



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

June 3, 2022

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

RE: Exempt Modification Application
425 Litchfield Road, New Milford, CT 06776
Latitude: 41.646722
Longitude: -73.387250
Site #: CT13530-S_CTNH370A_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 425 Litchfield Road, New Milford, CT 06776. T-Mobile currently maintains six (6) antennas at the 137-foot level of the existing 140-foot monopole tower. The property is owned by CJLVK Realty LLC, and the tower is owned by SBA. T-Mobile now intends to replace (3) antennas. The new antennas would be installed at the 185-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per the attached TES Mount Analysis dated April 25, 2022.

T-Mobile Planned Modifications:

Remove:

(2) Coax – 1-5/8”

Remove and Replace:

(3) ANDREW Antennas (REMOVE) - (3) RFS APXVAALL24-43-U-NA20 Antennas (REPLACE)

Install New:

(3) ERICSSON 4480 B71+B85 RRU

(1) HCS Fiber Cable 1.9”

Existing to Remain:

(3) Twin TMAs – KRY 112 489/2

(3) RFS APX16PV-16VL-E Antennas *

(3) EMS Antennas *

(16) Coax – 1-5/8” *

(3) Kathrein 782 11056 Bias-Ts *

*Equipment listed for entitlement purposed only



The facility was approved by the Connecticut Siting Council, Docket No. 342 on May 22, 2008. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-72(b)(2), 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 Mayor Pete Bass, and Laura Regan, Town Planner for the Town of New Milford, as well as the property owner and the tower owner.

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

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

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

Sincerely,

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



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Mayor Pete Bass
Town Hall
10 Main Street
New Milford, CT 06776

Laura Regan, Town Planner
Town Hall
10 Main Street
New Milford, CT 06776

CJLVK Realty LLC - Property Owner
PO Box 995
New Milford, CT 06776

SBA - Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 342 - Optasite Towers LLC and Omnipoint } Connecticut
Communications, Inc. application for a Certificate of }
Environmental Compatibility and Public Need for the } Siting
construction, maintenance and operation of a telecommunications } Council
facility located at 425 Litchfield Road, New Milford, }
Connecticut. May 22, 2008

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Optasite Towers LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility located at 425 Litchfield Road in New Milford, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower shall not exceed a height of 140 feet above ground level. The height at the top of T-Mobile's antennas shall not exceed 140 above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of New Milford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping;
 - b) antenna mounting configuration; and
 - c) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of New Milford public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of New Milford. Any proposed modifications to this Decision and Order shall likewise be so served.
9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.
11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The News Times and the New Milford Spectrum.

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

The parties and intervenors to this proceeding are:

Applicant

Optasite Towers LLC and
Omnipoint Communications, Inc

Representative

Julie Kohler, Esq.
Carrie L. Larson, Esq.
Cohen and Wolf, P.C.
115 Broad Street
Bridgeport, CT 06604

Intervenor

Cellco Partnership d/b/a Verizon Wireless

Representative

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

Exhibit B

Property Card

425 LITCHFIELD RD

Location 425 LITCHFIELD RD

Mblu 80 / 1 / 1

Acct# 002789

Owner CJLVK REALTY LLC

Assessment \$454,450

Appraisal \$649,200

PID 11461

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$152,700	\$496,500	\$649,200

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$106,890	\$347,560	\$454,450

Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner CJLVK REALTY LLC	Sale Price \$89,063
Co-Owner	Certificate
Address PO BOX 995	Book & Page 1204/169
NEW MILFORD, CT 06776	Sale Date 10/23/2020
	Instrument 25

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
CJLVK REALTY LLC	\$89,063		1204/169	25	10/23/2020
CAMPBELL JEANNE ANNE	\$0		1144/0123	004	06/20/2014
DRZAL EDWARD J EST OF	\$0		0927/0967	003	02/05/2007
DRZAL EDWARD J	\$0		0195/0646		09/29/1969

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent Good:

Replacement Cost

Less Depreciation: \$0

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type	
AC Type	
Total Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Xtra Fixtrs	
Total Rooms	
Bath Style	
Kitchen Style	
Num Kitchens	
Whirlpool Tub	
Fireplaces	
Fin Bsmt Area	
Bsmt Garages	
Fireplaces_1	
Solar	
Insp. Letter	

Building Photo



(<https://images.vgsi.com/photos/NewMilfordCTPhotos/default.jpg>)

Building Layout

([ParcelSketch.ashx?pid=11461&bid=11806](#))

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

Multi-House	
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Extra Features

Extra Features		<u>Legend</u>
No Data for Extra Features		

Parcel Information

Use Code 3900
Description Com Vac Ln MDL-00
Deeded Acres 29.50

Land

Land Use

Use Code 3900
Description Com Vac Ln MDL-00
Zone B2/R40
Neighborhood C100
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 29.50
Frontage 0
Depth 0
Assessed Value \$347,560
Appraised Value \$496,500

Outbuildings

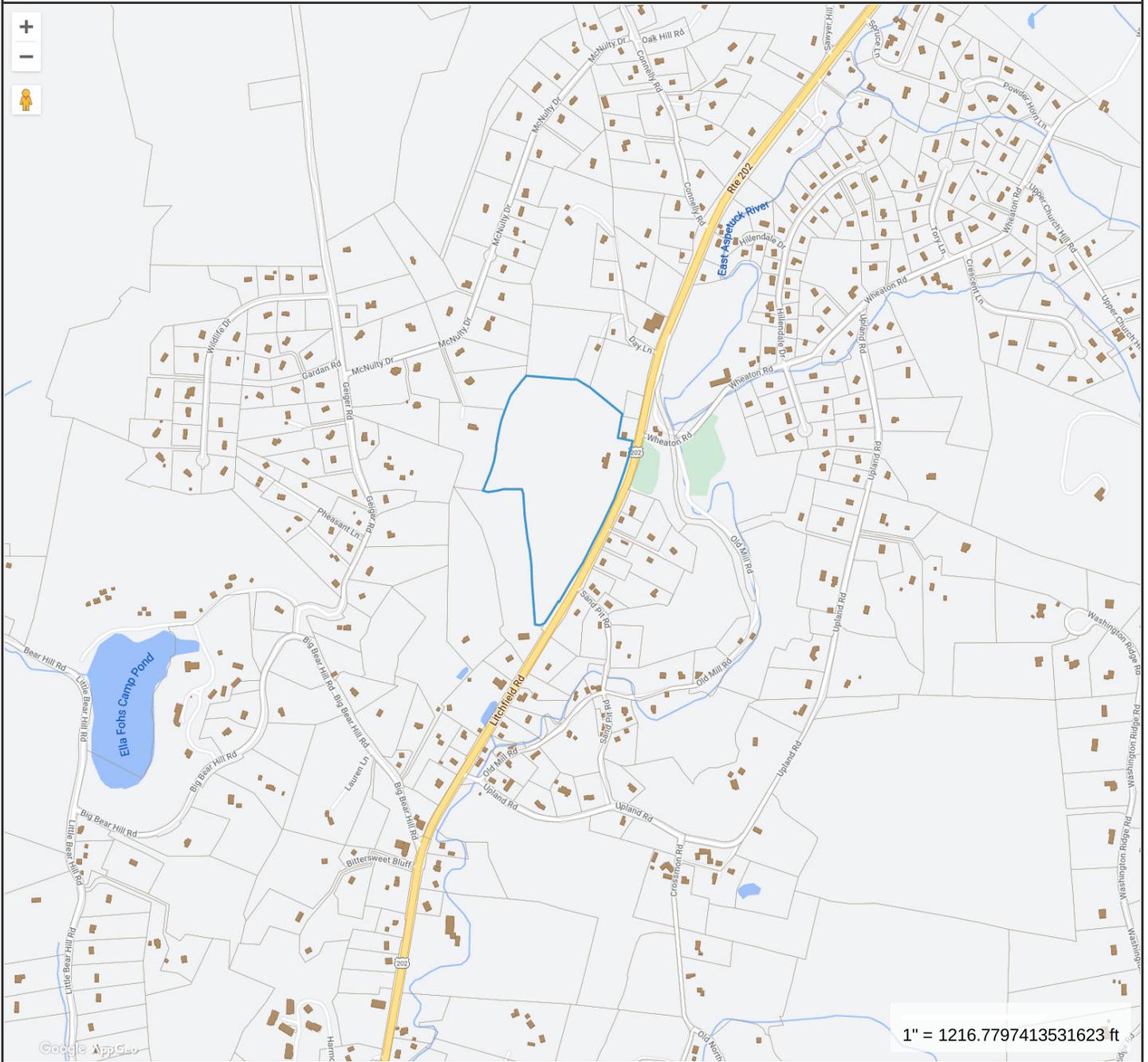
Outbuildings							<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Assessed Value	Bldg #
FN4	Fence 8'			224.00 L.F.	\$2,700	\$1,890	1
CT1	Cell Tower			1.00 Units	\$150,000	\$105,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$152,700	\$688,900	\$841,600

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$106,890	\$482,230	\$589,120

425 LITCHFIELD ROAD



Property Information

Property ID 80/1
Location 425 LITCHFIELD RD
Owner CJLVK REALTY LLC



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

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

Geometry updated 12/22/2021
Data updated daily

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Exhibit C

Construction Drawings

CT370/OPTA/DRZAL FT

425 LITCHFIELD ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY

SITE NO.: CTNH370A

SITE TYPE: 140'± MONOPOLE

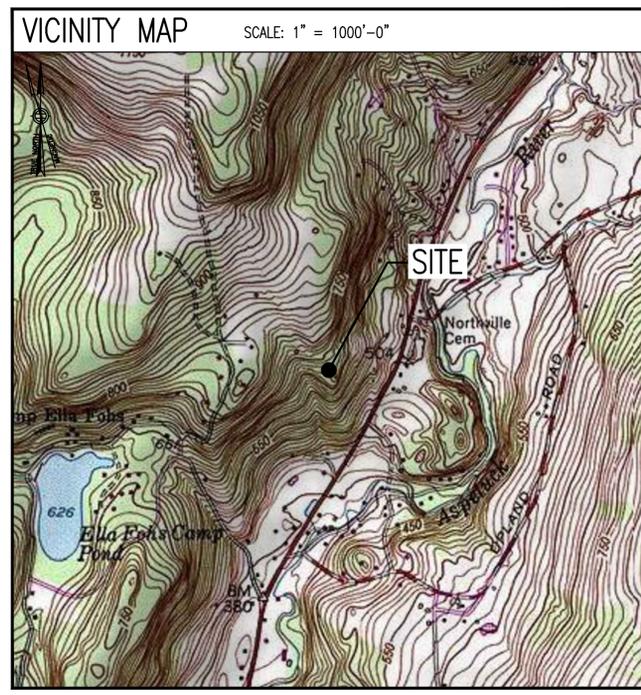
RF DESIGN GUIDELINE: 67E04G

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

GENERAL NOTES	
<p>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.</p> <p>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.</p> <p>3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMPPOINT 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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR</p>	<p>SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.</p> <p>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.</p> <p>14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.</p> <p>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.</p> <p>16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.</p> <p>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.</p>

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



DIRECTIONS

MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 58 FOR I-90 WEST. KEEP LEFT AT FORK & FOLLOW SIGNS FOR I-90 WEST/SPRINGFIELD/ALBANY. MERGE ONTO I-90 WEST. TAKE EXIT 78 TOWARD I-84. CONTINUE ONTO I-84. ENTER CONNECTICUT. USE RIGHT LANE TO STAY ON I-84. KEEP RIGHT TO STAY ON I-84. TAKE EXIT 39 TOWARD FARMINGTON/CT-4. CONTINUE ONTO STATE HIGHWAY 508. CONTINUE ONTO CT-4 WEST. TURN RIGHT ONTO CT-177 NORTH/CT-4 WEST. TAKE SLIGHT LEFT ONTO CT-4 WEST. TURN LEFT ONTO CT-4. CONTINUE ONTO CT-118 WEST/LITCHFIELD ROAD. TURN LEFT ONTO CT-118 WEST/EAST STREET. KEEP RIGHT TO CONTINUE ONTO EAST STREET. CONTINUE ONTO US-202 WEST/WEST STREET. CONTINUE TO FOLLOW US-202 WEST. SITE IS LOCATED ON THE RIGHT HAND SIDE.

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND PLAN, EQUIPMENT PLANS & PHOTO	0
A-2	TOWER ELEVATION, ANTENNA PLANS & PHOTOS	0
A-3	SITE DETAILS	0
A-4	ANTENNA & FEEDLINE CHARTS	0
E-1	ELECTRIC & GROUNDING DETAILS & PHOTOS	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.

SCOPE OF WORK	
REMOVE: <ul style="list-style-type: none"> 6 ANTENNAS 1 60A-2P BREAKER 	INSTALL: <ul style="list-style-type: none"> 3 ANTENNAS 3 RADIOS 1 HYBRID CABLE 1 125A-2P BREAKER
RELOCATE: <ul style="list-style-type: none"> 3 TMAS 	

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. <ul style="list-style-type: none"> ADA COMPLIANCE NOT REQUIRED. POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2.	CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3.	NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. <ul style="list-style-type: none"> BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

PROJECT SUMMARY	
SITE NUMBER:	CTNH370A
SITE NAME:	CT370/OPTA/DRZAL FT
SBA SITE NUMBER:	CT13530-S
SBA SITE NAME:	MARTIN 5, CT
SITE ADDRESS:	425 LITCHFIELD ROAD NEW MILFORD, CT 06776
PROPERTY OWNER:	JEANNE ANNE CAMPBELL EXECUTRIX OF EST. OF EDWARD J. DRZAL 14 LEXINGTON DRIVE WAPPINGERS FALLS, NY 12590
TOWER OWNER:	SBA TOWERS II, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	LITCHFIELD
ZONING DISTRICT:	R-40 (RESIDENTIAL 40)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	140'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.646741' N41°38'48.27" LONGITUDE: -73.387254' W73°23'14.11"

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

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

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

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

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

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION CMC	

SITE NUMBER:
CTNH370A

SITE ADDRESS:
425 LITCHFIELD ROAD
NEW MILFORD, CT 06776

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

GENERAL NOTES:

- 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
- 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.
- 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.
- 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.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- 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.
- 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.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- 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.
- 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.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- 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.
- 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.
- 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:

- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- 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.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

- 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.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
- 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, UNDO.
- 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 LARGER2 IN.
#5 AND SMALLER & WWF1½ IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL¾ IN.
BEAMS AND COLUMNS½ IN.
- A CHAMFER ¼" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- 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.
- 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.
- 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.
- 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:

- 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".
- 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.
- BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- 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.
- 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.
- 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:

- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

- FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
- COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
- 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:

- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLE TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- 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.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
- 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).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- 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.
- 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.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- 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.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 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.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

**T-MOBILE
NORTHEAST LLC**

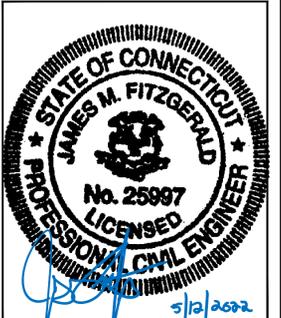
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NORTON, MA 02766
(508) 286-2700



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



R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com



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SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
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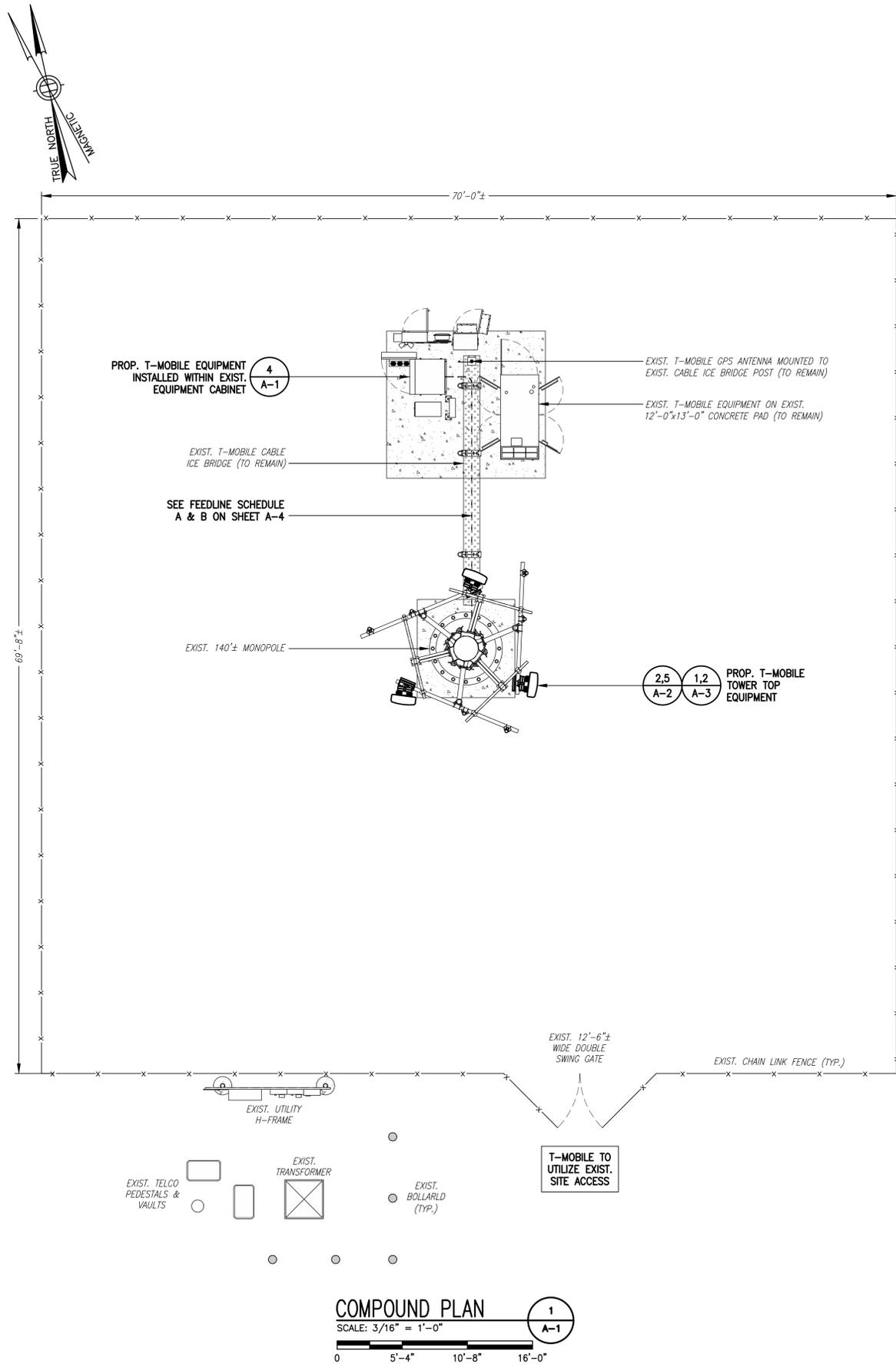
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SITE ADDRESS:
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NEW MILFORD, CT 06776

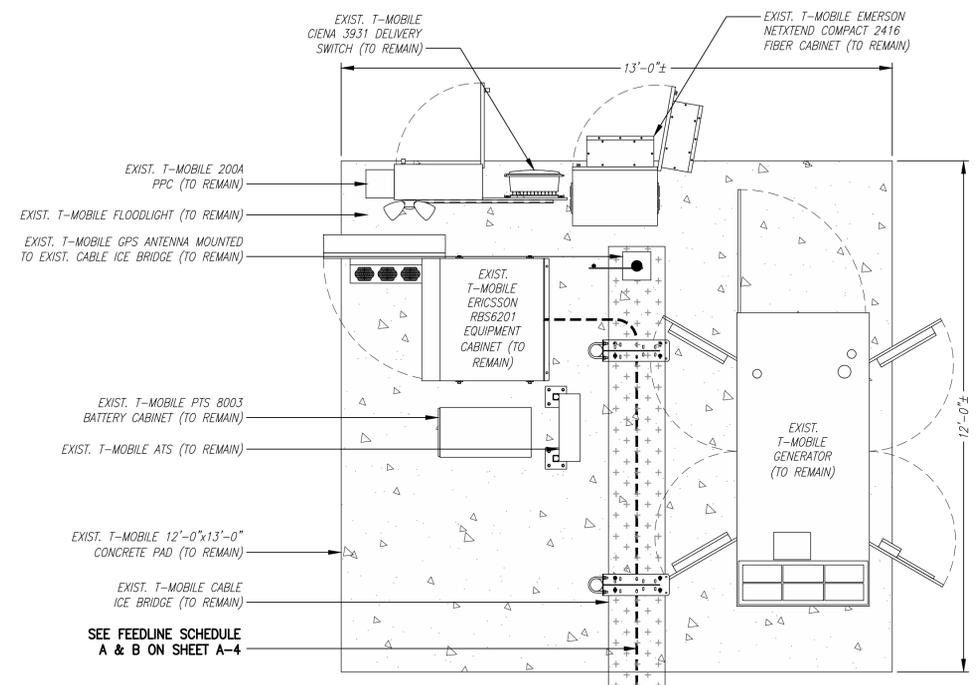
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GENERAL NOTES

SHEET NUMBER
GN-1

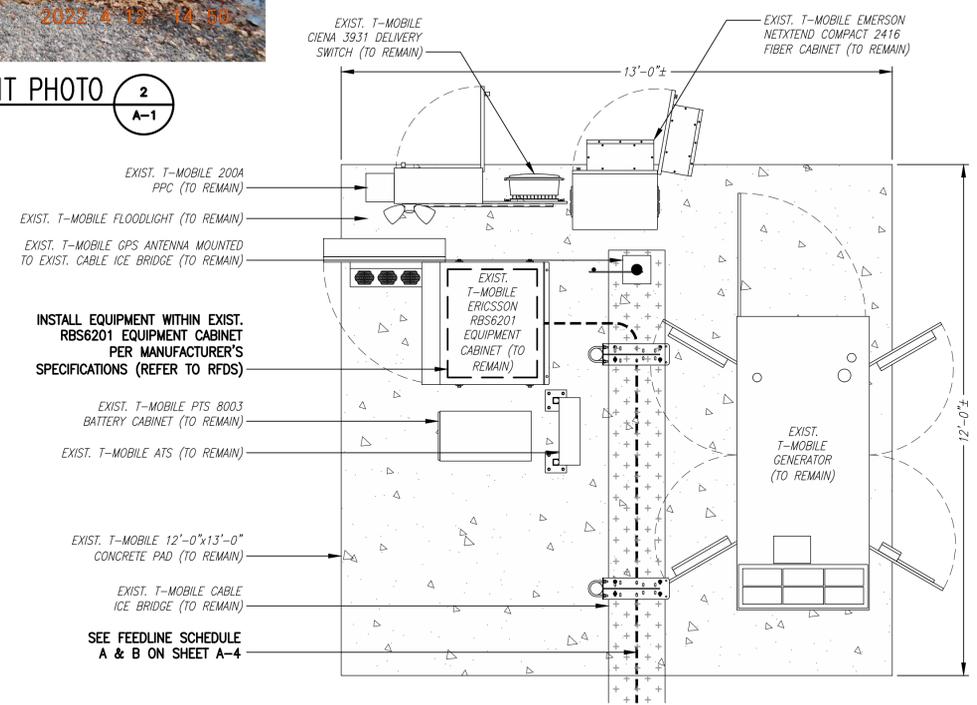
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



EXISTING EQUIPMENT PHOTO
 SCALE: N.T.S.



EXISTING EQUIPMENT PLAN
 SCALE: 1/2" = 1'-0"



PROPOSED EQUIPMENT PLAN
 SCALE: 1/2" = 1'-0"

**T-MOBILE
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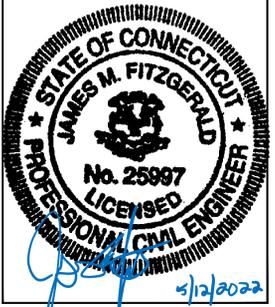
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 NORTON, MA 02766
 (508) 286-2700



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 WESTBOROUGH, MA 01581
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 201 BOSTON POST ROAD WEST, SUITE 101
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SITE NUMBER:
CTNH370A

SITE ADDRESS:
 425 LITCHFIELD ROAD
 NEW MILFORD, CT 06776

SHEET TITLE
**COMPOUND PLAN,
 EQUIPMENT PLANS
 & PHOTO**

SHEET NUMBER
A-1

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
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SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE T-MOBILE RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

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



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

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

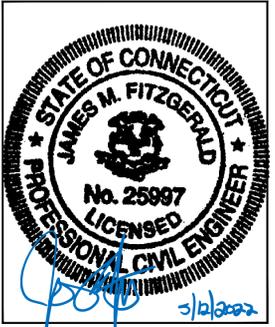
T-MOBILE NORTHEAST LLC
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 NORTON, MA 02766
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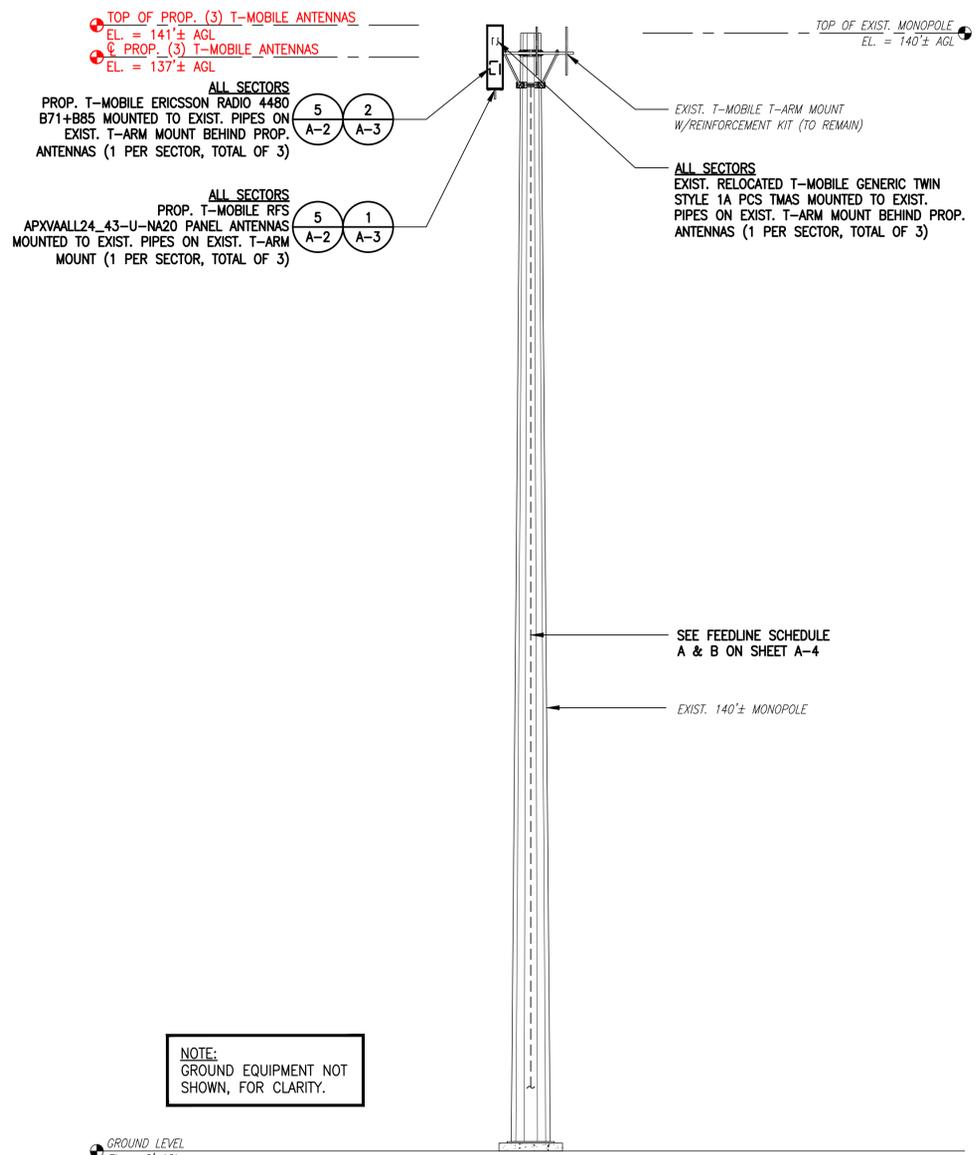
SITE NUMBER:
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SHEET TITLE
**TOWER ELEVATION,
 ANTENNA PLANS &
 PHOTOS**

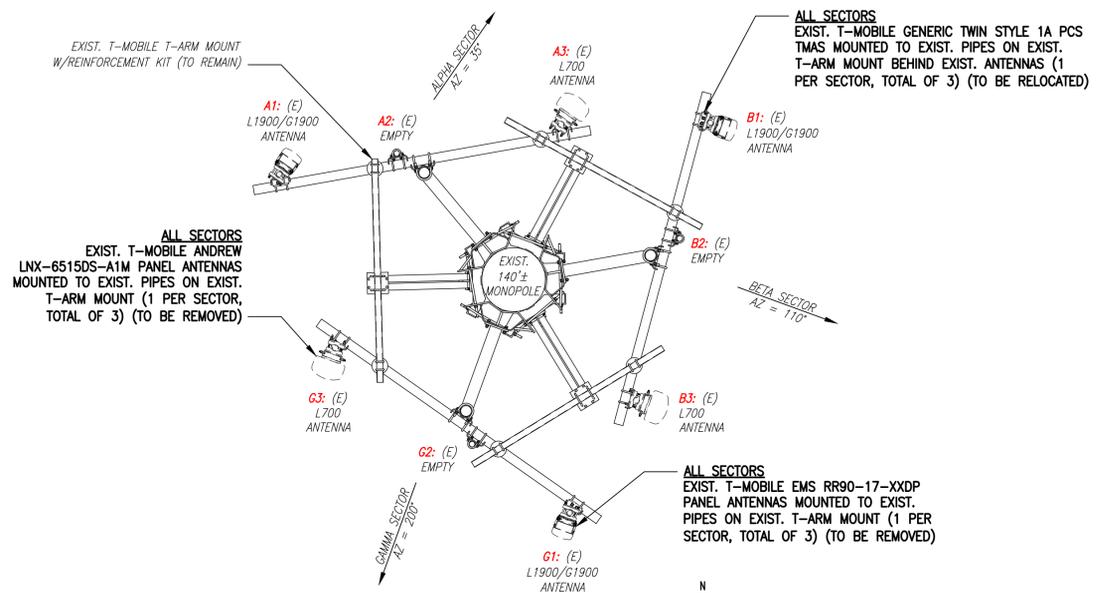
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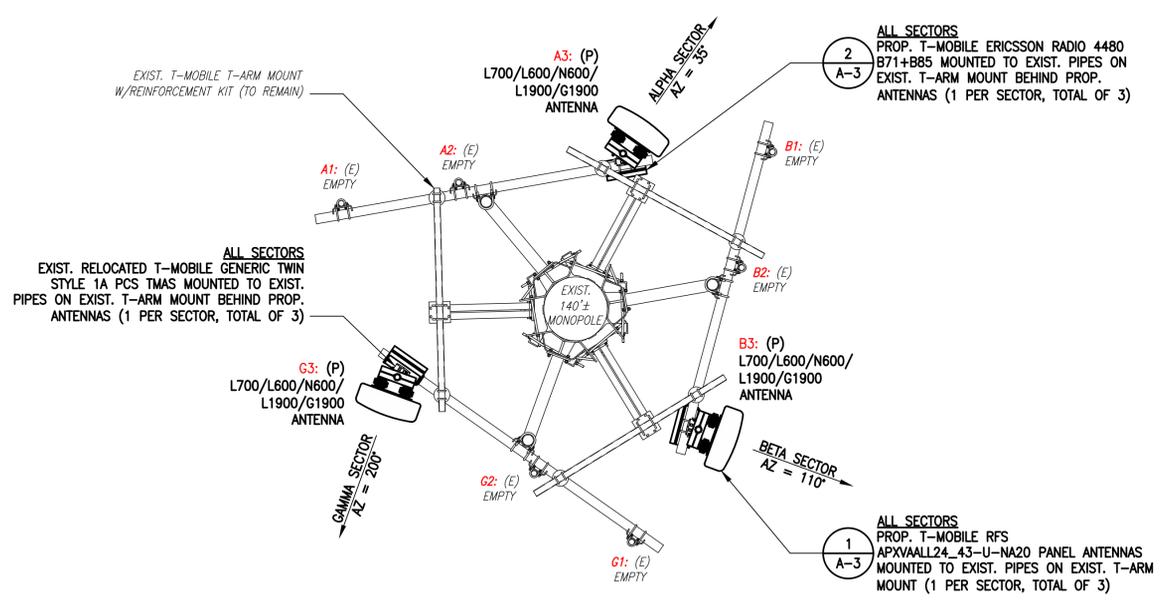
EXISTING TOWER PHOTO 1
 SCALE: N.T.S. A-2



TOWER ELEVATION 2
 SCALE: 3/32" = 1'-0"
 0 10'-8" 21'-4" 32'-0"



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



PROPOSED ANTENNA PLAN 5
 SCALE: N.T.S. A-2

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

**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



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

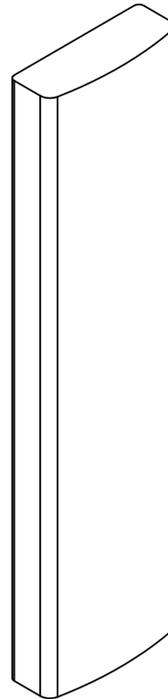
SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION	CMC

SITE NUMBER:
CTNH370A

SITE ADDRESS:
425 LITCHFIELD ROAD
NEW MILFORD, CT 06776

SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.5"D
WEIGHT: 122.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ANTENNA DETAIL

SCALE: N.T.S.



ERICSSON RADIO 4480 B71+B85

DIMENSIONS: 19.2"H x 15.1"W x 7.5"D
WEIGHT: 92.6 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAIL

SCALE: N.T.S.



FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1	EMPTY PIPE	-	-	-	-	-	EXIST. (3) 1-5/8" COAX CABLES PROP. (1) 2" (6x24) HCS FIBER CABLE
	A2	EMPTY PIPE	-	-	-	-	-	
	A3	RFS APXVAALL24_43-U-NA20	137'± AGL	35'	-	-	L700/L600/N600 L1900/G1900 ERICSSON RADIO 4480 B71+B85 GENERIC TWIN STYLE 1A PCS TMA	
BETA	B1	EMPTY PIPE	-	-	-	-	-	
	B2	EMPTY PIPE	-	-	-	-	-	
	B3	RFS APXVAALL24_43-U-NA20	137'± AGL	110'	-	-	L700/L600/N600 L1900/G1900 ERICSSON RADIO 4480 B71+B85 GENERIC TWIN STYLE 1A PCS TMA	
GAMMA	G1	EMPTY PIPE	-	-	-	-	-	
	G2	EMPTY PIPE	-	-	-	-	-	
	G3	RFS APXVAALL24_43-U-NA20	137'± AGL	200'	-	-	L700/L600/N600 L1900/G1900 ERICSSON RADIO 4480 B71+B85 GENERIC TWIN STYLE 1A PCS TMA	

CABLE NOTE: EXISTING (2) 1-5/8" COAX CABLES TO BE REMOVED. EXISTING (13) 1-5/8" COAX CABLES TO REMAIN DISCONNECTED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV3 - 03/09/22

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAX FOR GPS ANTENNA (3) 1-5/8" COAX CABLES (13) 1-5/8" COAX CABLES (CAPPED & WRAPPED) EXISTING TO BE REMOVED: (2) 1-5/8" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) 2" (6x24) HCS FIBER CABLE	

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

T-MOBILE NORTHEAST LLC

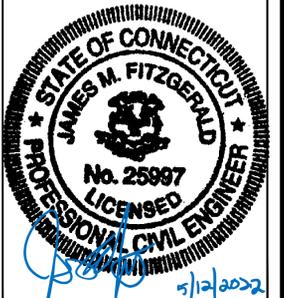
15 COMMERCE WAY, SUITE B
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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION CMC	

SITE NUMBER:
CTNH370A

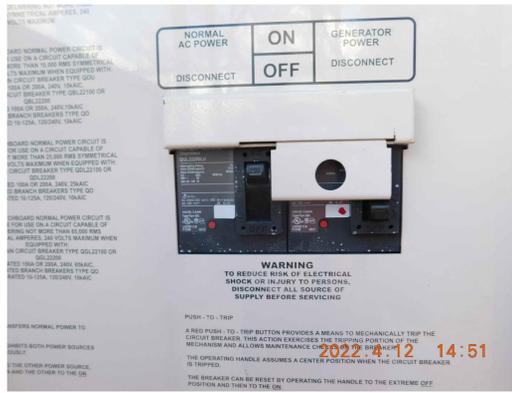
SITE ADDRESS:
425 LITCHFIELD ROAD
NEW MILFORD, CT 06776

SHEET TITLE

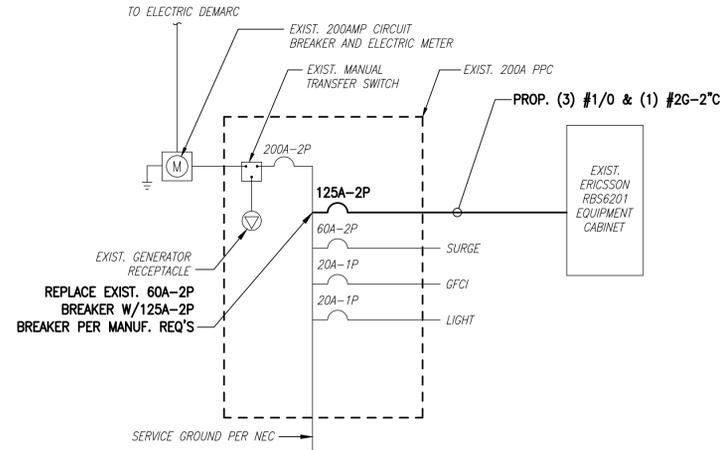
ANTENNA &
FEEDLINE CHARTS

SHEET NUMBER

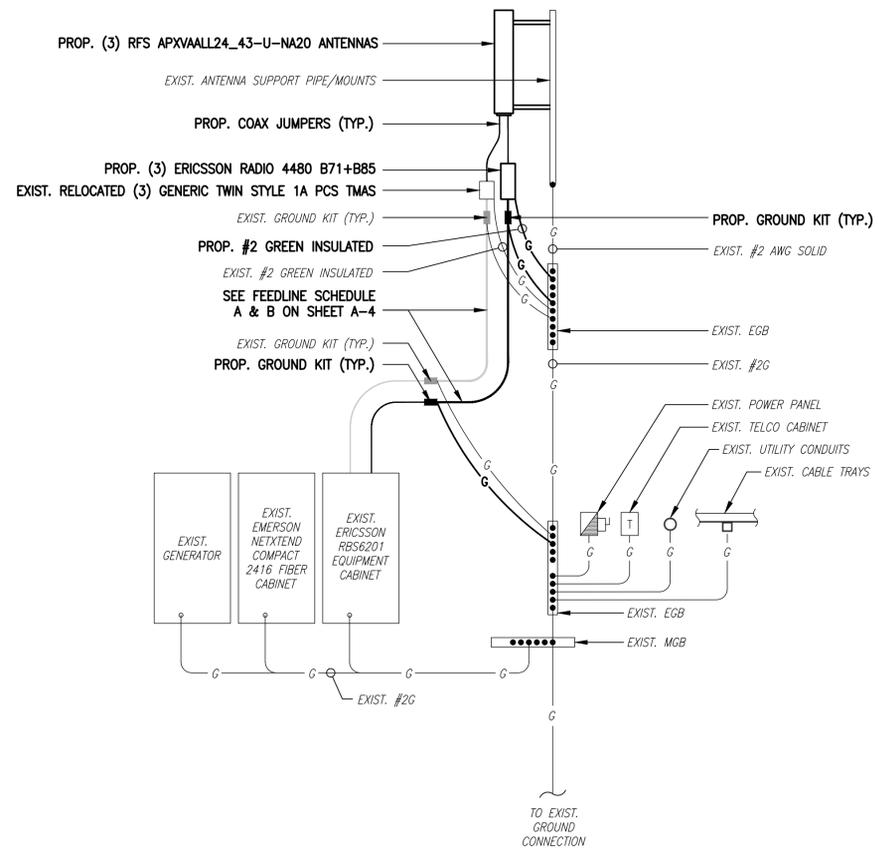
A-4



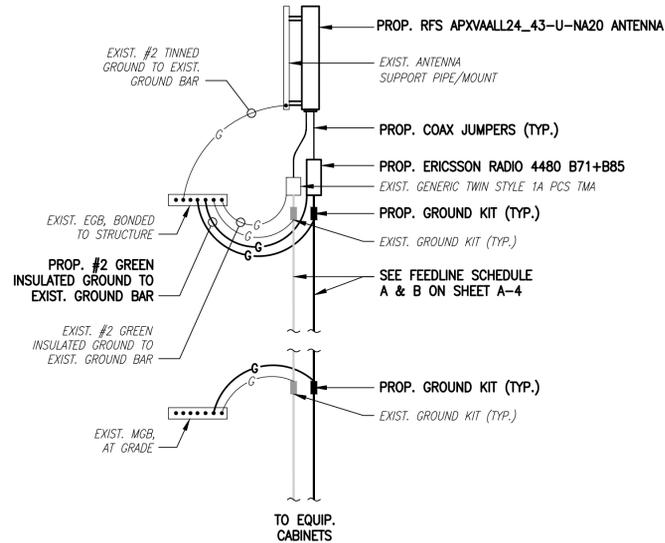
EXISTING POWER PANEL PHOTOS 1
SCALE: NOT TO SCALE E-1



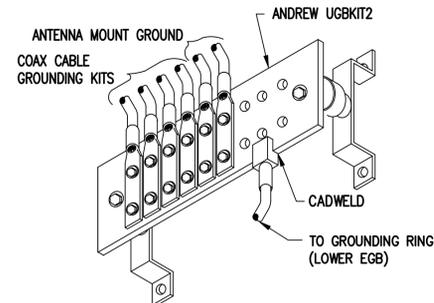
ONE LINE DIAGRAM 2
SCALE: NOT TO SCALE E-1



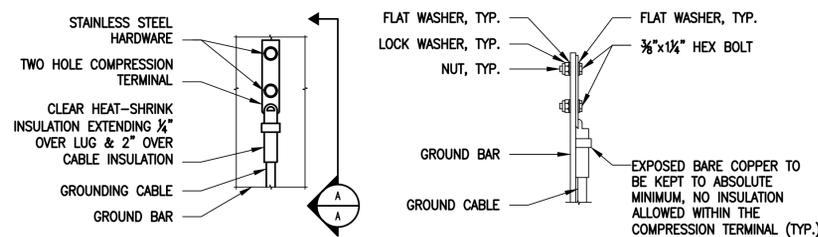
GROUNDING RISER DIAGRAM 3
SCALE: NOT TO SCALE E-1



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



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



TYPICAL GROUND BAR CONNECTIONS DETAIL 6
SCALE: NOT TO SCALE E-1

ELECTRICAL AND GROUNDING NOTES

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- 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.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT 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.
- 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.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL 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.
- 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.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- 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.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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

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



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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION	CMC

SITE NUMBER:
CTNH370A

SITE ADDRESS:
425 LITCHFIELD ROAD
NEW MILFORD, CT 06776

SHEET TITLE
**ELECTRIC & GROUNDING
DETAILS & PHOTOS**

SHEET NUMBER
E-1

Exhibit D

Structural Analysis Report

SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

T + 561 995 7670
F + 561 995 7626

sbsite.com



Structural Analysis Report

Client: T-Mobile

Client Site ID / Name: CTNH370A / CT370/opta/Drzal FT
Application #: 194487, v1

SBA Site ID / Name: CT13530-S / Martin 5, CT

140 ft Monopole

425 Litchfield Road
New Milford, Connecticut 06776
Lat: 41.646722, Long: -73.387250

Project number: CT13530-TMO-042222

Analysis Results

Tower	38.1%	Pass
Foundation	42.0%	Pass

Change in tower stress due to mount modification / replacement	N/A
----------------------------------------------------------------	-----

Prepared by:

Jaffar Alqazzaz, E.I.
Structural Engineer I
(561) 226-9579
JAlqazzaz@sbsite.com

Reviewed by:

Anantha (Shan) Shanubhogue, P.E.
Senior Manager, Structural Engineering
(561) 981-7390
SShanubhogue@sbsite.com

April 25, 2022



04/26/22

Introduction

Table 1 List of Documents Used

Item	Document
Tower design/drawings	Rd 581 1 2 7
Foundation drawings	Rd 581 1 2 7
Geotechnical report	2 8515 18 2 8
Mount Analysis	128127 25 22
Latest SA	1 27 18 2 21

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	M rd
Governing Codes	222 2 15 2 18
Basic Wind Speed (3-Sec gust)	12
Wind Speed with Ice (3-Sec gust)	
Service Wind Speed (3-Sec gust)	
Ice Thickness	0.75"
Structural Class*	
Exposure Category	
Topographic Category	1
Crest Height	
Ground Elevation	8
Seismic Parameter S _s **	1
Seismic Parameter S ₁	5

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	140.0	3	RFS APX16PV-16VL-E - Panel	(3) T-Arms w/ Support Kit [SitePro1 PRK-1245]	(18) 1 5/8"	T-Mobile
2		3	EMS RR90-17-02DP - Panel			
3		3	Commscope LNX-6515DS-VTM - Panel			
4		3	Ericsson KRY 112 489/2			
5		3	Kathrein 782 11056			
6	95.0	3	JMA Wireless MX08FRO665-21 - Panel	Low Profile Platform w/ Handrails [Commscope MC-PK8-DSH]	(1) 1.6" Hybrid	Dish Wireless
7		3	Fujitsu TA08025-B605 RRU			
8		3	Fujitsu TA08025-B604 RRU			
9		1	Raycap RDIDC-9181-PF-48-OVP			

Proposed Loading:

Table 4 Proposed Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	140.0	3	RFS APX16PV-16VL-E - Panel	(3) T-Arms w/ Support Kit [SitePro1 PRK-1245]	(16) 1 5/8" (1) 1.9" Fiber	T-Mobile
2		3	EMS RR90-17-02DP - Panel			
3	137.0	3	RFS APXVAALL24_43-U-NA20 - Panel			
4		3	Ericsson 4480 B71 + B85			
5		3	Ericsson KRY 112 489/2			
6		3	Kathrein 782 11056			



□

□
□
□
□

Appendix

Usage Diagram - Max Ratio 31.12% at 0.0ft

Structure: CT13530-S
Site Name: Martin 5, CT
Height: 140.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

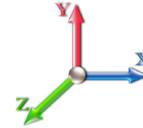
4/25/2022



Page: 1

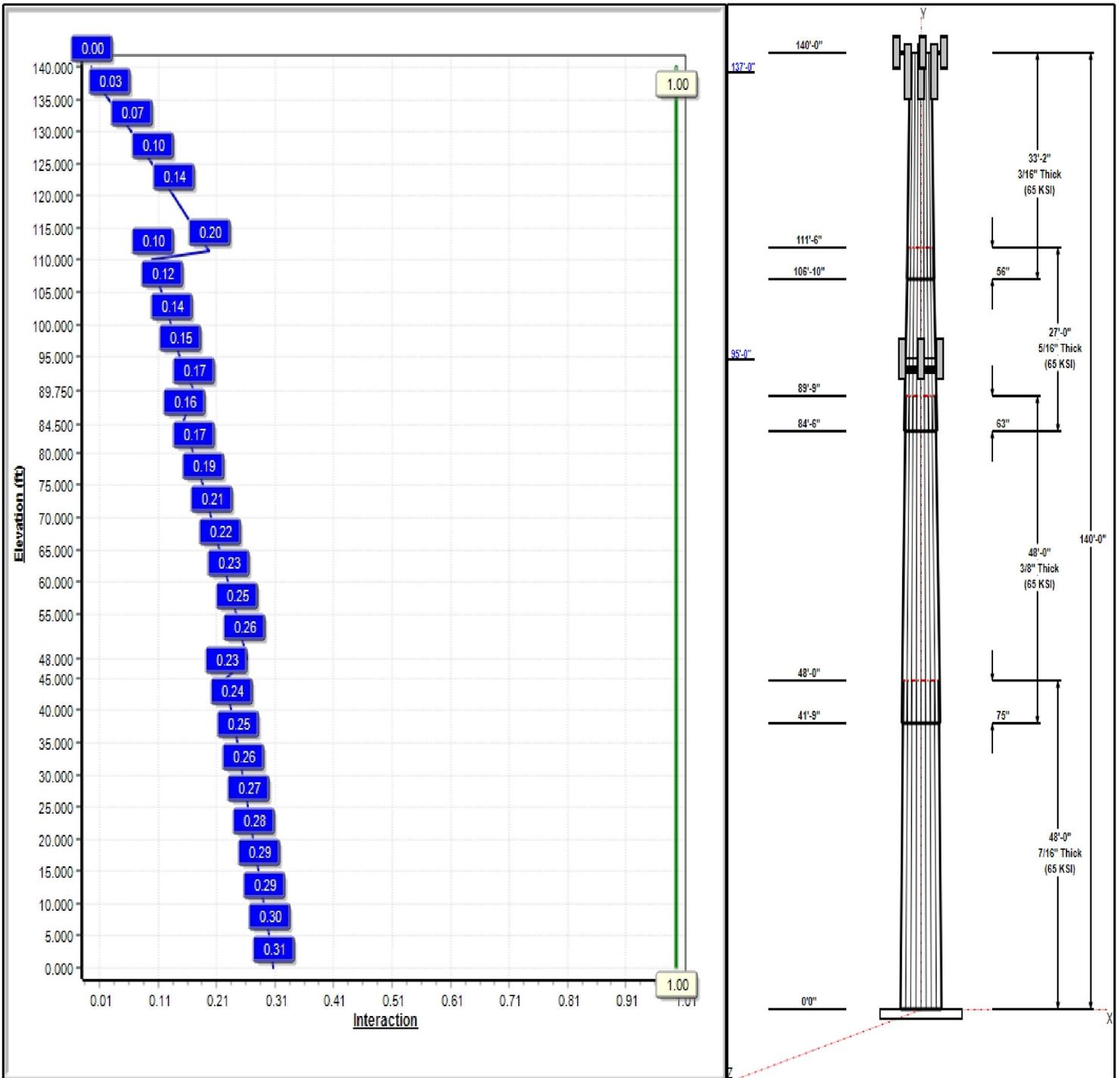
Dead Load Factor: 1.20
 Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 93 mph Wind



Iterations: 20

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Structure: CT13530-S

Type: Tapered
Site Name: Martin 5, CT
Height: 140.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.21679

