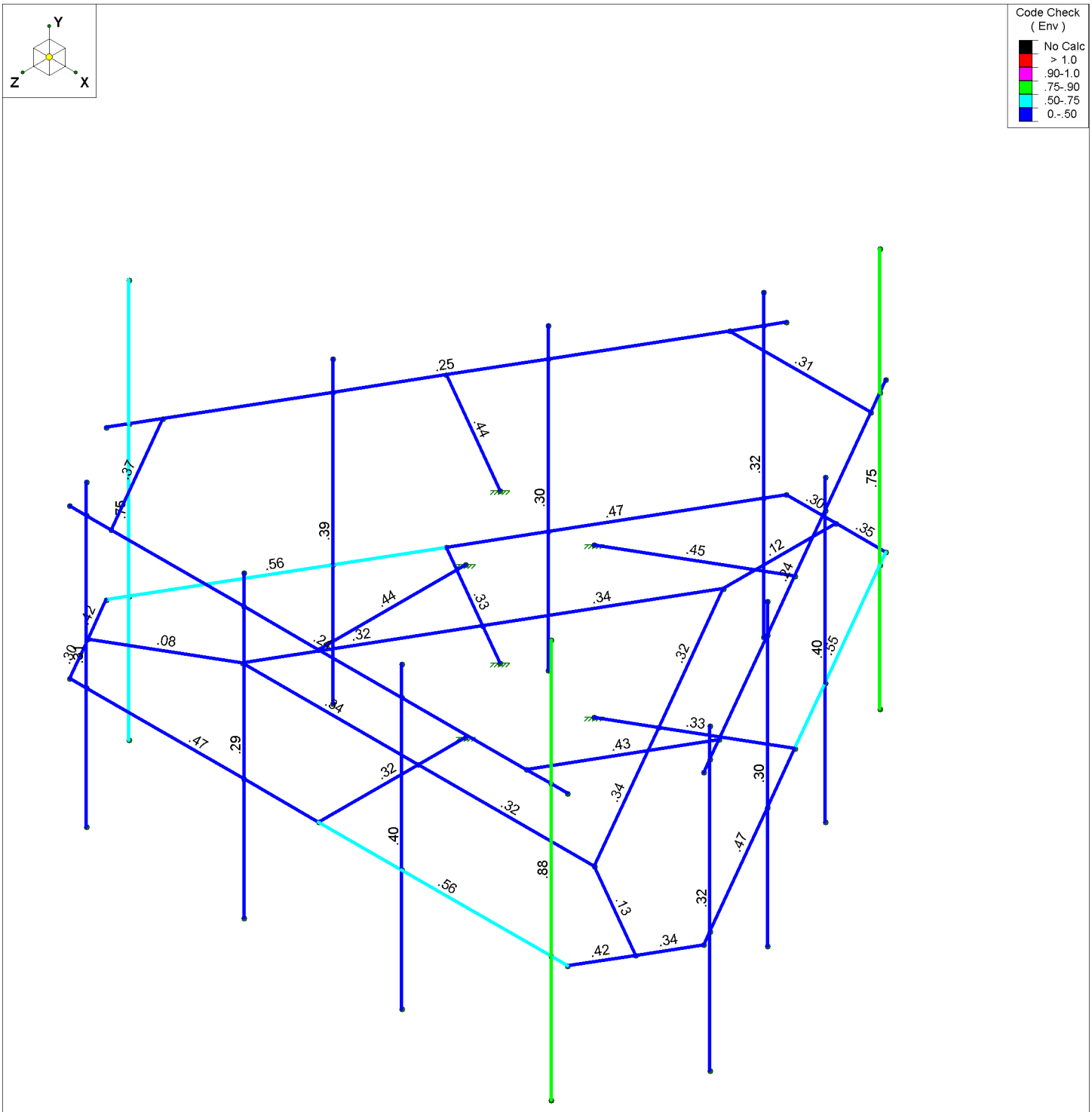
a	120	**e**	88	**j**	N/A	**o**	N/A	**s**	N/A
b	60	**f**	N/A	**k**	N/A	**p**	N/A	**t**	18.5
c	26	**g**	N/A	**m**	24	**q**	N/A	**u ***	66
d	35	**h**	N/A	**n**	N/A	**r**	N/A	**v ***	96

Members/Bolts (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	L3x3x1/4	3	3	0.25	**F**				
B	L3x3x1/4	3	3	0.25	**G**				
C	Tubing 4x4x1/4	4	4	0.25	**H**				
D	L3x3x1/4	3	3	0.25	**J**				
E	1/2" Thick. Plate	0	0	0.5	**K* (pipe)**	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
Distance from top of main platform member to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)									N/A
Distance from top of main platform member to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)									N/A
Please enter the infomation below if members can't be found from the drop down lists									
Collar All-Thread: 3/4"x16"									

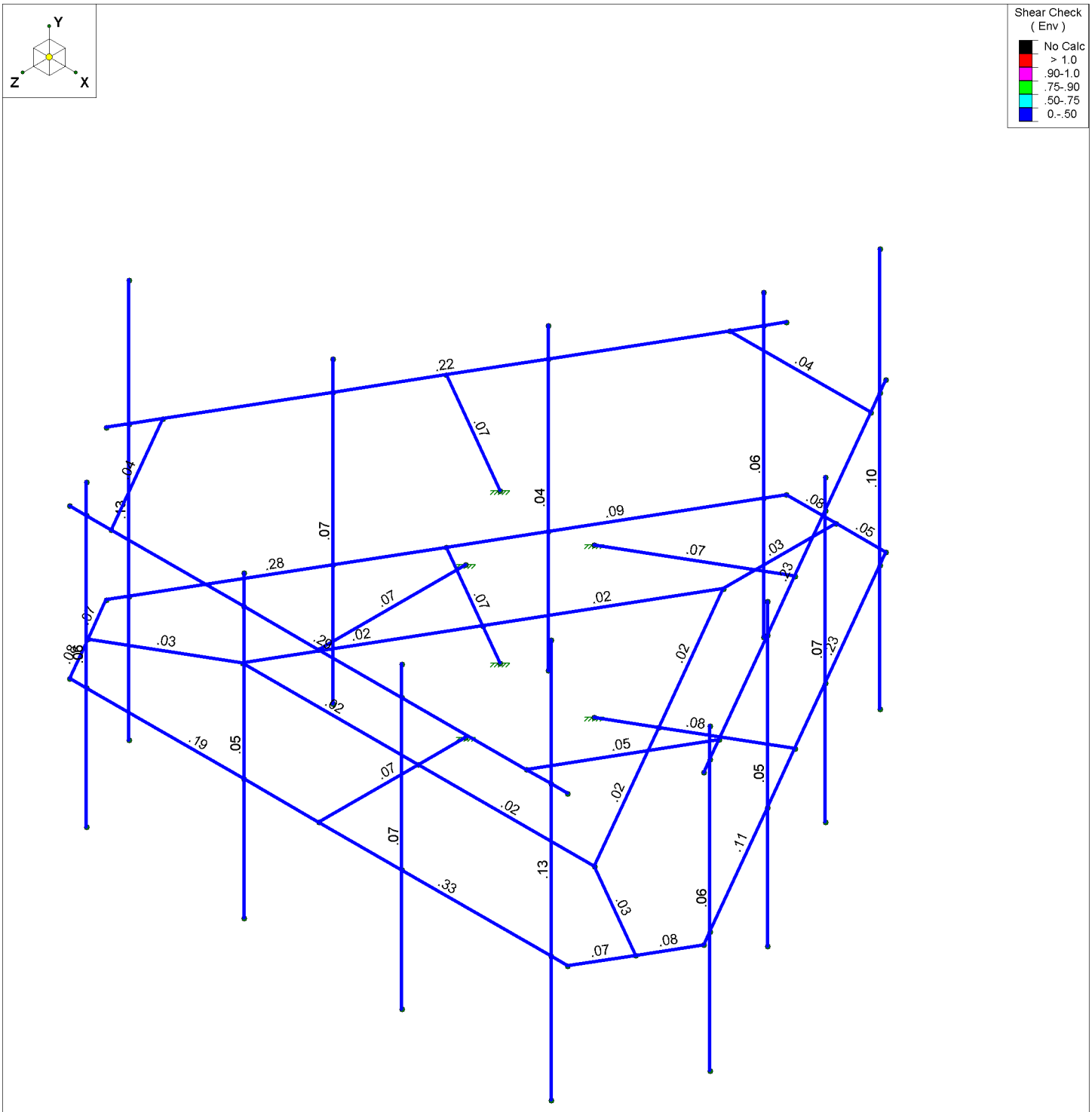
Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Mounting Locations (Unit: inches) Vertical 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.)	Photos of antennas Photo Numbers
Sector A									
Ant_{1a}									
Ant_{1b}	Antenna A	12	7.5	96.5	1/2" (2)	+23"	7	4	
Ant_{1c}									
Ant_{2a}									
Ant_{2b}	Empty Mast	N/A	N/A	N/A	N/A	N/A	N/A	42	
Ant_{2c}									
Ant_{3a}									
Ant_{3b}	Empty Mast	N/A	N/A	N/A	N/A	N/A	N/A	80	
Ant_{3c}									
Ant_{4a}									
Ant_{4b}	Antenna B	8.5	3	56.5	1/2" (2)	+14"	6	116	
Ant_{4c}	TMA A	6	4	12	1/2" (2)	+17"	N/A	116	
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?	Yes	**Antennas on Sector B are the same as Sector A**							
Are Ant same as sector A/B?	Same As A	**Antennas on Sector C are the same as Sector A**							

Tower Engineering Solutio...	CT02220-S-SBA_MT-U_Loads Only_G	SK - 1
		June 28, 2019 at 3:44 PM
TES Project No. 80186		CT02220-S-SBA_80186_G_RISA_L...



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

Tower Engineering Solutio...	CT02220-S-SBA_MT-U_Loads Only_G	SK - 2
		June 28, 2019 at 3:45 PM
TES Project No. 80186		CT02220-S-SBA_80186_G_RISA_L...



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

Tower Engineering Solutio...	CT02220-S-SBA_MT-U_Loads Only_G	SK - 3
		June 28, 2019 at 3:46 PM
TES Project No. 80186		CT02220-S-SBA_80186_G_RISA_L...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					21			
2	Antenna Di	None					21			
3	Antenna W Front	None					21			
4	Antenna Wi Front	None					21			
5	Antenna W Side	None					21			
6	Antenna Wi Side	None					21			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					4	
10	Structure Di	None						45	3	
11	Structure W Front	None						45		
12	Structure Wi Front	None						45		
13	Structure W Side	None						45		
14	Structure Wi Side	None						45		
15	BLC 9 Transient Area...	None						24		
16	BLC 10 Transient Are...	None						24		

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	0	0	1.091371	0	
2	N4	-5	0	4.041452	0	
3	N5	5	0	4.041452	0	
4	N7	0	0	4.041452	0	
5	N10	-3.536245	0	2.041652	0	
6	N11	3.536245	0	2.041652	0	
7	N9	0	0	2.041652	0	
8	N8	0.945155	0	-0.545685	0	
9	N9A	6.	0	2.309401	0	
10	N10A	1.	0	-6.350853	0	
11	N11A	3.5	0	-2.020726	0	
12	N13	0	0	-4.083304	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N14	1.768122	0	-1.020826	0	
14	N15	-0.945155	0	-0.545685	0	
15	N16	-1.	0	-6.350853	0	
16	N17	-6.	0	2.309401	0	
17	N18	-3.5	0	-2.020726	0	
18	N21	-1.768122	0	-1.020826	0	
19	N19	-5.5	0	3.175427	0	
20	N20	5.5	0	3.175427	0	
21	N21A	0	0	-6.350853	0	
22	N22	4.6667	0	4.041452	0	
23	N23	1.666667	0	4.041452	0	
24	N24	-1.5	0	4.041452	0	
25	N25	-4.666667	0	4.041452	0	
26	N26	4.6667	5.5	4.041452	0	
27	N27	4.6667	-2.5	4.041452	0	
28	N28	1.666667	3.583333	4.041452	0	
29	N29	-1.5	3.583333	4.041452	0	
30	N30	-4.666667	3.583333	4.041452	0	
31	N31	1.666667	-2.416667	4.041452	0	
32	N32	-1.5	-2.416667	4.041452	0	
33	N33	-4.666667	-2.416667	4.041452	0	
34	N34	1.16665	5.5	-6.062207	0	
35	N35	1.16665	-2.5	-6.062207	0	
36	N36	2.666667	3.583333	-3.464102	0	
37	N37	4.25	3.583333	-0.721688	0	
38	N38	5.833334	3.583333	2.020726	0	
39	N39	2.666667	-2.416667	-3.464102	0	
40	N40	4.25	-2.416667	-0.721688	0	
41	N41	5.833334	-2.416667	2.020726	0	
42	N42	-5.83335	5.5	2.020755	0	
43	N43	-5.83335	-2.5	2.020755	0	
44	N44	-4.333334	3.583333	-0.57735	0	
45	N45	-2.75	3.583333	-3.319764	0	
46	N46	-1.166667	3.583333	-6.062178	0	
47	N47	-4.333334	-2.416667	-0.57735	0	
48	N48	-2.75	-2.416667	-3.319764	0	
49	N49	-1.166667	-2.416667	-6.062178	0	
50	N50	5.833334	0	2.020726	0	
51	N51	4.25	0	-0.721688	0	
52	N52	2.666667	0	-3.464102	0	
53	N53	1.16665	0	-6.062207	0	
54	N54	-1.166667	0	-6.062178	0	
55	N55	-2.75	0	-3.319764	0	
56	N56	-4.333334	0	-0.57735	0	
57	N57	-5.83335	0	2.020755	0	
58	N58	-5	3	4.041452	0	
59	N59	5	3	4.041452	0	
60	N60	6.	3	2.309401	0	
61	N61	1.	3	-6.350853	0	
62	N62	-1.	3	-6.350853	0	
63	N63	-6.	3	2.309401	0	
64	N64	-4.666667	3	4.041452	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N65	-1.5	3	4.041452	0	
66	N66	1.666667	3	4.041452	0	
67	N67	4.6667	3	4.041452	0	
68	N68	5.833334	3	2.020726	0	
69	N69	4.25	3	-0.721688	0	
70	N70	2.666667	3	-3.464102	0	
71	N71	1.16665	3	-6.062207	0	
72	N72	-1.166667	3	-6.062178	0	
73	N73	-2.75	3	-3.319764	0	
74	N74	-4.333334	3	-0.57735	0	
75	N75	-5.83335	3	2.020755	0	
76	N76	-4.166667	3	4.041452	0	
77	N77	4.166667	3	4.041452	0	
78	N78	5.583334	3	1.587713	0	
79	N79	1.416667	3	-5.629165	0	
80	N80	-1.416667	3	-5.629165	0	
81	N81	-5.583334	3	1.587713	0	
82	N82	0	3	1.091371	0	
83	N83	0	3	4.041452	0	
84	N84	0.945155	3	-0.545685	0	
85	N85	3.5	3	-2.020726	0	
86	N86	-0.945155	3	-0.545685	0	
87	N87	-3.5	3	-2.020726	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	FF Bottom out	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
2	FF Bottom i...	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	End FF bott...	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
4	Double Angle	LL3x3x4x0	Beam	Double Angle (No Gap)	A36 Gr.36	Typical	2.88	4.5	2.46	.063
5	SA	HSS4x4x4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
6	MP	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	HR	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
8	HR end conn	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
9	T-Arm	HSS3x3x4	Beam	Tube	A36 Gr.36	Typical	2.44	3.02	3.02	5.08

Hot Rolled Steel Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N4	N7		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
2	M4	N1	N7			SA	Beam	Tube	A500 Gr.B...	Typical
3	M10	N10	N9			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
4	M4A	N9A	N11A		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N8	N11A			SA	Beam	Tube	A500 Gr.B...	Typical
6	M6	N11	N14			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N16	N18		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N15	N18			SA	Beam	Tube	A500 Gr.B...	Typical
9	M9	N13	N21			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
10	M10A	N4	N19			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N9A	N20			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N16	N21A			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N19	N17			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N20	N5			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N21A	N10A			End FF bottom	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N19	N10		180	Double Angle	Beam	Double Angle (...	A36 Gr.36	Typical
17	M17	N20	N11		180	Double Angle	Beam	Double Angle (...	A36 Gr.36	Typical
18	M18	N21A	N13		180	Double Angle	Beam	Double Angle (...	A36 Gr.36	Typical
19	MP4A	N30	N33			MP	Beam	Pipe	A53 Gr.B	Typical
20	MP3A	N29	N32			MP	Beam	Pipe	A53 Gr.B	Typical
21	MP2A	N28	N31			MP	Beam	Pipe	A53 Gr.B	Typical
22	MP1A	N26	N27			MP	Beam	Pipe	A53 Gr.B	Typical
23	MP4C	N38	N41			MP	Beam	Pipe	A53 Gr.B	Typical
24	MP3C	N37	N40			MP	Beam	Pipe	A53 Gr.B	Typical
25	MP2C	N36	N39			MP	Beam	Pipe	A53 Gr.B	Typical
26	MP1C	N34	N35			MP	Beam	Pipe	A53 Gr.B	Typical
27	MP4B	N46	N49			MP	Beam	Pipe	A53 Gr.B	Typical
28	MP3B	N45	N48			MP	Beam	Pipe	A53 Gr.B	Typical
29	MP2B	N44	N47			MP	Beam	Pipe	A53 Gr.B	Typical
30	MP1B	N42	N43			MP	Beam	Pipe	A53 Gr.B	Typical
31	M31	N7	N5		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
32	M32	N9	N11			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
33	M33	N11A	N10A		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N14	N13			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
35	M35	N18	N17		270	FF Bottom out	Beam	Single Angle	A36 Gr.36	Typical
36	M36	N21	N10			FF Bottom inner	Beam	Single Angle	A36 Gr.36	Typical
37	M37	N58	N59			HR	Beam	Pipe	A53 Gr.B	Typical
38	M38	N60	N61			HR	Beam	Pipe	A53 Gr.B	Typical
39	M39	N62	N63			HR	Beam	Pipe	A53 Gr.B	Typical
40	M40	N76	N81			HR end conn	Beam	Single Angle	A36 Gr.36	Typical
41	M41	N78	N77			HR end conn	Beam	Single Angle	A36 Gr.36	Typical
42	M42	N80	N79			HR end conn	Beam	Single Angle	A36 Gr.36	Typical
43	M43	N82	N83			T-Arm	Beam	Tube	A36 Gr.36	Typical
44	M44	N84	N85			T-Arm	Beam	Tube	A36 Gr.36	Typical
45	M45	N86	N87			T-Arm	Beam	Tube	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M4						Yes			None
3	M10						Yes			None
4	M4A						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10A						Yes			None
11	M11						Yes			None
12	M12						Yes			None
13	M13						Yes			None
14	M14						Yes			None
15	M15						Yes			None
16	M16						Yes			None
17	M17						Yes			None
18	M18						Yes			None
19	MP4A						Yes			None
20	MP3A						Yes			None
21	MP2A						Yes			None
22	MP1A						Yes			None
23	MP4C						Yes			None
24	MP3C						Yes			None
25	MP2C						Yes			None
26	MP1C						Yes			None
27	MP4B						Yes			None
28	MP3B						Yes			None
29	MP2B						Yes			None
30	MP1B						Yes			None
31	M31						Yes			None
32	M32						Yes			None
33	M33						Yes			None
34	M34						Yes			None
35	M35						Yes			None
36	M36						Yes			None
37	M37						Yes			None
38	M38						Yes			None
39	M39						Yes			None
40	M40						Yes			None
41	M41						Yes			None
42	M42						Yes			None
43	M43						Yes			None
44	M44						Yes			None
45	M45						Yes			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	FF Bottom o...	5			Lbyy						Lateral
2	M4	SA	2.95			Lbyy						Gravity

