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November 20, 2023

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 130 Welles Road, Groton, Connecticut**

Dear Attorney Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Siting Council ("Council") to approve the shared use of an existing telecommunications tower located on a 8.55-acre parcel at 130 Welles Road in Groton (the "Property"). Cellco identifies this site as its "Mystic North Facility". The existing 180-foot monopole tower was approved by the Council in November 2021 (Petition No. 1461) [1]. Copies of the Council's Petition No. 1461 approval letter and Staff Report and Docket No. 230 Decision and Order are included in Attachment 1.

Cellco requests that the Council find that the proposed shared use of the existing SBA tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving this request. A copy of this filing is being sent to Groton's Town Manager, John Burt and Jonathan Reiner, AICP, Director of Planning. The Town of Groton is the owner of the Property.

Background

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Cellco and SBA have agreed to the proposed shared use of the existing telecommunications facility at the Property pursuant to mutually acceptable terms and conditions and SBA has authorized Cellco to apply for all

[1] The Council approved Sprint's original 120' tower in December of 2022 (Docket No. 230).

necessary permits and approvals that may be required to share the existing tower. (*See* Attachment 2).

Cellco proposes to install nine (9) antennas and six (6) remote radio heads ("RRHs") on a low-profile platform at a height of 150 feet above ground level ("AGL"). Cellco's radio equipment will be installed on the ground near the base of the tower. Cellco will also install a 50-kW propane-fueled generator and 1000 gallon propane tank on a concrete pad also within the fenced compound. Included in Attachment 3 are Cellco's project plans showing the location of Cellco's proposed site improvements. Attachment 4 contains specifications for Cellco's proposed antennas, RRHs and backup generator.

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

A. Technical Feasibility. The existing tower is structurally capable of supporting Cellco's antennas, RRHs, antenna platform and related equipment. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis ("SA") dated November 15, 2023, prepared by Centek Engineering confirms that the tower can support Cellco's proposed antennas and related equipment. Likewise, an Antenna Mount Analysis ("MA"), dated October 9, 2023, confirms that the proposed antenna and RRH mounting system can support Cellco's proposed shared use. Copies of the SA and MA are included in Attachment 5.

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

C. Environmental Feasibility. The proposed shared use of the existing tower would have minimal environmental effects, for the following reasons:

1. The proposed installation of nine (9) antennas and six (6) RRHs on an

antenna platform at a height of 150 feet AGL on the existing 180-foot tower would have an insignificant incremental visual impact on the area around the Property. As mentioned above, all of Cellco's equipment will be located on the ground near the base of the tower. Cellco's shared use of the existing tower would, therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing facility or the Property.

2. Noise associated with Cellco's proposed facility will comply with State and local noise standards. Noise associated with the backup generator is exempt from state and local noise standards.

3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 6 of this filing is a Calculated Radio Frequency Emissions Report that demonstrates that the facility following Cellco's shared use will operate well within the FCC's safety standards.

4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the facility other than periodic maintenance visits to the cell site.

The proposed shared use of the existing tower would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with the Town for the shared use of the existing tower subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower and antenna mounts are structurally capable of supporting Cellco's antennas, antenna mounting frame, RRHs and all related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing Welles Road tower. In fact, the provision of new and improved wireless service through Cellco's shared use of the existing tower would enhance the safety and welfare of area residents and members of the general public traveling through the Town of Groton.

A Certificate of Mailing verifying that a copy of this filing was sent to the municipal officials, and the Town, and tower owner is included in Attachment 7.

Conclusion

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

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
John Burt, Town Manager
Jonathan Reiner, Director of Planning
SBA Communications Corporation
Tim Parks, Verizon Wireless

ATTACHMENT 1

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 19, 2021

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06106-3597
kbaldwin@rc.com

RE: **PETITION NO. 1461** – SBA Communications Corporation petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed replacement and extension of an existing telecommunications facility located at 130 Welles Road, Groton, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on November 18, 2021, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Approval of any project changes be delegated to Council staff;
2. Submission of the Erosion and Sediment Control Plan prior to the commencement of construction;
3. Submission of the final FAA Determination prior to commencement of construction;
4. Submission of the final structural design drawings for the tower and foundation stamped by a Professional Engineer duly licensed in the State of Connecticut prior to commencement of construction;
5. The final structural design drawings shall include a yield point to ensure that the tower setback radius remains within the boundaries of the subject property;
6. Notification of commencement and completion of construction;
7. Unless otherwise approved by the Council, the existing monopole shall be removed within 180 days of the installation of the new monopole;
8. The Council shall be notified in writing within 45 days of when the existing monopole is removed and the new monopole is operational unless a written request for an extension is submitted to the Council within that timeframe;
9. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility 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 decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the

CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

10. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Groton;

11. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;

12. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

13. If the facility ceases to provide wireless services for a period of one year the Petitioner shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Petitioner may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period;

14. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

15. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated August 16, 2021, and additional information received on October 25 and 26, 2021.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/lm

Enclosure: Staff Report dated November 18, 2021

c: Service List dated September 9, 2021
The Honorable Patrice Granatosky, Mayor, Town of Groton (pgranatosky@groton-ct.gov)
John Burt, Town Manager, Town of Groton (jburt@groton-ct.gov)

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

Petition No. 1461
SBA Communications Corporation
130 Welles Road, Groton
Staff Report
November 18, 2021

Introduction

On August 18, 2021, SBA Communications Corporation (SBA) submitted a petition (Petition) to the Connecticut Siting Council (Council) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the proposed replacement and extension of an existing telecommunications facility located at 130 Welles Road in the Town of Groton (Town).

Notice was provided to the Town, the property owner and abutting property owners on August 16, 2021. On August 19, 2021, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the municipality to contact the Council with any questions or comments by September 17, 2021. No comments have been received.

On September 9, 2021, the Council granted intervenor status to New Cingular Wireless PCS, LLC (AT&T). The Council submitted interrogatories to AT&T on October 12, 2021, and AT&T submitted responses to the interrogatories on October 25, 2021. The Council submitted interrogatories to SBA on October 12, 2021, and SBA submitted responses to the interrogatories on October 26, 2021.

On October 7, 2021, pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, which requires an administrative agency to take action on a petition within 60 days of receipt, the Council voted to set the date by which to render a decision on the petition as February 14, 2022, the statutorily-mandated 180-day decision deadline for this petition under CGS §4-176(i).

Existing Telecommunications Facility

The Council issued a Certificate to Sprint Spectrum L.P. for this facility on December 19, 2002 in Docket No. 230. The existing 120-foot monopole is located in the northeast portion of an 8.55-acre property owned by the Town formerly used as the Town landfill. The site is currently part of Groton's Shady Oaks Park. The site property is located in the Town's RU-80 Zone and is accessed from Welles Road.

On February 25, 2019, the Council approved an Eligible Facilities Request by AT&T to co-locate at the 98-foot level of the tower due to removal of a water tank located at 35 Nantucket Drive in Mystic which supported AT&T antennas.

Current tower users include AT&T at 98 feet above ground level (agl), T-Mobile at 108 feet agl, and Sprint at 117.5 feet agl.

Proposed Telecommunications Facility

A replacement tower (approximately 60 feet taller) is needed for AT&T to provide improved wireless service along significant portions of Route 184 as well as local roads and to increase network capacity by providing service to a portion of the surrounding area previously covered by the water tank site. Specifically, the proposed replacement facility would provide coverage and capacity for the 700 MHz, 850

MHz, 1900 MHz, 2100 MHz, and 2300 MHz frequency bands. AT&T would require a minimum antenna centerline height of 176 feet agl to meet its wireless service objectives. AT&T's proposed installation will support 5G services at this facility.

SBA proposes to install a 180-foot replacement monopole facility approximately 23 feet to the northwest of the existing facility location and within the same fenced compound. The proposed replacement monopole would have a galvanized gray finish. A lightning rod on top of the tower would reach a height of 184 feet. The proposed replacement monopole would be located approximately 37 feet south of the nearest property line. Thus, the tower setback radius would extend onto a Town parcel to the north by approximately 143 feet. The proposed replacement monopole could be designed with a yield point to ensure that the tower setback radius remains within the boundaries of the subject property. However, SBA believes that, given the property to the north is also Town-owned, a design yield point would not be warranted. Installation of a design yield point would increase the tower cost by approximately 10-12%. Notwithstanding, if approved, Council staff suggests including a condition for a tower yield point.

AT&T would install 9 panel antennas and 12 remote radio units on a low-profile platform at a centerline height of approximately 176 feet agl on the replacement tower. Sprint and T-Mobile would re-locate onto the replacement tower at the 117.5 foot and the 108-foot levels of the tower, respectively.

Dish Network has future plans to co-locate at the 160 foot level of the tower. If this Petition is approved, Dish Network should file a Request for an Order to Approve Tower Sharing with the Council pursuant to CGS §16-50aa.

SBA would not expand the existing fence compound to accommodate the project. AT&T would utilize its existing equipment shelter located within the compound. Sprint and T-Mobile would utilize their existing equipment within the compound. Existing ice bridges for AT&T, Sprint and T-Mobile would be modified to accommodate the new tower location relative to the existing equipment pads. SBA would utilize existing access and utilities to the site.

AT&T has an existing 15-kilowatt diesel backup generator that holds 54 gallons of fuel and could run for approximately 90 hours before refueling is required. AT&T also has an existing battery backup that could provide approximately eight hours of backup power in the event that the generator fails to start

Commercial Mobile Radio Service (CMRS) providers are licensed by and are under the jurisdiction and authority of the Federal Communications Commission (FCC). At present, no standards for backup power for CMRS providers have been promulgated by the FCC. Every year since 2006, AT&T, Sprint, T-Mobile, and Verizon have certified their compliance with the CTIA Business Continuity/Disaster Recovery Program and the Communications Security, Reliability and Interoperability Council standards and best practices to ensure network reliability during power outages.

The estimated cost of the proposed facility is:

SBA Costs (including tower)	$ 331,050
AT&T Materials	$ 46,000
AT&T Labor	$ 88,000
Total Estimated Costs	**$ 465,050**

Environmental

No trees would need to be removed for the project.

The proposed facility is not located within a Connecticut Department of Energy and Environmental Protection (DEEP) Natural Diversity Database (NDDB) buffered area. Additionally, given that all work would be located within the existing fenced compound, SBA does not anticipate that any construction activities would impact state-listed species. Thus, no protective measures are proposed.

The nearest wetland is located approximately 385 feet east of the proposed replacement tower location. SBA would incorporate appropriate soil erosion and sedimentation control measures consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* prior to the commencement of construction. With such measures, SBA does not anticipate that construction of the project would adversely impact this wetland. If approved, staff recommends submission of a Soil Erosion and Sediment Control Plan prior to the commencement of construction.

The site is located in the Federal Emergency Management Agency (FEMA) unshaded Zone X, an area of minimal flood hazard and outside of the 500-year flood zone.

SBA performed a visual impact assessment of the proposed replacement facility. The replacement tower will be visible in the vicinity of the subject property, along the eastern portion of Wells Road and for a 0.05-mile stretch of Gold Star Highway. The replacement tower will also be partially visible from numerous locations along Shewville Road to the east between Route 184 and Hyde Pond Court and from a portion of Packer Road to the southwest between Cow Hill Road and Gold Star Highway. However, in many of these locations, like the existing tower, the proposed replacement tower would only have seasonal visibility due to intervening vegetation in the leaf-on months and/or only the upper portion of the proposed replacement tower would be visible above the tree line.

Overall, due to the topography and intervening vegetation in the area where the proposed replacement facility would be located, the full profile of the proposed tower is not anticipated to be visible from any of the surrounding residential areas.

Public Safety

On June 6, 2020, the Federal Aviation Administration (FAA) issued a Determination of No Hazard to Air Navigation (No Hazard Determination) for the proposed replacement facility. However, this No Hazard Determination is based on tower coordinates that are approximately 25 feet away from the proposed replacement tower location. Council staff suggests that a revised FAA Determination be submitted prior to commencement of construction.

The project would be constructed in accordance with the latest edition of the International Building Code and the American National Standards Institute "Structural Standards for Steel Antenna Towers and Antenna Support Structures" Revision G.

The proposed replacement facility would comply with DEEP Noise Control Standards. The existing backup generator is exempt from DEEP Noise Control Regulations §22a-69-1.8.

The cumulative calculated power density would be 10.6 percent of the applicable limit using a -10 dB off-beam adjustment.

Construction Schedule

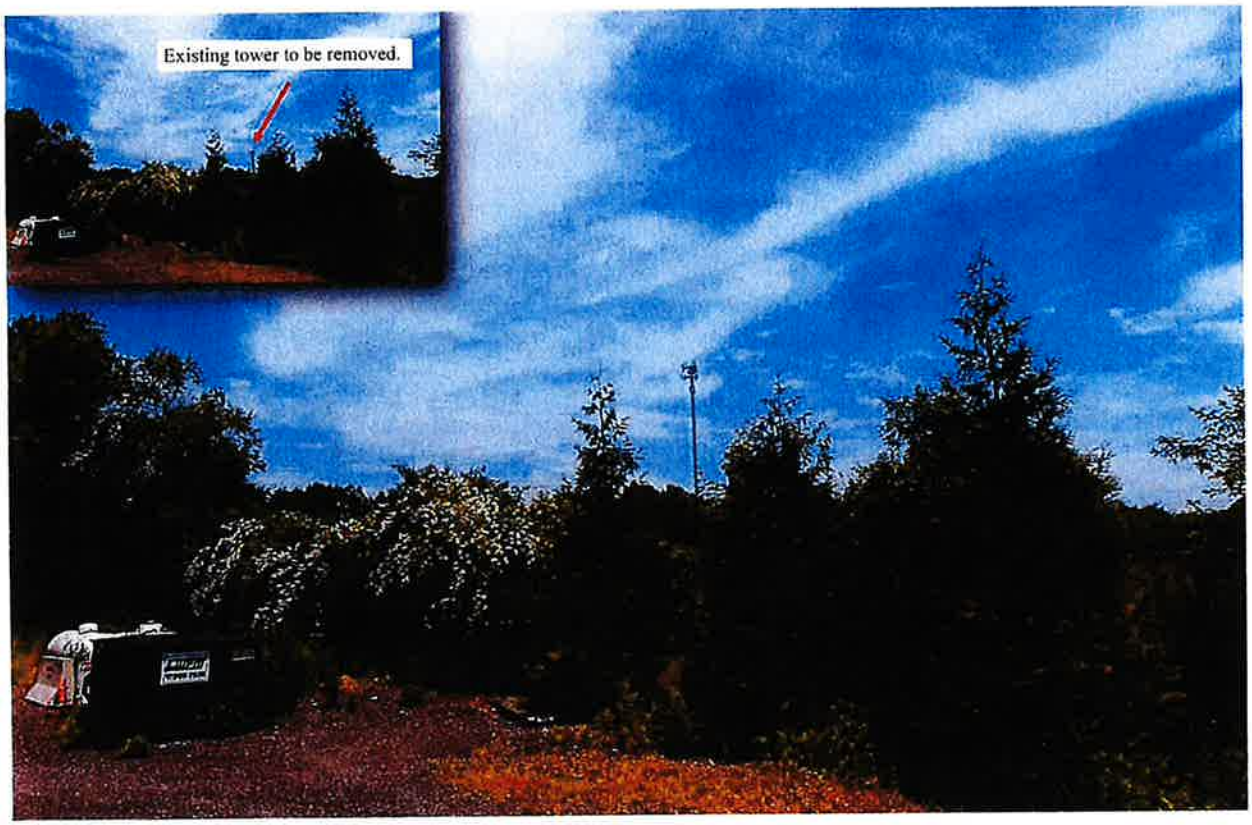
If approved, construction is expected to commence shortly thereafter. Work would be performed Monday through Saturday from 8:00 a.m. to 5:00 p.m.

Conclusion

If approved, staff recommends the following conditions:

1) Approval of any project changes be delegated to Council staff;
2) Submission of the Erosion and Sediment Control Plan prior to the commencement of construction;
3) Submission of the final FAA Determination prior to commencement of construction;
4) Submission of the final structural design drawings for the tower and foundation stamped by a Professional Engineer duly licensed in the State of Connecticut prior to commencement of construction;
5) The final structural design drawings shall include a yield point to ensure that the tower setback radius remains within the boundaries of the subject property;
6) Notification of commencement and completion of construction;
7) Unless otherwise approved by the Council, the existing monopole shall be removed within 180 days of the installation of the new monopole; and
8) The Council shall be notified in writing within 45 days of when the existing monopole is removed and the new monopole is operational unless a written request for an extension is submitted to the Council within that timeframe.

View of existing tower and the proposed replacement tower from approximately 715 feet to the southwest

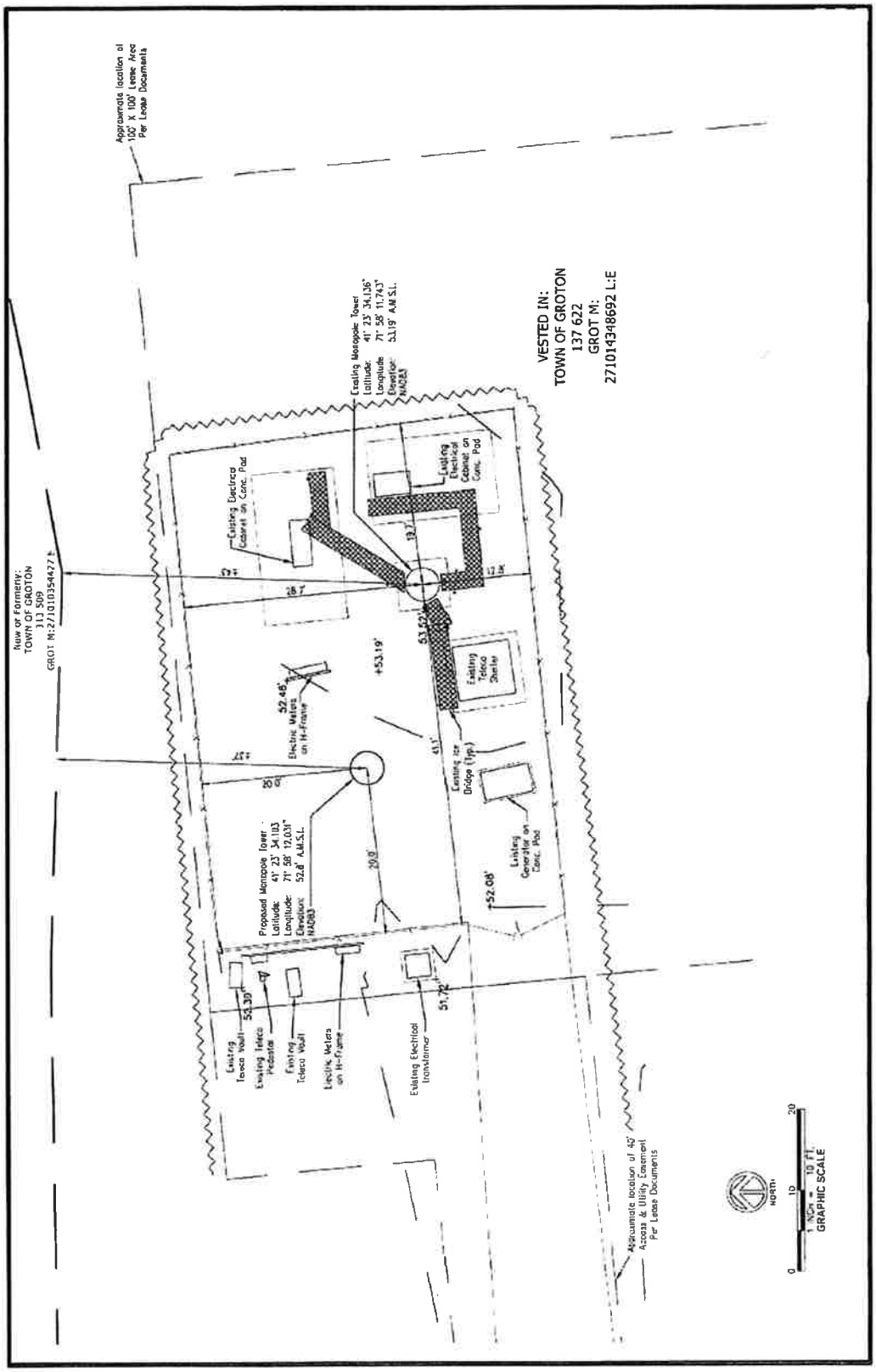


SBA

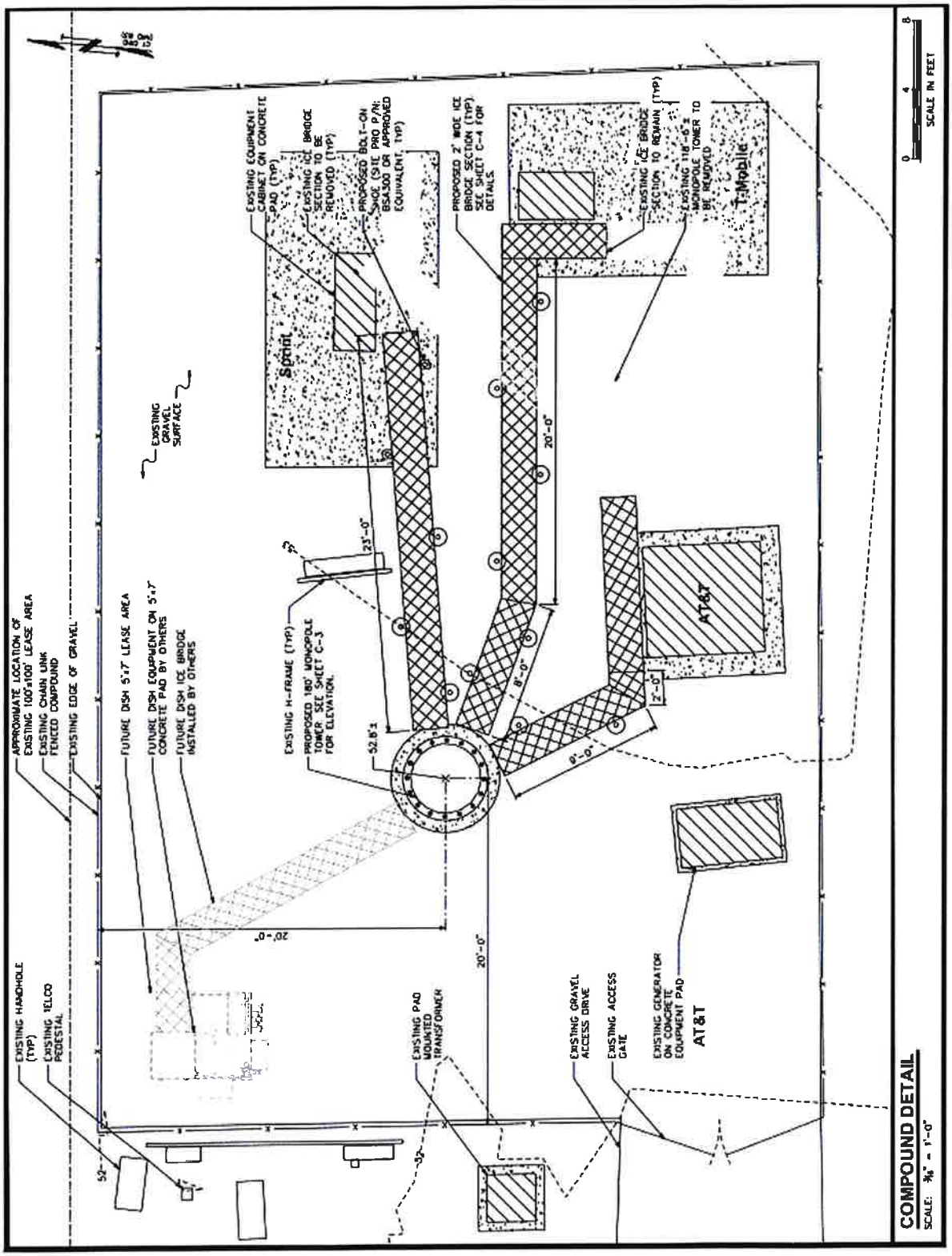
Monopole Tower Simulation
180-ft AGL (184-ft AGL w/ appurtenances)
Photo #1 - approx. 715-ft SW of site

South Ledyard (CT46142A)
130 Welles Road
Groton, CT 06340

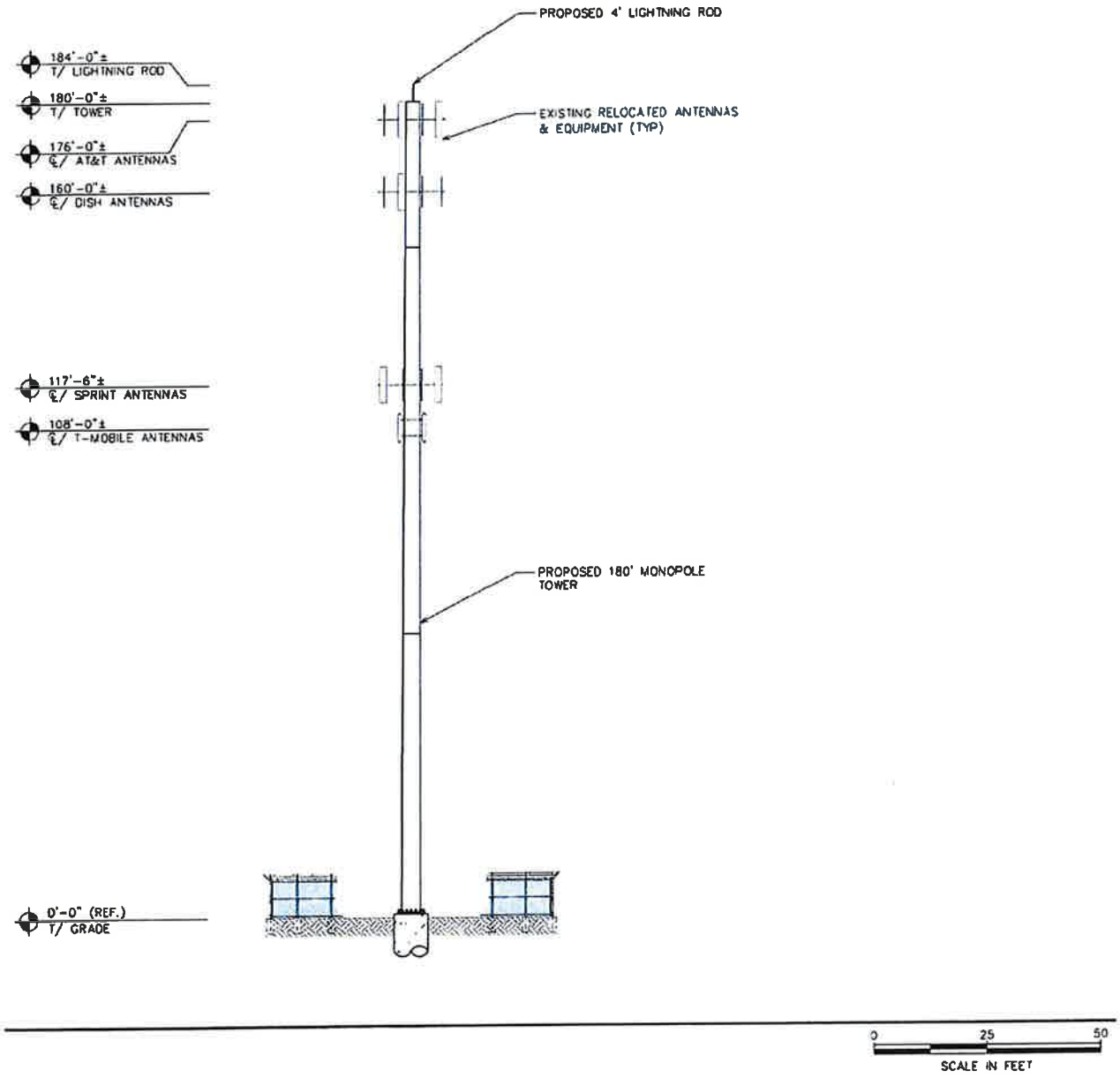
Existing Site Plan with Proposed Replacement Tower Location


Approximate location of 100' X 100' Lease Area Per Lease Documents
Now or Formerly: TOWN OF GROTON 313 509 GROT M:27101035447?
Existing Monopole Tower Latitude: 41° 23' 34.106" Longitude: 71° 58' 11.743" Elevation: 53.19' A.M.S.L. NAD83
VESTED IN: TOWN OF GROTON 137 622 GROT M: 27101434869? L:E
Existing Electrical Cabinet on Conc. Pad
Existing Electrical Cabinet on Conc. Pad
Existing Telco Shelter
Existing Ice Bridge (Typ.)
Existing Generator on Conc. Pad
Electric Meters on H-Frame
Proposed Monopole Tower Latitude: 41° 23' 34.103" Longitude: 71° 58' 12.031" Elevation: 52.8' A.M.S.L. NAD83
Existing Telco Vault
Existing Telco Pedestal
Existing Telco Vault
Electric Meters on H-Frame
Existing Electrical Transformer
Approximate location of 40' Access & Utility Easement Per Lease Documents
NORTH
0
10
20
1 INCH = 10 FT.
GRAPHIC SCALE

Proposed Site Plan



Proposed Replacement Tower Elevation Drawing



Connecticut Siting Council (/CSC)

DOCKET NO. 230 – Sprint Spectrum, L. P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at Welles Road, Groton, Connecticut. } Connecticut
} Siting
} Council
} December 19, 2002

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 Sprint Spectrum L. P. (Sprint) for the construction, maintenance and operation of a wireless telecommunications facility at the proposed site located at the town bulky waste disposal facility on Welles Road in Groton, 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 Sprint and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level.
2. The site development shall be moved 20 feet to the north to provide a greater buffer to the adjacent wetland areas. The closest wetland area to the edge of the development area shall be a minimum distance of 65 feet.
3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:

a. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, security fence, access road, utility line, and landscaping; and

b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. 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.
6. 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.
7. If the facility does not initially provide, or permanently ceases to provide wireless services following completion of construction, 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.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and ceases to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

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

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

Sprint Spectrum, L.P.
d/b/a Sprint PCS

Its Representative

Thomas J. Regan, Esquire
Brown Rudnick Berlack Israels LLP
CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402
(860) 509-6522

ATTACHMENT 2

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

T + 561.995.7670
F + 561.995.7626

sbasite.com

LETTER OF AUTHORIZATION

SBA Site ID: CT46142-A, South Ledyard- Town Dump

Property Located at: 130 Welles Road, Groton, CT, 06340

THE CITY/COUNTY OF: Groton / New London/Groton

APPLICATION FOR ZONING/USE/BUILDING PERMIT

This letter authorizes Verizon Wireless and its authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility on the existing tower on the property referenced above on behalf of Town of Groton.