4/25/2022

Page: 2



Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	48.59	59.00	0.438		0.21679	65
2	48.00	40.29	50.70	0.375	Slip	0.21679	65
3	27.00	36.20	42.06	0.313	Slip	0.21679	65
4	33.17	30.40	37.59	0.188	Slip	0.21679	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
140.00	140.00	3	RFS APX16PV-16VL-E	T-Mobile
140.00	140.00	3	EMS RR90-17-02DP	T-Mobile
140.00	140.00	3	T-Arm	T-Mobile
140.00	140.00	1	PRK-1245 (kicker kit)	T-Mobile
137.00	137.00	3	Ericsson KRY 112 489/2	T-Mobile
137.00	137.00	3	Kathrein 782 11056	T-Mobile
137.00	137.00	3	RFS	T-Mobile
137.00	137.00	3	Ericsson 4480 B71 + B85	T-Mobile
95.00	95.00	3	JMA Wireless	Dish Wireless
95.00	95.00	1	MC-PK8-DSH w/ (3)	Dish Wireless
95.00	95.00	3	Fujitsu TA08025-B605	Dish Wireless
95.00	95.00	3	Fujitsu TA08025-B604	Dish Wireless
95.00	95.00	1	Raycap	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	140.00	Inside	1 5/8" Coax	T-Mobile
0.00	140.00	Inside	1.9" Fiber	T-Mobile
0.00	140.00	Outside	Safety Cable	
0.00	140.00	Outside	Step bolts (ladder)	
0.00	95.00	Inside	1.6" Hybrid	Dish Wireless

Anchor Bolts

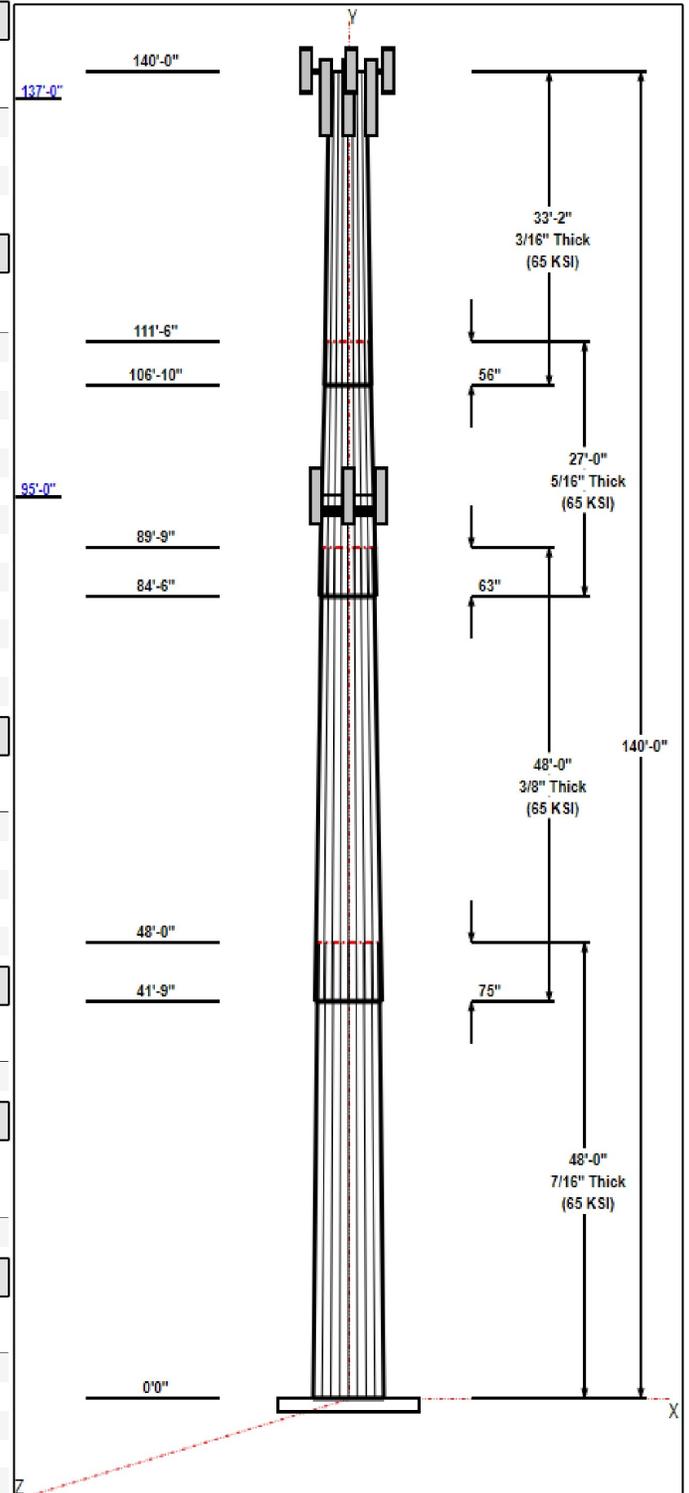
Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	71.5	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2012.0	22.2	40.6
0.9D + 1.6W 93 mph Wind	2003.7	22.2	30.5
1.2D + 1.0Di + 1.0Wi 40 mph Wind	407.3	4.6	58.7
1.2D + 1.0E	142.4	1.4	40.7
0.9D + 1.0E	141.8	1.4	30.5
1.0D + 1.0W 60 mph Wind	522.0	5.8	33.9



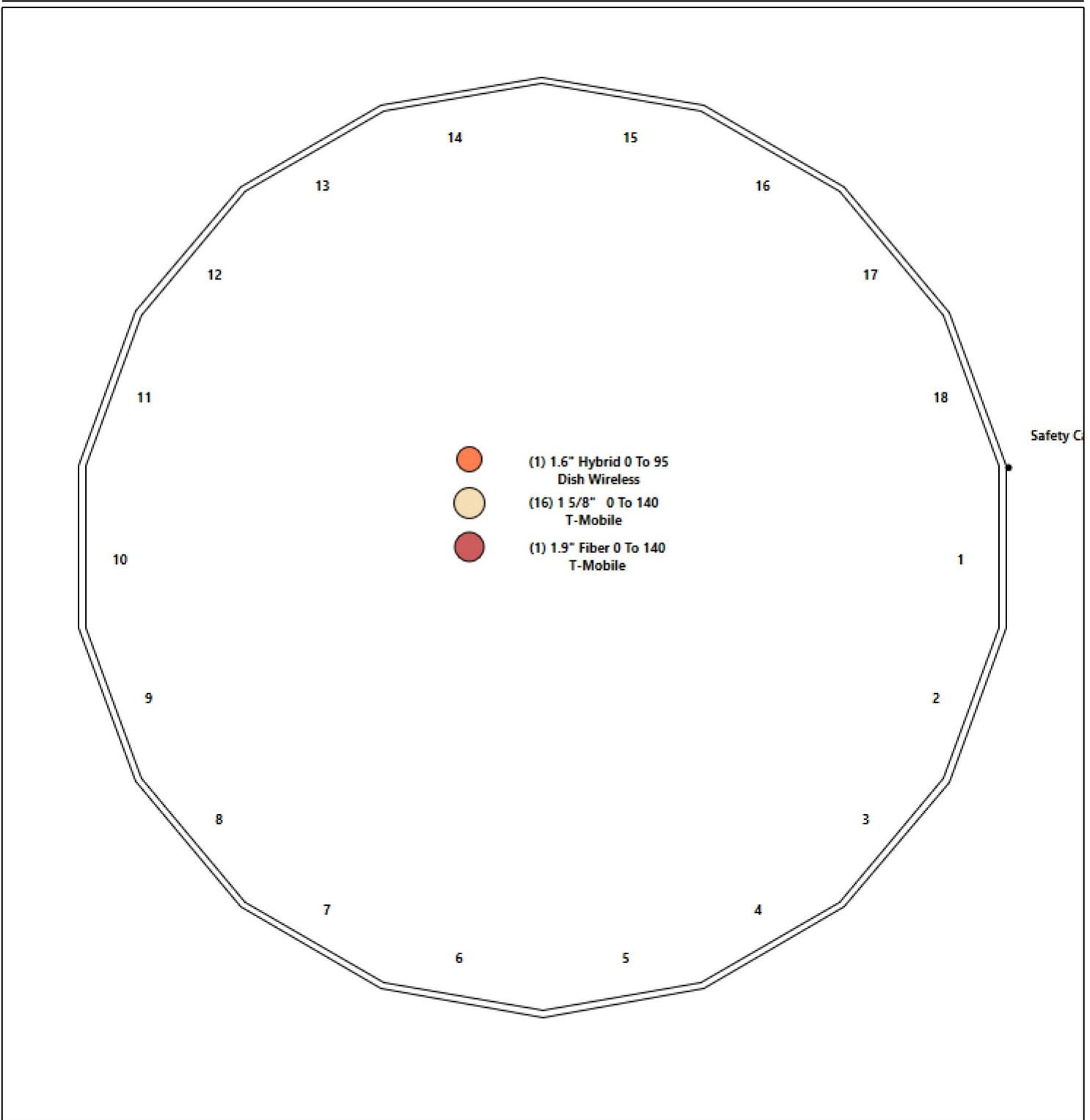
Structure: CT13530-S - Coax Line Placement

Type: Monopole
Site Name: Martin 5, CT
Height: 140.00 (ft)

4/25/2022



Page: 3



Shaft Properties

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 4



Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.4375	65		0.00	12,102
2	18	48.000	0.3750	65	Slip	75.00	8,772
3	18	27.000	0.3125	65	Slip	63.00	3,537
4	18	33.167	0.1875	65	Slip	56.00	2,271
Total Shaft Weight:							26,681

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	59.00	0.00	81.32	35235.57	22.37	134.86	48.59	48.00	66.87	19592.7	18.17	111.0	0.216786
2	50.70	41.75	59.90	19164.88	22.43	135.20	40.29	89.75	47.51	9565.28	17.54	107.4	0.216786
3	42.06	84.50	41.40	9115.49	22.32	134.58	36.20	111.50	35.60	5793.58	19.02	115.8	0.216786
4	37.59	106.8	22.26	3934.14	33.94	200.48	30.40	140.00	17.98	2073.51	27.18	162.1	0.216786

Load Summary

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	140.00	RFS APX16PV-16VL-E	3	39.60	6.04	0.66	173.03	7.074	0.69	0.00	0.00
2	140.00	EMS RR90-17-02DP	3	18.00	4.36	0.73	111.48	5.303	0.75	0.00	0.00
3	140.00	T-Arm	3	400.00	8.13	1.00	899.17	15.175	1.00	0.00	0.00
4	140.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	787.23	19.379	1.00	0.00	0.00
5	137.00	Ericsson KRY 112 489/2	3	15.40	0.56	0.83	31.40	0.881	0.85	0.00	0.00
6	137.00	Kathrein 782 11056	3	1.80	0.15	0.79	6.32	0.334	0.84	0.00	0.00
7	137.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.72	569.64	22.088	0.73	0.00	0.00
8	137.00	Ericsson 4480 B71 + B85	3	93.00	2.42	0.75	153.35	3.031	0.77	0.00	0.00
9	95.00	JMA Wireless MX08FRO665-21	3	64.50	12.49	0.73	339.98	13.881	0.75	0.00	0.00
10	95.00	MC-PK8-DSH w/ (3) Antenna Pipes	1	1200.00	34.24	1.00	2640.54	62.784	1.00	0.00	0.00
11	95.00	Fujitsu TA08025-B605 RRU	3	74.96	1.96	0.80	124.40	2.489	0.82	0.00	0.00
12	95.00	Fujitsu TA08025-B604 RRU	3	63.93	1.96	0.76	111.81	2.489	0.78	0.00	0.00
13	95.00	Raycap RDIDC-9181-PF-48-OVP	1	21.85	2.01	0.78	71.61	2.546	0.80	0.00	0.00
Totals:			33	4,368.73			11,061.12				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	140.00	(16) 1 5/8" Coax	0.00	Inside
0.00	140.00	(1) 1.9" Fiber	0.00	Inside
0.00	140.00	(1) Safety Cable	0.38	Outside
0.00	140.00	(1) Step bolts (ladder)	0.63	Outside
0.00	95.00	(1) 1.6" Hybrid	0.00	Inside

Shaft Section Properties

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

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		0.4375	59.000	81.318	35235.6	22.37	134.86	75.1	1176.	0.0
5.00		0.4375	57.916	79.813	33315.0	21.93	132.38	75.6	1133.	1370.7
10.00		0.4375	56.832	78.308	31465.6	21.49	129.90	76.1	1090.	1345.1
15.00		0.4375	55.748	76.803	29685.9	21.06	127.42	76.6	1048.	1319.5
20.00		0.4375	54.664	75.298	27974.6	20.62	124.95	77.1	1008.	1293.9
25.00		0.4375	53.580	73.793	26330.4	20.18	122.47	77.7	967.9	1268.3
30.00		0.4375	52.496	72.288	24751.9	19.75	119.99	78.2	928.7	1242.7
35.00		0.4375	51.413	70.783	23237.8	19.31	117.51	78.7	890.2	1217.1
40.00		0.4375	50.329	69.277	21786.7	18.87	115.04	79.2	852.6	1191.5
41.75	Bot - Section 2	0.4375	49.949	68.751	21293.4	18.72	114.17	79.4	839.7	411.0
45.00		0.4375	49.245	67.772	20397.3	18.44	112.56	79.7	815.8	1412.7
48.00	Top - Section 1	0.3750	49.344	58.284	17658.2	21.79	131.58	0.0	0.0	1286.2
50.00		0.3750	48.911	57.768	17193.3	21.59	130.43	76.0	692.4	394.9
55.00		0.3750	47.827	56.477	16066.9	21.08	127.54	76.6	661.7	971.9
60.00		0.3750	46.743	55.187	14990.9	20.57	124.65	77.2	631.7	949.9
65.00		0.3750	45.659	53.897	13963.9	20.06	121.76	77.8	602.4	928.0
70.00		0.3750	44.575	52.607	12985.0	19.55	118.87	78.4	573.8	906.0
75.00		0.3750	43.491	51.317	12052.9	19.04	115.98	79.0	545.9	884.1
80.00		0.3750	42.407	50.027	11166.6	18.53	113.09	79.6	518.6	862.1
84.50	Bot - Section 3	0.3750	41.432	48.866	10407.0	18.07	110.48	80.1	494.7	757.1
85.00		0.3750	41.323	48.737	10324.8	18.02	110.20	80.2	492.1	153.4
89.75	Top - Section 2	0.3125	40.918	40.275	8390.0	21.68	130.94	0.0	0.0	1437.1
90.00		0.3125	40.864	40.221	8356.5	21.65	130.77	75.9	402.8	34.2
95.00		0.3125	39.780	39.146	7704.2	21.04	127.30	76.7	381.5	675.2
100.00		0.3125	38.696	38.071	7086.7	20.42	123.83	77.4	360.7	656.9
105.00		0.3125	37.613	36.996	6503.1	19.81	120.36	78.1	340.5	638.6
106.83	Bot - Section 4	0.3125	37.215	36.601	6297.4	19.59	119.09	78.4	333.3	229.6
110.00		0.3125	36.529	35.921	5952.5	19.20	116.89	78.8	321.0	628.4
111.50	Top - Section 3	0.1875	36.578	21.656	3623.5	32.99	195.08	0.0	0.0	293.6
115.00		0.1875	35.820	21.205	3401.5	32.27	191.04	63.4	187.0	255.2
120.00		0.1875	34.736	20.560	3100.4	31.26	185.26	64.6	175.8	355.3
125.00		0.1875	33.652	19.915	2817.7	30.24	179.48	65.8	164.9	344.3
130.00		0.1875	32.568	19.270	2552.6	29.22	173.70	67.0	154.4	333.3
135.00		0.1875	31.484	18.625	2304.8	28.20	167.91	68.2	144.2	322.4
137.00		0.1875	31.050	18.367	2210.3	27.79	165.60	68.7	140.2	125.9
140.00		0.1875	30.400	17.980	2073.5	27.18	162.13	69.4	134.3	185.5

26681.5

Wind Loading - Shaft

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

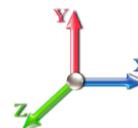


Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.60



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	0.85	17.879	19.67	428.07	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	420.20	0.650	0.000	5.00	24.733	16.08	505.9	0.0	1644.9
10.00		1.00	0.85	17.879	19.67	412.34	0.650	0.000	5.00	24.275	15.78	496.5	0.0	1614.2
15.00		1.00	0.85	17.879	19.67	404.47	0.650	0.000	5.00	23.816	15.48	487.1	0.0	1583.4
20.00		1.00	0.90	18.971	20.87	408.54	0.650	0.000	5.00	23.357	15.18	506.9	0.0	1552.7
25.00		1.00	0.95	19.883	21.87	409.95	0.650	0.000	5.00	22.899	14.88	520.9	0.0	1522.0
30.00		1.00	0.98	20.661	22.73	409.44	0.650	0.000	5.00	22.440	14.59	530.4	0.0	1491.2
35.00		1.00	1.01	21.343	23.48	407.55	0.650	0.000	5.00	21.982	14.29	536.7	0.0	1460.5
40.00		1.00	1.04	21.951	24.15	404.60	0.650	0.000	5.00	21.523	13.99	540.5	0.0	1429.8
41.75	Bot - Section 2	1.00	1.05	22.150	24.36	403.37	0.650	0.000	1.75	7.425	4.83	188.1	0.0	493.2
45.00		1.00	1.07	22.502	24.75	400.83	0.650	0.000	3.25	13.846	9.00	356.4	0.0	1695.2
48.00	Top - Section 1	1.00	1.08	22.810	25.09	398.23	0.650	0.000	3.00	12.609	8.20	329.0	0.0	1543.4
50.00		1.00	1.09	23.007	25.31	402.55	0.650	0.000	2.00	8.314	5.40	218.8	0.0	473.9
55.00		1.00	1.12	23.473	25.82	397.60	0.650	0.000	5.00	20.465	13.30	549.5	0.0	1166.3
60.00		1.00	1.14	23.907	26.30	392.16	0.650	0.000	5.00	20.006	13.00	547.2	0.0	1139.9
65.00		1.00	1.16	24.313	26.74	386.31	0.650	0.000	5.00	19.547	12.71	543.7	0.0	1113.6
70.00		1.00	1.17	24.696	27.17	380.09	0.650	0.000	5.00	19.089	12.41	539.3	0.0	1087.2
75.00		1.00	1.19	25.057	27.56	373.55	0.650	0.000	5.00	18.630	12.11	534.0	0.0	1060.9
80.00		1.00	1.21	25.400	27.94	366.72	0.650	0.000	5.00	18.172	11.81	528.0	0.0	1034.6
84.50	Bot - Section 3	1.00	1.22	25.694	28.26	360.36	0.650	0.000	4.50	15.962	10.38	469.2	0.0	908.6
85.00		1.00	1.22	25.726	28.30	359.64	0.650	0.000	0.50	1.777	1.16	52.3	0.0	184.1
89.75	Top - Section 2	1.00	1.24	26.022	28.62	352.69	0.650	0.000	4.75	16.654	10.82	495.8	0.0	1724.5
90.00		1.00	1.24	26.037	28.64	357.79	0.650	0.000	0.25	0.865	0.56	25.8	0.0	41.1
95.00	Appurtenance(s)	1.00	1.25	26.336	28.97	350.29	0.650	0.000	5.00	17.060	11.09	514.0	0.0	810.2
100.00		1.00	1.27	26.621	29.28	342.59	0.650	0.000	5.00	16.602	10.79	505.6	0.0	788.3
105.00		1.00	1.28	26.896	29.59	334.71	0.650	0.000	5.00	16.143	10.49	496.7	0.0	766.3
106.83	Bot - Section 4	1.00	1.28	26.995	29.69	331.77	0.650	0.000	1.83	5.804	3.77	179.2	0.0	275.5
110.00		1.00	1.29	27.161	29.88	326.66	0.650	0.000	3.17	9.981	6.49	310.1	0.0	754.0
111.50	Top - Section 3	1.00	1.29	27.239	29.96	324.21	0.650	0.000	1.50	4.663	3.03	145.3	0.0	352.3
115.00		1.00	1.30	27.416	30.16	321.82	0.650	0.000	3.50	10.721	6.97	336.3	0.0	306.3
120.00		1.00	1.32	27.663	30.43	313.48	0.650	0.000	5.00	14.926	9.70	472.4	0.0	426.3
125.00		1.00	1.33	27.902	30.69	305.01	0.650	0.000	5.00	14.467	9.40	461.8	0.0	413.2
130.00		1.00	1.34	28.133	30.95	296.40	0.650	0.000	5.00	14.009	9.11	450.9	0.0	400.0
135.00		1.00	1.35	28.358	31.19	287.68	0.650	0.000	5.00	13.550	8.81	439.6	0.0	386.8
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	284.16	0.650	0.000	2.00	5.292	3.44	172.2	0.0	151.0
140.00	Appurtenance(s)	1.00	1.36	28.576	31.43	278.84	0.650	0.000	3.00	7.800	5.07	255.0	0.0	222.6
Totals:									140.00			14,241.1		32,017.8

Discrete Appurtenance Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

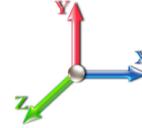


Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.60



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	140.00	PRK-1245 (kicker kit)	1	28.576	31.433	1.00	1.00	1.00	9.50	557.89	0.000	0.000	477.78	0.00	0.00
2	140.00	T-Arm	3	28.576	31.433	1.00	1.00	1.00	24.39	1440.00	0.000	0.000	1226.65	0.00	0.00
3	140.00	EMS RR90-17-02DP	3	28.576	31.433	0.66	0.90	0.90	8.59	64.80	0.000	0.000	432.20	0.00	0.00
4	140.00	RFS APX16PV-16VL-E	3	28.576	31.433	0.59	0.90	0.90	10.76	142.56	0.000	0.000	541.32	0.00	0.00
5	137.00	Ericsson 4480 B71 + B85	3	28.446	31.290	0.68	0.90	0.90	4.90	334.80	0.000	0.000	245.34	0.00	0.00
6	137.00	RFS	3	28.446	31.290	0.65	0.90	0.90	39.35	442.08	0.000	0.000	1969.86	0.00	0.00
7	137.00	Kathrein 782 11056	3	28.446	31.290	0.71	0.90	0.90	0.32	6.48	0.000	0.000	16.02	0.00	0.00
8	137.00	Ericsson KRY 112 489/2	3	28.446	31.290	0.75	0.90	0.90	1.25	55.44	0.000	0.000	62.83	0.00	0.00
9	95.00	Raycap	1	26.336	28.969	0.62	0.80	0.80	1.25	26.22	0.000	0.000	58.13	0.00	0.00
10	95.00	Fujitsu TA08025-B604	3	26.336	28.969	0.61	0.80	0.80	3.58	230.15	0.000	0.000	165.71	0.00	0.00
11	95.00	Fujitsu TA08025-B605	3	26.336	28.969	0.64	0.80	0.80	3.76	269.86	0.000	0.000	174.43	0.00	0.00
12	95.00	MC-PK8-DSH w/ (3)	1	26.336	28.969	1.00	1.00	1.00	34.24	1440.00	0.000	0.000	1587.04	0.00	0.00
13	95.00	JMA Wireless	3	26.336	28.969	0.58	0.80	0.80	21.88	232.20	0.000	0.000	1014.27	0.00	0.00
Totals:									5,242.48				7,971.57		

Total Applied Force Summary

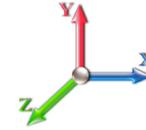
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 9

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 20

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		505.89	1769.52	0.00	0.00
10.00		496.51	1738.79	0.00	0.00
15.00		487.13	1708.07	0.00	0.00
20.00		506.91	1677.34	0.00	0.00
25.00		520.86	1646.61	0.00	0.00
30.00		530.40	1615.88	0.00	0.00
35.00		536.70	1585.15	0.00	0.00
40.00		540.49	1554.42	0.00	0.00
41.75		188.14	536.79	0.00	0.00
45.00		356.43	1776.21	0.00	0.00
48.00		329.03	1618.18	0.00	0.00
50.00		218.83	523.73	0.00	0.00
55.00		549.54	1290.89	0.00	0.00
60.00		547.16	1264.55	0.00	0.00
65.00		543.70	1238.21	0.00	0.00
70.00		539.29	1211.87	0.00	0.00
75.00		534.04	1185.53	0.00	0.00
80.00		528.02	1159.19	0.00	0.00
84.50		469.20	1020.75	0.00	0.00
85.00		52.30	196.52	0.00	0.00
89.75		495.77	1842.88	0.00	0.00
90.00		25.77	47.32	0.00	0.00
95.00	(11) attachments	3513.56	3133.26	0.00	0.00
100.00		505.60	901.97	0.00	0.00
105.00		496.71	880.02	0.00	0.00
106.83		179.24	317.17	0.00	0.00
110.00		310.12	826.07	0.00	0.00
111.50		145.32	386.38	0.00	0.00
115.00		336.26	385.88	0.00	0.00
120.00		472.35	540.06	0.00	0.00
125.00		461.79	526.89	0.00	0.00
130.00		450.86	513.73	0.00	0.00
135.00		439.58	500.56	0.00	0.00
137.00	(12) attachments	2466.24	1035.33	0.00	0.00
140.00	(10) attachments	2932.93	2496.10	0.00	0.00
	Totals:	22,212.66	40,651.82	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	17.879	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	17.879	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	17.879	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	17.879	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	17.879	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	17.879	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	18.971	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	18.971	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.883	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.883	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.661	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.661	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.343	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.343	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	21.951	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	21.951	0.00	6.24
41.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.020	0.000	22.150	0.00	0.57
41.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.020	0.000	22.150	0.00	2.18
45.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.020	0.000	22.502	0.00	1.06
45.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.020	0.000	22.502	0.00	4.06
48.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.020	0.000	22.810	0.00	0.98
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.020	0.000	22.810	0.00	3.74
50.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.020	0.000	23.007	0.00	0.66
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.020	0.000	23.007	0.00	2.50
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	23.473	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	23.473	0.00	6.24
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	23.907	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	23.907	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	24.313	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	24.313	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	24.696	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	24.696	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	25.057	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	25.057	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	25.400	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	25.400	0.00	6.24
84.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.024	0.000	25.694	0.00	1.47
84.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.024	0.000	25.694	0.00	5.62
85.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.024	0.000	25.726	0.00	0.16
85.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.024	0.000	25.726	0.00	0.62
89.75	Safety Cable	Yes	4.75	0.000	0.38	0.15	0.00	0.024	0.000	26.022	0.00	1.56
89.75	Step bolts (ladder)	Yes	4.75	0.000	0.63	0.25	0.00	0.024	0.000	26.022	0.00	5.93
90.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.024	0.000	26.037	0.00	0.08
90.00	Step bolts (ladder)	Yes	0.25	0.000	0.63	0.01	0.00	0.024	0.000	26.037	0.00	0.31
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	26.336	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	26.336	0.00	6.24
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	26.621	0.00	1.64

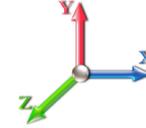
Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	26.621	0.00	6.24
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	26.896	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	26.896	0.00	6.24
106.83	Safety Cable	Yes	1.83	0.000	0.38	0.06	0.00	0.027	0.000	26.995	0.00	0.60
106.83	Step bolts (ladder)	Yes	1.83	0.000	0.63	0.10	0.00	0.027	0.000	26.995	0.00	2.29
110.00	Safety Cable	Yes	3.17	0.000	0.38	0.10	0.00	0.027	0.000	27.161	0.00	1.04
110.00	Step bolts (ladder)	Yes	3.17	0.000	0.63	0.17	0.00	0.027	0.000	27.161	0.00	3.95
111.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.027	0.000	27.239	0.00	0.49
111.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.027	0.000	27.239	0.00	1.87
115.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.027	0.000	27.416	0.00	1.15
115.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.027	0.000	27.416	0.00	4.37
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	27.663	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	27.663	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	27.902	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	27.902	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	28.133	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	28.133	0.00	6.24
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	28.358	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	28.358	0.00	6.24
137.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.032	0.000	28.446	0.00	0.66
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.032	0.000	28.446	0.00	2.50
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	28.576	0.00	0.98
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	28.576	0.00	3.74
Totals:											0.0	220.6

Calculated Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

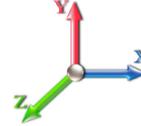


Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.60



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	-40.64	-22.24	0.00	-2012.0	0.00	2012.02	5495.69	2747.85	13229.6	6624.65	0.00	0.000	0.000	0.311
5.00	-38.84	-21.79	0.00	-1900.8	0.00	1900.81	5430.88	2715.44	12829.8	6424.46	0.04	-0.079	0.000	0.303
10.00	-37.07	-21.34	0.00	-1791.8	0.00	1791.88	5364.68	2682.34	12432.6	6225.56	0.17	-0.158	0.000	0.295
15.00	-35.33	-20.89	0.00	-1685.1	0.00	1685.19	5297.08	2648.54	12038.2	6028.06	0.38	-0.236	0.000	0.286
20.00	-33.63	-20.42	0.00	-1580.7	0.00	1580.72	5228.10	2614.05	11646.7	5832.05	0.67	-0.315	0.000	0.278
25.00	-31.96	-19.94	0.00	-1478.6	0.00	1478.60	5157.72	2578.86	11258.4	5637.61	1.04	-0.392	0.000	0.269
30.00	-30.32	-19.43	0.00	-1378.9	0.00	1378.92	5085.94	2542.97	10873.5	5444.85	1.49	-0.470	0.000	0.259
35.00	-28.72	-18.92	0.00	-1281.7	0.00	1281.74	5012.78	2506.39	10492.1	5253.85	2.02	-0.546	0.000	0.250
40.00	-27.15	-18.39	0.00	-1187.1	0.00	1187.13	4938.23	2469.11	10114.4	5064.72	2.64	-0.622	0.000	0.240
41.75	-26.61	-18.21	0.00	-1154.9	0.00	1154.95	4911.80	2455.90	9983.12	4998.98	2.87	-0.648	0.000	0.237
45.00	-24.82	-17.86	0.00	-1095.7	0.00	1095.76	4862.28	2431.14	9740.60	4877.54	3.33	-0.697	0.000	0.230
48.00	-23.20	-17.52	0.00	-1042.1	0.00	1042.19	4834.86	2417.43	9517.43	4775.81	3.78	-0.742	0.000	0.226
50.00	-22.66	-17.32	0.00	-1007.1	0.00	1007.15	4811.82	2405.91	9304.32	4687.54	4.10	-0.772	0.000	0.221
55.00	-21.35	-16.78	0.00	-920.56	0.00	920.56	4794.03	2402.02	9104.27	4601.78	4.95	-0.852	0.000	0.218
60.00	-20.07	-16.24	0.00	-836.66	0.00	836.66	4781.86	2404.43	8914.76	4527.81	5.89	-0.929	0.000	0.214
65.00	-18.82	-15.70	0.00	-755.46	0.00	755.46	4774.29	2411.14	8734.98	4465.21	6.90	-1.005	0.000	0.210
70.00	-17.60	-15.16	0.00	-676.96	0.00	676.96	4771.33	2421.16	8564.10	4414.06	7.99	-1.078	0.000	0.205
75.00	-16.41	-14.62	0.00	-601.16	0.00	601.16	4772.97	2434.49	8402.33	4374.46	9.16	-1.148	0.000	0.199
80.00	-15.25	-14.09	0.00	-528.04	0.00	528.04	4778.23	2451.12	8249.84	4345.52	10.40	-1.214	0.000	0.192
84.50	-14.23	-13.60	0.00	-464.65	0.00	464.65	4786.77	2471.38	8106.86	4327.85	11.77	-1.271	0.000	0.184
85.00	-14.03	-13.56	0.00	-457.85	0.00	457.85	4787.09	2475.05	8073.82	4320.31	11.71	-1.278	0.000	0.183
89.75	-12.19	-13.02	0.00	-393.46	0.00	393.46	4791.31	2481.65	7949.32	4312.07	13.01	-1.333	0.000	0.176
90.00	-12.14	-13.00	0.00	-390.20	0.00	390.20	4794.94	2484.47	7931.20	4310.00	13.08	-1.336	0.000	0.175
95.00	-9.08	-9.43	0.00	-325.18	0.00	325.18	4800.80	2490.40	7829.75	4303.13	14.51	-1.397	0.000	0.167
100.00	-8.18	-8.91	0.00	-278.06	0.00	278.06	4808.27	2495.64	7744.43	4297.32	16.00	-1.453	0.000	0.160
105.00	-7.31	-8.39	0.00	-233.53	0.00	233.53	4817.36	2500.18	7674.42	4292.67	17.55	-1.504	0.000	0.153
106.83	-6.99	-8.21	0.00	-218.15	0.00	218.15	4818.34	2500.67	7629.81	4288.81	18.13	-1.522	0.000	0.149
110.00	-6.17	-7.88	0.00	-192.16	0.00	192.16	4820.05	2504.02	7594.92	4285.28	19.15	-1.552	0.000	0.143
111.50	-5.79	-7.72	0.00	-180.35	0.00	180.35	4822.14	2507.07	7569.40	4282.06	19.64	-1.565	0.000	0.139
115.00	-5.41	-7.38	0.00	-153.32	0.00	153.32	4826.72	2513.36	7547.23	4279.94	20.80	-1.594	0.000	0.132
120.00	-4.87	-6.90	0.00	-116.42	0.00	116.42	4832.07	2519.04	7528.04	4278.29	22.50	-1.650	0.000	0.124
125.00	-4.36	-6.42	0.00	-81.94	0.00	81.94	4838.03	2524.02	7511.25	4277.33	24.26	-1.696	0.000	0.116
130.00	-3.85	-5.96	0.00	-49.82	0.00	49.82	4844.60	2528.30	7496.04	4277.17	26.05	-1.729	0.000	0.108
135.00	-3.36	-5.50	0.00	-20.03	0.00	20.03	4851.78	2531.89	7482.61	4277.90	27.88	-1.748	0.000	0.101
137.00	-2.41	-3.01	0.00	-9.02	0.00	9.02	4858.86	2534.93	7470.01	4278.58	28.61	-1.752	0.000	0.095
140.00	0.00	-2.93	0.00	0.00	0.00	0.00	4865.57	2537.78	7468.13	4279.60	29.71	-1.754	0.000	0.090

Wind Loading - Shaft

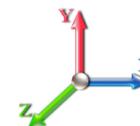
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 13



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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	0.85	17.879	19.67	428.07	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	420.20	0.650	0.000	5.00	24.733	16.08	505.9	0.0	1233.7
10.00		1.00	0.85	17.879	19.67	412.34	0.650	0.000	5.00	24.275	15.78	496.5	0.0	1210.6
15.00		1.00	0.85	17.879	19.67	404.47	0.650	0.000	5.00	23.816	15.48	487.1	0.0	1187.6
20.00		1.00	0.90	18.971	20.87	408.54	0.650	0.000	5.00	23.357	15.18	506.9	0.0	1164.5
25.00		1.00	0.95	19.883	21.87	409.95	0.650	0.000	5.00	22.899	14.88	520.9	0.0	1141.5
30.00		1.00	0.98	20.661	22.73	409.44	0.650	0.000	5.00	22.440	14.59	530.4	0.0	1118.4
35.00		1.00	1.01	21.343	23.48	407.55	0.650	0.000	5.00	21.982	14.29	536.7	0.0	1095.4
40.00		1.00	1.04	21.951	24.15	404.60	0.650	0.000	5.00	21.523	13.99	540.5	0.0	1072.3
41.75	Bot - Section 2	1.00	1.05	22.150	24.36	403.37	0.650	0.000	1.75	7.425	4.83	188.1	0.0	369.9
45.00		1.00	1.07	22.502	24.75	400.83	0.650	0.000	3.25	13.846	9.00	356.4	0.0	1271.4
48.00	Top - Section 1	1.00	1.08	22.810	25.09	398.23	0.650	0.000	3.00	12.609	8.20	329.0	0.0	1157.5
50.00		1.00	1.09	23.007	25.31	402.55	0.650	0.000	2.00	8.314	5.40	218.8	0.0	355.4
55.00		1.00	1.12	23.473	25.82	397.60	0.650	0.000	5.00	20.465	13.30	549.5	0.0	874.7
60.00		1.00	1.14	23.907	26.30	392.16	0.650	0.000	5.00	20.006	13.00	547.2	0.0	854.9
65.00		1.00	1.16	24.313	26.74	386.31	0.650	0.000	5.00	19.547	12.71	543.7	0.0	835.2
70.00		1.00	1.17	24.696	27.17	380.09	0.650	0.000	5.00	19.089	12.41	539.3	0.0	815.4
75.00		1.00	1.19	25.057	27.56	373.55	0.650	0.000	5.00	18.630	12.11	534.0	0.0	795.7
80.00		1.00	1.21	25.400	27.94	366.72	0.650	0.000	5.00	18.172	11.81	528.0	0.0	775.9
84.50	Bot - Section 3	1.00	1.22	25.694	28.26	360.36	0.650	0.000	4.50	15.962	10.38	469.2	0.0	681.4
85.00		1.00	1.22	25.726	28.30	359.64	0.650	0.000	0.50	1.777	1.16	52.3	0.0	138.0
89.75	Top - Section 2	1.00	1.24	26.022	28.62	352.69	0.650	0.000	4.75	16.654	10.82	495.8	0.0	1293.4
90.00		1.00	1.24	26.037	28.64	357.79	0.650	0.000	0.25	0.865	0.56	25.8	0.0	30.8
95.00	Appurtenance(s)	1.00	1.25	26.336	28.97	350.29	0.650	0.000	5.00	17.060	11.09	514.0	0.0	607.7
100.00		1.00	1.27	26.621	29.28	342.59	0.650	0.000	5.00	16.602	10.79	505.6	0.0	591.2
105.00		1.00	1.28	26.896	29.59	334.71	0.650	0.000	5.00	16.143	10.49	496.7	0.0	574.7
106.83	Bot - Section 4	1.00	1.28	26.995	29.69	331.77	0.650	0.000	1.83	5.804	3.77	179.2	0.0	206.6
110.00		1.00	1.29	27.161	29.88	326.66	0.650	0.000	3.17	9.981	6.49	310.1	0.0	565.5
111.50	Top - Section 3	1.00	1.29	27.239	29.96	324.21	0.650	0.000	1.50	4.663	3.03	145.3	0.0	264.2
115.00		1.00	1.30	27.416	30.16	321.82	0.650	0.000	3.50	10.721	6.97	336.3	0.0	229.7
120.00		1.00	1.32	27.663	30.43	313.48	0.650	0.000	5.00	14.926	9.70	472.4	0.0	319.8
125.00		1.00	1.33	27.902	30.69	305.01	0.650	0.000	5.00	14.467	9.40	461.8	0.0	309.9
130.00		1.00	1.34	28.133	30.95	296.40	0.650	0.000	5.00	14.009	9.11	450.9	0.0	300.0
135.00		1.00	1.35	28.358	31.19	287.68	0.650	0.000	5.00	13.550	8.81	439.6	0.0	290.1
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	284.16	0.650	0.000	2.00	5.292	3.44	172.2	0.0	113.3
140.00	Appurtenance(s)	1.00	1.36	28.576	31.43	278.84	0.650	0.000	3.00	7.800	5.07	255.0	0.0	167.0
Totals:									140.00			14,241.1		24,013.3

Discrete Appurtenance Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 0.9D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 0.90

Wind Load Factor 1.60



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	140.00	PRK-1245 (kicker kit)	1	28.576	31.433	1.00	1.00	1.00	9.50	418.42	0.000	0.000	477.78	0.00	0.00
2	140.00	T-Arm	3	28.576	31.433	1.00	1.00	1.00	24.39	1080.00	0.000	0.000	1226.65	0.00	0.00
3	140.00	EMS RR90-17-02DP	3	28.576	31.433	0.66	0.90	0.90	8.59	48.60	0.000	0.000	432.20	0.00	0.00
4	140.00	RFS APX16PV-16VL-E	3	28.576	31.433	0.59	0.90	0.90	10.76	106.92	0.000	0.000	541.32	0.00	0.00
5	137.00	Ericsson 4480 B71 + B85	3	28.446	31.290	0.68	0.90	0.90	4.90	251.10	0.000	0.000	245.34	0.00	0.00
6	137.00	RFS	3	28.446	31.290	0.65	0.90	0.90	39.35	331.56	0.000	0.000	1969.86	0.00	0.00
7	137.00	Kathrein 782 11056	3	28.446	31.290	0.71	0.90	0.90	0.32	4.86	0.000	0.000	16.02	0.00	0.00
8	137.00	Ericsson KRY 112 489/2	3	28.446	31.290	0.75	0.90	0.90	1.25	41.58	0.000	0.000	62.83	0.00	0.00
9	95.00	Raycap	1	26.336	28.969	0.62	0.80	0.80	1.25	19.67	0.000	0.000	58.13	0.00	0.00
10	95.00	Fujitsu TA08025-B604	3	26.336	28.969	0.61	0.80	0.80	3.58	172.61	0.000	0.000	165.71	0.00	0.00
11	95.00	Fujitsu TA08025-B605	3	26.336	28.969	0.64	0.80	0.80	3.76	202.39	0.000	0.000	174.43	0.00	0.00
12	95.00	MC-PK8-DSH w/ (3)	1	26.336	28.969	1.00	1.00	1.00	34.24	1080.00	0.000	0.000	1587.04	0.00	0.00
13	95.00	JMA Wireless	3	26.336	28.969	0.58	0.80	0.80	21.88	174.15	0.000	0.000	1014.27	0.00	0.00
Totals:										3,931.86			7,971.57		

Total Applied Force Summary

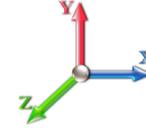
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 15

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 20

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		505.89	1327.14	0.00	0.00
10.00		496.51	1304.10	0.00	0.00
15.00		487.13	1281.05	0.00	0.00
20.00		506.91	1258.00	0.00	0.00
25.00		520.86	1234.95	0.00	0.00
30.00		530.40	1211.91	0.00	0.00
35.00		536.70	1188.86	0.00	0.00
40.00		540.49	1165.81	0.00	0.00
41.75		188.14	402.59	0.00	0.00
45.00		356.43	1332.16	0.00	0.00
48.00		329.03	1213.63	0.00	0.00
50.00		218.83	392.80	0.00	0.00
55.00		549.54	968.17	0.00	0.00
60.00		547.16	948.41	0.00	0.00
65.00		543.70	928.66	0.00	0.00
70.00		539.29	908.90	0.00	0.00
75.00		534.04	889.15	0.00	0.00
80.00		528.02	869.39	0.00	0.00
84.50		469.20	765.56	0.00	0.00
85.00		52.30	147.39	0.00	0.00
89.75		495.77	1382.16	0.00	0.00
90.00		25.77	35.49	0.00	0.00
95.00	(11) attachments	3513.56	2349.95	0.00	0.00
100.00		505.60	676.48	0.00	0.00
105.00		496.71	660.01	0.00	0.00
106.83		179.24	237.88	0.00	0.00
110.00		310.12	619.55	0.00	0.00
111.50		145.32	289.78	0.00	0.00
115.00		336.26	289.41	0.00	0.00
120.00		472.35	405.05	0.00	0.00
125.00		461.79	395.17	0.00	0.00
130.00		450.86	385.29	0.00	0.00
135.00		439.58	375.42	0.00	0.00
137.00	(12) attachments	2466.24	776.50	0.00	0.00
140.00	(10) attachments	2932.93	1872.08	0.00	0.00
	Totals:	22,212.66	30,488.86	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 93 mph Wind

Iterations 20

Dead Load Factor 0.90

Wind Load Factor 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	17.879	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	17.879	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	17.879	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	17.879	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	17.879	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	17.879	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	18.971	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	18.971	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.883	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.883	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.661	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.661	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.343	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.343	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	21.951	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	21.951	0.00	4.68
41.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.020	0.000	22.150	0.00	0.43
41.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.020	0.000	22.150	0.00	1.64
45.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.020	0.000	22.502	0.00	0.80
45.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.020	0.000	22.502	0.00	3.04
48.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.020	0.000	22.810	0.00	0.74
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.020	0.000	22.810	0.00	2.81
50.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.020	0.000	23.007	0.00	0.49
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.020	0.000	23.007	0.00	1.87
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	23.473	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	23.473	0.00	4.68
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	23.907	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	23.907	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	24.313	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	24.313	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	24.696	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	24.696	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	25.057	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	25.057	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	25.400	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	25.400	0.00	4.68
84.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.024	0.000	25.694	0.00	1.11
84.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.024	0.000	25.694	0.00	4.21
85.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.024	0.000	25.726	0.00	0.12
85.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.024	0.000	25.726	0.00	0.47
89.75	Safety Cable	Yes	4.75	0.000	0.38	0.15	0.00	0.024	0.000	26.022	0.00	1.17
89.75	Step bolts (ladder)	Yes	4.75	0.000	0.63	0.25	0.00	0.024	0.000	26.022	0.00	4.45
90.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.024	0.000	26.037	0.00	0.06
90.00	Step bolts (ladder)	Yes	0.25	0.000	0.63	0.01	0.00	0.024	0.000	26.037	0.00	0.23
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	26.336	0.00	1.23
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	26.336	0.00	4.68
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	26.621	0.00	1.23

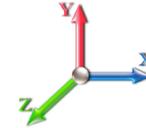
Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	26.621	0.00	4.68
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	26.896	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	26.896	0.00	4.68
106.83	Safety Cable	Yes	1.83	0.000	0.38	0.06	0.00	0.027	0.000	26.995	0.00	0.45
106.83	Step bolts (ladder)	Yes	1.83	0.000	0.63	0.10	0.00	0.027	0.000	26.995	0.00	1.72
110.00	Safety Cable	Yes	3.17	0.000	0.38	0.10	0.00	0.027	0.000	27.161	0.00	0.78
110.00	Step bolts (ladder)	Yes	3.17	0.000	0.63	0.17	0.00	0.027	0.000	27.161	0.00	2.96
111.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.027	0.000	27.239	0.00	0.37
111.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.027	0.000	27.239	0.00	1.40
115.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.027	0.000	27.416	0.00	0.86
115.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.027	0.000	27.416	0.00	3.28
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	27.663	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	27.663	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	27.902	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	27.902	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	28.133	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	28.133	0.00	4.68
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	28.358	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	28.358	0.00	4.68
137.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.032	0.000	28.446	0.00	0.49
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.032	0.000	28.446	0.00	1.87
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	28.576	0.00	0.74
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	28.576	0.00	2.81
Totals:											0.0	165.4

Calculated Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 0.9D + 1.6W 93 mph Wind	Iterations 20
Dead Load Factor 0.90	
Wind Load Factor 1.60	

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	-30.47	-22.23	0.00	-2003.7	0.00	2003.75	5495.69	2747.85	13229.6	6624.65	0.00	0.000	0.000	0.308
5.00	-29.12	-21.77	0.00	-1892.5	0.00	1892.58	5430.88	2715.44	12829.8	6424.46	0.04	-0.079	0.000	0.300
10.00	-27.78	-21.31	0.00	-1783.7	0.00	1783.75	5364.68	2682.34	12432.6	6225.56	0.17	-0.157	0.000	0.292
15.00	-26.48	-20.85	0.00	-1677.2	0.00	1677.22	5297.08	2648.54	12038.2	6028.06	0.37	-0.235	0.000	0.283
20.00	-25.19	-20.37	0.00	-1572.9	0.00	1572.97	5228.10	2614.05	11646.7	5832.05	0.66	-0.313	0.000	0.275
25.00	-23.93	-19.88	0.00	-1471.1	0.00	1471.11	5157.72	2578.86	11258.4	5637.61	1.03	-0.391	0.000	0.266
30.00	-22.70	-19.37	0.00	-1371.7	0.00	1371.73	5085.94	2542.97	10873.5	5444.85	1.48	-0.467	0.000	0.256
35.00	-21.49	-18.85	0.00	-1274.9	0.00	1274.90	5012.78	2506.39	10492.1	5253.85	2.02	-0.543	0.000	0.247
40.00	-20.32	-18.31	0.00	-1180.6	0.00	1180.67	4938.23	2469.11	10114.4	5064.72	2.63	-0.619	0.000	0.237
41.75	-19.90	-18.13	0.00	-1148.6	0.00	1148.62	4911.80	2455.90	9983.12	4998.98	2.86	-0.645	0.000	0.234
45.00	-18.56	-17.78	0.00	-1089.6	0.00	1089.69	4862.28	2431.14	9740.60	4877.54	3.31	-0.694	0.000	0.227
48.00	-17.34	-17.44	0.00	-1036.3	0.00	1036.36	4812.82	2411.14	9511.14	4771.14	3.76	-0.738	0.000	0.223
50.00	-16.93	-17.24	0.00	-1001.4	0.00	1001.47	4771.14	2395.14	9300.00	4680.00	4.08	-0.768	0.000	0.218
55.00	-15.95	-16.69	0.00	-915.29	0.00	915.29	4680.00	2375.00	9100.00	4600.00	4.93	-0.847	0.000	0.210
60.00	-14.99	-16.15	0.00	-831.82	0.00	831.82	4598.86	2361.43	8917.43	4537.81	5.86	-0.925	0.000	0.203
65.00	-14.05	-15.61	0.00	-751.06	0.00	751.06	4522.29	2354.14	8751.14	4487.14	6.87	-1.000	0.000	0.197
70.00	-13.13	-15.07	0.00	-673.00	0.00	673.00	4450.00	2351.33	8600.00	4444.06	7.95	-1.072	0.000	0.192
75.00	-12.24	-14.54	0.00	-597.64	0.00	597.64	4382.97	2352.49	8464.49	4414.46	9.11	-1.142	0.000	0.188
80.00	-11.36	-14.00	0.00	-524.96	0.00	524.96	4320.23	2357.12	8343.84	4396.52	10.35	-1.208	0.000	0.184
84.50	-10.60	-13.52	0.00	-461.96	0.00	461.96	4262.77	2364.38	8238.86	4389.85	11.51	-1.265	0.000	0.181
85.00	-10.45	-13.47	0.00	-455.19	0.00	455.19	4258.09	2365.05	8231.82	4387.31	11.65	-1.271	0.000	0.180
89.75	-9.07	-12.95	0.00	-391.20	0.00	391.20	4207.31	2375.65	8131.32	4387.07	12.94	-1.326	0.000	0.177
90.00	-9.03	-12.93	0.00	-387.96	0.00	387.96	4204.94	2374.47	8120.20	4384.00	13.01	-1.329	0.000	0.176
95.00	-6.75	-9.37	0.00	-323.32	0.00	323.32	4150.80	2385.40	8029.75	4389.13	14.44	-1.390	0.000	0.172
100.00	-6.08	-8.85	0.00	-276.49	0.00	276.49	4102.27	2397.64	7948.43	4393.32	15.92	-1.445	0.000	0.168
105.00	-5.43	-8.34	0.00	-232.24	0.00	232.24	4059.36	2410.18	7876.42	4396.67	17.46	-1.496	0.000	0.164
106.83	-5.19	-8.16	0.00	-216.95	0.00	216.95	4051.34	2409.67	7861.81	4395.81	18.04	-1.514	0.000	0.163
110.00	-4.58	-7.83	0.00	-191.12	0.00	191.12	4048.05	2414.02	7858.92	4397.28	19.06	-1.543	0.000	0.161
111.50	-4.29	-7.68	0.00	-179.37	0.00	179.37	4042.14	2416.07	7854.40	4396.06	19.54	-1.557	0.000	0.160
115.00	-4.00	-7.34	0.00	-152.49	0.00	152.49	4032.72	2416.36	7847.23	4394.94	20.70	-1.585	0.000	0.158
120.00	-3.61	-6.86	0.00	-115.79	0.00	115.79	4019.07	2415.04	7837.04	4392.29	22.39	-1.641	0.000	0.154
125.00	-3.22	-6.39	0.00	-81.50	0.00	81.50	4002.03	2412.02	7822.25	4387.33	24.13	-1.687	0.000	0.149
130.00	-2.85	-5.93	0.00	-49.56	0.00	49.56	3981.60	2407.30	7802.04	4380.17	25.92	-1.720	0.000	0.144
135.00	-2.48	-5.48	0.00	-19.92	0.00	19.92	3957.78	2400.89	7776.61	4370.90	27.73	-1.739	0.000	0.138
137.00	-1.78	-2.99	0.00	-8.97	0.00	8.97	3935.86	2392.93	7754.01	4359.58	28.46	-1.743	0.000	0.136
140.00	0.00	-2.93	0.00	0.00	0.00	0.00	3912.57	2383.78	7734.13	4346.60	29.56	-1.744	0.000	0.134