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
3	M10	FF Bottom i...	3.536			Lbyy						Gravity
4	M4A	FF Bottom o...	5			Lbyy						Lateral
5	M5	SA	2.95			Lbyy						Gravity
6	M6	FF Bottom i...	3.536			Lbyy						Gravity
7	M7	FF Bottom o...	5			Lbyy						Lateral
8	M8	SA	2.95			Lbyy						Gravity
9	M9	FF Bottom i...	3.536			Lbyy						Gravity
10	M10A	End FF bott...	1			Lbyy						Lateral
11	M11	End FF bott...	1			Lbyy						Lateral
12	M12	End FF bott...	1			Lbyy						Lateral
13	M13	End FF bott...	1			Lbyy						Lateral
14	M14	End FF bott...	1			Lbyy						Lateral
15	M15	End FF bott...	1			Lbyy						Lateral
16	M16	Double Angle	2.268			Lbyy						Lateral
17	M17	Double Angle	2.268			Lbyy						Lateral
18	M18	Double Angle	2.268			Lbyy						Lateral
19	MP4A	MP	6			Lbyy						Lateral
20	MP3A	MP	6			Lbyy						Lateral
21	MP2A	MP	6			Lbyy						Lateral
22	MP1A	MP	8			Lbyy						Lateral
23	MP4C	MP	6			Lbyy						Lateral
24	MP3C	MP	6			Lbyy						Lateral
25	MP2C	MP	6			Lbyy						Lateral
26	MP1C	MP	8			Lbyy						Lateral
27	MP4B	MP	6			Lbyy						Lateral
28	MP3B	MP	6			Lbyy						Lateral
29	MP2B	MP	6			Lbyy						Lateral
30	MP1B	MP	8			Lbyy						Lateral
31	M31	FF Bottom o...	5			Lbyy						Lateral
32	M32	FF Bottom i...	3.536			Lbyy						Gravity
33	M33	FF Bottom o...	5			Lbyy						Lateral
34	M34	FF Bottom i...	3.536			Lbyy						Gravity
35	M35	FF Bottom o...	5			Lbyy						Lateral
36	M36	FF Bottom i...	3.536			Lbyy						Gravity
37	M37	HR	10			Lbyy						Lateral
38	M38	HR	10			Lbyy						Lateral
39	M39	HR	10			Lbyy						Lateral
40	M40	HR end conn	2.833			Lbyy						Lateral
41	M41	HR end conn	2.833			Lbyy						Lateral
42	M42	HR end conn	2.833			Lbyy						Lateral
43	M43	T-Arm	2.95			Lbyy						Gravity
44	M44	T-Arm	2.95			Lbyy						Gravity
45	M45	T-Arm	2.95			Lbyy						Gravity

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
No Data to Print ...			

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Y	-9	0
2	MP4A	Y	-9	4.5
3	MP4B	Y	-9	0
4	MP4B	Y	-9	4.5
5	MP4C	Y	-9	0
6	MP4C	Y	-9	4.5
7	MP4A	Y	-15.4	2
8	MP4B	Y	-15.4	2
9	MP4C	Y	-15.4	2
10	MP4A	Y	-9.7	3
11	MP4B	Y	-9.7	3
12	MP4C	Y	-9.7	3
13	MP1A	Y	-70	2.5
14	MP1B	Y	-70	2.5
15	MP1C	Y	-70	2.5
16	MP1A	Y	-64	0
17	MP1A	Y	-64	6
18	MP1B	Y	-64	0
19	MP1B	Y	-64	6
20	MP1C	Y	-64	0
21	MP1C	Y	-64	6

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Y	-73.295	0
2	MP4A	Y	-73.295	4.5
3	MP4B	Y	-73.295	0
4	MP4B	Y	-73.295	4.5
5	MP4C	Y	-73.295	0
6	MP4C	Y	-73.295	4.5
7	MP4A	Y	-38.738	2
8	MP4B	Y	-38.738	2
9	MP4C	Y	-38.738	2
10	MP4A	Y	-32.255	3
11	MP4B	Y	-32.255	3
12	MP4C	Y	-32.255	3
13	MP1A	Y	-100.231	2.5
14	MP1B	Y	-100.231	2.5
15	MP1C	Y	-100.231	2.5
16	MP1A	Y	-293.684	0
17	MP1A	Y	-293.684	6
18	MP1B	Y	-293.684	0
19	MP1B	Y	-293.684	6
20	MP1C	Y	-293.684	0
21	MP1C	Y	-293.684	6

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Z	-83.612	0
2	MP4A	Z	-83.612	4.5

Member Point Loads (BLC 3 : Antenna W Front) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
3	MP4B	Z	-49.615	0
4	MP4B	Z	-49.615	4.5
5	MP4C	Z	-49.615	0
6	MP4C	Z	-49.615	4.5
7	MP4A	Z	-18.698	2
8	MP4B	Z	-12.479	2
9	MP4C	Z	-12.479	2
10	MP4A	Z	-15.821	3
11	MP4B	Z	-8.797	3
12	MP4C	Z	-8.797	3
13	MP1A	Z	-47.463	2.5
14	MP1B	Z	-36.946	2.5
15	MP1C	Z	-36.946	2.5
16	MP1A	Z	-388.142	0
17	MP1A	Z	-388.142	6
18	MP1B	Z	-214.819	0
19	MP1B	Z	-214.819	6
20	MP1C	Z	-214.819	0
21	MP1C	Z	-214.819	6

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Z	-26.933	0
2	MP4A	Z	-26.933	4.5
3	MP4B	Z	-18.265	0
4	MP4B	Z	-18.265	4.5
5	MP4C	Z	-18.265	0
6	MP4C	Z	-18.265	4.5
7	MP4A	Z	-7.45	2
8	MP4B	Z	-6.119	2
9	MP4C	Z	-6.119	2
10	MP4A	Z	-6.537	3
11	MP4B	Z	-4.788	3
12	MP4C	Z	-4.788	3
13	MP1A	Z	-16.927	2.5
14	MP1B	Z	-13.879	2.5
15	MP1C	Z	-13.879	2.5
16	MP1A	Z	-107.296	0
17	MP1A	Z	-107.296	6
18	MP1B	Z	-63.36	0
19	MP1B	Z	-63.36	6
20	MP1C	Z	-63.36	0
21	MP1C	Z	-63.36	6

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	38.283	0
2	MP4A	X	38.283	4.5
3	MP4B	X	72.28	0
4	MP4B	X	72.28	4.5
5	MP4C	X	72.28	0

Member Point Loads (BLC 5 : Antenna W Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
6	MP4C	X	72.28	4.5
7	MP4A	X	13.874	2
8	MP4B	X	22.166	2
9	MP4C	X	22.166	2
10	MP4A	X	8.608	3
11	MP4B	X	17.973	3
12	MP4C	X	17.973	3
13	MP1A	X	44.587	2.5
14	MP1B	X	58.61	2.5
15	MP1C	X	58.61	2.5
16	MP1A	X	157.045	0
17	MP1A	X	157.045	6
18	MP1B	X	330.368	0
19	MP1B	X	330.368	6
20	MP1C	X	330.368	0
21	MP1C	X	330.368	6

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	15.376	0
2	MP4A	X	15.376	4.5
3	MP4B	X	24.044	0
4	MP4B	X	24.044	4.5
5	MP4C	X	24.044	0
6	MP4C	X	24.044	4.5
7	MP4A	X	7.566	2
8	MP4B	X	9.342	2
9	MP4C	X	9.342	2
10	MP4A	X	5.607	3
11	MP4B	X	7.939	3
12	MP4C	X	7.939	3
13	MP1A	X	17.15	2.5
14	MP1B	X	21.215	2.5
15	MP1C	X	21.215	2.5
16	MP1A	X	48.714	0
17	MP1A	X	48.714	6
18	MP1B	X	92.651	0
19	MP1B	X	92.651	6
20	MP1C	X	92.651	0
21	MP1C	X	92.651	6

Member Point Loads (BLC 7 : Service Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	0

Member Point Loads (BLC 8 : Service Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	%50

Member Distributed Loads (BLC 10 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-15.25	-15.25	0	%100
2	M4	Y	-23.193	-23.193	0	%100
3	M10	Y	-15.25	-15.25	0	%100
4	M4A	Y	-15.25	-15.25	0	%100
5	M5	Y	-23.193	-23.193	0	%100
6	M6	Y	-15.25	-15.25	0	%100
7	M7	Y	-15.25	-15.25	0	%100
8	M8	Y	-23.193	-23.193	0	%100
9	M9	Y	-15.25	-15.25	0	%100
10	M10A	Y	-15.25	-15.25	0	%100
11	M11	Y	-15.25	-15.25	0	%100
12	M12	Y	-15.25	-15.25	0	%100
13	M13	Y	-15.25	-15.25	0	%100
14	M14	Y	-15.25	-15.25	0	%100
15	M15	Y	-15.25	-15.25	0	%100
16	M16	Y	-25.019	-25.019	0	%100
17	M17	Y	-25.019	-25.019	0	%100
18	M18	Y	-25.019	-25.019	0	%100
19	MP4A	Y	-13.553	-13.553	0	%100
20	MP3A	Y	-13.553	-13.553	0	%100
21	MP2A	Y	-13.553	-13.553	0	%100
22	MP1A	Y	-13.553	-13.553	0	%100
23	MP4C	Y	-13.553	-13.553	0	%100
24	MP3C	Y	-13.553	-13.553	0	%100
25	MP2C	Y	-13.553	-13.553	0	%100
26	MP1C	Y	-13.553	-13.553	0	%100
27	MP4B	Y	-13.553	-13.553	0	%100
28	MP3B	Y	-13.553	-13.553	0	%100
29	MP2B	Y	-13.553	-13.553	0	%100
30	MP1B	Y	-13.553	-13.553	0	%100
31	M31	Y	-15.25	-15.25	0	%100
32	M32	Y	-15.25	-15.25	0	%100
33	M33	Y	-15.25	-15.25	0	%100
34	M34	Y	-15.25	-15.25	0	%100
35	M35	Y	-15.25	-15.25	0	%100
36	M36	Y	-15.25	-15.25	0	%100
37	M37	Y	-16.781	-16.781	0	%100
38	M38	Y	-16.781	-16.781	0	%100
39	M39	Y	-16.781	-16.781	0	%100
40	M40	Y	-15.25	-15.25	0	%100
41	M41	Y	-15.25	-15.25	0	%100
42	M42	Y	-15.25	-15.25	0	%100
43	M43	Y	-19.54	-19.54	0	%100
44	M44	Y	-19.54	-19.54	0	%100
45	M45	Y	-19.54	-19.54	0	%100

Member Distributed Loads (BLC 11 : Structure W Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-19.177	-19.177	0	%100
2	M4	PZ	-25.569	-25.569	0	%100

Member Distributed Loads (BLC 11 : Structure W Front) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
3	M10	PZ	-19.177	-19.177	0	%100
4	M4A	PZ	-19.177	-19.177	0	%100
5	M5	PZ	-25.569	-25.569	0	%100
6	M6	PZ	-19.177	-19.177	0	%100
7	M7	PZ	-19.177	-19.177	0	%100
8	M8	PZ	-25.569	-25.569	0	%100
9	M9	PZ	-19.177	-19.177	0	%100
10	M10A	PZ	-19.177	-19.177	0	%100
11	M11	PZ	-19.177	-19.177	0	%100
12	M12	PZ	-19.177	-19.177	0	%100
13	M13	PZ	-19.177	-19.177	0	%100
14	M14	PZ	-19.177	-19.177	0	%100
15	M15	PZ	-19.177	-19.177	0	%100
16	M16	PZ	-19.177	-19.177	0	%100
17	M17	PZ	-19.177	-19.177	0	%100
18	M18	PZ	-19.177	-19.177	0	%100
19	MP4A	PZ	-9.109	-9.109	0	%100
20	MP3A	PZ	-9.109	-9.109	0	%100
21	MP2A	PZ	-9.109	-9.109	0	%100
22	MP1A	PZ	-9.109	-9.109	0	%100
23	MP4C	PZ	-9.109	-9.109	0	%100
24	MP3C	PZ	-9.109	-9.109	0	%100
25	MP2C	PZ	-9.109	-9.109	0	%100
26	MP1C	PZ	-9.109	-9.109	0	%100
27	MP4B	PZ	-9.109	-9.109	0	%100
28	MP3B	PZ	-9.109	-9.109	0	%100
29	MP2B	PZ	-9.109	-9.109	0	%100
30	MP1B	PZ	-9.109	-9.109	0	%100
31	M31	PZ	-19.177	-19.177	0	%100
32	M32	PZ	-19.177	-19.177	0	%100
33	M33	PZ	-19.177	-19.177	0	%100
34	M34	PZ	-19.177	-19.177	0	%100
35	M35	PZ	-19.177	-19.177	0	%100
36	M36	PZ	-19.177	-19.177	0	%100
37	M37	PZ	-13.424	-13.424	0	%100
38	M38	PZ	-13.424	-13.424	0	%100
39	M39	PZ	-13.424	-13.424	0	%100
40	M40	PZ	-19.177	-19.177	0	%100
41	M41	PZ	-19.177	-19.177	0	%100
42	M42	PZ	-19.177	-19.177	0	%100
43	M43	PZ	-19.177	-19.177	0	%100
44	M44	PZ	-19.177	-19.177	0	%100
45	M45	PZ	-19.177	-19.177	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-9.115	-9.115	0	%100
2	M4	PZ	-10.681	-10.681	0	%100
3	M10	PZ	-9.115	-9.115	0	%100
4	M4A	PZ	-9.115	-9.115	0	%100
5	M5	PZ	-10.681	-10.681	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
6	M6	PZ	-9.115	-9.115	0	%100
7	M7	PZ	-9.115	-9.115	0	%100
8	M8	PZ	-10.681	-10.681	0	%100
9	M9	PZ	-9.115	-9.115	0	%100
10	M10A	PZ	-9.115	-9.115	0	%100
11	M11	PZ	-9.115	-9.115	0	%100
12	M12	PZ	-9.115	-9.115	0	%100
13	M13	PZ	-9.115	-9.115	0	%100
14	M14	PZ	-9.115	-9.115	0	%100
15	M15	PZ	-9.115	-9.115	0	%100
16	M16	PZ	-9.115	-9.115	0	%100
17	M17	PZ	-9.115	-9.115	0	%100
18	M18	PZ	-9.115	-9.115	0	%100
19	MP4A	PZ	-6.647	-6.647	0	%100
20	MP3A	PZ	-6.647	-6.647	0	%100
21	MP2A	PZ	-6.647	-6.647	0	%100
22	MP1A	PZ	-6.647	-6.647	0	%100
23	MP4C	PZ	-6.647	-6.647	0	%100
24	MP3C	PZ	-6.647	-6.647	0	%100
25	MP2C	PZ	-6.647	-6.647	0	%100
26	MP1C	PZ	-6.647	-6.647	0	%100
27	MP4B	PZ	-6.647	-6.647	0	%100
28	MP3B	PZ	-6.647	-6.647	0	%100
29	MP2B	PZ	-6.647	-6.647	0	%100
30	MP1B	PZ	-6.647	-6.647	0	%100
31	M31	PZ	-9.115	-9.115	0	%100
32	M32	PZ	-9.115	-9.115	0	%100
33	M33	PZ	-9.115	-9.115	0	%100
34	M34	PZ	-9.115	-9.115	0	%100
35	M35	PZ	-9.115	-9.115	0	%100
36	M36	PZ	-9.115	-9.115	0	%100
37	M37	PZ	-7.705	-7.705	0	%100
38	M38	PZ	-7.705	-7.705	0	%100
39	M39	PZ	-7.705	-7.705	0	%100
40	M40	PZ	-9.115	-9.115	0	%100
41	M41	PZ	-9.115	-9.115	0	%100
42	M42	PZ	-9.115	-9.115	0	%100
43	M43	PZ	-9.115	-9.115	0	%100
44	M44	PZ	-9.115	-9.115	0	%100
45	M45	PZ	-9.115	-9.115	0	%100

Member Distributed Loads (BLC 13 : Structure W Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	19.177	19.177	0	%100
2	M4	PX	25.569	25.569	0	%100
3	M10	PX	19.177	19.177	0	%100
4	M4A	PX	19.177	19.177	0	%100
5	M5	PX	25.569	25.569	0	%100
6	M6	PX	19.177	19.177	0	%100
7	M7	PX	19.177	19.177	0	%100
8	M8	PX	25.569	25.569	0	%100