All approval conditions that may be granted to Verizon Wireless in connection with above referenced facility relating to this specific application are the sole responsibility of Verizon Wireless.

SBA 2012 TC Assets, LLC

Jason Silberstein

Executive VP, Site Leasing

Date: 10/06/2023

ATTACHMENT 3

verizon

MYSTIC NORTH CT
130 WELLES ROAD
GROTON (MYSTIC), CT 06340

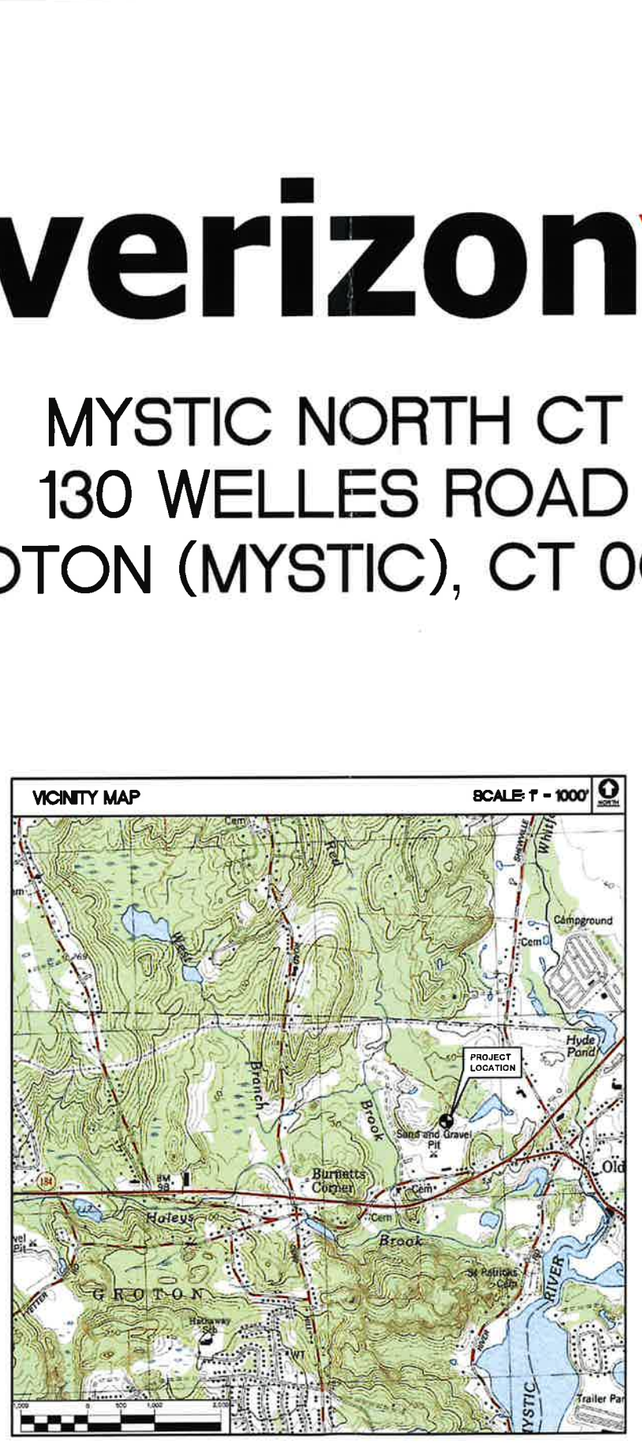
SITE INFORMATION AND PROJECT SCOPE

THE PROPOSED SCOPE OF WORK AT THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY GENERALLY INCLUDES THE FOLLOWING:

1. REMOVE AND REPLACE EXISTING 118' TALL STEEL MONOPOLE TOWER WITH A PROPOSED 180' TALL STEEL MONOPOLE TOWER (DESIGNED BY OTHERS), WITHIN THE EXISTING FENCED COMMUNICATIONS COMPOUND.
2. A TOTAL OF NINE (9) CELLCO PARTNERSHIP DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED AT A CENTERLINE ELEVATION OF 150' A.G.L. ON THE PROPOSED REPLACEMENT TOWER.
3. EXISTING CARRIER ANTENNAS TO BE RELOCATED FROM THE EXISTING TOWER TO THE PROPOSED REPLACEMENT TOWER. RESPECTIVE CARRIER ANTENNA CABLES AND ASSOCIATED CABLE ICE BRIDGING AT GRADE LEVEL TO BE RECONFIGURED TO FACILITATE THE CABLE RELOCATIONS TO THE PROPOSED REPLACEMENT TOWER.
4. TWO (2) CONCRETE PADS ARE TO BE INSTALLED TO ACCOMMODATE THE PROPOSED CELLCO PARTNERSHIP RADIO EQUIPMENT AND BACKUP POWER GENERATOR. THE RADIO EQUIPMENT PAD SHALL INCLUDE A PROTECTIVE ICE BRIDGE CANOPY OVER THE EQUIPMENT..
5. UPGRADES TO THE EXISTING FACILITY POWER UTILITY DEMARC SERVICE CABINET AND METER CENTER, LOCATED DIRECTLY ADJACENT TO THE EXISTING FENCED COMPOUND, ARE ANTICIPATED TO ACCOMMODATE THE PROPOSED CELLCO PARTNERSHIP INSTALLATION. A NEW, CELLCO PARTNERSHIP FIBER TELCO UTILITY SERVICE AND ASSOCIATED TERMINAL BOX SHALL BE INSTALLED ONTO THE EXISTING UTILITY BACKBOARD.
6. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE AND AMENDMENTS.
7. THERE WILL NOT BE ANY SIGNS OR ADVERTISING ON THE ANTENNAS OR EQUIPMENT.
8. FOR ADDITIONAL NOTES AND DETAILS REFER TO THE ACCOMPANYING DRAWINGS.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	MYSTIC NORTH CT
SITE ADDRESS:	130 WELLES ROAD GROTON (MYSTIC), CT 06340
PROPERTY OWNER:	TOWN OF GROTON 45 FORT HILL RD GROTON, CT
CELLCO PARTNERSHIP/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
VERIZON SITE ACQUISITION CONTACT:	CHRISTINA GLASS SAI COMMUNICATIONS 318 WEST AVENUE SARATOGA SPRINGS, NY 12866 (603) 212-6238 CELL
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE (860) 275-8345
PROPOSED TOWER COORDINATES (APPROXIMATE):	LATITUDE 41°-23'-34.186" N LONGITUDE 71°-58'-12.036" W SITE COORDINATES REFERENCED FROM VERIZON WIRELESS RFDS DATED 08/22/2023.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	ABUTTERS, LOCATION AND MUNICIPALITY MAPS	0
C-2	COMPOUND PLANS (EXISTING & PROPOSED CONDITIONS)	0
C-2	COMPOUND ELEVATIONS (EXISTING & PROPOSED CONDITIONS)	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/16/23	BSP	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FINAL FOR APPROVAL
E	09/07/23	BSP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER UPDATED RFDS
D	04/20/23	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
C	03/31/23	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER NEWLY ISSUED RFDS
B	01/04/23	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	06/27/22	ANC	DMD	CT SITING COUNCIL DRAWINGS – CLIENT REVIEW

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WIRELESS COMMUNICATIONS FACILITY
MYSTIC NORTH CT
130 WELLES ROAD
GROTON (MYSTIC), CT 06340

DATE: 06/13/2022
SCALE: AS NOTED
JOB NO. 22017.04

TITLE SHEET

T-1

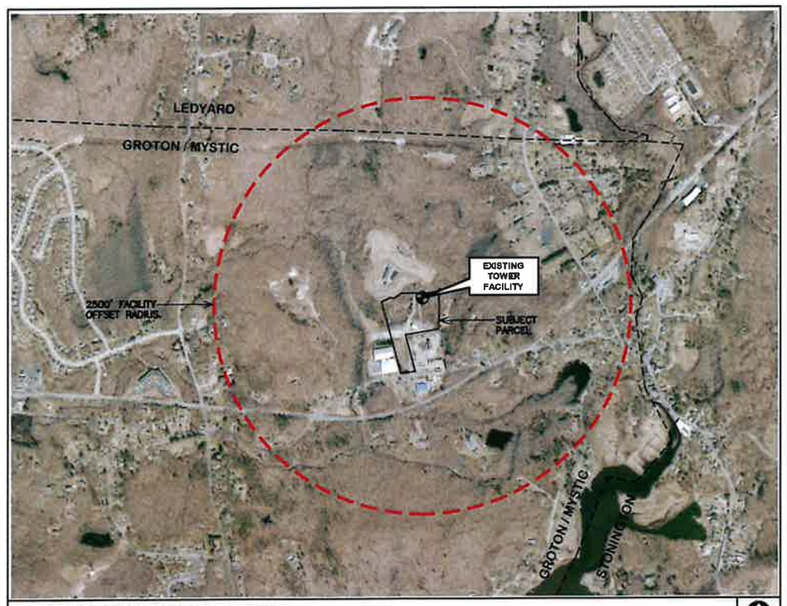
Sheet No. 1 of 4

SYMBOL LEGEND

ROUTE OF EXISTING SITE ACCESS

1 / C-1 **SITE LOCATION/ACCESS MAP**
SCALE: 1" = 125'

2 / C-1 **ABUTTERS MAP**
SCALE: 1" = 100'



MUNICIPALITY NOTIFICATION LIMIT MAP
SCALE: 1" = 800'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	06/27/22	ANC	DMD	CT SITING COUNCIL DRAWINGS – CLIENT REVIEW
B	01/04/23	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
C	03/31/23	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER NEWLY ISSUED RFDS
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MYSTIC NORTH CT

130 WELLES ROAD
GROTON (MYSTIC), CT 06340

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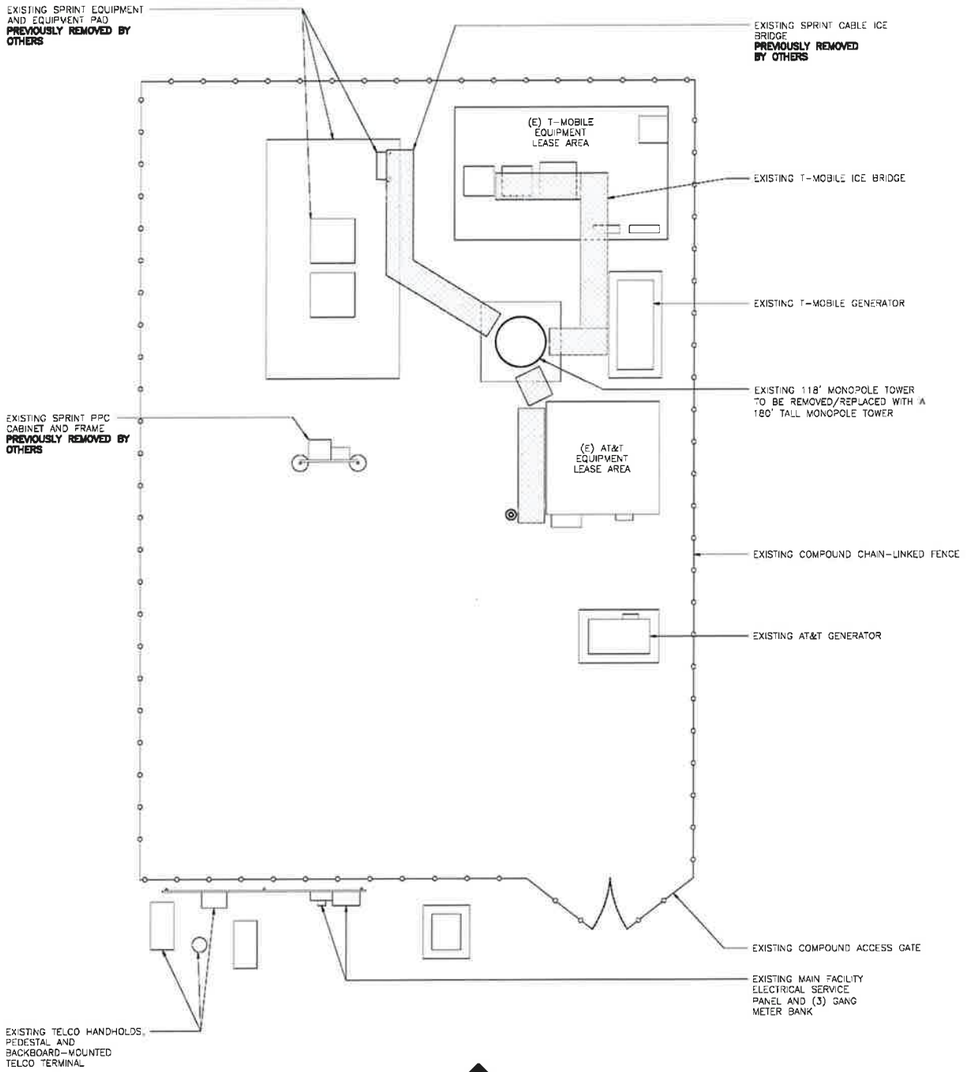
ABUTTERS, LOCATION AND MUNICIPALITY MAPS

C-1

Sheet No. 2 of 4



1 / C-3

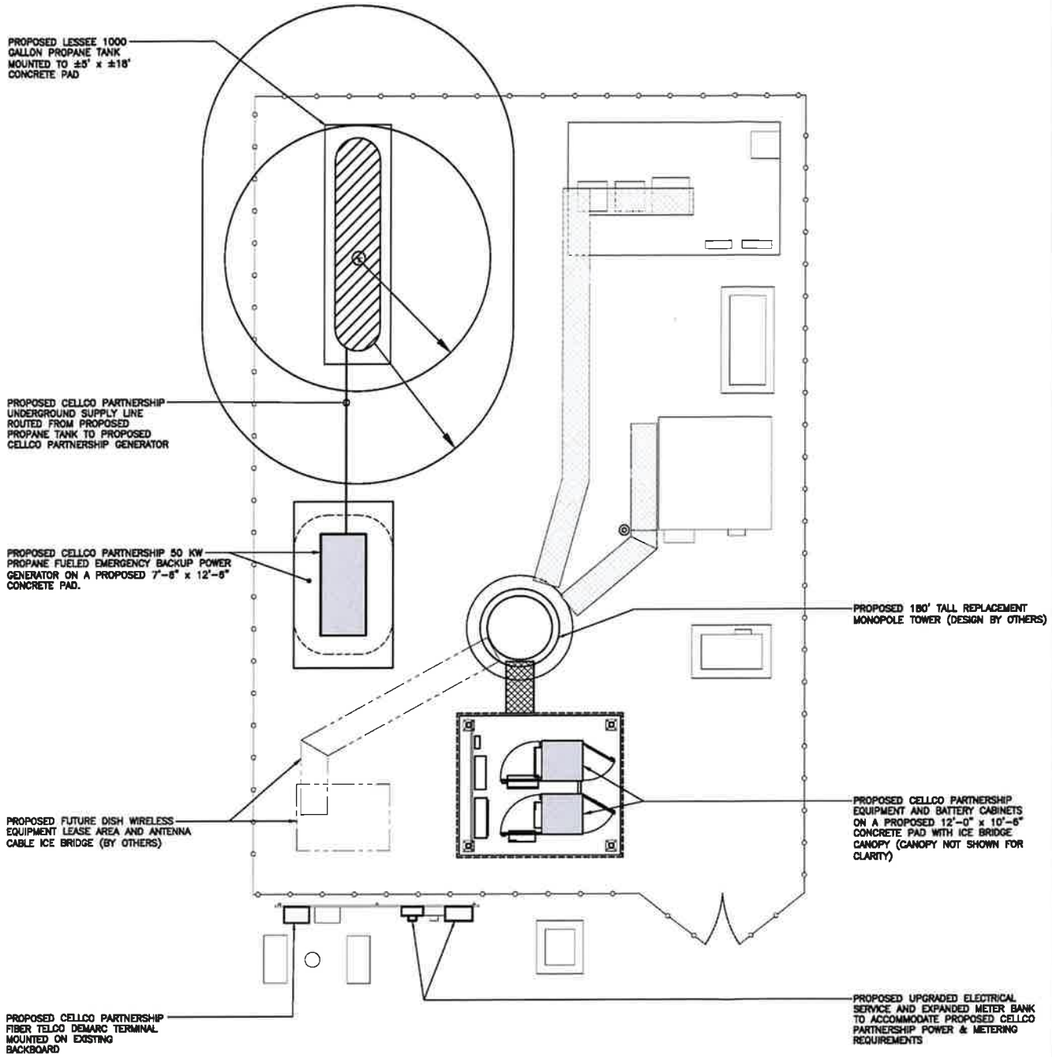
1 / C-2 COMPOUND PLAN - EXISTING CONDITIONS

SCALE: 1" = 5'

NORTH

GRAPHIC SCALE

(IN FEET)
1 inch = 5 ft.



2 / C-3

2 / C-2 COMPOUND PLAN - PROPOSED CONDITIONS

SCALE: 1" = 5'

NORTH

GRAPHIC SCALE

(IN FEET)
1 inch = 5 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/18/22	BSP	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FINAL FOR APPROVAL
E	09/07/22	BSP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER UPDATED RFDS
D	08/31/22	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
C	08/23/22	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
B	01/04/22	RTS	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	06/27/22	AMC	DMD	CT SITING COUNCIL DRAWINGS – CLIENT REVIEW

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MYSTIC NORTH CT

130 WELLES ROAD
GROTON (MYSTIC), CT 06340

DATE: 06/13/2022
SCALE: AS NOTED
JOB NO. 22017.04

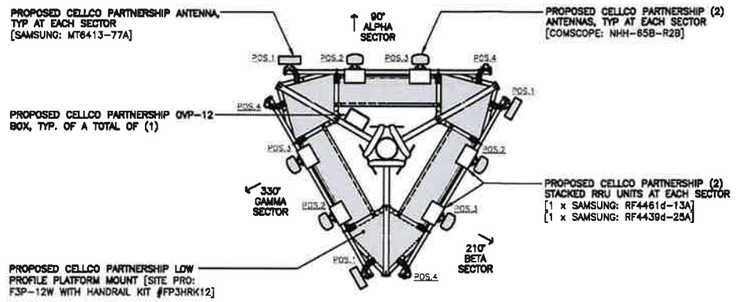
COMPOUND PLANS (EXISTING & PROPOSED CONDITIONS)

C-2

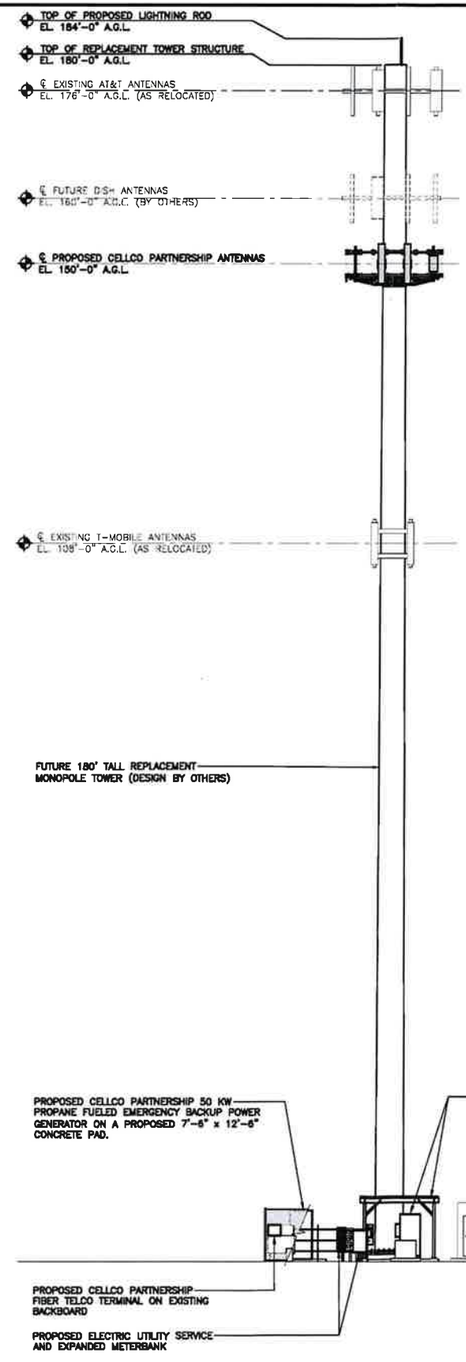
Sheet No. 3 of 4

NOTES:

1. THE PROPOSED CELLCO PARTNERSHIP ANTENNA INSTALLATION TO CONSIST OF A TOTAL OF (9) PANEL ANTENNAS, ASSOCIATED RRH APPURTENANCES & CABLING.
2. CELLCO PARTNERSHIP POWER AND TELCO UTILITIES SHALL BE ROUTED FROM EXISTING DEMARCS LOCATED ADJACENT TO THE EXISTING COMMUNICATIONS FACILITY COMPOUND.



PLAN



2 / C-3 **WESTERN ELEVATION - PROPOSED CONDITIONS**

SCALE: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

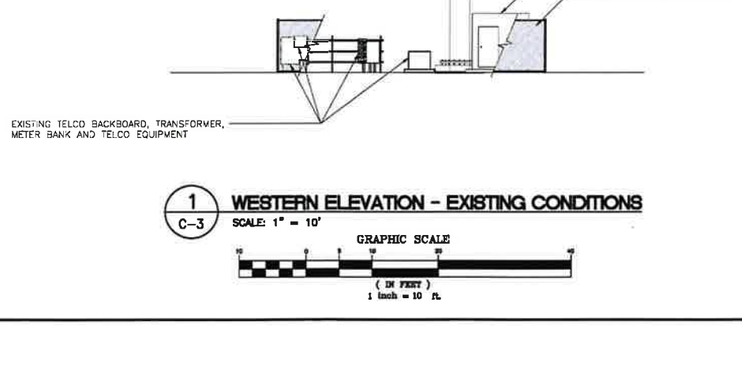
3 / C-3 **PROPOSED ANTENNA CONFIGURATION**

SCALE: 1" = 4'

NORTH

GRAPHIC SCALE

(IN FEET)
1 inch = 4 ft.