Wind Loading - Shaft

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

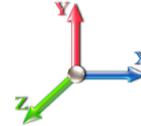


Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20

Wind Load Factor 1.00



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	0.85	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.242	5.00	25.768	30.92	112.5	460.3	2105.2
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.331	5.00	25.384	30.46	110.8	485.0	2099.2
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.386	5.00	24.971	29.97	109.0	496.2	2079.6
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.427	5.00	24.546	29.46	113.7	501.3	2054.0
25.00		1.00	0.95	3.678	4.05	0.00	1.200	1.459	5.00	24.115	28.94	117.1	503.0	2025.0
30.00		1.00	0.98	3.822	4.20	0.00	1.200	1.486	5.00	23.678	28.41	119.5	502.4	1993.6
35.00		1.00	1.01	3.948	4.34	0.00	1.200	1.509	5.00	23.239	27.89	121.1	500.2	1960.7
40.00		1.00	1.04	4.061	4.47	0.00	1.200	1.529	5.00	22.797	27.36	122.2	496.7	1926.5
41.75	Bot - Section 2	1.00	1.05	4.098	4.51	0.00	1.200	1.536	1.75	7.873	9.45	42.6	173.3	666.5
45.00		1.00	1.07	4.163	4.58	0.00	1.200	1.547	3.25	14.684	17.62	80.7	324.7	2019.9
48.00	Top - Section 1	1.00	1.08	4.220	4.64	0.00	1.200	1.557	3.00	13.388	16.07	74.6	297.9	1841.3
50.00		1.00	1.09	4.256	4.68	0.00	1.200	1.564	2.00	8.835	10.60	49.6	197.7	671.6
55.00		1.00	1.12	4.342	4.78	0.00	1.200	1.579	5.00	21.780	26.14	124.8	488.5	1654.8
60.00		1.00	1.14	4.423	4.86	0.00	1.200	1.592	5.00	21.333	25.60	124.5	482.1	1622.0
65.00		1.00	1.16	4.498	4.95	0.00	1.200	1.605	5.00	20.885	25.06	124.0	475.2	1588.8
70.00		1.00	1.17	4.569	5.03	0.00	1.200	1.617	5.00	20.436	24.52	123.2	467.9	1555.1
75.00		1.00	1.19	4.635	5.10	0.00	1.200	1.628	5.00	19.987	23.98	122.3	460.2	1521.1
80.00		1.00	1.21	4.699	5.17	0.00	1.200	1.639	5.00	19.537	23.44	121.2	452.1	1486.7
84.50	Bot - Section 3	1.00	1.22	4.753	5.23	0.00	1.200	1.648	4.50	17.198	20.64	107.9	400.1	1308.7
85.00		1.00	1.22	4.759	5.24	0.00	1.200	1.649	0.50	1.915	2.30	12.0	45.0	229.1
89.75	Top - Section 2	1.00	1.24	4.814	5.30	0.00	1.200	1.658	4.75	17.966	21.56	114.2	420.0	2144.4
90.00		1.00	1.24	4.817	5.30	0.00	1.200	1.658	0.25	0.934	1.12	5.9	22.1	63.2
95.00	Appurtenance(s)	1.00	1.25	4.872	5.36	0.00	1.200	1.667	5.00	18.450	22.14	118.6	432.8	1243.0
100.00		1.00	1.27	4.925	5.42	0.00	1.200	1.676	5.00	17.998	21.60	117.0	423.7	1212.0
105.00		1.00	1.28	4.976	5.47	0.00	1.200	1.684	5.00	17.546	21.06	115.2	414.4	1180.7
106.83	Bot - Section 4	1.00	1.28	4.994	5.49	0.00	1.200	1.687	1.83	6.320	7.58	41.7	150.7	426.2
110.00		1.00	1.29	5.025	5.53	0.00	1.200	1.692	3.17	10.874	13.05	72.1	259.0	1013.0
111.50	Top - Section 3	1.00	1.29	5.039	5.54	0.00	1.200	1.694	1.50	5.087	6.10	33.8	121.8	474.1
115.00		1.00	1.30	5.072	5.58	0.00	1.200	1.699	3.50	11.712	14.05	78.4	279.5	585.8
120.00		1.00	1.32	5.117	5.63	0.00	1.200	1.707	5.00	16.348	19.62	110.4	389.5	815.8
125.00		1.00	1.33	5.162	5.68	0.00	1.200	1.714	5.00	15.895	19.07	108.3	379.5	792.7
130.00		1.00	1.34	5.204	5.72	0.00	1.200	1.720	5.00	15.442	18.53	106.1	369.4	769.4
135.00		1.00	1.35	5.246	5.77	0.00	1.200	1.727	5.00	14.989	17.99	103.8	359.1	746.0
137.00	Appurtenance(s)	1.00	1.35	5.262	5.79	0.00	1.200	1.729	2.00	5.868	7.04	40.8	142.0	293.0
140.00	Appurtenance(s)	1.00	1.36	5.286	5.81	0.00	1.200	1.733	3.00	8.666	10.40	60.5	209.2	431.9
Totals:									140.00			3,260.3	44,600.4	

Discrete Appurtenance Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20

Wind Load Factor 1.00



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	140.00	PRK-1245 (kicker kit)	1	5.286	5.815	1.00	1.00	19.38	785.12	0.000	0.000	112.69	0.00	0.00	
2	140.00	T-Arm	3	5.286	5.815	1.00	1.00	45.53	2697.50	0.000	0.000	264.73	0.00	0.00	
3	140.00	EMS RR90-17-02DP	3	5.286	5.815	0.68	0.90	10.74	399.24	0.000	0.000	62.44	0.00	0.00	
4	140.00	RFS APX16PV-16VL-E	3	5.286	5.815	0.62	0.90	13.18	661.64	0.000	0.000	76.64	0.00	0.00	
5	137.00	Ericsson 4480 B71 + B85	3	5.262	5.788	0.69	0.90	6.30	411.11	0.000	0.000	36.48	0.00	0.00	
6	137.00	RFS	3	5.262	5.788	0.66	0.90	43.54	1007.56	0.000	0.000	252.01	0.00	0.00	
7	137.00	Kathrein 782 11056	3	5.262	5.788	0.76	0.90	0.76	-52.25	0.000	0.000	4.38	0.00	0.00	
8	137.00	Ericsson KRY 112 489/2	3	5.262	5.788	0.77	0.90	2.02	88.44	0.000	0.000	11.71	0.00	0.00	
9	95.00	Raycap	1	4.872	5.359	0.64	0.80	1.63	63.23	0.000	0.000	8.73	0.00	0.00	
10	95.00	Fujitsu TA08025-B604	3	4.872	5.359	0.62	0.80	4.66	337.58	0.000	0.000	24.97	0.00	0.00	
11	95.00	Fujitsu TA08025-B605	3	4.872	5.359	0.66	0.80	4.90	380.26	0.000	0.000	26.25	0.00	0.00	
12	95.00	MC-PK8-DSH w/ (3)	1	4.872	5.359	1.00	1.00	62.78	1980.54	0.000	0.000	336.46	0.00	0.00	
13	95.00	JMA Wireless	3	4.872	5.359	0.60	0.80	24.99	857.03	0.000	0.000	133.90	0.00	0.00	
Totals:									9,617.02						1,351.41

Total Applied Force Summary

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



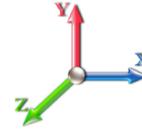
Page: 21

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20

Wind Load Factor 1.00



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		112.50	2253.73	0.00	0.00
10.00		110.82	2250.88	0.00	0.00
15.00		109.02	2233.32	0.00	0.00
20.00		113.71	2209.28	0.00	0.00
25.00		117.08	2181.50	0.00	0.00
30.00		119.46	2151.25	0.00	0.00
35.00		121.11	2119.23	0.00	0.00
40.00		122.20	2085.86	0.00	0.00
41.75		42.58	722.38	0.00	0.00
45.00		80.69	2123.97	0.00	0.00
48.00		74.57	1937.63	0.00	0.00
50.00		49.64	735.94	0.00	0.00
55.00		124.84	1816.21	0.00	0.00
60.00		124.54	1784.04	0.00	0.00
65.00		124.00	1751.35	0.00	0.00
70.00		123.24	1718.20	0.00	0.00
75.00		122.29	1684.64	0.00	0.00
80.00		121.18	1650.71	0.00	0.00
84.50		107.91	1456.73	0.00	0.00
85.00		12.03	245.53	0.00	0.00
89.75		114.16	2301.08	0.00	0.00
90.00		5.94	71.41	0.00	0.00
95.00	(11) attachments	648.97	5026.95	0.00	0.00
100.00		117.00	1366.75	0.00	0.00
105.00		115.24	1335.88	0.00	0.00
106.83		41.66	483.11	0.00	0.00
110.00		72.12	1111.52	0.00	0.00
111.50		33.84	520.76	0.00	0.00
115.00		78.41	694.87	0.00	0.00
120.00		110.43	972.00	0.00	0.00
125.00		108.30	949.17	0.00	0.00
130.00		106.09	926.19	0.00	0.00
135.00		103.79	903.05	0.00	0.00
137.00	(12) attachments	345.34	1810.79	0.00	0.00
140.00	(10) attachments	576.98	5069.79	0.00	0.00
	Totals:	4,611.68	58,655.70	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.19	0.00	0.017	0.000	3.308	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.30	0.00	0.017	0.000	3.308	0.00	18.85
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.27	0.00	0.017	0.000	3.308	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.37	0.00	0.017	0.000	3.308	0.00	20.46
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.31	0.00	0.018	0.000	3.308	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.42	0.00	0.018	0.000	3.308	0.00	21.51
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.35	0.00	0.018	0.000	3.509	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.45	0.00	0.018	0.000	3.509	0.00	22.31
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.37	0.00	0.018	0.000	3.678	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.48	0.00	0.018	0.000	3.678	0.00	22.95
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.40	0.00	0.019	0.000	3.822	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.50	0.00	0.019	0.000	3.822	0.00	23.50
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.42	0.00	0.019	0.000	3.948	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.52	0.00	0.019	0.000	3.948	0.00	23.98
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.43	0.00	0.020	0.000	4.061	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.54	0.00	0.020	0.000	4.061	0.00	24.40
41.75	Safety Cable	Yes	1.75	0.000	0.38	0.50	0.00	0.020	0.000	4.098	0.00	6.42
41.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.54	0.00	0.020	0.000	4.098	0.00	8.59
45.00	Safety Cable	Yes	3.25	0.000	0.38	0.94	0.00	0.020	0.000	4.163	0.00	12.08
45.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	1.01	0.00	0.020	0.000	4.163	0.00	16.11
48.00	Safety Cable	Yes	3.00	0.000	0.38	0.87	0.00	0.020	0.000	4.220	0.00	11.27
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.94	0.00	0.020	0.000	4.220	0.00	15.00
50.00	Safety Cable	Yes	2.00	0.000	0.38	0.58	0.00	0.020	0.000	4.256	0.00	7.56
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.63	0.00	0.020	0.000	4.256	0.00	10.06
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.47	0.00	0.021	0.000	4.342	0.00	19.22
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.58	0.00	0.021	0.000	4.342	0.00	25.46
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.49	0.00	0.021	0.000	4.423	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.59	0.00	0.021	0.000	4.423	0.00	25.76
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.50	0.00	0.022	0.000	4.498	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.60	0.00	0.022	0.000	4.498	0.00	26.04
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.51	0.00	0.022	0.000	4.569	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.61	0.00	0.022	0.000	4.569	0.00	26.31
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.023	0.000	4.635	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.62	0.00	0.023	0.000	4.635	0.00	26.56
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.023	0.000	4.699	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.63	0.00	0.023	0.000	4.699	0.00	26.79
84.50	Safety Cable	Yes	4.50	0.000	0.38	1.38	0.00	0.024	0.000	4.753	0.00	18.62
84.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	1.47	0.00	0.024	0.000	4.753	0.00	24.30
85.00	Safety Cable	Yes	0.50	0.000	0.38	0.15	0.00	0.024	0.000	4.759	0.00	2.07
85.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.16	0.00	0.024	0.000	4.759	0.00	2.70
89.75	Safety Cable	Yes	4.75	0.000	0.38	1.46	0.00	0.024	0.000	4.814	0.00	19.86
89.75	Step bolts (ladder)	Yes	4.75	0.000	0.63	1.56	0.00	0.024	0.000	4.814	0.00	25.86
90.00	Safety Cable	Yes	0.25	0.000	0.38	0.08	0.00	0.024	0.000	4.817	0.00	1.05
90.00	Step bolts (ladder)	Yes	0.25	0.000	0.63	0.08	0.00	0.024	0.000	4.817	0.00	1.36
95.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.025	0.000	4.872	0.00	21.11
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.65	0.00	0.025	0.000	4.872	0.00	27.44
100.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.025	0.000	4.925	0.00	21.30

Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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



Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.66	0.00	0.025	0.000	4.925	0.00	27.63
105.00	Safety Cable	Yes	5.00	0.000	0.38	1.56	0.00	0.026	0.000	4.976	0.00	21.48
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.67	0.00	0.026	0.000	4.976	0.00	27.82
106.83	Safety Cable	Yes	1.83	0.000	0.38	0.57	0.00	0.027	0.000	4.994	0.00	7.90
106.83	Step bolts (ladder)	Yes	1.83	0.000	0.63	0.61	0.00	0.027	0.000	4.994	0.00	10.23
110.00	Safety Cable	Yes	3.17	0.000	0.38	0.99	0.00	0.027	0.000	5.025	0.00	13.71
110.00	Step bolts (ladder)	Yes	3.17	0.000	0.63	1.06	0.00	0.027	0.000	5.025	0.00	17.73
111.50	Safety Cable	Yes	1.50	0.000	0.38	0.47	0.00	0.027	0.000	5.039	0.00	6.51
111.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.50	0.00	0.027	0.000	5.039	0.00	8.42
115.00	Safety Cable	Yes	3.50	0.000	0.38	1.10	0.00	0.027	0.000	5.072	0.00	15.27
115.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	1.18	0.00	0.027	0.000	5.072	0.00	19.72
120.00	Safety Cable	Yes	5.00	0.000	0.38	1.58	0.00	0.028	0.000	5.117	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.68	0.00	0.028	0.000	5.117	0.00	28.34
125.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.029	0.000	5.162	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.69	0.00	0.029	0.000	5.162	0.00	28.51
130.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.030	0.000	5.204	0.00	22.29
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.70	0.00	0.030	0.000	5.204	0.00	28.67
135.00	Safety Cable	Yes	5.00	0.000	0.38	1.60	0.00	0.031	0.000	5.246	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.70	0.00	0.031	0.000	5.246	0.00	28.82
137.00	Safety Cable	Yes	2.00	0.000	0.38	0.64	0.00	0.032	0.000	5.262	0.00	9.00
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.68	0.00	0.032	0.000	5.262	0.00	11.55
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.96	0.00	0.032	0.000	5.286	0.00	13.54
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.02	0.00	0.032	0.000	5.286	0.00	17.38
Totals:											0.0	1,267.3

Calculated Forces

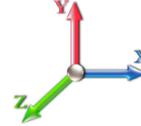
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 24



Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 19

Dead Load Factor 1.20
Wind Load 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	-58.66	-4.62	0.00	-407.32	0.00	407.32	5495.69	2747.85	13229.6	6624.65	0.00	0.000	0.000	0.072
5.00	-56.40	-4.52	0.00	-384.22	0.00	384.22	5430.88	2715.44	12829.8	6424.46	0.01	-0.016	0.000	0.070
10.00	-54.15	-4.43	0.00	-361.61	0.00	361.61	5364.68	2682.34	12432.6	6225.56	0.03	-0.032	0.000	0.068
15.00	-51.91	-4.33	0.00	-339.48	0.00	339.48	5297.08	2648.54	12038.2	6028.06	0.08	-0.048	0.000	0.066
20.00	-49.70	-4.23	0.00	-317.83	0.00	317.83	5228.10	2614.05	11646.7	5832.05	0.13	-0.063	0.000	0.064
25.00	-47.52	-4.12	0.00	-296.69	0.00	296.69	5157.72	2578.86	11258.4	5637.61	0.21	-0.079	0.000	0.062
30.00	-45.37	-4.01	0.00	-276.09	0.00	276.09	5085.94	2542.97	10873.5	5444.85	0.30	-0.095	0.000	0.060
35.00	-43.25	-3.90	0.00	-256.04	0.00	256.04	5012.78	2506.39	10492.1	5253.85	0.41	-0.110	0.000	0.057
40.00	-41.16	-3.78	0.00	-236.56	0.00	236.56	4938.23	2469.11	10114.4	5064.72	0.53	-0.125	0.000	0.055
41.75	-40.44	-3.74	0.00	-229.95	0.00	229.95	4911.80	2455.90	9983.12	4998.98	0.58	-0.130	0.000	0.054
45.00	-38.32	-3.66	0.00	-217.80	0.00	217.80	4862.28	2431.14	9740.60	4877.54	0.67	-0.140	0.000	0.053
48.00	-36.38	-3.58	0.00	-206.83	0.00	206.83	4812.80	2406.48	9498.08	4756.10	0.76	-0.149	0.000	0.061
50.00	-35.64	-3.54	0.00	-199.66	0.00	199.66	4764.32	2381.82	9255.56	4634.66	0.83	-0.155	0.000	0.060
55.00	-33.82	-3.42	0.00	-181.96	0.00	181.96	4615.84	2307.16	8562.00	4156.00	1.00	-0.171	0.000	0.057
60.00	-32.04	-3.30	0.00	-164.87	0.00	164.87	4467.36	2232.50	7869.44	3677.44	1.18	-0.186	0.000	0.053
65.00	-30.29	-3.17	0.00	-148.39	0.00	148.39	4318.88	2157.84	7176.88	3198.88	1.39	-0.201	0.000	0.050
70.00	-28.57	-3.05	0.00	-132.51	0.00	132.51	4170.40	2083.18	6484.32	2720.32	1.60	-0.215	0.000	0.047
75.00	-26.88	-2.93	0.00	-117.25	0.00	117.25	4021.92	2008.52	5791.76	2241.76	1.84	-0.229	0.000	0.044
80.00	-25.23	-2.81	0.00	-102.60	0.00	102.60	3873.44	1933.86	5099.20	1763.20	2.08	-0.242	0.000	0.040
84.50	-23.78	-2.70	0.00	-89.97	0.00	89.97	3724.96	1859.20	4406.64	1284.64	2.32	-0.253	0.000	0.037
85.00	-23.53	-2.68	0.00	-88.62	0.00	88.62	3710.40	1850.40	4352.00	1240.00	2.34	-0.254	0.000	0.037
89.75	-21.23	-2.56	0.00	-75.87	0.00	75.87	3526.40	1741.60	3968.00	1040.00	2.60	-0.265	0.000	0.041
90.00	-21.16	-2.56	0.00	-75.23	0.00	75.23	3511.84	1732.80	3913.36	1000.00	2.62	-0.265	0.000	0.040
95.00	-16.13	-1.89	0.00	-62.44	0.00	62.44	3272.00	1564.00	3408.00	800.00	2.90	-0.277	0.000	0.034
100.00	-14.77	-1.77	0.00	-53.00	0.00	53.00	3032.16	1395.20	2903.36	600.00	3.20	-0.288	0.000	0.031
105.00	-13.43	-1.65	0.00	-44.16	0.00	44.16	2792.32	1226.40	2398.72	400.00	3.50	-0.297	0.000	0.027
106.83	-12.95	-1.60	0.00	-41.14	0.00	41.14	2737.76	1181.84	2304.16	355.52	3.62	-0.301	0.000	0.026
110.00	-11.84	-1.53	0.00	-36.06	0.00	36.06	2548.00	1072.00	2088.00	256.00	3.82	-0.306	0.000	0.024
111.50	-11.32	-1.49	0.00	-33.77	0.00	33.77	2503.52	1037.44	2024.00	211.52	3.92	-0.309	0.000	0.046
115.00	-10.62	-1.41	0.00	-28.56	0.00	28.56	2263.68	868.64	1777.23	89.94	4.15	-0.314	0.000	0.041
120.00	-9.65	-1.30	0.00	-21.51	0.00	21.51	1923.84	599.84	1502.00	85.29	4.48	-0.325	0.000	0.033
125.00	-8.70	-1.18	0.00	-15.03	0.00	15.03	1684.00	500.00	1226.25	81.43	4.83	-0.333	0.000	0.026
130.00	-7.78	-1.07	0.00	-9.11	0.00	9.11	1444.16	400.00	1000.00	77.17	5.18	-0.339	0.000	0.018
135.00	-6.87	-0.96	0.00	-3.75	0.00	3.75	1204.32	300.00	823.61	73.90	5.54	-0.343	0.000	0.011
137.00	-5.07	-0.61	0.00	-1.82	0.00	1.82	1135.86	267.93	722.58	72.58	5.68	-0.343	0.000	0.007
140.00	0.00	-0.58	0.00	0.00	0.00	0.00	1123.57	261.78	700.00	69.60	5.90	-0.344	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

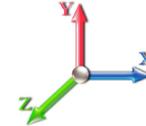


Page: 25

Load Case: 1.2D + 1.0E

Iterations 18

Gust Response Factor 1.10	Sds 0.20	Ss 0.18	
Dead Load Factor 1.20	Seismic Load Factor 1.00	Sd1 0.10	S1 0.07
Wind Load Factor 0.00	Structure Frequency (f1) 0.56	SA 0.06	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		1370.7	0.00	0.03	0.02	18.98	
10.00		1345.1	0.01	0.05	0.03	28.15	
15.00		1319.5	0.02	0.06	0.04	32.52	
20.00		1293.9	0.04	0.07	0.04	34.53	
25.00		1268.3	0.06	0.07	0.04	35.52	
30.00		1242.7	0.09	0.07	0.04	36.13	
35.00		1217.0	0.12	0.07	0.03	36.62	
40.00		1191.4	0.15	0.07	0.03	36.92	
41.75	Bot - Section 2	410.97	0.17	0.07	0.03	12.84	
45.00		1412.6	0.20	0.06	0.02	44.55	
48.00	Top - Section 1	1286.1	0.22	0.06	0.02	40.58	
50.00		394.90	0.24	0.06	0.02	12.38	
55.00		971.88	0.29	0.05	0.01	29.14	
60.00		949.93	0.35	0.03	0.01	25.61	
65.00		927.98	0.41	0.02	0.01	20.38	
70.00		906.03	0.47	-0.01	0.01	13.60	
75.00		884.08	0.54	-0.03	0.01	5.87	
80.00		862.13	0.62	-0.06	0.02	-1.76	
84.50	Bot - Section 3	757.15	0.69	-0.08	0.03	-6.70	
85.00		153.38	0.70	-0.09	0.03	-1.46	
89.75	Top - Section 2	1437.0	0.78	-0.11	0.05	-20.02	
90.00		34.24	0.78	-0.11	0.05	-0.48	
95.00	Appurtenance(s)	2507.1	0.87	-0.12	0.08	-36.06	
100.00		656.88	0.96	-0.12	0.11	-6.22	
105.00		638.58	1.06	-0.09	0.17	0.80	
106.83	Bot - Section 4	229.56	1.10	-0.07	0.19	1.54	
110.00		628.37	1.17	-0.02	0.23	11.36	
111.50	Top - Section 3	293.55	1.20	0.00	0.25	7.14	
115.00		255.23	1.28	0.09	0.31	10.50	
120.00		355.29	1.39	0.26	0.42	25.07	
125.00		344.31	1.51	0.52	0.55	36.64	
130.00		333.34	1.63	0.87	0.71	49.59	
135.00		322.36	1.76	1.35	0.91	63.74	
137.00	Appurtenance(s)	824.87	1.81	1.58	0.99	180.79	
140.00	Appurtenance(s)	2023.2	1.89	1.98	1.14	512.65	
Totals:		31,050.2				1,291.4	Total Wind: 22,212.7

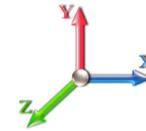
Calculated Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (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

Load Case: 1.2D + 1.0E							Iterations 18
Gust Response Factor	1.10				Sds	0.20	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10		S1 0.07
Wind Load Factor	0.00	Structure Frequency (f1)	0.56	SA	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	-40.65	-1.37	0.00	-142.42	0.00	142.42	5495.69	2747.85	13229.6	6624.65	0.00	0.00	0.00	0.029
5.00	-38.88	-1.35	0.00	-135.59	0.00	135.59	5430.88	2715.44	12829.8	6424.46	0.00	-0.01	0.028	
10.00	-37.14	-1.33	0.00	-128.84	0.00	128.84	5364.68	2682.34	12432.6	6225.56	0.01	-0.01	0.028	
15.00	-35.43	-1.30	0.00	-122.21	0.00	122.21	5297.08	2648.54	12038.2	6028.06	0.03	-0.02	0.027	
20.00	-33.76	-1.26	0.00	-115.73	0.00	115.73	5228.10	2614.05	11646.7	5832.05	0.05	-0.02	0.026	
25.00	-32.11	-1.23	0.00	-109.41	0.00	109.41	5157.72	2578.86	11258.4	5637.61	0.07	-0.03	0.026	
30.00	-30.49	-1.20	0.00	-103.25	0.00	103.25	5085.94	2542.97	10873.5	5444.85	0.11	-0.03	0.025	
35.00	-28.91	-1.16	0.00	-97.26	0.00	97.26	5012.78	2506.39	10492.1	5253.85	0.15	-0.04	0.024	
40.00	-27.36	-1.13	0.00	-91.45	0.00	91.45	4938.23	2469.11	10114.4	5064.72	0.19	-0.05	0.024	
41.75	-26.82	-1.11	0.00	-89.48	0.00	89.48	4911.80	2455.90	9983.12	4998.98	0.21	-0.05	0.023	
45.00	-25.04	-1.07	0.00	-85.86	0.00	85.86	4862.28	2431.14	9740.60	4877.54	0.24	-0.05	0.023	
48.00	-23.42	-1.03	0.00	-82.65	0.00	82.65	3974.54	1987.27	7999.01	4005.45	0.28	-0.06	0.027	
50.00	-22.90	-1.02	0.00	-80.59	0.00	80.59	3951.82	1975.91	7882.32	3947.02	0.30	-0.06	0.026	
55.00	-21.61	-0.99	0.00	-75.50	0.00	75.50	3894.03	1947.02	7592.27	3801.78	0.36	-0.06	0.025	
60.00	-20.34	-0.97	0.00	-70.55	0.00	70.55	3834.86	1917.43	7304.76	3657.81	0.43	-0.07	0.025	
65.00	-19.11	-0.95	0.00	-65.72	0.00	65.72	3774.29	1887.14	7019.98	3515.21	0.51	-0.08	0.024	
70.00	-17.89	-0.93	0.00	-60.99	0.00	60.99	3712.33	1856.16	6738.10	3374.06	0.59	-0.08	0.023	
75.00	-16.71	-0.93	0.00	-56.33	0.00	56.33	3648.97	1824.49	6459.33	3234.46	0.68	-0.09	0.022	
80.00	-15.55	-0.93	0.00	-51.70	0.00	51.70	3584.23	1792.12	6183.84	3096.52	0.78	-0.10	0.021	
84.50	-14.53	-0.93	0.00	-47.53	0.00	47.53	3524.77	1762.38	5938.86	2973.85	0.88	-0.10	0.020	
85.00	-14.33	-0.93	0.00	-47.07	0.00	47.07	3518.09	1759.05	5911.82	2960.31	0.89	-0.10	0.020	
89.75	-12.49	-0.92	0.00	-42.68	0.00	42.68	2751.31	1375.65	4591.32	2299.07	0.99	-0.11	0.023	
90.00	-12.44	-0.92	0.00	-42.44	0.00	42.44	2748.94	1374.47	4581.20	2294.00	1.00	-0.11	0.023	
95.00	-9.31	-0.92	0.00	-37.83	0.00	37.83	2700.80	1350.40	4379.75	2193.13	1.11	-0.12	0.021	
100.00	-8.41	-0.92	0.00	-33.23	0.00	33.23	2651.27	1325.64	4180.43	2093.32	1.24	-0.12	0.019	
105.00	-7.53	-0.92	0.00	-28.64	0.00	28.64	2600.36	1300.18	3983.42	1994.67	1.37	-0.13	0.017	
106.83	-7.21	-0.91	0.00	-26.96	0.00	26.96	2581.34	1290.67	3911.81	1958.81	1.42	-0.13	0.017	
110.00	-6.38	-0.90	0.00	-24.07	0.00	24.07	2548.05	1274.02	3788.92	1897.28	1.51	-0.13	0.015	
111.50	-6.00	-0.89	0.00	-22.72	0.00	22.72	1220.14	610.07	1829.40	916.06	1.55	-0.14	0.030	
115.00	-5.61	-0.88	0.00	-19.59	0.00	19.59	1210.72	605.36	1777.23	889.94	1.65	-0.14	0.027	
120.00	-5.07	-0.86	0.00	-15.18	0.00	15.18	1196.07	598.04	1702.04	852.29	1.80	-0.15	0.022	
125.00	-4.54	-0.82	0.00	-10.90	0.00	10.90	1180.03	590.02	1626.25	814.33	1.96	-0.15	0.017	
130.00	-4.03	-0.77	0.00	-6.81	0.00	6.81	1162.60	581.30	1550.04	776.17	2.12	-0.16	0.012	
135.00	-3.53	-0.70	0.00	-2.97	0.00	2.97	1143.78	571.89	1473.61	737.90	2.29	-0.16	0.007	
137.00	-2.49	-0.52	0.00	-1.56	0.00	1.56	1135.86	567.93	1443.01	722.58	2.35	-0.16	0.004	
140.00	0.00	-0.51	0.00	0.00	0.00	0.00	1123.57	561.78	1397.13	699.60	2.45	-0.16	0.000	

Seismic Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

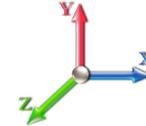


Page: 27

Load Case: 0.9D + 1.0E

Iterations 18

Gust Response Factor 1.10	Sds 0.20	Ss 0.18	
Dead Load Factor 0.90	Seismic Load Factor 1.00	Sd1 0.10	S1 0.07
Wind Load Factor 0.00	Structure Frequency (f1) 0.56	SA 0.06	Seismic Importance Factor 1.00



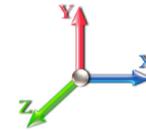
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1370.7	0.00	0.03	0.02	18.98	
10.00		1345.1	0.01	0.05	0.03	28.15	
15.00		1319.5	0.02	0.06	0.04	32.52	
20.00		1293.9	0.04	0.07	0.04	34.53	
25.00		1268.3	0.06	0.07	0.04	35.52	
30.00		1242.7	0.09	0.07	0.04	36.13	
35.00		1217.0	0.12	0.07	0.03	36.62	
40.00		1191.4	0.15	0.07	0.03	36.92	
41.75	Bot - Section 2	410.97	0.17	0.07	0.03	12.84	
45.00		1412.6	0.20	0.06	0.02	44.55	
48.00	Top - Section 1	1286.1	0.22	0.06	0.02	40.58	
50.00		394.90	0.24	0.06	0.02	12.38	
55.00		971.88	0.29	0.05	0.01	29.14	
60.00		949.93	0.35	0.03	0.01	25.61	
65.00		927.98	0.41	0.02	0.01	20.38	
70.00		906.03	0.47	-0.01	0.01	13.60	
75.00		884.08	0.54	-0.03	0.01	5.87	
80.00		862.13	0.62	-0.06	0.02	-1.76	
84.50	Bot - Section 3	757.15	0.69	-0.08	0.03	-6.70	
85.00		153.38	0.70	-0.09	0.03	-1.46	
89.75	Top - Section 2	1437.0	0.78	-0.11	0.05	-20.02	
90.00		34.24	0.78	-0.11	0.05	-0.48	
95.00	Appurtenance(s)	2507.1	0.87	-0.12	0.08	-36.06	
100.00		656.88	0.96	-0.12	0.11	-6.22	
105.00		638.58	1.06	-0.09	0.17	0.80	
106.83	Bot - Section 4	229.56	1.10	-0.07	0.19	1.54	
110.00		628.37	1.17	-0.02	0.23	11.36	
111.50	Top - Section 3	293.55	1.20	0.00	0.25	7.14	
115.00		255.23	1.28	0.09	0.31	10.50	
120.00		355.29	1.39	0.26	0.42	25.07	
125.00		344.31	1.51	0.52	0.55	36.64	
130.00		333.34	1.63	0.87	0.71	49.59	
135.00		322.36	1.76	1.35	0.91	63.74	
137.00	Appurtenance(s)	824.87	1.81	1.58	0.99	180.79	
140.00	Appurtenance(s)	2023.2	1.89	1.98	1.14	512.65	
Totals:		31,050.2				1,291.4	Total Wind: 22,212.7

Calculated Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E						Iterations 18
Gust Response Factor	1.10			Sds	0.20	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1 0.07
Wind Load Factor	0.00	Structure Frequency (f1)	0.56	SA	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	-30.49	-1.37	0.00	-141.77	0.00	141.77	5495.69	2747.85	13229.6	6624.65	0.00	0.00	0.00	0.027
5.00	-29.16	-1.35	0.00	-134.94	0.00	134.94	5430.88	2715.44	12829.8	6424.46	0.00	-0.01	0.00	0.026
10.00	-27.86	-1.32	0.00	-128.20	0.00	128.20	5364.68	2682.34	12432.6	6225.56	0.01	-0.01	0.00	0.026
15.00	-26.58	-1.29	0.00	-121.58	0.00	121.58	5297.08	2648.54	12038.2	6028.06	0.03	-0.02	0.00	0.025
20.00	-25.32	-1.26	0.00	-115.12	0.00	115.12	5228.10	2614.05	11646.7	5832.05	0.05	-0.02	0.00	0.025
25.00	-24.08	-1.23	0.00	-108.82	0.00	108.82	5157.72	2578.86	11258.4	5637.61	0.07	-0.03	0.00	0.024
30.00	-22.87	-1.19	0.00	-102.68	0.00	102.68	5085.94	2542.97	10873.5	5444.85	0.11	-0.03	0.00	0.023
35.00	-21.68	-1.16	0.00	-96.72	0.00	96.72	5012.78	2506.39	10492.1	5253.85	0.15	-0.04	0.00	0.023
40.00	-20.52	-1.12	0.00	-90.93	0.00	90.93	4938.23	2469.11	10114.4	5064.72	0.19	-0.05	0.00	0.022
41.75	-20.11	-1.11	0.00	-88.97	0.00	88.97	4911.80	2455.90	9983.12	4998.98	0.21	-0.05	0.00	0.022
45.00	-18.78	-1.06	0.00	-85.37	0.00	85.37	4862.28	2431.14	9740.60	4877.54	0.24	-0.05	0.00	0.021
48.00	-17.57	-1.02	0.00	-82.18	0.00	82.18	3974.54	1987.27	7999.01	4005.45	0.27	-0.05	0.00	0.025
50.00	-17.17	-1.01	0.00	-80.13	0.00	80.13	3951.82	1975.91	7882.32	3947.02	0.30	-0.06	0.00	0.025
55.00	-16.21	-0.98	0.00	-75.07	0.00	75.07	3894.03	1947.02	7592.27	3801.78	0.36	-0.06	0.00	0.024
60.00	-15.26	-0.96	0.00	-70.15	0.00	70.15	3834.86	1917.43	7304.76	3657.81	0.43	-0.07	0.00	0.023
65.00	-14.33	-0.94	0.00	-65.36	0.00	65.36	3774.29	1887.14	7019.98	3515.21	0.51	-0.08	0.00	0.022
70.00	-13.42	-0.93	0.00	-60.67	0.00	60.67	3712.33	1856.16	6738.10	3374.06	0.59	-0.08	0.00	0.022
75.00	-12.53	-0.92	0.00	-56.04	0.00	56.04	3648.97	1824.49	6459.33	3234.46	0.68	-0.09	0.00	0.021
80.00	-11.66	-0.92	0.00	-51.44	0.00	51.44	3584.23	1792.12	6183.84	3096.52	0.78	-0.10	0.00	0.020
84.50	-10.90	-0.92	0.00	-47.31	0.00	47.31	3524.77	1762.38	5938.86	2973.85	0.87	-0.10	0.00	0.019
85.00	-10.75	-0.92	0.00	-46.85	0.00	46.85	3518.09	1759.05	5911.82	2960.31	0.88	-0.10	0.00	0.019
89.75	-9.37	-0.92	0.00	-42.48	0.00	42.48	2751.31	1375.65	4591.32	2299.07	0.99	-0.11	0.00	0.022
90.00	-9.33	-0.92	0.00	-42.25	0.00	42.25	2748.94	1374.47	4581.20	2294.00	0.99	-0.11	0.00	0.022
95.00	-6.98	-0.91	0.00	-37.66	0.00	37.66	2700.80	1350.40	4379.75	2193.13	1.11	-0.11	0.00	0.020
100.00	-6.30	-0.91	0.00	-33.09	0.00	33.09	2651.27	1325.64	4180.43	2093.32	1.23	-0.12	0.00	0.018
105.00	-5.64	-0.91	0.00	-28.53	0.00	28.53	2600.36	1300.18	3983.42	1994.67	1.36	-0.13	0.00	0.016
106.83	-5.41	-0.91	0.00	-26.86	0.00	26.86	2581.34	1290.67	3911.81	1958.81	1.41	-0.13	0.00	0.016
110.00	-4.79	-0.90	0.00	-23.98	0.00	23.98	2548.05	1274.02	3788.92	1897.28	1.50	-0.13	0.00	0.015
111.50	-4.50	-0.89	0.00	-22.63	0.00	22.63	1220.14	610.07	1829.40	916.06	1.54	-0.14	0.00	0.028
115.00	-4.21	-0.88	0.00	-19.52	0.00	19.52	1210.72	605.36	1777.23	889.94	1.64	-0.14	0.00	0.025
120.00	-3.80	-0.85	0.00	-15.13	0.00	15.13	1196.07	598.04	1702.04	852.29	1.79	-0.15	0.00	0.021
125.00	-3.41	-0.82	0.00	-10.86	0.00	10.86	1180.03	590.02	1626.25	814.33	1.95	-0.15	0.00	0.016
130.00	-3.02	-0.77	0.00	-6.78	0.00	6.78	1162.60	581.30	1550.04	776.17	2.11	-0.16	0.00	0.011
135.00	-2.65	-0.70	0.00	-2.95	0.00	2.95	1143.78	571.89	1473.61	737.90	2.27	-0.16	0.00	0.006
137.00	-1.87	-0.52	0.00	-1.55	0.00	1.55	1135.86	567.93	1443.01	722.58	2.34	-0.16	0.00	0.004
140.00	0.00	-0.51	0.00	0.00	0.00	0.00	1123.57	561.78	1397.13	699.60	2.44	-0.16	0.00	0.000

Wind Loading - Shaft

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

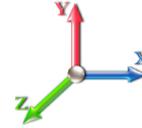


Page: 29

Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 19

Dead Load Factor 1.00
Wind Load Factor 1.00



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	0.85	7.442	8.19	276.17	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	271.10	0.650	0.000	5.00	24.733	16.08	131.6	0.0	1370.7
10.00		1.00	0.85	7.442	8.19	266.02	0.650	0.000	5.00	24.275	15.78	129.2	0.0	1345.1
15.00		1.00	0.85	7.442	8.19	260.95	0.650	0.000	5.00	23.816	15.48	126.7	0.0	1319.5
20.00		1.00	0.90	7.896	8.69	263.57	0.650	0.000	5.00	23.357	15.18	131.9	0.0	1293.9
25.00		1.00	0.95	8.276	9.10	264.48	0.650	0.000	5.00	22.899	14.88	135.5	0.0	1268.3
30.00		1.00	0.98	8.600	9.46	264.16	0.650	0.000	5.00	22.440	14.59	138.0	0.0	1242.7
35.00		1.00	1.01	8.883	9.77	262.93	0.650	0.000	5.00	21.982	14.29	139.6	0.0	1217.1
40.00		1.00	1.04	9.137	10.05	261.03	0.650	0.000	5.00	21.523	13.99	140.6	0.0	1191.5
41.75	Bot - Section 2	1.00	1.05	9.219	10.14	260.24	0.650	0.000	1.75	7.425	4.83	48.9	0.0	411.0
45.00		1.00	1.07	9.366	10.30	258.60	0.650	0.000	3.25	13.846	9.00	92.7	0.0	1412.7
48.00	Top - Section 1	1.00	1.08	9.494	10.44	256.92	0.650	0.000	3.00	12.609	8.20	85.6	0.0	1286.2
50.00		1.00	1.09	9.576	10.53	259.71	0.650	0.000	2.00	8.314	5.40	56.9	0.0	394.9
55.00		1.00	1.12	9.770	10.75	256.51	0.650	0.000	5.00	20.465	13.30	143.0	0.0	971.9
60.00		1.00	1.14	9.951	10.95	253.01	0.650	0.000	5.00	20.006	13.00	142.3	0.0	949.9
65.00		1.00	1.16	10.120	11.13	249.23	0.650	0.000	5.00	19.547	12.71	141.4	0.0	928.0
70.00		1.00	1.17	10.279	11.31	245.22	0.650	0.000	5.00	19.089	12.41	140.3	0.0	906.0
75.00		1.00	1.19	10.430	11.47	241.00	0.650	0.000	5.00	18.630	12.11	138.9	0.0	884.1
80.00		1.00	1.21	10.572	11.63	236.60	0.650	0.000	5.00	18.172	11.81	137.4	0.0	862.1
84.50	Bot - Section 3	1.00	1.22	10.695	11.76	232.49	0.650	0.000	4.50	15.962	10.38	122.1	0.0	757.1
85.00		1.00	1.22	10.708	11.78	232.02	0.650	0.000	0.50	1.777	1.16	13.6	0.0	153.4
89.75	Top - Section 2	1.00	1.24	10.831	11.91	227.54	0.650	0.000	4.75	16.654	10.82	129.0	0.0	1437.1
90.00		1.00	1.24	10.838	11.92	230.83	0.650	0.000	0.25	0.865	0.56	6.7	0.0	34.2
95.00	Appurtenance(s)	1.00	1.25	10.962	12.06	225.99	0.650	0.000	5.00	17.060	11.09	133.7	0.0	675.2
100.00		1.00	1.27	11.081	12.19	221.02	0.650	0.000	5.00	16.602	10.79	131.5	0.0	656.9
105.00		1.00	1.28	11.195	12.31	215.94	0.650	0.000	5.00	16.143	10.49	129.2	0.0	638.6
106.83	Bot - Section 4	1.00	1.28	11.236	12.36	214.05	0.650	0.000	1.83	5.804	3.77	46.6	0.0	229.6
110.00		1.00	1.29	11.305	12.44	210.75	0.650	0.000	3.17	9.981	6.49	80.7	0.0	628.4
111.50	Top - Section 3	1.00	1.29	11.338	12.47	209.17	0.650	0.000	1.50	4.663	3.03	37.8	0.0	293.6
115.00		1.00	1.30	11.412	12.55	207.63	0.650	0.000	3.50	10.721	6.97	87.5	0.0	255.2
120.00		1.00	1.32	11.514	12.67	202.25	0.650	0.000	5.00	14.926	9.70	122.9	0.0	355.3
125.00		1.00	1.33	11.614	12.78	196.78	0.650	0.000	5.00	14.467	9.40	120.1	0.0	344.3
130.00		1.00	1.34	11.710	12.88	191.23	0.650	0.000	5.00	14.009	9.11	117.3	0.0	333.3
135.00		1.00	1.35	11.803	12.98	185.60	0.650	0.000	5.00	13.550	8.81	114.4	0.0	322.4
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	183.33	0.650	0.000	2.00	5.292	3.44	44.8	0.0	125.9
140.00	Appurtenance(s)	1.00	1.36	11.894	13.08	179.90	0.650	0.000	3.00	7.800	5.07	66.3	0.0	185.5
Totals:									140.00			3,704.8		26,681.5

Discrete Appurtenance Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 30

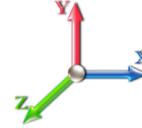


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 19

Dead Load Factor 1.00

Wind Load Factor 1.00



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	140.00	PRK-1245 (kicker kit)	1	11.894	13.084	1.00	1.00	1.00	9.50	464.91	0.000	0.000	124.29	0.00	0.00
2	140.00	T-Arm	3	11.894	13.084	1.00	1.00	1.00	24.39	1200.00	0.000	0.000	319.11	0.00	0.00
3	140.00	EMS RR90-17-02DP	3	11.894	13.084	0.66	0.90	0.90	8.59	54.00	0.000	0.000	112.43	0.00	0.00
4	140.00	RFS APX16PV-16VL-E	3	11.894	13.084	0.59	0.90	0.90	10.76	118.80	0.000	0.000	140.82	0.00	0.00
5	137.00	Ericsson 4480 B71 + B85	3	11.840	13.024	0.68	0.90	0.90	4.90	279.00	0.000	0.000	63.82	0.00	0.00
6	137.00	RFS	3	11.840	13.024	0.65	0.90	0.90	39.35	368.40	0.000	0.000	512.45	0.00	0.00
7	137.00	Kathrein 782 11056	3	11.840	13.024	0.71	0.90	0.90	0.32	5.40	0.000	0.000	4.17	0.00	0.00
8	137.00	Ericsson KRY 112 489/2	3	11.840	13.024	0.75	0.90	0.90	1.25	46.20	0.000	0.000	16.34	0.00	0.00
9	95.00	Raycap	1	10.962	12.058	0.62	0.80	0.80	1.25	21.85	0.000	0.000	15.12	0.00	0.00
10	95.00	Fujitsu TA08025-B604	3	10.962	12.058	0.61	0.80	0.80	3.58	191.79	0.000	0.000	43.11	0.00	0.00
11	95.00	Fujitsu TA08025-B605	3	10.962	12.058	0.64	0.80	0.80	3.76	224.88	0.000	0.000	45.38	0.00	0.00
12	95.00	MC-PK8-DSH w/ (3)	1	10.962	12.058	1.00	1.00	1.00	34.24	1200.00	0.000	0.000	412.86	0.00	0.00
13	95.00	JMA Wireless	3	10.962	12.058	0.58	0.80	0.80	21.88	193.50	0.000	0.000	263.86	0.00	0.00
Totals:										4,368.73			2,073.77		

Total Applied Force Summary

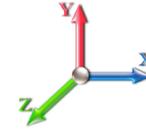
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 31

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 19

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		131.61	1474.60	0.00	0.00
10.00		129.16	1449.00	0.00	0.00
15.00		126.72	1423.39	0.00	0.00
20.00		131.87	1397.78	0.00	0.00
25.00		135.50	1372.17	0.00	0.00
30.00		137.98	1346.56	0.00	0.00
35.00		139.62	1320.96	0.00	0.00
40.00		140.61	1295.35	0.00	0.00
41.75		48.94	447.32	0.00	0.00
45.00		92.72	1480.18	0.00	0.00
48.00		85.59	1348.48	0.00	0.00
50.00		56.93	436.44	0.00	0.00
55.00		142.96	1075.74	0.00	0.00
60.00		142.34	1053.79	0.00	0.00
65.00		141.44	1031.84	0.00	0.00
70.00		140.29	1009.89	0.00	0.00
75.00		138.93	987.94	0.00	0.00
80.00		137.36	965.99	0.00	0.00
84.50		122.06	850.63	0.00	0.00
85.00		13.61	163.77	0.00	0.00
89.75		128.97	1535.73	0.00	0.00
90.00		6.70	39.43	0.00	0.00
95.00	(11) attachments	914.04	2611.05	0.00	0.00
100.00		131.53	751.64	0.00	0.00
105.00		129.22	733.35	0.00	0.00
106.83		46.63	264.31	0.00	0.00
110.00		80.68	688.39	0.00	0.00
111.50		37.80	321.98	0.00	0.00
115.00		87.48	321.57	0.00	0.00
120.00		122.88	450.05	0.00	0.00
125.00		120.13	439.08	0.00	0.00
130.00		117.29	428.10	0.00	0.00
135.00		114.35	417.13	0.00	0.00
137.00	(12) attachments	641.58	862.78	0.00	0.00
140.00	(10) attachments	762.99	2080.09	0.00	0.00
	Totals:	5,778.53	33,876.52	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 19
Dead Load Factor 1.00	
Wind Load Factor 1.00	

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	7.442	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	7.442	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.896	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.896	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	8.276	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.600	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.883	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	9.137	0.00	5.20
41.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.020	0.000	9.219	0.00	0.48
41.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.020	0.000	9.219	0.00	1.82
45.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.020	0.000	9.366	0.00	0.89
45.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.020	0.000	9.366	0.00	3.38
48.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.020	0.000	9.494	0.00	0.82
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.020	0.000	9.494	0.00	3.12
50.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.020	0.000	9.576	0.00	0.55
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.020	0.000	9.576	0.00	2.08
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.770	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.770	0.00	5.20
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.951	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	10.120	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	10.120	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	10.279	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.430	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.572	0.00	5.20
84.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.024	0.000	10.695	0.00	1.23
84.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.024	0.000	10.695	0.00	4.68
85.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.024	0.000	10.708	0.00	0.14
85.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.024	0.000	10.708	0.00	0.52
89.75	Safety Cable	Yes	4.75	0.000	0.38	0.15	0.00	0.024	0.000	10.831	0.00	1.30
89.75	Step bolts (ladder)	Yes	4.75	0.000	0.63	0.25	0.00	0.024	0.000	10.831	0.00	4.94
90.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.024	0.000	10.838	0.00	0.07
90.00	Step bolts (ladder)	Yes	0.25	0.000	0.63	0.01	0.00	0.024	0.000	10.838	0.00	0.26
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	10.962	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	10.962	0.00	5.20
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	11.081	0.00	1.37

Linear Appurtenance Segment Forces (Factored)

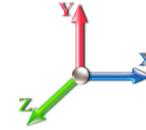
Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 33

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 19

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	11.081	0.00	5.20
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	11.195	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	11.195	0.00	5.20
106.83	Safety Cable	Yes	1.83	0.000	0.38	0.06	0.00	0.027	0.000	11.236	0.00	0.50
106.83	Step bolts (ladder)	Yes	1.83	0.000	0.63	0.10	0.00	0.027	0.000	11.236	0.00	1.91
110.00	Safety Cable	Yes	3.17	0.000	0.38	0.10	0.00	0.027	0.000	11.305	0.00	0.86
110.00	Step bolts (ladder)	Yes	3.17	0.000	0.63	0.17	0.00	0.027	0.000	11.305	0.00	3.29
111.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.027	0.000	11.338	0.00	0.41
111.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.027	0.000	11.338	0.00	1.56
115.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.027	0.000	11.412	0.00	0.96
115.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.027	0.000	11.412	0.00	3.64
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	11.514	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	11.614	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	11.614	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	11.710	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	11.710	0.00	5.20
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	11.803	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	11.803	0.00	5.20
137.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.032	0.000	11.840	0.00	0.55
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.032	0.000	11.840	0.00	2.08
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	11.894	0.00	0.82
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	11.894	0.00	3.12
Totals:											0.0	183.8