Member Distributed Loads (BLC 13 : Structure W Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
9	M9	PX	19.177	19.177	0	%100
10	M10A	PX	19.177	19.177	0	%100
11	M11	PX	19.177	19.177	0	%100
12	M12	PX	19.177	19.177	0	%100
13	M13	PX	19.177	19.177	0	%100
14	M14	PX	19.177	19.177	0	%100
15	M15	PX	19.177	19.177	0	%100
16	M16	PX	19.177	19.177	0	%100
17	M17	PX	19.177	19.177	0	%100
18	M18	PX	19.177	19.177	0	%100
19	MP4A	PX	9.109	9.109	0	%100
20	MP3A	PX	9.109	9.109	0	%100
21	MP2A	PX	9.109	9.109	0	%100
22	MP1A	PX	9.109	9.109	0	%100
23	MP4C	PX	9.109	9.109	0	%100
24	MP3C	PX	9.109	9.109	0	%100
25	MP2C	PX	9.109	9.109	0	%100
26	MP1C	PX	9.109	9.109	0	%100
27	MP4B	PX	9.109	9.109	0	%100
28	MP3B	PX	9.109	9.109	0	%100
29	MP2B	PX	9.109	9.109	0	%100
30	MP1B	PX	9.109	9.109	0	%100
31	M31	PX	19.177	19.177	0	%100
32	M32	PX	19.177	19.177	0	%100
33	M33	PX	19.177	19.177	0	%100
34	M34	PX	19.177	19.177	0	%100
35	M35	PX	19.177	19.177	0	%100
36	M36	PX	19.177	19.177	0	%100
37	M37	PX	13.424	13.424	0	%100
38	M38	PX	13.424	13.424	0	%100
39	M39	PX	13.424	13.424	0	%100
40	M40	PX	19.177	19.177	0	%100
41	M41	PX	19.177	19.177	0	%100
42	M42	PX	19.177	19.177	0	%100
43	M43	PX	19.177	19.177	0	%100
44	M44	PX	19.177	19.177	0	%100
45	M45	PX	19.177	19.177	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	9.115	9.115	0	%100
2	M4	PX	10.681	10.681	0	%100
3	M10	PX	9.115	9.115	0	%100
4	M4A	PX	9.115	9.115	0	%100
5	M5	PX	10.681	10.681	0	%100
6	M6	PX	9.115	9.115	0	%100
7	M7	PX	9.115	9.115	0	%100
8	M8	PX	10.681	10.681	0	%100
9	M9	PX	9.115	9.115	0	%100
10	M10A	PX	9.115	9.115	0	%100
11	M11	PX	9.115	9.115	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
12	M12	PX	9.115	9.115	0	%100
13	M13	PX	9.115	9.115	0	%100
14	M14	PX	9.115	9.115	0	%100
15	M15	PX	9.115	9.115	0	%100
16	M16	PX	9.115	9.115	0	%100
17	M17	PX	9.115	9.115	0	%100
18	M18	PX	9.115	9.115	0	%100
19	MP4A	PX	6.647	6.647	0	%100
20	MP3A	PX	6.647	6.647	0	%100
21	MP2A	PX	6.647	6.647	0	%100
22	MP1A	PX	6.647	6.647	0	%100
23	MP4C	PX	6.647	6.647	0	%100
24	MP3C	PX	6.647	6.647	0	%100
25	MP2C	PX	6.647	6.647	0	%100
26	MP1C	PX	6.647	6.647	0	%100
27	MP4B	PX	6.647	6.647	0	%100
28	MP3B	PX	6.647	6.647	0	%100
29	MP2B	PX	6.647	6.647	0	%100
30	MP1B	PX	6.647	6.647	0	%100
31	M31	PX	9.115	9.115	0	%100
32	M32	PX	9.115	9.115	0	%100
33	M33	PX	9.115	9.115	0	%100
34	M34	PX	9.115	9.115	0	%100
35	M35	PX	9.115	9.115	0	%100
36	M36	PX	9.115	9.115	0	%100
37	M37	PX	7.705	7.705	0	%100
38	M38	PX	7.705	7.705	0	%100
39	M39	PX	7.705	7.705	0	%100
40	M40	PX	9.115	9.115	0	%100
41	M41	PX	9.115	9.115	0	%100
42	M42	PX	9.115	9.115	0	%100
43	M43	PX	9.115	9.115	0	%100
44	M44	PX	9.115	9.115	0	%100
45	M45	PX	9.115	9.115	0	%100

Member Distributed Loads (BLC 15 : BLC 9 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-4.333	-4.028	0	2.25
2	M1	Y	-4.028	-3.723	2.25	4.5
3	M4	Y	-8.93	-8.93	.95	2.95
4	M10	Y	-5.412	-5.412	.076	2.657
5	M16	Y	-6.718	-6.718	1.114	2.114
6	M17	Y	-6.718	-6.718	1.114	2.114
7	M31	Y	-3.723	-4.029	.5	2.75
8	M31	Y	-4.029	-4.334	2.75	5
9	M32	Y	-5.412	-5.412	.879	3.46
10	M4A	Y	-4.333	-4.028	0	2.25
11	M4A	Y	-4.028	-3.723	2.25	4.5
12	M5	Y	-8.93	-8.93	.95	2.95
13	M6	Y	-5.412	-5.412	.076	2.657
14	M18	Y	-6.718	-6.718	1.114	2.114

Member Distributed Loads (BLC 15 : BLC 9 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
15	M33	Y	-3.723	-4.029	.5	2.75
16	M33	Y	-4.029	-4.334	2.75	5
17	M34	Y	-5.412	-5.412	.879	3.46
18	M7	Y	-4.333	-4.028	0	2.25
19	M7	Y	-4.028	-3.723	2.25	4.5
20	M8	Y	-8.93	-8.93	.95	2.95
21	M9	Y	-5.412	-5.412	.076	2.657
22	M35	Y	-3.723	-4.029	.5	2.75
23	M35	Y	-4.029	-4.334	2.75	5
24	M36	Y	-5.412	-5.412	.879	3.46

Member Distributed Loads (BLC 16 : BLC 10 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-13.021	-12.105	0	2.25
2	M1	Y	-12.105	-11.188	2.25	4.5
3	M4	Y	-26.836	-26.836	.95	2.95
4	M10	Y	-16.263	-16.263	.076	2.657
5	M16	Y	-20.188	-20.188	1.114	2.114
6	M17	Y	-20.188	-20.188	1.114	2.114
7	M31	Y	-11.189	-12.106	.5	2.75
8	M31	Y	-12.106	-13.023	2.75	5
9	M32	Y	-16.262	-16.262	.879	3.46
10	M4A	Y	-13.021	-12.105	0	2.25
11	M4A	Y	-12.105	-11.188	2.25	4.5
12	M5	Y	-26.836	-26.836	.95	2.95
13	M6	Y	-16.263	-16.263	.076	2.657
14	M18	Y	-20.188	-20.188	1.114	2.114
15	M33	Y	-11.189	-12.106	.5	2.75
16	M33	Y	-12.106	-13.023	2.75	5
17	M34	Y	-16.262	-16.262	.879	3.46
18	M7	Y	-13.021	-12.105	0	2.25
19	M7	Y	-12.105	-11.188	2.25	4.5
20	M8	Y	-26.836	-26.836	.95	2.95
21	M9	Y	-16.263	-16.263	.076	2.657
22	M35	Y	-11.189	-12.106	.5	2.75
23	M35	Y	-12.106	-13.023	2.75	5
24	M36	Y	-16.262	-16.262	.879	3.46

Member Area Loads (BLC 9 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N4	N5	N11	N10	Y	Two Way	-.005
2	N9A	N10A	N13	N11	Y	Two Way	-.005
3	N16	N17	N10	N13	Y	Two Way	-.005
4	N83	N83	N84		Y	Two Way	-.005

Member Area Loads (BLC 10 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N4	N5	N11	N10	Y	Two Way	-.016
2	N9A	N10A	N13	N11	Y	Two Way	-.016

Member Area Loads (BLC 10 : Structure Di) (Continued)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
3	N16	N17	N10	N13	Y	Two Way	-.016