1 / C-3 **WESTERN ELEVATION - EXISTING CONDITIONS**

SCALE: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 22017.04) DATED 10/09/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY SBA COMMUNICATIONS CORPORATION (PROJECT # CT46142-VZW-111523) DATED 11/15/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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DATE: 06/13/2022
SCALE: AS NOTED
JOB NO. 22017.04

COMPOUND ELEVATIONS (EXISTING & PROPOSED CONDITIONS)

C-3

Sheet No. 4 of 4

ATTACHMENT 4

NHH-65B-R2B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage | Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 3
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W

NHH-65B-R2B

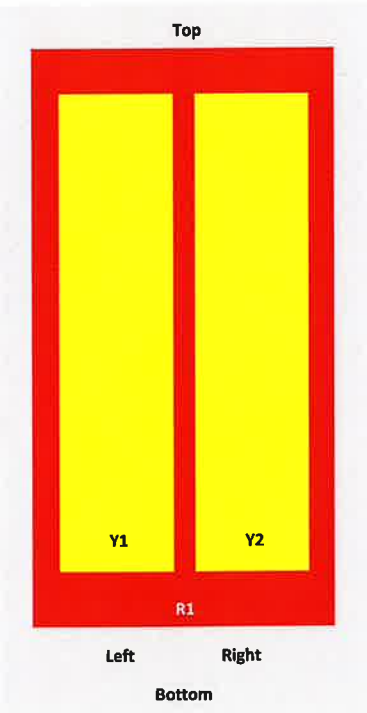
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	180 mm | 7.087 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	19.8 kg | 43.651 lb

Array Layout

NHH



Array	Freq (MHz)	Conn	RET (SBET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz

NHH-65B-R2B

Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.9	15	17.7	17.9	18.4	18.7
Beamwidth, Horizontal, degrees	65	60	71	69	64	57
Beamwidth, Vertical, degrees	12.4	11.2	5.7	5.2	4.9	4.6
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	14	18	18	19	18
Front-to-Back Ratio at 180°, dB	30	29	31	30	29	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	300

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.5	14.5	17.3	17.7	18.1	18.5
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.4 7 ° | 14.6 14 ° | 14.3	0 ° | 14.7 7 ° | 14.7 14 ° | 14.1	0 ° | 17.2 4 ° | 17.3 7 ° | 17.3	0 ° | 17.6 4 ° | 17.7 7 ° | 17.7	0 ° | 18.0 4 ° | 18.2 7 ° | 18.1	0 ° | 18.3 4 ° | 18.5 7 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2	±2.1	±3	±4.1	±6.5	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	13	14	16	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	23	22	27	27	25	25
CPR at Boresight, dB	22	21	23	23	22	19

NHH-65B-R2B

CPR at Sector, dB	10	7	16	13	11	4

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.26 m² | 2.799 ft²
Effective Projective Area (EPA), lateral	0.22 m² | 2.368 ft²
Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	282.0 N @ 150 km/h (63.4 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	409 mm | 16.102 in
Depth, packed	299 mm | 11.772 in
Length, packed	1952 mm | 76.85 in
Weight, gross	32.3 kg | 71.209 lb

Regulatory Compliance/Certifications

Agency	**Classification**
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant

Included Products

BSAMNT-3	–	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

C-band 64T64R

SAMSUNG

Gen 2

Gen 2 : Higher conducted power radio with reduced size/volume/weight vs Gen 1 and also SOC embedded for flexibility to support new features

※ Preliminary Design: External appearance and mechanical design can be subject to change

Gen 2. 64T64R C-band MMU Dimensions	
Size (WxHxD)	400 x 734 x 140 mm (15.75 x 28.90 x 5.51 inch)
Weight	26kg (57.3 lb)

Item	Gen 2 64T64R (MT6413-77A)
Air Technology	NR n77/TDD
Frequency	3700 – 3980 MHz
IBW	200 MHz
OBW	200 MHz
Carrier Bandwidth	20(HW ready)/40/60/80/100 MHz
# of Carriers	2 carriers
Layer	DL : 16L, UL : 16RX (8L)
RF Chain	64T64R
Antenna Configuration	4V16H with 192 AE
EIRP	80.5 dBm @320W (55 dBm + 25.5 dBi)
Conductive Power	320W
Spectrum Analyzer	TX/RX support
RX Sensitivity	Typical -97.8dBm @(1Rx, 18.36MHz with 30kHz,51RBs)
Modulation	DL 256QAM support, (DL 1024QAM with 1~2dB power back-off)
Function Split	DL/UL option 7-2x
Input Power	-48 VDC (-38 VDC to -57 VDC)
Power Consumption	1,287W (100% load, room temp.)
Size (WHD)	**400 x 734 x 140 mm (15.75 x 28.90 x 5.51 inch)**
Volume	**41.1L**
Weight	**26kg (57.3 lb)**
Operating Temperature	-40°C - 55°C (w/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 38.104 FCC 47 CFR 27.53 : < -13dBm/MHz < -40 dBm/MHz @ above 4 GHz <-50 dBm /MHz @ 4,040 ~ 4,050 MHz, <-60 dBm /MHz @ above 4,050 MHz
Optic Interface	15km, 4 ports (25Gbps x 4), SFP28, single mode, Bi-di (Option: Duplex)
Mounting Options	Pole, wall
NB-IoT	Not support
External Alarm	4RX
Fronthaul Interface	eCPRI

SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A

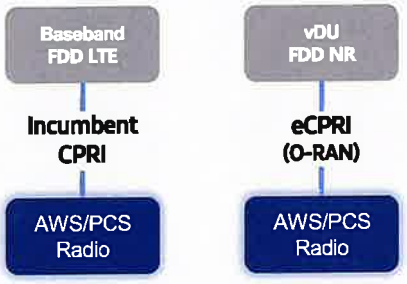
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

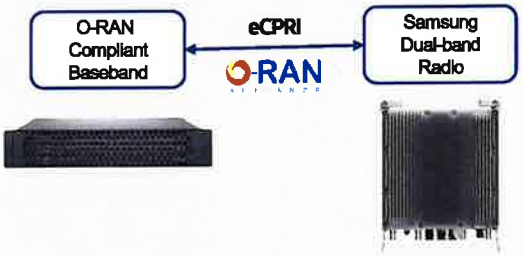
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

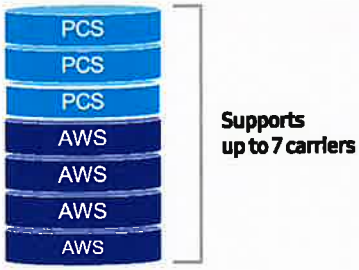
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.

Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

700/850 4T4R Macro 320W ORU - New Filter (RF4461d-13A)

SAMSUNG

Specifications

Item	Specification	
Air Interface	LTE, NR(HW resource ready)	
Band	Band13 (700MHz)	Band5 (850MHz)
Frequency	DL: 746~756MHz UL: 777~787MHz	DL: 869~894MHz UL: 824~849MHz
IBW	10MHz	25MHz
OBW	10MHz	25MHz
Carrier Bandwidth	LTE/NR 5*/10MHz	LTE 5/10MHz NR 5/10/15/20MHz
# of carriers	2C*	3C
Total # of carriers	4C + B13 (SDL) 1C	
RF Chain	4T4R/2T4R/2T2R/1T2R 2T2R+2T2R bi-sector	
RF Output Power	Total : 320W	
	4 x 40W or 2 x 60W	4 x 40W or 2 x 60W
Spectrum Analyzer	TX/RX Support	
RX Sensitivity	Typ. -104.5dBm @1Rx (25RBs 5MHz)	
Modulation	256QAM support, (1024QAM with 1~2dB power back-off)	
Input Power	-48VDC (-38VDC to -57VDC)	
Power Consumption	1,165 Watt @ 100% RF load, room temperature	
Size (WHD)	380 x 380 x 260 mm (14.96 x 14.96 x 10.23 inch)	
Volume	37.5 L	
Weight (W/o Solar Shield & finger guard)	35.9 kg (79.1 lb)	
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)	
Cooling	Natural convection	
Unwanted Emission	3GPP 36.104	3GPP 36.104
	FCC 47 CFR 27.53 c), f)	FCC 47 CFR 22.917
	-	-69 dBm/100 kHz per path @ 896 ~901MHz
CPRI Cascade	Not supported	
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP+, single mode, Duplex (Option: Bi-di)	
RET & TMA Interface	AISG 3.0	
Bias-T	4 ports (2 ports per band)	
Mounting Options	Pole, wall	
NB-IoT	2GB+2IB or 4IB	2SA+2GB or 2GB+2IB or 4GB
PIM Cancellation	Support	
# of antenna port	4	
External Alarm	4	
Fronthaul Interface	Opt. 8 CPRI / Opt. 7-2x selectable (not simultaneous support)	
CPRI compression	Not Support	

* 5MHz supporting in B13(700MHz) depends on 3GPP std. and UE capability. External filters in interferer and victim sides for Mexican boarder to support 5MHz service need to be considered
** Finger guard is not needed.

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

GENERAC | INDUSTRIAL POWER

Standby Power Rating
50 kW, 63 kVA, 60 Hz

Demand Response Rating
50 kW, 63 kVA, 60 Hz

Prime Power Rating
45 kW, 56 kVA, 60 Hz

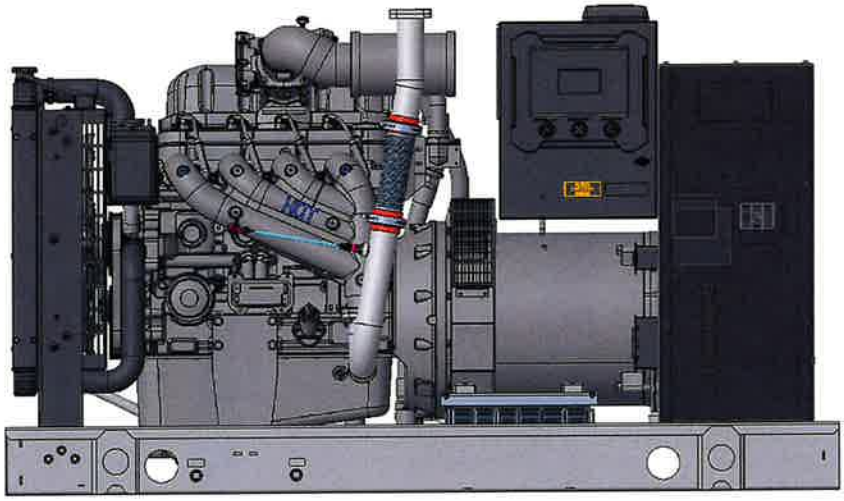


Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489

CSA C22.2

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

Generac ensures superior quality by designing and manufacturing most of its generator components, such as alternators, enclosures, control systems and communications software. Generac also makes its own spark-ignited engines, and you'll find them on every Generac gaseous-fueled generator. We engineer and manufacture them from the block up — all at our facilities throughout Wisconsin. Applying natural gas and LP-fueled engines to generators requires advanced engineering expertise to ensure reliability, durability and necessary performance. By designing specifically for these dry, hotter-burning fuels, the engines last longer and require less maintenance. Building our own engines also means we control every step of the supply chain and delivery process, so you benefit from single-source responsibility.

Plus, Generac Industrial Power's distribution network provides all parts and service so you don't have to deal with third-party suppliers. It all leads to a positive owner experience and higher confidence level. Generac spark-ignited engines give you more options in commercial and industrial generator applications as well as extended run time from utility-supplied natural gas.

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

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STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Critical Silencer
- Oil Temperature Sender with Alarm
- Air Filter Restriction Indicator

Fuel System

- Fuel Line - NPT Connection
- Primary and Secondary Fuel Shutoff

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearing
- Full Load Capacity Alternator

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

CONTROL SYSTEM

Power Zone Pro® Controller

- NFPA 110 Level 1 Compliant
- Engine Protective Functions
- Alternator Protective Functions
- Digital Engine Governor Control
- Digital Voltage Regulator
- Multiple Programmable Inputs and Outputs
- Remote Display Capability
- Remote Communication via Modbus® RTU, Modbus TCP/IP, and Ethernet 10/100
- Alarm and Event Logging with Real Time Stamping
- Expandable Analog and Digital Inputs and Outputs
- Remote Wireless Software Update Capable
- Wi-Fi, Bluetooth, BMS, and Remote Telemetry
- Built-In Programmable Logic Eliminates the Need for External Controllers Under Most Conditions
- Programmable I/O Channel Properties
- Built-In Diagnostics

Alarms and Warnings

- High/Low Oil Pressure
- High/Low Coolant Level
- High/Low Coolant Temperature
- Sender/Sensor Failure
- High/Low Oil Temperature
- Over Total kW
- Over/Under Speed
- Over/Under Voltage
- Over/Under Frequency
- Over Current
- High/Low Battery Voltage
- Battery Charger Current
- Phase to Phase and Phase to Neutral Short Circuits (I^2T Algorithm)

4.3 Inch Color Touch Screen Display

- Resistive Color Touch Screen
- Easily Identifiable Icons
- Multi-Lingual
- On Screen Editable Parameters
- Key Function Monitoring
- Three Phase Voltage, Amperage, kW, kVA, and kVAr
- Selectable Line to Line or Line to Neutral Measurements
- Frequency
- Engine Speed
- Engine Coolant Temperature
- Engine Oil Pressure
- Engine Oil Temperature
- Battery Voltage
- Hourmeter
- Warning and Alarm Indication
- Diagnostics
- Maintenance Events/Information

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

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CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Heater with Shutoff Valves
- Fluid Containment Pan
- Engine Coolant Heater
- Oil Heater
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Radiator Duct Adapter (Open Set Only)

ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- 3rd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET

- Demand Response Rating
- Extended Factory Testing (3-Phase Only)
- 8 Position Load Center

ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heaters

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 10A Run Relay
- Ground Fault Indication and Protection Functions
- 120V GFCI and 240V Outlets
- 100 dB Alarm Horn

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

ENGINEERED OPTIONS

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

GENERATOR SET

- Special Testing
- Battery Box

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

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APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	4
Type	In-Line
Displacement - in^3 (L)	275.0 (4.5)
Bore - in (mm)	4.5 (114.0)
Stroke - in (mm)	4.25 (107.95)
Compression Ratio	9.94:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged Steel, Fractured Split, Bushingless
Cylinder Head	Cast Iron
Cylinder Liners	Cast Iron
Ignition	Coil Near Plug Solid State Inductive
Piston Type	Cast Aluminum Flat Top
Crankshaft Type	Forged Steel
Lifter Type	Hydraulic
Intake Valve Material	Stainless Steel
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	High Steel Iron Alloy

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear Driving
Oil Filter Type	Full-Flow Spin-On Cartridge
Crankcase Capacity - qt (L)	21 (20)

Cooling System

Cooling System Type	Pressurized Closed
Fan Type	Pusher
Fan Speed - RPM	2,100
Fan Diameter - in (mm)	20 (508)

Fuel System

Fuel Type	Natural Gas, Propane
Fuel Injection	Electronic
Fuel Shut Off	Dual
NG Operating Fuel Pressure - in H_2O (kPa)	5 - 14 (1.2 - 3.5)
LP Operating Fuel Pressure - in H_2O (kPa)	7 - 14 (1.7 - 3.5)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	35 A
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0050124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase)
Telephone Interference Factor (TIF)	<50
Standard Excitation	Synchronous Brushless
Bearings	Sealed Ball
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

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OPERATING DATA

POWER RATINGS

		Natural Gas				LP Vapor			
		Standby/Demand Response		Prime		Standby/Demand Response		Prime	
Alternator	Voltage	Power	Amps	Power	Amps	Power	Amps	Power	Amps
A0050044N21	Single-Phase 120/240 VAC @1.0pf	48 kW/48 kVA	200	45 kW/45 kVA	188	50 kW/50 kVA	208	45 kW/45 kVA	188
A0060044N21	Single-Phase 120/240 VAC @1.0pf	50 kW/50 kVA	208	45 kW/45 kVA	188	50 kW/50 kVA	208	45 kW/45 kVA	188
K0050124Y21	Three-Phase 120/208 VAC @0.8pf	48 kW/60 kVA	167	45 kW/56 kVA	156	50 kW/63 kVA	174	45 kW/56 kVA	156
K0060124Y21	Three-Phase 120/208 VAC @0.8pf	50 kW/63 kVA	174	45 kW/56 kVA	156	50 kW/63 kVA	174	45 kW/56 kVA	156
K0050124Y21	Three-Phase 120/240 VAC @0.8pf	48 kW/60 kVA	144	45 kW/56 kVA	135	50 kW/63 kVA	150	45 kW/56 kVA	135
K0060124Y21	Three-Phase 120/240 VAC @0.8pf	50 kW/63 kVA	150	45 kW/56 kVA	135	50 kW/63 kVA	150	45 kW/56 kVA	135
K0050124Y21	Three-Phase 277/480 VAC @0.8pf	50 kW/63 kVA	75	45 kW/56 kVA	68	50 kW/63 kVA	75	45 kW/56 kVA	68
K0060124Y21	Three-Phase 277/480 VAC @0.8pf	50 kW/63 kVA	75	45 kW/56 kVA	68	50 kW/63 kVA	75	45 kW/56 kVA	68

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%	208/240 VAC	30%
K0050124Y21	98	K0050124Y21	75
K0060124Y21	124	K0060124Y21	95

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

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OPERATING DATA

FUEL CONSUMPTION RATES*

Natural Gas – scfh (m³/hr)	
Percent Load	Standby
25%	204 (5.8)
50%	343 (9.7)
75%	456 (12.9)
100%	621 (17.6)

Propane Vapor – scfh (m³/hr)	
Percent Load	Standby
25%	102.6 (2.9)
50%	175.9 (5.0)
75%	237.5 (6.7)
100%	293.2 (8.3)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (Fan Air Flow Across Radiator)	scfm (m³/min)	2,470 (69.9)
Coolant Flow	gpm (Lpm)	38 (142.7)
Coolant System Capacity	gal (L)	3 (11.4)
Max. Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199270SSD	
Maximum Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power scfm (m³/min)	115 (3.3)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	76
Piston Speed	ft/min (m/min)	1,275 (389)
BMEP	psi (kPa)	124 (855)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	scfm (m³/min)	332 (9.4)
Maximum Exhaust Backpressure	inHg (kPa)	0.75 (2.54)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1,100 (593)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 0187500SSB
Prime - See Bulletin 0187510SSB

SG050NA | 4.5L | 50 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

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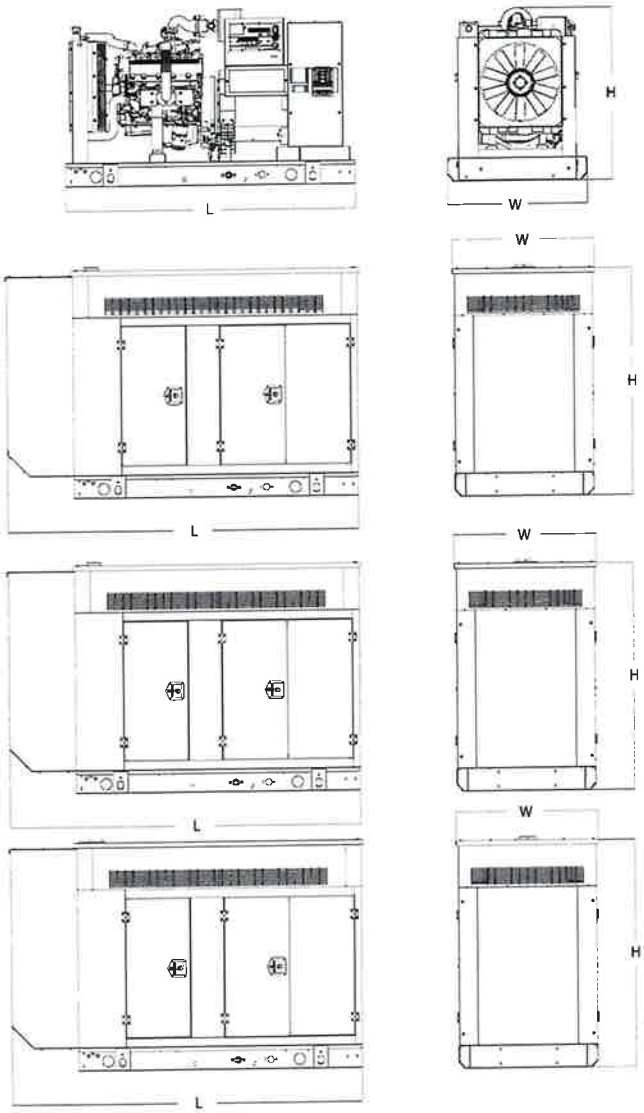
GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*



OPEN SET (Includes Exhaust Flex)

L x W x H - in (mm)	76.0 (1,930) x 37.4 (950) x 46.3 (1,176)
Weight - lbs (kg)	2,256 (1,023)

WEATHER PROTECTED ENCLOSURE

L x W x H - in (mm)	94.8 (2,407) x 37.4 (950) x 69.1 (1,755)
Weight - lbs (kg)	Steel: 2,697 (1,223) Aluminum: 1,754 (795)

LEVEL 1 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	94.8 (2,407) x 37.4 (950) x 69.1 (1,755)
Weight - lbs (kg)	Steel: 2,776 (1,259) Aluminum: 2,508 (1,138)

LEVEL 2 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	94.8 (2,407) x 37.4 (950) x 69.1 (1,755)
Weight - lbs (kg)	Steel: 2,928 (1,328) Aluminum: 2,574 (1,168)

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

SPEC SHEET

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53189

Part No. A0000310340
Rev. 1 07/15/19

ATTACHMENT 5

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

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sbasite.com

Structural Analysis Report

Client: Verizon

Client Site ID / Name: 5000899463 / Mystic N CT
Application #: 237122, v1

SBA Site ID / Name: CT46142-S / South Ledyard- Town Dump

180 ft Monopole

130 Welles Road
Groton, Connecticut 06340
Lat: 41.3927, Long: -71.9698

Project number: CT46142-VZW-111523

Analysis Results

Tower	91.5%	Pass
Foundation	92.0%	Pass

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

Prepared by:

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November 15, 2023

11/15/23

Table of Contents

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Monopole to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
Tower design/drawings	Sabre, Job # 497165C, dated 8/19/2022
Foundation drawings	TES, Job # 128650, dated 5/31/2022
Geotechnical report	TEP, Project # 255888.447786, dated 2/10/2021
Mount Analysis	Centek Engineering, Project # 22017.04, dated 10/9/2023
Latest SA	SBA, Project # CT46142-DSW-101722 Rev.02 (Rev. H), dated 2/13/2023

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut/MIDDLESEX/Groton
Governing Codes	ANSI/TIA/EIA 222-H, 2021 IBC, 2022 Connecticut State Building Code
Ultimate Wind Speed (3-Sec gust)	127.0 mph
Wind Speed with Ice (3-Sec gust)	50 mph
Service Wind Speed (3-Sec gust)	60 mph
Ice Thickness	1.00"
Risk Category	II
Exposure Category	C
Topographic Category	1
Crest Height	0 ft
Ground Elevation	41.15 ft.
Seismic Parameter S_s	0.187
Seismic Parameter S_1	0.052

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

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	180.0	6	KMW EPBQ-654L8H8-L2 - Panel	(3) Sector Frames	(4) 2" Innerduct [Housing (2) 1/2" (6) 3/4" DC]	AT&T
2		6	CCI HPA65R-BU8A - Panel			
3		3	Ericsson 4478 B14			
4		3	Ericsson 4415 B30			
5		6	Ericsson 8843 B2/B66A			
6		6	Ericsson 4449 B5/B12			
7		3	Ericsson RRUS-E2			
8		2	Raycap DC9-48-60-24-8C-EV			
9		1	Raycap DC6-48-60-0-8C-EV			
10		1	Raycap DC2-48-60-8-18F-02			
11	160.0	3	JMA Wireless MX08FRO665-21 - Panel	Low Profile Platform w/ Handrails	(1) 1.75" Hybrid	Dish Wireless
12		3	Fujitsu TA08025-B605			
13		3	Fujitsu TA08025-B604			
14		1	Raycap RDIDC-9181-PF-48			
-	150.0	3	Samsung VZ-MT6407-77A - Panel	Low Profile Platform w/ Handrails	(1) 2" Hyberiflex	Verizon
-		3	Samsung B2/B66A			
-		3	Samsung B5/B13			
-		1	Raycap RVZDC-6627-PF-48			
-		6	Commscope NHH-65B-R2B - Panel			
20	117.5	3	RFS APXVSPP18-C-A20 - Panel	Low Profile Platform	(4) 1-1/4" Hybrid	T-Mobile Sprint
21		3	RFS APXVTM14-C-I20 - Panel			
22		3	ALU 1900 MHz			
23		3	ALU 800 MHz			
24		3	ALU RRU8x20-25			
25		4	RFS ACU-A20-N RET			
26		3	ALU 800 MHz Filter			
27	108.0	3	Ericsson AIR 21 B4A B2P - Panel	(3) T-Arms w/ Modifications	(10) 1-5/8" (2) 1-5/8" Fiber	T-Mobile
28		3	Ericsson AIR 21 B2A B4P - Panel			
29		3	RFS APXVAARR24_43-U-NA20 – Panel			
30		3	Ericsson Radio 4449 B71+B12			

Note: AT&T loading includes FirstNET equipment

Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 237122, v1 from Verizon and is listed in Table 4.

Table 4 Proposed Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
15	150.0	3	Samsung B2/B66A	Low Profile Platform [SitePro1 F3P-12W] + Handrails [SitePro1 F#P-HRK12]	(2) 2" Hyberiflex	Verizon
16		3	Samsung RF4461d-13A_320W_B13-B5_RRH			
17		1	Raycap RVZDC-6627-PF-48			
18		6	Commscope NHH-65B-R2B - Panel			
19		3	Samsung MT6413 77A - Panel			

Analysis Results

Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

	Pole shafts	Anchor Bolts	Base Plate	Flange Plate
Max. Usage:	87.6%	84.7%	86.1%	91.5%
Pass/Fail	Pass	Pass	Pass	Pass

Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

Table 6 Foundation Analysis Summary

Structural Component	Max Usage (%)	Analysis Result
Foundation	92.0%	Pass

Conclusions

Based on the analysis results, the existing tower and foundation were found to be ***sufficient*** to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

Assumptions and Limitations

Assumptions

This analysis was completed based on the following assumptions:

- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Appendix

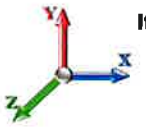
Usage Diagram - Max Ratio 87.61% at 0.0ft

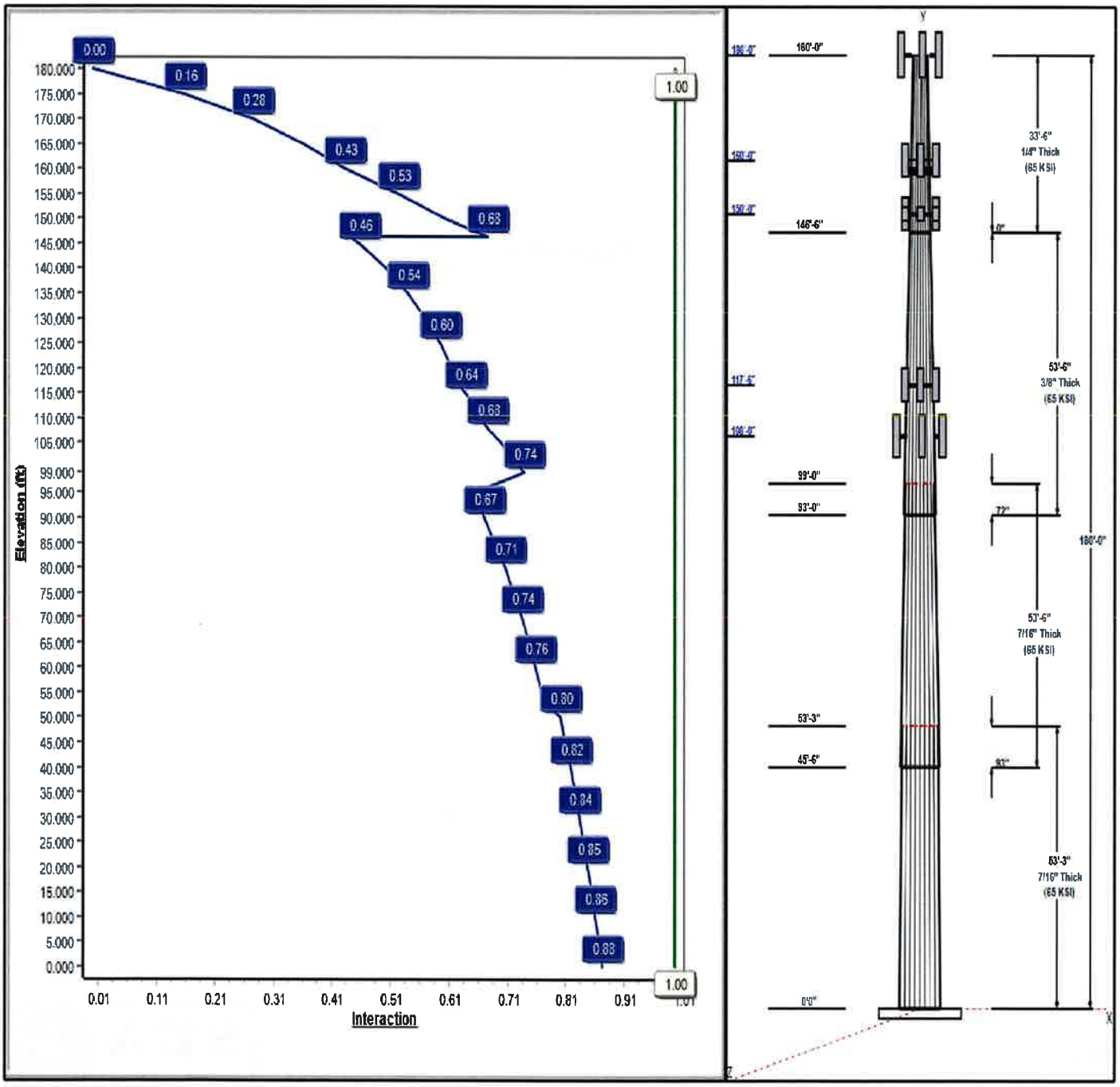
Structure:	CT46142-S	**Code:**	EIA/TIA-222-H	11/15/2023
Site Name:	South Ledyard- Town Dump	**Exposure:**	C	
Height:	180.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