Calculated Forces

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 34



Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 19
Dead Load Factor 1.00	
Wind Load 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	-33.88	-5.78	0.00	-522.00	0.00	522.00	5495.69	2747.85	13229.6	6624.65	0.00	0.000	0.000	0.085
5.00	-32.40	-5.66	0.00	-493.08	0.00	493.08	5430.88	2715.44	12829.8	6424.46	0.01	-0.020	0.000	0.083
10.00	-30.95	-5.55	0.00	-464.76	0.00	464.76	5364.68	2682.34	12432.6	6225.56	0.04	-0.041	0.000	0.080
15.00	-29.52	-5.43	0.00	-437.04	0.00	437.04	5297.08	2648.54	12038.2	6028.06	0.10	-0.061	0.000	0.078
20.00	-28.12	-5.30	0.00	-409.90	0.00	409.90	5228.10	2614.05	11646.7	5832.05	0.17	-0.082	0.000	0.076
25.00	-26.75	-5.18	0.00	-383.38	0.00	383.38	5157.72	2578.86	11258.4	5637.61	0.27	-0.102	0.000	0.073
30.00	-25.40	-5.04	0.00	-357.51	0.00	357.51	5085.94	2542.97	10873.5	5444.85	0.39	-0.122	0.000	0.071
35.00	-24.08	-4.91	0.00	-332.29	0.00	332.29	5012.78	2506.39	10492.1	5253.85	0.53	-0.142	0.000	0.068
40.00	-22.78	-4.77	0.00	-307.74	0.00	307.74	4938.23	2469.11	10114.4	5064.72	0.68	-0.161	0.000	0.065
41.75	-22.34	-4.72	0.00	-299.39	0.00	299.39	4911.80	2455.90	9983.12	4998.98	0.74	-0.168	0.000	0.064
45.00	-20.85	-4.63	0.00	-284.04	0.00	284.04	4862.28	2431.14	9740.60	4877.54	0.86	-0.181	0.000	0.063
48.00	-19.51	-4.54	0.00	-270.15	0.00	270.15	3974.54	1987.27	7999.01	4005.45	0.98	-0.192	0.000	0.072
50.00	-19.07	-4.49	0.00	-261.06	0.00	261.06	3951.82	1975.91	7882.32	3947.02	1.06	-0.200	0.000	0.071
55.00	-17.99	-4.35	0.00	-238.60	0.00	238.60	3894.03	1947.02	7592.27	3801.78	1.28	-0.221	0.000	0.067
60.00	-16.94	-4.21	0.00	-216.85	0.00	216.85	3834.86	1917.43	7304.76	3657.81	1.53	-0.241	0.000	0.064
65.00	-15.90	-4.07	0.00	-195.80	0.00	195.80	3774.29	1887.14	7019.98	3515.21	1.79	-0.261	0.000	0.060
70.00	-14.89	-3.93	0.00	-175.45	0.00	175.45	3712.33	1856.16	6738.10	3374.06	2.07	-0.279	0.000	0.056
75.00	-13.90	-3.79	0.00	-155.81	0.00	155.81	3648.97	1824.49	6459.33	3234.46	2.38	-0.298	0.000	0.052
80.00	-12.94	-3.65	0.00	-136.86	0.00	136.86	3584.23	1792.12	6183.84	3096.52	2.70	-0.315	0.000	0.048
84.50	-12.09	-3.53	0.00	-120.44	0.00	120.44	3524.77	1762.38	5938.86	2973.85	3.00	-0.330	0.000	0.044
85.00	-11.92	-3.51	0.00	-118.67	0.00	118.67	3518.09	1759.05	5911.82	2960.31	3.04	-0.331	0.000	0.043
89.75	-10.39	-3.38	0.00	-101.99	0.00	101.99	2751.31	1375.65	4591.32	2299.07	3.37	-0.346	0.000	0.048
90.00	-10.35	-3.37	0.00	-101.15	0.00	101.15	2748.94	1374.47	4581.20	2294.00	3.39	-0.346	0.000	0.048
95.00	-7.74	-2.44	0.00	-84.29	0.00	84.29	2700.80	1350.40	4379.75	2193.13	3.76	-0.362	0.000	0.041
100.00	-6.99	-2.31	0.00	-72.08	0.00	72.08	2651.27	1325.64	4180.43	2093.32	4.15	-0.377	0.000	0.037
105.00	-6.26	-2.17	0.00	-60.55	0.00	60.55	2600.36	1300.18	3983.42	1994.67	4.55	-0.390	0.000	0.033
106.83	-5.99	-2.13	0.00	-56.56	0.00	56.56	2581.34	1290.67	3911.81	1958.81	4.70	-0.395	0.000	0.031
110.00	-5.31	-2.04	0.00	-49.82	0.00	49.82	2548.05	1274.02	3788.92	1897.28	4.97	-0.402	0.000	0.028
111.50	-4.98	-2.00	0.00	-46.76	0.00	46.76	1220.14	610.07	1829.40	916.06	5.09	-0.406	0.000	0.055
115.00	-4.66	-1.91	0.00	-39.75	0.00	39.75	1210.72	605.36	1777.23	889.94	5.39	-0.413	0.000	0.049
120.00	-4.21	-1.79	0.00	-30.19	0.00	30.19	1196.07	598.04	1702.04	852.29	5.84	-0.428	0.000	0.039
125.00	-3.78	-1.67	0.00	-21.25	0.00	21.25	1180.03	590.02	1626.25	814.33	6.29	-0.440	0.000	0.029
130.00	-3.35	-1.55	0.00	-12.92	0.00	12.92	1162.60	581.30	1550.04	776.17	6.76	-0.448	0.000	0.020
135.00	-2.93	-1.43	0.00	-5.19	0.00	5.19	1143.78	571.89	1473.61	737.90	7.23	-0.453	0.000	0.010
137.00	-2.07	-0.78	0.00	-2.34	0.00	2.34	1135.86	567.93	1443.01	722.58	7.42	-0.454	0.000	0.005
140.00	0.00	-0.76	0.00	0.00	0.00	0.00	1123.57	561.78	1397.13	699.60	7.70	-0.455	0.000	0.000

Final Analysis Summary

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 35



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 93 mph Wind	22.2	0.00	40.64	0.00	0.00	2012.02
0.9D + 1.6W 93 mph Wind	22.2	0.00	30.47	0.00	0.00	2003.75
1.2D + 1.0Di + 1.0Wi 40 mph Wind	4.6	0.00	58.66	0.00	0.00	407.32
1.2D + 1.0E	1.4	0.00	40.65	0.00	0.00	142.42
0.9D + 1.0E	1.4	0.00	30.49	0.00	0.00	141.77
1.0D + 1.0W 60 mph Wind	5.8	0.00	33.88	0.00	0.00	522.00

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 93 mph Wind	-40.64	-22.24	0.00	-2012.0	0.00	-2012.0	5495.69	2747.8	13229.6	6624.65	0.00	0.311
0.9D + 1.6W 93 mph Wind	-30.47	-22.23	0.00	-2003.7	0.00	-2003.7	5495.69	2747.8	13229.6	6624.65	0.00	0.308
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-58.66	-4.62	0.00	-407.32	0.00	-407.32	5495.69	2747.8	13229.6	6624.65	0.00	0.072
1.2D + 1.0E	-6.00	-0.89	0.00	-22.72	0.00	-22.72	1220.14	610.07	1829.40	916.06	111.50	0.030
0.9D + 1.0E	-4.50	-0.89	0.00	-22.63	0.00	-22.63	1220.14	610.07	1829.40	916.06	111.50	0.028
1.0D + 1.0W 60 mph Wind	-33.88	-5.78	0.00	-522.00	0.00	-522.00	5495.69	2747.8	13229.6	6624.65	0.00	0.085

Base Plate Summary

Structure: CT13530-S	Code: TIA-222-G	4/25/2022
Site Name: Martin 5, CT	Exposure: C	
Height: 140.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 36



Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 65.25
Moment (kip-ft): 5506.10	Width (in): 71.50	Number Bolts: 16.00
Axial (kip): 100.60	Style: Round	Bolt Type: 2.25" 18J
Shear (kip): 48.30	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 2012.02	Effective Len (in): 22.04	Ultimate (ksi): 100.00
Axial (kip): 40.64	Moment (kip-in): 300.54	Arrangement: Radial
Shear (kip): 22.24	Allow Stress (ksi): 67.50	Cluster Dist (in): 0.00
	Applied Stress (ksi): 16.20	Start Angle (deg): 0.00
	Stress Ratio: 0.24	Compression
		Force (kip): 96.17
		Allowable (kip): 260.00
		Ratio: 0.38
		Tension
		Force (kip): 88.84
		Allowable (kip): 260.00
		Ratio: 0.35

	Monopole Mat Foundation Design		Date	
			4/22/2022	
	Customer Name:	□□M□□□□	TIA Standard:	□□□□222□□
	Site Name:		Structure Height (Ft.):	1□□
	Site Number:	□□1□5□□□□	Engineer Name:	□□□□□□□□□□
Engr. Number:		Engineer Login ID:		

Foundation Info Obtained from:

Dr□□□□□□□□□□□□□□
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	40.6	Shear Force (Kips):	22.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2012.0

Allowable overstress %: 5□□□

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	23	Width of Pad (ft.):	23

Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
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Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	38	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24
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Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

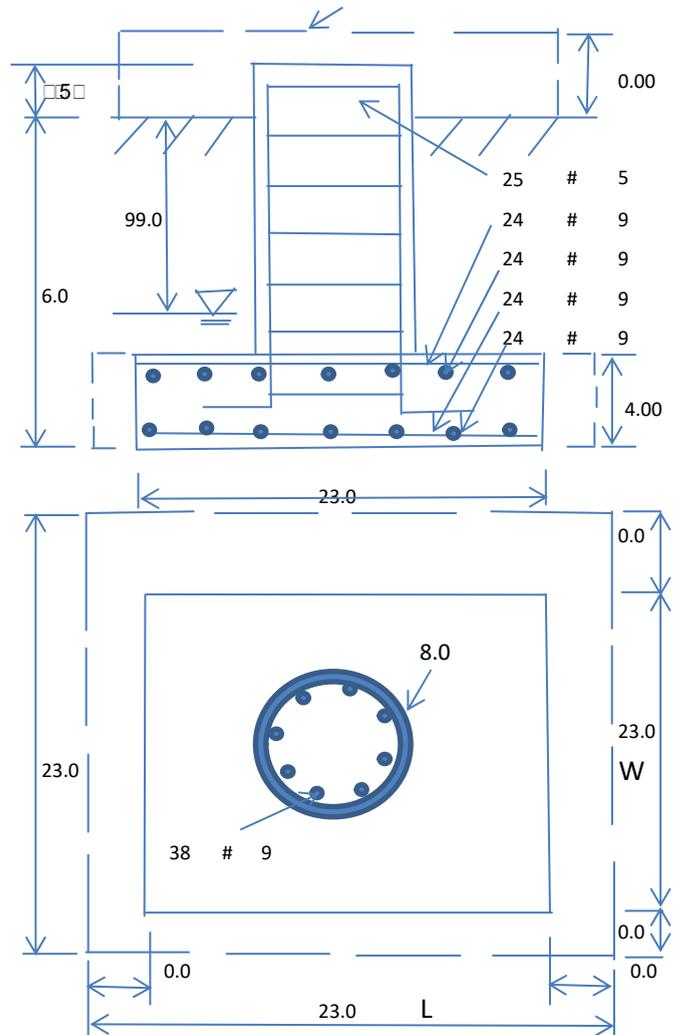
Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf	
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad: 25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction 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.):	957.47	Total Dry Soil Weight (Kips):	114.90
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	114.90	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2241.66	Total Dry Concrete Weight (Kips):	336.25
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	336.25	Total Vertical Load on Base (Kips):	491.75

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1976	<	Allowable Factored Soil Bearing (psf):	9000	0.22	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5136.3	>	Design Factored Momont (kips-ft):	2156	0.42	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.38					OK!



Check the capacities of Reinforcing Concrete:

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

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	7455.7	> Design Factored Moment (Mu, Kips-Ft)	2067.5	0.28	OK!
Calculated Shear Capacity (Kips):	1639.0	> Design Factored Shear (Kips):	22.2	0.01	OK!
Calculated Tension Capacity (Tn, Kips):	2052.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12730.0	> Design Factored Axial Load (Pu Kips):	40.6	0.00	OK!
Moment & Axial Strength Combination:	0.28	OK! Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1163.5	> One-Way Factored Shear (L-D. Kips):	118.1	0.10	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1163.5	> One-Way Factored Shear (W-D., Kips):	118.1	0.10	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	866.1	> One-Way Factored Shear (C-C, Kips):	107.9	0.12	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK! Lower Steel Pad Reinf. Ratio (W-Direct.):	0.0020		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	4716.4	> Moment at Bottom (L-Dir. K-Ft):	725.5	0.15	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	4716.4	> Moment at Bottom (W-Dir. K-Ft):	725.5	0.15	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	6631.8	> Moment at Bottom (C-C Dir. K-Ft):	1026.0	0.15	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0020		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	4716.4	> Moment at the top (L-Dir K-Ft):	273.7	0.06	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	4716.4	> Moment at the top (W-Dir K-Ft):	273.7	0.06	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	6631.8	> Moment at the top (C-C Dir. K-Ft):	260.2	0.04	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	804.8	k-ft.	Max. factored shear stress $v_{u,CD}$:	0.6	Psi
Max. factored shear stress $v_{u,AB}$:	3.8	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	3.8	Psi	Check Usage of Punching Shear Capacity:	0.02	□□□

Exhibit E

Mount Analysis



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 140-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT13530-S-SBA / Martin 5, CT

Customer Site Name: Martin 5, CT

Carrier Name: T-Mobile (App#: 194487-1)

Carrier Site ID / Name: CTNH370A / CT370/opta/Drzal FT

Site Location: 425 Litchfield Road

New Milford, Connecticut

Litchfield County

Latitude: 41.646722

Longitude: -73.387250

Analysis Result:

Max Structural Usage: 47.6% [Pass]

Report Prepared By: Jian Ma





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Litchfield County

Latitude: 41.646722

Longitude: -73.387250

Analysis Result:

Max Structural Usage: 47.6% [Pass]

Report Prepared By: Jian Ma

Introduction

The purpose of this report is to summarize the analysis results on the (3) T-arms at 140.00' 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 TEP, dated 4/12/2022
Antenna Loading	SBA Application #: 194487, v1, dated 4/6/2022
Existing Modification	N/A
Proposed Modification	TES Project No. 128127

Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT} = 120$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 93$ mph (3-Sec. Gust)

Basic Wind Speed with Ice: 40 mph (3-Sec. Gust) with 0.75" radial ice concurrent

Operational Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC

Exposure Category: C

Structure Class: II

Topographic Category: 1

Crest Height (Ft): 0

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

Mount Information

(3) T-arms at 140.00' elevation

Final Antenna Configuration

3	RFS APX16PV-16VL-E
3	EMS RR90-17-02DP
3	RFS APXVAALL24_43-U-NA20
3	Ericsson KRY 112 489/2
3	Ericsson 4480 B71 + B85
3	Kathrein Scala 782 11056

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 47.6%, which occurs in the connection. 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.



Structure: CT13530-S-SBA - Martin 5, CT

Sector: **A**

4/25/2022

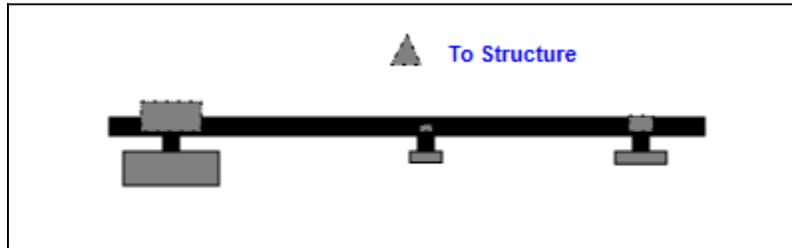
Structure Type: Monopole

Mount Elev: 140.00

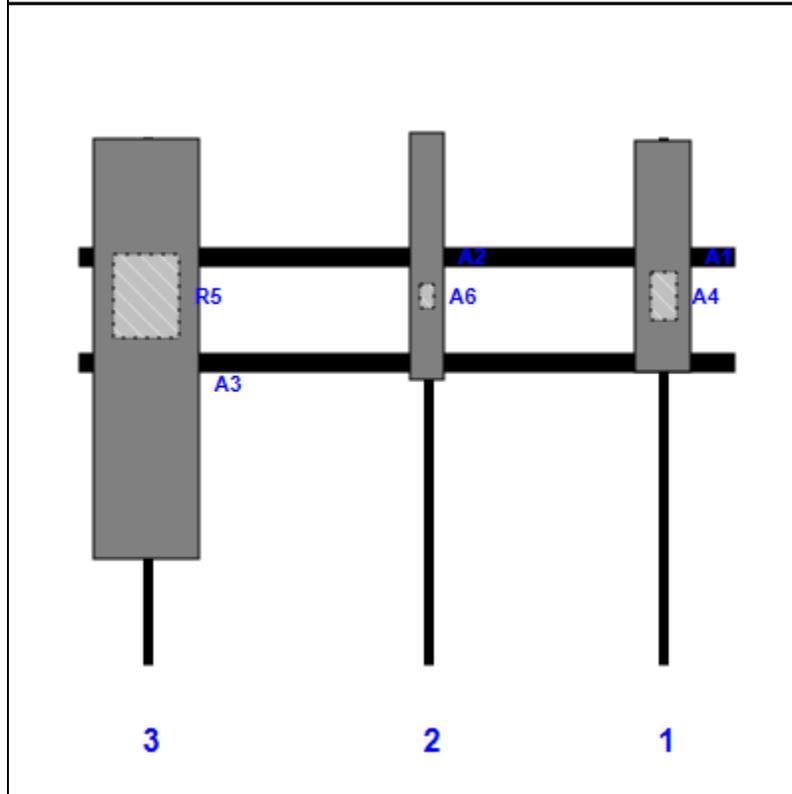
Page: 1



Plan View



Front View
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16PV-16VL-E	53.00	12.90	134.00	1	a	Front	27.00		Leased	
A4	KRY 112 489/2	11.00	6.10	134.00	1	a	Behind	36.00		Retained	
A2	RR90-17-02DP	56.00	8.00	80.00	2	a	Front	27.00		Leased	
A6	782 11056	5.50	3.20	80.00	2	a	Behind	36.00		Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	16.00	3	a	Front	48.00		Added	
R5	4480 B71 + B85	19.20	15.10	16.00	3	a	Behind	36.00		Added	

Structure: CT13530-S-SBA - Martin 5, CT

Sector: **B**

4/25/2022

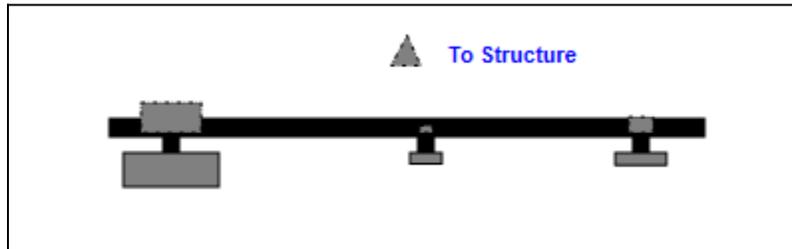
Structure Type: Monopole

Mount Elev: 140.00

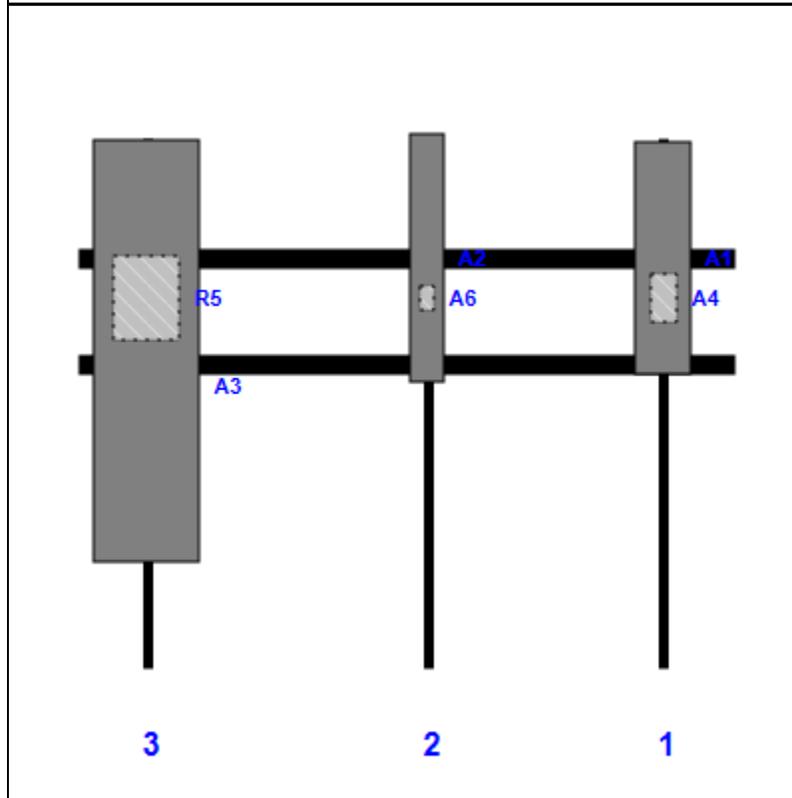
Page: 2



Plan View



Front View
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16PV-16VL-E	53.00	12.90	134.00	1	a	Front	27.00		Leased	
A4	KRY 112 489/2	11.00	6.10	134.00	1	a	Behind	36.00		Retained	
A2	RR90-17-02DP	56.00	8.00	80.00	2	a	Front	27.00		Leased	
A6	782 11056	5.50	3.20	80.00	2	a	Behind	36.00		Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	16.00	3	a	Front	48.00		Added	
R5	4480 B71 + B85	19.20	15.10	16.00	3	a	Behind	36.00		Added	

Structure: CT13530-S-SBA - Martin 5, CT

Sector: C

4/25/2022

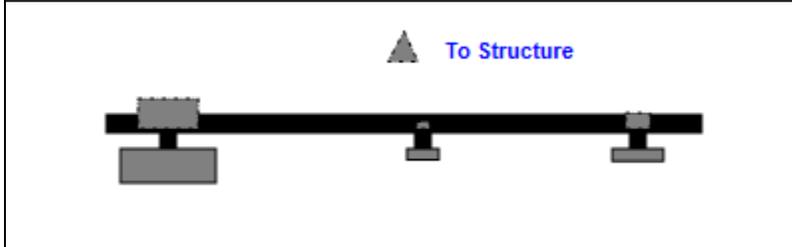
Structure Type: Monopole

Mount Elev: 140.00

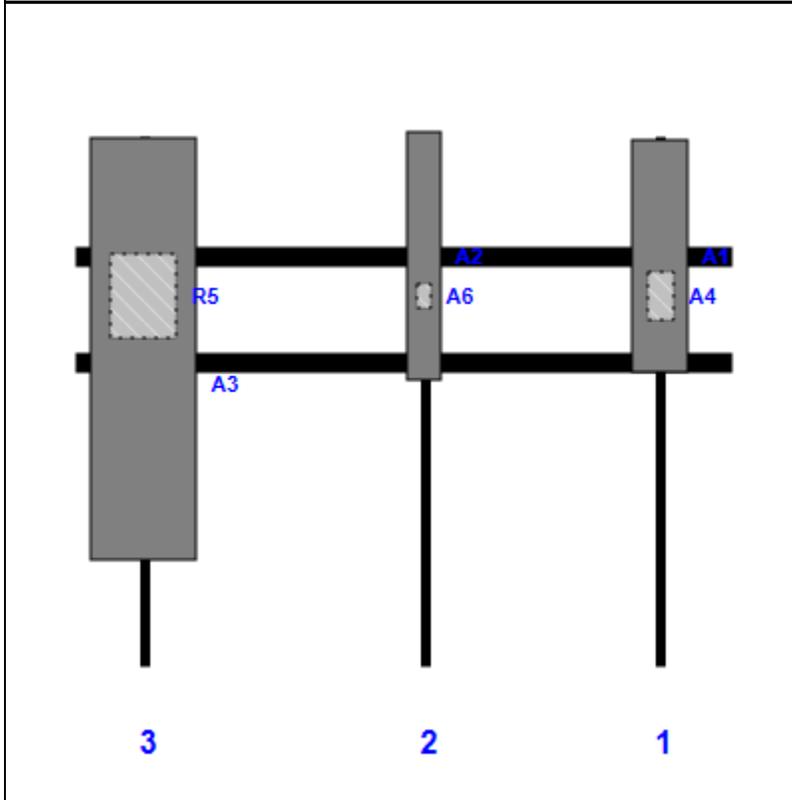
Page: 3



Plan View



Front View
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16PV-16VL-E	53.00	12.90	134.00	1	a	Front	27.00		Leased	
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A3	APXVAALL24_43-U-NA20	95.90	24.00	16.00	3	a	Front	48.00		Added	
R5	4480 B71 + B85	19.20	15.10	16.00	3	a	Behind	36.00		Added	

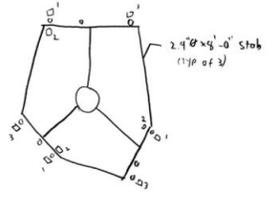


Antenna Mount Mapping Form (PATENT PENDING)

FCC #
1262873

Tower Owner:	<input type="checkbox"/>	Mapping Date:	12/22
Site Name:	M05	Tower Type:	M
Site Number or ID:	05	Tower Height (Ft.):	100
Mapping Contractor:		Mount Elevation (Ft.):	107

This antenna mapping form is the property of TES and under PATENT PENDING. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.



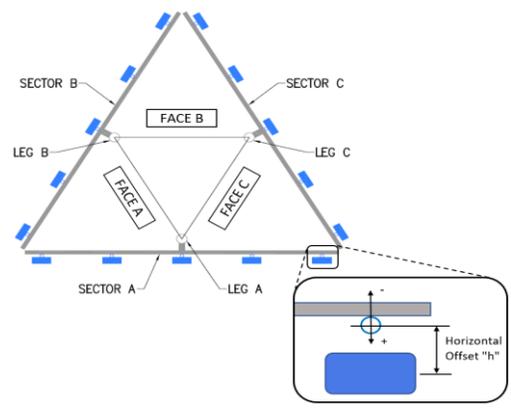
- 1: RES APXV18-206516L $\frac{B}{2C} = \frac{H}{7/2}$
- 2: 11" x 6" x 4" D TMA 3.7" 5"
- 3: CommScope LNX-6516DS-A1M 40" 7"

Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "U"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "U"	Horizontal Offset "C1, C2, C3, etc."
A1	2.4"x6'-0"Tx0.154"TH	45.00	16.00	C1	2.4"x6'-0"Tx0.154"TH	45.00	16.00
A2	2.4"x6'-0"Tx0.154"TH	45.00	70.00	C2	2.4"x6'-0"Tx0.154"TH	45.00	70.00
A3	2.9"x10'-0"Tx0.203"TH	51.00	134.00	C3	2.9"x10'-0"Tx0.203"TH	51.00	134.00
A4				C4			
A5				C5			
A6				C6			
B1	2.4"x6'-0"Tx0.154"TH	45.00	16.00	D1			
B2	2.4"x6'-0"Tx0.154"TH	45.00	70.00	D2			
B3	2.9"x10'-0"Tx0.203"TH	51.00	134.00	D3			
B4				D4			
B5				D5			
B6				D6			

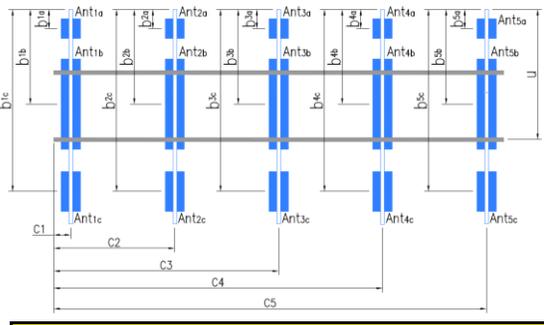
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :
 Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :

Please enter additional information or comments below.

Tower Face Width at Mount Elev. (ft.):	Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	31.19
----------------------------------------	-------------------------------------------------------------	-------



		Enter antenna model. If not labeled, enter "Unknown".					Mounting Locations [Units are inches and degrees]			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b _{1a} , b _{2a} , b _{3a} , b _{1b} ..." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photo Numbers
Ant _{1a}	Unknown TMA	6.00	4.00	11.00	2) FH 1-5/	137.667	37.00	5.00		119
Ant _{1b}	APXV18-206516L	6.90	3.15	53.10	per from	138.542	26.50	7.50	355.00	117-118
Ant _{1c}										
Ant _{2a}										
Ant _{2b}										
Ant _{2c}										
Ant _{3a}										
Ant _{3b}	LNX-6516DS-A1M	10.59	5.20	101.46	2) FH 1-5/	137.917	40.00	7.00	355.00	99-100
Ant _{3c}										
Ant _{4a}										
Ant _{4b}										
Ant _{4c}										
Ant _{5a}										
Ant _{5b}										
Ant _{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										



Antenna Layout (Looking Out From Tower)

Observed Safety and Structural Issues During the Mount Mapping

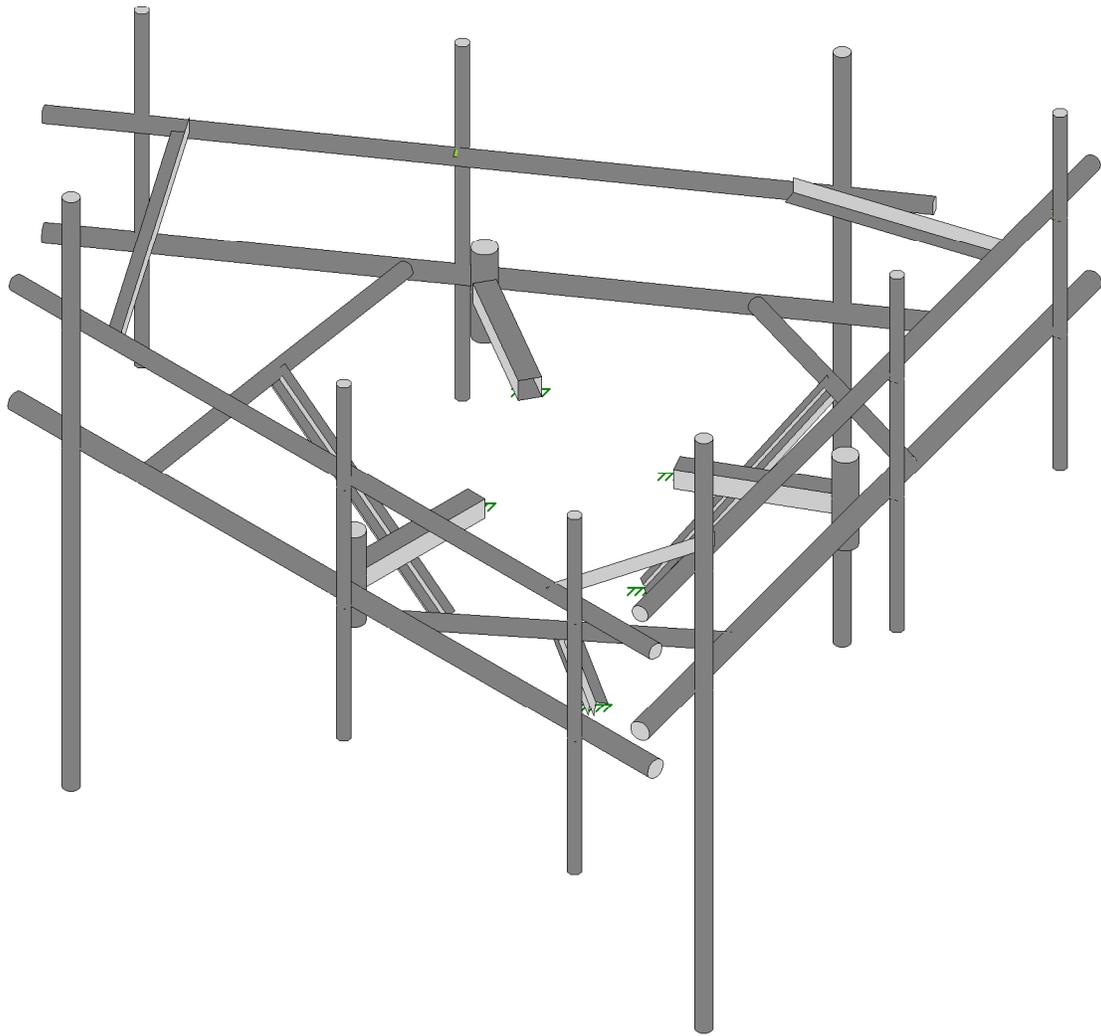
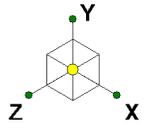
Issue #	Description of Issue	Photo #
1		
2		
3		
4		
5		
6		
7		
8		

Mapping Notes

1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions

1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.



Envelope Only Solution

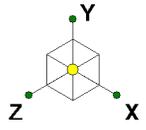
Tower Engineering Solutio...
KW
TES Project No. 128127

CT13530-S-SBA_MT_LO_Loads Only_G

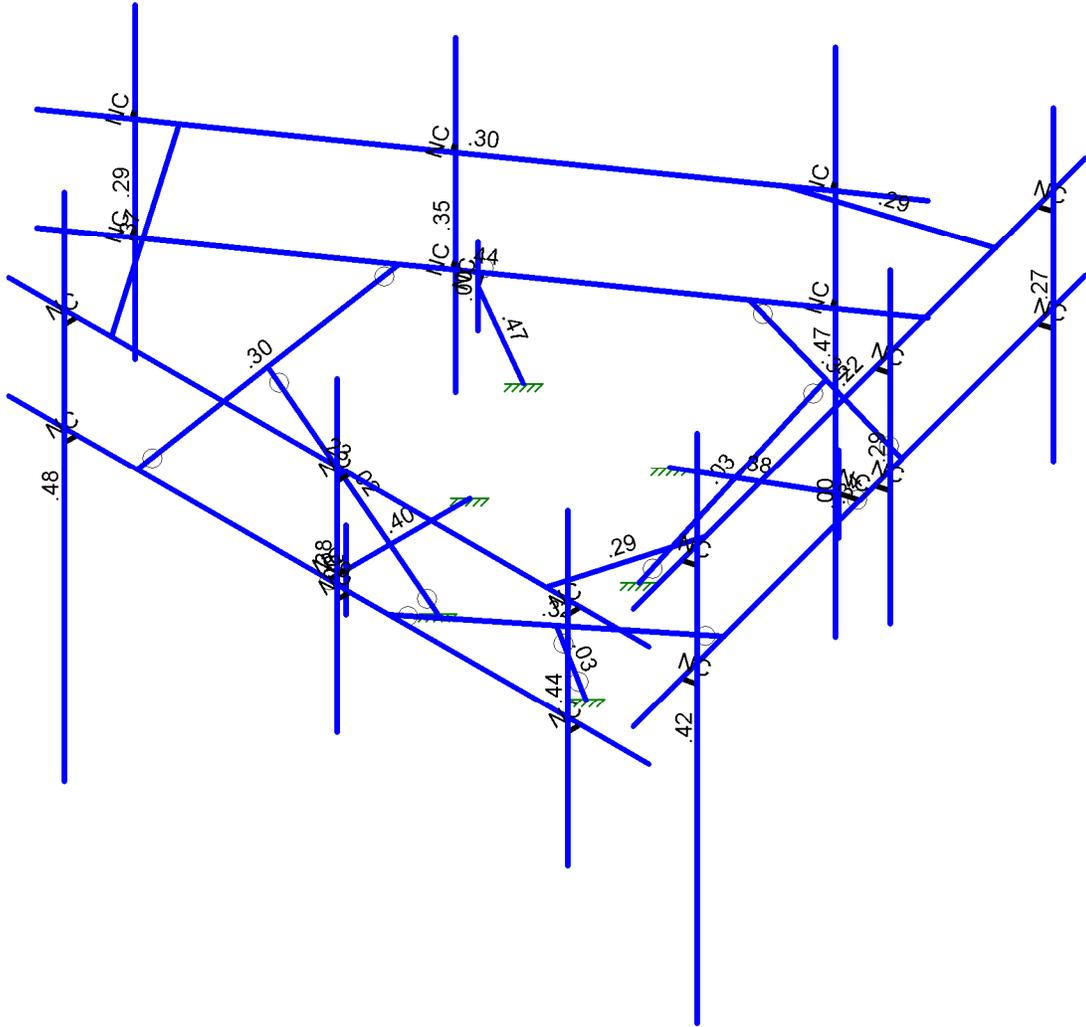
SK - 1

Apr 25, 2022 at 3:29 PM

CT13530-S-SBA_128127_G_RISA_...



Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Solutio...

KW

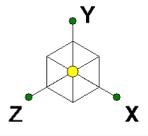
TES Project No. 128127

CT13530-S-SBA_MT_LO_Loads Only_G

SK - 2

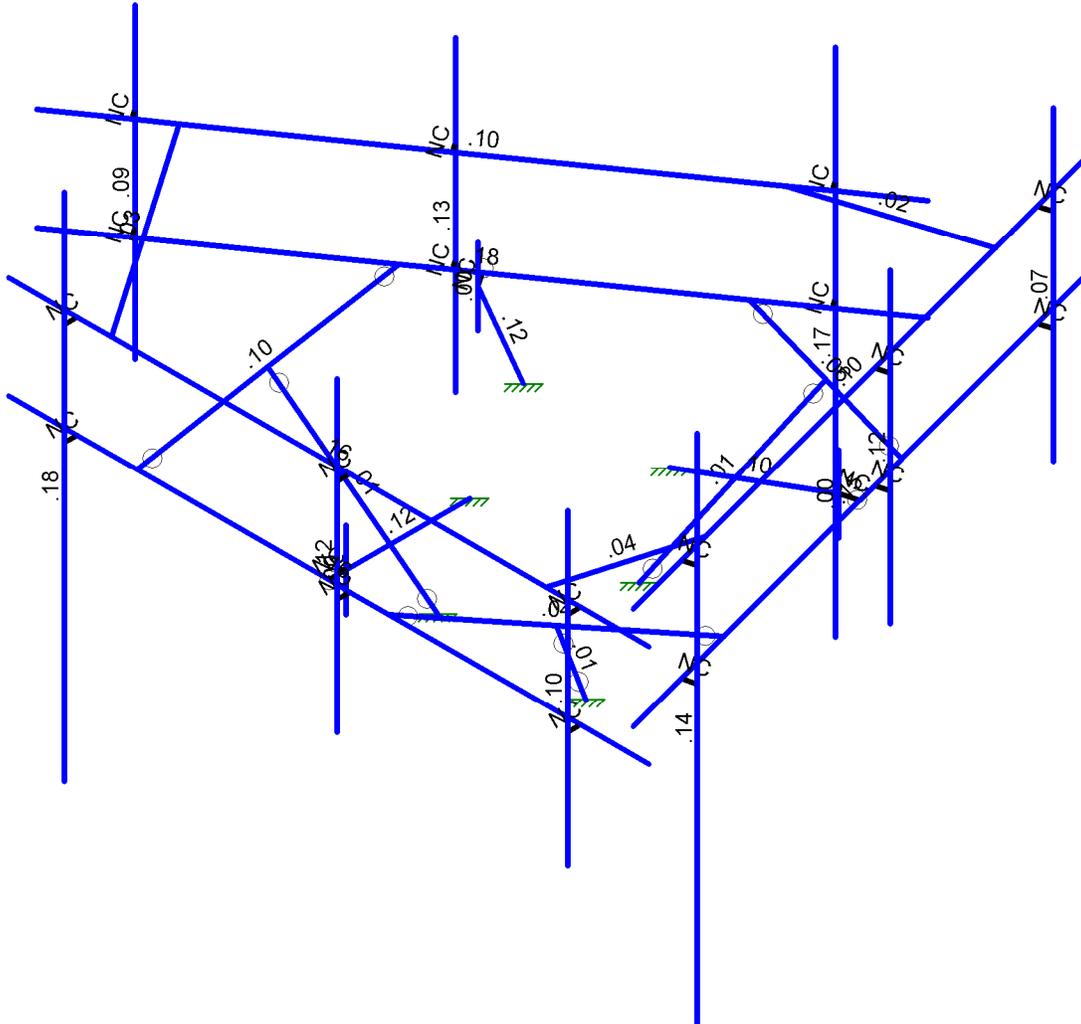
Apr 25, 2022 at 3:29 PM

CT13530-S-SBA_128127_G_RISA_...



Shear Check (Env)

Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Solutio...	CT13530-S-SBA_MT_LO_Loads Only_G	SK - 3
KW		Apr 25, 2022 at 3:29 PM
TES Project No. 128127		CT13530-S-SBA_128127_G_RISA_...



Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(M... Surface...
1	Antenna D	None					27		
2	Antenna Di	None					27		
3	Antenna W Front	None					27		
4	Antenna Wi Front	None					27		
5	Antenna W Side	None					27		
6	Antenna Wi Side	None					27		
7	Service Lm1	None					1		
8	Service Lm2	None					1		
9	Structure D	None		-1					
10	Structure Di	None						30	
11	Structure W Front	None						30	
12	Structure Wi Front	None						30	
13	Structure W Side	None						30	
14	Structure Wi Side	None						30	

Load Combinations

	Description	S...	P...	S...	BLC Fa...	B...	Fa...																
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 (Front)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1							
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1							
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1							
8	1.2D+1.0Di+1.0Wi (Right)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1							
9	1.2D+1.5L1+.16W (Maintai...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16									
10	1.2D+1.5L2+.16W (Maintai...	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	N44A	6.25	0	4.405008	0	
2	N45A	4.916667	0	4.655008	0	
3	N46	5.465768	0	3.914926	0	
4	N49	0.416667	0	4.655008	0	
5	N57A	-6.25	0	4.405008	0	
6	N60	-8.837066	0	1.275965	0	
7	N62	0	-3.083333	-1.666667	0	
8	N71	2.23053	0	-8.159147	0	
9	N73	1.402334	0	-5.893741	0	
10	N87A	4.916667	3.75	4.655008	0	
11	N89A	0.416667	3.75	4.655008	0	
12	N87	4.916667	-2.25	4.655008	0	
13	N89	0.416667	-2.25	4.655008	0	
14	N54	-1.443376	-3.083333	0.833333	0	
15	N56A	1.443376	-3.083333	0.833333	0	
16	N56B	3.848149	0	-2.122111	0	
17	N57	-3.717366	0	-2.308888	0	
18	N58A	0	0	4.405008	0	
19	N59	0	0	1.655008	0	
20	N61A	1.433279	0	-0.827504	0	
21	N63A	-1.433279	0	-0.827504	0	
22	N63B	1.166667	0	4.405008	0	



Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
23	N64A	-3.75	0	4.405008	0	
24	N65A	3.546194	0	-3.249024	0	
25	N66A	4.818721	0	1.500111	0	
26	N67A	-4.673044	0	-1.639716	0	
27	N68A	-0.645546	0	-4.4598	0	
28	N35	4.916667	0	4.405008	0	
29	N36	0.416667	0	4.405008	0	
30	N38	-4.916667	0	4.655008	0	
31	N39	-4.916667	4.25	4.655008	0	
32	N40	-4.916667	-5.75	4.655008	0	
33	N41	-4.916667	0	4.405008	0	
34	N38A	2.817104	0	-6.935951	0	
35	N39A	3.981789	0	-2.589284	0	
36	N40A	2.817104	3.75	-6.935951	0	
37	N41A	3.981789	3.75	-2.589284	0	
38	N42	2.817104	-2.25	-6.935951	0	
39	N43	3.981789	-2.25	-2.589284	0	
40	N44	2.575622	0	-6.871246	0	
41	N45	3.740308	0	-2.52458	0	
42	N46A	5.362158	0	2.56232	0	
43	N47	5.362158	4.25	2.56232	0	
44	N48	5.362158	-5.75	2.56232	0	
45	N49A	5.120676	0	2.627025	0	
46	N50	-7.888258	0	0.306408	0	
47	N51	-4.202074	0	-2.274686	0	
48	N52	-7.888258	3.75	0.306408	0	
49	N53	-4.202074	3.75	-2.274686	0	
50	N54A	-7.888258	-2.25	0.306408	0	
51	N55	-4.202074	-2.25	-2.274686	0	
52	N56	-7.744864	0	0.511196	0	
53	N57B	-4.058679	0	-2.069898	0	
54	N58B	0.166737	0	-5.33376	0	
55	N59A	0.166737	4.25	-5.33376	0	
56	N60A	0.166737	-5.75	-5.33376	0	
57	N61	0.310131	0	-5.128972	0	
58	N62B	0	0	4.071675	0	
59	N63C	3.526174	0	-2.035838	0	
60	N64B	-3.526174	0	-2.035837	0	
61	N65	0	.75	4.071675	0	
62	N66	3.526174	.75	-2.035838	0	
63	N67	-3.526174	.75	-2.035837	0	
64	N68	0	-.75	4.071675	0	
65	N69	3.526174	-.75	-2.035838	0	
66	N70	-3.526174	-.75	-2.035837	0	
67	N71A	2.992694	0	2.95256	0	
68	N72	-4.211522	0	1.382646	0	
69	N73A	1.450324	0	-3.854412	0	
70	N70A	6.25	2	4.405008	0	
71	N71B	4.916667	2	4.655008	0	
72	N72A	0.416667	2	4.655008	0	
73	N73B	-6.25	2	4.405008	0	
74	N74	4.916667	2	4.405008	0	
75	N75	0.416667	2	4.405008	0	
76	N76	-4.916667	2	4.655008	0	
77	N77	-4.916667	2	4.405008	0	
78	N78	5.465768	2	3.914926	0	
79	N79	-8.837066	2	1.275965	0	



Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
80	N80	2.23053	2	-8.159147	0	
81	N81	1.402334	2	-5.893741	0	
82	N82	2.817104	2	-6.935951	0	
83	N83	3.981789	2	-2.589284	0	
84	N84	2.575622	2	-6.871246	0	
85	N85	3.740308	2	-2.52458	0	
86	N86	5.362158	2	2.56232	0	
87	N87B	5.120676	2	2.627025	0	
88	N88	-7.888258	2	0.306408	0	
89	N89B	-4.202074	2	-2.274686	0	
90	N90	-7.744864	2	0.511196	0	
91	N91	-4.058679	2	-2.069898	0	
92	N92	0.166737	2	-5.33376	0	
93	N93	0.310131	2	-5.128972	0	
94	N94	-7.198762	2	0.128812	0	
95	N95	2.748168	2	-6.227295	0	
96	N96	-4.25	2	4.405008	0	
97	N97	4.25	2	4.405008	0	
98	N98	-0.23597	2	-4.746588	0	
99	N99	4.94813	2	1.983074	0	
100	N100	2.877578	2	-5.744332	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design L...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4X4X4	Beam	Tube	A500 Gr...	Typical	3.37	7.8	7.8	12.8
2	Kicker	LL2.5x2.5x3x0	Beam	Double A.	A36 Gr.36	Typical	1.8	1.91	1.07	.023
3	MOD End Connectoin	L3X3X6	Beam	Single A...	A36 Gr.36	Typical	2.11	1.75	1.75	.101
4	Mount Pipe	PIPE 2.0	Beam	Pipe	A36 Gr.36	Typical	1.02	.627	.627	1.25
5	Mount Pipe 2.5	PIPE 2.5	Beam	Pipe	A36 Gr.36	Typical	1.61	1.45	1.45	2.89
6	Support Rail	PIPE 2.5	Beam	Pipe	A36 Gr.36	Typical	1.61	1.45	1.45	2.89
7	Mast Pipe	PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
8	End Connection	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
9	Front Face	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	1.5CU1.25X035	Beam	CU	A570_33	Typical	.131	.022	.052	5.4e-5

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14X13.9	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	58	1.2
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	58	1.2
4	A992	29000	11154	.3	.65	490	50	1.1	58	1.2
5	A500 Gr.42	29000	11154	.3	.65	490	42	1.3	58	1.1
6	A500 Gr.46	29000	11154	.3	.65	490	46	1.2	58	1.1
7	Q235	29000	11154	.3	.65	490	35	1.5	58	1.2



Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[lb/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 33	29500	11346	.3	.65	490	33	52
2	A607_C1_55	29500	11346	.3	.65	490	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...)	Density[...]	Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	172.8	Table B...	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3	172.8	Table B...	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3	172.8	Table B...	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3	172.8	Table B...	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3	172.8	Table B...	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3	172.8	Table B...	1	24	15	15	15	141

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
1	M22	N63B	N66A			End Connection	Beam	Pipe	A53 Gr.B	Typical
2	M23	N67A	N64A			End Connection	Beam	Pipe	A53 Gr.B	Typical
3	M25	N73A	N62			Kicker	Beam	Double An...	A36 Gr.36	Typical
4	M27	N46	N71			Front Face	Beam	Pipe	A53 Gr.B	Typical
5	M28	N73	N60			Front Face	Beam	Pipe	A53 Gr.B	Typical
6	M29	N57A	N44A			Front Face	Beam	Pipe	A53 Gr.B	Typical
7	M30	N68A	N65A			End Connection	Beam	Pipe	A53 Gr.B	Typical
8	MP1A	N87A	N87			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
9	MP2A	N89A	N89			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
10	M20	N72	N54			Kicker	Beam	Double An...	A36 Gr.36	Typical
11	M21	N71A	N56A			Kicker	Beam	Double An...	A36 Gr.36	Typical
12	M22A	N58A	N62B			RIGID	None	None	RIGID	Typical
13	M23A	N56B	N63C			RIGID	None	None	RIGID	Typical
14	M24	N57	N64B			RIGID	None	None	RIGID	Typical
15	M17	N49	N36			RIGID	None	None	RIGID	Typical
16	M18	N45A	N35			RIGID	None	None	RIGID	Typical
17	MP3A	N39	N40			Mount Pipe 2.5	Beam	Pipe	A36 Gr.36	Typical
18	M20A	N38	N41			RIGID	None	None	RIGID	Typical
19	MP1C	N40A	N42			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
20	MP2C	N41A	N43			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
21	M21A	N39A	N45			RIGID	None	None	RIGID	Typical
22	M22B	N38A	N44			RIGID	None	None	RIGID	Typical
23	MP3C	N47	N48			Mount Pipe 2.5	Beam	Pipe	A36 Gr.36	Typical
24	M24A	N46A	N49A			RIGID	None	None	RIGID	Typical
25	MP1B	N52	N54A			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
26	MP2B	N53	N55			Mount Pipe	Beam	Pipe	A36 Gr.36	Typical
27	M27A	N51	N57B			RIGID	None	None	RIGID	Typical
28	M28A	N50	N56			RIGID	None	None	RIGID	Typical
29	MP3B	N59A	N60A			Mount Pipe 2.5	Beam	Pipe	A36 Gr.36	Typical
30	M30A	N58B	N61			RIGID	None	None	RIGID	Typical
31	M31	N62B	N59			Standoff	Beam	Tube	A500 Gr.46	Typical
32	M32	N63C	N61A			Standoff	Beam	Tube	A500 Gr.46	Typical
33	M33	N64B	N63A			Standoff	Beam	Tube	A500 Gr.46	Typical
34	M34	N65	N68			Mast Pipe	Beam	Pipe	A53 Gr.B	Typical
35	M35	N67	N70			Mast Pipe	Beam	Pipe	A53 Gr.B	Typical
36	M36	N66	N69			Mast Pipe	Beam	Pipe	A53 Gr.B	Typical
37	M37	N72A	N75			RIGID	None	None	RIGID	Typical
38	M38	N71B	N74			RIGID	None	None	RIGID	Typical
39	M39	N76	N77			RIGID	None	None	RIGID	Typical



Company : Tower Engineering Solutions, LLC
 Designer : KW
 Job Number : TES Project No. 128127
 Model Name : CT13530-S-SBA_MT_LO_Loads Only_G

Apr 25, 2022
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 Checked By: _____

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
40	M40	N73B	N70A			Support Rail	Beam	Pipe	A36 Gr.36	Typical
41	M41	N83	N85			RIGID	None	None	RIGID	Typical
42	M42	N82	N84			RIGID	None	None	RIGID	Typical
43	M43	N86	N87B			RIGID	None	None	RIGID	Typical
44	M44	N89B	N91			RIGID	None	None	RIGID	Typical
45	M45	N88	N90			RIGID	None	None	RIGID	Typical
46	M46	N92	N93			RIGID	None	None	RIGID	Typical
47	M47	N79	N81			Support Rail	Beam	Pipe	A36 Gr.36	Typical
48	M48	N80	N78			Support Rail	Beam	Pipe	A36 Gr.36	Typical
49	M49	N94	N96			MOD End Connectoin	Beam	Single Angle	A36 Gr.36	Typical
50	M50	N98	N100			MOD End Connectoin	Beam	Single Angle	A36 Gr.36	Typical
51	M51	N99	N97			MOD End Connectoin	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M22	BenPIN	BenPIN				Yes				None
2	M23	BenPIN	BenPIN				Yes				None
3	M25	BenPIN	BenPIN				Yes				None
4	M27						Yes				None
5	M28						Yes				None
6	M29						Yes				None
7	M30	BenPIN	BenPIN				Yes				None
8	MP1A						Yes				None
9	MP2A						Yes				None
10	M20	BenPIN	BenPIN				Yes				None
11	M21	BenPIN	BenPIN				Yes				None
12	M22A		OOOOOO				Yes	** NA **			None
13	M23A		OOOOOO				Yes	** NA **			None
14	M24		OOOOOO				Yes	** NA **			None
15	M17						Yes	** NA **			None
16	M18						Yes	** NA **			None
17	MP3A						Yes				None
18	M20A						Yes	** NA **			None
19	MP1C						Yes				None
20	MP2C						Yes				None
21	M21A						Yes	** NA **			None
22	M22B						Yes	** NA **			None
23	MP3C						Yes				None
24	M24A						Yes	** NA **			None
25	MP1B						Yes				None
26	MP2B						Yes				None
27	M27A						Yes	** NA **			None
28	M28A						Yes	** NA **			None
29	MP3B						Yes				None
30	M30A						Yes	** NA **			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	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes				None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic..
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes				None
48	M48						Yes				None
49	M49						Yes				None
50	M50						Yes				None
51	M51						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M22	End Conne...	4.666	Segment	Segment	Lbyy						Lateral
2	M23	End Conne...	6.115	Segment	Segment	Lbyy						Lateral
3	M25	Kicker	4.049			Lbyy						Lateral
4	M27	Front Face	12.5			Lbyy						Lateral
5	M28	Front Face	12.5			Lbyy						Lateral
6	M29	Front Face	12.5			Lbyy						Lateral
7	M30	End Conne...	4.363	Segment	Segment	Lbyy						Lateral
8	MP1A	Mount Pipe	6			Lbyy						Lateral
9	MP2A	Mount Pipe	6			Lbyy						Lateral
10	M20	Kicker	4.18			Lbyy						Lateral
11	M21	Kicker	4.05			Lbyy						Lateral
12	MP3A	Mount Pipe...	10			Lbyy						Lateral
13	MP1C	Mount Pipe	6			Lbyy						Lateral
14	MP2C	Mount Pipe	6			Lbyy						Lateral
15	MP3C	Mount Pipe...	10			Lbyy						Lateral
16	MP1B	Mount Pipe	6			Lbyy						Lateral
17	MP2B	Mount Pipe	6			Lbyy						Lateral
18	MP3B	Mount Pipe...	10			Lbyy						Lateral
19	M31	Standoff	2.417			Lbyy						Lateral
20	M32	Standoff	2.417			Lbyy						Lateral
21	M33	Standoff	2.417			Lbyy						Lateral
22	M34	Mast Pipe	1.5			Lbyy						Lateral
23	M35	Mast Pipe	1.5			Lbyy						Lateral
24	M36	Mast Pipe	1.5			Lbyy						Lateral
25	M40	Support Rail	12.5			Lbyy						Lateral
26	M47	Support Rail	12.5			Lbyy						Lateral
27	M48	Support Rail	12.5			Lbyy						Lateral
28	M49	MOD End C...	5.194			Lbyy						Lateral
29	M50	MOD End C...	3.27			Lbyy						Lateral
30	M51	MOD End C...	2.521			Lbyy						Lateral

Cold Formed Steel Design Parameters

Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torque[ft]	Kyy	Kzz	Cb	R	a[ft]	Funct...
No Data to Print ...													



Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torg...	Kyy	Kzz	Cb	Function
No Data to Print ...											

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	N62	Reaction	Reaction	Reaction	Reaction	Reaction
2	N54	Reaction	Reaction	Reaction	Reaction	Reaction
3	N56A	Reaction	Reaction	Reaction	Reaction	Reaction
4	N63A	Reaction	Reaction	Reaction	Reaction	Reaction
5	N59	Reaction	Reaction	Reaction	Reaction	Reaction
6	N61A	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	N62	max	394.223	8	880.205	6	-110.819	1	0	1	0	1	2	
2		min	88.721	9	203.382	9	-601.424	6	0	2	0	2	1	
3	N54	max	-29.721	10	561.227	5	100.829	5	0	3	0	9	9	
4		min	-470.204	9	48.47	10	-23.725	2	0	9	0	3	3	
5	N56A	max	378.412	10	770.662	6	520.855	10	0	3	0	3	3	
6		min	16.562	9	47.857	9	26.279	9	0	4	0	4	4	
7	N63A	max	1861.121	4	1388.982	8	3103.291	1	1.923	5	6.283	1	.493	3
8		min	-1851.096	3	71.358	3	-2912.625	2	-.102	2	-5.929	2	-2.783	8
9	N59	max	2141.149	4	1622.75	6	950.005	1	.004	1	5.071	4	.737	10
10		min	-2142.293	3	163.007	1	-1186.675	2	-4.182	6	-5.083	3	-1.237	9
11	N61A	max	1775.046	4	1193.054	7	1986.923	1	1.333	1	4.42	2	2.56	7
12		min	-1964.712	3	-14.569	4	-1932.867	2	-.704	2	-4.286	1	-.113	4
13	Totals:	max	5993.573	4	6215.87	6	6151.338	1						
14		min	-5993.573	3	1924.988	1	-6151.335	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 Mom...	LC		
1	M22	1	max	850.45	4	-9.082	9	-10.527	9	.041	9	0	11	0	11
2			min	-638.753	3	-367.085	10	-318.867	6	-.047	4	0	1	0	1
3		2	max	848.72	4	-9.084	9	-10.744	9	.041	9	-.003	9	.09	10
4			min	-637.022	3	-367.087	10	-318.312	6	-.047	4	-.078	6	.002	9
5		3	max	846.99	4	-9.086	9	-10.962	9	.041	9	-.005	9	.18	10
6			min	-635.292	3	-367.089	10	-317.757	6	-.047	4	-.156	6	.004	9
7		4	max	845.26	4	-9.087	9	-11.179	9	.041	9	-.008	9	.27	10
8			min	-633.562	3	-367.09	10	-317.202	6	-.047	4	-.234	6	.007	9
9		5	max	843.53	4	-9.089	9	-11.397	9	.041	9	-.011	9	.361	10
10			min	-631.832	3	-367.092	10	-317.216	10	-.047	4	-.312	6	.009	9
11		6	max	841.8	4	-9.09	9	-11.614	9	.041	9	-.014	9	.451	10
12			min	-630.102	3	-367.093	10	-317.434	10	-.047	4	-.39	6	.011	9
13		7	max	840.07	4	-9.092	9	-11.832	9	.041	9	-.016	9	.541	10
14			min	-628.372	3	-367.095	10	-317.651	10	-.047	4	-.467	6	.013	9
15		8	max	838.34	4	-9.094	9	-12.049	9	.041	9	-.019	9	.631	10
16			min	-626.642	3	-367.097	10	-317.869	10	-.047	4	-.545	10	.016	9
17		9	max	836.61	4	-9.095	9	-12.267	9	.041	9	-.022	9	.721	10
18			min	-624.912	3	-367.098	10	-318.086	10	-.047	4	-.623	10	.018	9
19		10	max	834.88	4	-9.097	9	-12.484	9	.041	9	-.025	9	.811	10
20			min	-623.182	3	-367.1	10	-318.304	10	-.047	4	-.701	10	.02	9
21		11	max	793.165	4	367.226	10	318.156	10	.041	9	-.026	9	.812	10
22			min	-596.916	3	9.03	9	12.563	9	-.047	4	-.701	10	.02	9



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 Mom...	LC	
23	12	max	791.435	4	367.224	10	317.938	10	.041	9	-.023	9	.722	10	
24		min	-595.186	3	9.029	9	12.345	9	-.047	4	-.623	10	.018	9	
25	13	max	789.705	4	367.223	10	317.721	10	.041	9	-.02	9	.631	10	
26		min	-593.455	3	9.027	9	12.128	9	-.047	4	-.545	10	.016	9	
27	14	max	787.974	4	367.221	10	317.503	10	.041	9	-.017	9	.541	10	
28		min	-591.725	3	9.025	9	11.91	9	-.047	4	-.467	6	.013	9	
29	15	max	786.244	4	367.22	10	317.286	10	.041	9	-.014	9	.451	10	
30		min	-589.995	3	9.024	9	11.693	9	-.047	4	-.39	6	.011	9	
31	16	max	784.514	4	367.218	10	317.068	10	.041	9	-.011	9	.361	10	
32		min	-588.265	3	9.022	9	11.475	9	-.047	4	-.312	6	.009	9	
33	17	max	782.784	4	367.216	10	317.057	6	.041	9	-.008	9	.271	10	
34		min	-586.535	3	9.021	9	11.258	9	-.047	4	-.234	6	.007	9	
35	18	max	781.054	4	367.215	10	317.611	6	.041	9	-.005	9	.18	10	
36		min	-584.805	3	9.019	9	11.04	9	-.047	4	-.156	6	.004	9	
37	19	max	779.324	4	367.213	10	318.166	6	.041	9	-.003	9	.09	10	
38		min	-583.075	3	9.017	9	10.823	9	-.047	4	-.078	6	.002	9	
39	20	max	777.594	4	367.211	10	318.721	6	.041	9	0	11	0	11	
40		min	-581.345	3	9.016	9	10.605	9	-.047	4	0	1	0	1	
41	M23	1	max	1518.524	1	-8.874	10	-14.723	10	.036	10	0	11	0	11
42		min	-1357.844	2	-253.678	9	-245.76	8	-.233	9	0	1	0	1	
43	2	max	1517.83	1	-8.876	10	-14.734	10	.036	10	-.005	10	.082	9	
44		min	-1357.15	2	-253.68	9	-244.6	8	-.233	9	-.079	8	.003	10	
45	3	max	1517.135	1	-8.878	10	-14.744	10	.036	10	-.009	10	.163	9	
46		min	-1356.455	2	-253.682	9	-243.441	8	-.233	9	-.157	8	.006	10	
47	4	max	1516.441	1	-8.88	10	-14.755	10	.036	10	-.014	10	.245	9	
48		min	-1355.761	2	-253.685	9	-242.281	8	-.233	9	-.236	8	.009	10	
49	5	max	1515.747	1	-8.883	10	-14.766	10	.036	10	-.019	10	.327	9	
50		min	-1355.067	2	-253.687	9	-241.121	8	-.233	9	-.313	8	.011	10	
51	6	max	1515.052	1	-8.885	10	-14.776	10	.036	10	-.024	10	.408	9	
52		min	-1354.372	2	-253.689	9	-240.098	9	-.233	9	-.391	8	.014	10	
53	7	max	1514.358	1	-8.887	10	-14.787	10	.036	10	-.028	10	.49	9	
54		min	-1353.678	2	-253.691	9	-240.109	9	-.233	9	-.468	8	.017	10	
55	8	max	1513.663	1	-8.889	10	-14.797	10	.036	10	-.033	10	.572	9	
56		min	-1352.983	2	-253.693	9	-240.119	9	-.233	9	-.545	8	.02	10	
57	9	max	1512.969	1	-8.891	10	-14.808	10	.036	10	-.038	10	.653	9	
58		min	-1352.289	2	-253.695	9	-240.13	9	-.233	9	-.621	8	.023	10	
59	10	max	1512.275	1	-8.893	10	-14.819	10	.036	10	-.043	10	.735	9	
60		min	-1351.595	2	-253.697	9	-240.14	9	-.233	9	-.697	8	.026	10	
61	11	max	1476.316	1	253.942	9	239.873	9	.036	10	-.043	10	.736	9	
62		min	-1303.215	2	8.881	10	14.831	10	-.233	9	-.696	8	.026	10	
63	12	max	1475.621	1	253.94	9	239.862	9	.036	10	-.038	10	.654	9	
64		min	-1302.52	2	8.879	10	14.821	10	-.233	9	-.62	8	.023	10	
65	13	max	1474.927	1	253.938	9	239.851	9	.036	10	-.033	10	.572	9	
66		min	-1301.826	2	8.877	10	14.81	10	-.233	9	-.544	8	.02	10	
67	14	max	1474.233	1	253.936	9	239.841	9	.036	10	-.029	10	.49	9	
68		min	-1301.132	2	8.875	10	14.8	10	-.233	9	-.467	8	.017	10	
69	15	max	1473.538	1	253.934	9	239.83	9	.036	10	-.024	10	.409	9	
70		min	-1300.437	2	8.873	10	14.789	10	-.233	9	-.391	8	.014	10	
71	16	max	1472.844	1	253.932	9	240.943	8	.036	10	-.019	10	.327	9	
72		min	-1299.743	2	8.871	10	14.778	10	-.233	9	-.313	8	.011	10	
73	17	max	1472.149	1	253.929	9	242.102	8	.036	10	-.014	10	.245	9	
74		min	-1299.048	2	8.869	10	14.768	10	-.233	9	-.235	8	.009	10	
75	18	max	1471.455	1	253.927	9	243.262	8	.036	10	-.009	10	.163	9	
76		min	-1298.354	2	8.867	10	14.757	10	-.233	9	-.157	8	.006	10	
77	19	max	1470.761	1	253.925	9	244.422	8	.036	10	-.005	10	.082	9	
78		min	-1297.66	2	8.864	10	14.747	10	-.233	9	-.079	8	.003	10	
79	20	max	1470.066	1	253.923	9	245.581	8	.036	10	0	11	0	11	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
80		min	-1296.965	2	8.862	10	14.736	10	-233	9	0	1	0	1	
81	M25	1	max	1062.293	7	33.847	5	33.016	3	.001	1	0	11	0	11
82		min	238.272	9	-13.012	2	-33.016	4	0	2	0	1	0	1	
83		2	max	1065.568	7	30.284	5	29.541	3	.001	1	.007	3	.003	2
84		min	239.262	9	-11.643	2	-29.541	4	0	2	-.007	4	-.007	5	
85		3	max	1068.844	7	26.722	5	26.066	3	.001	1	.013	3	.005	2
86		min	240.252	9	-10.273	2	-26.066	4	0	2	-.013	4	-.013	5	
87		4	max	1072.119	7	23.159	5	22.59	3	.001	1	.018	3	.007	2
88		min	241.241	9	-8.903	2	-22.59	4	0	2	-.018	4	-.018	5	
89		5	max	1075.9	6	19.596	5	19.115	3	.001	1	.022	3	.009	2
90		min	242.231	9	-7.533	2	-19.115	4	0	2	-.022	4	-.023	5	
91		6	max	1079.922	6	16.033	5	15.639	3	.001	1	.026	3	.01	2
92		min	243.221	9	-6.164	2	-15.639	4	0	2	-.026	4	-.027	5	
93		7	max	1083.943	6	12.47	5	12.164	3	.001	1	.029	3	.011	2
94		min	244.211	9	-4.794	2	-12.164	4	0	2	-.029	4	-.03	5	
95		8	max	1087.965	6	8.907	5	8.689	3	.001	1	.031	3	.012	2
96		min	245.2	9	-3.424	2	-8.689	4	0	2	-.031	4	-.032	5	
97		9	max	1091.987	6	5.344	5	5.213	3	.001	1	.033	3	.013	2
98		min	246.19	9	-2.055	2	-5.213	4	0	2	-.033	4	-.033	5	
99		10	max	1096.009	6	1.781	5	1.738	3	.001	1	.033	3	.013	2
100		min	247.18	9	-.685	2	-1.738	4	0	2	-.033	4	-.034	5	
101		11	max	1100.031	6	.685	2	1.738	4	.001	1	.033	3	.013	2
102		min	248.17	9	-1.781	5	-1.738	3	0	2	-.033	4	-.034	5	
103		12	max	1104.053	6	2.055	2	5.213	4	.001	1	.033	3	.013	2
104		min	249.159	9	-5.344	5	-5.213	3	0	2	-.033	4	-.033	5	
105		13	max	1108.075	6	3.424	2	8.689	4	.001	1	.031	3	.012	2
106		min	250.149	9	-8.907	5	-8.689	3	0	2	-.031	4	-.032	5	
107		14	max	1112.097	6	4.794	2	12.164	4	.001	1	.029	3	.011	2
108		min	251.139	9	-12.47	5	-12.164	3	0	2	-.029	4	-.03	5	
109		15	max	1116.118	6	6.164	2	15.639	4	.001	1	.026	3	.01	2
110		min	252.128	9	-16.033	5	-15.639	3	0	2	-.026	4	-.027	5	
111		16	max	1120.14	6	7.533	2	19.115	4	.001	1	.022	3	.009	2
112		min	253.118	9	-19.596	5	-19.115	3	0	2	-.022	4	-.023	5	
113		17	max	1124.162	6	8.903	2	22.59	4	.001	1	.018	3	.007	2
114		min	254.108	9	-23.159	5	-22.59	3	0	2	-.018	4	-.018	5	
115		18	max	1128.184	6	10.273	2	26.066	4	.001	1	.013	3	.005	2
116		min	255.098	9	-26.722	5	-26.066	3	0	2	-.013	4	-.013	5	
117		19	max	1132.206	6	11.643	2	29.541	4	.001	1	.007	3	.003	2
118		min	256.087	9	-30.284	5	-29.541	3	0	2	-.007	4	-.007	5	
119		20	max	1136.228	6	13.012	2	33.016	4	.001	1	0	11	0	11
120		min	257.077	9	-33.847	5	-33.016	3	0	2	0	1	0	1	
121	M27	1	max	0	11	.007	3	.005	2	0	11	0	11	0	11
122		min	0	1	-.001	8	-.016	4	0	1	0	1	0	1	
123		2	max	2.895	4	.001	3	10.79	3	0	11	.004	3	.002	8
124		min	-2.895	2	-7.297	8	-10.821	4	0	1	-.004	4	0	3	
125		3	max	5.79	4	-.005	3	21.595	3	0	11	.014	3	.01	8
126		min	-5.79	2	-14.593	8	-21.625	4	0	1	-.014	4	0	3	
127		4	max	1252.321	1	-17.31	9	757.001	3	.365	4	.242	1	.081	4
128		min	-906.366	2	-593.394	7	-939.761	4	-.441	3	-.279	2	-.421	7	
129		5	max	1143.072	1	67.07	4	275.528	3	.347	4	.575	3	.078	10
130		min	-893.005	2	-291.484	7	-204.039	4	-.431	3	-.701	4	-.099	3	
131		6	max	1145.967	1	67.064	4	286.333	3	.347	4	.76	3	.203	10
132		min	-895.9	2	-298.78	7	-214.844	4	-.431	3	-.839	4	.014	4	
133		7	max	1148.863	1	67.059	4	297.138	3	.347	4	.952	3	.327	10
134		min	-898.796	2	-306.076	7	-225.649	4	-.431	3	-.984	4	-.03	4	
135		8	max	1151.758	1	67.053	4	307.943	3	.347	4	1.151	3	.514	7
136		min	-901.691	2	-313.372	7	-236.454	4	-.431	3	-1.136	4	-.074	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
137	9	max	1154.653	1	67.048	4	318.748	3	.347	4	1.357	3	.722	7
138		min	-904.586	2	-320.668	7	-247.259	4	-.431	3	-1.295	4	-.119	4
139	10	max	1157.548	1	67.042	4	329.553	3	.347	4	1.57	3	.936	7
140		min	-907.481	2	-327.964	7	-258.064	4	-.431	3	-1.461	4	-.163	4
141	11	max	984.249	3	772.728	5	1138.528	4	.3	4	.828	3	.827	1
142		min	-738.927	4	-10.615	2	-1268.933	3	-.218	3	-.732	4	-.541	2
143	12	max	674.908	3	38.457	1	621.523	4	.209	3	.418	1	.646	5
144		min	-513.98	4	-103.115	2	-800.677	3	-.165	4	-.444	2	.011	4
145	13	max	491.918	6	310.308	7	138.564	2	.258	3	.317	1	.462	5
146		min	-103.57	1	7.915	4	-105.311	1	-.185	4	-.361	2	-.076	2
147	14	max	491.251	6	303.012	7	137.788	2	.258	3	.248	1	.264	5
148		min	-100.675	1	7.909	4	-104.535	1	-.185	4	-.27	2	-.106	2
149	15	max	490.585	6	295.716	7	137.013	2	.258	3	.179	1	.171	1
150		min	-97.78	1	7.904	4	-103.759	1	-.185	4	-.179	2	-.136	2
151	16	max	489.919	6	288.42	7	136.237	2	.258	3	.111	1	.083	1
152		min	-94.885	1	7.898	4	-102.984	1	-.185	4	-.09	2	-.166	2
153	17	max	489.253	6	281.124	7	135.461	2	.258	3	.077	7	.038	4
154		min	-91.989	1	7.893	4	-102.208	1	-.185	4	-.013	4	-.342	7
155	18	max	5.79	3	14.593	7	21.598	4	0	11	.014	3	.01	7
156		min	-5.79	1	0	1	-21.622	3	0	1	-.014	4	0	1
157	19	max	2.895	3	7.297	7	10.793	4	0	11	.004	3	.002	7
158		min	-2.895	1	-.006	1	-10.817	3	0	1	-.004	4	0	1
159	20	max	0	11	0	7	.006	1	0	11	0	11	0	11
160		min	0	1	-.011	1	-.013	3	0	1	0	1	0	1
161	M28	1	max	0	.013	1	.025	3	0	11	0	11	0	11
162		min	0	1	-.002	4	-.024	2	0	1	0	1	0	1
163	2	max	5.441	4	.007	1	7.747	1	0	11	.003	1	.002	8
164		min	-5.441	1	-7.298	8	-7.795	2	0	1	-.003	2	0	1
165	3	max	10.882	4	.002	1	15.518	1	0	11	.01	1	.01	8
166		min	-10.882	1	-14.594	8	-15.566	2	0	1	-.01	2	0	1
167	4	max	1536.182	4	-131.239	2	431.046	4	.315	2	.347	4	.074	2
168		min	-1145.003	3	-685.246	5	-509.395	3	-.322	1	-.33	3	-.451	5
169	5	max	1053.925	4	17.921	2	555.322	1	.25	3	.57	4	.063	4
170		min	-836.33	3	-327.558	5	-517.846	2	-.295	4	-.59	3	-.127	9
171	6	max	1059.366	4	17.915	2	563.093	1	.25	3	.547	4	.167	4
172		min	-841.771	3	-334.854	5	-525.616	2	-.295	4	-.545	2	-.078	3
173	7	max	1064.807	4	17.91	2	570.863	1	.25	3	.911	1	.354	8
174		min	-847.212	3	-342.15	5	-533.387	2	-.295	4	-.894	2	-.044	3
175	8	max	1070.248	4	17.904	2	578.634	1	.25	3	1.289	1	.581	5
176		min	-852.653	3	-349.446	5	-541.158	2	-.295	4	-1.247	2	-.009	3
177	9	max	1075.689	4	17.898	2	586.405	1	.25	3	1.673	1	.813	5
178		min	-858.094	3	-356.742	5	-548.928	2	-.295	4	-1.606	2	-.002	2
179	10	max	1081.131	4	17.893	2	594.175	1	.25	3	2.061	1	1.05	5
180		min	-863.535	3	-364.038	5	-556.699	2	-.295	4	-1.97	2	-.013	2
181	11	max	1339.347	1	936.24	8	1783.395	2	.473	2	1.083	1	.908	4
182		min	-1021.742	2	-16.979	3	-1918.525	1	-.337	1	-1.051	2	-.568	3
183	12	max	989.064	1	106.625	8	1233.35	2	.207	1	.422	4	.658	8
184		min	-747.252	2	-76.601	9	-1405.994	1	-.118	2	-.481	3	-.065	3
185	13	max	521.744	5	298.294	8	137.288	3	.231	1	.264	4	.411	8
186		min	-91.625	2	6.932	3	-96.3	4	-.107	2	-.333	3	-.118	3
187	14	max	520.492	5	290.998	8	133.478	3	.231	1	.202	4	.244	4
188		min	-86.184	2	6.926	3	-92.49	4	-.107	2	-.244	3	-.123	3
189	15	max	519.24	5	283.702	8	129.668	3	.231	1	.142	4	.136	4
190		min	-80.743	2	6.921	3	-88.68	4	-.107	2	-.158	3	-.127	3
191	16	max	517.987	5	276.406	8	125.858	3	.231	1	.085	4	.029	4
192		min	-75.302	2	6.915	3	-84.87	4	-.107	2	-.074	3	-.186	7
193	17	max	516.735	5	269.11	8	122.048	3	.231	1	.068	2	-.011	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 Mom...	LC	
194		min	-69.861	2	6.91	3	-81.06	4	-.107	2	-.03	1	-.358	5	
195	18	max	10.882	3	14.594	5	15.52	2	0	11	.01	1	.01	5	
196		min	-10.882	2	-.009	4	-15.564	1	0	1	-.01	2	0	4	
197	19	max	5.441	3	7.298	5	7.749	2	0	11	.003	1	.002	5	
198		min	-5.441	2	-.015	4	-7.794	1	0	1	-.003	2	0	4	
199	20	max	0	11	.002	5	.01	4	0	11	0	11	0	11	
200		min	0	1	-.02	4	-.023	1	0	1	0	1	0	1	
201	M29	1	max	0	11	0	11	0	11	0	11	0	11	11	
202		min	0	1	0	1	0	1	0	1	0	1	0	1	
203	2	max	0	11	-.006	10	11.581	2	0	11	.004	2	.212	9	
204		min	0	1	-750.006	9	-11.581	1	0	1	-.004	1	0	1	
205	3	max	0	11	-.011	10	23.161	2	0	11	.015	2	.706	9	
206		min	0	1	-750.011	9	-23.161	1	0	1	-.015	1	0	1	
207	4	max	1036.214	3	-140.624	1	1232.255	2	.161	1	.52	2	-.026	1	
208		min	-479.793	4	-695.956	6	-1373.555	1	-.185	2	-.542	1	-.677	6	
209	5	max	967.616	3	-45.556	1	323.216	4	.153	1	1.166	2	.005	9	
210		min	-529.078	4	-506.403	6	-275.559	3	-.189	2	-1.256	1	-.337	6	
211	6	max	967.616	3	-45.561	1	323.216	4	.153	1	1.148	2	.276	9	
212		min	-529.078	4	-513.699	6	-275.559	3	-.189	2	-1.206	1	-.146	10	
213	7	max	967.616	3	-45.567	1	323.216	4	.153	1	1.138	2	.546	9	
214		min	-529.078	4	-520.995	6	-275.559	3	-.189	2	-1.164	1	-.001	10	
215	8	max	967.616	3	-45.572	1	323.216	4	.153	1	1.135	2	.817	9	
216		min	-529.078	4	-528.291	6	-275.559	3	-.189	2	-1.13	1	.09	1	
217	9	max	967.616	3	-45.578	1	323.216	4	.153	1	1.14	2	1.087	9	
218		min	-529.078	4	-535.587	6	-275.559	3	-.189	2	-1.103	1	.12	1	
219	10	max	967.616	3	-45.583	1	323.216	4	.153	1	1.152	2	1.388	6	
220		min	-529.078	4	-542.883	6	-275.559	3	-.189	2	-1.083	1	.15	1	
221	11	max	1497.095	4	984.374	6	928.487	1	.554	1	.706	2	1.077	10	
222		min	-1059.701	3	84.428	1	-1117.981	2	-.463	2	-.683	1	-.207	1	
223	12	max	1023.258	4	134.113	9	315.636	1	.19	2	.441	2	1.012	10	
224		min	-625.378	3	-73.82	1	-536.547	2	-.102	1	-.525	1	-.052	1	
225	13	max	759.805	10	377.981	6	166.866	1	.182	2	.29	2	.863	10	
226		min	-59.587	3	-4.122	1	-110.675	2	-.077	1	-.386	1	-.056	1	
227	14	max	759.805	10	370.685	6	155.285	1	.182	2	.221	2	.65	10	
228		min	-59.587	3	-4.127	1	-99.094	2	-.077	1	-.281	1	-.053	1	
229	15	max	759.805	10	363.389	6	143.705	1	.182	2	.16	2	.437	10	
230		min	-59.587	3	-4.133	1	-87.514	2	-.077	1	-.182	1	-.095	9	
231	16	max	759.805	10	356.093	6	132.143	4	.182	2	.106	2	.225	10	
232		min	-59.587	3	-4.138	1	-75.933	2	-.077	1	-.091	1	-.189	9	
233	17	max	759.805	10	348.797	6	132.143	4	.182	2	.106	10	.012	10	
234		min	-59.587	3	-4.144	1	-74.466	3	-.077	1	-.008	1	-.394	8	
235	18	max	0	11	750.011	10	23.161	1	0	11	.015	2	.706	10	
236		min	0	1	.011	1	-23.161	2	0	1	-.015	1	0	1	
237	19	max	0	11	750.006	10	11.581	1	0	11	.004	2	.212	10	
238		min	0	1	.006	1	-11.581	2	0	1	-.004	1	0	1	
239	20	max	0	11	0	11	0	11	0	11	0	11	0	11	
240		min	0	1	0	1	0	1	0	1	0	1	0	1	
241	M30	1	max	654.255	3	-86.873	9	343.435	5	.066	1	0	11	0	11
242		min	-669.918	4	-374.034	6	80.441	2	-.122	2	0	1	0	1	
243	2	max	655.14	3	-86.874	9	342.653	5	.066	1	.079	5	.086	6	
244		min	-670.804	4	-376.276	6	80.967	9	-.122	2	.019	9	.02	9	
245	3	max	656.025	3	-86.876	9	341.872	5	.066	1	.157	5	.173	6	
246		min	-671.689	4	-378.518	6	80.66	9	-.122	2	.037	9	.04	9	
247	4	max	656.91	3	-86.877	9	341.09	5	.066	1	.236	5	.26	6	
248		min	-672.574	4	-380.761	6	80.354	9	-.122	2	.056	9	.06	9	
249	5	max	657.796	3	-86.879	9	340.414	7	.066	1	.314	5	.348	6	
250		min	-673.459	4	-383.003	6	80.047	9	-.122	2	.074	9	.08	9	



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 Mom...	LC	
251	6	max	658.681	3	-86.88	9	340.349	7	.066	1	.392	5	.436	6	
252		min	-674.345	4	-385.245	6	79.741	9	-.122	2	.092	9	.1	9	
253	7	max	659.566	3	-86.882	9	340.284	7	.066	1	.47	5	.525	6	
254		min	-675.23	4	-387.488	6	79.434	9	-.122	2	.111	9	.12	9	
255	8	max	660.451	3	-86.883	9	340.219	7	.066	1	.548	5	.614	6	
256		min	-676.115	4	-389.73	6	79.128	9	-.122	2	.129	9	.14	9	
257	9	max	661.337	3	-86.885	9	340.154	7	.066	1	.625	7	.704	6	
258		min	-677	4	-391.972	6	78.821	9	-.122	2	.147	9	.16	9	
259	10	max	662.222	3	-86.886	9	340.088	7	.066	1	.703	7	.794	6	
260		min	-677.885	4	-394.215	6	78.515	9	-.122	2	.165	9	.18	9	
261	11	max	774.748	3	394.066	6	-78.617	9	.066	1	.704	7	.794	6	
262		min	-658.386	4	86.803	9	-340.345	7	-.123	2	.165	9	.179	9	
263	12	max	775.633	3	391.824	6	-78.923	9	.066	1	.626	7	.703	6	
264		min	-659.271	4	86.802	9	-340.41	7	-.123	2	.147	9	.159	9	
265	13	max	776.518	3	389.582	6	-79.23	9	.066	1	.548	5	.614	6	
266		min	-660.156	4	86.8	9	-340.476	7	-.123	2	.129	9	.14	9	
267	14	max	777.404	3	387.339	6	-79.536	9	.066	1	.47	5	.524	6	
268		min	-661.042	4	86.799	9	-340.541	7	-.123	2	.111	9	.12	9	
269	15	max	778.289	3	385.097	6	-79.843	9	.066	1	.392	5	.436	6	
270		min	-661.927	4	86.797	9	-340.606	7	-.123	2	.093	9	.1	9	
271	16	max	779.174	3	382.855	6	-80.149	9	.066	1	.314	5	.348	6	
272		min	-662.812	4	86.796	9	-340.671	7	-.123	2	.074	9	.08	9	
273	17	max	780.059	3	380.612	6	-80.456	9	.066	1	.236	5	.26	6	
274		min	-663.697	4	86.794	9	-341.399	5	-.123	2	.056	9	.06	9	
275	18	max	780.944	3	378.37	6	-80.762	9	.066	1	.158	5	.173	6	
276		min	-664.582	4	86.793	9	-342.181	5	-.123	2	.037	9	.04	9	
277	19	max	781.83	3	376.128	6	-81.069	9	.066	1	.079	5	.086	6	
278		min	-665.468	4	86.791	9	-342.962	5	-.123	2	.019	9	.02	9	
279	20	max	782.715	3	373.885	6	-80.159	2	.066	1	0	11	0	11	
280		min	-666.353	4	86.79	9	-343.744	5	-.123	2	0	1	0	1	
281	MP1A	1	max	0	11	.055	4	.064	5	0	11	0	11	0	11
282		min	0	1	-.065	10	-.066	10	0	1	0	1	0	1	1
283	2	max	91.81	8	53.652	4	155.457	1	0	11	.011	1	.004	3	
284		min	25.075	1	-53.647	3	-155.445	2	0	1	-.011	2	-.004	4	
285	3	max	95.872	8	57.424	4	159.229	1	0	11	.06	1	.021	3	
286		min	26.391	1	-57.419	3	-159.217	2	0	1	-.06	2	-.021	4	
287	4	max	99.934	8	61.196	4	163.001	1	0	11	.111	1	.04	3	
288		min	27.706	1	-61.191	3	-162.989	2	0	1	-.111	2	-.04	4	
289	5	max	103.997	8	64.968	4	166.773	1	0	11	.163	1	.06	3	
290		min	29.021	1	-64.963	3	-166.761	2	0	1	-.163	2	-.06	4	
291	6	max	108.059	8	68.739	4	170.545	1	0	11	.216	1	.081	3	
292		min	30.336	1	-68.735	3	-170.533	2	0	1	-.216	2	-.081	4	
293	7	max	169.228	2	761.37	10	205.513	2	.069	1	.258	1	.499	10	
294		min	-490.601	10	45.971	1	-148.725	1	-.07	2	-.206	10	.043	1	
295	8	max	170.543	2	761.37	10	201.741	2	.069	1	.211	1	.258	10	
296		min	-489.286	10	45.971	1	-144.953	1	-.07	2	-.189	10	.028	1	
297	9	max	171.859	2	761.37	10	197.969	2	.069	1	.166	1	.073	9	
298		min	-487.97	10	45.971	1	-141.181	1	-.07	2	-.171	10	.014	1	
299	10	max	173.174	2	761.37	10	194.197	2	.069	1	.16	5	.003	3	
300		min	-486.655	10	45.971	1	-137.409	1	-.07	2	-.153	10	-.222	10	
301	11	max	201.723	6	761.37	10	156.729	2	.069	1	.19	8	-.008	3	
302		min	-466.86	10	24.04	3	-99.941	1	-.07	2	-.135	10	-.463	10	
303	12	max	205.785	6	761.37	10	152.957	2	.069	1	.225	8	-.015	3	
304		min	-465.545	10	20.268	3	-96.169	1	-.07	2	-.116	10	-.703	10	
305	13	max	-32.967	10	76.27	3	178.048	2	0	11	.099	1	.052	3	
306		min	-116.184	5	-76.264	4	-178.033	1	0	1	-.099	2	-.052	4	
307	14	max	-31.652	10	72.498	3	174.276	2	0	11	.043	1	.029	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 Mom...	LC	
308		min	-112.122	5	-72.492	4	-174.261	1	0	1	-.043	2	-.029	4	
309	15	max	-6.576	10	18.901	3	18.87	2	0	11	.015	1	.015	3	
310		min	-20.312	5	-18.896	4	-18.855	1	0	1	-.015	2	-.015	4	
311	16	max	-5.261	10	15.129	3	15.098	2	0	11	.01	1	.01	3	
312		min	-16.25	5	-15.124	4	-15.083	1	0	1	-.01	2	-.01	4	
313	17	max	-3.946	10	11.357	3	11.326	2	0	11	.005	1	.005	3	
314		min	-12.187	5	-11.352	4	-11.311	1	0	1	-.005	2	-.005	4	
315	18	max	-2.631	10	7.585	3	7.554	2	0	11	.002	1	.002	3	
316		min	-8.125	5	-7.58	4	-7.539	1	0	1	-.002	2	-.002	4	
317	19	max	-1.315	10	3.814	3	3.782	2	0	11	0	1	0	3	
318		min	-4.062	5	-3.808	4	-3.767	1	0	1	0	2	0	4	
319	20	max	0	11	.11	10	.104	7	0	11	0	11	0	11	
320		min	0	1	-.056	9	-.018	4	0	1	0	1	0	1	
321	MP2A	1	max	0	.076	8	.062	1	0	11	0	11	0	11	
322		min	0	1	-.031	10	-.063	2	0	1	0	1	0	1	
323	2	max	63.583	8	53.43	4	113.473	1	0	11	.008	1	.004	3	
324		min	12.115	1	-53.42	3	-113.474	2	0	1	-.008	2	-.004	4	
325	3	max	67.646	8	57.202	4	117.245	1	0	11	.044	1	.021	3	
326		min	13.431	1	-57.192	3	-117.246	2	0	1	-.044	2	-.021	4	
327	4	max	71.708	8	60.974	4	121.017	1	0	11	.082	1	.04	3	
328		min	14.746	1	-60.964	3	-121.018	2	0	1	-.082	2	-.04	4	
329	5	max	75.771	8	64.746	4	124.789	1	0	11	.121	1	.06	3	
330		min	16.061	1	-64.736	3	-124.79	2	0	1	-.121	2	-.06	4	
331	6	max	79.833	8	68.518	4	128.561	1	0	11	.161	1	.081	3	
332		min	17.376	1	-68.508	3	-128.562	2	0	1	-.161	2	-.081	4	
333	7	max	787.522	6	371.693	4	415.374	1	.088	1	.147	6	.282	4	
334		min	128.277	1	-332.192	3	-386.084	2	-.133	2	-.032	1	-.283	3	
335	8	max	791.584	6	375.465	4	419.146	1	.088	1	.15	8	.164	4	
336		min	129.592	1	-335.964	3	-389.856	2	-.133	2	0	2	-.177	3	
337	9	max	795.646	6	379.237	4	422.918	1	.088	1	.233	1	.048	10	
338		min	130.907	1	-339.736	3	-393.628	2	-.133	2	-.124	2	-.078	9	
339	10	max	799.709	6	383.009	4	426.69	1	.088	1	.367	1	.048	10	
340		min	132.222	1	-343.508	3	-397.4	2	-.133	2	-.249	2	-.13	9	
341	11	max	815.106	6	391.016	4	458.123	1	.088	1	.506	1	.147	3	
342		min	135.698	1	-351.514	3	-428.833	2	-.133	2	-.379	2	-.198	4	
343	12	max	819.169	6	394.788	4	461.895	1	.088	1	.652	1	.259	3	
344		min	137.013	1	-355.286	3	-432.605	2	-.133	2	-.515	2	-.322	4	
345	13	max	-20.007	10	76.047	3	136.068	2	0	11	.08	1	.052	3	
346		min	-87.958	5	-76.052	4	-136.049	1	0	1	-.08	2	-.052	4	
347	14	max	-18.692	10	72.275	3	132.296	2	0	11	.037	1	.029	3	
348		min	-83.895	5	-72.28	4	-132.277	1	0	1	-.037	2	-.029	4	
349	15	max	-6.576	10	18.874	3	18.885	2	0	11	.015	1	.015	3	
350		min	-20.312	5	-18.879	4	-18.866	1	0	1	-.015	2	-.015	4	
351	16	max	-5.261	10	15.102	3	15.113	2	0	11	.01	1	.01	3	
352		min	-16.25	5	-15.107	4	-15.094	1	0	1	-.01	2	-.01	4	
353	17	max	-3.946	10	11.33	3	11.341	2	0	11	.005	1	.005	3	
354		min	-12.187	5	-11.335	4	-11.322	1	0	1	-.005	2	-.005	4	
355	18	max	-2.631	10	7.558	3	7.569	2	0	11	.002	1	.002	3	
356		min	-8.125	5	-7.563	4	-7.55	1	0	1	-.002	2	-.002	4	
357	19	max	-1.315	10	3.786	3	3.797	2	0	11	0	1	0	3	
358		min	-4.062	5	-3.791	4	-3.778	1	0	1	0	2	0	4	
359	20	max	0	11	.026	10	.148	6	0	11	0	11	0	11	
360		min	0	1	-.037	8	-.006	1	0	1	0	1	0	1	
361	M20	1	max	696.009	9	36.261	8	42.585	1	.001	9	0	11	0	11
362		min	32.978	10	-13.372	3	-42.585	2	0	3	0	1	0	1	
363	2	max	697.262	9	32.444	8	38.103	1	.001	9	.009	1	.003	3	
364		min	34.231	10	-11.965	3	-38.103	2	0	3	-.009	2	-.008	8	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
365	3	max	698.515	9	28.627	8	33.62	1	.001	9	.017	1	.005	3	
366		min	35.484	10	-10.557	3	-33.62	2	0	3	-.017	2	-.014	8	
367	4	max	699.768	9	24.81	8	29.137	1	.001	9	.024	1	.007	3	
368		min	36.737	10	-9.149	3	-29.137	2	0	3	-.024	2	-.02	8	
369	5	max	701.021	9	20.993	8	24.655	1	.001	9	.03	1	.009	3	
370		min	37.99	10	-7.742	3	-24.655	2	0	3	-.03	2	-.025	8	
371	6	max	702.273	9	17.176	8	20.172	1	.001	9	.035	1	.011	3	
372		min	39.243	10	-6.334	3	-20.172	2	0	3	-.035	2	-.029	8	
373	7	max	703.526	9	13.359	8	15.689	1	.001	9	.038	1	.012	3	
374		min	40.495	10	-4.927	3	-15.689	2	0	3	-.038	2	-.033	8	
375	8	max	704.779	9	9.542	8	11.207	1	.001	9	.041	1	.013	3	
376		min	41.748	10	-3.519	3	-11.207	2	0	3	-.041	2	-.035	8	
377	9	max	706.032	9	5.725	8	6.724	1	.001	9	.043	1	.014	3	
378		min	43.001	10	-2.111	3	-6.724	2	0	3	-.043	2	-.037	8	
379	10	max	707.285	9	1.908	8	2.241	1	.001	9	.044	1	.014	3	
380		min	44.254	10	-.704	3	-2.241	2	0	3	-.044	2	-.038	8	
381	11	max	708.537	9	.704	3	2.241	2	.001	9	.044	1	.014	3	
382		min	45.507	10	-1.908	8	-2.241	1	0	3	-.044	2	-.038	8	
383	12	max	709.79	9	2.111	3	6.724	2	.001	9	.043	1	.014	3	
384		min	46.759	10	-5.725	8	-6.724	1	0	3	-.043	2	-.037	8	
385	13	max	711.043	9	3.519	3	11.207	2	.001	9	.041	1	.013	3	
386		min	48.012	10	-9.542	8	-11.207	1	0	3	-.041	2	-.035	8	
387	14	max	712.563	5	4.927	3	15.689	2	.001	9	.038	1	.012	3	
388		min	49.265	10	-13.359	8	-15.689	1	0	3	-.038	2	-.033	8	
389	15	max	716.282	5	6.334	3	20.172	2	.001	9	.035	1	.011	3	
390		min	50.518	10	-17.176	8	-20.172	1	0	3	-.035	2	-.029	8	
391	16	max	720.001	5	7.742	3	24.655	2	.001	9	.03	1	.009	3	
392		min	51.771	10	-20.993	8	-24.655	1	0	3	-.03	2	-.025	8	
393	17	max	723.72	5	9.149	3	29.137	2	.001	9	.024	1	.007	3	
394		min	53.024	10	-24.81	8	-29.137	1	0	3	-.024	2	-.02	8	
395	18	max	727.439	5	10.557	3	33.62	2	.001	9	.017	1	.005	3	
396		min	54.276	10	-28.627	8	-33.62	1	0	3	-.017	2	-.014	8	
397	19	max	731.158	5	11.965	3	38.103	2	.001	9	.009	1	.003	3	
398		min	55.529	10	-32.444	8	-38.103	1	0	3	-.009	2	-.008	8	
399	20	max	734.877	5	13.372	3	42.585	2	.001	9	0	11	0	11	
400		min	56.782	10	-36.261	8	-42.585	1	0	3	0	1	0	1	
401	M21	1	max	973.477	10	33.759	6	31.646	4	0	3	0	11	0	11
402		min	30.081	9	-12.576	1	-31.646	3	0	4	0	1	0	1	
403	2	max	974.869	10	30.205	6	28.315	4	0	3	.006	4	.003	1	
404		min	31.473	9	-11.252	1	-28.315	3	0	4	-.006	3	-.007	6	
405	3	max	976.261	10	26.652	6	24.984	4	0	3	.012	4	.005	1	
406		min	32.865	9	-9.928	1	-24.984	3	0	4	-.012	3	-.013	6	
407	4	max	977.653	10	23.098	6	21.653	4	0	3	.017	4	.007	1	
408		min	34.257	9	-8.605	1	-21.653	3	0	4	-.017	3	-.018	6	
409	5	max	979.045	10	19.545	6	18.321	4	0	3	.021	4	.008	1	
410		min	35.649	9	-7.281	1	-18.321	3	0	4	-.021	3	-.023	6	
411	6	max	980.437	10	15.991	6	14.99	4	0	3	.025	4	.01	1	
412		min	37.041	9	-5.957	1	-14.99	3	0	4	-.025	3	-.027	6	
413	7	max	981.829	10	12.438	6	11.659	4	0	3	.028	4	.011	1	
414		min	38.433	9	-4.633	1	-11.659	3	0	4	-.028	3	-.03	6	
415	8	max	983.221	10	8.884	6	8.328	4	0	3	.03	4	.012	1	
416		min	39.825	9	-3.309	1	-8.328	3	0	4	-.03	3	-.032	6	
417	9	max	984.613	10	5.33	6	4.997	4	0	3	.031	4	.012	1	
418		min	41.216	9	-1.986	1	-4.997	3	0	4	-.031	3	-.033	6	
419	10	max	986.005	10	1.777	6	1.666	4	0	3	.032	4	.013	1	
420		min	42.608	9	-.662	1	-1.666	3	0	4	-.032	3	-.034	6	
421	11	max	987.397	10	.662	1	1.666	3	0	3	.032	4	.013	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 Mom...	LC	
422		min	44	9	-1.777	6	-1.666	4	0	4	-.032	3	-.034	6	
423	12	max	988.789	10	1.986	1	4.997	3	0	3	.031	4	.012	1	
424		min	45.392	9	-5.33	6	-4.997	4	0	4	-.031	3	-.033	6	
425	13	max	990.18	10	3.309	1	8.328	3	0	3	.03	4	.012	1	
426		min	46.784	9	-8.884	6	-8.328	4	0	4	-.03	3	-.032	6	
427	14	max	991.572	10	4.633	1	11.659	3	0	3	.028	4	.011	1	
428		min	48.176	9	-12.438	6	-11.659	4	0	4	-.028	3	-.03	6	
429	15	max	992.964	10	5.957	1	14.99	3	0	3	.025	4	.01	1	
430		min	49.568	9	-15.991	6	-14.99	4	0	4	-.025	3	-.027	6	
431	16	max	994.356	10	7.281	1	18.321	3	0	3	.021	4	.008	1	
432		min	50.96	9	-19.545	6	-18.321	4	0	4	-.021	3	-.023	6	
433	17	max	995.748	10	8.605	1	21.653	3	0	3	.017	4	.007	1	
434		min	52.352	9	-23.098	6	-21.653	4	0	4	-.017	3	-.018	6	
435	18	max	997.14	10	9.928	1	24.984	3	0	3	.012	4	.005	1	
436		min	53.744	9	-26.652	6	-24.984	4	0	4	-.012	3	-.013	6	
437	19	max	998.532	10	11.252	1	28.315	3	0	3	.006	4	.003	1	
438		min	55.136	9	-30.205	6	-28.315	4	0	4	-.006	3	-.007	6	
439	20	max	999.924	10	12.576	1	31.646	3	0	3	0	11	0	11	
440		min	56.528	9	-33.759	6	-31.646	4	0	4	0	1	0	1	
441	M22A	1	max	916.057	1	-129.47	1	2027.459	3	.737	10	.675	4	.274	2
442		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.676	3	-.401	1	
443	2	max	916.057	1	-129.47	1	2027.459	3	.737	10	.64	4	.287	2	
444		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.64	3	-.398	1	
445	3	max	916.057	1	-129.47	1	2027.459	3	.737	10	.604	4	.301	2	
446		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.605	3	-.396	1	
447	4	max	916.057	1	-129.47	1	2027.459	3	.737	10	.569	4	.315	2	
448		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.569	3	-.394	1	
449	5	max	916.057	1	-129.47	1	2027.459	3	.737	10	.533	4	.329	2	
450		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.534	3	-.392	1	
451	6	max	916.057	1	-129.47	1	2027.459	3	.737	10	.498	4	.343	2	
452		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.498	3	-.389	1	
453	7	max	916.057	1	-129.47	1	2027.459	3	.737	10	.462	4	.357	2	
454		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.462	3	-.387	1	
455	8	max	916.057	1	-129.47	1	2027.459	3	.737	10	.426	4	.37	2	
456		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.427	3	-.385	1	
457	9	max	916.057	1	-129.47	1	2027.459	3	.737	10	.391	4	.384	2	
458		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.391	3	-.383	1	
459	10	max	916.057	1	-129.47	1	2027.459	3	.737	10	.355	4	.398	2	
460		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.356	3	-.38	1	
461	11	max	916.057	1	-129.47	1	2027.459	3	.737	10	.32	4	.412	2	
462		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.32	3	-.378	1	
463	12	max	916.057	1	-129.47	1	2027.459	3	.737	10	.284	4	.426	2	
464		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.285	3	-.376	1	
465	13	max	916.057	1	-129.47	1	2027.459	3	.737	10	.249	4	.44	2	
466		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.249	3	-.373	1	
467	14	max	916.057	1	-129.47	1	2027.459	3	.737	10	.213	4	.453	2	
468		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.213	3	-.371	1	
469	15	max	916.057	1	-129.47	1	2027.459	3	.737	10	.178	4	.467	2	
470		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.178	3	-.369	1	
471	16	max	916.057	1	-129.47	1	2027.459	3	.737	10	.142	4	.481	2	
472		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.142	3	-.367	1	
473	17	max	916.057	1	-129.47	1	2027.459	3	.737	10	.107	4	.495	2	
474		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.107	3	-.364	1	
475	18	max	916.057	1	-129.47	1	2027.459	3	.737	10	.071	4	.509	2	
476		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.071	3	-.362	1	
477	19	max	916.057	1	-129.47	1	2027.459	3	.737	10	.036	4	.523	2	
478		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	-.036	3	-.36	1	