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	Reaction
2	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N15	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N82	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N84	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N86	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	1942.565	4	1985.617	6	379.826	1	-.428	1	1.543	4	.267	3
2		min	-1868.958	3	236.929	1	-282.226	2	-4.748	6	-1.439	3	-.468	9
3	N8	max	1122.274	4	1976.08	7	1981.939	1	2.481	5	2.172	2	4.042	7
4		min	-1074.374	3	292.88	4	-2094.542	2	.269	2	-2.067	1	.434	4
5	N15	max	936.677	4	1978.414	8	1716.897	1	2.269	5	1.615	3	-.414	3
6		min	-1058.571	3	278.093	3	-1701.664	2	.248	2	-1.509	4	-4.17	8
7	N82	max	860.455	4	1111.348	6	828.476	1	-.208	1	1.514	4	.102	7
8		min	-932.88	3	224.669	1	-887.967	2	-2.441	6	-1.622	3	-.177	9
9	N84	max	842.251	4	1110.691	7	1187.765	1	1.287	7	1.779	2	2.056	7
10		min	-857.189	3	220.945	4	-1095.668	2	.17	4	-1.882	1	.232	4
11	N86	max	1155.653	4	1109.765	8	821.56	1	1.129	8	1.352	3	-.204	3
12		min	-1067.902	3	224.376	3	-854.396	2	.146	3	-1.458	2	-2.155	8
13	Totals:	max	6859.875	4	9078.467	7	6916.463	1						
14		min	-6859.875	3	2451.549	4	-6916.463	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	418.26	2	334.708	2	18.264	10	.036	9	.039	2	.099	9
2			min	-529.961	1	-300.417	1	-686.098	9	-.024	4	-.121	7	-.057	4
3		2	max	546.795	2	90.242	7	99.212	10	0	2	.144	6	.214	5
4			min	-483.072	1	-2.979	4	-261.586	6	0	1	-.063	1	-.033	2
5		3	max	546.795	2	95.175	5	-39.958	1	0	2	.198	10	.228	10
6			min	-483.072	1	-31.35	2	-427.414	10	0	1	-.064	5	-.155	6
7		4	max	706.869	2	209.193	5	-22.954	1	0	1	.069	9	-.006	2
8			min	-480.964	1	-82.998	2	-593.179	6	-.009	6	-.036	4	-.201	5
9		5	max	706.869	2	220.587	5	-33.7	1	0	1	.141	1	-.158	2
10			min	-480.964	1	-121.352	2	-631.494	6	-.009	6	-.392	6	-.893	5
11	M4	1	max	379.826	1	1985.711	6	1868.989	3	.267	3	1.543	4	4.748	6
12			min	-282.226	2	236.975	1	-1942.569	4	-.468	9	-1.439	3	.428	1
13		2	max	379.826	1	1957.691	6	1838.817	3	.267	3	.137	8	3.294	6
14			min	-282.226	2	226.06	1	-1912.396	4	-.468	9	-.142	9	.257	1
15		3	max	488.89	5	1482.994	6	99.243	9	.182	6	.075	2	2.088	6
16			min	-190.304	2	116.877	1	-138.488	8	-.33	9	-.041	1	.146	1
17		4	max	488.89	5	1427.278	6	99.243	9	.182	6	.093	9	1.015	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
18			min	-190.304	2	98.058	1	-130.61	8	-.33	9	-.032	4	.066	1
19		5	max	488.89	5	1371.562	6	99.243	9	.182	6	.167	9	.001	1
20			min	-190.304	2	79.239	1	-124.232	6	-.33	9	-.124	8	-.017	6
21	M10	1	max	1053.638	3	-6.883	3	120.363	5	0	9	.084	3	.146	6
22			min	-909.852	4	-88.687	8	-46.972	3	0	1	-.113	4	-.079	1
23		2	max	1053.638	3	-17.326	3	119.406	8	0	9	.047	3	.264	6
24			min	-909.852	4	-125.748	8	-46.972	3	0	1	-.077	4	-.021	1
25		3	max	1053.638	3	-28.266	3	119.406	8	0	9	.004	3	.416	8
26			min	-909.852	4	-164.547	8	-46.972	3	0	1	-.091	8	.004	3
27		4	max	1053.638	3	-39.206	3	119.406	8	0	9	-.024	1	.605	8
28			min	-909.852	4	-203.346	8	-46.972	3	0	1	-.142	7	-.004	3
29		5	max	1053.638	3	-44.438	3	119.406	8	0	9	-.007	4	.813	8
30			min	-909.852	4	-222.143	8	-46.972	3	0	1	-.22	7	-.008	3
31	M4A	1	max	602.219	3	247.002	3	23.483	1	.017	1	.086	3	.134	4
32			min	-713.723	4	-212.375	4	-50.696	2	-.025	2	-.139	4	-.099	3
33		2	max	555.766	3	91.73	8	.164	2	0	3	.144	7	.218	8
34			min	-492.115	4	-20.76	3	-265.635	5	0	4	-.06	4	-.049	3
35		3	max	539.158	3	100.275	8	-13.305	2	0	3	.014	3	.028	4
36			min	-475.507	4	-49.525	3	-313.488	5	0	4	-.062	8	-.149	7
37		4	max	610.704	1	207.969	8	-1.002	2	0	4	.08	1	-.01	1
38			min	-384.329	2	-87.339	3	-597.518	5	-.009	7	-.053	2	-.202	8
39		5	max	627.312	1	216.514	8	-11.749	2	0	4	.124	4	-.103	3
40			min	-400.937	2	-116.104	3	-635.833	5	-.009	7	-.388	7	-.903	8
41	M5	1	max	391.091	4	1976.186	7	2245.748	1	.241	1	2.172	2	4.722	7
42			min	-293.815	3	292.942	4	-2320.005	2	-.176	2	-2.067	1	.577	4
43		2	max	378.026	4	1948.165	7	2223.119	1	.241	1	.469	2	3.275	7
44			min	-280.749	3	282.027	4	-2297.376	2	-.176	2	-.419	1	.365	4
45		3	max	480.329	8	1474.757	7	232.141	1	.185	7	.281	3	2.076	7
46			min	-188.415	3	165.144	4	-293.863	2	-.007	4	-.247	1	.216	4
47		4	max	476.918	8	1419.041	7	215.686	4	.185	7	.073	3	1.009	7
48			min	-175.35	3	146.325	4	-278.489	3	-.007	4	-.085	4	.101	4
49		5	max	473.506	8	1363.325	7	208.143	4	.185	7	.071	4	0	4
50			min	-162.285	3	127.506	4	-270.946	3	-.007	4	-.135	7	-.017	7
51	M6	1	max	1211.754	1	.668	4	161.348	2	0	1	.157	1	.148	1
52			min	-1069.019	2	-90.142	7	-107.056	1	0	2	-.186	2	-.096	2
53		2	max	1223.499	1	-9.775	4	154.566	2	0	1	.084	1	.26	7
54			min	-1080.764	2	-127.203	7	-100.275	1	0	2	-.114	2	-.011	4
55		3	max	1235.245	1	-20.715	4	147.785	2	0	1	.009	1	.42	7
56			min	-1092.51	2	-166.002	7	-93.493	1	0	2	-.093	6	-.01	4
57		4	max	1246.991	1	-31.655	4	141.003	2	0	1	-.003	2	.607	7
58			min	-1104.256	2	-204.801	7	-86.712	1	0	2	-.146	5	-.015	4
59		5	max	1258.737	1	-36.886	4	134.222	2	0	1	.038	2	.816	7
60			min	-1116.002	2	-223.597	7	-79.93	1	0	2	-.228	5	-.028	4
61	M7	1	max	594.975	1	307.775	4	18.901	4	.011	4	.078	1	.136	2
62			min	-706.266	2	-274.34	3	-45.868	3	-.018	3	-.134	6	-.101	1
63		2	max	497.328	1	93.609	6	4.054	3	.001	4	.138	8	.21	6
64			min	-434.193	2	-18.562	1	-266.946	8	0	3	-.046	3	-.024	1
65		3	max	504.847	4	96.458	6	-9.415	3	.001	4	.01	4	.06	3
66			min	-440.72	3	-28.151	1	-314.799	8	0	3	-.061	7	-.155	8
67		4	max	781.687	4	193.905	7	26.503	3	0	3	.07	4	-.015	4
68			min	-555.467	3	-36.433	1	-602.127	8	-.009	8	-.043	3	-.197	7
69		5	max	798.295	4	202.45	7	15.756	3	0	3	.088	3	-.148	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
70			min	-572.075	3	-61.62	4	-640.442	8	-.009	8	-.376	8	-.887	6
71	M8	1	max	331.36	3	1978.534	8	1821.272	2	.362	9	1.615	3	4.728	8
72			min	-233.765	4	278.143	3	-1893.903	1	-.17	1	-1.509	4	.546	3
73		2	max	318.294	3	1950.514	8	1798.643	2	.362	9	.48	3	3.279	8
74			min	-220.7	4	267.227	3	-1871.273	1	-.17	1	-.429	4	.344	3
75		3	max	471.46	7	1476.149	8	234.215	4	.222	9	.325	3	2.078	8
76			min	-141.943	4	156.653	3	-296.637	3	.037	4	-.292	4	.203	3
77		4	max	468.049	7	1420.433	8	226.672	4	.222	9	.109	3	1.01	8
78			min	-128.878	4	137.834	3	-289.093	3	.037	4	-.122	4	.095	3
79		5	max	464.638	7	1364.717	8	219.128	4	.222	9	.043	4	0	3
80			min	-115.812	4	119.015	3	-281.55	3	.037	4	-.132	5	-.017	8
81	M9	1	max	918.601	4	-3.479	2	169.488	3	0	4	.15	4	.193	4
82			min	-775.709	3	-89.678	5	-115.127	4	0	3	-.179	3	-.14	3
83		2	max	930.347	4	-13.923	2	149.144	3	0	4	.07	4	.263	8
84			min	-787.455	3	-126.738	5	-94.783	4	0	3	-.099	3	-.021	3
85		3	max	942.093	4	-24.863	2	128.8	3	0	4	-.005	4	.421	5
86			min	-799.201	3	-165.537	5	-74.439	4	0	3	-.09	7	-.016	2
87		4	max	953.838	4	-35.803	2	118.274	7	0	4	.001	3	.61	5
88			min	-810.947	3	-204.337	5	-54.094	4	0	3	-.146	8	-.018	2
89		5	max	965.584	4	-41.034	2	119.588	5	0	4	.024	3	.818	5
90			min	-822.693	3	-223.133	5	-43.24	2	0	3	-.223	8	-.019	2
91	M10A	1	max	119.386	4	43.615	5	609.453	1	.015	8	.043	2	.063	4
92			min	-222.022	7	-62.239	9	-529.188	2	-.003	9	-.121	5	-.113	9
93		2	max	122.707	4	38.333	5	611.37	1	.015	8	.018	1	.028	1
94			min	-223.009	7	-63.709	9	-531.106	2	-.003	9	-.079	6	-.062	6
95		3	max	126.029	4	34.013	1	613.288	1	.015	8	.132	1	.13	1
96			min	-223.995	7	-65.179	9	-533.024	2	-.003	9	-.149	2	-.145	2
97		4	max	129.35	4	32.543	1	615.206	1	.015	8	.247	1	.233	1
98			min	-224.982	7	-66.649	9	-534.941	2	-.003	9	-.246	2	-.237	2
99		5	max	132.672	4	31.073	1	617.124	1	.015	8	.361	1	.336	1
100			min	-225.969	7	-68.119	9	-536.859	2	-.003	9	-.343	2	-.329	2
101	M11	1	max	88.03	3	51.144	2	724.501	4	.015	6	.088	3	.097	3
102			min	-214.952	5	-23.044	1	-644.68	3	-.002	1	-.141	4	-.132	4
103		2	max	84.708	3	49.674	2	730.254	4	.015	6	.015	2	.045	2
104			min	-215.938	5	-24.514	1	-650.434	3	-.002	1	-.077	5	-.07	1
105		3	max	82.595	2	48.204	2	736.008	4	.015	6	.127	4	.117	4
106			min	-216.925	5	-25.984	1	-656.187	3	-.002	1	-.143	3	-.131	3
107		4	max	85.917	2	46.734	2	741.761	4	.015	6	.262	4	.243	4
108			min	-217.912	5	-27.454	1	-661.94	3	-.002	1	-.261	3	-.247	3
109		5	max	89.238	2	45.264	2	747.514	4	.015	6	.398	4	.37	4
110			min	-218.899	5	-28.924	1	-667.693	3	-.002	1	-.38	3	-.363	3
111	M12	1	max	201.735	1	46.505	3	650.4	2	.015	5	.076	1	.103	1
112			min	-285.555	2	-18.565	4	-570.748	1	0	2	-.133	6	-.138	2
113		2	max	201.735	1	45.035	3	658.071	2	.015	5	.039	3	.058	3
114			min	-285.555	2	-20.035	4	-578.419	1	0	2	-.083	8	-.083	4
115		3	max	201.735	1	43.565	3	665.742	2	.015	5	.115	3	.118	3
116			min	-285.555	2	-21.505	4	-586.089	1	0	2	-.131	4	-.134	4
117		4	max	201.735	1	42.095	3	673.413	2	.015	5	.229	2	.207	2
118			min	-285.555	2	-22.975	4	-593.76	1	0	2	-.228	1	-.21	1
119		5	max	201.735	1	40.625	3	681.084	2	.015	5	.35	2	.325	2
120			min	-285.555	2	-24.445	4	-601.431	1	0	2	-.333	1	-.316	1
121	M13	1	max	213.004	2	81.64	4	742.58	4	.001	1	.498	3	.482	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
122			min	-292.988	1	-52.422	3	-873.231	3	-.009	9	-.471	4	-.461	4
123		2	max	209.682	2	80.17	4	736.827	4	.001	1	.335	3	.338	3
124			min	-289.666	1	-53.892	3	-867.478	3	-.009	9	-.326	4	-.344	4
125		3	max	206.361	2	78.7	4	731.073	4	.001	1	.172	3	.195	3
126			min	-286.345	1	-55.362	3	-861.725	3	-.009	9	-.182	4	-.229	4
127		4	max	203.039	2	77.23	4	725.32	4	.001	1	.01	3	.053	3
128			min	-283.023	1	-56.832	3	-855.972	3	-.009	9	-.065	8	-.132	8
129		5	max	199.718	2	75.76	4	719.567	4	.001	1	.101	4	0	4
130			min	-279.702	1	-58.302	3	-850.219	3	-.009	9	-.151	3	-.183	7
131	M14	1	max	323.483	1	76.136	2	643.634	2	.003	2	.477	1	.481	1
132			min	-404.304	2	-48.992	1	-774.389	1	-.004	1	-.449	2	-.461	2
133		2	max	320.162	1	74.666	2	641.716	2	.003	2	.332	1	.353	1
134			min	-400.983	2	-50.462	1	-772.471	1	-.004	1	-.322	2	-.361	2
135		3	max	316.84	1	73.196	2	639.798	2	.003	2	.186	1	.225	1
136			min	-397.661	2	-51.932	1	-770.553	1	-.004	1	-.196	2	-.26	2
137		4	max	313.519	1	71.726	2	637.881	2	.003	2	.041	1	.099	1
138			min	-394.34	2	-53.402	1	-768.636	1	-.004	1	-.073	6	-.16	2
139		5	max	310.197	1	70.256	2	635.963	2	.003	2	.055	2	.013	3
140			min	-391.018	2	-54.872	1	-766.718	1	-.004	1	-.115	5	-.184	8
141	M15	1	max	324.45	4	71.882	5	652.404	1	.003	3	.413	2	.385	2
142			min	-405.29	3	-29.874	2	-782.189	2	-.004	4	-.387	1	-.363	1
143		2	max	324.45	4	66.6	5	644.733	1	.003	3	.27	2	.253	2
144			min	-405.29	3	-31.344	2	-774.519	2	-.004	4	-.262	1	-.259	1
145		3	max	324.45	4	61.317	5	637.062	1	.003	3	.128	2	.145	4
146			min	-405.29	3	-32.814	2	-766.848	2	-.004	4	-.138	1	-.18	3
147		4	max	324.45	4	56.22	1	629.392	1	.003	3	.032	4	.066	4
148			min	-405.29	3	-34.284	2	-759.177	2	-.004	4	-.072	7	-.137	7
149		5	max	324.45	4	54.75	1	621.721	1	.003	3	.104	1	.046	1
150			min	-405.29	3	-35.754	2	-751.506	2	-.004	4	-.153	2	-.192	6
151	M16	1	max	1206.556	3	66.277	9	302.418	1	.006	9	.513	2	.017	8
152			min	-996.556	4	-36.539	3	-306.21	2	-.008	8	-.497	1	0	3
153		2	max	1214.088	3	77.093	8	315.464	1	.006	9	.337	3	.018	3
154			min	-1004.088	4	-29.872	3	-319.255	2	-.008	8	-.323	4	-.033	9
155		3	max	1221.62	3	98.494	8	328.509	1	.006	9	.182	3	.033	3
156			min	-1011.619	4	-23.048	3	-332.301	2	-.008	8	-.171	4	-.076	9
157		4	max	1229.152	3	135.358	8	341.555	1	.006	9	.05	1	.043	3
158			min	-1019.151	4	-11.811	3	-345.346	2	-.008	8	-.041	2	-.137	8
159		5	max	1236.683	3	167.893	8	354.6	1	.006	9	.247	1	.047	3
160			min	-1026.683	4	-1.81	3	-358.392	2	-.008	8	-.24	2	-.223	8
161	M17	1	max	1204.923	4	55.341	7	492.867	2	.003	1	.781	1	.017	7
162			min	-994.399	3	-30.557	4	-497.198	1	-.007	6	-.764	2	0	4
163		2	max	1212.455	4	76.191	7	505.913	2	.003	1	.495	1	.015	4
164			min	-1001.931	3	-23.89	4	-510.243	1	-.007	6	-.481	2	-.02	7
165		3	max	1219.987	4	97.591	7	518.958	2	.003	1	.202	1	.027	4
166			min	-1009.462	3	-17.067	4	-523.289	1	-.007	6	-.191	2	-.069	7
167		4	max	1227.518	4	134.455	7	532.003	2	.003	1	.107	2	.033	4
168			min	-1016.994	3	-5.83	4	-536.334	1	-.007	6	-.098	1	-.135	7
169		5	max	1235.05	4	166.99	7	545.049	2	.003	1	.412	2	.034	4
170			min	-1024.526	3	4.172	4	-549.38	1	-.007	6	-.406	1	-.221	7
171	M18	1	max	1463.929	2	57.098	5	499.152	3	.001	2	.758	4	.017	5
172			min	-1253.374	1	-38.942	2	-502.822	4	-.007	5	-.742	3	0	2
173		2	max	1463.929	2	77.948	5	516.546	3	.001	2	.468	4	.019	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
174			min	-1253.374	1	-32.275	2	-520.216	4	-.007	5	-.454	3	-.022	1
175		3	max	1463.929	2	99.348	5	533.94	3	.001	2	.168	4	.036	2
176			min	-1253.374	1	-25.452	2	-537.61	4	-.007	5	-.156	3	-.071	5
177		4	max	1463.929	2	136.212	5	551.334	3	.001	2	.151	3	.047	2
178			min	-1253.374	1	-14.215	2	-555.004	4	-.007	5	-.142	4	-.138	5
179		5	max	1463.929	2	168.747	5	568.727	3	.001	2	.469	3	.052	2
180			min	-1253.374	1	-4.214	2	-572.398	4	-.007	5	-.462	4	-.225	5
181	MP4A	1	max	84.095	5	61.276	4	133.792	1	0	1	0	1	0	1
182			min	10.8	10	-61.257	3	-133.795	2	0	1	0	1	0	1
183		2	max	34.568	2	-46.89	1	67.165	9	.066	1	.007	4	-.009	1
184			min	-563.195	9	-357.994	7	-33.98	2	-.077	2	-.098	9	-.267	6
185		3	max	63.175	2	1.371	4	102.375	1	.066	1	.081	1	.307	9
186			min	-534.588	9	-377.4	7	-94.195	2	-.077	2	-.094	2	.002	4
187		4	max	-12.579	9	57.768	3	100.276	2	0	1	.017	1	.017	3
188			min	-75.874	5	-57.776	4	-100.28	1	0	1	-.017	2	-.017	4
189		5	max	0	1	0	3	.005	9	0	1	0	1	0	1
190			min	0	1	-.109	5	-.059	6	0	1	0	1	0	1
191	MP3A	1	max	0	1	.011	8	0	1	0	1	0	1	0	1
192			min	0	1	0	3	-.012	6	0	1	0	1	0	1
193		2	max	215.369	9	4.071	4	83.438	6	.016	4	.035	1	.018	4
194			min	-284.964	10	-340.504	6	-12.3	1	-.026	9	-.169	6	-.192	7
195		3	max	221.616	9	25.933	4	82.626	5	.016	4	.033	1	.329	6
196			min	-278.716	10	-350.023	7	9.562	1	-.026	9	-.052	2	-.015	1
197		4	max	-6.247	2	21.861	3	21.855	2	0	1	.016	1	.016	3
198			min	-26.577	5	-21.867	4	-21.858	1	0	1	-.016	2	-.016	4
199		5	max	0	1	.001	1	.004	1	0	1	0	1	0	1
200			min	0	1	-.055	6	-.031	6	0	1	0	1	0	1
201	MP2A	1	max	0	1	0	9	.003	1	0	1	0	1	0	1
202			min	0	1	-.019	7	-.017	6	0	1	0	1	0	1
203		2	max	180.915	8	468.75	6	112.211	6	.043	2	.118	1	.265	8
204			min	-84.161	3	-23.583	1	-50.883	1	-.031	1	-.23	6	.006	1
205		3	max	207.492	8	468.75	6	102.24	6	.043	2	.058	1	.041	1
206			min	-77.914	3	-23.583	1	-29.022	1	-.031	1	-.084	2	-.439	6
207		4	max	-6.247	2	21.872	3	21.853	2	0	1	.016	1	.016	3
208			min	-26.577	5	-21.862	4	-21.857	1	0	1	-.016	2	-.016	4
209		5	max	0	1	.086	6	.005	1	0	1	0	1	0	1
210			min	0	1	-.003	1	-.037	6	0	1	0	1	0	1
211	MP1A	1	max	370.484	5	251.857	4	622.672	1	0	1	0	1	0	1
212			min	76.8	2	-252.041	3	-622.792	2	0	1	0	1	0	1
213		2	max	405.92	5	281.006	4	651.821	1	0	1	1.274	1	.533	3
214			min	85.13	2	-281.19	3	-651.941	2	0	1	-1.275	2	-.533	4
215		3	max	153.708	2	432.787	6	108.684	6	.106	2	.312	1	.084	3
216			min	-172.899	1	17.584	1	-12.707	1	-.091	1	-.372	2	-.052	4
217		4	max	-69.77	3	230.194	3	525.8	2	0	1	.031	1	.03	3
218			min	-331.823	5	-230.137	4	-525.814	1	0	1	-.031	2	-.03	4
219		5	max	0	1	.539	8	.157	1	0	1	0	1	0	1
220			min	0	1	-.004	9	-.285	6	0	1	0	1	0	1
221	MP4C	1	max	84.095	5	115.658	4	79.389	1	0	1	0	1	0	1
222			min	10.8	3	-115.67	3	-79.404	2	0	1	0	1	0	1
223		2	max	74.94	1	198.197	5	309.186	5	.073	4	.023	2	.178	8
224			min	-124.073	2	13.92	2	-6.452	2	-.083	3	-.211	5	.026	2
225		3	max	103.547	1	219.507	8	326.872	5	.073	4	.266	5	.05	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
226			min	-95.465	2	-42.401	3	-52.972	2	-.083	3	-.023	2	-.135	8
227		4	max	-12.579	3	89.652	3	68.408	2	0	1	.017	1	.017	3
228			min	-75.874	5	-89.651	4	-68.399	1	0	1	-.017	2	-.017	4
229		5	max	0	1	.019	8	.117	6	0	1	0	1	0	1
230			min	0	1	-.006	9	-.001	1	0	1	0	1	0	1
231	MP3C	1	max	0	1	0	4	0	1	0	1	0	1	0	1
232			min	0	1	-.016	7	-.004	6	0	1	0	1	0	1
233		2	max	156.958	5	244.253	5	266.599	5	.032	2	.054	2	.234	5
234			min	-44.359	2	-19.64	2	-65.883	2	-.034	1	-.092	5	0	2
235		3	max	183.535	5	244.253	5	276.57	5	.032	2	.315	5	.029	2
236			min	-38.112	2	-19.64	2	-87.745	2	-.034	1	-.061	2	-.132	5
237		4	max	-6.247	1	21.86	3	21.865	2	0	1	.016	1	.016	3
238			min	-26.577	8	-21.859	4	-21.859	1	0	1	-.016	2	-.016	4
239		5	max	0	1	.01	8	.063	7	0	1	0	1	0	1
240			min	0	1	-.002	3	-.004	4	0	1	0	1	0	1
241	MP2C	1	max	0	1	.002	4	.025	5	0	1	0	1	0	1
242			min	0	1	-.005	7	0	2	0	1	0	1	0	1
243		2	max	208.456	3	-1.886	1	20.215	4	.038	3	.343	7	.102	1
244			min	-124.454	4	-141.01	7	-458.503	7	-.026	4	-.038	4	-.077	2
245		3	max	214.704	3	6.591	4	20.215	4	.038	3	-.008	4	.274	7
246			min	-118.206	4	-150.981	7	-458.503	7	-.026	4	-.345	7	-.04	4
247		4	max	-6.247	1	21.853	3	21.863	2	0	1	.016	1	.016	3
248			min	-26.577	5	-21.861	4	-21.87	1	0	1	-.016	2	-.016	4
249		5	max	0	1	.004	2	.001	2	0	1	0	1	0	1
250			min	0	1	-.072	5	-.057	5	0	1	0	1	0	1
251	MP1C	1	max	370.484	5	529.93	4	344.787	1	0	1	0	1	0	1
252			min	76.8	1	-529.941	3	-344.568	2	0	1	0	1	0	1
253		2	max	405.92	5	559.079	4	373.936	1	0	1	.719	1	1.089	3
254			min	85.13	1	-559.09	3	-373.717	2	0	1	-.718	2	-1.089	4
255		3	max	152.238	1	-11.087	2	-43.251	2	.091	1	.166	1	.237	3
256			min	-172.554	2	-121.14	7	-421.752	5	-.075	2	-.108	2	-.2	4
257		4	max	-69.77	3	451.893	3	304.072	2	0	1	.031	1	.031	3
258			min	-331.823	5	-451.934	4	-304.114	1	0	1	-.03	2	-.031	4
259		5	max	0	1	.086	4	.021	3	0	1	0	1	0	1
260			min	0	1	-.482	7	-.423	8	0	1	0	1	0	1
261	MP4B	1	max	84.095	7	115.656	4	79.41	1	0	1	0	1	0	1
262			min	10.8	1	-115.664	3	-79.392	2	0	1	0	1	0	1
263		2	max	74.05	4	171.007	8	-19.075	3	.061	2	.258	8	.098	8
264			min	-123.366	3	-26.791	3	-323.157	8	-.071	1	.009	3	-.049	3
265		3	max	102.658	4	192.967	8	-2.614	1	.061	2	.008	1	.043	3
266			min	-94.758	3	-93.704	3	-337.665	6	-.071	1	-.24	6	-.175	8
267		4	max	-12.579	1	89.663	3	68.397	2	0	1	.017	1	.017	3
268			min	-75.874	5	-89.655	4	-68.402	1	0	1	-.017	2	-.017	4
269		5	max	0	1	.098	6	0	9	0	1	0	1	0	1
270			min	0	1	0	4	-.069	6	0	1	0	1	0	1
271	MP3B	1	max	0	1	.005	8	.015	5	0	1	0	1	0	1
272			min	0	1	0	3	0	2	0	1	0	1	0	1
273		2	max	160.336	8	106.424	8	56.478	3	.028	3	.249	8	.031	2
274			min	-68.124	3	-32.75	3	-346.45	8	-.029	4	-.034	3	-.057	5
275		3	max	186.913	8	116.395	8	56.478	3	.028	3	.051	3	.057	3
276			min	-61.876	3	-54.612	3	-346.45	8	-.029	4	-.27	8	-.213	8
277		4	max	-6.247	1	21.861	3	21.862	2	0	1	.016	1	.016	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
278			min	-26.577	5	-21.856	4	-21.866	1	0	1	-.016	2	-.016	4
279		5	max	0	1	.052	5	0	2	0	1	0	1	0	1
280			min	0	1	-.003	2	-.033	5	0	1	0	1	0	1
281	MP2B	1	max	0	1	.024	8	0	1	0	1	0	1	0	1
282			min	0	1	-.002	3	-.009	6	0	1	0	1	0	1
283		2	max	208.807	1	18.977	3	346.491	5	.029	4	.038	4	.057	3
284			min	-124.246	2	-324.234	8	29.482	2	-.017	3	-.134	7	-.323	8
285		3	max	215.055	1	-2.885	3	356.462	5	.029	4	.404	8	.166	7
286			min	-117.998	2	-315.998	5	7.621	2	-.017	3	-.02	3	.028	2
287		4	max	-6.247	4	21.86	3	21.868	2	0	1	.016	1	.016	3
288			min	-26.577	5	-21.861	4	-21.858	1	0	1	-.016	2	-.016	4
289		5	max	0	1	.001	1	.094	8	0	1	0	1	0	1
290			min	0	1	-.019	7	-.007	3	0	1	0	1	0	1
291	MP1B	1	max	370.484	6	530.182	4	344.507	1	0	1	0	1	0	1
292			min	76.8	9	-529.986	3	-344.607	2	0	1	0	1	0	1
293		2	max	405.92	6	559.331	4	373.656	1	0	1	.718	1	1.089	3
294			min	85.13	9	-559.135	3	-373.756	2	0	1	-.718	2	-1.09	4
295		3	max	210.68	4	11.979	3	321.081	8	.115	4	.098	1	.252	3
296			min	-231.044	3	-311.756	8	5.298	3	-.1	3	-.095	2	-.32	4
297		4	max	-69.77	4	451.898	3	304.11	2	0	1	.03	1	.031	3
298			min	-331.823	6	-451.914	4	-304.053	1	0	1	-.031	2	-.031	4
299		5	max	0	1	.106	4	.567	5	0	1	0	1	0	1
300			min	0	1	-.25	7	-.022	3	0	1	0	1	0	1
301	M31	1	max	803.205	2	70.536	2	742.785	6	.008	6	.141	1	-.242	4
302			min	-514.559	1	-268.44	5	45.714	1	0	1	-.441	6	-1.078	5
303		2	max	803.205	2	32.182	2	704.47	6	.008	6	.084	4	.009	4
304			min	-514.559	1	-257.046	5	34.967	1	0	1	-.056	3	-.253	7
305		3	max	551.81	2	30.58	2	417.483	6	.001	2	-.008	2	.091	1
306			min	-490.976	1	-130.467	5	1.638	1	-.001	1	-.1	5	-.188	6
307		4	max	551.81	2	-7.774	2	369.628	6	.001	2	.176	2	.306	5
308			min	-490.976	1	-122.171	8	-11.831	1	-.001	1	-.107	1	-.004	2
309		5	max	356.867	3	651.043	1	53.323	1	.045	1	.032	3	.165	8
310			min	-509.638	4	-657.448	2	-72.176	2	-.069	2	-.133	8	-.02	3
311	M32	1	max	891.272	4	210.332	7	34.159	4	0	1	-.016	3	.73	7
312			min	-736.387	3	42.605	4	-97.132	7	0	2	-.221	8	.006	4
313		2	max	891.272	4	191.536	7	34.159	4	0	1	-.012	1	.544	7
314			min	-736.387	3	37.374	4	-97.132	7	0	2	-.139	8	.002	4
315		3	max	891.272	4	152.739	7	34.159	4	0	1	-.007	4	.375	7
316			min	-736.387	3	26.434	4	-97.132	7	0	2	-.081	7	.004	4
317		4	max	891.272	4	113.942	7	59.242	2	0	1	.046	2	.248	6
318			min	-736.387	3	15.495	4	-102.948	1	0	2	-.069	1	-.054	1
319		5	max	891.272	4	76.883	7	86.368	2	0	1	.113	2	.188	2
320			min	-736.387	3	5.052	4	-130.074	1	0	2	-.133	1	-.136	1
321	M33	1	max	843.97	3	47.545	3	746.978	7	.008	7	.079	4	-.229	9
322			min	-555.173	4	-257.106	8	27.617	4	0	4	-.423	7	-1.071	6
323		2	max	827.362	3	18.779	3	708.663	7	.008	7	.109	2	.005	3
324			min	-538.565	4	-248.561	8	16.87	4	0	4	-.081	1	-.253	8
325		3	max	540.413	3	17.38	1	421.509	5	0	3	.01	3	.049	4
326			min	-479.197	4	-129.816	6	-15.541	2	-.001	4	-.102	8	-.178	7
327		4	max	523.806	3	7.791	1	373.654	5	0	3	.165	5	.309	8
328			min	-462.589	4	-126.967	6	-29.01	2	-.001	4	-.094	2	-.041	3
329		5	max	626.18	1	512.166	4	35.743	2	.024	4	.089	1	.175	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
330			min	-778.978	2	-517.733	3	-53.632	1	-.051	7	-.148	2	-.062	1
331	M34	1	max	911.79	3	212.738	5	63.863	2	0	4	.019	4	.746	5
332			min	-757.219	4	30.362	2	-107.765	1	0	3	-.224	7	-.081	2
333		2	max	900.044	3	193.941	5	59.988	3	0	4	-.001	4	.556	5
334			min	-745.473	4	25.13	2	-103.501	4	0	3	-.142	7	-.06	2
335		3	max	888.298	3	155.144	5	80.332	3	0	4	0	3	.384	5
336			min	-733.727	4	14.191	2	-123.846	4	0	3	-.082	8	-.039	2
337		4	max	876.552	3	116.347	5	100.677	3	0	4	.075	3	.243	7
338			min	-721.982	4	3.252	2	-144.19	4	0	3	-.097	4	-.019	4
339		5	max	864.806	3	79.288	5	121.021	3	0	4	.155	3	.188	3
340			min	-710.236	4	-7.191	2	-164.534	4	0	3	-.175	4	-.135	4
341	M35	1	max	669.543	8	55.475	4	737.765	5	.008	8	.12	3	-.236	1
342			min	-290.766	3	-262.276	7	87.011	2	0	3	-.436	8	-1.081	7
343		2	max	674.477	8	26.71	4	699.45	5	.008	8	.099	3	.019	1
344			min	-307.373	3	-253.731	7	76.264	2	0	3	-.07	4	-.255	6
345		3	max	453.478	4	35.827	4	427.025	8	0	4	.003	1	.075	3
346			min	-392.567	3	-133.002	7	-51.846	3	0	3	-.099	6	-.183	8
347		4	max	470.086	4	7.062	4	379.17	8	0	4	.21	4	.299	6
348			min	-409.175	3	-124.457	7	-65.315	3	0	3	-.14	3	-.012	1
349		5	max	565.238	4	455.209	3	57.611	3	.038	3	.077	4	.167	7
350			min	-718.044	3	-461.764	4	-76.045	4	-.062	4	-.143	7	-.025	4
351	M36	1	max	964.028	1	212.691	8	55.829	3	0	3	.001	2	.739	8
352			min	-809.657	2	29.196	3	-101.358	8	0	9	-.224	5	-.056	3
353		2	max	952.282	1	193.895	8	47.672	1	0	3	-.013	2	.55	8
354			min	-797.911	2	23.965	3	-100.245	6	0	9	-.141	5	-.044	3
355		3	max	940.536	1	155.098	8	54.453	1	0	3	-.002	1	.383	8
356			min	-786.165	2	13.026	3	-102.259	6	0	9	-.082	6	-.04	3
357		4	max	928.791	1	116.301	8	61.234	1	0	3	.05	1	.245	8
358			min	-774.419	2	2.086	3	-104.756	2	0	9	-.072	2	-.041	3
359		5	max	917.045	1	79.242	8	68.016	1	0	3	.099	1	.143	9
360			min	-762.673	2	-8.357	3	-111.538	2	0	9	-.119	2	-.049	3
361	M37	1	max	0	1	0	1	0	1	0	1	0	1	0	1
362			min	0	1	0	1	0	1	0	1	0	1	0	1
363		2	max	346.579	3	-25.98	1	223.981	2	.102	9	.234	4	.485	6
364			min	-564.91	4	-525.557	6	-254.323	1	-.266	6	-.244	3	-.021	1
365		3	max	-211.256	2	562.331	6	485.291	1	.415	1	1.092	2	1.285	6
366			min	-988.703	7	-446.562	10	-535.565	2	-.514	6	-1.015	1	.133	1
367		4	max	317.811	4	651.657	8	358.599	1	.583	1	.2	3	.541	6
368			min	-548.829	7	-12.763	3	-357.608	2	-.604	2	-.195	4	-.096	1
369		5	max	0	1	0	1	0	1	0	1	0	1	0	1
370			min	0	1	0	1	0	1	0	1	0	1	0	1
371	M38	1	max	0	1	.003	3	0	2	0	1	0	1	0	1
372			min	0	1	-.002	5	-.002	4	0	1	0	1	0	1
373		2	max	499.163	1	28.649	2	243.217	3	-.052	4	.219	2	.483	7
374			min	-718.725	2	-536.425	5	-273.935	4	-.266	7	-.228	1	-.009	4
375		3	max	-228.508	3	567.361	7	345.96	2	.304	4	1.119	1	1.273	7
376			min	-987.338	5	-120.608	4	-397.661	1	-.511	7	-1.042	2	.177	4
377		4	max	419.406	3	660.507	7	309.745	2	.388	4	.22	1	.556	5
378			min	-645.362	4	-81.514	4	-307.901	1	-.41	3	-.215	2	-.162	2
379		5	max	0	1	.002	7	.002	1	0	1	0	1	0	1
380			min	0	1	-.007	1	-.002	3	0	1	0	1	0	1
381	M39	1	max	0	1	.003	1	.002	3	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
382			min	0	1	-.002	8	-.002	2	0	1	0	1	0	1
383		2	max	377.619	4	36.744	3	173.962	4	-.058	3	.208	1	.478	8
384			min	-597.697	3	-537.506	8	-203.611	3	-.264	8	-.218	2	.006	3
385		3	max	-264.34	11	565.164	5	501.77	3	.323	3	1.332	4	1.284	8
386			min	-1009.751	6	-127.502	2	-552.619	4	-.504	8	-1.256	3	.144	3
387		4	max	441.344	1	661.561	5	400.143	3	.464	3	.158	2	.565	8
388			min	-666.477	2	-70.99	2	-398.251	4	-.486	4	-.152	1	-.221	3
389		5	max	0	1	.002	5	.003	4	0	1	0	1	0	1
390			min	0	1	-.007	4	0	5	0	1	0	1	0	1
391	M40	1	max	162.691	2	266.962	6	386.982	4	.004	4	.225	9	.373	2
392			min	-218.928	1	-166.747	9	-368.72	3	-.003	3	-.28	4	-.314	1
393		2	max	153.279	2	251.995	6	370.682	4	.004	4	.137	9	.166	2
394			min	-209.517	1	-170.912	9	-352.42	3	-.003	3	-.123	4	-.162	1
395		3	max	143.868	2	237.028	6	354.381	4	.004	4	.067	2	.34	4
396			min	-200.106	1	-175.077	9	-336.119	3	-.003	3	-.051	1	-.385	3
397		4	max	134.457	2	222.061	6	338.081	4	.004	4	.175	8	.55	4
398			min	-190.695	1	-179.242	9	-319.819	3	-.003	3	-.082	3	-.641	3
399		5	max	125.046	2	209.912	2	321.78	4	.004	4	.302	8	.754	4
400			min	-181.284	1	-183.407	9	-303.518	3	-.003	3	-.148	3	-.887	3
401	M41	1	max	313.48	1	320.927	1	486.316	2	.005	2	.195	1	.353	1
402			min	-370.256	2	-191.355	2	-468.227	1	-.004	1	-.319	2	-.295	2
403		2	max	304.069	1	316.762	1	480.882	2	.005	2	.122	1	.201	3
404			min	-360.845	2	-195.52	2	-462.794	1	-.004	1	-.174	2	-.197	4
405		3	max	294.658	1	312.597	1	475.449	2	.005	2	.076	3	.383	2
406			min	-351.434	2	-199.685	2	-457.36	1	-.004	1	-.06	4	-.428	1
407		4	max	285.247	1	308.432	1	470.015	2	.005	2	.164	6	.721	2
408			min	-342.022	2	-203.85	2	-451.927	1	-.004	1	-.026	4	-.811	1
409		5	max	275.836	1	304.267	1	464.582	2	.005	2	.293	6	1.058	2
410			min	-332.611	2	-208.015	2	-446.493	1	-.004	1	-.095	1	-1.19	1
411	M42	1	max	262.095	4	328.57	4	396.079	3	.003	3	.122	4	.424	4
412			min	-319.132	3	-198.805	3	-377.514	4	-.002	4	-.263	7	-.366	3
413		2	max	262.095	4	324.405	4	396.079	3	.003	3	.097	4	.179	1
414			min	-319.132	3	-202.97	3	-377.514	4	-.002	4	-.149	3	-.175	2
415		3	max	262.095	4	320.24	4	396.079	3	.003	3	.071	1	.234	3
416			min	-319.132	3	-207.135	3	-377.514	4	-.002	4	-.056	2	-.279	4
417		4	max	262.095	4	316.075	4	396.079	3	.003	3	.171	5	.537	3
418			min	-319.132	3	-211.3	3	-377.514	4	-.002	4	-.07	2	-.627	4
419		5	max	262.095	4	311.91	4	396.079	3	.003	3	.284	5	.842	3
420			min	-319.132	3	-215.465	3	-377.514	4	-.002	4	-.076	2	-.974	4
421	M43	1	max	828.476	1	1110.217	6	932.551	3	.102	7	1.514	4	2.441	6
422			min	-887.967	2	224.671	1	-860.661	4	-.177	9	-1.622	3	.208	1
423		2	max	828.476	1	1088.458	6	909.921	3	.102	7	.888	4	1.63	6
424			min	-887.967	2	217.323	1	-838.032	4	-.177	9	-.943	3	.045	1
425		3	max	828.476	1	1066.699	6	887.292	3	.102	7	.278	4	.835	6
426			min	-887.967	2	209.975	1	-815.403	4	-.177	9	-.28	3	-.112	1
427		4	max	828.476	1	1044.94	6	864.662	3	.102	7	.366	3	.265	2
428			min	-887.967	2	202.627	1	-792.773	4	-.177	9	-.315	4	-.265	1
429		5	max	828.476	1	1023.181	6	842.033	3	.102	7	.996	3	.02	2
430			min	-887.967	2	195.279	1	-770.144	4	-.177	9	-.891	4	-.776	5
431	M44	1	max	660.964	4	1109.719	7	1035.089	1	.101	5	1.779	2	2.424	7
432			min	-720.072	3	221.073	4	-966.243	2	-.027	2	-1.882	1	.286	4
433		2	max	651.165	4	1087.96	7	1018.117	1	.101	5	1.073	2	1.614	7