SBA

Dead Load Factor:	1.20	**Iterations:**	24
Wind Load Factor:	1.00		

Load Case : 1.2D + 1.0W 127 mph Wind





Structure: CT46142-S

Type: Tapered
Site Name: South Ledyard- Town Dump
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.28969

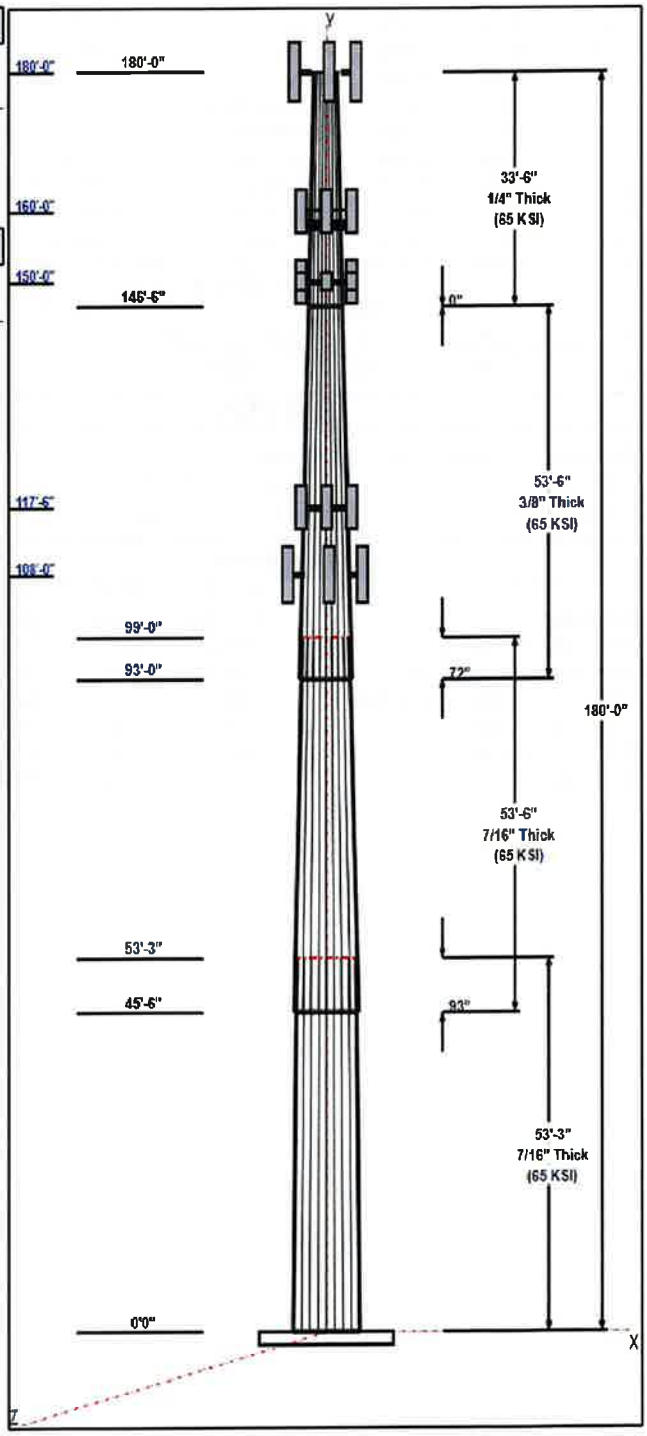
11/15/2023

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	53.09	68.52	0.438		0.28969	65
2	53.50	40.72	56.21	0.438	Slip	0.28969	65
3	53.50	27.70	43.20	0.375	Slip	0.28969	65
4	33.50	18.00	27.70	0.250	Butt	0.28969	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
180.00	180.00	6	KMW EPBQ-654L8H8-L2	AT&T
180.00	180.00	6	CCI HPA65R-BU8A	AT&T
180.00	180.00	3	Ericsson 4478 B14	AT&T
180.00	180.00	3	Ericsson 4415 B30	AT&T
180.00	180.00	6	Ericsson 8843 B2/B66A	AT&T
180.00	180.00	6	Ericsson 4449 B5/B12	AT&T
180.00	180.00	3	Ericsson RRUS-E2	AT&T
180.00	180.00	2	Raycap	AT&T
180.00	180.00	1	Raycap	AT&T
180.00	180.00	1	Raycap	AT&T
180.00	180.00	3	Valmont 12-WLL-30120	AT&T
180.00	180.00	12	Mount Pipes	AT&T
160.00	160.00	3	JMA Wireless	Dish Wireless
160.00	160.00	3	Fujitsu TA08025-B605	Dish Wireless
160.00	160.00	3	Fujitsu TA08025-B604	Dish Wireless
160.00	160.00	1	Raycap	Dish Wireless
160.00	160.00	1	Commscope MC-PK8-DSH	Dish Wireless
160.00	160.00	9	Mount Pipes	Dish Wireless
150.00	150.00	3	Samsung B2/B66A	Verizon
150.00	150.00	3	Samsung	Verizon
150.00	150.00	1	Raycap	Verizon
150.00	150.00	1	Low Profile Platform	Verizon
150.00	150.00	12	Mount Pipes	Verizon
150.00	150.00	6	Commscope	Verizon
150.00	150.00	3	Samsung MT6413 77A	Verizon
150.00	150.00	1	Handrail [F3P-HRK12]	Verizon
117.50	117.50	3	RFS APXVSPP-18-C-A20	T-Mobile Sprint
117.50	117.50	4	RFS ACU-A20-N	T-Mobile Sprint
117.50	117.50	3	RFS APXVTM14-C-I20	T-Mobile Sprint
117.50	117.50	3	ALU 1900 MHz	T-Mobile Sprint
117.50	117.50	3	ALU 800 MHz	T-Mobile Sprint
117.50	117.50	3	ALU RRU8x20-25	T-Mobile Sprint
117.50	117.50	3	ALU 800 MHz Filter	T-Mobile Sprint
117.50	117.50	1	Low Profile Platform	T-Mobile Sprint
117.50	117.50	9	Mount Pipes	T-Mobile Sprint
108.00	108.00	9	Mount Pipes	T-Mobile
108.00	108.00	3	RFS	T-Mobile
108.00	108.00	3	Ericsson Radio 4449	T-Mobile
108.00	108.00	3	Ericsson Air21 B2A/B4P	T-Mobile
108.00	108.00	3	Ericsson Air 21 B4A/B2P	T-Mobile
108.00	108.00	3	T-Arms w/ Modifications	T-Mobile



Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	180.00	Inside	1/2" Coax	AT&T

0.00	180.00	Inside	2" Conduit	AT&T
0.00	180.00	Inside	3/4" DC	AT&T
0.00	180.00	Outside	Safety Cable	
0.00	180.00	Outside	Step bolts (ladder)	
0.00	160.00	Inside	1.75" Hybrid	Dish Wireless
0.00	150.00	Inside	2" Hyberiflex	Verizon
0.00	117.50	Inside	1-1/4" Hybrid	T-Mobile Sprint
0.00	108.00	Inside	1 5/8" Coax	T-Mobile
0.00	108.00	Inside	1 5/8" Fiber	T-Mobile

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
22	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	81.5	50.0	Round

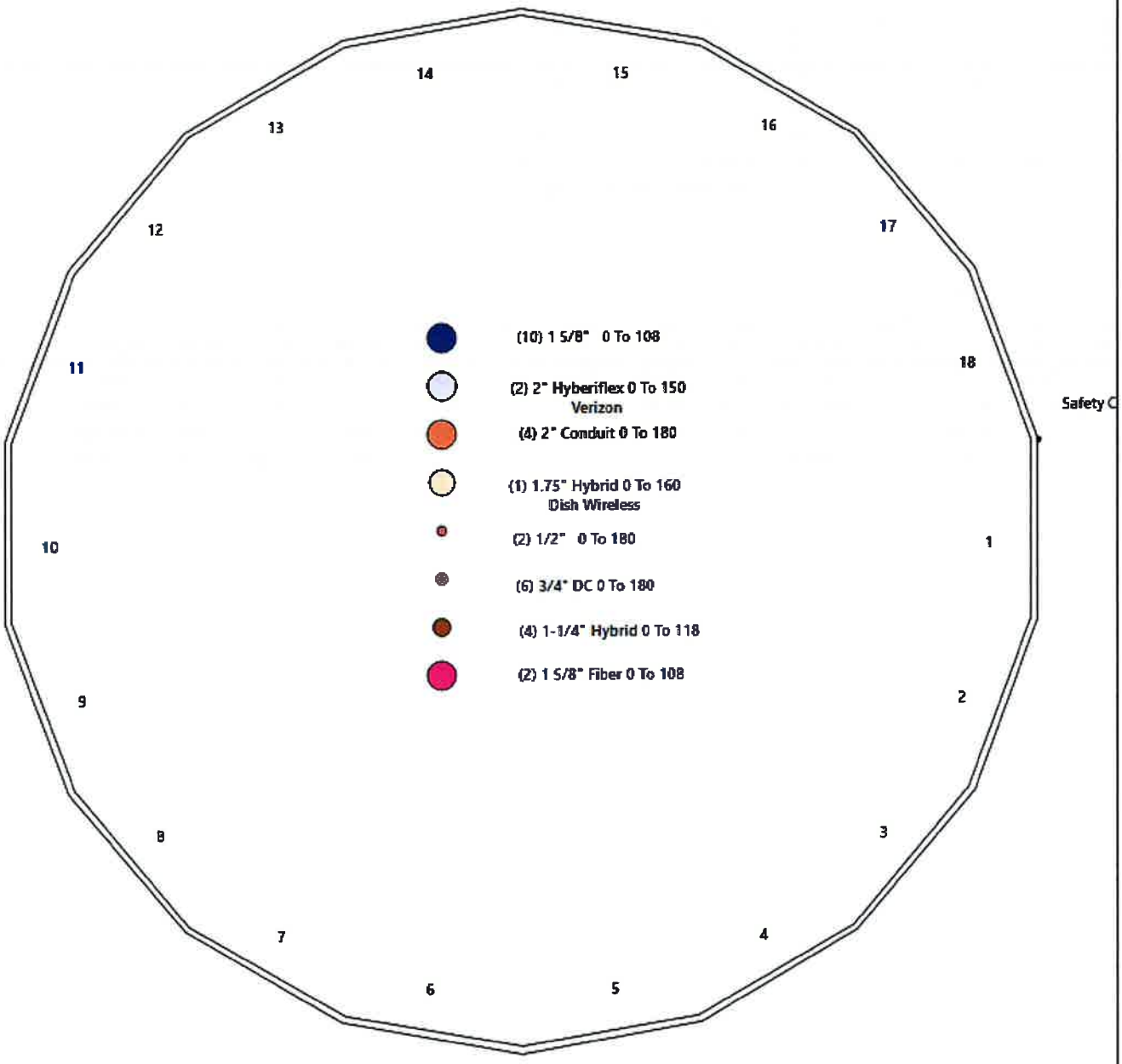
Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 127 mph Wind	7272.2	57.3	70.2
0.9D + 1.0W 127 mph Wind	7190.8	57.3	52.6
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1660.1	13.2	96.3
1.2D + 1.0Ev + 1.0Eh	159.3	1.0	72.7
0.9D + 1.0Ev + 1.0Eh	157.7	1.0	55.0
1.0D + 1.0W 60 mph Wind	1444.7	11.4	58.6

Structure: CT46142-S - Coax Line Placement

Type:
Site Name: South Ledyard- Town Dump
Height: 180.00 (ft)

11/15/2023



Shaft Properties

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.4375	65		0.00	15,189
2	18	53.500	0.4375	65	Slip	93.00	12,141
3	18	53.500	0.3750	65	Slip	72.00	7,601
4	18	33.500	0.2500	65	Flange	0.00	2,044
					Total Shaft Weight:		**36,975**

	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	68.52	0.00	94.54	55364.19	26.21	156.62	53.09	53.25	73.12	25613.7	19.99	121.3	0.289694
2	56.21	45.50	77.45	30442.05	21.25	128.49	40.72	99.00	55.93	11463.5	15.00	93.06	0.289694
3	43.20	93.00	50.97	11813.31	18.90	115.21	27.70	146.50	32.53	3069.61	11.62	73.88	0.289694
4	27.70	146.5	21.78	2074.62	18.13	110.82	18.00	180.00	14.08	560.63	11.28	72.00	0.289694

Load Summary

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	180.00	KMW EPBQ-654L8H8-L2	6	62.40	11.98	0.81	237.25	13.144	0.82	0.00	0.00
2	180.00	CCI HPA65R-BU8A	6	54.00	11.29	0.86	228.47	12.419	0.87	0.00	0.00
3	180.00	Ericsson 4478 B14	3	59.40	2.02	0.81	95.94	2.406	0.82	0.00	0.00
4	180.00	Ericsson 4415 B30	3	46.00	1.84	0.72	77.13	2.207	0.74	0.00	0.00
5	180.00	Ericsson 8843 B2/B66A	6	75.00	1.64	1.00	107.92	1.987	1.00	0.00	0.00
6	180.00	Ericsson 4449 B5/B12	6	71.00	1.97	0.86	108.18	2.352	0.87	0.00	0.00
7	180.00	Ericsson RRUS-E2	3	58.00	3.15	0.70	109.60	3.622	0.72	0.00	0.00
8	180.00	Raycap DC9-48-60-24-8C-EV	2	28.70	4.78	0.79	111.85	5.376	0.80	0.00	0.00
9	180.00	Raycap DC6-48-60-0-8C-EV	1	26.20	4.78	0.79	109.36	5.376	0.80	0.00	0.00
10	180.00	Raycap DC2-48-60-8-18F-02	1	14.50	2.50	0.70	55.70	2.924	0.72	0.00	0.00
11	180.00	Valmont 12-WLL-30120	3	658.00	13.20	1.00	1219.35	21.020	1.00	0.00	0.00
12	180.00	Mount Pipes	12	60.00	1.43	1.00	111.19	2.277	1.00	0.00	0.00
13	160.00	JMA Wireless MX08FRO665-21	3	64.50	12.49	0.73	257.98	13.467	0.75	0.00	0.00
14	160.00	Fujitsu TA08025-B605	3	74.95	1.96	0.80	109.67	2.332	0.82	0.00	0.00
15	160.00	Fujitsu TA08025-B604	3	63.93	1.96	0.76	97.56	2.332	0.78	0.00	0.00
16	160.00	Raycap RDIDC-9181-PF-48	1	21.85	2.01	0.78	56.80	2.387	0.80	0.00	0.00
17	160.00	Commscope MC-PK8-DSH w/ Mount	1	1727.00	34.24	1.00	3183.08	54.288	1.00	0.00	0.00
18	160.00	Mount Pipes	9	60.00	1.66	1.00	110.59	2.632	1.00	0.00	0.00
19	150.00	Samsung B2/B66A	3	84.40	1.88	0.83	118.22	2.243	0.85	0.00	0.00
20	150.00	Samsung	3	39.70	1.37	0.73	62.55	1.684	0.75	0.00	0.00
21	150.00	Raycap RVZDC-6627-PF-48	1	32.00	4.06	0.88	108.04	4.604	0.89	0.00	0.00
22	150.00	Low Profile Platform [F3P-12W]	1	2122.00	38.09	1.00	3899.61	60.248	1.00	0.00	0.00
23	150.00	Mount Pipes	12	60.00	1.47	1.00	110.26	2.325	1.00	0.00	0.00
24	150.00	Commscope NHH-65B-R2B	6	43.70	8.08	0.83	170.40	8.915	0.84	0.00	0.00
25	150.00	Samsung MT6413 77A	3	57.32	3.79	0.69	117.88	4.317	0.81	0.00	0.00
26	150.00	Handrail [F3P-HRK12]	1	405.00	7.51	1.00	744.27	11.879	1.00	0.00	0.00
27	117.50	RFS APXVSPP-18-C-A20	3	57.00	8.02	1.00	179.52	8.832	1.00	0.00	0.00
28	117.50	RFS ACU-A20-N	4	1.00	0.14	0.79	1.82	0.220	0.79	0.00	0.00
29	117.50	RFS APXVTM14-C-I20	3	57.00	8.02	0.83	179.52	8.832	0.84	0.00	0.00
30	117.50	ALU 1900 MHz	3	40.00	2.13	0.92	80.77	2.512	0.92	0.00	0.00
31	117.50	ALU 800 MHz	3	40.00	4.05	0.69	102.66	4.567	0.70	0.00	0.00
32	117.50	ALU RRU8x20-25	3	40.00	2.38	0.99	88.87	2.805	0.99	0.00	0.00
33	117.50	ALU 800 MHz Filter	3	25.00	0.67	0.69	36.04	0.892	0.73	0.00	0.00
34	117.50	Low Profile Platform	1	1645.00	24.04	1.00	2989.78	37.688	1.00	0.00	0.00
35	117.50	Mount Pipes	9	60.00	1.66	1.00	109.05	2.602	1.00	0.00	0.00
36	108.00	Mount Pipes	9	60.00	1.21	1.00	108.64	1.891	1.00	0.00	0.00
37	108.00	RFS APXVAARR24_43-U-NA20	3	128.00	20.24	0.72	419.63	21.443	0.73	0.00	0.00
38	108.00	Ericsson Radio 4449 B71+B12	3	74.00	1.63	0.81	101.79	1.959	0.82	0.00	0.00
39	108.00	Ericsson Air21 B2A/B4P	3	91.50	6.04	0.85	189.61	6.723	0.86	0.00	0.00
40	108.00	Ericsson Air 21 B4A/B2P	3	90.30	6.04	0.85	188.43	6.723	0.86	0.00	0.00
41	108.00	T-Arms w/ Modifications	3	258.10	11.80	1.00	467.32	18.443	1.00	0.00	0.00
		Totals:	**158**	**17,272.85**			**35,002.92**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	180.00	(2) 1/2" Coax			0.00	Inside					
0.00	180.00	(4) 2" Conduit			0.00	Inside					
0.00	180.00	(6) 3/4" DC			0.00	Inside					
0.00	180.00	(1) Safety Cable			0.38	Outside					
0.00	180.00	(1) Step bolts (ladder)			0.63	Outside					
0.00	160.00	(1) 1.75" Hybrid			0.00	Inside					
0.00	150.00	(2) 2" Hyberiflex			0.00	Inside					
0.00	117.50	(4) 1-1/4" Hybrid			0.00	Inside					
0.00	108.00	(10) 1 5/8" Coax			0.00	Inside					
0.00	108.00	(2) 1 5/8" Fiber			0.00	Inside					

Shaft Section Properties

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

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	68.520	94.538	55364.2	26.21	156.62	70.6	1591.	0.0
5.00		0.4375	67.072	92.526	51905.2	25.62	153.31	71.3	1524.	1591.3
10.00		0.4375	65.623	90.515	48593.3	25.04	150.00	72.0	1458.	1557.1
15.00		0.4375	64.175	88.504	45425.4	24.45	146.68	72.6	1394.	1522.9
20.00		0.4375	62.726	86.492	42398.3	23.87	143.37	73.3	1331.	1488.7
25.00		0.4375	61.278	84.481	39508.7	23.29	140.06	74.0	1269.	1454.5
30.00		0.4375	59.829	82.470	36753.5	22.70	136.75	74.7	1210.	1420.2
35.00		0.4375	58.381	80.458	34129.5	22.12	133.44	75.4	1151.	1386.0
40.00		0.4375	56.932	78.447	31633.4	21.53	130.13	76.1	1094.	1351.8
45.00		0.4375	55.484	76.436	29262.1	20.95	126.82	76.8	1038.	1317.6
45.50	Bot - Section 2	0.4375	55.339	76.235	29031.7	20.89	126.49	76.8	1033.	129.9
50.00		0.4375	54.035	74.425	27012.4	20.37	123.51	77.4	984.6	2325.6
53.25	Top - Section 1	0.4375	53.969	74.332	26911.9	20.34	123.36	0.0	0.0	1645.1
55.00		0.4375	53.462	73.628	26154.6	20.14	122.20	77.7	963.6	440.5
60.00		0.4375	52.013	71.617	24069.2	19.55	118.89	78.4	911.4	1235.6
65.00		0.4375	50.565	69.606	22097.7	18.97	115.58	79.1	860.8	1201.4
70.00		0.4375	49.116	67.594	20236.9	18.38	112.27	79.8	811.5	1167.2
75.00		0.4375	47.668	65.583	18483.7	17.80	108.96	80.5	763.7	1132.9
80.00		0.4375	46.219	63.572	16834.7	17.22	105.64	81.1	717.4	1098.7
85.00		0.4375	44.771	61.560	15286.8	16.63	102.33	81.8	672.5	1064.5
90.00		0.4375	43.323	59.549	13836.9	16.05	99.02	82.5	629.1	1030.3
93.00	Bot - Section 3	0.4375	42.453	58.342	13012.6	15.70	97.04	82.5	603.7	601.7
95.00		0.4375	41.874	57.538	12481.7	15.47	95.71	82.5	587.1	738.9
99.00	Top - Section 2	0.3750	41.465	48.906	10432.6	18.09	110.57	0.0	0.0	1447.3
100.00		0.3750	41.176	48.561	10213.5	17.95	109.80	80.3	488.6	165.8
105.00		0.3750	39.727	46.837	9163.9	17.27	105.94	81.1	454.3	811.5
108.00		0.3750	38.858	45.803	8570.0	16.86	103.62	81.6	434.4	472.8
110.00		0.3750	38.279	45.113	8188.7	16.59	102.08	81.9	421.3	309.4
115.00		0.3750	36.830	43.389	7285.4	15.91	98.21	82.5	389.6	752.9
117.50		0.3750	36.106	42.527	6859.7	15.57	96.28	82.5	374.2	365.4
120.00		0.3750	35.382	41.665	6451.0	15.23	94.35	82.5	359.1	358.1
125.00		0.3750	33.933	39.941	5682.9	14.54	90.49	82.5	329.9	694.2
130.00		0.3750	32.485	38.217	4978.3	13.86	86.63	82.5	301.8	664.9
135.00		0.3750	31.036	36.493	4334.6	13.18	82.76	82.5	275.1	635.6
140.00		0.3750	29.588	34.769	3748.8	12.50	78.90	82.5	249.6	606.2
145.00		0.3750	28.139	33.045	3218.4	11.82	75.04	82.5	225.3	576.9
146.50	Top - Section 3	0.3750	27.705	32.528	3069.6	11.62	73.88	82.5	218.2	167.3
146.50	Bot - Section 4	0.2500	27.705	21.785	2074.6	17.42	110.82	80.1	147.5	
150.00		0.2500	26.691	20.980	1853.1	17.41	106.76	80.9	136.8	254.7
155.00		0.2500	25.242	19.831	1565.0	16.39	100.97	82.1	122.1	347.2
160.00		0.2500	23.794	18.681	1308.3	15.37	95.18	82.5	108.3	327.6
165.00		0.2500	22.345	17.532	1081.4	14.35	89.38	82.5	95.3	308.1
170.00		0.2500	20.897	16.383	882.4	13.33	83.59	82.5	83.2	288.5
175.00		0.2500	19.448	15.233	709.4	12.31	77.79	82.5	71.8	269.0
180.00		0.2500	18.000	14.084	560.6	11.28	72.00	82.5	61.3	249.4
										36975.2

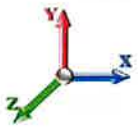
Wind Loading - Shaft

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	33.292	36.62	678.38	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	33.292	36.62	664.04	0.730	0.000	5.00	28.684	20.94	766.8	0.0	1909.6
10.00		1.00	0.85	33.292	36.62	649.70	0.730	0.000	5.00	28.071	20.49	750.4	0.0	1868.5
15.00		1.00	0.85	33.292	36.62	635.36	0.730	0.000	5.00	27.458	20.04	734.1	0.0	1827.5
20.00		1.00	0.90	35.324	38.86	639.69	0.730	0.000	5.00	26.845	19.60	761.5	0.0	1786.4
25.00		1.00	0.95	37.024	40.73	639.77	0.730	0.000	5.00	26.233	19.15	779.9	0.0	1745.4
30.00		1.00	0.98	38.472	42.32	636.75	0.730	0.000	5.00	25.620	18.70	791.5	0.0	1704.3
35.00		1.00	1.01	39.741	43.72	631.50	0.730	0.000	5.00	25.007	18.26	798.0	0.0	1663.2
40.00		1.00	1.04	40.874	44.96	624.55	0.730	0.000	5.00	24.394	17.81	800.7	0.0	1622.2
45.00		1.00	1.07	41.900	46.09	616.26	0.730	0.000	5.00	23.781	17.36	800.1	0.0	1581.1
45.50	Bot - Section 2	1.00	1.07	41.998	46.20	615.36	0.730	0.000	0.50	2.344	1.71	79.1	0.0	155.9
50.00		1.00	1.09	42.840	47.12	606.86	0.730	0.000	4.50	21.157	15.44	727.8	0.0	2790.7
53.25	Top - Section 1	1.00	1.11	43.412	47.75	600.25	0.730	0.000	3.25	14.971	10.93	521.9	0.0	1974.1
55.00		1.00	1.12	43.709	48.08	606.47	0.730	0.000	1.75	7.954	5.81	279.2	0.0	528.7
60.00		1.00	1.14	44.517	48.97	595.47	0.730	0.000	5.00	22.313	16.29	797.6	0.0	1482.7
65.00		1.00	1.16	45.273	49.80	583.79	0.730	0.000	5.00	21.700	15.84	788.9	0.0	1441.6
70.00		1.00	1.17	45.985	50.58	571.50	0.730	0.000	5.00	21.087	15.39	778.7	0.0	1400.6
75.00		1.00	1.19	46.658	51.32	558.69	0.730	0.000	5.00	20.474	14.95	767.1	0.0	1359.5
80.00		1.00	1.21	47.296	52.03	545.41	0.730	0.000	5.00	19.862	14.50	754.3	0.0	1318.5
85.00		1.00	1.22	47.904	52.69	531.70	0.730	0.000	5.00	19.249	14.05	740.4	0.0	1277.4
90.00		1.00	1.24	48.483	53.33	517.60	0.730	0.000	5.00	18.636	13.60	725.5	0.0	1236.3
93.00	Bot - Section 3	1.00	1.25	48.819	53.70	508.97	0.730	0.000	3.00	10.887	7.95	426.8	0.0	722.1
95.00		1.00	1.25	49.039	53.94	503.15	0.730	0.000	2.00	7.263	5.30	286.0	0.0	886.7
99.00	Top - Section 2	1.00	1.26	49.466	54.41	491.36	0.730	0.000	4.00	14.231	10.39	565.3	0.0	1736.7
100.00		1.00	1.27	49.571	54.53	497.44	0.730	0.000	1.00	3.496	2.55	139.2	0.0	199.0
105.00		1.00	1.28	50.083	55.09	482.41	0.730	0.000	5.00	17.115	12.49	688.3	0.0	973.9
108.00	Appurtenance(s)	1.00	1.29	50.381	55.42	473.26	0.730	0.000	3.00	9.975	7.28	403.5	0.0	567.4
110.00		1.00	1.29	50.576	55.63	467.10	0.730	0.000	2.00	6.527	4.76	265.1	0.0	371.2
115.00		1.00	1.30	51.051	56.16	451.54	0.730	0.000	5.00	15.889	11.60	651.4	0.0	903.5
117.50	Appurtenance(s)	1.00	1.31	51.283	56.41	443.66	0.730	0.000	2.50	7.715	5.63	317.7	0.0	438.5
120.00		1.00	1.32	51.511	56.66	435.72	0.730	0.000	2.50	7.561	5.52	312.8	0.0	429.7
125.00		1.00	1.33	51.955	57.15	419.69	0.730	0.000	5.00	14.663	10.70	611.8	0.0	833.1
130.00		1.00	1.34	52.386	57.62	403.43	0.730	0.000	5.00	14.051	10.26	591.0	0.0	797.9
135.00		1.00	1.35	52.804	58.08	386.98	0.730	0.000	5.00	13.438	9.81	569.8	0.0	762.7
140.00		1.00	1.36	53.210	58.53	370.33	0.730	0.000	5.00	12.825	9.36	548.0	0.0	727.5
145.00		1.00	1.37	53.604	58.96	353.51	0.730	0.000	5.00	12.212	8.91	525.7	0.0	692.3
146.50	Top - Section 3	1.00	1.37	53.721	59.09	348.43	0.730	0.000	1.50	3.544	2.59	152.9	0.0	200.8
150.00	Appurtenance(s)	1.00	1.38	53.988	59.39	336.51	0.730	0.000	3.50	8.055	5.88	349.2	0.0	305.6
155.00		1.00	1.39	54.362	59.80	319.35	0.730	0.000	5.00	10.986	8.02	479.6	0.0	416.6
160.00	Appurtenance(s)	1.00	1.40	54.727	60.20	302.03	0.730	0.000	5.00	10.373	7.57	455.9	0.0	393.1
165.00		1.00	1.41	55.082	60.59	284.56	0.730	0.000	5.00	9.761	7.13	431.7	0.0	369.7
170.00		1.00	1.42	55.430	60.97	266.96	0.730	0.000	5.00	9.148	6.68	407.2	0.0	346.2
175.00		1.00	1.42	55.769	61.35	249.21	0.730	0.000	5.00	8.535	6.23	382.2	0.0	322.7
180.00	Appurtenance(s)	1.00	1.43	56.101	61.71	231.34	0.730	0.000	5.00	7.922	5.78	356.9	0.0	299.3
								Totals:	**180.00**			**23,861.3**		**44,370.2**