Company : Tower Engineering Solutions, LLC
 Designer : KW
 Job Number : TES Project No. 128127
 Model Name : CT13530-S-SBA_MT_LO_Loads Only_G

Apr 25, 2022
 3:29 PM
 Checked By: _____

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 Mom...	LC	
479	20	max	916.057	1	-129.47	1	2027.459	3	.737	10	0	7	.537	2	
480		min	-1152.727	2	-1530.499	6	-2025.735	4	-1.237	9	0	4	-.358	1	
481	M23A	1	max	1408.132	4	47.961	4	1862.794	1	.605	1	.621	2	.046	4
482		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.621	1	-.314	6	
483		2	max	1408.132	4	47.961	4	1862.794	1	.605	1	.588	2	.046	4
484		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.588	1	-.296	6	
485		3	max	1408.132	4	47.961	4	1862.794	1	.605	1	.555	2	.053	1
486		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.556	1	-.278	6	
487		4	max	1408.132	4	47.961	4	1862.794	1	.605	1	.523	2	.063	1
488		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.523	1	-.261	6	
489		5	max	1408.132	4	47.961	4	1862.794	1	.605	1	.49	2	.072	1
490		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.49	1	-.243	6	
491		6	max	1408.132	4	47.961	4	1862.794	1	.605	1	.457	2	.082	1
492		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.458	1	-.229	9	
493		7	max	1408.132	4	47.961	4	1862.794	1	.605	1	.425	2	.092	1
494		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.425	1	-.226	9	
495		8	max	1408.132	4	47.961	4	1862.794	1	.605	1	.392	2	.102	1
496		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.392	1	-.223	9	
497		9	max	1408.132	4	47.961	4	1862.794	1	.605	1	.359	2	.111	1
498		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.359	1	-.219	9	
499		10	max	1408.132	4	47.961	4	1862.794	1	.605	1	.327	2	.121	1
500		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.327	1	-.216	9	
501		11	max	1408.132	4	47.961	4	1862.794	1	.605	1	.294	2	.131	1
502		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.294	1	-.212	9	
503		12	max	1408.132	4	47.961	4	1862.794	1	.605	1	.261	2	.141	1
504		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.261	1	-.209	9	
505		13	max	1408.132	4	47.961	4	1862.794	1	.605	1	.229	2	.15	1
506		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.229	1	-.206	9	
507		14	max	1408.132	4	47.961	4	1862.794	1	.605	1	.196	2	.16	1
508		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.196	1	-.202	9	
509		15	max	1408.132	4	47.961	4	1862.794	1	.605	1	.163	2	.17	1
510		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.163	1	-.199	9	
511		16	max	1408.132	4	47.961	4	1862.794	1	.605	1	.131	2	.18	1
512		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.131	1	-.196	9	
513		17	max	1408.132	4	47.961	4	1862.794	1	.605	1	.098	2	.189	1
514		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.098	1	-.192	9	
515		18	max	1408.132	4	47.961	4	1862.794	1	.605	1	.065	2	.199	1
516		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.065	1	-.189	9	
517		19	max	1408.132	4	47.961	4	1862.794	1	.605	1	.033	2	.209	1
518		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	-.033	1	-.186	9	
519		20	max	1408.132	4	47.961	4	1862.794	1	.605	1	0	3	.219	1
520		min	-1607.122	3	-1101.435	7	-1861.649	2	-.784	2	0	2	-.182	9	
521	M24	1	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.553	3	.056	1
522		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.52	4	-.323	6	
523		2	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.524	3	.065	1
524		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.492	4	-.302	6	
525		3	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.495	3	.074	1
526		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.465	4	-.281	6	
527		4	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.466	3	.084	1
528		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.437	4	-.259	6	
529		5	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.436	3	.093	1
530		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.41	4	-.238	6	
531		6	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.407	3	.102	1
532		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.383	4	-.217	6	
533		7	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.378	3	.111	1
534		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.355	4	-.212	2	
535		8	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.349	3	.12	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 Mom...	LC	
536		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.328	4	-.208	2	
537	9	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.32	3	.129	1	
538		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.301	4	-.205	2	
539	10	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.291	3	.139	1	
540		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.273	4	-.201	2	
541	11	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.262	3	.148	1	
542		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.246	4	-.197	2	
543	12	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.233	3	.157	1	
544		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.219	4	-.193	2	
545	13	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.204	3	.166	1	
546		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.191	4	-.189	2	
547	14	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.175	3	.175	1	
548		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.164	4	-.186	2	
549	15	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.145	3	.184	1	
550		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.137	4	-.182	2	
551	16	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.116	3	.194	1	
552		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.109	4	-.178	2	
553	17	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.087	3	.203	1	
554		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.082	4	-.174	2	
555	18	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.058	3	.212	1	
556		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.055	4	-.171	2	
557	19	max	2350.227	2	-38.148	3	1558.583	4	.451	4	.029	3	.221	1	
558		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	-.027	4	-.167	2	
559	20	max	2350.227	2	-38.148	3	1558.583	4	.451	4	0	1	.23	1	
560		min	-2516.079	1	-1297.623	8	-1658.437	3	-.651	3	0	3	-.163	2	
561	M17	1	max	601.089	1	-157.847	1	434.328	3	.302	3	.133	2	.55	2
562		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.088	1	-.695	1	
563	2	max	601.089	1	-157.847	1	434.328	3	.302	3	.133	2	.556	2	
564		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.089	1	-.693	1	
565	3	max	601.089	1	-157.847	1	434.328	3	.302	3	.134	2	.561	2	
566		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.09	1	-.691	1	
567	4	max	601.089	1	-157.847	1	434.328	3	.302	3	.134	2	.566	2	
568		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.091	1	-.688	1	
569	5	max	601.089	1	-157.847	1	434.328	3	.302	3	.135	2	.572	2	
570		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.092	1	-.686	1	
571	6	max	601.089	1	-157.847	1	434.328	3	.302	3	.135	2	.577	2	
572		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.093	1	-.684	1	
573	7	max	601.089	1	-157.847	1	434.328	3	.302	3	.135	2	.582	2	
574		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.094	1	-.682	1	
575	8	max	601.089	1	-157.847	1	434.328	3	.302	3	.136	2	.588	2	
576		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.095	1	-.68	1	
577	9	max	601.089	1	-157.847	1	434.328	3	.302	3	.136	2	.593	2	
578		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.096	1	-.678	1	
579	10	max	601.089	1	-157.847	1	434.328	3	.302	3	.137	2	.599	2	
580		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.097	1	-.676	1	
581	11	max	601.089	1	-157.847	1	434.328	3	.302	3	.137	2	.604	2	
582		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.098	1	-.674	1	
583	12	max	601.089	1	-157.847	1	434.328	3	.302	3	.138	2	.609	2	
584		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.099	1	-.672	1	
585	13	max	601.089	1	-157.847	1	434.328	3	.302	3	.138	2	.615	2	
586		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.1	1	-.67	1	
587	14	max	601.089	1	-157.847	1	434.328	3	.302	3	.139	2	.62	2	
588		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.1	1	-.668	1	
589	15	max	601.089	1	-157.847	1	434.328	3	.302	3	.139	2	.625	2	
590		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.101	1	-.666	1	
591	16	max	601.089	1	-157.847	1	434.328	3	.302	3	.14	2	.631	2	
592		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.102	1	-.664	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 Mom...	LC	
593	17	max	601.089	1	-157.847	1	434.328	3	.302	3	.14	2	.636	2	
594		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.103	1	-.661	1	
595	18	max	601.089	1	-157.847	1	434.328	3	.302	3	.141	2	.642	2	
596		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.104	1	-.659	1	
597	19	max	601.089	1	-157.847	1	434.328	3	.302	3	.141	2	.647	2	
598		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.105	1	-.657	1	
599	20	max	601.089	1	-157.847	1	434.328	3	.302	3	.142	2	.652	2	
600		min	-570.261	2	-911.038	6	-473.842	4	-.376	4	-.106	1	-.655	1	
601	M18	1	max	131.934	4	431.115	10	59.653	3	-.042	1	.07	2	.109	10
602		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.069	1	-.264	6	
603	2	max	131.934	4	431.115	10	59.653	3	-.042	1	.066	2	.104	10	
604		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.07	1	-.259	6	
605	3	max	131.934	4	431.115	10	59.653	3	-.042	1	.062	2	.098	10	
606		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.071	1	-.255	6	
607	4	max	131.934	4	431.115	10	59.653	3	-.042	1	.058	2	.092	10	
608		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.071	1	-.251	6	
609	5	max	131.934	4	431.115	10	59.653	3	-.042	1	.054	2	.087	10	
610		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.072	1	-.247	6	
611	6	max	131.934	4	431.115	10	59.653	3	-.042	1	.05	2	.081	10	
612		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.073	1	-.242	6	
613	7	max	131.934	4	431.115	10	59.653	3	-.042	1	.046	2	.078	1	
614		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.073	1	-.238	6	
615	8	max	131.934	4	431.115	10	59.653	3	-.042	1	.042	2	.078	1	
616		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.074	1	-.234	6	
617	9	max	131.934	4	431.115	10	59.653	3	-.042	1	.038	2	.078	1	
618		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.074	1	-.229	6	
619	10	max	131.934	4	431.115	10	59.653	3	-.042	1	.034	2	.078	1	
620		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.076	5	-.225	6	
621	11	max	131.934	4	431.115	10	59.653	3	-.042	1	.03	2	.078	1	
622		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.083	5	-.221	6	
623	12	max	131.934	4	431.115	10	59.653	3	-.042	1	.026	2	.078	1	
624		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.089	5	-.217	6	
625	13	max	131.934	4	431.115	10	59.653	3	-.042	1	.022	2	.078	1	
626		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.096	5	-.212	6	
627	14	max	131.934	4	431.115	10	59.653	3	-.042	1	.018	2	.078	1	
628		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.103	5	-.208	6	
629	15	max	131.934	4	431.115	10	59.653	3	-.042	1	.014	2	.078	1	
630		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.11	5	-.204	6	
631	16	max	131.934	4	431.115	10	59.653	3	-.042	1	.01	2	.077	1	
632		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.119	10	-.199	6	
633	17	max	131.934	4	431.115	10	59.653	3	-.042	1	.006	2	.077	1	
634		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.129	10	-.195	6	
635	18	max	131.934	4	431.115	10	59.653	3	-.042	1	.002	2	.077	1	
636		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.139	10	-.191	6	
637	19	max	131.934	4	431.115	10	59.653	3	-.042	1	-.002	2	.077	1	
638		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.149	10	-.187	6	
639	20	max	131.934	4	431.115	10	59.653	3	-.042	1	-.002	3	.077	1	
640		min	-74.503	3	-326.164	6	-759.774	10	-.914	10	-.159	10	-.182	2	
641	MP3A	1	max	0	11	.398	8	.346	1	0	11	0	11	0	11
642		min	0	1	-.18	3	-.588	6	0	1	0	1	0	1	1
643	2	max	262.71	8	203.051	4	460.371	1	0	11	.017	1	.009	3	
644		min	68.953	1	-202.997	3	-460.444	2	0	1	-.017	2	-.009	4	
645	3	max	303.07	8	235.062	4	524.533	1	0	11	.29	1	.13	3	
646		min	80.6	1	-235.008	3	-524.606	2	0	1	-.29	2	-.13	4	
647	4	max	311.666	8	242.672	4	532.143	1	0	11	.568	1	.255	3	
648		min	84.06	1	-242.618	3	-532.217	2	0	1	-.568	2	-.255	4	
649	5	max	320.262	8	250.282	4	539.753	1	0	11	.85	1	.385	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 Mom...	LC	
650		min	87.52	1	-250.228	3	-539.827	2	0	1	-.85	2	-.385	4	
651	6	max	103.5	2	93.663	4	589.173	1	.411	2	.625	1	.068	1	
652		min	-325.476	9	-903.469	7	-444.989	2	-.345	1	-.714	2	-.31	10	
653	7	max	272.673	6	161.759	4	730.563	1	.411	2	.958	1	.368	9	
654		min	-210.416	9	-915.344	7	-586.379	2	-.345	1	-.972	2	-.204	4	
655	8	max	281.268	6	169.369	4	738.174	1	.411	2	1.344	1	.823	9	
656		min	-206.956	9	-917.284	7	-593.989	2	-.345	1	-1.282	2	-.291	4	
657	9	max	289.864	6	176.979	4	745.784	1	.411	2	1.735	1	1.277	9	
658		min	-203.496	9	-919.225	7	-601.599	2	-.345	1	-1.597	2	-.382	4	
659	10	max	-108.281	10	295.484	3	584.597	2	0	11	1.604	1	.806	3	
660		min	-371.837	5	-295.617	4	-584.505	1	0	1	-1.604	2	-.807	4	
661	11	max	-104.821	10	287.874	3	576.987	2	0	11	1.298	1	.652	3	
662		min	-363.241	5	-288.007	4	-576.895	1	0	1	-1.298	2	-.653	4	
663	12	max	-101.361	10	280.263	3	569.377	2	0	11	.996	1	.503	3	
664		min	-354.646	5	-280.397	4	-569.285	1	0	1	-.997	2	-.503	4	
665	13	max	-97.901	10	272.653	3	561.767	2	0	11	.699	1	.357	3	
666		min	-346.05	5	-272.786	4	-561.675	1	0	1	-.699	2	-.358	4	
667	14	max	-94.441	10	265.043	3	554.156	2	0	11	.405	1	.216	3	
668		min	-337.454	5	-265.176	4	-554.064	1	0	1	-.405	2	-.216	4	
669	15	max	-90.98	10	257.433	3	546.546	2	0	11	.116	1	.078	3	
670		min	-328.858	5	-257.566	4	-546.454	1	0	1	-.116	2	-.079	4	
671	16	max	-13.84	10	30.215	3	29.97	2	0	11	.031	1	.032	3	
672		min	-34.384	5	-30.348	4	-29.878	1	0	1	-.031	2	-.032	4	
673	17	max	-10.38	10	22.605	3	22.359	2	0	11	.017	1	.018	3	
674		min	-25.788	5	-22.738	4	-22.267	1	0	1	-.017	2	-.018	4	
675	18	max	-6.92	10	14.995	3	14.749	2	0	11	.007	1	.008	3	
676		min	-17.192	5	-15.128	4	-14.657	1	0	1	-.008	2	-.008	4	
677	19	max	-3.46	10	7.384	3	7.139	2	0	11	.002	1	.002	3	
678		min	-8.596	5	-7.518	4	-7.047	1	0	1	-.002	2	-.002	4	
679	20	max	0	11	.121	10	.692	5	0	11	0	11	0	11	
680		min	0	1	-.725	7	-.471	2	0	1	0	1	0	1	
681	M20A	1	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.345	1	.126	1
682		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.411	2	-.27	2	
683	2	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.346	1	.128	1	
684		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.404	2	-.265	2	
685	3	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.346	1	.129	1	
686		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.398	2	-.261	2	
687	4	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.346	1	.131	1	
688		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.391	2	-.256	2	
689	5	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.346	1	.133	1	
690		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.384	2	-.252	2	
691	6	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.347	1	.135	1	
692		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.377	2	-.248	2	
693	7	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.347	1	.137	1	
694		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.37	2	-.243	2	
695	8	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.347	1	.139	1	
696		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.363	2	-.239	2	
697	9	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.347	1	.141	1	
698		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.357	2	-.234	2	
699	10	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.348	1	.143	1	
700		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.35	2	-.23	2	
701	11	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.348	1	.144	1	
702		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.343	2	-.225	2	
703	12	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.348	1	.146	1	
704		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.336	2	-.221	2	
705	13	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.348	1	.148	1	
706		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.329	2	-.216	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 Mom...	LC	
707	14	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.349	1	.15	1	
708		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.322	2	-.212	2	
709	15	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.349	1	.152	1	
710		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.315	2	-.208	2	
711	16	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.349	1	.154	1	
712		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.309	2	-.203	2	
713	17	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.349	1	.156	1	
714		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.302	2	-.199	2	
715	18	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.349	1	.158	1	
716		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.295	2	-.194	2	
717	19	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.35	1	.159	1	
718		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.288	2	-.19	2	
719	20	max	1338.577	1	90.863	9	1036.25	3	1.313	9	.35	1	.161	1	
720		min	-1193.558	2	-670.342	6	-479.719	4	.116	1	-.281	2	-.185	2	
721	MP1C	1	max	0	11	.064	6	.073	1	0	11	0	11	0	11
722		min	0	1	-.006	1	-.074	2	0	1	0	1	0	1	1
723	2	max	91.81	8	129.966	4	79.122	1	0	11	.006	1	.009	3	
724		min	25.075	1	-129.952	3	-79.123	2	0	1	-.006	2	-.009	4	
725	3	max	95.872	8	133.738	4	82.894	1	0	11	.031	1	.051	3	
726		min	26.391	1	-133.724	3	-82.895	2	0	1	-.031	2	-.051	4	
727	4	max	99.934	8	137.51	4	86.666	1	0	11	.058	1	.093	3	
728		min	27.706	1	-137.496	3	-86.667	2	0	1	-.058	2	-.093	4	
729	5	max	103.997	8	141.282	4	90.438	1	0	11	.086	1	.137	3	
730		min	29.021	1	-141.268	3	-90.439	2	0	1	-.086	2	-.137	4	
731	6	max	108.059	8	145.054	4	94.21	1	0	11	.115	1	.183	3	
732		min	30.336	1	-145.04	3	-94.211	2	0	1	-.115	2	-.183	4	
733	7	max	113.623	3	135.243	3	67.611	4	.044	4	.323	7	.101	3	
734		min	-51.382	4	-175.926	4	-480.184	7	-.05	3	-.047	4	-.208	4	
735	8	max	114.939	3	131.471	3	67.611	4	.044	4	.172	7	.059	3	
736		min	-50.067	4	-172.154	4	-480.184	7	-.05	3	-.025	4	-.153	4	
737	9	max	116.254	3	127.699	3	67.611	4	.044	4	.02	6	.018	3	
738		min	-48.752	4	-168.382	4	-480.184	7	-.05	3	-.004	4	-.118	8	
739	10	max	117.569	3	123.927	3	67.611	4	.044	4	.018	4	-.004	9	
740		min	-47.437	4	-164.61	4	-480.184	7	-.05	3	-.132	7	-.093	6	
741	11	max	137.364	3	90.292	3	67.611	4	.044	4	.039	4	0	1	
742		min	-27.641	4	-130.975	4	-480.184	7	-.05	3	-.283	7	-.08	7	
743	12	max	138.68	3	86.52	3	67.611	4	.044	4	.06	4	.04	4	
744		min	-26.326	4	-127.203	4	-480.184	7	-.05	3	-.435	7	-.083	3	
745	13	max	-32.967	10	152.566	3	101.733	2	0	11	.064	1	.087	3	
746		min	-116.184	5	-152.562	4	-101.747	1	0	1	-.064	2	-.087	4	
747	14	max	-31.652	10	148.794	3	97.961	2	0	11	.032	1	.04	3	
748		min	-112.122	5	-148.79	4	-97.975	1	0	1	-.032	2	-.04	4	
749	15	max	-6.576	10	18.841	3	18.912	2	0	11	.015	1	.015	3	
750		min	-20.312	5	-18.836	4	-18.926	1	0	1	-.015	2	-.015	4	
751	16	max	-5.261	10	15.069	3	15.14	2	0	11	.01	1	.01	3	
752		min	-16.25	5	-15.064	4	-15.154	1	0	1	-.01	2	-.01	4	
753	17	max	-3.946	10	11.297	3	11.368	2	0	11	.005	1	.005	3	
754		min	-12.187	5	-11.292	4	-11.382	1	0	1	-.005	2	-.005	4	
755	18	max	-2.631	10	7.525	3	7.596	2	0	11	.002	1	.002	3	
756		min	-8.125	5	-7.52	4	-7.61	1	0	1	-.002	2	-.002	4	
757	19	max	-1.315	10	3.753	3	3.824	2	0	11	0	1	0	3	
758		min	-4.062	5	-3.749	4	-3.838	1	0	1	0	2	0	4	
759	20	max	0	11	.045	8	.052	2	0	11	0	11	0	11	
760		min	0	1	-.019	3	-.122	5	0	1	0	1	0	1	
761	MP2C	1	max	0	11	.057	8	.03	1	0	11	0	11	0	11
762		min	0	1	-.033	3	-.048	6	0	1	0	1	0	1	
763	2	max	63.583	8	98.446	4	68.434	1	0	11	.005	1	.007	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 Mom...	LC	
764		min	12.115	1	-98.441	3	-68.437	2	0	1	-.005	2	-.007	4	
765	3	max	67.646	8	102.218	4	72.205	1	0	11	.027	1	.039	3	
766		min	13.431	1	-102.213	3	-72.209	2	0	1	-.027	2	-.039	4	
767	4	max	71.708	8	105.99	4	75.977	1	0	11	.05	1	.071	3	
768		min	14.746	1	-105.985	3	-75.981	2	0	1	-.05	2	-.071	4	
769	5	max	75.771	8	109.762	4	79.749	1	0	11	.075	1	.105	3	
770		min	16.061	1	-109.757	3	-79.753	2	0	1	-.075	2	-.105	4	
771	6	max	79.833	8	113.534	4	83.521	1	0	11	.101	1	.141	3	
772		min	17.376	1	-113.529	3	-83.525	2	0	1	-.101	2	-.141	4	
773	7	max	693.619	5	381.487	4	435.052	1	.117	4	.393	2	.15	4	
774		min	63.627	2	-356.496	3	-528.525	2	-.136	3	-.367	1	-.234	3	
775	8	max	697.682	5	385.259	4	438.824	1	.117	4	.226	2	.029	4	
776		min	64.942	2	-360.268	3	-532.297	2	-.136	3	-.229	1	-.148	7	
777	9	max	701.744	5	389.031	4	442.596	1	.117	4	.057	2	-.006	3	
778		min	66.257	2	-364.04	3	-536.069	2	-.136	3	-.09	1	-.155	6	
779	10	max	705.806	5	392.803	4	446.367	1	.117	4	.05	1	.109	3	
780		min	67.573	2	-367.812	3	-539.841	2	-.136	3	-.113	6	-.217	4	
781	11	max	721.204	5	418.379	4	460.231	1	.117	4	.193	1	.23	3	
782		min	71.048	2	-393.388	3	-553.704	2	-.136	3	-.285	2	-.345	4	
783	12	max	725.266	5	422.151	4	464.003	1	.117	4	.339	1	.354	3	
784		min	72.363	2	-397.16	3	-557.476	2	-.136	3	-.461	2	-.477	4	
785	13	max	-20.007	10	121.055	3	91.056	2	0	11	.059	1	.073	3	
786		min	-87.958	5	-121.044	4	-91.06	1	0	1	-.059	2	-.073	4	
787	14	max	-18.692	10	117.283	3	87.284	2	0	11	.031	1	.035	3	
788		min	-83.895	5	-117.272	4	-87.288	1	0	1	-.031	2	-.035	4	
789	15	max	-6.576	10	18.874	3	18.88	2	0	11	.015	1	.015	3	
790		min	-20.312	5	-18.863	4	-18.884	1	0	1	-.015	2	-.015	4	
791	16	max	-5.261	10	15.102	3	15.108	2	0	11	.01	1	.01	3	
792		min	-16.25	5	-15.091	4	-15.112	1	0	1	-.01	2	-.01	4	
793	17	max	-3.946	10	11.33	3	11.336	2	0	11	.005	1	.005	3	
794		min	-12.187	5	-11.319	4	-11.34	1	0	1	-.005	2	-.005	4	
795	18	max	-2.631	10	7.558	3	7.564	2	0	11	.002	1	.002	3	
796		min	-8.125	5	-7.547	4	-7.568	1	0	1	-.002	2	-.002	4	
797	19	max	-1.315	10	3.786	3	3.792	2	0	11	0	1	0	3	
798		min	-4.062	5	-3.775	4	-3.796	1	0	1	0	2	0	4	
799	20	max	0	11	.086	7	.02	2	0	11	0	11	0	11	
800		min	0	1	-.003	4	-.053	5	0	1	0	1	0	1	
801	M21A	1	max	506.46	4	-93.649	2	546.02	1	.405	1	.136	3	.331	3
802		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.117	4	-.495	4	
803	2	max	506.46	4	-93.649	2	546.02	1	.405	1	.132	3	.336	3	
804		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.114	4	-.493	4	
805	3	max	506.46	4	-93.649	2	546.02	1	.405	1	.128	3	.341	3	
806		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.111	4	-.491	4	
807	4	max	506.46	4	-93.649	2	546.02	1	.405	1	.124	3	.346	3	
808		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.108	4	-.49	4	
809	5	max	506.46	4	-93.649	2	546.02	1	.405	1	.12	3	.351	3	
810		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.105	4	-.488	4	
811	6	max	506.46	4	-93.649	2	546.02	1	.405	1	.116	3	.356	3	
812		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.102	4	-.487	4	
813	7	max	506.46	4	-93.649	2	546.02	1	.405	1	.112	3	.361	3	
814		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.099	4	-.485	4	
815	8	max	506.46	4	-93.649	2	546.02	1	.405	1	.108	3	.366	3	
816		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.096	4	-.484	4	
817	9	max	506.46	4	-93.649	2	546.02	1	.405	1	.104	3	.371	3	
818		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.093	4	-.482	4	
819	10	max	506.46	4	-93.649	2	546.02	1	.405	1	.1	3	.376	3	
820		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.09	4	-.481	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
821	11	max	506.46	4	-93.649	2	546.02	1	.405	1	.096	3	.381	3	
822		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.087	4	-.479	4	
823	12	max	506.46	4	-93.649	2	546.02	1	.405	1	.092	3	.386	3	
824		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.084	4	-.477	4	
825	13	max	506.46	4	-93.649	2	546.02	1	.405	1	.088	3	.391	3	
826		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.081	4	-.476	4	
827	14	max	506.46	4	-93.649	2	546.02	1	.405	1	.084	3	.396	3	
828		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.078	4	-.474	4	
829	15	max	506.46	4	-93.649	2	546.02	1	.405	1	.08	3	.401	3	
830		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.075	4	-.473	4	
831	16	max	506.46	4	-93.649	2	546.02	1	.405	1	.082	3	.406	3	
832		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.079	4	-.471	4	
833	17	max	506.46	4	-93.649	2	546.02	1	.405	1	.089	3	.411	3	
834		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.087	4	-.47	4	
835	18	max	506.46	4	-93.649	2	546.02	1	.405	1	.097	3	.417	3	
836		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.096	4	-.468	4	
837	19	max	506.46	4	-93.649	2	546.02	1	.405	1	.104	3	.422	3	
838		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.104	4	-.467	4	
839	20	max	506.46	4	-93.649	2	546.02	1	.405	1	.111	3	.427	3	
840		min	-457.032	3	-817.423	5	-630.784	2	-.514	2	-.112	4	-.465	4	
841	M22B	1	max	132.534	2	-7.972	4	83.528	1	.033	4	.05	3	.183	4
842		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.044	4	-.301	3	
843	2	max	132.534	2	-7.972	4	83.528	1	.033	4	.045	3	.183	4	
844		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.043	4	-.299	3	
845	3	max	132.534	2	-7.972	4	83.528	1	.033	4	.04	3	.183	4	
846		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.042	4	-.296	3	
847	4	max	132.534	2	-7.972	4	83.528	1	.033	4	.036	3	.183	4	
848		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.041	4	-.294	3	
849	5	max	132.534	2	-7.972	4	83.528	1	.033	4	.031	3	.184	4	
850		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.04	4	-.292	3	
851	6	max	132.534	2	-7.972	4	83.528	1	.033	4	.026	3	.184	4	
852		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.039	4	-.29	3	
853	7	max	132.534	2	-7.972	4	83.528	1	.033	4	.022	3	.184	4	
854		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.038	4	-.287	3	
855	8	max	132.534	2	-7.972	4	83.528	1	.033	4	.017	3	.184	4	
856		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.042	8	-.285	3	
857	9	max	132.534	2	-7.972	4	83.528	1	.033	4	.012	3	.184	4	
858		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.048	8	-.283	3	
859	10	max	132.534	2	-7.972	4	83.528	1	.033	4	.011	1	.184	4	
860		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.054	6	-.281	3	
861	11	max	132.534	2	-7.972	4	83.528	1	.033	4	.013	1	.184	4	
862		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.06	6	-.278	3	
863	12	max	132.534	2	-7.972	4	83.528	1	.033	4	.014	1	.184	4	
864		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.067	6	-.276	3	
865	13	max	132.534	2	-7.972	4	83.528	1	.033	4	.015	1	.184	4	
866		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.073	6	-.274	3	
867	14	max	132.534	2	-7.972	4	83.528	1	.033	4	.016	1	.184	4	
868		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.08	6	-.271	3	
869	15	max	132.534	2	-7.972	4	83.528	1	.033	4	.017	1	.185	4	
870		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.086	6	-.269	3	
871	16	max	132.534	2	-7.972	4	83.528	1	.033	4	.018	1	.185	4	
872		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.092	6	-.267	3	
873	17	max	132.534	2	-7.972	4	83.528	1	.033	4	.019	1	.185	4	
874		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.099	6	-.265	3	
875	18	max	132.534	2	-7.972	4	83.528	1	.033	4	.02	1	.185	4	
876		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.105	6	-.262	3	
877	19	max	132.534	2	-7.972	4	83.528	1	.033	4	.021	1	.185	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
878		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.112	6	-.26	3	
879		max	132.534	2	-7.972	4	83.528	1	.033	4	.022	1	.185	4	
880		min	-100.063	1	-258.434	7	-487.251	6	-.529	7	-.118	6	-.258	3	
881	MP3C	1	max	0	.197	4	.241	1	0	11	0	11	0	11	
882		min	0	1	-.217	3	-.25	2	0	1	0	1	0	1	
883		2	max	262.71	8	395.92	4	267.36	1	0	11	.011	1	.015	3
884		min	68.953	1	-395.94	3	-267.37	2	0	1	-.011	2	-.015	4	
885		3	max	303.07	8	452.045	4	307.409	1	0	11	.17	1	.25	3
886		min	80.6	1	-452.064	3	-307.418	2	0	1	-.17	2	-.25	4	
887		4	max	311.666	8	459.655	4	315.019	1	0	11	.333	1	.489	3
888		min	84.06	1	-459.674	3	-315.028	2	0	1	-.333	2	-.489	4	
889		5	max	320.262	8	467.265	4	322.629	1	0	11	.501	1	.733	3
890		min	87.52	1	-467.285	3	-322.639	2	0	1	-.501	2	-.733	4	
891		6	max	322.773	10	423.426	8	749.354	1	.365	3	.1	9	.791	3
892		min	-216.371	9	-32.12	3	-462.448	2	-.358	4	-.169	10	-.659	4	
893		7	max	437.833	10	441.163	8	835.774	1	.365	3	.425	1	.828	3
894		min	-101.311	9	-155.186	3	-548.868	2	-.358	4	-.306	2	-.836	4	
895		8	max	441.294	10	443.103	8	843.384	1	.365	3	.867	1	.912	3
896		min	-97.851	9	-162.796	3	-556.478	2	-.358	4	-.597	2	-1.059	4	
897		9	max	444.754	10	445.044	8	850.994	1	.365	3	1.313	1	.999	3
898		min	-94.391	9	-170.406	3	-564.088	2	-.358	4	-.891	2	-1.286	4	
899		10	max	-108.281	10	512.149	3	367.849	2	0	11	1.006	1	1.404	3
900		min	-371.837	5	-512.112	4	-367.782	1	0	1	-1.006	2	-1.404	4	
901		11	max	-104.821	10	504.539	3	360.239	2	0	11	.814	1	1.136	3
902		min	-363.241	5	-504.502	4	-360.171	1	0	1	-.814	2	-1.136	4	
903		12	max	-101.361	10	496.929	3	352.629	2	0	11	.626	1	.873	3
904		min	-354.646	5	-496.892	4	-352.561	1	0	1	-.627	2	-.872	4	
905		13	max	-97.901	10	489.319	3	345.019	2	0	11	.443	1	.613	3
906		min	-346.05	5	-489.282	4	-344.951	1	0	1	-.443	2	-.613	4	
907		14	max	-94.441	10	481.708	3	337.409	2	0	11	.263	1	.358	3
908		min	-337.454	5	-481.671	4	-337.341	1	0	1	-.264	2	-.357	4	
909		15	max	-90.98	10	474.098	3	329.799	2	0	11	.088	1	.106	3
910		min	-328.858	5	-474.061	4	-329.731	1	0	1	-.088	2	-.106	4	
911		16	max	-13.84	10	29.861	3	30.241	2	0	11	.031	1	.031	3
912		min	-34.384	5	-29.824	4	-30.173	1	0	1	-.032	2	-.031	4	
913		17	max	-10.38	10	22.251	3	22.631	2	0	11	.018	1	.017	3
914		min	-25.788	5	-22.214	4	-22.563	1	0	1	-.018	2	-.017	4	
915		18	max	-6.92	10	14.641	3	15.021	2	0	11	.008	1	.007	3
916		min	-17.192	5	-14.604	4	-14.953	1	0	1	-.008	2	-.007	4	
917		19	max	-3.46	10	7.031	3	7.41	2	0	11	.002	1	.002	3
918		min	-8.596	5	-6.994	4	-7.343	1	0	1	-.002	2	-.002	4	
919		20	max	0	11	.616	4	.439	5	0	11	0	11	0	11
920		min	0	1	-.579	3	-.2	2	0	1	0	1	0	1	
921	M24A	1	max	905.598	4	-16.863	9	1243.497	1	.809	7	.358	4	.351	4
922		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.365	3	-.526	3	
923		2	max	905.598	4	-16.863	9	1243.497	1	.809	7	.362	4	.352	4
924		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.365	3	-.521	3	
925		3	max	905.598	4	-16.863	9	1243.497	1	.809	7	.366	4	.352	4
926		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.365	3	-.517	3	
927		4	max	905.598	4	-16.863	9	1243.497	1	.809	7	.37	4	.353	4
928		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.364	3	-.512	3	
929		5	max	905.598	4	-16.863	9	1243.497	1	.809	7	.375	4	.354	4
930		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.364	3	-.508	3	
931		6	max	905.598	4	-16.863	9	1243.497	1	.809	7	.379	4	.355	4
932		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.363	3	-.503	3	
933		7	max	905.598	4	-16.863	9	1243.497	1	.809	7	.383	4	.355	4
934		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.363	3	-.499	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 Mom...	LC	
935	8	max	905.598	4	-16.863	9	1243.497	1	.809	7	.387	4	.356	4	
936		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.362	3	-.495	3	
937	9	max	905.598	4	-16.863	9	1243.497	1	.809	7	.391	4	.357	4	
938		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.362	3	-.49	3	
939	10	max	905.598	4	-16.863	9	1243.497	1	.809	7	.395	4	.358	4	
940		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.362	3	-.486	3	
941	11	max	905.598	4	-16.863	9	1243.497	1	.809	7	.399	4	.358	4	
942		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.361	3	-.481	3	
943	12	max	905.598	4	-16.863	9	1243.497	1	.809	7	.403	4	.359	4	
944		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.361	3	-.477	3	
945	13	max	905.598	4	-16.863	9	1243.497	1	.809	7	.407	4	.36	4	
946		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.36	3	-.472	3	
947	14	max	905.598	4	-16.863	9	1243.497	1	.809	7	.411	4	.361	4	
948		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.36	3	-.468	3	
949	15	max	905.598	4	-16.863	9	1243.497	1	.809	7	.415	4	.362	4	
950		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.36	3	-.464	3	
951	16	max	905.598	4	-16.863	9	1243.497	1	.809	7	.419	4	.362	4	
952		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.359	3	-.459	3	
953	17	max	905.598	4	-16.863	9	1243.497	1	.809	7	.423	4	.363	4	
954		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.359	3	-.455	3	
955	18	max	905.598	4	-16.863	9	1243.497	1	.809	7	.427	4	.364	4	
956		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.358	3	-.45	3	
957	19	max	905.598	4	-16.863	9	1243.497	1	.809	7	.431	4	.365	4	
958		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.358	3	-.446	3	
959	20	max	905.598	4	-16.863	9	1243.497	1	.809	7	.435	4	.365	4	
960		min	-724.454	3	-570.027	7	-898.155	2	-.047	4	-.358	3	-.441	3	
961	MP1B	1	max	0	11	.07	4	.008	1	0	11	0	11	0	11
962		min	0	1	-.08	3	-.148	6	0	1	0	1	0	1	1
963	2	max	91.81	8	130.024	4	79.057	1	0	11	.006	1	.009	3	
964		min	25.075	1	-130.034	3	-79.084	2	0	1	-.006	2	-.009	4	
965	3	max	95.872	8	133.796	4	82.829	1	0	11	.031	1	.051	3	
966		min	26.391	1	-133.806	3	-82.856	2	0	1	-.031	2	-.051	4	
967	4	max	99.934	8	137.568	4	86.601	1	0	11	.058	1	.093	3	
968		min	27.706	1	-137.578	3	-86.628	2	0	1	-.058	2	-.093	4	
969	5	max	103.997	8	141.34	4	90.373	1	0	11	.086	1	.137	3	
970		min	29.021	1	-141.35	3	-90.4	2	0	1	-.086	2	-.137	4	
971	6	max	108.059	8	145.112	4	94.145	1	0	11	.115	1	.183	3	
972		min	30.336	1	-145.122	3	-94.172	2	0	1	-.115	2	-.183	4	
973	7	max	117.903	9	54.758	2	229.261	6	.092	2	.015	10	.079	2	
974		min	-51.639	3	-462.856	5	-12.237	10	-.103	1	-.319	6	-.264	5	
975	8	max	119.218	9	54.758	2	228.188	6	.092	2	.012	10	.062	2	
976		min	-50.324	3	-462.856	5	-11.86	10	-.103	1	-.246	6	-.118	5	
977	9	max	120.533	9	54.758	2	227.115	6	.092	2	.008	10	.101	9	
978		min	-49.008	3	-462.856	5	-11.483	10	-.103	1	-.178	9	-.03	10	
979	10	max	121.849	9	54.758	2	226.043	6	.092	2	.004	10	.176	7	
980		min	-47.693	3	-462.856	5	-11.106	10	-.103	1	-.131	9	.008	10	
981	11	max	141.644	9	54.758	2	222.59	7	.092	2	.001	10	.321	5	
982		min	-27.898	3	-462.856	5	-8.509	10	-.103	1	-.084	9	.01	2	
983	12	max	142.959	9	54.758	2	222.59	7	.092	2	.037	6	.467	5	
984		min	-26.583	3	-462.856	5	-8.132	10	-.103	1	-.037	9	-.007	2	
985	13	max	-32.967	10	152.627	3	101.688	2	0	11	.064	1	.087	3	
986		min	-116.184	5	-152.641	4	-101.681	1	0	1	-.064	2	-.087	4	
987	14	max	-31.652	10	148.855	3	97.916	2	0	11	.032	1	.04	3	
988		min	-112.122	5	-148.869	4	-97.909	1	0	1	-.032	2	-.04	4	
989	15	max	-6.576	10	18.902	3	18.867	2	0	11	.015	1	.015	3	
990		min	-20.312	5	-18.915	4	-18.86	1	0	1	-.015	2	-.015	4	
991	16	max	-5.261	10	15.13	3	15.095	2	0	11	.01	1	.01	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 Mom...	LC	
992		min	-16.25	5	-15.143	4	-15.088	1	0	1	-.01	2	-.01	4	
993	17	max	-3.946	10	11.358	3	11.323	2	0	11	.005	1	.005	3	
994		min	-12.187	5	-11.371	4	-11.316	1	0	1	-.005	2	-.005	4	
995	18	max	-2.631	10	7.586	3	7.551	2	0	11	.002	1	.002	3	
996		min	-8.125	5	-7.599	4	-7.544	1	0	1	-.002	2	-.002	4	
997	19	max	-1.315	10	3.814	3	3.779	2	0	11	0	1	0	3	
998		min	-4.062	5	-3.827	4	-3.772	1	0	1	0	2	0	4	
999	20	max	0	11	.042	3	.043	8	0	11	0	11	0	11	
1000		min	0	1	-.121	8	-.014	3	0	1	0	1	0	1	
1001	MP2B	1	max	0	11	.035	4	.038	1	0	11	0	11	0	11
1002		min	0	1	-.054	7	-.064	6	0	1	0	1	0	1	
1003	2	max	63.583	8	98.444	4	68.442	1	0	11	.005	1	.007	3	
1004		min	12.115	1	-98.449	3	-68.447	2	0	1	-.005	2	-.007	4	
1005	3	max	67.646	8	102.216	4	72.214	1	0	11	.027	1	.039	3	
1006		min	13.431	1	-102.221	3	-72.219	2	0	1	-.027	2	-.039	4	
1007	4	max	71.708	8	105.988	4	75.986	1	0	11	.05	1	.071	3	
1008		min	14.746	1	-105.993	3	-75.991	2	0	1	-.05	2	-.071	4	
1009	5	max	75.771	8	109.76	4	79.758	1	0	11	.075	1	.105	3	
1010		min	16.061	1	-109.765	3	-79.763	2	0	1	-.075	2	-.105	4	
1011	6	max	79.833	8	113.532	4	83.53	1	0	11	.101	1	.141	3	
1012		min	17.376	1	-113.537	3	-83.535	2	0	1	-.101	2	-.141	4	
1013	7	max	698.837	8	422.245	4	488.144	1	.102	2	.222	2	.344	4	
1014		min	24.3	3	-504.641	3	-475.895	2	-.14	1	-.321	1	-.306	3	
1015	8	max	702.899	8	426.017	4	491.916	1	.102	2	.071	2	.21	4	
1016		min	25.615	3	-508.413	3	-479.667	2	-.14	1	-.168	5	-.146	3	
1017	9	max	706.962	8	429.789	4	495.688	1	.102	2	.041	4	.144	6	
1018		min	26.93	3	-512.185	3	-483.439	2	-.14	1	-.153	7	-.036	1	
1019	10	max	711.024	8	433.561	4	499.46	1	.102	2	.147	1	.199	7	
1020		min	28.245	3	-515.957	3	-487.211	2	-.14	1	-.234	2	-.062	4	
1021	11	max	726.421	8	459.138	4	513.323	1	.102	2	.307	1	.344	3	
1022		min	31.721	3	-541.533	3	-501.074	2	-.14	1	-.39	2	-.203	4	
1023	12	max	730.484	8	462.91	4	517.095	1	.102	2	.469	1	.516	3	
1024		min	33.036	3	-545.305	3	-504.846	2	-.14	1	-.549	2	-.348	4	
1025	13	max	-20.007	10	121.055	3	91.046	2	0	11	.059	1	.073	3	
1026		min	-87.958	5	-121.066	4	-91.055	1	0	1	-.059	2	-.073	4	
1027	14	max	-18.692	10	117.283	3	87.275	2	0	11	.031	1	.035	3	
1028		min	-83.895	5	-117.294	4	-87.283	1	0	1	-.031	2	-.035	4	
1029	15	max	-6.576	10	18.874	3	18.871	2	0	11	.015	1	.015	3	
1030		min	-20.312	5	-18.885	4	-18.879	1	0	1	-.015	2	-.015	4	
1031	16	max	-5.261	10	15.102	3	15.099	2	0	11	.01	1	.01	3	
1032		min	-16.25	5	-15.113	4	-15.107	1	0	1	-.01	2	-.01	4	
1033	17	max	-3.946	10	11.33	3	11.327	2	0	11	.005	1	.005	3	
1034		min	-12.187	5	-11.341	4	-11.335	1	0	1	-.005	2	-.005	4	
1035	18	max	-2.631	10	7.558	3	7.555	2	0	11	.002	1	.002	3	
1036		min	-8.125	5	-7.569	4	-7.563	1	0	1	-.002	2	-.002	4	
1037	19	max	-1.315	10	3.786	3	3.783	2	0	11	0	1	0	3	
1038		min	-4.062	5	-3.797	4	-3.791	1	0	1	0	2	0	4	
1039	20	max	0	11	.014	3	.011	2	0	11	0	11	0	11	
1040		min	0	1	-.103	8	-.071	5	0	1	0	1	0	1	
1041	M27A	1	max	542.614	2	-54.267	3	516.892	4	.349	4	.14	1	.476	1
1042		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.102	2	-.649	2	
1043	2	max	542.614	2	-54.267	3	516.892	4	.349	4	.136	1	.48	1	
1044		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.098	2	-.645	2	
1045	3	max	542.614	2	-54.267	3	516.892	4	.349	4	.131	1	.483	1	
1046		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.094	2	-.642	2	
1047	4	max	542.614	2	-54.267	3	516.892	4	.349	4	.127	1	.487	1	
1048		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.091	2	-.639	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 Mom...	LC	
1049	5	max	542.614	2	-54.267	3	516.892	4	.349	4	.122	1	.491	1	
1050		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.087	2	-.636	2	
1051	6	max	542.614	2	-54.267	3	516.892	4	.349	4	.118	1	.494	1	
1052		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.084	2	-.633	2	
1053	7	max	542.614	2	-54.267	3	516.892	4	.349	4	.113	1	.498	1	
1054		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.08	2	-.63	2	
1055	8	max	542.614	2	-54.267	3	516.892	4	.349	4	.109	1	.501	1	
1056		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.077	2	-.627	2	
1057	9	max	542.614	2	-54.267	3	516.892	4	.349	4	.104	1	.505	1	
1058		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.073	2	-.624	2	
1059	10	max	542.614	2	-54.267	3	516.892	4	.349	4	.1	1	.508	1	
1060		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.069	2	-.621	2	
1061	11	max	542.614	2	-54.267	3	516.892	4	.349	4	.096	4	.512	1	
1062		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.068	3	-.618	2	
1063	12	max	542.614	2	-54.267	3	516.892	4	.349	4	.103	4	.515	1	
1064		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.076	3	-.615	2	
1065	13	max	542.614	2	-54.267	3	516.892	4	.349	4	.11	4	.519	1	
1066		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.083	3	-.612	2	
1067	14	max	542.614	2	-54.267	3	516.892	4	.349	4	.117	4	.522	1	
1068		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.091	3	-.609	2	
1069	15	max	542.614	2	-54.267	3	516.892	4	.349	4	.124	4	.526	1	
1070		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.099	3	-.606	2	
1071	16	max	542.614	2	-54.267	3	516.892	4	.349	4	.13	4	.529	1	
1072		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.107	3	-.603	2	
1073	17	max	542.614	2	-54.267	3	516.892	4	.349	4	.137	4	.533	1	
1074		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.115	3	-.6	2	
1075	18	max	542.614	2	-54.267	3	516.892	4	.349	4	.144	4	.536	1	
1076		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.122	3	-.597	2	
1077	19	max	542.614	2	-54.267	3	516.892	4	.349	4	.151	4	.54	1	
1078		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.13	3	-.594	2	
1079	20	max	542.614	2	-54.267	3	516.892	4	.349	4	.158	4	.543	1	
1080		min	-504.249	1	-822.532	8	-592.888	3	-.461	3	-.138	3	-.591	2	
1081	M28A	1	max	110.169	3	-7.597	3	53.456	2	-.04	2	.103	1	.096	2
1082		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.092	2	-.275	5	
1083	2	max	110.169	3	-7.597	3	53.456	2	-.04	2	.098	1	.096	2	
1084		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.092	2	-.272	5	
1085	3	max	110.169	3	-7.597	3	53.456	2	-.04	2	.094	1	.097	2	
1086		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.091	2	-.269	5	
1087	4	max	110.169	3	-7.597	3	53.456	2	-.04	2	.089	1	.098	2	
1088		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.09	2	-.266	5	
1089	5	max	110.169	3	-7.597	3	53.456	2	-.04	2	.084	1	.098	2	
1090		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.089	2	-.263	5	
1091	6	max	110.169	3	-7.597	3	53.456	2	-.04	2	.08	1	.099	2	
1092		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.089	2	-.26	5	
1093	7	max	110.169	3	-7.597	3	53.456	2	-.04	2	.075	1	.099	2	
1094		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.088	2	-.256	5	
1095	8	max	110.169	3	-7.597	3	53.456	2	-.04	2	.07	1	.1	2	
1096		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.087	2	-.253	5	
1097	9	max	110.169	3	-7.597	3	53.456	2	-.04	2	.066	1	.101	2	
1098		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.087	2	-.25	5	
1099	10	max	110.169	3	-7.597	3	53.456	2	-.04	2	.061	1	.101	2	
1100		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.086	2	-.248	1	
1101	11	max	110.169	3	-7.597	3	53.456	2	-.04	2	.056	1	.102	2	
1102		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.085	2	-.246	1	
1103	12	max	110.169	3	-7.597	3	53.456	2	-.04	2	.052	1	.102	2	
1104		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.085	2	-.244	1	
1105	13	max	110.169	3	-7.597	3	53.456	2	-.04	2	.047	1	.103	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 Mom...	LC	
1106		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.084	2	-.243	1	
1107	14	max	110.169	3	-7.597	3	53.456	2	-.04	2	.042	1	.104	2	
1108		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.083	2	-.241	1	
1109	15	max	110.169	3	-7.597	3	53.456	2	-.04	2	.038	1	.104	2	
1110		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.083	6	-.239	1	
1111	16	max	110.169	3	-7.597	3	53.456	2	-.04	2	.033	1	.105	2	
1112		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.089	6	-.238	1	
1113	17	max	110.169	3	-7.597	3	53.456	2	-.04	2	.028	1	.105	2	
1114		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.096	7	-.236	1	
1115	18	max	110.169	3	-7.597	3	53.456	2	-.04	2	.025	4	.106	2	
1116		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.102	7	-.234	1	
1117	19	max	110.169	3	-7.597	3	53.456	2	-.04	2	.025	4	.107	2	
1118		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.109	7	-.233	1	
1119	20	max	110.169	3	-7.597	3	53.456	2	-.04	2	.025	4	.107	2	
1120		min	-69.701	4	-246.056	8	-513.045	5	-.534	5	-.116	7	-.231	1	
1121	MP3B	1	max	0	11	.241	4	.275	5	0	11	0	11	0	11
1122		min	0	1	-.225	3	-.173	2	0	1	0	1	0	1	1
1123	2	max	262.71	8	395.964	4	267.327	1	0	11	.011	1	.015	3	
1124		min	68.953	1	-395.948	3	-267.292	2	0	1	-.011	2	-.015	4	
1125	3	max	303.07	8	452.088	4	307.376	1	0	11	.17	1	.25	3	
1126		min	80.6	1	-452.073	3	-307.341	2	0	1	-.17	2	-.25	4	
1127	4	max	311.666	8	459.698	4	314.986	1	0	11	.333	1	.489	3	
1128		min	84.06	1	-459.683	3	-314.951	2	0	1	-.333	2	-.49	4	
1129	5	max	320.262	8	467.308	4	322.596	1	0	11	.501	1	.733	3	
1130		min	87.52	1	-467.293	3	-322.561	2	0	1	-.501	2	-.733	4	
1131	6	max	90.144	1	823.482	4	235.445	3	.314	1	.52	1	.228	3	
1132		min	-101.876	2	-554.435	3	-533.596	4	-.288	2	-.463	2	-.184	4	
1133	7	max	264.22	5	946.548	4	235.445	3	.314	1	.502	1	.54	3	
1134		min	13.184	2	-677.501	3	-533.596	4	-.288	2	-.601	2	-.638	4	
1135	8	max	272.816	5	954.159	4	235.445	3	.314	1	.517	1	.899	3	
1136		min	16.645	2	-685.111	3	-533.596	4	-.288	2	-.772	2	-1.138	4	
1137	9	max	281.412	5	961.769	4	235.445	3	.314	1	.537	1	1.261	3	
1138		min	20.105	2	-692.721	3	-533.596	4	-.288	2	-.947	2	-1.642	4	
1139	10	max	-108.281	10	512.251	3	367.647	2	0	11	1.005	1	1.404	3	
1140		min	-371.837	5	-512.224	4	-367.74	1	0	1	-1.005	2	-1.404	4	
1141	11	max	-104.821	10	504.641	3	360.037	2	0	11	.814	1	1.137	3	
1142		min	-363.241	5	-504.613	4	-360.129	1	0	1	-.813	2	-1.137	4	
1143	12	max	-101.361	10	497.031	3	352.427	2	0	11	.626	1	.873	3	
1144		min	-354.646	5	-497.003	4	-352.519	1	0	1	-.626	2	-.873	4	
1145	13	max	-97.901	10	489.421	3	344.817	2	0	11	.443	1	.613	3	
1146		min	-346.05	5	-489.393	4	-344.909	1	0	1	-.442	2	-.613	4	
1147	14	max	-94.441	10	481.81	3	337.207	2	0	11	.263	1	.358	3	
1148		min	-337.454	5	-481.783	4	-337.299	1	0	1	-.263	2	-.358	4	
1149	15	max	-90.98	10	474.2	3	329.597	2	0	11	.088	1	.106	3	
1150		min	-328.858	5	-474.173	4	-329.689	1	0	1	-.087	2	-.106	4	
1151	16	max	-13.84	10	29.963	3	30.039	2	0	11	.031	1	.031	3	
1152		min	-34.384	5	-29.936	4	-30.131	1	0	1	-.031	2	-.031	4	
1153	17	max	-10.38	10	22.353	3	22.429	2	0	11	.018	1	.017	3	
1154		min	-25.788	5	-22.326	4	-22.521	1	0	1	-.017	2	-.017	4	
1155	18	max	-6.92	10	14.743	3	14.819	2	0	11	.008	1	.008	3	
1156		min	-17.192	5	-14.715	4	-14.911	1	0	1	-.008	2	-.007	4	
1157	19	max	-3.46	10	7.133	3	7.208	2	0	11	.002	1	.002	3	
1158		min	-8.596	5	-7.105	4	-7.301	1	0	1	-.002	2	-.002	4	
1159	20	max	0	11	.505	4	.31	1	0	11	0	11	0	11	
1160		min	0	1	-.477	3	-.632	6	0	1	0	1	0	1	
1161	M30A	1	max	502.929	3	-133.123	2	1518	4	.897	5	.288	2	.282	2
1162		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.314	1	-.403	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 Mom...	LC	
1163	2	max	502.929	3	-133.123	2	1518	4	.897	5	.296	2	.283	2	
1164		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.317	1	-.399	1	
1165	3	max	502.929	3	-133.123	2	1518	4	.897	5	.303	2	.285	2	
1166		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.32	1	-.394	1	
1167	4	max	502.929	3	-133.123	2	1518	4	.897	5	.311	2	.287	2	
1168		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.322	1	-.39	1	
1169	5	max	502.929	3	-133.123	2	1518	4	.897	5	.319	2	.289	2	
1170		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.325	1	-.386	1	
1171	6	max	502.929	3	-133.123	2	1518	4	.897	5	.327	2	.29	2	
1172		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.328	1	-.382	1	
1173	7	max	502.929	3	-133.123	2	1518	4	.897	5	.335	2	.292	2	
1174		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.33	1	-.377	1	
1175	8	max	502.929	3	-133.123	2	1518	4	.897	5	.342	2	.294	2	
1176		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.333	1	-.373	1	
1177	9	max	502.929	3	-133.123	2	1518	4	.897	5	.35	2	.296	2	
1178		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.336	1	-.369	1	
1179	10	max	502.929	3	-133.123	2	1518	4	.897	5	.358	2	.297	2	
1180		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.338	1	-.364	1	
1181	11	max	502.929	3	-133.123	2	1518	4	.897	5	.366	2	.299	2	
1182		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.341	1	-.36	1	
1183	12	max	502.929	3	-133.123	2	1518	4	.897	5	.373	2	.301	2	
1184		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.344	1	-.356	1	
1185	13	max	502.929	3	-133.123	2	1518	4	.897	5	.381	2	.303	2	
1186		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.347	1	-.352	1	
1187	14	max	502.929	3	-133.123	2	1518	4	.897	5	.389	2	.304	2	
1188		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.349	1	-.347	1	
1189	15	max	502.929	3	-133.123	2	1518	4	.897	5	.397	2	.306	2	
1190		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.352	1	-.343	1	
1191	16	max	502.929	3	-133.123	2	1518	4	.897	5	.405	2	.308	2	
1192		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.355	1	-.339	1	
1193	17	max	502.929	3	-133.123	2	1518	4	.897	5	.412	2	.31	2	
1194		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.357	1	-.335	1	
1195	18	max	502.929	3	-133.123	2	1518	4	.897	5	.42	2	.311	2	
1196		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.36	1	-.33	1	
1197	19	max	502.929	3	-133.123	2	1518	4	.897	5	.428	2	.313	2	
1198		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.363	1	-.326	1	
1199	20	max	502.929	3	-133.123	2	1518	4	.897	5	.436	2	.315	2	
1200		min	-413.027	4	-661.937	5	-1130.948	3	.01	2	-.365	1	-.322	1	
1201	M31	1	max	950.005	1	-129.666	1	2062.718	3	.737	10	0	11	.537	2
1202		min	-1186.675	2	-1550.905	6	-2058.019	4	-1.237	9	0	1	-.358	1	
1203	2	max	950.005	1	-131.416	1	2066.982	3	.737	10	.263	3	.637	2	
1204		min	-1186.675	2	-1554.621	6	-2062.284	4	-1.237	9	-.262	4	-.341	1	
1205	3	max	950.005	1	-133.167	1	2071.247	3	.737	10	.526	3	.744	6	
1206		min	-1186.675	2	-1558.337	6	-2066.549	4	-1.237	9	-.525	4	-.324	1	
1207	4	max	950.005	1	-134.917	1	2075.511	3	.737	10	.79	3	.943	6	
1208		min	-1186.675	2	-1562.054	6	-2070.813	4	-1.237	9	-.788	4	-.307	1	
1209	5	max	950.005	1	-136.667	1	2079.776	3	.737	10	1.054	3	1.142	6	
1210		min	-1186.675	2	-1565.77	6	-2075.078	4	-1.237	9	-1.051	4	-.29	1	
1211	6	max	950.005	1	-138.417	1	2084.041	3	.737	10	1.319	3	1.341	6	
1212		min	-1186.675	2	-1569.487	6	-2079.343	4	-1.237	9	-1.316	4	-.272	1	
1213	7	max	950.005	1	-140.168	1	2088.305	3	.737	10	1.584	3	1.541	6	
1214		min	-1186.675	2	-1573.203	6	-2083.607	4	-1.237	9	-1.58	4	-.255	1	
1215	8	max	950.005	1	-141.918	1	2092.57	3	.737	10	1.85	3	1.741	6	
1216		min	-1186.675	2	-1576.919	6	-2087.872	4	-1.237	9	-1.846	4	-.237	1	
1217	9	max	950.005	1	-143.668	1	2096.835	3	.737	10	2.116	3	1.942	6	
1218		min	-1186.675	2	-1580.636	6	-2092.136	4	-1.237	9	-2.111	4	-.218	1	
1219	10	max	950.005	1	-145.419	1	2101.099	3	.737	10	2.383	3	2.143	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 Mom...	LC	
1220		min	-1186.675	2	-1584.352	6	-2096.401	4	-1.237	9	-2.378	4	-2	1	
1221	11	max	950.005	1	-147.169	1	2105.364	3	.737	10	2.651	3	2.345	6	
1222		min	-1186.675	2	-1588.068	6	-2100.666	4	-1.237	9	-2.645	4	-.181	1	
1223	12	max	950.005	1	-148.919	1	2109.628	3	.737	10	2.919	3	2.547	6	
1224		min	-1186.675	2	-1591.785	6	-2104.93	4	-1.237	9	-2.912	4	-.163	1	
1225	13	max	950.005	1	-150.669	1	2113.893	3	.737	10	3.187	3	2.75	6	
1226		min	-1186.675	2	-1595.501	6	-2109.195	4	-1.237	9	-3.18	4	-.144	1	
1227	14	max	950.005	1	-152.42	1	2118.158	3	.737	10	3.457	3	2.953	6	
1228		min	-1186.675	2	-1599.217	6	-2113.46	4	-1.237	9	-3.449	4	-.124	1	
1229	15	max	950.005	1	-154.17	1	2122.422	3	.737	10	3.726	3	3.157	6	
1230		min	-1186.675	2	-1602.934	6	-2117.724	4	-1.237	9	-3.718	4	-.105	1	
1231	16	max	950.005	1	-155.92	1	2126.687	3	.737	10	3.996	3	3.361	6	
1232		min	-1186.675	2	-1606.65	6	-2121.989	4	-1.237	9	-3.988	4	-.085	1	
1233	17	max	950.005	1	-157.671	1	2130.952	3	.737	10	4.267	3	3.566	6	
1234		min	-1186.675	2	-1610.366	6	-2126.253	4	-1.237	9	-4.258	4	-.065	1	
1235	18	max	950.005	1	-159.421	1	2135.216	3	.737	10	4.539	3	3.771	6	
1236		min	-1186.675	2	-1614.083	6	-2130.518	4	-1.237	9	-4.528	4	-.045	1	
1237	19	max	950.005	1	-161.171	1	2139.481	3	.737	10	4.81	3	3.976	6	
1238		min	-1186.675	2	-1617.799	6	-2134.783	4	-1.237	9	-4.8	4	-.025	1	
1239	20	max	950.005	1	-162.921	1	2143.745	3	.737	10	5.083	3	4.182	6	
1240		min	-1186.675	2	-1621.515	6	-2139.047	4	-1.237	9	-5.071	4	-.004	1	
1241	M32	1	max	1049.117	4	47.785	4	1743.304	1	.528	1	0	11	.368	1
1242		min	-1243.87	3	-1121.753	7	-1798.53	2	-.71	2	0	1	-.376	2	
1243	2	max	1050.963	4	46.035	4	1746.503	1	.528	1	.222	1	.439	1	
1244		min	-1245.717	3	-1125.47	7	-1801.729	2	-.71	2	-.229	2	-.368	2	
1245	3	max	1052.81	4	44.285	4	1749.701	1	.528	1	.444	1	.51	1	
1246		min	-1247.563	3	-1129.186	7	-1804.927	2	-.71	2	-.458	2	-.359	2	
1247	4	max	1054.657	4	42.535	4	1752.899	1	.528	1	.667	1	.581	1	
1248		min	-1249.41	3	-1132.902	7	-1808.126	2	-.71	2	-.688	2	-.35	2	
1249	5	max	1056.503	4	40.784	4	1756.098	1	.528	1	.89	1	.652	1	
1250		min	-1251.257	3	-1136.619	7	-1811.324	2	-.71	2	-.918	2	-.341	2	
1251	6	max	1058.35	4	39.034	4	1759.296	1	.528	1	1.114	1	.766	5	
1252		min	-1253.103	3	-1140.335	7	-1814.523	2	-.71	2	-1.149	2	-.332	2	
1253	7	max	1060.196	4	37.284	4	1762.495	1	.528	1	1.338	1	.91	5	
1254		min	-1254.95	3	-1144.052	7	-1817.721	2	-.71	2	-1.38	2	-.322	2	
1255	8	max	1062.043	4	35.533	4	1765.693	1	.528	1	1.562	1	1.053	5	
1256		min	-1256.797	3	-1147.768	7	-1820.92	2	-.71	2	-1.611	2	-.312	2	
1257	9	max	1063.89	4	33.783	4	1768.892	1	.528	1	1.787	1	1.197	5	
1258		min	-1258.643	3	-1151.484	7	-1824.118	2	-.71	2	-1.843	2	-.302	2	
1259	10	max	1065.736	4	32.033	4	1772.09	1	.528	1	2.012	1	1.342	5	
1260		min	-1260.49	3	-1155.201	7	-1827.317	2	-.71	2	-2.075	2	-.292	2	
1261	11	max	1067.583	4	30.283	4	1775.289	1	.528	1	2.238	1	1.487	5	
1262		min	-1262.337	3	-1158.917	7	-1830.515	2	-.71	2	-2.308	2	-.282	2	
1263	12	max	1069.43	4	28.532	4	1778.487	1	.528	1	2.464	1	1.633	5	
1264		min	-1264.183	3	-1162.633	7	-1833.713	2	-.71	2	-2.541	2	-.271	2	
1265	13	max	1071.276	4	26.782	4	1781.686	1	.528	1	2.69	1	1.779	5	
1266		min	-1266.03	3	-1166.35	7	-1836.912	2	-.71	2	-2.774	2	-.26	2	
1267	14	max	1073.123	4	25.032	4	1784.884	1	.528	1	2.917	1	1.925	5	
1268		min	-1267.876	3	-1170.066	7	-1840.11	2	-.71	2	-3.008	2	-.249	2	
1269	15	max	1074.97	4	23.282	4	1788.083	1	.528	1	3.144	1	2.072	5	
1270		min	-1269.723	3	-1173.782	7	-1843.309	2	-.71	2	-3.243	2	-.238	2	
1271	16	max	1076.816	4	21.531	4	1791.281	1	.528	1	3.372	1	2.22	5	
1272		min	-1271.57	3	-1177.499	7	-1846.507	2	-.71	2	-3.477	2	-.226	2	
1273	17	max	1078.663	4	19.781	4	1794.48	1	.528	1	3.6	1	2.368	5	
1274		min	-1273.416	3	-1181.215	7	-1849.706	2	-.71	2	-3.712	2	-.214	2	
1275	18	max	1080.509	4	18.031	4	1797.678	1	.528	1	3.828	1	2.516	5	
1276		min	-1275.263	3	-1184.931	7	-1852.904	2	-.71	2	-3.948	2	-.202	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 Mom...	LC
1277	19	max	1082.356	4	16.28	4	1800.876	1	.528	1	4.057	1	2.665	5
1278		min	-1277.11	3	-1188.648	7	-1856.103	2	-.71	2	-4.184	2	-.19	2
1279	20	max	1084.203	4	14.53	4	1804.075	1	.528	1	4.286	1	2.814	5
1280		min	-1278.956	3	-1192.364	7	-1859.301	2	-.71	2	-4.42	2	-.178	2
1281	M33	1	max	1496.164	2	-37.77	3	2423.168	2	.461	2	0	.369	4
1282		min	-1606.094	1	-1317.68	8	-2569.611	1	-.668	1	0	1	-.392	3
1283	2	max	1498.011	2	-39.52	3	2426.367	2	.461	2	.308	2	.459	4
1284		min	-1607.941	1	-1321.396	8	-2572.809	1	-.668	1	-.327	1	-.387	3
1285	3	max	1499.857	2	-41.271	3	2429.565	2	.461	2	.617	2	.548	4
1286		min	-1609.787	1	-1325.112	8	-2576.008	1	-.668	1	-.654	1	-.382	3
1287	4	max	1501.704	2	-43.021	3	2432.764	2	.461	2	.926	2	.638	4
1288		min	-1611.634	1	-1328.829	8	-2579.206	1	-.668	1	-.982	1	-.376	3
1289	5	max	1503.551	2	-44.771	3	2435.962	2	.461	2	1.236	2	.74	8
1290		min	-1613.48	1	-1332.545	8	-2582.404	1	-.668	1	-1.311	1	-.371	3
1291	6	max	1505.397	2	-46.521	3	2439.161	2	.461	2	1.546	2	.91	8
1292		min	-1615.327	1	-1336.261	8	-2585.603	1	-.668	1	-1.639	1	-.365	3
1293	7	max	1507.244	2	-48.272	3	2442.359	2	.461	2	1.857	2	1.08	8
1294		min	-1617.174	1	-1339.978	8	-2588.801	1	-.668	1	-1.968	1	-.359	3
1295	8	max	1509.091	2	-50.022	3	2445.558	2	.461	2	2.167	2	1.25	8
1296		min	-1619.02	1	-1343.694	8	-2592	1	-.668	1	-2.298	1	-.353	3
1297	9	max	1510.937	2	-51.772	3	2448.756	2	.461	2	2.479	2	1.422	8
1298		min	-1620.867	1	-1347.41	8	-2595.198	1	-.668	1	-2.628	1	-.346	3
1299	10	max	1512.784	2	-53.523	3	2451.955	2	.461	2	2.79	2	1.593	8
1300		min	-1622.714	1	-1351.127	8	-2598.397	1	-.668	1	-2.958	1	-.339	3
1301	11	max	1514.63	2	-55.273	3	2455.153	2	.461	2	3.102	2	1.765	8
1302		min	-1624.56	1	-1354.843	8	-2601.595	1	-.668	1	-3.289	1	-.332	3
1303	12	max	1516.477	2	-57.023	3	2458.352	2	.461	2	3.415	2	1.938	8
1304		min	-1626.407	1	-1358.559	8	-2604.794	1	-.668	1	-3.62	1	-.325	3
1305	13	max	1518.324	2	-58.773	3	2461.55	2	.461	2	3.728	2	2.111	8
1306		min	-1628.254	1	-1362.276	8	-2607.992	1	-.668	1	-3.951	1	-.318	3
1307	14	max	1520.17	2	-60.524	3	2464.749	2	.461	2	4.041	2	2.284	8
1308		min	-1630.1	1	-1365.992	8	-2611.191	1	-.668	1	-4.283	1	-.31	3
1309	15	max	1522.017	2	-62.274	3	2467.947	2	.461	2	4.355	2	2.458	8
1310		min	-1631.947	1	-1369.709	8	-2614.389	1	-.668	1	-4.616	1	-.303	3
1311	16	max	1523.864	2	-64.024	3	2471.145	2	.461	2	4.669	2	2.633	8
1312		min	-1633.793	1	-1373.425	8	-2617.588	1	-.668	1	-4.948	1	-.295	3
1313	17	max	1525.71	2	-65.774	3	2474.344	2	.461	2	4.983	2	2.808	8
1314		min	-1635.64	1	-1377.141	8	-2620.786	1	-.668	1	-5.281	1	-.286	3
1315	18	max	1527.557	2	-67.525	3	2477.542	2	.461	2	5.298	2	2.983	8
1316		min	-1637.487	1	-1380.858	8	-2623.985	1	-.668	1	-5.615	1	-.278	3
1317	19	max	1529.404	2	-69.275	3	2480.741	2	.461	2	5.614	2	3.159	8
1318		min	-1639.333	1	-1384.574	8	-2627.183	1	-.668	1	-5.949	1	-.269	3
1319	20	max	1531.25	2	-71.025	3	2483.939	2	.461	2	5.929	2	3.335	8
1320		min	-1641.18	1	-1388.29	8	-2630.381	1	-.668	1	-6.283	1	-.26	3
1321	M34	1	max	0	.007	8	0	11	0	11	0	11	0	11
1322		min	0	1	0	1	-.017	6	0	1	0	1	0	1
1323	2	max	1.043	8	1.787	4	1.787	1	0	11	0	1	0	3
1324		min	0	1	-1.787	3	-1.787	2	0	1	0	2	0	4
1325	3	max	2.086	8	3.573	4	3.573	1	0	11	0	1	0	3
1326		min	.002	1	-3.573	3	-3.573	2	0	1	0	2	0	4
1327	4	max	3.129	8	5.36	4	5.36	1	0	11	0	1	0	3
1328		min	.003	1	-5.36	3	-5.36	2	0	1	0	2	0	4
1329	5	max	4.172	8	7.147	4	7.147	1	0	11	.001	1	.001	3
1330		min	.004	1	-7.147	3	-7.147	2	0	1	-.001	2	-.001	4
1331	6	max	5.215	8	8.934	4	8.934	1	0	11	.002	1	.002	3
1332		min	.005	1	-8.934	3	-8.934	2	0	1	-.002	2	-.002	4
1333	7	max	6.258	8	10.72	4	10.72	1	0	11	.003	1	.003	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 Mom...	LC	
1334		min	.006	1	-10.72	3	-10.72	2	0	1	-.003	2	-.003	4	
1335	8	max	7.301	8	12.507	4	12.507	1	0	11	.003	1	.003	3	
1336		min	.007	1	-12.507	3	-12.507	2	0	1	-.003	2	-.003	4	
1337	9	max	8.344	8	14.294	4	14.294	1	0	11	.005	1	.005	3	
1338		min	.008	1	-14.294	3	-14.294	2	0	1	-.005	2	-.005	4	
1339	10	max	9.387	8	16.081	4	16.081	1	0	11	.006	1	.006	3	
1340		min	.009	1	-16.081	3	-16.081	2	0	1	-.006	2	-.006	4	
1341	11	max	-.009	10	16.081	3	16.081	2	0	11	.006	1	.006	3	
1342		min	-9.387	5	-16.081	4	-16.081	1	0	1	-.006	2	-.006	4	
1343	12	max	-.008	10	14.294	3	14.294	2	0	11	.005	1	.005	3	
1344		min	-8.344	5	-14.294	4	-14.294	1	0	1	-.005	2	-.005	4	
1345	13	max	-.007	10	12.507	3	12.507	2	0	11	.003	1	.003	3	
1346		min	-7.301	5	-12.507	4	-12.507	1	0	1	-.003	2	-.003	4	
1347	14	max	-.006	10	10.72	3	10.72	2	0	11	.003	1	.003	3	
1348		min	-6.258	5	-10.72	4	-10.72	1	0	1	-.003	2	-.003	4	
1349	15	max	-.005	10	8.934	3	8.934	2	0	11	.002	1	.002	3	
1350		min	-5.215	5	-8.934	4	-8.934	1	0	1	-.002	2	-.002	4	
1351	16	max	-.004	10	7.147	3	7.147	2	0	11	.001	1	.001	3	
1352		min	-4.172	5	-7.147	4	-7.147	1	0	1	-.001	2	-.001	4	
1353	17	max	-.003	10	5.36	3	5.36	2	0	11	0	1	0	3	
1354		min	-3.129	5	-5.36	4	-5.36	1	0	1	0	2	0	4	
1355	18	max	-.002	10	3.573	3	3.573	2	0	11	0	1	0	3	
1356		min	-2.086	5	-3.573	4	-3.573	1	0	1	0	2	0	4	
1357	19	max	0	10	1.787	3	1.787	2	0	11	0	1	0	3	
1358		min	-1.043	5	-1.787	4	-1.787	1	0	1	0	2	0	4	
1359	20	max	0	11	0	11	.017	6	0	11	0	11	0	11	
1360		min	0	1	-.007	8	0	1	0	1	0	1	0	1	
1361	M35	1	max	0	11	.01	8	.01	5	0	11	0	11	0	11
1362		min	0	1	0	1	0	1	0	1	0	1	0	1	
1363	2	max	1.043	8	1.787	4	1.787	1	0	11	0	1	0	3	
1364		min	0	1	-1.787	3	-1.787	2	0	1	0	2	0	4	
1365	3	max	2.086	8	3.573	4	3.573	1	0	11	0	1	0	3	
1366		min	.002	1	-3.573	3	-3.573	2	0	1	0	2	0	4	
1367	4	max	3.129	8	5.36	4	5.36	1	0	11	0	1	0	3	
1368		min	.003	1	-5.36	3	-5.36	2	0	1	0	2	0	4	
1369	5	max	4.172	8	7.147	4	7.147	1	0	11	.001	1	.001	3	
1370		min	.004	1	-7.147	3	-7.147	2	0	1	-.001	2	-.001	4	
1371	6	max	5.215	8	8.934	4	8.934	1	0	11	.002	1	.002	3	
1372		min	.005	1	-8.934	3	-8.934	2	0	1	-.002	2	-.002	4	
1373	7	max	6.258	8	10.72	4	10.72	1	0	11	.003	1	.003	3	
1374		min	.006	1	-10.72	3	-10.72	2	0	1	-.003	2	-.003	4	
1375	8	max	7.301	8	12.507	4	12.507	1	0	11	.003	1	.003	3	
1376		min	.007	1	-12.507	3	-12.507	2	0	1	-.003	2	-.003	4	
1377	9	max	8.344	8	14.294	4	14.294	1	0	11	.005	1	.005	3	
1378		min	.008	1	-14.294	3	-14.294	2	0	1	-.005	2	-.005	4	
1379	10	max	9.387	8	16.081	4	16.081	1	0	11	.006	1	.006	3	
1380		min	.009	1	-16.081	3	-16.081	2	0	1	-.006	2	-.006	4	
1381	11	max	-.009	10	16.081	3	16.081	2	0	11	.006	1	.006	3	
1382		min	-9.387	5	-16.081	4	-16.081	1	0	1	-.006	2	-.006	4	
1383	12	max	-.008	10	14.294	3	14.294	2	0	11	.005	1	.005	3	
1384		min	-8.344	5	-14.294	4	-14.294	1	0	1	-.005	2	-.005	4	
1385	13	max	-.007	10	12.507	3	12.507	2	0	11	.003	1	.003	3	
1386		min	-7.301	5	-12.507	4	-12.507	1	0	1	-.003	2	-.003	4	
1387	14	max	-.006	10	10.72	3	10.72	2	0	11	.003	1	.003	3	
1388		min	-6.258	5	-10.72	4	-10.72	1	0	1	-.003	2	-.003	4	
1389	15	max	-.005	10	8.934	3	8.934	2	0	11	.002	1	.002	3	
1390		min	-5.215	5	-8.934	4	-8.934	1	0	1	-.002	2	-.002	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1391	16	max	-.004	10	7.147	3	7.147	2	0	11	.001	1	.001	3	
1392		min	-4.172	5	-7.147	4	-7.147	1	0	1	-.001	2	-.001	4	
1393	17	max	-.003	10	5.36	3	5.36	2	0	11	0	1	0	3	
1394		min	-3.129	5	-5.36	4	-5.36	1	0	1	0	2	0	4	
1395	18	max	-.002	10	3.573	3	3.573	2	0	11	0	1	0	3	
1396		min	-2.086	5	-3.573	4	-3.573	1	0	1	0	2	0	4	
1397	19	max	0	10	1.787	3	1.787	2	0	11	0	1	0	3	
1398		min	-1.043	5	-1.787	4	-1.787	1	0	1	0	2	0	4	
1399	20	max	0	11	0	11	0	11	0	11	0	11	0	11	
1400		min	0	1	-.01	8	-.01	5	0	1	0	1	0	1	
1401	M36	1	max	0	11	0	11	.004	5	0	11	0	11	0	11
1402		min	0	1	-.011	7	0	1	0	1	0	1	0	1	
1403	2	max	1.043	8	1.787	4	1.787	1	0	11	0	1	0	3	
1404		min	0	1	-1.787	3	-1.787	2	0	1	0	2	0	4	
1405	3	max	2.086	8	3.573	4	3.573	1	0	11	0	1	0	3	
1406		min	.002	1	-3.573	3	-3.573	2	0	1	0	2	0	4	
1407	4	max	3.129	8	5.36	4	5.36	1	0	11	0	1	0	3	
1408		min	.003	1	-5.36	3	-5.36	2	0	1	0	2	0	4	
1409	5	max	4.172	8	7.147	4	7.147	1	0	11	.001	1	.001	3	
1410		min	.004	1	-7.147	3	-7.147	2	0	1	-.001	2	-.001	4	
1411	6	max	5.215	8	8.934	4	8.934	1	0	11	.002	1	.002	3	
1412		min	.005	1	-8.934	3	-8.934	2	0	1	-.002	2	-.002	4	
1413	7	max	6.258	8	10.72	4	10.72	1	0	11	.003	1	.003	3	
1414		min	.006	1	-10.72	3	-10.72	2	0	1	-.003	2	-.003	4	
1415	8	max	7.301	8	12.507	4	12.507	1	0	11	.003	1	.003	3	
1416		min	.007	1	-12.507	3	-12.507	2	0	1	-.003	2	-.003	4	
1417	9	max	8.344	8	14.294	4	14.294	1	0	11	.005	1	.005	3	
1418		min	.008	1	-14.294	3	-14.294	2	0	1	-.005	2	-.005	4	
1419	10	max	9.387	8	16.081	4	16.081	1	0	11	.006	1	.006	3	
1420		min	.009	1	-16.081	3	-16.081	2	0	1	-.006	2	-.006	4	
1421	11	max	-.009	10	16.081	3	16.081	2	0	11	.006	1	.006	3	
1422		min	-9.387	5	-16.081	4	-16.081	1	0	1	-.006	2	-.006	4	
1423	12	max	-.008	10	14.294	3	14.294	2	0	11	.005	1	.005	3	
1424		min	-8.344	5	-14.294	4	-14.294	1	0	1	-.005	2	-.005	4	
1425	13	max	-.007	10	12.507	3	12.507	2	0	11	.003	1	.003	3	
1426		min	-7.301	5	-12.507	4	-12.507	1	0	1	-.003	2	-.003	4	
1427	14	max	-.006	10	10.72	3	10.72	2	0	11	.003	1	.003	3	
1428		min	-6.258	5	-10.72	4	-10.72	1	0	1	-.003	2	-.003	4	
1429	15	max	-.005	10	8.934	3	8.934	2	0	11	.002	1	.002	3	
1430		min	-5.215	5	-8.934	4	-8.934	1	0	1	-.002	2	-.002	4	
1431	16	max	-.004	10	7.147	3	7.147	2	0	11	.001	1	.001	3	
1432		min	-4.172	5	-7.147	4	-7.147	1	0	1	-.001	2	-.001	4	
1433	17	max	-.003	10	5.36	3	5.36	2	0	11	0	1	0	3	
1434		min	-3.129	5	-5.36	4	-5.36	1	0	1	0	2	0	4	
1435	18	max	-.002	10	3.573	3	3.573	2	0	11	0	1	0	3	
1436		min	-2.086	5	-3.573	4	-3.573	1	0	1	0	2	0	4	
1437	19	max	0	10	1.787	3	1.787	2	0	11	0	1	0	3	
1438		min	-1.043	5	-1.787	4	-1.787	1	0	1	0	2	0	4	
1439	20	max	0	11	.011	7	0	11	0	11	0	11	0	11	
1440		min	0	1	0	1	-.004	5	0	1	0	1	0	1	
1441	M37	1	max	251.663	2	703.639	6	298.662	4	.423	3	.088	1	.361	2
1442		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.133	2	-.275	1	
1443	2	max	251.663	2	703.639	6	298.662	4	.423	3	.089	1	.356	2	
1444		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.133	2	-.276	1	
1445	3	max	251.663	2	703.639	6	298.662	4	.423	3	.09	1	.351	2	
1446		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.134	2	-.278	1	
1447	4	max	251.663	2	703.639	6	298.662	4	.423	3	.091	1	.347	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 Mom...	LC	
1448		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.134	2	-.279	1	
1449	5	max	251.663	2	703.639	6	298.662	4	.423	3	.092	1	.342	2	
1450		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.134	2	-.281	1	
1451	6	max	251.663	2	703.639	6	298.662	4	.423	3	.093	1	.337	2	
1452		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.135	2	-.282	1	
1453	7	max	251.663	2	703.639	6	298.662	4	.423	3	.094	1	.332	2	
1454		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.135	2	-.284	1	
1455	8	max	251.663	2	703.639	6	298.662	4	.423	3	.095	1	.328	2	
1456		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.136	2	-.285	1	
1457	9	max	251.663	2	703.639	6	298.662	4	.423	3	.096	1	.323	2	
1458		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.136	2	-.286	1	
1459	10	max	251.663	2	703.639	6	298.662	4	.423	3	.097	1	.318	2	
1460		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.137	2	-.288	1	
1461	11	max	251.663	2	703.639	6	298.662	4	.423	3	.098	1	.314	2	
1462		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.137	2	-.289	1	
1463	12	max	251.663	2	703.639	6	298.662	4	.423	3	.099	1	.309	2	
1464		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.138	2	-.291	1	
1465	13	max	251.663	2	703.639	6	298.662	4	.423	3	.1	1	.304	2	
1466		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.138	2	-.292	1	
1467	14	max	251.663	2	703.639	6	298.662	4	.423	3	.101	1	.299	2	
1468		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.139	2	-.293	1	
1469	15	max	251.663	2	703.639	6	298.662	4	.423	3	.102	1	.295	2	
1470		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.139	2	-.295	1	
1471	16	max	251.663	2	703.639	6	298.662	4	.423	3	.103	1	.29	2	
1472		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.139	2	-.296	1	
1473	17	max	251.663	2	703.639	6	298.662	4	.423	3	.104	1	.285	2	
1474		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.14	2	-.298	1	
1475	18	max	251.663	2	703.639	6	298.662	4	.423	3	.105	1	.28	2	
1476		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.14	2	-.299	1	
1477	19	max	251.663	2	703.639	6	298.662	4	.423	3	.106	1	.276	2	
1478		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.141	2	-.301	1	
1479	20	max	251.663	2	703.639	6	298.662	4	.423	3	.107	1	.271	2	
1480		min	-282.494	1	107.864	1	-259.148	3	-.428	4	-.141	2	-.302	1	
1481	M38	1	max	322.945	1	138.133	2	759.767	10	.032	3	.069	1	.104	3
1482		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.07	2	-.239	10	
1483	2	max	322.945	1	138.133	2	759.767	10	.032	3	.07	1	.103	3	
1484		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.066	2	-.232	10	
1485	3	max	322.945	1	138.133	2	759.767	10	.032	3	.071	1	.103	3	
1486		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.062	2	-.225	10	
1487	4	max	322.945	1	138.133	2	759.767	10	.032	3	.071	1	.103	3	
1488		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.058	2	-.218	10	
1489	5	max	322.945	1	138.133	2	759.767	10	.032	3	.072	1	.103	3	
1490		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.054	2	-.211	10	
1491	6	max	322.945	1	138.133	2	759.767	10	.032	3	.073	1	.103	3	
1492		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.05	2	-.204	10	
1493	7	max	322.945	1	138.133	2	759.767	10	.032	3	.073	1	.103	3	
1494		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.046	2	-.197	10	
1495	8	max	322.945	1	138.133	2	759.767	10	.032	3	.074	1	.103	3	
1496		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.042	2	-.191	10	
1497	9	max	322.945	1	138.133	2	759.767	10	.032	3	.074	1	.103	3	
1498		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.038	2	-.184	10	
1499	10	max	322.945	1	138.133	2	759.767	10	.032	3	.076	5	.102	3	
1500		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.034	2	-.177	10	
1501	11	max	322.945	1	138.133	2	759.767	10	.032	3	.083	5	.102	3	
1502		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.03	2	-.17	10	
1503	12	max	322.945	1	138.133	2	759.767	10	.032	3	.089	5	.102	3	
1504		min	-379.89	2	-522.096	10	46.574	1	-.609	10	-.026	2	-.163	10	