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
434			min	-710.273	3	213.725	4	-949.271	2	-.027	2	-1.125	1	.126	4
435		3	max	641.366	4	1066.201	7	1001.145	1	.101	5	.379	2	.82	7
436			min	-700.474	3	206.377	4	-932.299	2	-.027	2	-.38	1	-.029	4
437		4	max	631.567	4	1044.442	7	984.172	1	.101	5	.352	1	.179	3
438			min	-690.675	3	199.029	4	-915.327	2	-.027	2	-.302	2	-.179	4
439		5	max	621.768	4	1022.683	7	967.2	1	.101	5	1.072	1	-.069	3
440			min	-680.877	3	191.68	4	-898.354	2	-.027	2	-.971	2	-.761	8
441	M45	1	max	804.696	3	1108.694	8	830.748	2	.131	9	1.352	3	2.431	8
442			min	-865.149	4	224.457	3	-757.321	1	-.028	1	-1.458	2	.249	3
443		2	max	794.897	3	1086.935	8	813.776	2	.131	9	.806	3	1.621	8
444			min	-855.35	4	217.108	3	-740.349	1	-.028	1	-.857	4	.087	3
445		3	max	785.098	3	1065.177	8	800.101	4	.131	9	.264	3	.827	8
446			min	-845.551	4	209.76	3	-731.954	3	-.028	1	-.265	4	-.071	3
447		4	max	775.299	3	1043.418	8	794.444	4	.131	9	.324	2	.224	4
448			min	-835.752	4	202.412	3	-726.296	3	-.028	1	-.273	3	-.223	3
449		5	max	765.5	3	1021.659	8	788.787	4	.131	9	.907	4	-.022	4
450			min	-825.954	4	195.064	3	-720.639	3	-.028	1	-.807	3	-.77	7