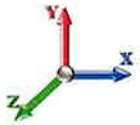
Discrete Appurtenance Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	Ericsson 4449 B5/B12	6	56.101	61.711	0.77	0.90	9.15	511.20	0.000	0.000	564.57	0.00	0.00
2	180.00	KMW EPBQ-654L8H8-L2	6	56.101	61.711	0.73	0.90	52.40	449.28	0.000	0.000	3233.68	0.00	0.00
3	180.00	CCI HPA65R-BU8A	6	56.101	61.711	0.77	0.90	52.43	388.80	0.000	0.000	3235.55	0.00	0.00
4	180.00	Ericsson 4478 B14	3	56.101	61.711	0.73	0.90	4.42	213.84	0.000	0.000	272.62	0.00	0.00
5	180.00	Ericsson 4415 B30	3	56.101	61.711	0.65	0.90	3.58	165.60	0.000	0.000	220.74	0.00	0.00
6	180.00	Ericsson 8843 B2/B66A	6	56.101	61.711	0.90	0.90	8.86	540.00	0.000	0.000	546.51	0.00	0.00
7	180.00	Mount Pipes	12	56.101	61.711	0.90	0.90	15.44	864.00	0.000	0.000	953.06	0.00	0.00
8	180.00	Raycap	2	56.101	61.711	0.71	0.90	6.80	68.88	0.000	0.000	419.46	0.00	0.00
9	180.00	Raycap	1	56.101	61.711	0.71	0.90	3.40	31.44	0.000	0.000	209.73	0.00	0.00
10	180.00	Raycap	1	56.101	61.711	0.63	0.90	1.57	17.40	0.000	0.000	97.19	0.00	0.00
11	180.00	Valmont 12-WLL-30120	3	56.101	61.711	1.00	1.00	39.60	2368.80	0.000	0.000	2443.75	0.00	0.00
12	180.00	Ericsson RRUS-E2	3	56.101	61.711	0.63	0.90	5.95	208.80	0.000	0.000	367.40	0.00	0.00
13	160.00	Fujitsu TA08025-B604	3	54.727	60.199	0.57	0.75	3.35	230.15	0.000	0.000	201.76	0.00	0.00
14	160.00	JMA Wireless	3	54.727	60.199	0.55	0.75	20.51	232.20	0.000	0.000	1234.98	0.00	0.00
15	160.00	Fujitsu TA08025-B605	3	54.727	60.199	0.60	0.75	3.53	269.82	0.000	0.000	212.38	0.00	0.00
16	160.00	Commscope	1	54.727	60.199	1.00	1.00	34.24	2072.40	0.000	0.000	2061.23	0.00	0.00
17	160.00	Raycap	1	54.727	60.199	0.78	1.00	1.57	26.22	0.000	0.000	94.38	0.00	0.00
18	160.00	Mount Pipes	9	54.727	60.199	0.75	0.75	11.21	648.00	0.000	0.000	674.53	0.00	0.00
19	150.00	Handrail [F3P-HRK12]	1	53.988	59.387	0.67	0.67	5.03	486.00	0.000	0.000	298.82	0.00	0.00
20	150.00	Samsung MT6413 77A	3	53.988	59.387	0.52	0.75	5.88	206.35	0.000	0.000	349.43	0.00	0.00
21	150.00	Commscope	6	53.988	59.387	0.62	0.75	30.18	314.64	0.000	0.000	1792.23	0.00	0.00
22	150.00	Mount Pipes	12	53.988	59.387	0.75	0.75	13.23	864.00	0.000	0.000	785.69	0.00	0.00
23	150.00	Low Profile Platform	1	53.988	59.387	0.67	0.67	25.52	2546.40	0.000	0.000	1515.57	0.00	0.00
24	150.00	Raycap	1	53.988	59.387	0.88	1.00	3.57	38.40	0.000	0.000	212.18	0.00	0.00
25	150.00	Samsung	3	53.988	59.387	0.55	0.75	2.25	142.92	0.000	0.000	133.63	0.00	0.00
26	150.00	Samsung B2/B66A	3	53.988	59.387	0.62	0.75	3.51	303.84	0.000	0.000	208.50	0.00	0.00
27	117.50	RFS APXVSPP-18-C-A20	3	51.283	56.411	0.80	0.80	19.25	205.20	0.000	0.000	1085.80	0.00	0.00
28	117.50	RFS ACU-A20-N	4	51.283	56.411	0.63	0.80	0.35	4.80	0.000	0.000	19.97	0.00	0.00
29	117.50	RFS APXVTM14-C-I20	3	51.283	56.411	0.66	0.80	15.98	205.20	0.000	0.000	901.21	0.00	0.00
30	117.50	ALU 1900 MHz	3	51.283	56.411	0.74	0.80	4.70	144.00	0.000	0.000	265.30	0.00	0.00
31	117.50	ALU 800 MHz	3	51.283	56.411	0.55	0.80	6.71	144.00	0.000	0.000	378.34	0.00	0.00
32	117.50	ALU RRU8x20-25	3	51.283	56.411	0.79	0.80	5.65	144.00	0.000	0.000	319.00	0.00	0.00
33	117.50	ALU 800 MHz Filter	3	51.283	56.411	0.55	0.80	1.11	90.00	0.000	0.000	62.59	0.00	0.00
34	117.50	Low Profile Platform	1	51.283	56.411	1.00	1.00	24.04	1974.00	0.000	0.000	1356.12	0.00	0.00
35	117.50	Mount Pipes	9	51.283	56.411	0.80	0.80	11.95	648.00	0.000	0.000	674.23	0.00	0.00
36	108.00	T-Arms w/ Modifications	3	50.381	55.419	1.00	1.00	35.40	929.16	0.000	0.000	1961.82	0.00	0.00
37	108.00	Ericsson Air 21 B4A/B2P	3	50.381	55.419	0.68	0.80	12.32	325.08	0.000	0.000	682.85	0.00	0.00
38	108.00	Ericsson Air21 B2A/B4P	3	50.381	55.419	0.68	0.80	12.32	329.40	0.000	0.000	682.85	0.00	0.00
39	108.00	Ericsson Radio 4449	3	50.381	55.419	0.65	0.80	3.17	266.40	0.000	0.000	175.61	0.00	0.00
40	108.00	RFS	3	50.381	55.419	0.58	0.80	34.97	460.80	0.000	0.000	1938.25	0.00	0.00
41	108.00	Mount Pipes	9	50.381	55.419	0.80	0.80	8.71	648.00	0.000	0.000	482.81	0.00	0.00
							Totals:		**20,727.42**			**33,326.33**		

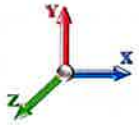
Total Applied Force Summary

Structure:	CT46142-S		**Code:**	TIA-222-H	11/15/2023
Site Name:	South Ledyard- Town Dump		**Exposure:**	C	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		766.83	2096.27	0.00	0.00
10.00		750.45	2055.20	0.00	0.00
15.00		734.06	2014.14	0.00	0.00
20.00		761.49	1973.07	0.00	0.00
25.00		779.89	1932.01	0.00	0.00
30.00		791.48	1890.94	0.00	0.00
35.00		798.03	1849.88	0.00	0.00
40.00		800.67	1808.82	0.00	0.00
45.00		800.15	1767.75	0.00	0.00
45.50		79.06	174.52	0.00	0.00
50.00		727.82	2958.68	0.00	0.00
53.25		521.90	2095.45	0.00	0.00
55.00		279.18	593.98	0.00	0.00
60.00		797.62	1669.36	0.00	0.00
65.00		788.89	1628.30	0.00	0.00
70.00		778.67	1587.24	0.00	0.00
75.00		767.10	1546.17	0.00	0.00
80.00		754.32	1505.11	0.00	0.00
85.00		740.43	1464.04	0.00	0.00
90.00		725.54	1422.98	0.00	0.00
93.00		426.81	834.08	0.00	0.00
95.00		285.99	961.32	0.00	0.00
99.00		565.28	1886.03	0.00	0.00
100.00		139.18	236.33	0.00	0.00
105.00		688.29	1160.51	0.00	0.00
108.00	(24) attachments	6327.72	3638.25	0.00	0.00
110.00		265.08	415.66	0.00	0.00
115.00		651.36	1014.52	0.00	0.00
117.50	(32) attachments	5380.25	4053.26	0.00	0.00
120.00		312.77	473.81	0.00	0.00
125.00		611.76	921.22	0.00	0.00
130.00		591.05	886.03	0.00	0.00
135.00		569.78	850.83	0.00	0.00
140.00		547.97	815.63	0.00	0.00
145.00		525.66	780.43	0.00	0.00
146.50		152.88	227.27	0.00	0.00
150.00	(30) attachments	5645.27	5269.85	0.00	0.00
155.00		479.58	485.45	0.00	0.00
160.00	(20) attachments	4935.14	3940.77	0.00	0.00
165.00		431.72	432.52	0.00	0.00
170.00		407.17	409.05	0.00	0.00
175.00		382.22	385.59	0.00	0.00
180.00	(52) attachments	12921.14	6190.16	0.00	0.00
	Totals:	**57,187.63**	**70,302.45**	**0.00**	**0.00**

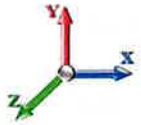
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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	0.015	0.000	33.292	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	33.292	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	33.292	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	35.324	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	35.324	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	37.024	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	37.024	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	38.472	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	38.472	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	39.741	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	39.741	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	40.874	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	40.874	0.00	6.24
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	41.900	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	41.900	0.00	6.24
45.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.018	0.000	41.998	0.00	0.16
45.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.018	0.000	41.998	0.00	0.62
50.00	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.018	0.000	42.840	0.00	1.47
50.00	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.018	0.000	42.840	0.00	5.62
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.019	0.000	43.412	0.00	1.06
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.019	0.000	43.412	0.00	4.06
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.019	0.000	43.709	0.00	0.57
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.019	0.000	43.709	0.00	2.18
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	44.517	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	44.517	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	45.273	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	45.273	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	45.985	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	45.985	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	46.658	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	46.658	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	47.296	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	47.296	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	47.904	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	47.904	0.00	6.24
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	48.483	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	48.483	0.00	6.24
93.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.023	0.000	48.819	0.00	0.98
93.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.023	0.000	48.819	0.00	3.74
95.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.024	0.000	49.039	0.00	0.66
95.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.024	0.000	49.039	0.00	2.50
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.024	0.000	49.466	0.00	1.31
99.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.024	0.000	49.466	0.00	4.99
100.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.024	0.000	49.571	0.00	0.33

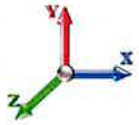
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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	1.00	0.000	0.63	0.05	0.00	0.024	0.000	49.571	0.00	1.25
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	50.083	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	50.083	0.00	6.24
108.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.025	0.000	50.381	0.00	0.98
108.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.025	0.000	50.381	0.00	3.74
110.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.026	0.000	50.576	0.00	0.66
110.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.026	0.000	50.576	0.00	2.50
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	51.051	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	51.051	0.00	6.24
117.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.027	0.000	51.283	0.00	0.82
117.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.027	0.000	51.283	0.00	3.12
120.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.028	0.000	51.511	0.00	0.82
120.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.028	0.000	51.511	0.00	3.12
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	51.955	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	51.955	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	52.386	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	52.386	0.00	6.24
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	52.804	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	52.804	0.00	6.24
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	53.210	0.00	1.64
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	53.210	0.00	6.24
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	53.604	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	53.604	0.00	6.24
146.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.036	0.000	53.721	0.00	0.49
146.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.036	0.000	53.721	0.00	1.87
150.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.037	0.000	53.988	0.00	1.15
150.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.037	0.000	53.988	0.00	4.37
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	54.362	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	54.362	0.00	6.24
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	54.727	0.00	1.64
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	54.727	0.00	6.24
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.043	0.000	55.082	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.043	0.000	55.082	0.00	6.24
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.046	0.000	55.430	0.00	1.64
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.046	0.000	55.430	0.00	6.24
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.049	0.000	55.769	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.049	0.000	55.769	0.00	6.24
180.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.053	0.000	56.101	0.00	1.64
180.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.053	0.000	56.101	0.00	6.24
									Totals:		**0.0**	**283.6**

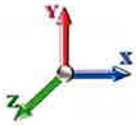
Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 1.2D + 1.0W 127 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-70.21	-57.30	0.00	-7272.2	0.00	7272.22	6005.12	1659.14	9371.99	8424.20	0.00	0.000	0.000	0.876
5.00	-67.93	-56.75	0.00	-6985.7	0.00	6985.71	5934.54	1623.84	8977.45	8146.93	0.10	-0.183	0.000	0.870
10.00	-65.69	-56.21	0.00	-6701.9	0.00	6701.95	5861.47	1588.54	8591.40	7870.57	0.39	-0.371	0.000	0.864
15.00	-63.50	-55.68	0.00	-6420.9	0.00	6420.90	5785.91	1553.24	8213.82	7595.33	0.88	-0.563	0.000	0.858
20.00	-61.34	-55.11	0.00	-6142.5	0.00	6142.53	5707.87	1517.94	7844.74	7321.44	1.58	-0.760	0.000	0.851
25.00	-59.23	-54.51	0.00	-5867.0	0.00	5867.01	5627.34	1482.64	7484.13	7049.12	2.48	-0.961	0.000	0.844
30.00	-57.15	-53.89	0.00	-5594.4	0.00	5594.48	5544.33	1447.34	7132.01	6778.61	3.60	-1.167	0.000	0.837
35.00	-55.12	-53.26	0.00	-5325.0	0.00	5325.04	5458.83	1412.05	6788.38	6510.12	4.94	-1.379	0.000	0.829
40.00	-53.14	-52.61	0.00	-5058.7	0.00	5058.76	5370.85	1376.75	6453.22	6243.87	6.50	-1.595	0.000	0.822
45.00	-51.28	-51.87	0.00	-4795.7	0.00	4795.70	5280.38	1341.45	6126.56	5980.10	8.29	-1.817	0.000	0.813
45.50	-51.01	-51.89	0.00	-4769.7	0.00	4769.77	5271.20	1337.92	6094.36	5953.86	8.48	-1.840	0.000	0.812
50.00	-47.92	-51.21	0.00	-4536.2	0.00	4536.28	5187.42	1306.15	5808.37	5719.01	10.31	-2.045	0.000	0.804
53.25	-45.74	-50.70	0.00	-4369.8	0.00	4369.86	5183.10	1304.53	5793.97	5707.10	11.76	-2.197	0.000	0.776
55.00	-45.02	-50.52	0.00	-4281.1	0.00	4281.13	5149.93	1292.18	5684.75	5616.44	12.58	-2.282	0.000	0.773
60.00	-43.18	-49.83	0.00	-4028.5	0.00	4028.51	5053.51	1256.88	5378.41	5359.50	15.09	-2.508	0.000	0.762
65.00	-41.39	-49.14	0.00	-3779.3	0.00	3779.36	4954.60	1221.58	5080.55	5105.79	17.84	-2.738	0.000	0.750
70.00	-39.65	-48.44	0.00	-3533.6	0.00	3533.69	4853.20	1186.28	4791.18	4855.53	20.84	-2.974	0.000	0.738
75.00	-37.94	-47.76	0.00	-3291.4	0.00	3291.47	4749.32	1150.98	4510.29	4608.95	24.08	-3.214	0.000	0.724
80.00	-36.28	-47.07	0.00	-3052.7	0.00	3052.70	4642.95	1115.68	4237.89	4366.27	27.57	-3.458	0.000	0.709
85.00	-34.67	-46.39	0.00	-2817.3	0.00	2817.34	4534.09	1080.38	3973.97	4127.73	31.33	-3.706	0.000	0.692
90.00	-33.13	-45.69	0.00	-2585.3	0.00	2585.39	4422.75	1045.09	3718.53	3893.53	35.34	-3.957	0.000	0.673
93.00	-32.23	-45.28	0.00	-2448.3	0.00	2448.32	4334.54	1023.91	3569.35	3737.76	37.88	-4.112	0.000	0.664
95.00	-31.17	-45.01	0.00	-2357.7	0.00	2357.76	4274.77	1009.79	3471.58	3634.86	39.62	-4.217	0.000	0.658
99.00	-29.23	-44.37	0.00	-2177.7	0.00	2177.72	3526.84	858.30	2926.12	2978.05	43.24	-4.424	0.000	0.742
100.00	-28.87	-44.30	0.00	-2133.3	0.00	2133.35	3508.98	852.25	2885.00	2941.89	44.17	-4.478	0.000	0.736
105.00	-27.60	-43.63	0.00	-1911.8	0.00	1911.87	3418.17	821.99	2683.80	2763.09	49.01	-4.759	0.000	0.703
108.00	-24.42	-37.08	0.00	-1780.9	0.00	1780.98	3362.49	803.84	2566.56	2657.49	52.05	-4.931	0.000	0.680
110.00	-23.90	-36.86	0.00	-1706.8	0.00	1706.83	3324.88	791.74	2489.86	2587.82	54.14	-5.047	0.000	0.669
115.00	-22.81	-36.20	0.00	-1522.5	0.00	1522.54	3223.60	761.48	2303.20	2412.17	59.57	-5.328	0.000	0.641
117.50	-19.21	-30.51	0.00	-1432.0	0.00	1432.03	3159.56	746.35	2212.60	2316.80	62.40	-5.472	0.000	0.626
120.00	-18.65	-30.23	0.00	-1355.7	0.00	1355.75	3095.51	731.22	2123.81	2223.36	65.30	-5.616	0.000	0.618
125.00	-17.65	-29.61	0.00	-1204.6	0.00	1204.61	2967.43	700.97	1951.69	2042.24	71.32	-5.899	0.000	0.598
130.00	-16.69	-29.02	0.00	-1056.5	0.00	1056.55	2839.35	670.71	1786.85	1868.81	77.64	-6.182	0.000	0.573
135.00	-15.77	-28.43	0.00	-911.48	0.00	911.48	2711.27	640.46	1629.27	1703.08	84.26	-6.463	0.000	0.543
140.00	-14.89	-27.86	0.00	-769.32	0.00	769.32	2583.18	610.20	1478.97	1545.05	91.16	-6.739	0.000	0.506
145.00	-14.10	-27.29	0.00	-630.00	0.00	630.00	2455.10	579.94	1335.94	1394.71	98.35	-7.004	0.000	0.460
146.50	-13.83	-27.14	0.00	-589.06	0.00	589.06	2416.67	570.87	1294.45	1351.10	100.56	-7.085	0.000	0.444
146.50	-13.83	-27.14	0.00	-589.06	0.00	589.06	1569.99	382.32	870.88	885.79	100.56	-7.085	0.000	0.679
150.00	-9.21	-20.93	0.00	-494.06	0.00	494.06	1527.89	368.20	807.74	829.92	105.80	-7.261	0.000	0.605
155.00	-8.68	-20.44	0.00	-389.43	0.00	389.43	1465.64	348.03	721.67	752.08	113.57	-7.600	0.000	0.527
160.00	-5.36	-15.04	0.00	-287.25	0.00	287.25	1387.93	327.86	640.44	670.52	121.68	-7.907	0.000	0.434
165.00	-4.93	-14.58	0.00	-212.04	0.00	212.04	1302.55	307.69	564.06	590.15	130.09	-8.179	0.000	0.365
170.00	-4.54	-14.13	0.00	-139.16	0.00	139.16	1217.16	287.52	492.53	514.91	138.75	-8.410	0.000	0.276
175.00	-4.18	-13.70	0.00	-68.52	0.00	68.52	1131.77	267.35	425.85	444.79	147.63	-8.577	0.000	0.160
180.00	0.00	-12.92	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81	156.63	-8.646	0.000	0.003

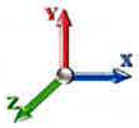
Wind Loading - Shaft

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	33.292	36.62	678.38	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	33.292	36.62	664.04	0.730	0.000	5.00	28.684	20.94	766.8	0.0	1432.2
10.00		1.00	0.85	33.292	36.62	649.70	0.730	0.000	5.00	28.071	20.49	750.4	0.0	1401.4
15.00		1.00	0.85	33.292	36.62	635.36	0.730	0.000	5.00	27.458	20.04	734.1	0.0	1370.6
20.00		1.00	0.90	35.324	38.86	639.69	0.730	0.000	5.00	26.845	19.60	761.5	0.0	1339.8
25.00		1.00	0.95	37.024	40.73	639.77	0.730	0.000	5.00	26.233	19.15	779.9	0.0	1309.0
30.00		1.00	0.98	38.472	42.32	636.75	0.730	0.000	5.00	25.620	18.70	791.5	0.0	1278.2
35.00		1.00	1.01	39.741	43.72	631.50	0.730	0.000	5.00	25.007	18.26	798.0	0.0	1247.4
40.00		1.00	1.04	40.874	44.96	624.55	0.730	0.000	5.00	24.394	17.81	800.7	0.0	1216.6
45.00		1.00	1.07	41.900	46.09	616.26	0.730	0.000	5.00	23.781	17.36	800.1	0.0	1185.8
45.50	Bot - Section 2	1.00	1.07	41.998	46.20	615.36	0.730	0.000	0.50	2.344	1.71	79.1	0.0	116.9
50.00		1.00	1.09	42.840	47.12	606.86	0.730	0.000	4.50	21.157	15.44	727.8	0.0	2093.0
53.25	Top - Section 1	1.00	1.11	43.412	47.75	600.25	0.730	0.000	3.25	14.971	10.93	521.9	0.0	1480.6
55.00		1.00	1.12	43.709	48.08	606.47	0.730	0.000	1.75	7.954	5.81	279.2	0.0	396.5
60.00		1.00	1.14	44.517	48.97	595.47	0.730	0.000	5.00	22.313	16.29	797.6	0.0	1112.0
65.00		1.00	1.16	45.273	49.80	583.79	0.730	0.000	5.00	21.700	15.84	788.9	0.0	1081.2
70.00		1.00	1.17	45.985	50.58	571.50	0.730	0.000	5.00	21.087	15.39	778.7	0.0	1050.4
75.00		1.00	1.19	46.658	51.32	558.69	0.730	0.000	5.00	20.474	14.95	767.1	0.0	1019.6
80.00		1.00	1.21	47.296	52.03	545.41	0.730	0.000	5.00	19.862	14.50	754.3	0.0	988.8
85.00		1.00	1.22	47.904	52.69	531.70	0.730	0.000	5.00	19.249	14.05	740.4	0.0	958.0
90.00		1.00	1.24	48.483	53.33	517.60	0.730	0.000	5.00	18.636	13.60	725.5	0.0	927.2
93.00	Bot - Section 3	1.00	1.25	48.819	53.70	508.97	0.730	0.000	3.00	10.887	7.95	426.8	0.0	541.6
95.00		1.00	1.25	49.039	53.94	503.15	0.730	0.000	2.00	7.263	5.30	286.0	0.0	665.0
99.00	Top - Section 2	1.00	1.26	49.466	54.41	491.36	0.730	0.000	4.00	14.231	10.39	565.3	0.0	1302.5
100.00		1.00	1.27	49.571	54.53	497.44	0.730	0.000	1.00	3.496	2.55	139.2	0.0	149.2
105.00		1.00	1.28	50.083	55.09	482.41	0.730	0.000	5.00	17.115	12.49	688.3	0.0	730.4
108.00	Appurtenance(s)	1.00	1.29	50.381	55.42	473.26	0.730	0.000	3.00	9.975	7.28	403.5	0.0	425.6
110.00		1.00	1.29	50.576	55.63	467.10	0.730	0.000	2.00	6.527	4.76	265.1	0.0	278.4
115.00		1.00	1.30	51.051	56.16	451.54	0.730	0.000	5.00	15.889	11.60	651.4	0.0	677.6
117.50	Appurtenance(s)	1.00	1.31	51.283	56.41	443.66	0.730	0.000	2.50	7.715	5.63	317.7	0.0	328.9
120.00		1.00	1.32	51.511	56.66	435.72	0.730	0.000	2.50	7.561	5.52	312.8	0.0	322.3
125.00		1.00	1.33	51.955	57.15	419.69	0.730	0.000	5.00	14.663	10.70	611.8	0.0	624.8
130.00		1.00	1.34	52.386	57.62	403.43	0.730	0.000	5.00	14.051	10.26	591.0	0.0	598.4
135.00		1.00	1.35	52.804	58.08	386.98	0.730	0.000	5.00	13.438	9.81	569.8	0.0	572.0
140.00		1.00	1.36	53.210	58.53	370.33	0.730	0.000	5.00	12.825	9.36	548.0	0.0	545.6
145.00		1.00	1.37	53.604	58.96	353.51	0.730	0.000	5.00	12.212	8.91	525.7	0.0	519.2
146.50	Top - Section 3	1.00	1.37	53.721	59.09	348.43	0.730	0.000	1.50	3.544	2.59	152.9	0.0	150.6
150.00	Appurtenance(s)	1.00	1.38	53.988	59.39	336.51	0.730	0.000	3.50	8.055	5.88	349.2	0.0	229.2
155.00		1.00	1.39	54.362	59.80	319.35	0.730	0.000	5.00	10.986	8.02	479.6	0.0	312.5
160.00	Appurtenance(s)	1.00	1.40	54.727	60.20	302.03	0.730	0.000	5.00	10.373	7.57	455.9	0.0	294.9
165.00		1.00	1.41	55.082	60.59	284.56	0.730	0.000	5.00	9.761	7.13	431.7	0.0	277.3
170.00		1.00	1.42	55.430	60.97	266.96	0.730	0.000	5.00	9.148	6.68	407.2	0.0	259.7
175.00		1.00	1.42	55.769	61.35	249.21	0.730	0.000	5.00	8.535	6.23	382.2	0.0	242.1
180.00	Appurtenance(s)	1.00	1.43	56.101	61.71	231.34	0.730	0.000	5.00	7.922	5.78	356.9	0.0	224.5
								Totals:	**180.00**			**23,861.3**		**33,277.7**