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 Mom...	LC	
1505	13	max	322.945	1	138.133	2	759.767	10	.032	3	.096	5	.102	3	
1506		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.022	2	-.156	10	
1507	14	max	322.945	1	138.133	2	759.767	10	.032	3	.103	5	.102	3	
1508		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.018	2	-.149	10	
1509	15	max	322.945	1	138.133	2	759.767	10	.032	3	.11	5	.102	3	
1510		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.014	2	-.142	10	
1511	16	max	322.945	1	138.133	2	759.767	10	.032	3	.119	10	.102	3	
1512		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.01	2	-.136	10	
1513	17	max	322.945	1	138.133	2	759.767	10	.032	3	.129	10	.102	3	
1514		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.006	2	-.129	10	
1515	18	max	322.945	1	138.133	2	759.767	10	.032	3	.139	10	.101	3	
1516		min	-379.89	2	-522.096	10	46.574	1	-609	10	-.002	2	-.122	10	
1517	19	max	322.945	1	138.133	2	759.767	10	.032	3	.149	10	.101	3	
1518		min	-379.89	2	-522.096	10	46.574	1	-609	10	.003	2	-.115	10	
1519	20	max	322.945	1	138.133	2	759.767	10	.032	3	.159	10	.101	3	
1520		min	-379.89	2	-522.096	10	46.574	1	-609	10	.007	2	-.108	10	
1521	M39	1	max	48.915	3	13.279	2	-28.792	1	.696	3	.411	2	.383	2
1522		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.345	1	-.527	1	
1523	2	max	48.915	3	13.279	2	-28.792	1	.696	3	.404	2	.382	2	
1524		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.346	1	-.525	1	
1525	3	max	48.915	3	13.279	2	-28.792	1	.696	3	.397	2	.382	2	
1526		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.346	1	-.522	1	
1527	4	max	48.915	3	13.279	2	-28.792	1	.696	3	.39	2	.382	2	
1528		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.347	1	-.52	1	
1529	5	max	48.915	3	13.279	2	-28.792	1	.696	3	.383	2	.382	2	
1530		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.347	1	-.518	1	
1531	6	max	48.915	3	13.279	2	-28.792	1	.696	3	.376	2	.382	2	
1532		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.347	1	-.515	1	
1533	7	max	48.915	3	13.279	2	-28.792	1	.696	3	.369	2	.382	2	
1534		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.348	1	-.513	1	
1535	8	max	48.915	3	13.279	2	-28.792	1	.696	3	.362	2	.381	2	
1536		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.348	1	-.51	1	
1537	9	max	48.915	3	13.279	2	-28.792	1	.696	3	.356	2	.381	2	
1538		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.348	1	-.508	1	
1539	10	max	48.915	3	13.279	2	-28.792	1	.696	3	.349	2	.381	2	
1540		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.349	1	-.505	1	
1541	11	max	48.915	3	13.279	2	-28.792	1	.696	3	.342	2	.381	2	
1542		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.349	1	-.503	1	
1543	12	max	48.915	3	13.279	2	-28.792	1	.696	3	.335	2	.381	2	
1544		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.35	1	-.501	1	
1545	13	max	48.915	3	13.279	2	-28.792	1	.696	3	.328	2	.38	2	
1546		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.35	1	-.498	1	
1547	14	max	48.915	3	13.279	2	-28.792	1	.696	3	.321	2	.38	2	
1548		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.35	1	-.496	1	
1549	15	max	48.915	3	13.279	2	-28.792	1	.696	3	.314	2	.38	2	
1550		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.351	1	-.493	1	
1551	16	max	48.915	3	13.279	2	-28.792	1	.696	3	.307	2	.38	2	
1552		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.351	1	-.491	1	
1553	17	max	48.915	3	13.279	2	-28.792	1	.696	3	.3	2	.38	2	
1554		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.351	1	-.488	1	
1555	18	max	48.915	3	13.279	2	-28.792	1	.696	3	.293	2	.38	2	
1556		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.352	1	-.486	1	
1557	19	max	48.915	3	13.279	2	-28.792	1	.696	3	.286	2	.379	2	
1558		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.352	1	-.484	1	
1559	20	max	48.915	3	13.279	2	-28.792	1	.696	3	.279	2	.379	2	
1560		min	-230.036	8	-415.723	9	-881.536	6	-.313	4	-.353	1	-.481	1	
1561	M40	1	max	0	11	0	11	0	11	0	11	0	11	11	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1562		min	0	1	0	1	0	1	0	1	0	1	0	1	
1563	2	max	0	11	-4.325	10	9.513	2	0	11	.003	2	.004	8	
1564		min	0	1	-10.745	5	-9.513	1	0	1	-.003	1	.001	1	
1565	3	max	0	11	-8.65	10	19.025	2	0	11	.013	2	.014	8	
1566		min	0	1	-21.49	5	-19.025	1	0	1	-.013	1	.006	1	
1567	4	max	-28.996	1	.081	2	230.977	8	.379	2	.372	2	.335	4	
1568		min	-881.665	6	-425.431	9	-48.542	3	-481	1	-.354	1	-.583	3	
1569	5	max	-262.257	1	43.721	4	114.139	2	.218	9	.114	10	.112	4	
1570		min	-842.702	7	-281.191	7	-81.901	1	-.099	10	-.36	9	-.431	7	
1571	6	max	-262.257	1	39.396	4	123.652	2	.218	9	.085	10	.085	4	
1572		min	-842.702	7	-291.936	7	-91.413	1	-.099	10	-.307	9	-.255	9	
1573	7	max	-262.257	1	35.071	4	133.164	2	.218	9	.056	10	.076	2	
1574		min	-842.702	7	-302.681	7	-100.926	1	-.099	10	-.254	9	-.107	1	
1575	8	max	-262.257	1	30.746	4	142.677	2	.218	9	.14	2	.174	6	
1576		min	-842.702	7	-313.426	7	-110.439	1	-.099	10	-.224	1	-.072	1	
1577	9	max	-262.257	1	26.421	4	152.19	2	.218	9	.237	2	.375	6	
1578		min	-842.702	7	-324.171	7	-119.952	1	-.099	10	-.3	1	-.033	1	
1579	10	max	-262.257	1	22.096	4	161.703	2	.218	9	.34	2	.583	6	
1580		min	-842.702	7	-334.916	7	-129.464	1	-.099	10	-.382	1	.004	4	
1581	11	max	-262.257	1	17.771	4	171.215	2	.218	9	.45	2	.806	7	
1582		min	-842.702	7	-345.66	7	-138.977	1	-.099	10	-.471	1	-.009	4	
1583	12	max	31.102	4	358.115	8	133.066	1	.273	2	.281	2	.63	6	
1584		min	-820.571	7	25.117	3	-69.934	2	-.216	1	-.298	1	.067	1	
1585	13	max	31.102	4	347.37	8	123.553	1	.273	2	.239	2	.399	6	
1586		min	-820.571	7	20.792	3	-60.422	2	-.216	1	-.214	1	.045	1	
1587	14	max	31.102	4	336.626	8	114.041	1	.273	2	.202	2	.176	6	
1588		min	-820.571	7	16.467	3	-52.683	10	-.216	1	-.135	1	.026	1	
1589	15	max	31.102	4	325.881	8	109.327	5	.273	2	.197	9	.071	3	
1590		min	-820.571	7	12.142	3	-53.634	10	-.216	1	-.15	10	-.1	4	
1591	16	max	31.102	4	315.136	8	107.54	9	.273	2	.268	9	.065	3	
1592		min	-820.571	7	7.817	3	-54.586	10	-.216	1	-.185	10	-.262	8	
1593	17	max	-46.047	1	531.571	10	351.417	1	-.108	10	.265	2	.038	3	
1594		min	-759.805	10	-125.028	2	-407.906	2	-.101	3	-.316	1	-.492	8	
1595	18	max	0	11	21.49	8	19.025	1	0	11	.013	2	.014	8	
1596		min	0	1	8.65	1	-19.025	2	0	1	-.013	1	.006	1	
1597	19	max	0	11	10.745	8	9.513	1	0	11	.003	2	.004	8	
1598		min	0	1	4.325	1	-9.513	2	0	1	-.003	1	.001	1	
1599	20	max	0	11	0	11	0	11	0	11	0	11	0	11	
1600		min	0	1	0	1	0	1	0	1	0	1	0	1	
1601	M41	1	max	183.911	3	609.678	5	426.85	2	.528	1	.117	4	.381	3
1602		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.136	3	-.315	4	
1603	2	max	183.911	3	609.678	5	426.85	2	.528	1	.115	4	.377	3	
1604		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.133	3	-.316	4	
1605	3	max	183.911	3	609.678	5	426.85	2	.528	1	.113	4	.373	3	
1606		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.13	3	-.317	4	
1607	4	max	183.911	3	609.678	5	426.85	2	.528	1	.111	4	.368	3	
1608		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.127	3	-.317	4	
1609	5	max	183.911	3	609.678	5	426.85	2	.528	1	.109	4	.364	3	
1610		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.124	3	-.318	4	
1611	6	max	183.911	3	609.678	5	426.85	2	.528	1	.107	4	.359	3	
1612		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.121	3	-.319	4	
1613	7	max	183.911	3	609.678	5	426.85	2	.528	1	.105	4	.355	3	
1614		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.118	3	-.32	4	
1615	8	max	183.911	3	609.678	5	426.85	2	.528	1	.103	4	.35	3	
1616		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.115	3	-.321	4	
1617	9	max	183.911	3	609.678	5	426.85	2	.528	1	.101	4	.346	3	
1618		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.111	3	-.322	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1619	10	max	183.911	3	609.678	5	426.85	2	.528	1	.099	4	.342	3	
1620		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.108	3	-.323	4	
1621	11	max	183.911	3	609.678	5	426.85	2	.528	1	.097	4	.337	3	
1622		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.105	3	-.324	4	
1623	12	max	183.911	3	609.678	5	426.85	2	.528	1	.095	4	.333	3	
1624		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.102	3	-.325	4	
1625	13	max	183.911	3	609.678	5	426.85	2	.528	1	.093	4	.328	3	
1626		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.099	3	-.326	4	
1627	14	max	183.911	3	609.678	5	426.85	2	.528	1	.091	4	.324	3	
1628		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.096	3	-.326	4	
1629	15	max	183.911	3	609.678	5	426.85	2	.528	1	.089	4	.32	3	
1630		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.093	3	-.327	4	
1631	16	max	183.911	3	609.678	5	426.85	2	.528	1	.087	4	.315	3	
1632		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.09	3	-.328	4	
1633	17	max	183.911	3	609.678	5	426.85	2	.528	1	.085	4	.311	3	
1634		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.087	3	-.329	4	
1635	18	max	183.911	3	609.678	5	426.85	2	.528	1	.083	4	.306	3	
1636		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.084	3	-.33	4	
1637	19	max	183.911	3	609.678	5	426.85	2	.528	1	.081	4	.302	3	
1638		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.081	3	-.331	4	
1639	20	max	183.911	3	609.678	5	426.85	2	.528	1	.079	4	.298	3	
1640		min	-233.348	4	44.744	2	-342.187	1	-.587	2	-.078	3	-.332	4	
1641	M42	1	max	331.223	4	81.481	3	465.398	7	.071	1	.044	4	.129	1
1642		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.05	3	-.076	2	
1643	2	max	331.223	4	81.481	3	465.398	7	.071	1	.044	4	.128	1	
1644		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.046	3	-.075	2	
1645	3	max	331.223	4	81.481	3	465.398	7	.071	1	.045	4	.127	1	
1646		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.043	3	-.075	2	
1647	4	max	331.223	4	81.481	3	465.398	7	.071	1	.045	4	.127	1	
1648		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.039	3	-.074	2	
1649	5	max	331.223	4	81.481	3	465.398	7	.071	1	.045	4	.126	1	
1650		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.036	3	-.074	2	
1651	6	max	331.223	4	81.481	3	465.398	7	.071	1	.046	4	.126	1	
1652		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.032	3	-.073	2	
1653	7	max	331.223	4	81.481	3	465.398	7	.071	1	.046	4	.125	1	
1654		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.029	3	-.073	2	
1655	8	max	331.223	4	81.481	3	465.398	7	.071	1	.046	4	.125	1	
1656		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.025	3	-.072	2	
1657	9	max	331.223	4	81.481	3	465.398	7	.071	1	.049	8	.124	1	
1658		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.022	3	-.071	2	
1659	10	max	331.223	4	81.481	3	465.398	7	.071	1	.055	8	.124	1	
1660		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.019	3	-.071	2	
1661	11	max	331.223	4	81.481	3	465.398	7	.071	1	.06	8	.123	1	
1662		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.015	3	-.07	2	
1663	12	max	331.223	4	81.481	3	465.398	7	.071	1	.066	8	.122	1	
1664		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.012	3	-.07	2	
1665	13	max	331.223	4	81.481	3	465.398	7	.071	1	.072	8	.122	1	
1666		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.008	3	-.069	2	
1667	14	max	331.223	4	81.481	3	465.398	7	.071	1	.077	8	.121	1	
1668		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.005	3	-.068	2	
1669	15	max	331.223	4	81.481	3	465.398	7	.071	1	.083	8	.121	1	
1670		min	-364.041	3	-83.195	4	19.672	4	-.426	6	-.001	3	-.068	2	
1671	16	max	331.223	4	81.481	3	465.398	7	.071	1	.088	8	.12	1	
1672		min	-364.041	3	-83.195	4	19.672	4	-.426	6	.002	3	-.067	2	
1673	17	max	331.223	4	81.481	3	465.398	7	.071	1	.094	8	.12	1	
1674		min	-364.041	3	-83.195	4	19.672	4	-.426	6	.006	3	-.067	2	
1675	18	max	331.223	4	81.481	3	465.398	7	.071	1	.099	8	.119	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 Mom...	LC	
1676		min	-364.041	3	-83.195	4	19.672	4	-.426	6	.009	3	-.066	2	
1677	19	max	331.223	4	81.481	3	465.398	7	.071	1	.105	8	-.118	1	
1678		min	-364.041	3	-83.195	4	19.672	4	-.426	6	.013	3	-.066	2	
1679	20	max	331.223	4	81.481	3	465.398	7	.071	1	.111	8	.118	1	
1680		min	-364.041	3	-83.195	4	19.672	4	-.426	6	.016	3	-.065	2	
1681	M43	1	max	189.069	4	231.79	10	117.933	2	.848	1	.365	3	.256	10
1682		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.358	4	-.31	9	
1683	2	max	189.069	4	231.79	10	117.933	2	.848	1	.361	3	.253	10	
1684		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.359	4	-.306	9	
1685	3	max	189.069	4	231.79	10	117.933	2	.848	1	.357	3	.25	10	
1686		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.359	4	-.302	9	
1687	4	max	189.069	4	231.79	10	117.933	2	.848	1	.352	3	.247	10	
1688		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.359	4	-.297	9	
1689	5	max	189.069	4	231.79	10	117.933	2	.848	1	.348	3	.243	10	
1690		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.359	4	-.293	9	
1691	6	max	189.069	4	231.79	10	117.933	2	.848	1	.344	3	.24	10	
1692		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.36	4	-.289	9	
1693	7	max	189.069	4	231.79	10	117.933	2	.848	1	.339	3	.237	10	
1694		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.36	4	-.285	9	
1695	8	max	189.069	4	231.79	10	117.933	2	.848	1	.335	3	.234	10	
1696		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.36	4	-.281	9	
1697	9	max	189.069	4	231.79	10	117.933	2	.848	1	.331	3	.231	10	
1698		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.36	4	-.277	9	
1699	10	max	189.069	4	231.79	10	117.933	2	.848	1	.326	3	.228	10	
1700		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.361	4	-.273	9	
1701	11	max	189.069	4	231.79	10	117.933	2	.848	1	.322	3	.225	10	
1702		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.361	4	-.269	9	
1703	12	max	189.069	4	231.79	10	117.933	2	.848	1	.318	3	.222	10	
1704		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.361	4	-.265	9	
1705	13	max	189.069	4	231.79	10	117.933	2	.848	1	.313	3	.219	10	
1706		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.361	4	-.261	9	
1707	14	max	189.069	4	231.79	10	117.933	2	.848	1	.309	3	.216	10	
1708		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.362	4	-.257	9	
1709	15	max	189.069	4	231.79	10	117.933	2	.848	1	.305	3	.213	10	
1710		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.362	4	-.253	9	
1711	16	max	189.069	4	231.79	10	117.933	2	.848	1	.3	3	.21	10	
1712		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.362	4	-.249	9	
1713	17	max	189.069	4	231.79	10	117.933	2	.848	1	.296	3	.207	10	
1714		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.362	4	-.245	9	
1715	18	max	189.069	4	231.79	10	117.933	2	.848	1	.292	3	.204	10	
1716		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.363	4	-.241	9	
1717	19	max	189.069	4	231.79	10	117.933	2	.848	1	.287	3	.201	10	
1718		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.363	4	-.237	9	
1719	20	max	189.069	4	231.79	10	117.933	2	.848	1	.283	3	.198	10	
1720		min	-370.209	3	-398.098	8	-602.147	5	-.651	2	-.363	4	-.233	9	
1721	M44	1	max	331.382	1	614.918	8	361.213	3	.515	4	.102	2	.397	1
1722		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.14	1	-.302	2	
1723	2	max	331.382	1	614.918	8	361.213	3	.515	4	.1	2	.394	1	
1724		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.137	1	-.304	2	
1725	3	max	331.382	1	614.918	8	361.213	3	.515	4	.098	2	.392	1	
1726		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.134	1	-.306	2	
1727	4	max	331.382	1	614.918	8	361.213	3	.515	4	.096	2	.389	1	
1728		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.131	1	-.309	2	
1729	5	max	331.382	1	614.918	8	361.213	3	.515	4	.094	2	.386	1	
1730		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.128	1	-.311	2	
1731	6	max	331.382	1	614.918	8	361.213	3	.515	4	.092	2	.383	1	
1732		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.125	1	-.313	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 Mom...	LC	
1733	7	max	331.382	1	614.918	8	361.213	3	.515	4	.09	2	.38	1	
1734		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.123	1	-.316	2	
1735	8	max	331.382	1	614.918	8	361.213	3	.515	4	.088	2	.377	1	
1736		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.12	1	-.318	2	
1737	9	max	331.382	1	614.918	8	361.213	3	.515	4	.086	2	.374	1	
1738		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.117	1	-.321	2	
1739	10	max	331.382	1	614.918	8	361.213	3	.515	4	.084	2	.371	1	
1740		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.114	1	-.323	2	
1741	11	max	331.382	1	614.918	8	361.213	3	.515	4	.082	2	.369	1	
1742		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.111	1	-.325	2	
1743	12	max	331.382	1	614.918	8	361.213	3	.515	4	.08	2	.366	1	
1744		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.108	1	-.328	2	
1745	13	max	331.382	1	614.918	8	361.213	3	.515	4	.078	2	.363	1	
1746		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.105	1	-.33	2	
1747	14	max	331.382	1	614.918	8	361.213	3	.515	4	.076	2	.36	1	
1748		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.102	1	-.333	2	
1749	15	max	331.382	1	614.918	8	361.213	3	.515	4	.074	2	.357	1	
1750		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.099	1	-.335	2	
1751	16	max	331.382	1	614.918	8	361.213	3	.515	4	.072	2	.354	1	
1752		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.096	1	-.337	2	
1753	17	max	331.382	1	614.918	8	361.213	3	.515	4	.07	2	.351	1	
1754		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.093	1	-.34	2	
1755	18	max	331.382	1	614.918	8	361.213	3	.515	4	.071	3	.348	1	
1756		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.092	4	-.342	2	
1757	19	max	331.382	1	614.918	8	361.213	3	.515	4	.075	3	.346	1	
1758		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.096	4	-.344	2	
1759	20	max	331.382	1	614.918	8	361.213	3	.515	4	.08	3	.343	1	
1760		min	-369.737	2	5.131	3	-285.192	4	-.552	3	-.1	4	-.347	2	
1761	M45	1	max	219.222	2	86.183	9	493.021	8	.037	2	.092	2	.209	9
1762		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.103	1	-.074	10	
1763	2	max	219.222	2	86.183	9	493.021	8	.037	2	.093	2	.207	9	
1764		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.1	1	-.073	10	
1765	3	max	219.222	2	86.183	9	493.021	8	.037	2	.095	2	.206	9	
1766		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.097	1	-.073	10	
1767	4	max	219.222	2	86.183	9	493.021	8	.037	2	.096	2	.205	9	
1768		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.094	1	-.072	10	
1769	5	max	219.222	2	86.183	9	493.021	8	.037	2	.097	2	.204	9	
1770		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.092	1	-.071	10	
1771	6	max	219.222	2	86.183	9	493.021	8	.037	2	.098	2	.203	9	
1772		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.089	1	-.07	10	
1773	7	max	219.222	2	86.183	9	493.021	8	.037	2	.099	2	.202	9	
1774		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.086	1	-.07	10	
1775	8	max	219.222	2	86.183	9	493.021	8	.037	2	.1	2	.201	9	
1776		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.083	1	-.069	10	
1777	9	max	219.222	2	86.183	9	493.021	8	.037	2	.101	2	.2	9	
1778		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.08	1	-.068	10	
1779	10	max	219.222	2	86.183	9	493.021	8	.037	2	.103	2	.198	9	
1780		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.078	1	-.068	10	
1781	11	max	219.222	2	86.183	9	493.021	8	.037	2	.104	2	.197	9	
1782		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.075	1	-.067	10	
1783	12	max	219.222	2	86.183	9	493.021	8	.037	2	.105	2	.196	9	
1784		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.072	1	-.066	10	
1785	13	max	219.222	2	86.183	9	493.021	8	.037	2	.106	2	.195	9	
1786		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.069	1	-.066	10	
1787	14	max	219.222	2	86.183	9	493.021	8	.037	2	.107	2	.194	9	
1788		min	-261.953	1	-83.043	3	31.28	3	-.468	5	-.066	1	-.065	10	
1789	15	max	219.222	2	86.183	9	493.021	8	.037	2	.108	2	.193	9	