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	3	0	1	0	2	0	6	0	3	0	9
2		min	0	4	0	6	0	1	0	1	0	4	0	3
3	N4	max	.012	3	-.016	1	.027	2	5.312e-03	9	1.236e-03	1	3.644e-03	9
4		min	-.014	4	-.284	6	-.028	1	-3.493e-03	4	-1.486e-03	2	-2.76e-04	3
5	N5	max	.012	3	.003	1	.045	2	6.58e-03	2	1.753e-03	2	2.843e-05	9
6		min	-.014	4	-.37	6	-.044	1	-3.633e-03	1	-1.653e-03	1	-2.847e-03	5
7	N7	max	.012	3	-.008	1	0	2	4.093e-03	6	3.189e-04	3	1.113e-03	9
8		min	-.014	4	-.102	6	0	5	3.16e-04	1	-3.656e-04	4	-5.154e-04	7
9	N10	max	.005	3	-.011	3	.005	2	2.899e-03	6	6.227e-04	2	5.347e-03	8
10		min	-.005	4	-.154	8	-.006	1	-2.982e-04	1	-6.546e-04	1	-1.826e-04	3
11	N11	max	.005	3	-.016	4	.01	2	3.383e-03	6	1.128e-03	1	-1.376e-04	4
12		min	-.005	4	-.153	7	-.009	1	-7.803e-04	1	-1.159e-03	2	-5.061e-03	7
13	N9	max	.004	3	-.001	1	0	2	2.305e-03	6	3.368e-04	3	4.487e-04	9
14		min	-.004	4	-.015	6	0	1	1.922e-04	1	-3.79e-04	4	-2.563e-04	3
15	N8	max	0	3	0	4	0	2	0	2	0	1	0	4
16		min	0	4	0	7	0	1	0	5	0	2	0	7
17	N9A	max	.022	3	-.005	4	.04	2	3.373e-03	2	1.514e-03	4	3.366e-03	2
18		min	-.022	4	-.287	7	-.038	1	-1.825e-03	1	-1.765e-03	3	-2.614e-03	1
19	N10A	max	.05	3	.009	2	.026	2	1.071e-04	2	1.739e-03	1	1.899e-03	4
20		min	-.048	4	-.372	5	-.025	1	-5.414e-03	5	-1.636e-03	2	-3.941e-03	7
21	N11A	max	.013	2	-.011	4	.023	2	-3.228e-04	4	7.93e-04	1	-3.335e-04	4
22		min	-.012	1	-.101	7	-.021	1	-2.442e-03	5	-8.391e-04	2	-3.293e-03	7
23	N13	max	.012	3	-.011	2	.007	2	7.836e-06	2	1.256e-03	4	1.367e-03	4
24		min	-.011	4	-.154	5	-.007	1	-5.999e-03	5	-1.288e-03	3	-1.492e-03	3
25	N14	max	.003	2	-.002	4	.006	2	-5.384e-05	2	6.079e-04	1	-1.672e-04	4
26		min	-.003	1	-.015	7	-.005	1	-1.272e-03	5	-6.498e-04	2	-1.939e-03	7
27	N15	max	0	3	0	3	0	2	0	2	0	4	0	8
28		min	0	4	0	8	0	1	0	5	0	3	0	3
29	N16	max	.05	3	-.007	2	.019	2	9.015e-04	3	9.598e-04	2	2.05e-03	4
30		min	-.048	4	-.286	5	-.02	1	-1.023e-03	4	-1.21e-03	1	-3.772e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
31	N17	max	.029	3	.029	3	.021	2	2.844e-03	9	2.272e-03	4	6.91e-03	8
32		min	-.029	4	-.375	8	-.023	1	-2.74e-03	4	-2.171e-03	3	-2.338e-03	3
33	N18	max	.011	3	-.011	3	.018	4	-3.8e-05	9	7.25e-04	4	3.772e-03	8
34		min	-.01	4	-.101	8	-.019	3	-1.645e-03	5	-7.721e-04	3	3.697e-04	3
35	N21	max	.002	3	-.002	3	.004	4	-1.879e-05	2	4.919e-04	4	2.06e-03	8
36		min	-.002	4	-.015	8	-.004	3	-1.071e-03	5	-5.344e-04	3	1.617e-04	3
37	N19	max	.009	3	-.009	3	.02	2	4.913e-03	9	1.655e-04	2	7.526e-03	8
38		min	-.01	4	-.326	8	-.022	1	-1.907e-03	4	-2.329e-04	1	-1.226e-03	3
39	N20	max	.017	1	-.021	4	.038	2	6.551e-03	6	5.104e-04	1	1.796e-04	4
40		min	-.018	2	-.324	7	-.037	1	-1.903e-03	1	-5.773e-04	2	-3.858e-03	7
41	N21A	max	.05	3	-.007	2	.008	2	1.924e-04	2	7.519e-04	4	1.177e-03	4
42		min	-.048	4	-.327	5	-.008	1	-6.469e-03	5	-8.193e-04	3	-3.683e-03	7
43	N22	max	.012	3	.007	1	.052	2	2.589e-03	1	1.391e-03	2	9.364e-05	9
44		min	-.014	4	-.359	6	-.05	1	-2.928e-03	2	-1.063e-03	1	-2.642e-03	7
45	N23	max	.012	3	0	1	.025	2	7.557e-04	1	1.66e-03	1	5.024e-04	1
46		min	-.014	4	-.171	6	-.023	1	-1.616e-03	6	-1.406e-03	2	-3.999e-03	6
47	N24	max	.012	3	-.004	1	.015	2	5.586e-04	1	1.061e-03	2	2.797e-03	9
48		min	-.014	4	-.136	6	-.015	1	-1.339e-03	6	-1.21e-03	1	-2.113e-04	1
49	N25	max	.012	3	-.013	1	.032	2	3.786e-04	9	7.649e-04	1	3.22e-03	9
50		min	-.014	4	-.277	6	-.032	1	-8.32e-04	5	-1.19e-03	2	-4.208e-04	3
51	N26	max	.347	3	.007	1	.775	2	2.792e-02	2	1.744e-03	1	9.775e-03	4
52		min	-.276	4	-.36	6	-.725	1	-2.646e-02	1	-1.897e-03	2	-1.202e-02	3
53	N27	max	.007	9	.007	1	.17	2	3.729e-03	1	1.391e-03	2	9.351e-05	9
54		min	-.086	8	-.36	6	-.158	1	-4.067e-03	2	-1.063e-03	1	-2.639e-03	8
55	N28	max	.077	3	-.001	1	.063	2	3.598e-03	2	2.618e-03	1	5.351e-05	9
56		min	-.06	4	-.171	6	-.05	1	-2.101e-03	1	-2.736e-03	2	-3.726e-03	7
57	N29	max	.066	3	-.004	1	.024	2	2.358e-03	6	1.344e-03	2	2.963e-03	9
58		min	-.07	4	-.137	6	-.017	1	-5.203e-04	1	-1.445e-03	1	-1.315e-04	3
59	N30	max	.068	3	-.013	1	.08	2	2.029e-03	9	1.18e-03	2	3.546e-03	9
60		min	-.076	4	-.277	6	-.084	1	-1.189e-03	1	-1.286e-03	1	-3.78e-04	3
61	N31	max	.018	1	-.001	1	.074	2	1.095e-03	1	1.66e-03	1	5.024e-04	1
62		min	-.12	6	-.171	6	-.053	1	-1.785e-03	2	-1.406e-03	2	-3.996e-03	6
63	N32	max	.086	9	-.004	1	.055	2	8.979e-04	1	1.061e-03	2	2.797e-03	9
64		min	-.003	1	-.136	6	-.038	1	-1.493e-03	6	-1.21e-03	1	-2.112e-04	1
65	N33	max	.098	9	-.013	1	.053	2	4.681e-04	9	7.649e-04	1	3.219e-03	9
66		min	.001	2	-.277	6	-.042	1	-9.719e-04	6	-1.19e-03	2	1.733e-04	3
67	N34	max	.612	3	.011	2	.402	2	1.404e-02	2	1.321e-03	2	2.182e-02	4
68		min	-.604	4	-.362	5	-.489	1	-1.672e-02	1	-1.468e-03	1	-2.195e-02	3
69	N35	max	.14	3	.011	2	.069	6	4.921e-04	3	1.345e-03	1	3.036e-03	3
70		min	-.109	4	-.362	5	-.031	1	-2.06e-03	6	-1.018e-03	2	-2.087e-03	4
71	N36	max	.071	3	-.014	2	.064	2	2.126e-04	2	2.213e-03	4	1.447e-03	4
72		min	-.068	4	-.169	5	-.084	1	-4.796e-03	5	-2.333e-03	3	-1.817e-03	3
73	N37	max	.032	3	-.006	4	.088	2	8.186e-04	6	1.689e-03	1	1.878e-04	4
74		min	-.025	4	-.136	7	-.088	1	-4.349e-04	1	-1.79e-03	2	-3.058e-03	7
75	N38	max	.079	3	-.003	4	.115	2	2.747e-03	6	1.254e-03	3	9.482e-04	4
76		min	-.079	4	-.28	7	-.105	1	-3.916e-04	1	-1.363e-03	4	-2.31e-03	7
77	N39	max	.108	7	-.014	2	.078	6	1.575e-04	2	1.408e-03	4	3.367e-03	5
78		min	-.037	4	-.169	5	.015	2	-2.607e-03	5	-1.156e-03	3	-8.726e-04	2
79	N40	max	.029	3	-.006	4	.01	2	2.949e-03	7	8.148e-04	3	4.955e-04	3
80		min	-.03	4	-.136	7	-.083	5	-7.545e-04	4	-9.637e-04	4	-5.967e-04	4
81	N41	max	.036	3	-.003	4	.009	2	1.845e-03	8	9.012e-04	4	6.206e-04	9
82		min	-.037	4	-.28	7	-.059	5	-9.718e-06	1	-1.327e-03	3	-5.497e-04	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
83	N42	max	.613	3	.033	3	.394	2	1.451e-02	2	1.608e-03	3	2.49e-02	4
84		min	-.692	4	-.365	8	-.357	1	-1.329e-02	1	-1.755e-03	4	-2.251e-02	3
85	N43	max	.12	3	.032	3	.026	2	2.773e-03	5	1.805e-03	4	2.921e-03	3
86		min	-.11	4	-.365	8	-.094	5	-5.07e-04	3	-1.478e-03	3	-2.567e-03	4
87	N44	max	.047	3	-.002	3	.069	2	1.812e-03	6	1.772e-03	3	4.732e-03	8
88		min	-.066	4	-.171	8	-.061	1	-2.725e-04	1	-1.891e-03	4	-1.422e-03	3
89	N45	max	.062	3	-.01	3	.049	2	8.736e-05	2	2.037e-03	4	1.136e-03	4
90		min	-.066	4	-.135	8	-.056	1	-2.997e-03	5	-2.138e-03	3	-6.841e-04	3
91	N46	max	.126	3	-.007	2	.079	2	7.045e-04	2	1.336e-03	1	7.989e-04	4
92		min	-.118	4	-.279	5	-.084	1	-3.318e-03	5	-1.449e-03	2	-1.42e-03	3
93	N47	max	.03	3	-.002	3	.025	3	4.379e-03	8	1.235e-03	3	9.132e-04	7
94		min	-.02	4	-.171	8	-.128	8	-1.38e-03	3	-9.811e-04	4	-2.829e-04	1
95	N48	max	.034	3	-.011	3	.045	6	-2.346e-05	9	1.134e-03	4	5.276e-04	2
96		min	-.077	8	-.135	8	-.003	9	-1.519e-03	6	-1.283e-03	3	-2.428e-03	8
97	N49	max	.028	3	-.007	2	.035	6	1.049e-04	9	4.332e-04	2	-7.918e-05	4
98		min	-.054	8	-.279	5	-.008	1	-1.137e-03	6	-1.028e-03	5	-1.542e-03	6
99	N50	max	.027	3	-.003	4	.039	2	2.037e-03	6	9.012e-04	4	6.208e-04	9
100		min	-.026	4	-.28	7	-.038	1	-6.793e-04	1	-1.327e-03	3	-5.498e-04	1
101	N51	max	.017	3	-.006	4	.031	2	2.951e-03	7	8.148e-04	3	1.562e-04	3
102		min	-.015	4	-.136	7	-.03	1	-7.546e-04	4	-9.637e-04	4	-3.331e-04	8
103	N52	max	.035	3	-.014	2	.022	2	4.97e-04	2	1.408e-03	4	3.369e-03	5
104		min	-.033	4	-.169	5	-.021	1	-2.763e-03	5	-1.156e-03	3	-8.727e-04	2
105	N53	max	.053	3	.011	2	.029	2	4.928e-04	3	1.345e-03	1	2.094e-03	7
106		min	-.05	4	-.362	5	-.029	1	-2.05e-03	8	-1.018e-03	2	-1.06e-03	4
107	N54	max	.051	3	-.007	2	.02	2	5.323e-04	2	4.332e-04	2	7.412e-04	4
108		min	-.051	4	-.279	5	-.022	1	-1.185e-03	5	-1.028e-03	5	-1.72e-03	7
109	N55	max	.031	3	-.011	3	.014	2	3.072e-04	2	1.134e-03	4	5.277e-04	2
110		min	-.031	4	-.135	8	-.016	1	-1.637e-03	5	-1.283e-03	3	-2.407e-03	5
111	N56	max	.018	3	-.002	3	.019	2	4.382e-03	8	1.235e-03	3	8.197e-04	6
112		min	-.018	4	-.171	8	-.021	1	-1.38e-03	3	-9.811e-04	4	-2.829e-04	1
113	N57	max	.036	3	.032	3	.02	2	2.711e-03	8	1.805e-03	4	1.895e-03	3
114		min	-.036	4	-.365	8	-.023	1	-5.077e-04	3	-1.478e-03	3	-1.54e-03	4
115	N58	max	.065	3	-.013	1	.075	2	2.052e-03	9	1.181e-03	2	3.546e-03	9
116		min	-.062	4	-.291	6	-.081	1	-9.592e-04	1	-1.286e-03	1	-2.699e-04	3
117	N59	max	.065	3	.009	1	.137	2	8.28e-03	2	1.744e-03	1	1.608e-03	4
118		min	-.062	4	-.378	6	-.13	1	-6.826e-03	1	-1.897e-03	2	-4.968e-03	7
119	N60	max	.071	3	-.001	4	.104	2	2.714e-03	6	1.255e-03	3	7.485e-04	4
120		min	-.078	4	-.293	7	-.103	1	-2.53e-04	1	-1.363e-03	4	-2.267e-03	7
121	N61	max	.122	3	.021	2	.091	2	3.003e-03	2	1.321e-03	2	5.05e-03	4
122		min	-.118	4	-.382	5	-.098	1	-6.053e-03	5	-1.468e-03	1	-5.182e-03	3
123	N62	max	.12	3	-.004	2	.078	2	5.659e-04	2	1.336e-03	1	5.993e-04	4
124		min	-.116	4	-.293	5	-.071	1	-3.285e-03	5	-1.449e-03	2	-1.367e-03	7
125	N63	max	.107	3	.042	3	.066	2	3.478e-03	2	1.608e-03	3	8.121e-03	4
126		min	-.115	4	-.385	8	-.066	1	-2.26e-03	1	-1.756e-03	4	-5.738e-03	3
127	N64	max	.065	3	-.013	1	.07	2	2.052e-03	9	1.18e-03	2	3.546e-03	9
128		min	-.062	4	-.277	6	-.076	1	-9.592e-04	1	-1.286e-03	1	-2.701e-04	3
129	N65	max	.065	3	-.004	1	.016	3	2.356e-03	6	1.344e-03	2	2.963e-03	9
130		min	-.062	4	-.137	6	-.017	4	-5.155e-04	1	-1.445e-03	1	-1.268e-04	3
131	N66	max	.065	3	-.001	1	.037	2	3.594e-03	2	2.618e-03	1	5.351e-05	9
132		min	-.062	4	-.171	6	-.036	1	-2.096e-03	1	-2.736e-03	2	-3.723e-03	7
133	N67	max	.065	3	.007	1	.13	2	8.28e-03	2	1.744e-03	1	1.608e-03	4
134		min	-.062	4	-.359	6	-.123	1	-6.826e-03	1	-1.897e-03	2	-4.967e-03	7

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
135	N68	max	.066	3	-.003	4	.103	2	2.714e-03	6	1.254e-03	3	7.486e-04	4
136		min	-.073	4	-.28	7	-.103	1	-2.531e-04	1	-1.363e-03	4	-2.267e-03	7
137	N69	max	.021	3	-.006	4	.082	2	8.164e-04	6	1.689e-03	1	1.83e-04	4
138		min	-.023	4	-.136	7	-.085	1	-4.301e-04	1	-1.79e-03	2	-3.055e-03	7
139	N70	max	.058	3	-.014	2	.062	2	2.078e-04	2	2.213e-03	4	1.442e-03	4
140		min	-.058	4	-.169	5	-.066	1	-4.793e-03	5	-2.333e-03	3	-1.812e-03	3
141	N71	max	.118	3	.011	2	.089	2	3.003e-03	2	1.321e-03	2	5.05e-03	4
142		min	-.114	4	-.362	5	-.095	1	-6.053e-03	5	-1.468e-03	1	-5.182e-03	3
143	N72	max	.116	3	-.007	2	.075	2	5.66e-04	2	1.336e-03	1	5.993e-04	4
144		min	-.112	4	-.279	5	-.069	1	-3.285e-03	5	-1.449e-03	2	-1.367e-03	7
145	N73	max	.057	3	-.01	3	.049	2	8.259e-05	2	2.037e-03	4	1.131e-03	4
146		min	-.058	4	-.135	8	-.045	1	-2.995e-03	5	-2.138e-03	3	-6.793e-04	3
147	N74	max	.037	3	-.002	3	.061	2	1.81e-03	6	1.772e-03	3	4.73e-03	8
148		min	-.041	4	-.171	8	-.059	1	-2.677e-04	1	-1.891e-03	4	-1.417e-03	3
149	N75	max	.102	3	.033	3	.066	2	3.478e-03	2	1.608e-03	3	8.121e-03	4
150		min	-.109	4	-.365	8	-.066	1	-2.26e-03	1	-1.755e-03	4	-5.738e-03	3
151	N76	max	.065	3	-.012	1	.063	2	2.241e-03	9	1.226e-03	2	3.966e-03	9
152		min	-.062	4	-.255	6	-.068	1	-7.985e-04	1	-1.323e-03	1	-2.336e-06	3
153	N77	max	.065	3	.004	1	.118	2	7.019e-03	2	1.629e-03	1	9.019e-04	4
154		min	-.062	4	-.329	6	-.112	1	-5.402e-03	1	-1.784e-03	2	-5.385e-03	7
155	N78	max	.059	3	-.005	4	.102	2	3.132e-03	7	1.316e-03	3	5.598e-04	4
156		min	-.066	4	-.257	7	-.102	1	3.34e-05	4	-1.416e-03	4	-2.595e-03	7
157	N79	max	.11	3	0	2	.084	2	2.155e-03	2	1.343e-03	2	3.773e-03	4
158		min	-.107	4	-.329	5	-.09	1	-6.534e-03	5	-1.491e-03	1	-3.909e-03	3
159	N80	max	.11	3	-.009	2	.07	2	3.397e-04	2	1.407e-03	1	3.118e-04	4
160		min	-.107	4	-.256	5	-.065	1	-3.79e-03	5	-1.511e-03	2	-1.529e-03	7
161	N81	max	.093	3	.02	3	.066	2	3.162e-03	6	1.549e-03	3	7.241e-03	4
162		min	-.1	4	-.332	8	-.066	1	-1.353e-03	1	-1.698e-03	4	-4.577e-03	3
163	N82	max	0	3	0	1	0	2	0	6	0	3	0	9
164		min	0	4	0	6	0	1	0	1	0	4	0	7
165	N83	max	.065	3	0	1	0	2	4.104e-03	6	1.411e-03	3	1.329e-03	9
166		min	-.061	4	-.121	6	0	1	-5.276e-04	1	-1.403e-03	4	-7.671e-04	7
167	N84	max	0	3	0	4	0	2	0	4	0	1	0	4
168		min	0	4	0	7	0	1	0	7	0	2	0	7
169	N85	max	.037	2	-.007	4	.065	2	4.512e-05	2	1.883e-03	1	2.242e-04	4
170		min	-.039	1	-.119	7	-.068	1	-2.63e-03	5	-1.879e-03	2	-3.163e-03	7
171	N86	max	0	3	0	3	0	2	0	3	0	2	0	8
172		min	0	4	0	8	0	1	0	8	0	3	0	3
173	N87	max	.028	3	-.004	3	.051	2	2.281e-04	2	1.299e-03	4	3.893e-03	8
174		min	-.03	4	-.12	8	-.048	3	-1.445e-03	5	-1.296e-03	3	-3.755e-04	3