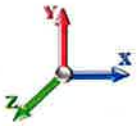
Discrete Appurtenance Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	Ericsson 4449 B5/B12	6	56.101	61.711	0.77	0.90	9.15	383.40	0.000	0.000	564.57	0.00	0.00
2	180.00	KMW EPBQ-654L8H8-L2	6	56.101	61.711	0.73	0.90	52.40	336.96	0.000	0.000	3233.68	0.00	0.00
3	180.00	CCI HPA65R-BU8A	6	56.101	61.711	0.77	0.90	52.43	291.60	0.000	0.000	3235.55	0.00	0.00
4	180.00	Ericsson 4478 B14	3	56.101	61.711	0.73	0.90	4.42	160.38	0.000	0.000	272.62	0.00	0.00
5	180.00	Ericsson 4415 B30	3	56.101	61.711	0.65	0.90	3.58	124.20	0.000	0.000	220.74	0.00	0.00
6	180.00	Ericsson 8843 B2/B66A	6	56.101	61.711	0.90	0.90	8.86	405.00	0.000	0.000	546.51	0.00	0.00
7	180.00	Mount Pipes	12	56.101	61.711	0.90	0.90	15.44	648.00	0.000	0.000	953.06	0.00	0.00
8	180.00	Raycap	2	56.101	61.711	0.71	0.90	6.80	51.66	0.000	0.000	419.46	0.00	0.00
9	180.00	Raycap	1	56.101	61.711	0.71	0.90	3.40	23.58	0.000	0.000	209.73	0.00	0.00
10	180.00	Raycap	1	56.101	61.711	0.63	0.90	1.57	13.05	0.000	0.000	97.19	0.00	0.00
11	180.00	Valmont 12-WLL-30120	3	56.101	61.711	1.00	1.00	39.60	1776.60	0.000	0.000	2443.75	0.00	0.00
12	180.00	Ericsson RRUS-E2	3	56.101	61.711	0.63	0.90	5.95	156.60	0.000	0.000	367.40	0.00	0.00
13	160.00	Fujitsu TA08025-B604	3	54.727	60.199	0.57	0.75	3.35	172.61	0.000	0.000	201.76	0.00	0.00
14	160.00	JMA Wireless	3	54.727	60.199	0.55	0.75	20.51	174.15	0.000	0.000	1234.98	0.00	0.00
15	160.00	Fujitsu TA08025-B605	3	54.727	60.199	0.60	0.75	3.53	202.37	0.000	0.000	212.38	0.00	0.00
16	160.00	Commscope	1	54.727	60.199	1.00	1.00	34.24	1554.30	0.000	0.000	2061.23	0.00	0.00
17	160.00	Raycap	1	54.727	60.199	0.78	1.00	1.57	19.67	0.000	0.000	94.38	0.00	0.00
18	160.00	Mount Pipes	9	54.727	60.199	0.75	0.75	11.21	486.00	0.000	0.000	674.53	0.00	0.00
19	150.00	Handrail [F3P-HRK12]	1	53.988	59.387	0.67	0.67	5.03	364.50	0.000	0.000	298.82	0.00	0.00
20	150.00	Samsung MT6413 77A	3	53.988	59.387	0.52	0.75	5.88	154.76	0.000	0.000	349.43	0.00	0.00
21	150.00	Commscope	6	53.988	59.387	0.62	0.75	30.18	235.98	0.000	0.000	1792.23	0.00	0.00
22	150.00	Mount Pipes	12	53.988	59.387	0.75	0.75	13.23	648.00	0.000	0.000	785.69	0.00	0.00
23	150.00	Low Profile Platform	1	53.988	59.387	0.67	0.67	25.52	1909.80	0.000	0.000	1515.57	0.00	0.00
24	150.00	Raycap	1	53.988	59.387	0.88	1.00	3.57	28.80	0.000	0.000	212.18	0.00	0.00
25	150.00	Samsung	3	53.988	59.387	0.55	0.75	2.25	107.19	0.000	0.000	133.63	0.00	0.00
26	150.00	Samsung B2/B66A	3	53.988	59.387	0.62	0.75	3.51	227.88	0.000	0.000	208.50	0.00	0.00
27	117.50	RFS APXVSPP-18-C-A20	3	51.283	56.411	0.80	0.80	19.25	153.90	0.000	0.000	1085.80	0.00	0.00
28	117.50	RFS ACU-A20-N	4	51.283	56.411	0.63	0.80	0.35	3.60	0.000	0.000	19.97	0.00	0.00
29	117.50	RFS APXVTM14-C-I20	3	51.283	56.411	0.66	0.80	15.98	153.90	0.000	0.000	901.21	0.00	0.00
30	117.50	ALU 1900 MHz	3	51.283	56.411	0.74	0.80	4.70	108.00	0.000	0.000	265.30	0.00	0.00
31	117.50	ALU 800 MHz	3	51.283	56.411	0.55	0.80	6.71	108.00	0.000	0.000	378.34	0.00	0.00
32	117.50	ALU RRU8x20-25	3	51.283	56.411	0.79	0.80	5.65	108.00	0.000	0.000	319.00	0.00	0.00
33	117.50	ALU 800 MHz Filter	3	51.283	56.411	0.55	0.80	1.11	67.50	0.000	0.000	62.59	0.00	0.00
34	117.50	Low Profile Platform	1	51.283	56.411	1.00	1.00	24.04	1480.50	0.000	0.000	1356.12	0.00	0.00
35	117.50	Mount Pipes	9	51.283	56.411	0.80	0.80	11.95	486.00	0.000	0.000	674.23	0.00	0.00
36	108.00	T-Arms w/ Modifications	3	50.381	55.419	1.00	1.00	35.40	696.87	0.000	0.000	1961.82	0.00	0.00
37	108.00	Ericsson Air 21 B4A/B2P	3	50.381	55.419	0.68	0.80	12.32	243.81	0.000	0.000	682.85	0.00	0.00
38	108.00	Ericsson Air21 B2A/B4P	3	50.381	55.419	0.68	0.80	12.32	247.05	0.000	0.000	682.85	0.00	0.00
39	108.00	Ericsson Radio 4449	3	50.381	55.419	0.65	0.80	3.17	199.80	0.000	0.000	175.61	0.00	0.00
40	108.00	RFS	3	50.381	55.419	0.58	0.80	34.97	345.60	0.000	0.000	1938.25	0.00	0.00
41	108.00	Mount Pipes	9	50.381	55.419	0.80	0.80	8.71	486.00	0.000	0.000	482.81	0.00	0.00
							Totals:		**15,545.56**			**33,326.33**		

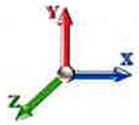
Total Applied Force Summary

Structure:	CT46142-S		**Code:**	TIA-222-H	11/15/2023
Site Name:	South Ledyard- Town Dump		**Exposure:**	C	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		766.83	1572.20	0.00	0.00
10.00		750.45	1541.40	0.00	0.00
15.00		734.06	1510.60	0.00	0.00
20.00		761.49	1479.80	0.00	0.00
25.00		779.89	1449.01	0.00	0.00
30.00		791.48	1418.21	0.00	0.00
35.00		798.03	1387.41	0.00	0.00
40.00		800.67	1356.61	0.00	0.00
45.00		800.15	1325.81	0.00	0.00
45.50		79.06	130.89	0.00	0.00
50.00		727.82	2219.01	0.00	0.00
53.25		521.90	1571.59	0.00	0.00
55.00		279.18	445.48	0.00	0.00
60.00		797.62	1252.02	0.00	0.00
65.00		788.89	1221.23	0.00	0.00
70.00		778.67	1190.43	0.00	0.00
75.00		767.10	1159.63	0.00	0.00
80.00		754.32	1128.83	0.00	0.00
85.00		740.43	1098.03	0.00	0.00
90.00		725.54	1067.23	0.00	0.00
93.00		426.81	625.56	0.00	0.00
95.00		285.99	720.99	0.00	0.00
99.00		565.28	1414.52	0.00	0.00
100.00		139.18	177.24	0.00	0.00
105.00		688.29	870.38	0.00	0.00
108.00	(24) attachments	6327.72	2728.69	0.00	0.00
110.00		265.08	311.75	0.00	0.00
115.00		651.36	760.89	0.00	0.00
117.50	(32) attachments	5380.25	3039.94	0.00	0.00
120.00		312.77	355.36	0.00	0.00
125.00		611.76	690.92	0.00	0.00
130.00		591.05	664.52	0.00	0.00
135.00		569.78	638.12	0.00	0.00
140.00		547.97	611.72	0.00	0.00
145.00		525.66	585.32	0.00	0.00
146.50		152.88	170.45	0.00	0.00
150.00	(30) attachments	5645.27	3952.39	0.00	0.00
155.00		479.58	364.09	0.00	0.00
160.00	(20) attachments	4935.14	2955.58	0.00	0.00
165.00		431.72	324.39	0.00	0.00
170.00		407.17	306.79	0.00	0.00
175.00		382.22	289.19	0.00	0.00
180.00	(52) attachments	12921.14	4642.62	0.00	0.00
	Totals:	**57,187.63**	**52,726.83**	**0.00**	**0.00**

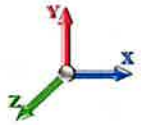
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

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	0.015	0.000	33.292	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	33.292	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	33.292	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	33.292	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	35.324	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	35.324	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	37.024	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	37.024	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	38.472	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	38.472	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	39.741	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	39.741	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	40.874	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	40.874	0.00	4.68
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	41.900	0.00	1.23
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	41.900	0.00	4.68
45.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.018	0.000	41.998	0.00	0.12
45.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.018	0.000	41.998	0.00	0.47
50.00	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.018	0.000	42.840	0.00	1.11
50.00	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.018	0.000	42.840	0.00	4.21
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.019	0.000	43.412	0.00	0.80
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.019	0.000	43.412	0.00	3.04
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.019	0.000	43.709	0.00	0.43
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.019	0.000	43.709	0.00	1.64
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	44.517	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	44.517	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	45.273	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	45.273	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	45.985	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	45.985	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	46.658	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	46.658	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	47.296	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	47.296	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	47.904	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	47.904	0.00	4.68
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	48.483	0.00	1.23
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	48.483	0.00	4.68
93.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.023	0.000	48.819	0.00	0.74
93.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.023	0.000	48.819	0.00	2.81
95.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.024	0.000	49.039	0.00	0.49
95.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.024	0.000	49.039	0.00	1.87
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.024	0.000	49.466	0.00	0.98
99.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.024	0.000	49.466	0.00	3.74
100.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.024	0.000	49.571	0.00	0.25

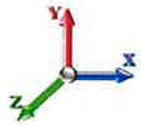
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

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	1.00	0.000	0.63	0.05	0.00	0.024	0.000	49.571	0.00	0.94
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	50.083	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	50.083	0.00	4.68
108.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.025	0.000	50.381	0.00	0.74
108.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.025	0.000	50.381	0.00	2.81
110.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.026	0.000	50.576	0.00	0.49
110.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.026	0.000	50.576	0.00	1.87
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	51.051	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	51.051	0.00	4.68
117.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.027	0.000	51.283	0.00	0.61
117.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.027	0.000	51.283	0.00	2.34
120.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.028	0.000	51.511	0.00	0.61
120.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.028	0.000	51.511	0.00	2.34
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	51.955	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	51.955	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	52.386	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	52.386	0.00	4.68
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	52.804	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	52.804	0.00	4.68
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	53.210	0.00	1.23
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	53.210	0.00	4.68
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	53.604	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	53.604	0.00	4.68
146.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.036	0.000	53.721	0.00	0.37
146.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.036	0.000	53.721	0.00	1.40
150.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.037	0.000	53.988	0.00	0.86
150.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.037	0.000	53.988	0.00	3.28
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	54.362	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	54.362	0.00	4.68
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	54.727	0.00	1.23
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	54.727	0.00	4.68
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.043	0.000	55.082	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.043	0.000	55.082	0.00	4.68
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.046	0.000	55.430	0.00	1.23
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.046	0.000	55.430	0.00	4.68
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.049	0.000	55.769	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.049	0.000	55.769	0.00	4.68
180.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.053	0.000	56.101	0.00	1.23
180.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.053	0.000	56.101	0.00	4.68
									Totals:		**0.0**	**212.7**

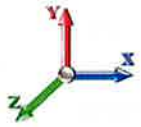
Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case: 0.9D + 1.0W 127 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.63	-57.27	0.00	-7190.8	0.00	7190.83	6005.12	1659.14	9371.99	8424.20	0.00	0.000	0.000	0.864
5.00	-50.88	-56.67	0.00	-6904.4	0.00	6904.47	5934.54	1623.84	8977.45	8146.93	0.10	-0.181	0.000	0.857
10.00	-49.16	-56.07	0.00	-6621.1	0.00	6621.14	5861.47	1588.54	8591.40	7870.57	0.39	-0.366	0.000	0.851
15.00	-47.47	-55.48	0.00	-6340.7	0.00	6340.79	5785.91	1553.24	8213.82	7595.33	0.87	-0.556	0.000	0.844
20.00	-45.81	-54.86	0.00	-6063.3	0.00	6063.38	5707.87	1517.94	7844.74	7321.44	1.56	-0.750	0.000	0.837
25.00	-44.18	-54.22	0.00	-5789.0	0.00	5789.07	5627.34	1482.64	7484.13	7049.12	2.45	-0.949	0.000	0.830
30.00	-42.59	-53.55	0.00	-5517.9	0.00	5517.99	5544.33	1447.34	7132.01	6778.61	3.56	-1.153	0.000	0.823
35.00	-41.02	-52.88	0.00	-5250.2	0.00	5250.23	5458.83	1412.05	6788.38	6510.12	4.88	-1.361	0.000	0.815
40.00	-39.49	-52.19	0.00	-4985.8	0.00	4985.86	5370.85	1376.75	6453.22	6243.87	6.42	-1.574	0.000	0.807
45.00	-38.08	-51.43	0.00	-4724.9	0.00	4724.91	5280.38	1341.45	6126.56	5980.10	8.19	-1.793	0.000	0.799
45.50	-37.85	-51.42	0.00	-4699.2	0.00	4699.20	5271.20	1337.92	6094.36	5953.86	8.37	-1.816	0.000	0.798
50.00	-35.50	-50.73	0.00	-4467.8	0.00	4467.80	5187.42	1306.15	5808.37	5719.01	10.18	-2.018	0.000	0.790
53.25	-33.85	-50.22	0.00	-4302.9	0.00	4302.93	5183.10	1304.53	5793.97	5707.10	11.61	-2.168	0.000	0.762
55.00	-33.28	-50.01	0.00	-4215.0	0.00	4215.05	5149.93	1292.18	5684.75	5616.44	12.42	-2.251	0.000	0.758
60.00	-31.87	-49.29	0.00	-3964.9	0.00	3964.99	5053.51	1256.88	5378.41	5359.50	14.90	-2.473	0.000	0.748
65.00	-30.49	-48.57	0.00	-3718.5	0.00	3718.54	4954.60	1221.58	5080.55	5105.79	17.61	-2.700	0.000	0.736
70.00	-29.15	-47.85	0.00	-3475.7	0.00	3475.70	4853.20	1186.28	4791.18	4855.53	20.56	-2.932	0.000	0.723
75.00	-27.83	-47.14	0.00	-3236.4	0.00	3236.44	4749.32	1150.98	4510.29	4608.95	23.76	-3.168	0.000	0.710
80.00	-26.55	-46.43	0.00	-3000.7	0.00	3000.75	4642.95	1115.68	4237.89	4366.27	27.20	-3.408	0.000	0.695
85.00	-25.31	-45.74	0.00	-2768.5	0.00	2768.58	4534.09	1080.38	3973.97	4127.73	30.90	-3.651	0.000	0.678
90.00	-24.14	-45.03	0.00	-2539.8	0.00	2539.89	4422.75	1045.09	3718.53	3893.53	34.86	-3.898	0.000	0.660
93.00	-23.44	-44.61	0.00	-2404.8	0.00	2404.81	4334.54	1023.91	3569.35	3737.76	37.36	-4.051	0.000	0.651
95.00	-22.62	-44.33	0.00	-2315.6	0.00	2315.60	4274.77	1009.79	3471.58	3634.86	39.07	-4.154	0.000	0.644
99.00	-21.16	-43.71	0.00	-2138.2	0.00	2138.26	3526.84	858.30	2926.12	2978.05	42.64	-4.357	0.000	0.727
100.00	-20.87	-43.62	0.00	-2094.5	0.00	2094.55	3508.98	852.25	2885.00	2941.89	43.56	-4.410	0.000	0.721
105.00	-19.89	-42.94	0.00	-1876.4	0.00	1876.45	3418.17	821.99	2683.80	2763.09	48.32	-4.686	0.000	0.688
108.00	-17.61	-36.45	0.00	-1747.6	0.00	1747.62	3362.49	803.84	2566.56	2657.49	51.32	-4.855	0.000	0.665
110.00	-17.19	-36.22	0.00	-1674.7	0.00	1674.72	3324.88	791.74	2489.86	2587.82	53.37	-4.969	0.000	0.654
115.00	-16.37	-35.56	0.00	-1493.6	0.00	1493.61	3223.60	761.48	2303.20	2412.17	58.72	-5.244	0.000	0.626
117.50	-13.76	-29.96	0.00	-1404.7	0.00	1404.70	3159.56	746.35	2212.60	2316.80	61.50	-5.385	0.000	0.612
120.00	-13.33	-29.66	0.00	-1329.8	0.00	1329.80	3095.51	731.22	2123.81	2223.36	64.36	-5.527	0.000	0.604
125.00	-12.56	-29.05	0.00	-1181.4	0.00	1181.49	2967.43	700.97	1951.69	2042.24	70.28	-5.804	0.000	0.584
130.00	-11.83	-28.45	0.00	-1036.2	0.00	1036.25	2839.35	670.71	1786.85	1868.81	76.50	-6.082	0.000	0.560
135.00	-11.12	-27.87	0.00	-894.01	0.00	894.01	2711.27	640.46	1629.27	1703.08	83.01	-6.357	0.000	0.531
140.00	-10.45	-27.30	0.00	-754.68	0.00	754.68	2583.18	610.20	1478.97	1545.05	89.80	-6.628	0.000	0.494
145.00	-9.85	-26.74	0.00	-618.17	0.00	618.17	2455.10	579.94	1335.94	1394.71	96.87	-6.888	0.000	0.449
146.50	-9.64	-26.59	0.00	-578.06	0.00	578.06	2416.67	570.87	1294.45	1351.10	99.04	-6.968	0.000	0.434
146.50	-9.64	-26.59	0.00	-578.06	0.00	578.06	1569.99	382.32	870.88	885.79	99.04	-6.968	0.000	0.664
150.00	-6.32	-20.53	0.00	-485.01	0.00	485.01	1527.89	368.20	807.74	829.92	104.20	-7.140	0.000	0.592
155.00	-5.91	-20.04	0.00	-382.36	0.00	382.36	1465.64	348.03	721.67	752.08	111.84	-7.473	0.000	0.516
160.00	-3.56	-14.77	0.00	-282.16	0.00	282.16	1387.93	327.86	640.44	670.52	119.82	-7.775	0.000	0.425
165.00	-3.24	-14.32	0.00	-208.30	0.00	208.30	1302.55	307.69	564.06	590.15	128.08	-8.042	0.000	0.358
170.00	-2.94	-13.88	0.00	-136.72	0.00	136.72	1217.16	287.52	492.53	514.91	136.60	-8.269	0.000	0.270
175.00	-2.69	-13.46	0.00	-67.32	0.00	67.32	1131.77	267.35	425.85	444.79	145.33	-8.433	0.000	0.156
180.00	0.00	-12.92	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81	154.18	-8.501	0.000	0.003

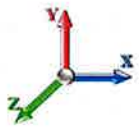
Wind Loading - Shaft

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.160	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.160	5.68	0.00	1.200	0.828	5.00	29.374	35.25	200.1	352.3	2261.9
10.00		1.00	0.85	5.160	5.68	0.00	1.200	0.887	5.00	28.811	34.57	196.2	369.8	2238.4
15.00		1.00	0.85	5.160	5.68	0.00	1.200	0.924	5.00	28.228	33.87	192.3	376.9	2204.4
20.00		1.00	0.90	5.475	6.02	0.00	1.200	0.951	5.00	27.638	33.17	199.8	379.5	2165.9
25.00		1.00	0.95	5.739	6.31	0.00	1.200	0.973	5.00	27.043	32.45	204.9	379.3	2124.7
30.00		1.00	0.98	5.963	6.56	0.00	1.200	0.991	5.00	26.445	31.73	208.2	377.4	2081.7
35.00		1.00	1.01	6.160	6.78	0.00	1.200	1.006	5.00	25.845	31.01	210.1	374.3	2037.5
40.00		1.00	1.04	6.336	6.97	0.00	1.200	1.019	5.00	25.244	30.29	211.1	370.1	1992.3
45.00		1.00	1.07	6.495	7.14	0.00	1.200	1.032	5.00	24.641	29.57	211.2	365.2	1946.3
45.50	Bot - Section 2	1.00	1.07	6.510	7.16	0.00	1.200	1.033	0.50	2.430	2.92	20.9	36.5	192.3
50.00		1.00	1.09	6.640	7.30	0.00	1.200	1.042	4.50	21.939	26.33	192.3	328.9	3119.6
53.25	Top - Section 1	1.00	1.11	6.729	7.40	0.00	1.200	1.049	3.25	15.540	18.65	138.0	235.0	2209.1
55.00		1.00	1.12	6.775	7.45	0.00	1.200	1.052	1.75	8.261	9.91	73.9	125.8	654.4
60.00		1.00	1.14	6.900	7.59	0.00	1.200	1.062	5.00	23.198	27.84	211.3	353.0	1835.7
65.00		1.00	1.16	7.017	7.72	0.00	1.200	1.070	5.00	22.592	27.11	209.3	346.2	1787.8
70.00		1.00	1.17	7.128	7.84	0.00	1.200	1.078	5.00	21.986	26.38	206.9	339.0	1739.6
75.00		1.00	1.19	7.232	7.96	0.00	1.200	1.086	5.00	21.379	25.65	204.1	331.5	1691.1
80.00		1.00	1.21	7.331	8.06	0.00	1.200	1.093	5.00	20.772	24.93	201.0	323.8	1642.3
85.00		1.00	1.22	7.425	8.17	0.00	1.200	1.099	5.00	20.165	24.20	197.6	315.9	1593.3
90.00		1.00	1.24	7.515	8.27	0.00	1.200	1.106	5.00	19.557	23.47	194.0	307.7	1544.0
93.00	Bot - Section 3	1.00	1.25	7.567	8.32	0.00	1.200	1.109	3.00	11.442	13.73	114.3	181.6	903.7
95.00		1.00	1.25	7.601	8.36	0.00	1.200	1.112	2.00	7.633	9.16	76.6	121.8	1008.5
99.00	Top - Section 2	1.00	1.26	7.667	8.43	0.00	1.200	1.116	4.00	14.975	17.97	151.6	238.2	1974.9
100.00		1.00	1.27	7.684	8.45	0.00	1.200	1.117	1.00	3.683	4.42	37.4	59.2	258.2
105.00		1.00	1.28	7.763	8.54	0.00	1.200	1.123	5.00	18.050	21.66	185.0	287.3	1261.1
108.00	Appurtenance(s)	1.00	1.29	7.809	8.59	0.00	1.200	1.126	3.00	10.538	12.65	108.6	169.2	736.6
110.00		1.00	1.29	7.839	8.62	0.00	1.200	1.128	2.00	6.903	8.28	71.4	111.4	482.6
115.00		1.00	1.30	7.913	8.70	0.00	1.200	1.133	5.00	16.833	20.20	175.8	269.4	1172.9
117.50	Appurtenance(s)	1.00	1.31	7.949	8.74	0.00	1.200	1.135	2.50	8.188	9.83	85.9	132.4	571.0
120.00		1.00	1.32	7.984	8.78	0.00	1.200	1.138	2.50	8.036	9.64	84.7	130.1	559.9
125.00		1.00	1.33	8.053	8.86	0.00	1.200	1.142	5.00	15.615	18.74	166.0	251.0	1084.1
130.00		1.00	1.34	8.120	8.93	0.00	1.200	1.147	5.00	15.006	18.01	160.8	241.6	1039.5
135.00		1.00	1.35	8.185	9.00	0.00	1.200	1.151	5.00	14.397	17.28	155.5	232.1	994.8
140.00		1.00	1.36	8.248	9.07	0.00	1.200	1.155	5.00	13.788	16.55	150.1	222.5	950.0
145.00		1.00	1.37	8.309	9.14	0.00	1.200	1.160	5.00	13.178	15.81	144.5	212.8	905.0
146.50	Top - Section 3	1.00	1.37	8.327	9.16	0.00	1.200	1.161	1.50	3.834	4.60	42.1	63.0	263.8
150.00	Appurtenance(s)	1.00	1.38	8.368	9.21	0.00	1.200	1.163	3.50	8.734	10.48	96.5	142.1	447.7
155.00		1.00	1.39	8.426	9.27	0.00	1.200	1.167	5.00	11.959	14.35	133.0	193.1	609.7
160.00	Appurtenance(s)	1.00	1.40	8.483	9.33	0.00	1.200	1.171	5.00	11.349	13.62	127.1	183.1	576.2
165.00		1.00	1.41	8.538	9.39	0.00	1.200	1.175	5.00	10.739	12.89	121.0	173.0	542.7
170.00		1.00	1.42	8.592	9.45	0.00	1.200	1.178	5.00	10.130	12.16	114.9	162.8	509.1
175.00		1.00	1.42	8.644	9.51	0.00	1.200	1.182	5.00	9.520	11.42	108.6	152.6	475.4
180.00	Appurtenance(s)	1.00	1.43	8.696	9.57	0.00	1.200	1.185	5.00	8.910	10.69	102.3	142.3	441.6
								Totals:	**180.00**			**6,396.9**		**54,830.8**