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 Mom...	LC	
1790		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.064	1	-.064	10	
1791	16	max	219.222	2	86.183	9	493.021	8	.037	2	.109	2	.192	9	
1792		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.061	1	-.063	10	
1793	17	max	219.222	2	86.183	9	493.021	8	.037	2	.111	2	.19	9	
1794		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.058	1	-.063	10	
1795	18	max	219.222	2	86.183	9	493.021	8	.037	2	.112	2	.189	9	
1796		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.055	1	-.062	10	
1797	19	max	219.222	2	86.183	9	493.021	8	.037	2	.113	6	.188	9	
1798		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.052	1	-.061	10	
1799	20	max	219.222	2	86.183	9	493.021	8	.037	2	.119	6	.187	9	
1800		min	-261.953	1	-83.043	3	31.28	3	-468	5	-.05	1	-.061	10	
1801	M46	1	max	207.359	2	-.283	1	200.041	3	1.093	4	.314	1	.06	4
1802		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.288	2	-.116	3	
1803	2	max	207.359	2	-.283	1	200.041	3	1.093	4	.311	1	.061	4	
1804		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.29	2	-.115	3	
1805	3	max	207.359	2	-.283	1	200.041	3	1.093	4	.307	1	.062	4	
1806		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.291	2	-.113	3	
1807	4	max	207.359	2	-.283	1	200.041	3	1.093	4	.304	1	.062	4	
1808		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.293	2	-.111	3	
1809	5	max	207.359	2	-.283	1	200.041	3	1.093	4	.301	1	.063	4	
1810		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.295	2	-.109	3	
1811	6	max	207.359	2	-.283	1	200.041	3	1.093	4	.297	1	.064	4	
1812		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.296	2	-.107	3	
1813	7	max	207.359	2	-.283	1	200.041	3	1.093	4	.294	1	.065	4	
1814		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.298	2	-.106	3	
1815	8	max	207.359	2	-.283	1	200.041	3	1.093	4	.29	1	.065	4	
1816		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.3	2	-.104	3	
1817	9	max	207.359	2	-.283	1	200.041	3	1.093	4	.287	1	.066	4	
1818		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.302	2	-.102	3	
1819	10	max	207.359	2	-.283	1	200.041	3	1.093	4	.283	1	.067	4	
1820		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.303	2	-.1	3	
1821	11	max	207.359	2	-.283	1	200.041	3	1.093	4	.28	1	.068	4	
1822		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.305	2	-.099	3	
1823	12	max	207.359	2	-.283	1	200.041	3	1.093	4	.277	1	.068	4	
1824		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.307	2	-.097	3	
1825	13	max	207.359	2	-.283	1	200.041	3	1.093	4	.273	1	.069	4	
1826		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.308	2	-.095	3	
1827	14	max	207.359	2	-.283	1	200.041	3	1.093	4	.27	1	.07	4	
1828		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.31	2	-.093	3	
1829	15	max	207.359	2	-.283	1	200.041	3	1.093	4	.266	1	.071	4	
1830		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.312	2	-.091	3	
1831	16	max	207.359	2	-.283	1	200.041	3	1.093	4	.263	1	.071	4	
1832		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.314	2	-.09	3	
1833	17	max	207.359	2	-.283	1	200.041	3	1.093	4	.259	1	.072	4	
1834		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.315	2	-.088	3	
1835	18	max	207.359	2	-.283	1	200.041	3	1.093	4	.256	1	.073	4	
1836		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.317	2	-.086	3	
1837	19	max	207.359	2	-.283	1	200.041	3	1.093	4	.252	1	.074	4	
1838		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.319	2	-.084	3	
1839	20	max	207.359	2	-.283	1	200.041	3	1.093	4	.249	1	.075	4	
1840		min	-295.237	1	-292.805	6	-683.266	8	-875	3	-.321	2	-.082	3	
1841	M47	1	max	0	11	.017	4	.006	4	0	11	0	11	0	11
1842		min	0	1	0	5	-.009	1	0	1	0	1	0	1	1
1843	2	max	4.469	3	-4.308	4	6.374	2	0	11	.002	2	.004	5	
1844		min	-4.469	2	-10.746	5	-6.392	1	0	1	-.002	1	.001	4	
1845	3	max	8.939	3	-8.633	4	12.757	2	0	11	.008	2	.014	5	
1846		min	-8.939	2	-21.49	5	-12.775	1	0	1	-.008	1	.006	4	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1847	4	max	-17.752	3	73.641	9	238.192	2	.061	10	.273	2	.079	2	
1848		min	-496.435	8	-108.36	7	-280.734	1	-.187	9	-.236	1	-.4	5	
1849	5	max	20.344	3	19.846	2	188.552	2	.274	1	.151	1	.07	2	
1850		min	-607.545	8	-272.462	5	-143.254	1	-.198	2	-.254	2	-.225	5	
1851	6	max	24.813	3	15.521	2	194.935	2	.274	1	.055	1	.067	4	
1852		min	-608.685	8	-283.207	5	-149.637	1	-.198	2	-.134	9	-.091	3	
1853	7	max	29.283	3	11.196	2	201.318	2	.274	1	.089	3	.157	8	
1854		min	-609.825	8	-293.951	5	-156.02	1	-.198	2	-.133	4	-.02	3	
1855	8	max	33.752	3	6.871	2	207.701	2	.274	1	.137	2	.345	5	
1856		min	-610.965	8	-304.696	5	-162.403	1	-.198	2	-.15	1	.043	2	
1857	9	max	38.222	3	2.546	2	214.085	2	.274	1	.276	2	.549	5	
1858		min	-612.105	8	-315.441	5	-168.786	1	-.198	2	-.259	1	.04	2	
1859	10	max	-59.352	10	310.728	4	156.079	1	.149	2	.451	2	.748	4	
1860		min	-720.631	7	-117.831	3	-148.279	2	-.069	1	-.428	1	-.342	3	
1861	11	max	-58.905	10	306.403	4	149.696	1	.149	2	.355	2	.545	4	
1862		min	-719.491	7	-122.156	3	-141.896	2	-.069	1	-.327	1	-.263	3	
1863	12	max	-58.458	10	302.078	4	143.313	1	.149	2	.264	2	.345	4	
1864		min	-718.351	7	-126.481	3	-135.513	2	-.069	1	-.231	1	-.182	3	
1865	13	max	-58.011	10	297.753	4	136.93	1	.149	2	.177	2	.148	4	
1866		min	-717.211	7	-130.806	3	-129.13	2	-.069	1	-.138	1	-.097	3	
1867	14	max	-57.564	10	293.428	4	130.546	1	.149	2	.094	2	.093	1	
1868		min	-716.071	7	-135.131	3	-122.747	2	-.069	1	-.05	1	-.15	2	
1869	15	max	-57.117	10	289.103	4	124.163	1	.149	2	.084	8	.098	1	
1870		min	-715.335	6	-139.456	3	-116.364	2	-.069	1	-.005	3	-.256	2	
1871	16	max	-56.67	10	284.777	4	117.78	1	.149	2	.113	1	.174	3	
1872		min	-716.475	6	-143.781	3	-109.981	2	-.069	1	-.059	2	-.427	4	
1873	17	max	186.922	3	325.178	6	314.078	1	.075	4	.472	2	.976	3	
1874		min	-679.888	8	12.94	1	-226.347	2	-.082	3	-.457	1	-1.042	4	
1875	18	max	8.939	4	21.489	6	12.759	1	0	11	.008	2	.014	6	
1876		min	-8.939	1	8.633	3	-12.774	2	0	1	-.008	1	.006	3	
1877	19	max	4.469	4	10.744	6	6.376	1	0	11	.002	2	.004	6	
1878		min	-4.469	1	4.308	3	-6.391	2	0	1	-.002	1	.001	3	
1879	20	max	0	11	0	9	.009	3	0	11	0	11	0	11	
1880		min	0	1	-.017	3	-.008	2	0	1	0	1	0	1	
1881	M48	1	max	0	11	.01	1	.005	1	0	11	0	11	0	11
1882		min	0	1	0	10	-.008	3	0	1	0	1	0	1	
1883	2	max	2.378	3	-4.316	1	8.868	4	0	11	.003	4	.004	7	
1884		min	-2.378	1	-10.745	7	-8.883	3	0	1	-.003	3	.001	1	
1885	3	max	4.756	3	-8.641	1	17.744	4	0	11	.012	4	.014	7	
1886		min	-4.756	1	-21.49	7	-17.759	3	0	1	-.012	3	.006	1	
1887	4	max	-25.824	4	68.742	3	357.792	4	.065	2	.287	4	.114	4	
1888		min	-463.484	7	-96.267	8	-389.865	3	-.118	1	-.243	3	-.364	7	
1889	5	max	124.29	2	81.34	4	85.525	6	.277	3	.035	4	.162	4	
1890		min	-585.076	5	-294.508	7	-7.24	3	-.245	4	-.211	7	-.344	3	
1891	6	max	126.668	2	77.015	4	85.688	6	.277	3	.074	4	.11	4	
1892		min	-585.682	5	-305.253	7	-16.115	3	-.245	4	-.161	3	-.171	3	
1893	7	max	129.046	2	72.69	4	87.092	8	.277	3	.118	4	.119	5	
1894		min	-586.289	5	-315.998	7	-24.991	3	-.245	4	-.175	3	-.02	2	
1895	8	max	131.424	2	68.365	4	89.355	8	.277	3	.167	4	.318	7	
1896		min	-586.895	5	-326.743	7	-33.866	3	-.245	4	-.194	3	.014	4	
1897	9	max	133.802	2	64.04	4	91.619	8	.277	3	.223	4	.537	7	
1898		min	-587.502	5	-337.488	7	-42.742	3	-.245	4	-.219	3	-.029	4	
1899	10	max	-84.912	9	305.28	1	132.113	3	.1	6	.343	4	.675	1	
1900		min	-675.356	6	-122.916	2	-134.778	4	-.028	1	-.312	3	-.295	2	
1901	11	max	-85.149	9	300.955	1	123.237	3	.1	6	.258	4	.476	1	
1902		min	-674.75	6	-127.241	2	-125.902	4	-.028	1	-.228	3	-.212	2	
1903	12	max	-85.387	9	296.63	1	114.362	3	.1	6	.178	4	.279	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 Mom...	LC	
1904		min	-674.143	6	-131.567	2	-117.027	4	-.028	1	-.15	3	-.127	2	
1905	13	max	-85.625	9	292.305	1	105.486	3	.1	6	.107	2	.128	3	
1906		min	-673.537	6	-135.892	2	-108.151	4	-.028	1	-.08	1	-.081	4	
1907	14	max	-85.863	9	287.979	1	96.611	3	.1	6	.071	2	.103	3	
1908		min	-672.93	6	-140.217	2	-99.276	4	-.028	1	-.046	1	-.156	4	
1909	15	max	-86.101	9	283.654	1	87.735	3	.1	6	.05	3	.145	2	
1910		min	-672.324	6	-144.542	2	-90.4	4	-.028	1	-.027	4	-.293	1	
1911	16	max	-86.339	9	279.329	1	78.86	3	.1	6	.104	3	.242	2	
1912		min	-671.717	6	-148.867	2	-81.525	4	-.028	1	-.083	4	-.478	1	
1913	17	max	110.754	2	430.202	8	396.385	3	.198	10	.511	4	.738	2	
1914		min	-600.472	5	-219.92	10	-215.665	4	-.233	9	-.546	3	-.741	1	
1915	18	max	4.756	4	21.49	8	17.747	3	0	11	.012	4	.014	8	
1916		min	-4.756	2	8.639	2	-17.756	4	0	1	-.012	3	.006	2	
1917	19	max	2.378	4	10.745	8	8.871	3	0	11	.003	4	.004	8	
1918		min	-2.378	2	4.314	2	-8.881	4	0	1	-.003	3	.001	2	
1919	20	max	0	11	0	10	.001	2	0	11	0	11	0	11	
1920		min	0	1	-.011	2	-.005	4	0	1	0	1	0	1	
1921	M49	1	max	55.521	3	236.412	9	184.818	1	.002	10	.522	2	.399	2
1922		min	-167.127	5	-81.964	2	-253.647	2	-.008	9	-.516	1	-.167	1	
1923	2	max	58.734	3	234.056	9	182.602	1	.002	10	.457	2	.366	2	
1924		min	-167.756	5	-84.319	2	-251.432	2	-.008	9	-.442	1	-.171	1	
1925	3	max	61.947	3	231.701	9	180.387	1	.002	10	.392	2	.334	2	
1926		min	-168.385	5	-86.675	2	-249.216	2	-.008	9	-.368	1	-.174	1	
1927	4	max	65.16	3	229.345	9	178.171	1	.002	10	.327	2	.303	2	
1928		min	-169.014	5	-89.03	2	-247.001	2	-.008	9	-.296	1	-.177	1	
1929	5	max	68.373	3	226.99	9	175.956	1	.002	10	.262	2	.273	2	
1930		min	-169.643	5	-91.386	2	-244.785	2	-.008	9	-.224	1	-.181	1	
1931	6	max	71.586	3	224.635	9	173.74	1	.002	10	.197	2	.244	2	
1932		min	-170.272	5	-93.741	2	-242.57	2	-.008	9	-.153	1	-.184	1	
1933	7	max	74.799	3	222.279	9	171.525	1	.002	10	.132	2	.215	2	
1934		min	-170.901	5	-96.097	2	-240.354	2	-.008	9	-.083	1	-.187	1	
1935	8	max	78.011	3	219.924	9	169.309	1	.002	10	.085	3	.188	2	
1936		min	-171.53	5	-98.452	2	-238.139	2	-.008	9	-.032	4	-.19	1	
1937	9	max	81.224	3	217.568	9	167.094	1	.002	10	.086	7	.161	2	
1938		min	-172.159	5	-100.808	2	-235.923	2	-.008	9	-.026	4	-.193	1	
1939	10	max	84.437	3	215.213	9	164.878	1	.002	10	.122	1	.136	2	
1940		min	-172.788	5	-103.163	2	-233.708	2	-.008	9	-.063	2	-.205	9	
1941	11	max	87.65	3	212.857	9	162.663	1	.002	10	.188	1	.12	10	
1942		min	-175.052	1	-105.518	2	-231.492	2	-.008	9	-.128	2	-.269	9	
1943	12	max	90.863	3	210.502	9	160.447	1	.002	10	.254	1	.142	10	
1944		min	-178.265	1	-107.874	2	-229.277	2	-.008	9	-.194	2	-.333	9	
1945	13	max	94.076	3	208.146	9	158.232	1	.002	10	.318	1	.164	10	
1946		min	-181.478	1	-110.229	2	-227.061	2	-.008	9	-.259	2	-.397	9	
1947	14	max	97.289	3	205.791	9	156.016	1	.002	10	.382	1	.187	10	
1948		min	-184.691	1	-112.585	2	-224.846	2	-.008	9	-.324	2	-.46	9	
1949	15	max	100.502	3	203.436	9	153.801	1	.002	10	.445	1	.21	10	
1950		min	-187.904	1	-114.94	2	-222.63	2	-.008	9	-.389	2	-.523	9	
1951	16	max	103.714	3	201.08	9	151.585	1	.002	10	.507	1	.233	10	
1952		min	-191.116	1	-117.296	2	-220.415	2	-.008	9	-.455	2	-.586	9	
1953	17	max	106.927	3	198.725	9	149.37	1	.002	10	.568	1	.257	10	
1954		min	-194.329	1	-119.651	2	-218.199	2	-.008	9	-.52	2	-.648	9	
1955	18	max	110.14	3	196.369	9	147.154	1	.002	10	.628	1	.281	10	
1956		min	-197.542	1	-122.007	2	-215.984	2	-.008	9	-.585	2	-.709	9	
1957	19	max	113.353	3	194.014	9	144.939	1	.002	10	.688	1	.306	10	
1958		min	-200.755	1	-124.362	2	-213.768	2	-.008	9	-.651	2	-.77	9	
1959	20	max	116.566	3	191.658	9	142.723	1	.002	10	.746	1	.331	10	
1960		min	-203.968	1	-126.717	2	-211.553	2	-.008	9	-.716	2	-.831	9	



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 Mom...	LC	
1961	M50	1	max	351.116	4	209.487	4	222.153	3	.004	9	.468	1	.669	4
1962			min	-427.746	3	-296.454	3	-283.689	4	-.004	10	-.23	2	-.84	3
1963		2	max	349.858	4	208.004	4	222.556	3	.004	9	.437	1	.609	4
1964			min	-426.488	3	-297.937	3	-284.092	4	-.004	10	-.217	2	-.777	3
1965		3	max	348.601	4	206.521	4	222.959	3	.004	9	.405	1	.549	4
1966			min	-425.231	3	-299.42	3	-284.495	4	-.004	10	-.204	2	-.714	3
1967		4	max	347.343	4	205.039	4	223.362	3	.004	9	.373	1	.489	4
1968			min	-423.973	3	-300.902	3	-284.898	4	-.004	10	-.19	2	-.65	3
1969		5	max	346.086	4	203.556	4	223.765	3	.004	9	.34	1	.43	4
1970			min	-422.716	3	-302.385	3	-285.301	4	-.004	10	-.176	2	-.586	3
1971		6	max	344.828	4	202.074	4	224.168	3	.004	9	.306	1	.37	4
1972			min	-421.458	3	-303.867	3	-285.704	4	-.004	10	-.162	2	-.522	3
1973		7	max	343.571	4	200.591	4	224.571	3	.004	9	.272	1	.311	4
1974			min	-420.201	3	-305.35	3	-286.107	4	-.004	10	-.148	2	-.457	3
1975		8	max	342.313	4	199.108	4	224.974	3	.004	9	.237	1	.283	1
1976			min	-418.943	3	-306.833	3	-286.51	4	-.004	10	-.133	2	-.425	2
1977		9	max	341.056	4	197.626	4	225.377	3	.004	9	.202	1	.257	1
1978			min	-417.686	3	-308.315	3	-286.913	4	-.004	10	-.118	2	-.394	2
1979		10	max	339.798	4	196.143	4	225.78	3	.004	9	.165	1	.232	1
1980			min	-416.428	3	-309.798	3	-287.316	4	-.004	10	-.103	2	-.362	2
1981		11	max	338.541	4	194.661	4	226.183	3	.004	9	.128	1	.206	1
1982			min	-415.171	3	-311.28	3	-287.719	4	-.004	10	-.087	2	-.329	2
1983		12	max	337.283	4	193.178	4	226.586	3	.004	9	.108	3	.179	1
1984			min	-413.913	3	-312.763	3	-288.122	4	-.004	10	-.088	4	-.296	2
1985		13	max	336.026	4	191.695	4	226.989	3	.004	9	.098	3	.153	1
1986			min	-412.656	3	-314.246	3	-288.525	4	-.004	10	-.099	4	-.262	2
1987		14	max	334.768	4	190.213	4	227.392	3	.004	9	.087	3	.126	1
1988			min	-411.398	3	-315.728	3	-288.928	4	-.004	10	-.111	4	-.227	2
1989		15	max	333.511	4	188.73	4	227.795	3	.004	9	.076	3	.099	1
1990			min	-410.14	3	-317.211	3	-289.331	4	-.004	10	-.123	4	-.192	2
1991		16	max	332.253	4	187.248	4	228.198	3	.004	9	.065	3	.132	3
1992			min	-408.883	3	-318.693	3	-289.734	4	-.004	10	-.136	4	-.217	4
1993		17	max	330.996	4	185.765	4	228.601	3	.004	9	.054	3	.199	3
1994			min	-407.625	3	-320.176	3	-290.137	4	-.004	10	-.159	8	-.275	4
1995		18	max	329.738	4	184.282	4	229.004	3	.004	9	.043	3	.266	3
1996			min	-406.368	3	-321.659	3	-290.54	4	-.004	10	-.19	8	-.333	4
1997		19	max	328.48	4	182.8	4	231.234	2	.004	9	.048	2	.333	3
1998			min	-405.11	3	-323.141	3	-291.795	1	-.004	10	-.224	5	-.39	4
1999		20	max	327.223	4	181.317	4	235.158	2	.004	9	.066	2	.4	3
2000			min	-403.853	3	-324.624	3	-295.72	1	-.004	10	-.261	5	-.448	4
2001	M51	1	max	233.307	1	303.62	10	226.857	4	.016	10	.45	7	.571	3
2002			min	-392.943	2	-280.966	2	-345.23	3	-.005	9	-.336	10	-.791	4
2003		2	max	232.419	1	302.477	10	229.937	4	.016	10	.411	7	.536	3
2004			min	-392.055	2	-282.109	2	-348.31	3	-.005	9	-.302	10	-.752	4
2005		3	max	231.531	1	301.334	10	233.017	4	.016	10	.371	7	.502	3
2006			min	-391.167	2	-283.252	2	-351.39	3	-.005	9	-.268	10	-.713	4
2007		4	max	230.643	1	300.191	10	236.097	4	.016	10	.337	3	.467	3
2008			min	-390.28	2	-284.395	2	-354.47	3	-.005	9	-.234	10	-.674	4
2009		5	max	229.756	1	299.048	10	239.177	4	.016	10	.305	3	.432	3
2010			min	-389.392	2	-285.538	2	-357.551	3	-.005	9	-.2	10	-.634	4
2011		6	max	228.868	1	297.905	10	242.257	4	.016	10	.273	3	.397	3
2012			min	-388.504	2	-286.681	2	-360.631	3	-.005	9	-.167	10	-.593	4
2013		7	max	227.98	1	296.762	10	245.338	4	.016	10	.24	3	.362	3
2014			min	-387.616	2	-287.824	2	-363.711	3	-.005	9	-.133	10	-.552	4
2015		8	max	227.092	1	295.619	10	248.418	4	.016	10	.207	3	.327	3
2016			min	-386.728	2	-288.967	2	-366.791	3	-.005	9	-.1	10	-.511	4
2017		9	max	226.204	1	294.476	10	251.498	4	.016	10	.174	3	.291	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 Mom...	LC
2018		min	-385.84	2	-290.11	2	-369.871	3	-.005	9	-.088	4	-.47	4
2019	10	max	225.316	1	293.333	10	254.578	4	.016	10	.14	3	.255	3
2020		min	-384.953	2	-291.253	2	-372.951	3	-.005	9	-.083	4	-.428	4
2021	11	max	224.429	1	292.19	10	257.658	4	.016	10	.106	3	.219	3
2022		min	-384.065	2	-292.396	2	-376.031	3	-.005	9	-.077	4	-.386	4
2023	12	max	223.541	1	291.047	10	260.738	4	.016	10	.073	2	.183	3
2024		min	-383.177	2	-293.539	2	-379.111	3	-.005	9	-.082	9	-.343	4
2025	13	max	222.653	1	289.904	10	263.818	4	.016	10	.066	10	.147	3
2026		min	-382.289	2	-294.682	2	-382.191	3	-.005	9	-.128	9	-.3	4
2027	14	max	221.765	1	288.761	10	266.898	4	.016	10	.099	10	.11	3
2028		min	-381.401	2	-295.825	2	-385.271	3	-.005	9	-.174	9	-.256	4
2029	15	max	220.877	1	287.618	10	269.978	4	.016	10	.132	10	.106	2
2030		min	-380.513	2	-296.968	2	-388.351	3	-.005	9	-.219	9	-.244	1
2031	16	max	219.99	1	286.475	10	273.058	4	.016	10	.165	10	.142	2
2032		min	-379.626	2	-298.111	2	-391.431	3	-.005	9	-.265	9	-.273	1
2033	17	max	219.102	1	285.332	10	276.138	4	.016	10	.197	10	.178	2
2034		min	-378.738	2	-299.254	2	-394.511	3	-.005	9	-.311	9	-.302	1
2035	18	max	218.214	1	284.189	10	279.218	4	.016	10	.23	10	.215	2
2036		min	-377.85	2	-300.397	2	-397.591	3	-.005	9	-.357	9	-.331	1
2037	19	max	217.326	1	283.046	10	282.298	4	.016	10	.262	10	.252	2
2038		min	-376.962	2	-301.54	2	-400.671	3	-.005	9	-.403	9	-.359	1
2039	20	max	216.438	1	281.903	10	285.378	4	.016	10	.294	10	.288	2
2040		min	-376.074	2	-302.683	2	-403.751	3	-.005	9	-.45	9	-.388	1

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[,Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...Cb	Eqn		
1	M22	PIPE 2.5	.317	2.333	10	.039	2.333	8	48505.1...	50715	3.596	3.596	1...H1-1b	
2	M23	PIPE 2.5	.301	3.057	9	.096	3.057	9	46980.1...	50715	3.596	3.596	1...H1-1b	
3	M25	LL2.5x2.5...	.027	2.025	7	.007	4.049	y	1	46304.6...	58320	3.3	2.55	1...H1-1b
4	M27	PIPE 3.0	.341	6.25	3	.153	6.25	3	28250.5...	65205	5.749	5.749	1...H1-1b	
5	M28	PIPE 3.0	.436	6.25	1	.184	6.25	2	28250.5...	65205	5.749	5.749	1...H1-1b	
6	M29	PIPE 3.0	.290	6.25	6	.156	6.25	1	28250.5...	65205	5.749	5.749	1...H1-1b	
7	M30	PIPE 2.5	.314	2.182	7	.061	2.182	6	48777.7...	50715	3.596	3.596	1...H1-1b	
8	MP1A	PIPE 2.0	.438	3.632	10	.095	3.632	10	21199.8...	33048	1.925	1.925	3...H1-1b	
9	MP2A	PIPE 2.0	.384	3.632	1	.122	3.632	2	21199.8...	33048	1.925	1.925	2...H1-1b	
10	M20	LL2.5x2.5...	.024	2.09	6	.005	4.18	y	9	46004.3...	58320	3.3	2.55	1...H1-1b
11	M21	LL2.5x2.5...	.025	2.025	7	.005	4.05	z	3	46304.1...	58320	3.3	2.55	1...H1-1b
12	MP3A	PIPE 2.5	.476	4.474	2	.177	4.211	2	22480.8...	52164	3.699	3.699	2...H1-1b	
13	MP1C	PIPE 2.0	.270	3.632	7	.067	1.895	3	21199.8...	33048	1.925	1.925	2...H1-1b	
14	MP2C	PIPE 2.0	.290	3.632	2	.124	3.632	3	21199.8...	33048	1.925	1.925	1...H1-1b	
15	MP3C	PIPE 2.5	.417	4.474	3	.138	4.211	4	22480.8...	52164	3.699	3.699	1...H1-1b	
16	MP1B	PIPE 2.0	.286	3.632	5	.093	3.632	1	21199.8...	33048	1.925	1.925	2...H1-1b	
17	MP2B	PIPE 2.0	.352	3.632	2	.134	3.632	1	21199.8...	33048	1.925	1.925	2...H1-1b	
18	MP3B	PIPE 2.5	.465	4.211	4	.166	4.211	4	22480.8...	52164	3.699	3.699	2...H1-1b	
19	M31	HSS4X4X4	.399	2.417	3	.121	2.417	y	9	136149...	139518	16.181	16.181	1...H1-1b
20	M32	HSS4X4X4	.376	2.417	1	.101	2.417	z	2	136149...	139518	16.181	16.181	1...H1-1b
21	M33	HSS4X4X4	.472	2.417	1	.118	2.417	z	1	136149...	139518	16.181	16.181	1...H1-1b
22	M34	PIPE 4.0	.001	.75	4	.001	.75	4	92571.3...	93240	10.631	10.631	1...H1-1b	
23	M35	PIPE 4.0	.001	.75	4	.001	.75	4	92571.3...	93240	10.631	10.631	1...H1-1b	
24	M36	PIPE 4.0	.001	.75	4	.001	.75	4	92571.3...	93240	10.631	10.631	1...H1-1b	
25	M40	PIPE 2.5	.226	6.579	7	.160	1.974	1	14558.7...	52164	3.699	3.699	1...H1-1b	
26	M47	PIPE 2.5	.301	10.855	4	.101	5.592	1	14558.7...	52164	3.699	3.699	2...H1-1b	
27	M48	PIPE 2.5	.219	10.855	1	.103	5.592	3	14558.7...	52164	3.699	3.699	1...H1-1b	
28	M49	L3X3X6	.370	5.194	1	.026	0	y	9	37297.1...	68364	2.307	5.169	1...H2-1
29	M50	L3X3X6	.288	0	1	.017	3.27	z	1	53773.5...	68364	2.307	5.322	1...H2-1



Company : Tower Engineering Solutions, LLC
 Designer : KW
 Job Number : TES Project No. 128127
 Model Name : CT13530-S-SBA_MT_LO_Loads Only_G

Apr 25, 2022
 3:29 PM
 Checked By: _____

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[...Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
30	M51	L3X3X6	.295	0	3	.045	0	y	10	59273.9...	68364	2.307	5.322 1..H2-1

Envelope AISI S100-16: ASD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pn/Om[...]	Tn/Om[...]	Mny/O...	Mnzz/O...	Vny/...	Vnz/...	Cb	Eqn
No Data to Print ...																

Envelope AA ADM1-15: ASD - Building Aluminum Code Checks

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/O...	Pnt/Om...	Mny/O...	Mnz/O...	Vny/O...	Vnz/O...	Cb	Eqn
No Data to Print ...																

Wood Wall Panel Parameters

	Label	Top Plate	Sill Plate	Studs	Min Stud Sp...	Max Stud Sp...	Green Lumb...	Header Size	Header Matl
1	Typical	2-2X6	2X6	2X6	16	16		6x8	Same as Wall

Additional Wood Wall Panel Parameters

	Label	Schedule	Min. Pan...	Max. Pa...	Double S..	Max. Nai...	Min. Nail...	HD Chor...	HD Chor...	Hold Down	Chord...	Eccen...
1	Typical	IBC06-09 Pa..	.375	.469	Optimum	6-in.	3-in.	2-2X6	Same as...	CAN SIMPS...	SIMP...	Yes

	U-bolt Connection Rotation and Sliding Check		Date
			4/25/2022
	Customer:		TIA Standard:
	Carrier:		Mount Elev. [ft]:
	Site Name:		Engineer Name:
Site Number:		TES Project #:	
<p><i>NOTE: The calculations shown below are for a single representative load combination for example purposes. The results for all load combinations are presented in the Results Summary Table starting on the next page.</i></p>			

RISA Member Label =	M20A	
I or J End?	I	
Load Combination # =	3	
ϕ_U =	1.00	
Applied Shear (Sliding), V_{US} =	1.036	[Kips]
Total Shear, V_{UB} =	1.050	[Kips]
Applied Torsional Moment, T_{UR} =	0.019	[Kip-Ft]
Applied Tension, T_{UT} =	0.049	[Kips]
# of U-bolts =	2	
Diameter of U-bolts =	0.5	[Inches]
U-bolt F_y =	36	[KSI]
U-bolt F_u =	58	[KSI]
Diameter of Supporting Member =	3.5	[Inches]

Check Bolt Tension:

Total U-bolt Tension, T_{UT} =	0.049	[Kips]
U-bolt Tension Capacity, $\phi_{R_{NT}}$ =	24.033	[Kips]
Max Usage =	0.2%	PASS

Check Bolt Shear:

Total U-bolt Shear, V_{UB} =	1.050	[Kips]
U-bolt Shear Capacity, $\phi_{R_{NV}}$ =	17.082	[Kips]
Max Usage =	6.1%	PASS

Check Combined Bolt Shear & Tension:

$$\left(\frac{V_{ub}}{\phi R_{nv}}\right)^2 + \left(\frac{T_{ub}}{\phi R_{nt}}\right)^2 \leq 1$$

Interaction Ratio =	0.004	
Max Usage =	6.1%	PASS

Check Sliding:

Applied Shear (Sliding), V_{US} =	1.036	[Kips]
Assumed Pretension Stress =	20	[KSI]
U-bolt Pretension Per Leg, T_p =	3.93	[Kips]
Nominal Sliding Strength, R_{NS} =	4.698	[Kips]
ϕ_U =	1.00	
Max Usage =	22.1%	PASS

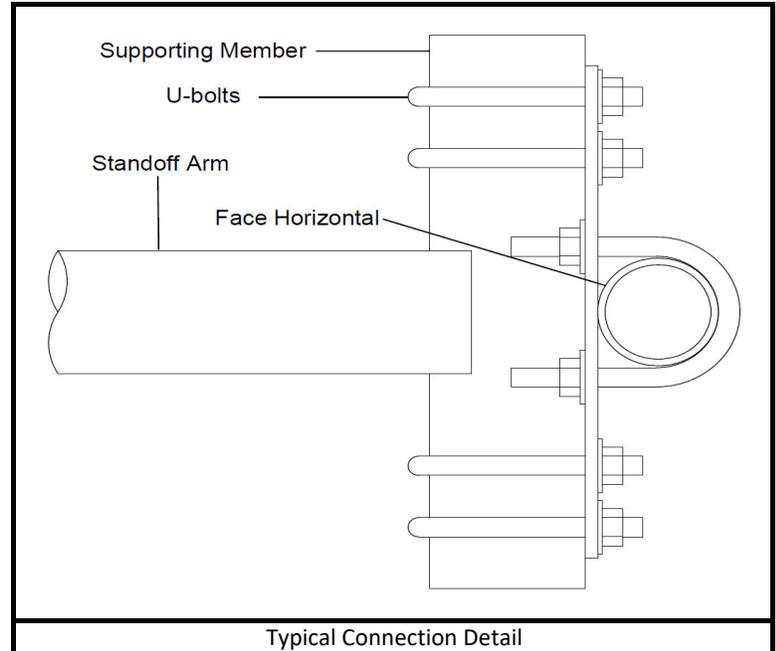
Check Rotation:

Applied Torsional Moment, T_{UR} =	0.0190	[Kip-Ft]
Nominal Torsional Strength, R_{NR} =	0.6851	[Kip-Ft]
ϕ_U =	1.00	
Max Usage =	2.8%	PASS

Check Sliding/Rotation Interaction:

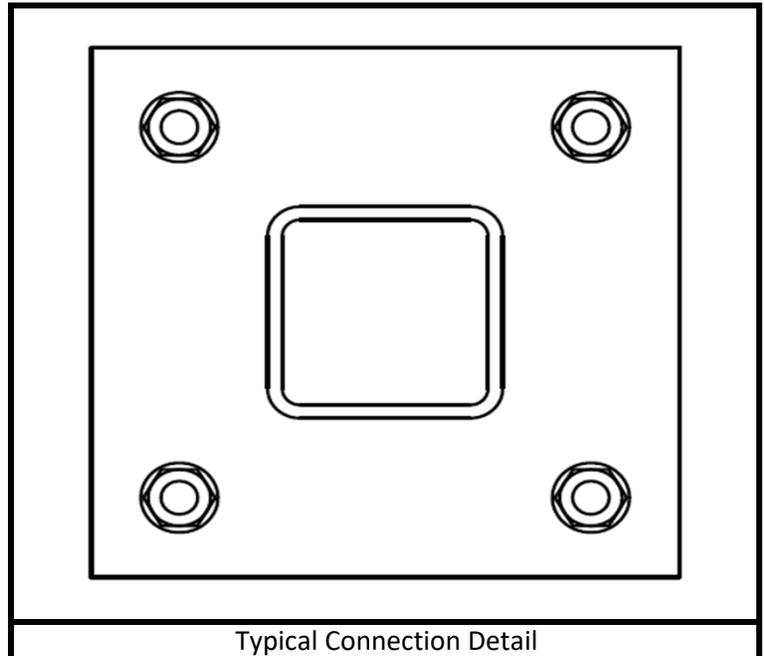
$$\left(\frac{V_{us}}{\phi_U R_{ns}}\right)^2 + \left(\frac{T_{ur}}{\phi_U R_{nr}}\right)^2 \leq 1.0$$

ϕ_U =	1.00	
Interaction Ratio =	0.049	
Max Usage =	22.2%	PASS



	Standoff Arm Flange Connection Check		Date	
			4/25/2022	
	Customer:		TIA Standard:	ANSI/TIA-222-H
	Carrier:		Mount Elev. [ft]:	
	Site Name:		Engineer Name:	Jian Ma
Site Number:		Project #:		
<p><i>NOTE: The calculations shown below are for a single representative load combination for example purposes. The results for all load combinations are presented in the Results Summary Table.</i></p>				

RISA Member Label =	M31	
I or J End?	I	
Load Combination # =	9	
Plate Width, Wp =	10	[In]
Plate Height, Hp =	10	[In]
Plate Thickness, tp =	1	[In]
Plate Fy =	36	[KSI]
Bolt Diameter, db =	0.625	[In]
Bolt Fu =	120	[KSI]
Bolt Horizontal Spacing, Sbh =	4	[In]
Bolt Vertical Spacing, Sbv =	4	[In]
Standoff Member Shape =	Rect Tube	
Member Width, Wm =	3	[In]
Member Depth, Dm =	4	[In]
Member Thickness, tm =	0.25	[In]
Standoff Weld Size =	0.1875	[In]
# Standoff Welds =	1	
Length of Stiffener, Ls =		[In]
Width of Stiffener, Ws =		[In]
Width of Notch, Wn =		[In]
Stiffener Dim 1, ds1 =		[In]
Stiffener Dim 2, ds2 =		[In]
Stiffener Fy =		[KSI]
Stiffener Weld Size =		[In]
# Stiffener Welds =		



NOTES
Standoff and Stiffener welds are assumed 0.1875 in.

Capacity Checks:

Max Bolt Shear =	1.530	[Kips]
Bolt Shear Capacity =	13.81	[Kips]
Max Bolt Shear Usage =	11.1%	PASS
Max Bolt Tension =	0.32	[Kips]
Bolt Tension Capacity =	20.34	[Kips]
Max Bolt Tension Usage =	1.6%	PASS
Max Bolt Interaction =	11.2%	PASS
Max Plate Bending Moment =	0.19	[Kip-In]
Length of Yield Line =	3.45	[In]
Plate Moment Capacity =	27.94	[Kip-In]
Max Plate Usage =	0.7%	PASS
Max Weld Usage =	17.2%	PASS

Exhibit F

Power Density/RF Emissions Report



Fox Hill Telecom

□
□

Radio Frequency Emissions Analysis Report

T Mobile™

Site ID: CTNH370A

CT370 / OPTA / DRZAL FT
425 Litchfield Road
New Milford, CT 06776

June 3, 2022

Fox Hill Telecom Project Number: 221288

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.45 %



June 3, 2022

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CTNH370A – CT370 / OPTA / DRZAL FT**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **425 Litchfield Road, New Milford, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **425 Litchfield Road, New Milford, 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

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz and 1900 MHz (PCS) 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 APXVAALL24_43-U-NA20	137
A	2 (Dormant)	RFS APX16PV-16VL-E	137
A	3 (Dormant)	RFS RR90-17-02DP	137
B	1	RFS APXVAALL24_43-U-NA20	137
B	2 (Dormant)	RFS APX16PV-16VL-E	137
B	3 (Dormant)	RFS RR90-17-02DP	137
C	1	RFS APXVAALL24_43-U-NA20	137
C	2 (Dormant)	RFS APX16PV-16VL-E	137
C	3 (Dormant)	RFS RR90-17-02DP	137

Table 2: Antenna Data

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



RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS)	13.65 / 13.85 / 16.65	9	295	10,916.23	3.11
Antenna A2	RFS APX16PV-16VL-E	Dormant Antenna	NA	0	NA	NA	NA
Antenna A3	EMS RR90-17-02DP	Dormant Antenna	NA	0	NA	NA	NA
Sector A Composite MPE%							3.11
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS)	13.65 / 13.85 / 16.65	9	295	10,916.23	3.11
Antenna B2	RFS APX16PV-16VL-E	Dormant Antenna	NA	0	NA	NA	NA
Antenna B3	EMS RR90-17-02DP	Dormant Antenna	NA	0	NA	NA	NA
Sector B Composite MPE%							3.11
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS)	13.65 / 13.85 / 16.65	9	295	10,916.23	3.11
Antenna C2	RFS APX16PV-16VL-E	Dormant Antenna	NA	0	NA	NA	NA
Antenna C3	EMS RR90-17-02DP	Dormant Antenna	NA	0	NA	NA	NA
Sector C Composite MPE%							3.11

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	3.11 %
Dish Wireless	11.34 %
Site Total MPE %:	14.45 %

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.11 %
T-MOBILE Sector B Total:	3.11 %
T-MOBILE Sector C Total:	3.11 %
Site Total:	14.45 %

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	926.96	137	3.88	600 MHz	400	0.97%
T-Mobile 700 MHz LTE	2	485.32	137	2.03	700 MHz	467	0.44%
T-Mobile 1900 MHz (PCS) LTE	4	1,849.52	137	15.50	1900 MHz (PCS)	1000	1.55%
T-Mobile 1900 MHz (PCS) GSM	1	693.57	137	1.45	1900 MHz (PCS)	1000	0.15%
						Total:	3.11%

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:	3.11 %
Sector B:	3.11 %
Sector C:	3.11 %
T-MOBILE Maximum Total (per sector):	3.11 %
Site Total:	14.45 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **14.45 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

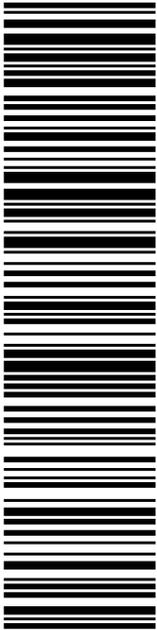
Exhibit G

Recipient Mailings



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13 FLANDERS RD
STE 125
WESTBOROUGH MA 01581

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STE 1
STURBRIDGE MA 01566-1359

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13 FLANDERS RD
STE 125
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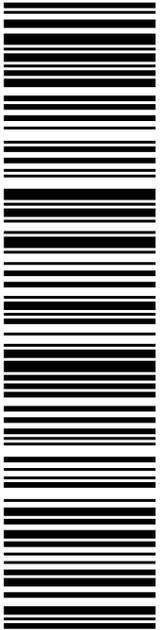
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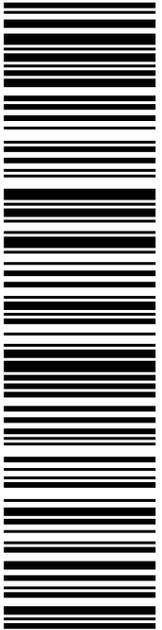


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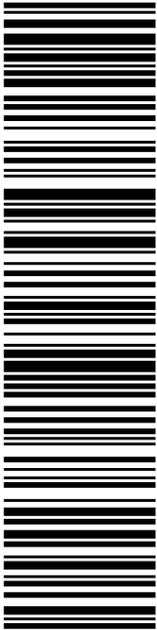


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(800)275-8777

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Product Qty Unit Price

Prepaid Mail 1 \$0.00
Westborough, MA 01581
Weight: 0 lb 1.90 oz
Acceptance Date:
Tue 06/07/2022
Tracking #:
9405 5036 9930 0264 6516 10

Prepaid Mail 1 \$0.00
New Milford, CT 06776
Weight: 0 lb 9.60 oz
Acceptance Date:
Tue 06/07/2022
Tracking #:
9405 5036 9930 0264 6516 34

Prepaid Mail 1 \$0.00
New Milford, CT 06776
Weight: 0 lb 9.70 oz
Acceptance Date:
Tue 06/07/2022
Tracking #:
9405 5036 9930 0264 6516 58

Prepaid Mail 1 \$0.00
New Milford, CT 06776
Weight: 0 lb 9.60 oz
Acceptance Date:
Tue 06/07/2022
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9405 5036 9930 0264 6516 27

Grand Total: \$0.00

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