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M31	L3x3x4	.562	0	6	.329	5	y	2	26816....	46656	1.688	3.756	2...	H2-1
2	M37	PIPE 3.0	.240	5	6	.289	9.167		1	38176.7	65205	5.749	5.749	1...	H1-1b
3	M35	L3x3x4	.556	0	8	.285	5	y	4	26816....	46656	1.688	3.756	2...	H2-1
4	M33	L3x3x4	.553	0	7	.232	5	y	3	26816....	46656	1.688	3.756	2...	H2-1
5	M38	PIPE 3.0	.239	5	5	.225	9.167		4	38176.7	65205	5.749	5.749	1...	H1-1b
6	M39	PIPE 3.0	.253	5	4	.217	9.167		3	38176.7	65205	5.749	5.749	1...	H1-1b
7	M1	L3x3x4	.472	5	6	.195	.313	z	9	26816....	46656	1.688	3.756	2...	H2-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
8	MP1A	PIPE_2.0	.883	2.5	2	.132	2.5		2	14916....	32130	1.872	1.872	3...	H1-1b
9	MP1B	PIPE_2.0	.746	2.5	4	.128	2.5		4	14916....	32130	1.872	1.872	2...	H1-1b
10	M4A	L3x3x4	.466	5	7	.109	0	y	2	26816....	46656	1.688	3.756	2...	H2-1
11	MP1C	PIPE_2.0	.755	2.5	3	.096	2.5		3	14916....	32130	1.872	1.872	2...	H1-1b
12	M7	L3x3x4	.471	5	8	.094	0	y	3	26816....	46656	1.688	3.756	2...	H2-1
13	M11	L3x3x4	.338	1	4	.078	1	z	8	45633....	46656	1.688	3.756	2...	H2-1
14	M10A	L3x3x4	.304	1	1	.077	1	z	5	45633....	46656	1.688	3.756	1...	H2-1
15	M5	HSS4x4x4	.329	0	7	.076	0	z	1	134527...	139518	16.181	16.181	1...	H1-1b
16	M12	L3x3x4	.300	1	2	.076	1	z	6	45633....	46656	1.688	3.756	2...	H2-1
17	M45	HSS3x3x4	.442	0	8	.070	0	y	8	74952....	79056	6.696	6.696	2...	H1-1b
18	M44	HSS3x3x4	.454	0	5	.070	0	y	5	74952....	79056	6.696	6.696	2...	H1-1b
19	M43	HSS3x3x4	.441	0	7	.070	0	y	7	74952....	79056	6.696	6.696	2...	H1-1b
20	M4	HSS4x4x4	.324	0	8	.068	0	z	3	134527...	139518	16.181	16.181	1...	H1-1b
21	MP2A	PIPE_2.0	.405	.625	6	.068	.625		6	20866....	32130	1.872	1.872	2...	H1-1b
22	M14	L3x3x4	.418	0	1	.068	0	z	1	45633....	46656	1.688	3.756	1...	H2-1
23	MP2C	PIPE_2.0	.403	.625	7	.067	3.563		7	20866....	32130	1.872	1.872	2...	H1-1b
24	M13	L3x3x4	.424	0	3	.066	0	z	3	45633....	46656	1.688	3.756	1...	H2-1
25	MP2B	PIPE_2.0	.393	.625	5	.065	.625		8	20866....	32130	1.872	1.872	2...	H1-1b
26	M8	HSS4x4x4	.329	0	5	.065	0	z	2	134527...	139518	16.181	16.181	1...	H1-1b
27	MP4A	PIPE_2.0	.313	.625	6	.064	3.563		2	20866....	32130	1.872	1.872	2...	H1-1b
28	MP4C	PIPE_2.0	.319	.625	5	.062	3.563		3	20866....	32130	1.872	1.872	2...	H1-1b
29	MP4B	PIPE_2.0	.319	.625	8	.059	3.563		8	20866....	32130	1.872	1.872	2...	H1-1b
30	M15	L3x3x4	.353	0	2	.054	0	z	2	45633....	46656	1.688	3.756	2...	H2-1
31	M41	L3x3x4	.427	2.833	2	.052	0	z	2	39055....	46656	1.688	3.756	2...	H2-1
32	MP3C	PIPE_2.0	.298	.625	5	.047	3.563		1	20866....	32130	1.872	1.872	2...	H1-1b
33	MP3A	PIPE_2.0	.291	.625	6	.045	3.563		9	20866....	32130	1.872	1.872	2...	H1-1b
34	M40	L3x3x4	.374	2.833	4	.045	0	z	4	39055....	46656	1.688	3.756	1...	H2-1
35	MP3B	PIPE_2.0	.300	.625	8	.043	3.563		8	20866....	32130	1.872	1.872	2...	H1-1b
36	M42	L3x3x4	.309	2.833	3	.039	.118	z	3	39055....	46656	1.688	3.756	2...	H2-1
37	M17	LL3x3x4x0	.126	0	1	.032	2.268	z	2	82208....	93312	6.48	3.069	2...	H1-1b
38	M18	LL3x3x4x0	.120	0	4	.026	2.268	z	3	82208....	93312	6.48	3.069	2...	H1-1b
39	M16	LL3x3x4x0	.084	0	2	.025	2.268	z	4	82208....	93312	6.48	3.069	2...	H1-1b
40	M36	L3x3x4	.320	0	5	.017	0	y	8	35367....	46656	1.688	3.756	1...	H2-1
41	M32	L3x3x4	.322	0	6	.017	0	y	6	35367....	46656	1.688	3.756	1...	H2-1
42	M34	L3x3x4	.323	0	7	.017	0	y	5	35367....	46656	1.688	3.756	1...	H2-1
43	M10	L3x3x4	.340	3.536	6	.017	3.536	y	6	35367....	46656	1.688	3.756	1...	H2-1
44	M6	L3x3x4	.341	3.536	5	.017	3.536	y	7	35367....	46656	1.688	3.756	1...	H2-1
45	M9	L3x3x4	.343	3.536	8	.017	3.536	y	5	35367....	46656	1.688	3.756	1...	H2-1

EXHIBIT 9

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS 180' MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT02220-S

CARRIER SITE #/NAME: CT11255E / COLCHESTER

COORDINATES (LATITUDE: 41.571327°, LONGITUDE: -72.302322°)

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

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
MS-P-TARM	METROSITE SUPPORT RAIL KIT WITH T-ARM	
MS-H1436	METROSITE HEAVY COLLAR MOUNT PLATE ASSEMBLY DETAIL	
MPHW-1	METROSITE HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL	

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **76823**, DATED **06/11/19**.

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

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

TES JOB NO:
80186

CUSTOMER SITE NO:
CT02220-S-SBA

CUSTOMER SITE NAME:
COLCHESTER 2 CT

31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED
PROFESSIONAL ENGINEER

7/2/19

DRAWN BY: RK | CHECKED BY: ID/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/02/19

SHEET TITLE:

TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE				
1	1	MS-P-TARM	METROSITE SUPPORT RAIL KIT	A-1, MS-P-TARM	654.0	654.0	Galvanized
1	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY	A-1, MS-H1436	138.0	138.0	Galvanized
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
			ALL METROSITE PARTS ARE AVAILABLE FROM METROSITE, LLC. **180 IND PARK BLVD COMMERCE, GA 30529** **OFFICE: (706) 335-7045** **FAX: (706) 335-7056**				
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.				
				TOTAL WEIGHT (LBS) =		**792.0**	

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(800)-487-SITE

TES JOB NO:
80186

CUSTOMER SITE NO:
CT02220-S-SBA
CUSTOMER SITE NAME:
COLCHESTER 2 CT
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

DRAWN BY: RK | CHECKED BY: ID/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/02/19

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

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

FABRICATION

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

WELDING

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

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

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

VERIFICATION AND INSPECTION

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

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

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

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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

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5900 BROKEN SOUND PARKWAY, NW
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(800)-487-SITE

TES JOB NO:
80186

CUSTOMER SITE NO:
CT02220-S-SBA
CUSTOMER SITE NAME:
COLCHESTER 2 CT
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

DRAWN BY: RK | CHECKED BY: ID/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/02/19

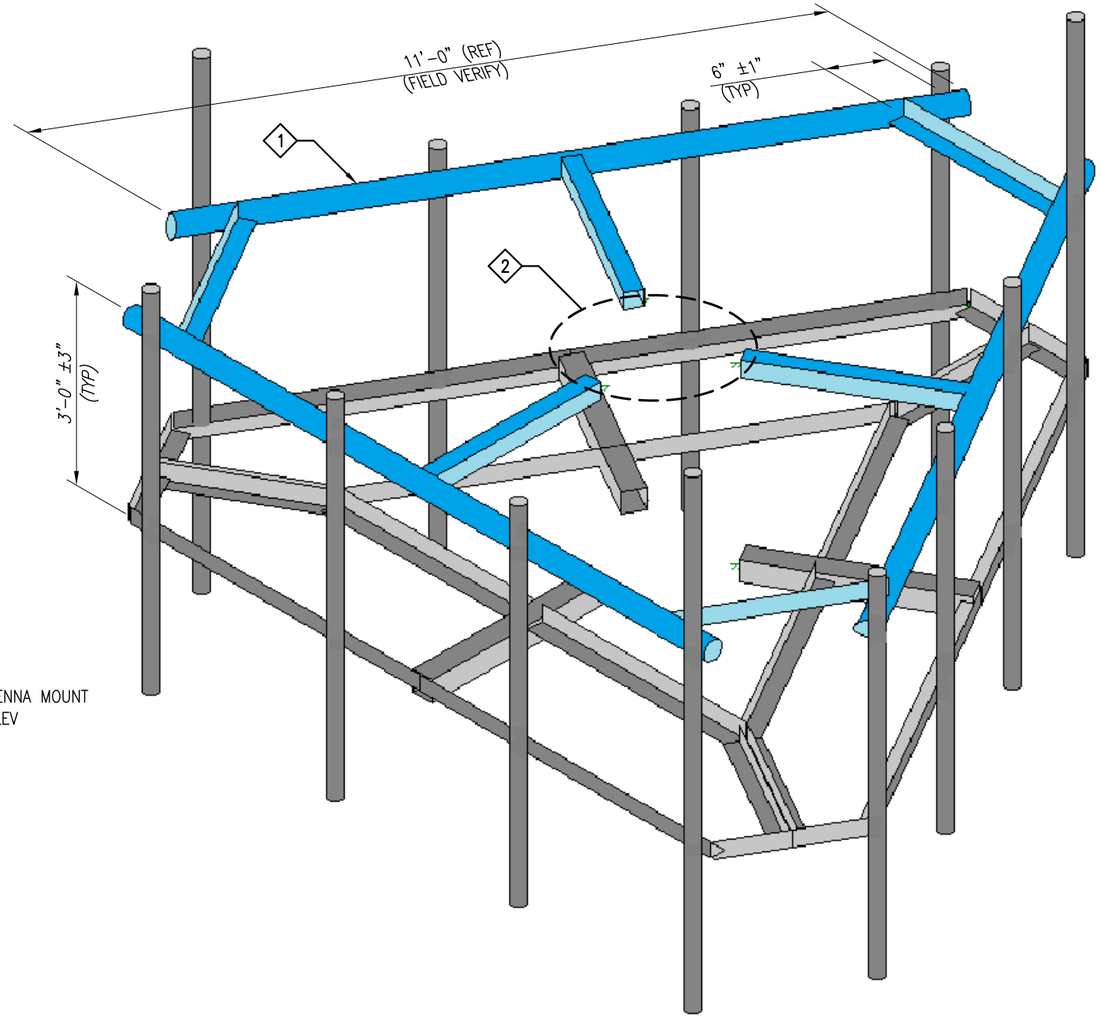
SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

SCOPE OF WORK

1. INSTALL NEW SUPPORT RAIL KIT WITH T-ARM. SEE SHEET MS-P-TARM FOR DETAILS.
2. INSTALL NEW HEAVY COLLAR MOUNT (NOT SHOWN FOR CLARITY). SEE SHEET MS-H1436 FOR DETAILS
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

PHOTO 1



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 164.50' ELEV.

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

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

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	1	MS-P-TARM	METROSITE SUPPORT RAIL KIT
2	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY

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

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

TES JOB NO:
80186

CUSTOMER SITE NO:
CT02220-S-SBA
CUSTOMER SITE NAME:
COLCHESTER 2 CT
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

DRAWN BY: RK | CHECKED BY: ID/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/02/19

SHEET TITLE:
ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1
REV #: 0

PHOTO 1

EXISTING EQUIPMENT MUST BE RELOCATED UP OR DOWN ALONG THE MEMBER TO ACCOMMODATE INSTALLATION OF MOUNT MODIFICATION

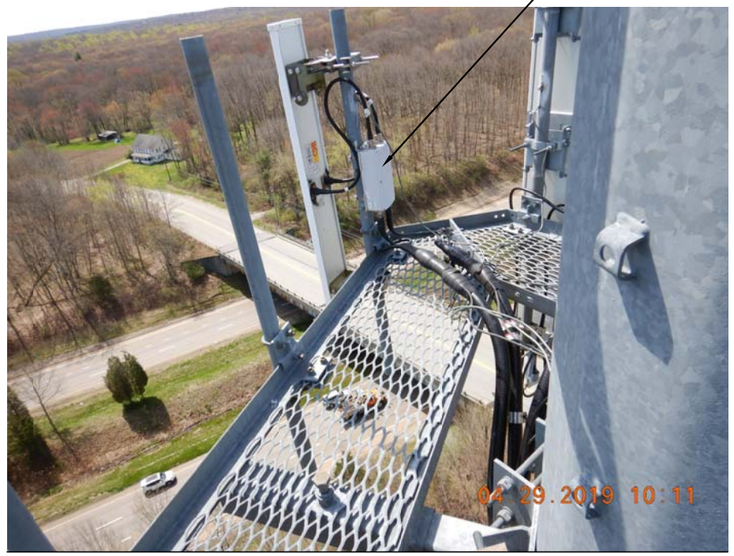


PHOTO 2

PHOTO 3

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

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

TES JOB NO:
80186

CUSTOMER SITE NO:
CT02220-S-SBA
CUSTOMER SITE NAME:
COLCHESTER 2 CT
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

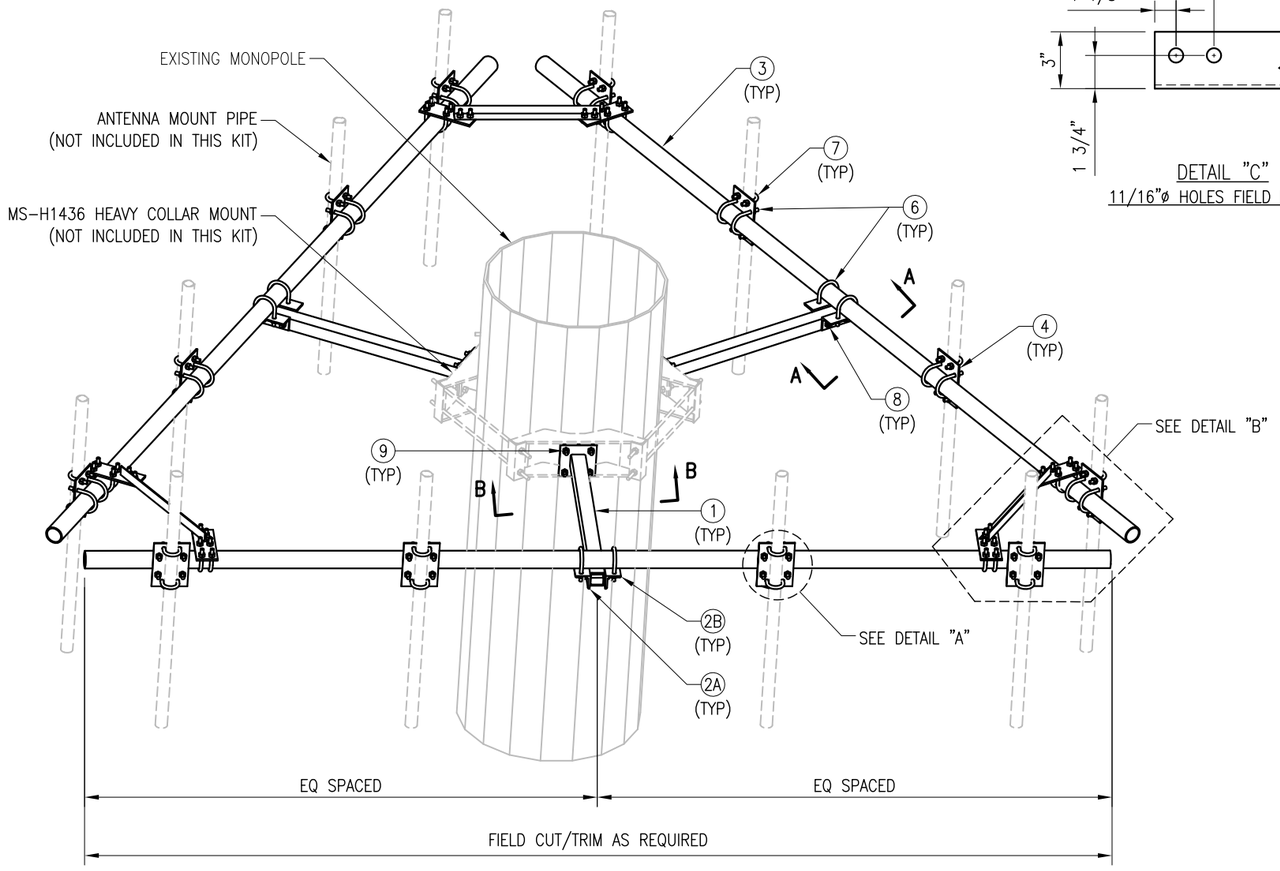
DRAWN BY: RK | CHECKED BY: ID/HMA

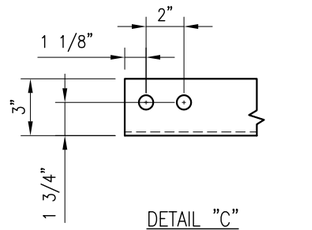
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/02/19

SHEET TITLE:
ANTENNA MOUNT PHOTOS

SHEET NUMBER: A-2
REV #: 0

NOTES:
1) EXISTING ANTENNA MOUNT NOT SHOWN FOR CLARITY.
2) FIELD ASSEMBLE ALL PARTS.