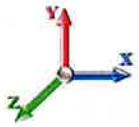
Discrete Appurtenance Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	Ericsson 4449 B5/B12	6	8.696	9.565	0.78	0.90	11.05	1160.30	0.000	0.000	105.69	0.00	0.00
2	180.00	KMW EPBQ-654L8H8-L2	6	8.696	9.565	0.74	0.90	58.20	612.87	0.000	0.000	556.71	0.00	0.00
3	180.00	CCI HPA65R-BU8A	6	8.696	9.565	0.78	0.90	58.34	552.19	0.000	0.000	558.08	0.00	0.00
4	180.00	Ericsson 4478 B14	3	8.696	9.565	0.74	0.90	5.33	230.92	0.000	0.000	50.95	0.00	0.00
5	180.00	Ericsson 4415 B30	3	8.696	9.565	0.67	0.90	4.41	180.16	0.000	0.000	42.18	0.00	0.00
6	180.00	Ericsson 8843 B2/B66A	6	8.696	9.565	0.90	0.90	10.73	570.82	0.000	0.000	102.62	0.00	0.00
7	180.00	Mount Pipes	12	8.696	9.565	0.90	0.90	24.59	1118.24	0.000	0.000	235.24	0.00	0.00
8	180.00	Raycap	2	8.696	9.565	0.72	0.90	7.74	292.58	0.000	0.000	74.05	0.00	0.00
9	180.00	Raycap	1	8.696	9.565	0.72	0.90	3.87	140.80	0.000	0.000	37.02	0.00	0.00
10	180.00	Raycap	1	8.696	9.565	0.65	0.90	1.89	23.83	0.000	0.000	18.12	0.00	0.00
11	180.00	Valmont 12-WLL-30120	3	8.696	9.565	1.00	1.00	63.06	3614.85	0.000	0.000	603.19	0.00	0.00
12	180.00	Ericsson RRUS-E2	3	8.696	9.565	0.65	0.90	7.04	232.97	0.000	0.000	67.35	0.00	0.00
13	160.00	Fujitsu TA08025-B604	3	8.483	9.331	0.58	0.75	4.09	244.90	0.000	0.000	38.19	0.00	0.00
14	160.00	JMA Wireless	3	8.483	9.331	0.56	0.75	22.73	316.94	0.000	0.000	212.05	0.00	0.00
15	160.00	Fujitsu TA08025-B605	3	8.483	9.331	0.61	0.75	4.30	285.06	0.000	0.000	40.14	0.00	0.00
16	160.00	Commscope	1	8.483	9.331	1.00	1.00	54.29	5255.48	0.000	0.000	506.55	0.00	0.00
17	160.00	Raycap	1	8.483	9.331	0.80	1.00	1.91	31.32	0.000	0.000	17.82	0.00	0.00
18	160.00	Mount Pipes	9	8.483	9.331	0.75	0.75	17.77	833.29	0.000	0.000	165.77	0.00	0.00
19	150.00	Handrail [F3P-HRK12]	1	8.368	9.205	0.67	0.67	7.96	733.27	0.000	0.000	73.26	0.00	0.00
20	150.00	Samsung MT6413 77A	3	8.368	9.205	0.61	0.75	7.87	231.90	0.000	0.000	72.43	0.00	0.00
21	150.00	Commscope	6	8.368	9.205	0.63	0.75	33.70	1337.06	0.000	0.000	310.19	0.00	0.00
22	150.00	Mount Pipes	12	8.368	9.205	0.75	0.75	20.93	1107.15	0.000	0.000	192.63	0.00	0.00
23	150.00	Low Profile Platform	1	8.368	9.205	0.67	0.67	40.37	6446.01	0.000	0.000	371.57	0.00	0.00
24	150.00	Raycap	1	8.368	9.205	0.89	1.00	4.10	146.44	0.000	0.000	37.72	0.00	0.00
25	150.00	Samsung	3	8.368	9.205	0.56	0.75	2.84	37.00	0.000	0.000	26.15	0.00	0.00
26	150.00	Samsung B2/B66A	3	8.368	9.205	0.64	0.75	4.29	318.12	0.000	0.000	39.49	0.00	0.00
27	117.50	RFS APXVSPP-18-C-A20	3	7.949	8.744	0.80	0.80	21.20	249.07	0.000	0.000	185.34	0.00	0.00
28	117.50	RFS ACU-A20-N	4	7.949	8.744	0.63	0.80	0.55	12.07	0.000	0.000	4.85	0.00	0.00
29	117.50	RFS APXVTM14-C-I20	3	7.949	8.744	0.67	0.80	17.81	743.77	0.000	0.000	155.69	0.00	0.00
30	117.50	ALU 1900 MHz	3	7.949	8.744	0.74	0.80	5.55	266.30	0.000	0.000	48.50	0.00	0.00
31	117.50	ALU 800 MHz	3	7.949	8.744	0.56	0.80	7.67	166.40	0.000	0.000	67.08	0.00	0.00
32	117.50	ALU RRU8x20-25	3	7.949	8.744	0.79	0.80	6.66	161.48	0.000	0.000	58.27	0.00	0.00
33	117.50	ALU 800 MHz Filter	3	7.949	8.744	0.58	0.80	1.56	93.95	0.000	0.000	13.66	0.00	0.00
34	117.50	Low Profile Platform	1	7.949	8.744	1.00	1.00	37.69	2796.20	0.000	0.000	329.53	0.00	0.00
35	117.50	Mount Pipes	9	7.949	8.744	0.80	0.80	18.74	819.45	0.000	0.000	163.83	0.00	0.00
36	108.00	T-Arms w/ Modifications	3	7.809	8.590	1.00	1.00	55.33	1863.13	0.000	0.000	475.26	0.00	0.00
37	108.00	Ericsson Air 21 B4A/B2P	3	7.809	8.590	0.69	0.80	13.88	358.02	0.000	0.000	119.19	0.00	0.00
38	108.00	Ericsson Air21 B2A/B4P	3	7.809	8.590	0.69	0.80	13.88	362.29	0.000	0.000	119.19	0.00	0.00
39	108.00	Ericsson Radio 4449	3	7.809	8.590	0.66	0.80	3.86	275.71	0.000	0.000	33.11	0.00	0.00
40	108.00	RFS	3	7.809	8.590	0.58	0.80	37.57	558.65	0.000	0.000	322.71	0.00	0.00
41	108.00	Mount Pipes	9	7.809	8.590	0.80	0.80	13.62	815.74	0.000	0.000	116.96	0.00	0.00
							Totals:		**35,596.71**			**6,768.35**		

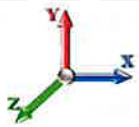
Total Applied Force Summary

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		200.08	2460.35	0.00	0.00
10.00		196.25	2438.31	0.00	0.00
15.00		192.28	2405.33	0.00	0.00
20.00		199.75	2367.51	0.00	0.00
25.00		204.85	2326.90	0.00	0.00
30.00		208.16	2284.43	0.00	0.00
35.00		210.15	2240.63	0.00	0.00
40.00		211.11	2195.82	0.00	0.00
45.00		211.24	2150.20	0.00	0.00
45.50		20.88	212.71	0.00	0.00
50.00		192.30	3303.34	0.00	0.00
53.25		138.03	2342.01	0.00	0.00
55.00		73.88	726.02	0.00	0.00
60.00		211.29	2040.47	0.00	0.00
65.00		209.27	1992.84	0.00	0.00
70.00		206.85	1944.86	0.00	0.00
75.00		204.09	1896.56	0.00	0.00
80.00		201.01	1847.99	0.00	0.00
85.00		197.64	1799.16	0.00	0.00
90.00		194.00	1750.11	0.00	0.00
93.00		114.29	1027.42	0.00	0.00
95.00		76.59	1090.98	0.00	0.00
99.00		151.56	2140.02	0.00	0.00
100.00		37.35	299.49	0.00	0.00
105.00		184.96	1467.78	0.00	0.00
108.00	(24) attachments	1295.05	5094.19	0.00	0.00
110.00		71.43	535.09	0.00	0.00
115.00		175.82	1304.24	0.00	0.00
117.50	(32) attachments	1112.68	5945.37	0.00	0.00
120.00		84.69	614.18	0.00	0.00
125.00		165.99	1192.83	0.00	0.00
130.00		160.84	1148.38	0.00	0.00
135.00		155.54	1103.82	0.00	0.00
140.00		150.10	1059.14	0.00	0.00
145.00		144.53	1014.36	0.00	0.00
146.50		42.14	296.58	0.00	0.00
150.00	(30) attachments	1219.92	10881.21	0.00	0.00
155.00		133.02	699.91	0.00	0.00
160.00	(20) attachments	1107.60	7633.58	0.00	0.00
165.00		121.03	627.16	0.00	0.00
170.00		114.88	593.66	0.00	0.00
175.00		108.62	560.08	0.00	0.00
180.00	(52) attachments	2553.46	9256.96	0.00	0.00
	Totals:	**13,165.21**	**96,311.99**	**0.00**	**0.00**

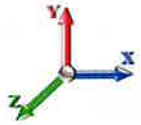
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

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	0.85	0.00	0.015	0.000	5.160	0.00	7.09
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.95	0.00	0.015	0.000	5.160	0.00	12.60
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.90	0.00	0.015	0.000	5.160	0.00	7.80
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.00	0.00	0.015	0.000	5.160	0.00	13.37
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.93	0.00	0.015	0.000	5.160	0.00	8.26
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.03	0.00	0.015	0.000	5.160	0.00	13.87
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.95	0.00	0.016	0.000	5.475	0.00	8.61
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.06	0.00	0.016	0.000	5.475	0.00	14.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.97	0.00	0.016	0.000	5.739	0.00	8.89
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.07	0.00	0.016	0.000	5.739	0.00	14.55
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.98	0.00	0.016	0.000	5.963	0.00	9.13
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.09	0.00	0.016	0.000	5.963	0.00	14.80
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.00	0.00	0.017	0.000	6.160	0.00	9.34
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.10	0.00	0.017	0.000	6.160	0.00	15.03
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.01	0.00	0.017	0.000	6.336	0.00	9.53
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.11	0.00	0.017	0.000	6.336	0.00	15.23
45.00	Safety Cable	Yes	5.00	0.000	0.38	1.02	0.00	0.018	0.000	6.495	0.00	9.70
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.12	0.00	0.018	0.000	6.495	0.00	15.41
45.50	Safety Cable	Yes	0.50	0.000	0.38	0.10	0.00	0.018	0.000	6.510	0.00	0.97
45.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.11	0.00	0.018	0.000	6.510	0.00	1.54
50.00	Safety Cable	Yes	4.50	0.000	0.38	0.92	0.00	0.018	0.000	6.640	0.00	8.87
50.00	Step bolts (ladder)	Yes	4.50	0.000	0.63	1.02	0.00	0.018	0.000	6.640	0.00	14.02
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.67	0.00	0.019	0.000	6.729	0.00	6.47
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.74	0.00	0.019	0.000	6.729	0.00	10.19
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.36	0.00	0.019	0.000	6.775	0.00	3.50
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.40	0.00	0.019	0.000	6.775	0.00	5.50
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.04	0.00	0.019	0.000	6.900	0.00	10.13
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.15	0.00	0.019	0.000	6.900	0.00	15.87
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.05	0.00	0.019	0.000	7.017	0.00	10.25
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.15	0.00	0.019	0.000	7.017	0.00	16.00
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.06	0.00	0.020	0.000	7.128	0.00	10.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.16	0.00	0.020	0.000	7.128	0.00	16.12
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.06	0.00	0.021	0.000	7.232	0.00	10.48
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.17	0.00	0.021	0.000	7.232	0.00	16.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.07	0.00	0.021	0.000	7.331	0.00	10.58
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.17	0.00	0.021	0.000	7.331	0.00	16.35
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.07	0.00	0.022	0.000	7.425	0.00	10.68
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.18	0.00	0.022	0.000	7.425	0.00	16.46
90.00	Safety Cable	Yes	5.00	0.000	0.38	1.08	0.00	0.023	0.000	7.515	0.00	10.77
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.18	0.00	0.023	0.000	7.515	0.00	16.56
93.00	Safety Cable	Yes	3.00	0.000	0.38	0.65	0.00	0.023	0.000	7.567	0.00	6.50
93.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.71	0.00	0.023	0.000	7.567	0.00	9.97
95.00	Safety Cable	Yes	2.00	0.000	0.38	0.43	0.00	0.024	0.000	7.601	0.00	4.35
95.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.48	0.00	0.024	0.000	7.601	0.00	6.66
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.87	0.00	0.024	0.000	7.667	0.00	8.75
99.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.95	0.00	0.024	0.000	7.667	0.00	13.38
100.00	Safety Cable	Yes	1.00	0.000	0.38	0.22	0.00	0.024	0.000	7.684	0.00	2.19

Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

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

Dead Load Factor 1.20

Wind Load Factor 1.00

Iterations 23

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	1.00	0.000	0.63	0.24	0.00	0.024	0.000	7.684	0.00	3.35
105.00	Safety Cable	Yes	5.00	0.000	0.38	1.09	0.00	0.025	0.000	7.763	0.00	11.03
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.20	0.00	0.025	0.000	7.763	0.00	16.83
108.00	Safety Cable	Yes	3.00	0.000	0.38	0.66	0.00	0.025	0.000	7.809	0.00	6.65
108.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.72	0.00	0.025	0.000	7.809	0.00	10.13
110.00	Safety Cable	Yes	2.00	0.000	0.38	0.44	0.00	0.026	0.000	7.839	0.00	4.45
110.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.48	0.00	0.026	0.000	7.839	0.00	6.77
115.00	Safety Cable	Yes	5.00	0.000	0.38	1.10	0.00	0.026	0.000	7.913	0.00	11.19
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.21	0.00	0.026	0.000	7.913	0.00	17.00
117.50	Safety Cable	Yes	2.50	0.000	0.38	0.55	0.00	0.027	0.000	7.949	0.00	5.61
117.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.60	0.00	0.027	0.000	7.949	0.00	8.52
120.00	Safety Cable	Yes	2.50	0.000	0.38	0.55	0.00	0.028	0.000	7.984	0.00	5.63
120.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.61	0.00	0.028	0.000	7.984	0.00	8.54
125.00	Safety Cable	Yes	5.00	0.000	0.38	1.11	0.00	0.029	0.000	8.053	0.00	11.34
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.21	0.00	0.029	0.000	8.053	0.00	17.15
130.00	Safety Cable	Yes	5.00	0.000	0.38	1.11	0.00	0.030	0.000	8.120	0.00	11.41
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.22	0.00	0.030	0.000	8.120	0.00	17.23
135.00	Safety Cable	Yes	5.00	0.000	0.38	1.12	0.00	0.031	0.000	8.185	0.00	11.47
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.22	0.00	0.031	0.000	8.185	0.00	17.30
140.00	Safety Cable	Yes	5.00	0.000	0.38	1.12	0.00	0.033	0.000	8.248	0.00	11.54
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.23	0.00	0.033	0.000	8.248	0.00	17.37
145.00	Safety Cable	Yes	5.00	0.000	0.38	1.12	0.00	0.034	0.000	8.309	0.00	11.60
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.23	0.00	0.034	0.000	8.309	0.00	17.43
146.50	Safety Cable	Yes	1.50	0.000	0.38	0.34	0.00	0.036	0.000	8.327	0.00	3.49
146.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.37	0.00	0.036	0.000	8.327	0.00	5.24
150.00	Safety Cable	Yes	3.50	0.000	0.38	0.79	0.00	0.037	0.000	8.368	0.00	8.16
150.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.86	0.00	0.037	0.000	8.368	0.00	12.25
155.00	Safety Cable	Yes	5.00	0.000	0.38	1.13	0.00	0.038	0.000	8.426	0.00	11.72
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.24	0.00	0.038	0.000	8.426	0.00	17.56
160.00	Safety Cable	Yes	5.00	0.000	0.38	1.13	0.00	0.041	0.000	8.483	0.00	11.78
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.24	0.00	0.041	0.000	8.483	0.00	17.63
165.00	Safety Cable	Yes	5.00	0.000	0.38	1.14	0.00	0.043	0.000	8.538	0.00	11.84
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.24	0.00	0.043	0.000	8.538	0.00	17.69
170.00	Safety Cable	Yes	5.00	0.000	0.38	1.14	0.00	0.046	0.000	8.592	0.00	11.89
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.24	0.00	0.046	0.000	8.592	0.00	17.75
175.00	Safety Cable	Yes	5.00	0.000	0.38	1.14	0.00	0.049	0.000	8.644	0.00	11.95
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.25	0.00	0.049	0.000	8.644	0.00	17.80
180.00	Safety Cable	Yes	5.00	0.000	0.38	1.15	0.00	0.053	0.000	8.696	0.00	12.00
180.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.25	0.00	0.053	0.000	8.696	0.00	17.86
									Totals:		**0.0**	**963.3**

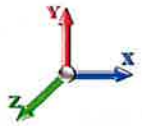
Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

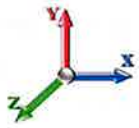
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-96.31	-13.20	0.00	-1660.1	0.00	1660.13	6005.12	1659.14	9371.99	8424.20	0.00	0.000	0.000	0.213
5.00	-93.84	-13.07	0.00	-1594.1	0.00	1594.12	5934.54	1623.84	8977.45	8146.93	0.02	-0.042	0.000	0.212
10.00	-91.39	-12.94	0.00	-1528.7	0.00	1528.78	5861.47	1588.54	8591.40	7870.57	0.09	-0.085	0.000	0.210
15.00	-88.97	-12.81	0.00	-1464.0	0.00	1464.08	5785.91	1553.24	8213.82	7595.33	0.20	-0.128	0.000	0.208
20.00	-86.60	-12.67	0.00	-1400.0	0.00	1400.03	5707.87	1517.94	7844.74	7321.44	0.36	-0.173	0.000	0.206
25.00	-84.26	-12.53	0.00	-1336.6	0.00	1336.66	5627.34	1482.64	7484.13	7049.12	0.57	-0.219	0.000	0.205
30.00	-81.97	-12.38	0.00	-1274.0	0.00	1274.01	5544.33	1447.34	7132.01	6778.61	0.82	-0.266	0.000	0.203
35.00	-79.72	-12.23	0.00	-1212.1	0.00	1212.11	5458.83	1412.05	6788.38	6510.12	1.13	-0.314	0.000	0.201
40.00	-77.51	-12.07	0.00	-1150.9	0.00	1150.99	5370.85	1376.75	6453.22	6243.87	1.48	-0.364	0.000	0.199
45.00	-75.36	-11.88	0.00	-1090.6	0.00	1090.64	5280.38	1341.45	6126.56	5980.10	1.89	-0.414	0.000	0.197
45.50	-75.14	-11.89	0.00	-1084.7	0.00	1084.70	5271.20	1337.92	6094.36	5953.86	1.93	-0.419	0.000	0.197
50.00	-71.83	-11.72	0.00	-1031.1	0.00	1031.19	5187.42	1306.15	5808.37	5719.01	2.35	-0.466	0.000	0.194
53.25	-69.48	-11.60	0.00	-993.08	0.00	993.08	5183.10	1304.53	5793.97	5707.10	2.68	-0.501	0.000	0.187
55.00	-68.75	-11.56	0.00	-972.79	0.00	972.79	5149.93	1292.18	5684.75	5616.44	2.87	-0.520	0.000	0.187
60.00	-66.70	-11.39	0.00	-914.98	0.00	914.98	5053.51	1256.88	5378.41	5359.50	3.44	-0.571	0.000	0.184
65.00	-64.70	-11.22	0.00	-858.02	0.00	858.02	4954.60	1221.58	5080.55	5105.79	4.07	-0.623	0.000	0.181
70.00	-62.75	-11.05	0.00	-801.92	0.00	801.92	4853.20	1186.28	4791.18	4855.53	4.75	-0.677	0.000	0.178
75.00	-60.84	-10.88	0.00	-746.66	0.00	746.66	4749.32	1150.98	4510.29	4608.95	5.49	-0.731	0.000	0.175
80.00	-58.99	-10.71	0.00	-692.25	0.00	692.25	4642.95	1115.68	4237.89	4366.27	6.28	-0.787	0.000	0.171
85.00	-57.18	-10.55	0.00	-638.68	0.00	638.68	4534.09	1080.38	3973.97	4127.73	7.14	-0.843	0.000	0.167
90.00	-55.43	-10.37	0.00	-585.95	0.00	585.95	4422.75	1045.09	3718.53	3893.53	8.05	-0.900	0.000	0.163
93.00	-54.40	-10.27	0.00	-554.83	0.00	554.83	4334.54	1023.91	3569.35	3737.76	8.63	-0.935	0.000	0.161
95.00	-53.30	-10.21	0.00	-534.30	0.00	534.30	4274.77	1009.79	3471.58	3634.86	9.02	-0.959	0.000	0.160
99.00	-51.16	-10.04	0.00	-493.47	0.00	493.47	3526.84	858.30	2926.12	2978.05	9.85	-1.006	0.000	0.180
100.00	-50.85	-10.04	0.00	-483.43	0.00	483.43	3508.98	852.25	2885.00	2941.89	10.06	-1.018	0.000	0.179
105.00	-49.38	-9.87	0.00	-433.25	0.00	433.25	3418.17	821.99	2683.80	2763.09	11.16	-1.082	0.000	0.171
108.00	-44.31	-8.50	0.00	-403.64	0.00	403.64	3362.49	803.84	2566.56	2657.49	11.85	-1.121	0.000	0.165
110.00	-43.77	-8.45	0.00	-386.64	0.00	386.64	3324.88	791.74	2489.86	2587.82	12.33	-1.147	0.000	0.163
115.00	-42.46	-8.29	0.00	-344.37	0.00	344.37	3223.60	761.48	2303.20	2412.17	13.56	-1.210	0.000	0.156
117.50	-36.54	-7.07	0.00	-323.66	0.00	323.66	3159.56	746.35	2212.60	2316.80	14.21	-1.243	0.000	0.151
120.00	-35.92	-7.00	0.00	-305.99	0.00	305.99	3095.51	731.22	2123.81	2223.36	14.86	-1.276	0.000	0.149
125.00	-34.72	-6.84	0.00	-270.99	0.00	270.99	2967.43	700.97	1951.69	2042.24	16.24	-1.339	0.000	0.144
130.00	-33.57	-6.69	0.00	-236.77	0.00	236.77	2839.35	670.71	1786.85	1868.81	17.67	-1.403	0.000	0.139
135.00	-32.46	-6.55	0.00	-203.30	0.00	203.30	2711.27	640.46	1629.27	1703.08	19.18	-1.466	0.000	0.131
140.00	-31.40	-6.40	0.00	-170.57	0.00	170.57	2583.18	610.20	1478.97	1545.05	20.74	-1.527	0.000	0.123
145.00	-30.39	-6.25	0.00	-138.57	0.00	138.57	2455.10	579.94	1335.94	1394.71	22.37	-1.586	0.000	0.112
146.50	-30.09	-6.21	0.00	-129.20	0.00	129.20	2416.67	570.87	1294.45	1351.10	22.88	-1.603	0.000	0.108
146.50	-30.09	-6.21	0.00	-129.20	0.00	129.20	1569.99	382.32	870.88	885.79	22.88	-1.603	0.000	0.165
150.00	-19.24	-4.70	0.00	-107.45	0.00	107.45	1527.89	368.20	807.74	829.92	24.07	-1.642	0.000	0.142
155.00	-18.54	-4.57	0.00	-83.92	0.00	83.92	1465.64	348.03	721.67	752.08	25.83	-1.715	0.000	0.124
160.00	-10.94	-3.25	0.00	-61.06	0.00	61.06	1387.93	327.86	640.44	670.52	27.66	-1.781	0.000	0.099
165.00	-10.31	-3.11	0.00	-44.83	0.00	44.83	1302.55	307.69	564.06	590.15	29.56	-1.839	0.000	0.084
170.00	-9.72	-2.99	0.00	-29.26	0.00	29.26	1217.16	287.52	492.53	514.91	31.51	-1.887	0.000	0.065
175.00	-9.17	-2.86	0.00	-14.32	0.00	14.32	1131.77	267.35	425.85	444.79	33.51	-1.922	0.000	0.040
180.00	0.00	-2.55	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81	35.53	-1.937	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

SBA

Load Case: 1.2D + 1.0Ev + 1.0Eh



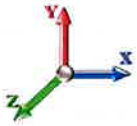
Gust Response Factor	1.10			**Sds**	0.20	**Iterations**	20
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.08	**Ss**	0.19
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**S1**	0.05
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1778.0	2.50	70.93	0.01	
10.00		1743.7	7.50	69.57	0.08	
15.00		1709.5	12.50	68.20	0.22	
20.00		1675.3	17.50	66.83	0.42	
25.00		1641.1	22.50	65.47	0.67	
30.00		1606.9	27.50	64.10	0.96	
35.00		1572.6	32.50	62.74	1.28	
40.00		1538.4	37.50	61.37	1.63	
45.00		1504.2	42.50	60.01	2.00	
45.50	Bot - Section 2	148.54	45.25	5.93	0.02	
50.00		2493.5	47.75	99.48	6.95	
53.25	Top - Section 1	1766.4	51.63	70.47	4.07	
55.00		505.87	54.13	20.18	0.37	
60.00		1422.2	57.50	56.74	3.28	
65.00		1388.0	62.50	55.37	3.69	
70.00		1353.8	67.50	54.01	4.09	
75.00		1319.5	72.50	52.64	4.48	
80.00		1285.3	77.50	51.28	4.86	
85.00		1251.1	82.50	49.91	5.22	
90.00		1216.9	87.50	48.55	5.56	
93.00	Bot - Section 3	713.73	91.50	28.47	2.09	
95.00		813.54	94.00	32.45	2.87	
99.00	Top - Section 2	1596.5	97.00	63.69	11.75	
100.00		203.16	99.50	8.10	0.20	
105.00		998.20	102.50	39.82	5.13	
108.00	Appurtenance(s)	3050.5	106.50	121.70	51.72	
110.00		353.79	109.00	14.11	0.73	
115.00		863.94	112.50	34.47	4.63	
117.50	Appurtenance(s)	3386.9	116.25	135.12	75.97	
120.00		402.19	118.75	16.04	1.12	
125.00		782.38	122.50	31.21	4.50	
130.00		753.05	127.50	30.04	4.52	
135.00		723.72	132.50	28.87	4.51	
140.00		694.38	137.50	27.70	4.47	
145.00		665.05	142.50	26.53	4.40	
146.50	Top - Section 3	193.80	145.75	7.73	0.39	
150.00	Appurtenance(s)	4401.8	148.25	175.60	208.67	
155.00		416.01	152.50	16.60	1.97	
160.00	Appurtenance(s)	3295.4	157.50	131.47	132.01	
165.00		370.90	162.50	14.80	1.78	
170.00		351.35	167.50	14.02	1.70	
175.00		331.80	172.50	13.24	1.61	
180.00	Appurtenance(s)	5168.9	177.50	206.21	412.49	
	Totals:	**59,452.8**		**2,371.8**	**989.1**	**Total Wind:** **57,187.6**

Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Load Case: 1.2D + 1.0Ev + 1.0Eh



Gust Response Factor	1.10			**Sds**	0.20			**Iterations**	20
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.08			**Ss**	0.19
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**Seismic Importance Factor**	1.00	**S1**	0.05