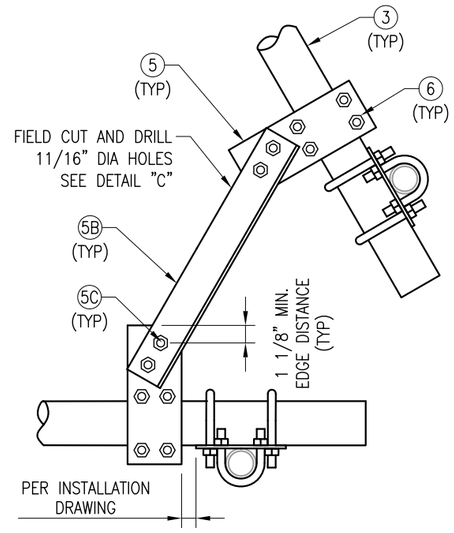




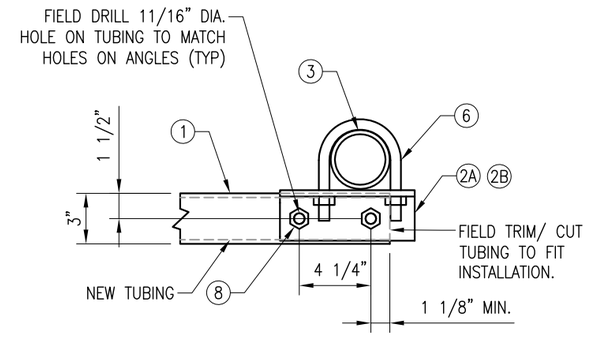
DETAIL "C"
11/16"ø HOLES FIELD DRILLED

SUPPORT RAIL KIT (MS-P-TARM)

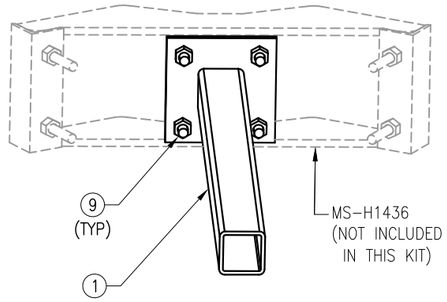
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	TAW-1	T-ARM WELDMENT	A500 GR-B	TAW-1	135
2A	3	AL-1A	L 3" X 3" X 1/4" X 0'-8"	A36	TAF-1	9.9
2B	3	AL-1B	L 3" X 3" X 1/4" X 0'-8"	A36	TAF-1	9.9
3	3	3PST-140	3" PST (3.50" O.D X .216" THICK) X 14'-0"	A53 GR-B	TAF-1	337.2
4	12	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	92.4
5	6	PL375-11	PL 3/8" X 4 1/4" X 0'-11"	A36	TAF-1	15.1
5B	3	AL-33C	L 3" X 3" X 1/4" X 3'-6"	A36	ECP-1	54
5C	12	--	BOLT 5/8" X 2" A325 W/ HHN & LKW	A325	--	--
6	42	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
7	24	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
8	6	--	ALL THREAD ROD 5/8" DIA. X 8" A36 HDG W/ (2) HHN & LKW EA.	A36	--	--
9	12	--	BOLT 5/8" X 2 1/4" A325 W/ HHN & LKW	A325	--	--
				GALVANIZED WT		654



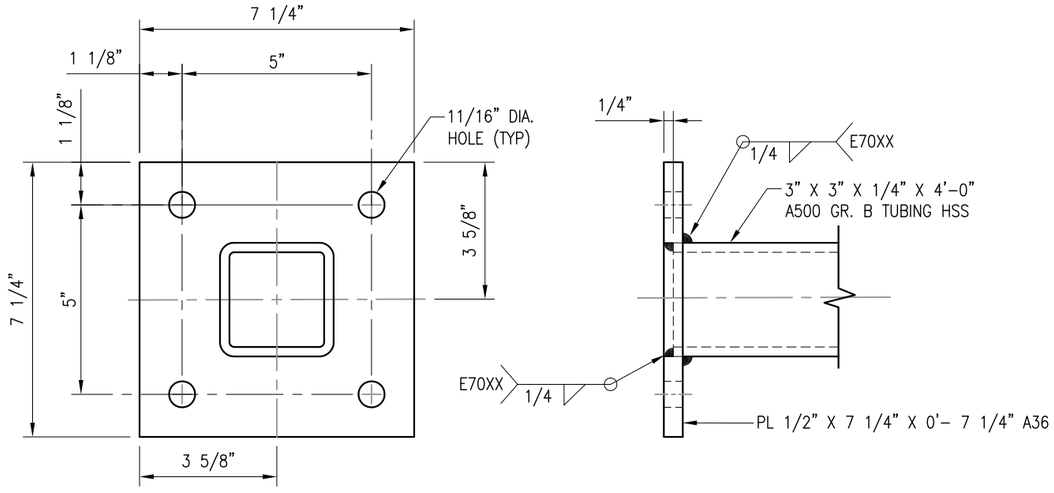
DETAIL "B"



SECTION "A-A"



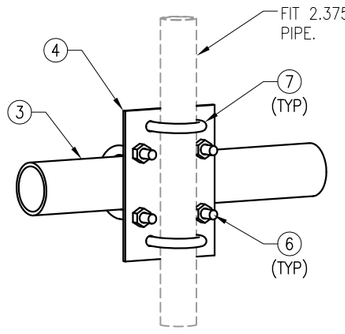
SECTION "B-B"



FRONT VIEW

TAW-1 WELDMENT

SIDE VIEW



DETAIL "A"

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

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

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	09/19/18
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
SUPPORT RAIL KIT (MS-P-TARM) ASSEMBLY DETAIL

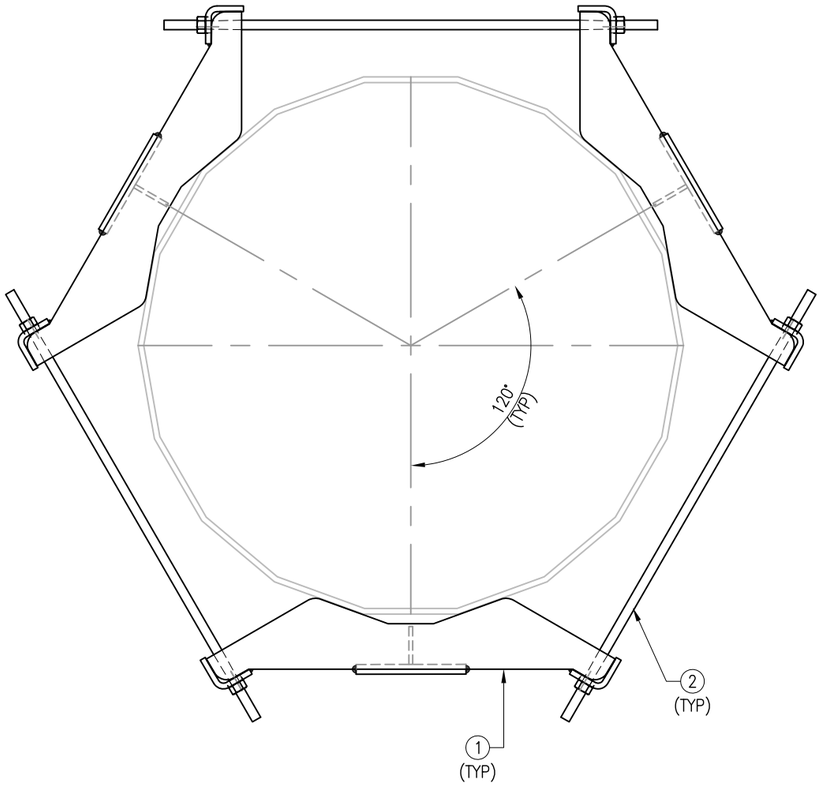
SIZE	DWG NO	REV
B	MS-P-TARM	2

SCALE -
SHEET 1 OF 1

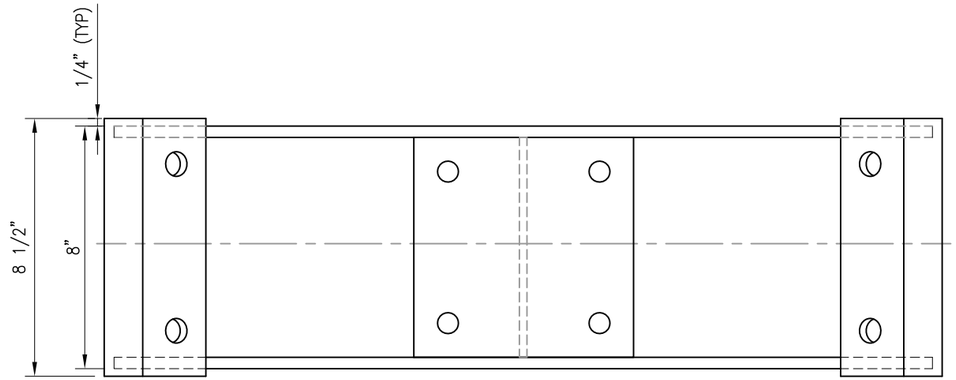
NOTE:
1) FITS 12" DIA TO 32" DIA.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	MPHW-1	MOUNT PLATE WELDMENT A36
2	6	---	THREADED ROD 3/4" X 2'-4 3/4" W/ 2 HHN & LW EA A36

GALVANIZED WEIGHT: 136.7 LBS



TOP VIEW



FRONT VIEW

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

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

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

TITLE
HEAVY COLLAR MOUNT PLATE
ASSEMBLY DETAIL MS-H1436

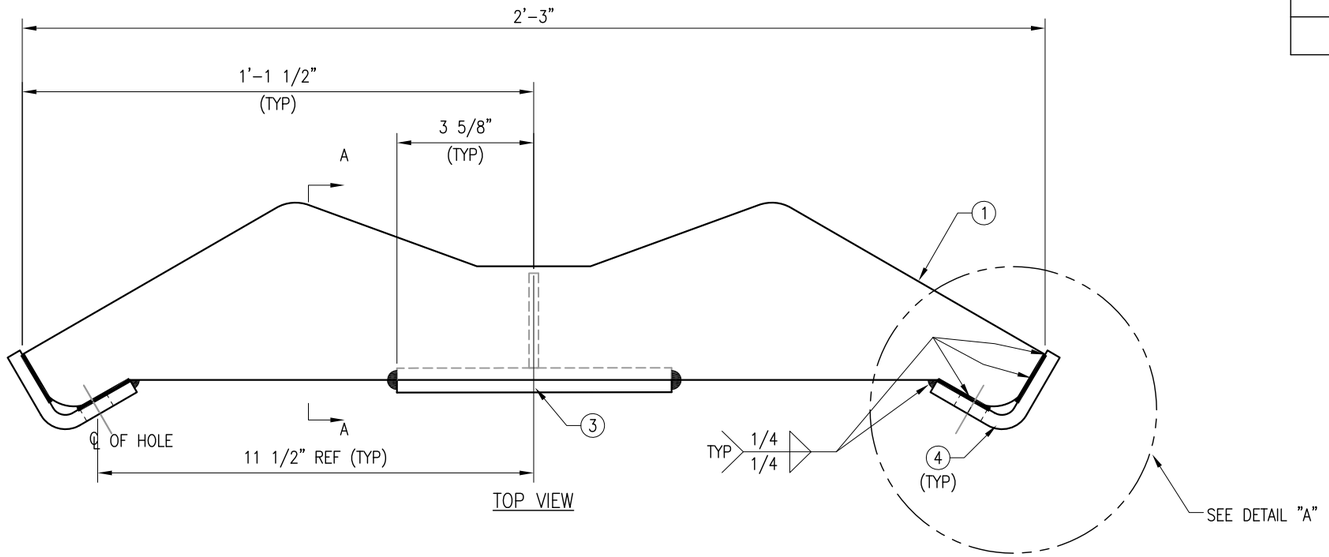
SIZE	DWG NO	REV
B	MS-H1436	1

SCALE -

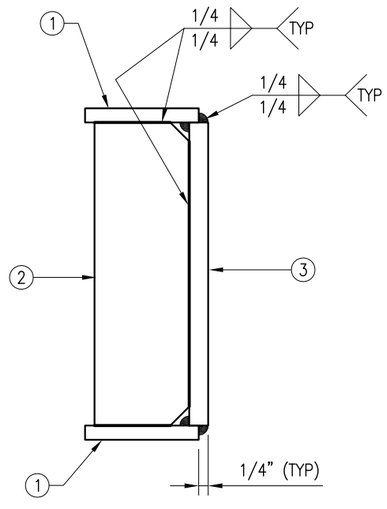
SHEET 1 OF 1

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. WELD TYPE: E70XX.

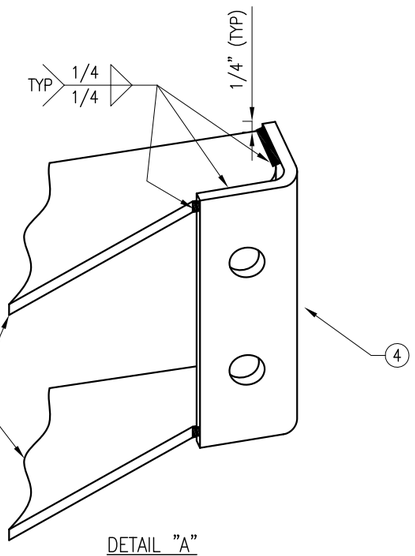
MPHW-1 WELDMENT						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	2	PL-4	PL 3/8" X 5 3/8" X 2'-3"	A36	F-2	18.8
2	1	PL-5	PL 3/8" X 2 1/2" X 0'-7 1/4"	A36	F-2	1.9
3	1	PL-6	PL 1/2" X 7 1/4" X 0'-7 1/4"	A36	F-2	7.5
4	2	PL-7	PL 3/8" x 4 3/8" x 8 1/2"	A36	F-2	7.8
					BLACK WT	36
					GALVANIZED WT	38



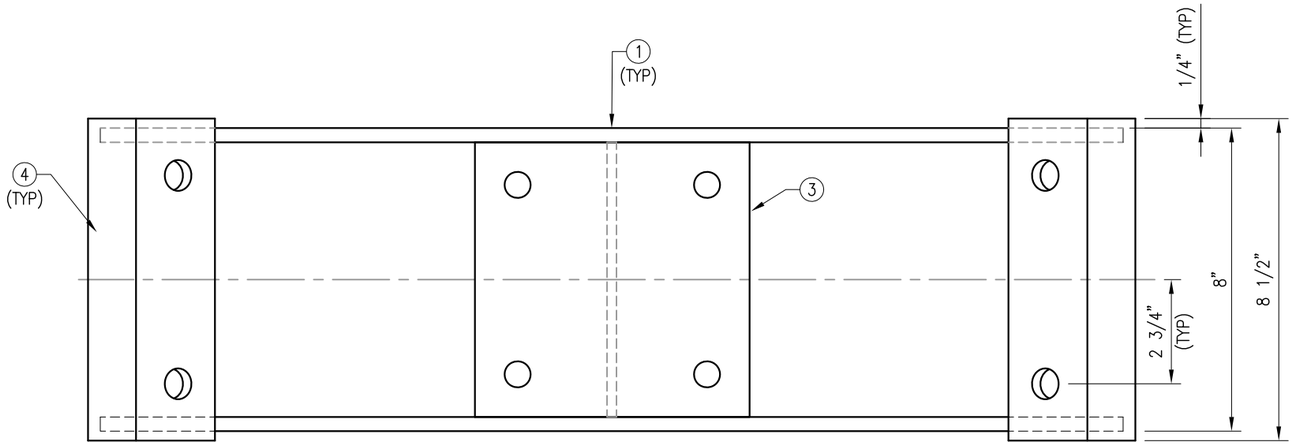
TOP VIEW



SECTION "A-A"



DETAIL "A"



FRONT VIEW

MPW-1 WELDMENT

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

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

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

TITLE
HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL

SIZE	DWG NO	REV
B	MPHW-1	0

SCALE - SHEET 1 OF 1

EXHIBIT 10

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11255E

Colchester / Rt2
31 Chestnut Hill Road
Colchester, CT 06415

July 16, 2019

Transcom Engineering Project Number: 737001-0005

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**5.18 %**

July 16, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11255E – Colchester / Rt2**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **31 Chestnut Hill Road, Colchester, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (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 & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **31 Chestnut Hill Road, Colchester, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	2	60

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAARR24_43-U-NA20	164.5
A	2	EMS RR90-17-82DP (Dormant)	164.5
B	1	RFS APXVAARR24_43-U-NA20	164.5
B	2	EMS RR90-17-82DP (Dormant)	164.5
C	1	RFS APXVAARR24_43-U-NA20	164.5
C	2	EMS RR90-17-82DP (Dormant)	164.5

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since the 1900 MHz (PCS) and 2100 MHz (AWS) radios are ground mounted the following cable loss values were used. For each ground mounted **1900 MHz (PCS)** radio there was **1.96 dB** of cable loss calculated into the system gains / losses for this site. For each ground mounted **2100 MHz (AWS)** radio there was **2.01 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **190 feet** of **1-5/8”** coax.

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.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	11	415	9,795.72	1.89
Antenna A2	EMS RR90-17-82DP (Dormant)	N/A	N/A	0	0	0	0.00%
						Sector A Composite MPE%	**1.89**
Antenna B1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	11	415	9,795.72	1.89
Antenna B2	EMS RR90-17-82DP (Dormant)	N/A	N/A	0	0	0	0.00%
						Sector B Composite MPE%	**1.89**
Antenna C1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	11	415	9,795.72	1.89
Antenna C2	EMS RR90-17-82DP (Dormant)	N/A	N/A	0	0	0	0.00%
						Sector C Composite MPE%	**1.89**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. 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. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**1.89 %**
Verizon Wireless	1.47 %
Sprint	1.82 %
Site Total MPE %:	**5.18 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	1.89 %
T-MOBILE Sector B Total:	1.89 %
T-MOBILE Sector C Total:	1.89 %
Site Total:	5.18 %

Table 5: Site MPE Summary

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 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	788.97	164.5	2.26	600 MHz	400	0.56%
T-Mobile 700 MHz LTE	2	432.54	164.5	1.24	700 MHz	467	0.27%
T-Mobile 1900 MHz (PCS) LTE	4	935.53	164.5	5.36	1900 MHz (PCS)	1000	0.54%
T-Mobile 1900 MHz (PCS) GSM	1	350.83	164.5	0.50	1900 MHz (PCS)	1000	0.05%
T-Mobile 2100 MHz (AWS) LTE	2	1,629.86	164.5	4.66	2100 MHz (AWS)	1000	0.47%
						Total:	**1.89%**

Table 6: 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:

T-MOBILE Sector	Power Density Value (%)
Sector A:	1.89 %
Sector B:	1.89 %
Sector C:	1.89 %
T-MOBILE Maximum Total (per sector):	1.89 %
Site Total:	5.18 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.18 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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