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-72.67	-0.99	0.00	-159.35	0.00	159.35	6005.12	1659.14	9371.99	8424.20		0.00	0.00	0.031
5.00	-70.51	-1.00	0.00	-154.39	0.00	154.39	5934.54	1623.84	8977.45	8146.93		0.00	0.00	0.031
10.00	-68.38	-1.00	0.00	-149.42	0.00	149.42	5861.47	1588.54	8591.40	7870.57		0.01	-0.01	0.031
15.00	-66.30	-1.00	0.00	-144.42	0.00	144.42	5785.91	1553.24	8213.82	7595.33		0.02	-0.01	0.030
20.00	-64.26	-1.01	0.00	-139.39	0.00	139.39	5707.87	1517.94	7844.74	7321.44		0.03	-0.02	0.030
25.00	-62.26	-1.01	0.00	-134.35	0.00	134.35	5627.34	1482.64	7484.13	7049.12		0.06	-0.02	0.030
30.00	-60.31	-1.02	0.00	-129.29	0.00	129.29	5544.33	1447.34	7132.01	6778.61		0.08	-0.03	0.030
35.00	-58.39	-1.02	0.00	-124.21	0.00	124.21	5458.83	1412.05	6788.38	6510.12		0.11	-0.03	0.030
40.00	-56.52	-1.02	0.00	-119.12	0.00	119.12	5370.85	1376.75	6453.22	6243.87		0.15	-0.04	0.030
45.00	-54.70	-1.02	0.00	-114.01	0.00	114.01	5280.38	1341.45	6126.56	5980.10		0.19	-0.04	0.029
45.50	-54.52	-1.02	0.00	-113.50	0.00	113.50	5271.20	1337.92	6094.36	5953.86		0.19	-0.04	0.029
50.00	-51.46	-1.02	0.00	-108.90	0.00	108.90	5187.42	1306.15	5808.37	5719.01		0.23	-0.05	0.029
53.25	-49.29	-1.01	0.00	-105.59	0.00	105.59	5183.10	1304.53	5793.97	5707.10		0.27	-0.05	0.028
55.00	-48.68	-1.02	0.00	-103.82	0.00	103.82	5149.93	1292.18	5684.75	5616.44		0.29	-0.05	0.028
60.00	-46.95	-1.02	0.00	-98.74	0.00	98.74	5053.51	1256.88	5378.41	5359.50		0.34	-0.06	0.028
65.00	-45.27	-1.02	0.00	-93.66	0.00	93.66	4954.60	1221.58	5080.55	5105.79		0.41	-0.06	0.027
70.00	-43.63	-1.01	0.00	-88.58	0.00	88.58	4853.20	1186.28	4791.18	4855.53		0.48	-0.07	0.027
75.00	-42.03	-1.01	0.00	-83.52	0.00	83.52	4749.32	1150.98	4510.29	4608.95		0.55	-0.08	0.027
80.00	-40.47	-1.01	0.00	-78.46	0.00	78.46	4642.95	1115.68	4237.89	4366.27		0.64	-0.08	0.027
85.00	-38.96	-1.01	0.00	-73.41	0.00	73.41	4534.09	1080.38	3973.97	4127.73		0.73	-0.09	0.026
90.00	-37.48	-1.00	0.00	-68.38	0.00	68.38	4422.75	1045.09	3718.53	3893.53		0.82	-0.10	0.026
93.00	-36.62	-1.00	0.00	-65.38	0.00	65.38	4334.54	1023.91	3569.35	3737.76		0.88	-0.10	0.026
95.00	-35.63	-1.00	0.00	-63.38	0.00	63.38	4274.77	1009.79	3471.58	3634.86		0.92	-0.10	0.026
99.00	-33.68	-0.99	0.00	-59.39	0.00	59.39	3526.84	858.30	2926.12	2978.05		1.01	-0.11	0.029
100.00	-33.43	-0.99	0.00	-58.40	0.00	58.40	3508.98	852.25	2885.00	2941.89		1.04	-0.11	0.029
105.00	-32.23	-0.98	0.00	-53.47	0.00	53.47	3418.17	821.99	2683.80	2763.09		1.15	-0.12	0.029
108.00	-28.47	-0.93	0.00	-50.52	0.00	50.52	3362.49	803.84	2566.56	2657.49		1.23	-0.12	0.027
110.00	-28.04	-0.93	0.00	-48.66	0.00	48.66	3324.88	791.74	2489.86	2587.82		1.28	-0.12	0.027
115.00	-26.99	-0.92	0.00	-44.03	0.00	44.03	3223.60	761.48	2303.20	2412.17		1.42	-0.13	0.027
117.50	-22.81	-0.84	0.00	-41.72	0.00	41.72	3159.56	746.35	2212.60	2316.80		1.49	-0.14	0.025
120.00	-22.32	-0.84	0.00	-39.63	0.00	39.63	3095.51	731.22	2123.81	2223.36		1.56	-0.14	0.025
125.00	-21.36	-0.84	0.00	-35.43	0.00	35.43	2967.43	700.97	1951.69	2042.24		1.71	-0.15	0.025
130.00	-20.45	-0.83	0.00	-31.26	0.00	31.26	2839.35	670.71	1786.85	1868.81		1.87	-0.16	0.024
135.00	-19.57	-0.83	0.00	-27.10	0.00	27.10	2711.27	640.46	1629.27	1703.08		2.04	-0.17	0.023
140.00	-18.72	-0.82	0.00	-22.97	0.00	22.97	2583.18	610.20	1478.97	1545.05		2.22	-0.17	0.022
145.00	-17.92	-0.82	0.00	-18.85	0.00	18.85	2455.10	579.94	1335.94	1394.71		2.41	-0.18	0.021
146.50	-17.68	-0.82	0.00	-17.63	0.00	17.63	2416.67	570.87	1294.45	1351.10		2.47	-0.18	0.020
146.50	-17.68	-0.82	0.00	-17.63	0.00	17.63	1569.99	382.32	870.88	885.79		2.47	-0.18	0.031
150.00	-12.24	-0.59	0.00	-14.76	0.00	14.76	1527.89	368.20	807.74	829.92		2.60	-0.19	0.026
155.00	-11.74	-0.59	0.00	-11.80	0.00	11.80	1465.64	348.03	721.67	752.08		2.81	-0.20	0.024
160.00	-7.66	-0.45	0.00	-8.84	0.00	8.84	1387.93	327.86	640.44	670.52		3.02	-0.21	0.019
165.00	-7.22	-0.44	0.00	-6.61	0.00	6.61	1302.55	307.69	564.06	590.15		3.25	-0.22	0.017
170.00	-6.79	-0.44	0.00	-4.40	0.00	4.40	1217.16	287.52	492.53	514.91		3.48	-0.23	0.014
175.00	-6.39	-0.44	0.00	-2.19	0.00	2.19	1131.77	267.35	425.85	444.79		3.72	-0.23	0.011
180.00	0.00	-0.41	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81		3.96	-0.23	0.000

Seismic Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

SBA

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.20	**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.08	**Ss**	0.19
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**S1**	0.05
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1731.3	2.50	69.07	0.01	
10.00		1697.1	7.50	67.70	0.08	
15.00		1662.8	12.50	66.34	0.21	
20.00		1628.6	17.50	64.97	0.40	
25.00		1594.4	22.50	63.61	0.64	
30.00		1560.2	27.50	62.24	0.91	
35.00		1526.0	32.50	60.88	1.22	
40.00		1491.7	37.50	59.51	1.55	
45.00		1457.5	42.50	58.15	1.91	
45.50	Bot - Section 2	143.88	45.25	5.74	0.02	
50.00		2451.5	47.75	97.80	6.81	
53.25	Top - Section 1	1736.1	51.63	69.26	3.99	
55.00		489.54	54.13	19.53	0.35	
60.00		1375.5	57.50	54.88	3.11	
65.00		1341.3	62.50	53.51	3.49	
70.00		1307.1	67.50	52.15	3.87	
75.00		1272.9	72.50	50.78	4.23	
80.00		1238.7	77.50	49.42	4.58	
85.00		1204.4	82.50	48.05	4.91	
90.00		1170.2	87.50	46.69	5.21	
93.00	Bot - Section 3	685.73	91.50	27.36	1.96	
95.00		794.87	94.00	31.71	2.77	
99.00	Top - Section 2	1559.2	97.00	62.20	11.37	
100.00		193.83	99.50	7.73	0.18	
105.00		951.54	102.50	37.96	4.73	
108.00	Appurtenance(s)	3022.5	106.50	120.58	51.48	
110.00		342.68	109.00	13.67	0.69	
115.00		836.17	112.50	33.36	4.40	
117.50	Appurtenance(s)	3373.0	116.25	134.56	76.40	
120.00		391.17	118.75	15.61	1.07	
125.00		760.34	122.50	30.33	4.31	
130.00		731.01	127.50	29.16	4.32	
135.00		701.68	132.50	27.99	4.29	
140.00		672.34	137.50	26.82	4.25	
145.00		643.01	142.50	25.65	4.17	
146.50	Top - Section 3	187.18	145.75	7.47	0.37	
150.00	Appurtenance(s)	4386.4	148.25	174.99	210.10	
155.00		398.80	152.50	15.91	1.84	
160.00	Appurtenance(s)	3278.2	157.50	130.78	132.46	
165.00		355.19	162.50	14.17	1.66	
170.00		335.64	167.50	13.39	1.57	
175.00		316.09	172.50	12.61	1.48	
180.00	Appurtenance(s)	5153.2	177.50	205.58	415.70	
	Totals:	**58,151.6**		**2,319.9**	**989.1**	**Total Wind:** **57,187.6**

Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.20			**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.08			**Ss**	0.19
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**Seismic Importance Factor**	1.00	**S1**	0.05

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	-55.05	-0.99	0.00	-157.72	0.00	157.72	6005.12	1659.14	9371.99	8424.20		0.00	0.00	0.028
5.00	-53.41	-0.99	0.00	-152.77	0.00	152.77	5934.54	1623.84	8977.45	8146.93		0.00	0.00	0.028
10.00	-51.80	-1.00	0.00	-147.81	0.00	147.81	5861.47	1588.54	8591.40	7870.57		0.01	-0.01	0.028
15.00	-50.22	-1.00	0.00	-142.82	0.00	142.82	5785.91	1553.24	8213.82	7595.33		0.02	-0.01	0.027
20.00	-48.67	-1.00	0.00	-137.82	0.00	137.82	5707.87	1517.94	7844.74	7321.44		0.03	-0.02	0.027
25.00	-47.16	-1.01	0.00	-132.80	0.00	132.80	5627.34	1482.64	7484.13	7049.12		0.05	-0.02	0.027
30.00	-45.68	-1.01	0.00	-127.77	0.00	127.77	5544.33	1447.34	7132.01	6778.61		0.08	-0.03	0.027
35.00	-44.23	-1.01	0.00	-122.73	0.00	122.73	5458.83	1412.05	6788.38	6510.12		0.11	-0.03	0.027
40.00	-42.82	-1.01	0.00	-117.68	0.00	117.68	5370.85	1376.75	6453.22	6243.87		0.14	-0.04	0.027
45.00	-41.43	-1.01	0.00	-112.62	0.00	112.62	5280.38	1341.45	6126.56	5980.10		0.18	-0.04	0.027
45.50	-41.30	-1.01	0.00	-112.12	0.00	112.12	5271.20	1337.92	6094.36	5953.86		0.19	-0.04	0.027
50.00	-38.98	-1.01	0.00	-107.56	0.00	107.56	5187.42	1306.15	5808.37	5719.01		0.23	-0.05	0.026
53.25	-37.34	-1.00	0.00	-104.29	0.00	104.29	5183.10	1304.53	5793.97	5707.10		0.26	-0.05	0.025
55.00	-36.87	-1.01	0.00	-102.53	0.00	102.53	5149.93	1292.18	5684.75	5616.44		0.28	-0.05	0.025
60.00	-35.57	-1.00	0.00	-97.51	0.00	97.51	5053.51	1256.88	5378.41	5359.50		0.34	-0.06	0.025
65.00	-34.29	-1.00	0.00	-92.49	0.00	92.49	4954.60	1221.58	5080.55	5105.79		0.40	-0.06	0.025
70.00	-33.05	-1.00	0.00	-87.47	0.00	87.47	4853.20	1186.28	4791.18	4855.53		0.47	-0.07	0.025
75.00	-31.84	-1.00	0.00	-82.47	0.00	82.47	4749.32	1150.98	4510.29	4608.95		0.55	-0.07	0.025
80.00	-30.66	-1.00	0.00	-77.48	0.00	77.48	4642.95	1115.68	4237.89	4366.27		0.63	-0.08	0.024
85.00	-29.51	-0.99	0.00	-72.50	0.00	72.50	4534.09	1080.38	3973.97	4127.73		0.72	-0.09	0.024
90.00	-28.40	-0.99	0.00	-67.54	0.00	67.54	4422.75	1045.09	3718.53	3893.53		0.81	-0.09	0.024
93.00	-27.75	-0.99	0.00	-64.57	0.00	64.57	4334.54	1023.91	3569.35	3737.76		0.87	-0.10	0.024
95.00	-26.99	-0.98	0.00	-62.60	0.00	62.60	4274.77	1009.79	3471.58	3634.86		0.91	-0.10	0.024
99.00	-25.52	-0.97	0.00	-58.66	0.00	58.66	3526.84	858.30	2926.12	2978.05		1.00	-0.11	0.027
100.00	-25.33	-0.97	0.00	-57.69	0.00	57.69	3508.98	852.25	2885.00	2941.89		1.02	-0.11	0.027
105.00	-24.42	-0.97	0.00	-52.82	0.00	52.82	3418.17	821.99	2683.80	2763.09		1.14	-0.12	0.026
108.00	-21.57	-0.91	0.00	-49.91	0.00	49.91	3362.49	803.84	2566.56	2657.49		1.21	-0.12	0.025
110.00	-21.25	-0.91	0.00	-48.08	0.00	48.08	3324.88	791.74	2489.86	2587.82		1.27	-0.12	0.025
115.00	-20.45	-0.91	0.00	-43.51	0.00	43.51	3223.60	761.48	2303.20	2412.17		1.40	-0.13	0.024
117.50	-17.28	-0.83	0.00	-41.23	0.00	41.23	3159.56	746.35	2212.60	2316.80		1.47	-0.14	0.023
120.00	-16.91	-0.83	0.00	-39.16	0.00	39.16	3095.51	731.22	2123.81	2223.36		1.54	-0.14	0.023
125.00	-16.19	-0.82	0.00	-35.02	0.00	35.02	2967.43	700.97	1951.69	2042.24		1.69	-0.15	0.023
130.00	-15.49	-0.82	0.00	-30.90	0.00	30.90	2839.35	670.71	1786.85	1868.81		1.85	-0.16	0.022
135.00	-14.83	-0.82	0.00	-26.80	0.00	26.80	2711.27	640.46	1629.27	1703.08		2.02	-0.16	0.021
140.00	-14.19	-0.81	0.00	-22.71	0.00	22.71	2583.18	610.20	1478.97	1545.05		2.20	-0.17	0.020
145.00	-13.58	-0.81	0.00	-18.65	0.00	18.65	2455.10	579.94	1335.94	1394.71		2.38	-0.18	0.019
146.50	-13.40	-0.81	0.00	-17.44	0.00	17.44	2416.67	570.87	1294.45	1351.10		2.44	-0.18	0.018
146.50	-13.40	-0.81	0.00	-17.44	0.00	17.44	1569.99	382.32	870.88	885.79		2.44	-0.18	0.028
150.00	-9.27	-0.59	0.00	-14.61	0.00	14.61	1527.89	368.20	807.74	829.92		2.57	-0.19	0.024
155.00	-8.89	-0.58	0.00	-11.69	0.00	11.69	1465.64	348.03	721.67	752.08		2.78	-0.20	0.022
160.00	-5.81	-0.44	0.00	-8.77	0.00	8.77	1387.93	327.86	640.44	670.52		2.99	-0.21	0.017
165.00	-5.47	-0.44	0.00	-6.56	0.00	6.56	1302.55	307.69	564.06	590.15		3.21	-0.22	0.015
170.00	-5.15	-0.44	0.00	-4.36	0.00	4.36	1217.16	287.52	492.53	514.91		3.44	-0.22	0.013
175.00	-4.85	-0.44	0.00	-2.18	0.00	2.18	1131.77	267.35	425.85	444.79		3.68	-0.23	0.009
180.00	0.00	-0.42	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81		3.92	-0.23	0.000

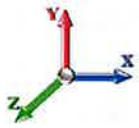
Wind Loading - Shaft

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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	6.649	7.31	320.50	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.649	7.31	313.72	0.730	0.000	5.00	28.684	20.94	153.1	0.0	1591.3
10.00		1.00	0.85	6.649	7.31	306.95	0.730	0.000	5.00	28.071	20.49	149.9	0.0	1557.1
15.00		1.00	0.85	6.649	7.31	300.17	0.730	0.000	5.00	27.458	20.04	146.6	0.0	1522.9
20.00		1.00	0.90	7.054	7.76	302.22	0.730	0.000	5.00	26.845	19.60	152.1	0.0	1488.7
25.00		1.00	0.95	7.394	8.13	302.26	0.730	0.000	5.00	26.233	19.15	155.7	0.0	1454.5
30.00		1.00	0.98	7.683	8.45	300.83	0.730	0.000	5.00	25.620	18.70	158.1	0.0	1420.2
35.00		1.00	1.01	7.937	8.73	298.35	0.730	0.000	5.00	25.007	18.26	159.4	0.0	1386.0
40.00		1.00	1.04	8.163	8.98	295.06	0.730	0.000	5.00	24.394	17.81	159.9	0.0	1351.8
45.00		1.00	1.07	8.368	9.20	291.14	0.730	0.000	5.00	23.781	17.36	159.8	0.0	1317.6
45.50	Bot - Section 2	1.00	1.07	8.387	9.23	290.72	0.730	0.000	0.50	2.344	1.71	15.8	0.0	129.9
50.00		1.00	1.09	8.555	9.41	286.71	0.730	0.000	4.50	21.157	15.44	145.4	0.0	2325.6
53.25	Top - Section 1	1.00	1.11	8.670	9.54	283.58	0.730	0.000	3.25	14.971	10.93	104.2	0.0	1645.1
55.00		1.00	1.12	8.729	9.60	286.52	0.730	0.000	1.75	7.954	5.81	55.8	0.0	440.5
60.00		1.00	1.14	8.890	9.78	281.33	0.730	0.000	5.00	22.313	16.29	159.3	0.0	1235.6
65.00		1.00	1.16	9.041	9.95	275.80	0.730	0.000	5.00	21.700	15.84	157.5	0.0	1201.4
70.00		1.00	1.17	9.183	10.10	270.00	0.730	0.000	5.00	21.087	15.39	155.5	0.0	1167.2
75.00		1.00	1.19	9.318	10.25	263.95	0.730	0.000	5.00	20.474	14.95	153.2	0.0	1132.9
80.00		1.00	1.21	9.445	10.39	257.67	0.730	0.000	5.00	19.862	14.50	150.6	0.0	1098.7
85.00		1.00	1.22	9.567	10.52	251.20	0.730	0.000	5.00	19.249	14.05	147.9	0.0	1064.5
90.00		1.00	1.24	9.682	10.65	244.54	0.730	0.000	5.00	18.636	13.60	144.9	0.0	1030.3
93.00	Bot - Section 3	1.00	1.25	9.749	10.72	240.46	0.730	0.000	3.00	10.887	7.95	85.2	0.0	601.7
95.00		1.00	1.25	9.793	10.77	237.71	0.730	0.000	2.00	7.263	5.30	57.1	0.0	738.9
99.00	Top - Section 2	1.00	1.26	9.879	10.87	232.14	0.730	0.000	4.00	14.231	10.39	112.9	0.0	1447.3
100.00		1.00	1.27	9.900	10.89	235.01	0.730	0.000	1.00	3.496	2.55	27.8	0.0	165.8
105.00		1.00	1.28	10.002	11.00	227.91	0.730	0.000	5.00	17.115	12.49	137.5	0.0	811.5
108.00	Appurtenance(s)	1.00	1.29	10.061	11.07	223.59	0.730	0.000	3.00	9.975	7.28	80.6	0.0	472.8
110.00		1.00	1.29	10.100	11.11	220.68	0.730	0.000	2.00	6.527	4.76	52.9	0.0	309.4
115.00		1.00	1.30	10.195	11.21	213.32	0.730	0.000	5.00	15.889	11.60	130.1	0.0	752.9
117.50	Appurtenance(s)	1.00	1.31	10.241	11.27	209.60	0.730	0.000	2.50	7.715	5.63	63.4	0.0	365.4
120.00		1.00	1.32	10.287	11.32	205.85	0.730	0.000	2.50	7.561	5.52	62.5	0.0	358.1
125.00		1.00	1.33	10.376	11.41	198.28	0.730	0.000	5.00	14.663	10.70	122.2	0.0	694.2
130.00		1.00	1.34	10.462	11.51	190.60	0.730	0.000	5.00	14.051	10.26	118.0	0.0	664.9
135.00		1.00	1.35	10.545	11.60	182.82	0.730	0.000	5.00	13.438	9.81	113.8	0.0	635.6
140.00		1.00	1.36	10.626	11.69	174.96	0.730	0.000	5.00	12.825	9.36	109.4	0.0	606.2
145.00		1.00	1.37	10.705	11.78	167.01	0.730	0.000	5.00	12.212	8.91	105.0	0.0	576.9
146.50	Top - Section 3	1.00	1.37	10.728	11.80	164.61	0.730	0.000	1.50	3.544	2.59	30.5	0.0	167.3
150.00	Appurtenance(s)	1.00	1.38	10.782	11.86	158.98	0.730	0.000	3.50	8.055	5.88	69.7	0.0	254.7
155.00		1.00	1.39	10.856	11.94	150.87	0.730	0.000	5.00	10.986	8.02	95.8	0.0	347.2
160.00	Appurtenance(s)	1.00	1.40	10.929	12.02	142.69	0.730	0.000	5.00	10.373	7.57	91.0	0.0	327.6
165.00		1.00	1.41	11.000	12.10	134.44	0.730	0.000	5.00	9.761	7.13	86.2	0.0	308.1
170.00		1.00	1.42	11.070	12.18	126.12	0.730	0.000	5.00	9.148	6.68	81.3	0.0	288.5
175.00		1.00	1.42	11.137	12.25	117.74	0.730	0.000	5.00	8.535	6.23	76.3	0.0	269.0
180.00	Appurtenance(s)	1.00	1.43	11.204	12.32	109.29	0.730	0.000	5.00	7.922	5.78	71.3	0.0	249.4
								Totals:	**180.00**			**4,765.2**		**36,975.2**

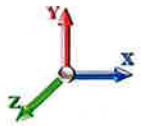
Discrete Appurtenance Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	Ericsson 4449 B5/B12	6	11.204	12.324	0.77	0.90	9.15	426.00	0.000	0.000	112.75	0.00	0.00
2	180.00	KMW EPBQ-654L8H8-L2	6	11.204	12.324	0.73	0.90	52.40	374.40	0.000	0.000	645.78	0.00	0.00
3	180.00	CCI HPA65R-BU8A	6	11.204	12.324	0.77	0.90	52.43	324.00	0.000	0.000	646.16	0.00	0.00
4	180.00	Ericsson 4478 B14	3	11.204	12.324	0.73	0.90	4.42	178.20	0.000	0.000	54.44	0.00	0.00
5	180.00	Ericsson 4415 B30	3	11.204	12.324	0.65	0.90	3.58	138.00	0.000	0.000	44.08	0.00	0.00
6	180.00	Ericsson 8843 B2/B66A	6	11.204	12.324	0.90	0.90	8.86	450.00	0.000	0.000	109.14	0.00	0.00
7	180.00	Mount Pipes	12	11.204	12.324	0.90	0.90	15.44	720.00	0.000	0.000	190.33	0.00	0.00
8	180.00	Raycap	2	11.204	12.324	0.71	0.90	6.80	57.40	0.000	0.000	83.77	0.00	0.00
9	180.00	Raycap	1	11.204	12.324	0.71	0.90	3.40	26.20	0.000	0.000	41.88	0.00	0.00
10	180.00	Raycap	1	11.204	12.324	0.63	0.90	1.57	14.50	0.000	0.000	19.41	0.00	0.00
11	180.00	Valmont 12-WLL-30120	3	11.204	12.324	1.00	1.00	39.60	1974.00	0.000	0.000	488.03	0.00	0.00
12	180.00	Ericsson RRUS-E2	3	11.204	12.324	0.63	0.90	5.95	174.00	0.000	0.000	73.37	0.00	0.00
13	160.00	Fujitsu TA08025-B604	3	10.929	12.022	0.57	0.75	3.35	191.79	0.000	0.000	40.29	0.00	0.00
14	160.00	JMA Wireless	3	10.929	12.022	0.55	0.75	20.51	193.50	0.000	0.000	246.63	0.00	0.00
15	160.00	Fujitsu TA08025-B605	3	10.929	12.022	0.60	0.75	3.53	224.85	0.000	0.000	42.41	0.00	0.00
16	160.00	Commscope	1	10.929	12.022	1.00	1.00	34.24	1727.00	0.000	0.000	411.64	0.00	0.00
17	160.00	Raycap	1	10.929	12.022	0.78	1.00	1.57	21.85	0.000	0.000	18.85	0.00	0.00
18	160.00	Mount Pipes	9	10.929	12.022	0.75	0.75	11.21	540.00	0.000	0.000	134.71	0.00	0.00
19	150.00	Handrail [F3P-HRK12]	1	10.782	11.860	0.67	0.67	5.03	405.00	0.000	0.000	59.68	0.00	0.00
20	150.00	Samsung MT6413 77A	3	10.782	11.860	0.52	0.75	5.88	171.96	0.000	0.000	69.78	0.00	0.00
21	150.00	Commscope	6	10.782	11.860	0.62	0.75	30.18	262.20	0.000	0.000	357.92	0.00	0.00
22	150.00	Mount Pipes	12	10.782	11.860	0.75	0.75	13.23	720.00	0.000	0.000	156.91	0.00	0.00
23	150.00	Low Profile Platform	1	10.782	11.860	0.67	0.67	25.52	2122.00	0.000	0.000	302.67	0.00	0.00
24	150.00	Raycap	1	10.782	11.860	0.88	1.00	3.57	32.00	0.000	0.000	42.37	0.00	0.00
25	150.00	Samsung	3	10.782	11.860	0.55	0.75	2.25	119.10	0.000	0.000	26.69	0.00	0.00
26	150.00	Samsung B2/B66A	3	10.782	11.860	0.62	0.75	3.51	253.20	0.000	0.000	41.64	0.00	0.00
27	117.50	RFS APXVSPP-18-C-A20	3	10.241	11.266	0.80	0.80	19.25	171.00	0.000	0.000	216.84	0.00	0.00
28	117.50	RFS ACU-A20-N	4	10.241	11.266	0.63	0.80	0.35	4.00	0.000	0.000	3.99	0.00	0.00
29	117.50	RFS APXVTM14-C-I20	3	10.241	11.266	0.66	0.80	15.98	171.00	0.000	0.000	179.98	0.00	0.00
30	117.50	ALU 1900 MHz	3	10.241	11.266	0.74	0.80	4.70	120.00	0.000	0.000	52.98	0.00	0.00
31	117.50	ALU 800 MHz	3	10.241	11.266	0.55	0.80	6.71	120.00	0.000	0.000	75.56	0.00	0.00
32	117.50	ALU RRU8x20-25	3	10.241	11.266	0.79	0.80	5.65	120.00	0.000	0.000	63.71	0.00	0.00
33	117.50	ALU 800 MHz Filter	3	10.241	11.266	0.55	0.80	1.11	75.00	0.000	0.000	12.50	0.00	0.00
34	117.50	Low Profile Platform	1	10.241	11.266	1.00	1.00	24.04	1645.00	0.000	0.000	270.83	0.00	0.00
35	117.50	Mount Pipes	9	10.241	11.266	0.80	0.80	11.95	540.00	0.000	0.000	134.65	0.00	0.00
36	108.00	T-Arms w/ Modifications	3	10.061	11.067	1.00	1.00	35.40	774.30	0.000	0.000	391.79	0.00	0.00
37	108.00	Ericsson Air 21 B4A/B2P	3	10.061	11.067	0.68	0.80	12.32	270.90	0.000	0.000	136.37	0.00	0.00
38	108.00	Ericsson Air21 B2A/B4P	3	10.061	11.067	0.68	0.80	12.32	274.50	0.000	0.000	136.37	0.00	0.00
39	108.00	Ericsson Radio 4449	3	10.061	11.067	0.65	0.80	3.17	222.00	0.000	0.000	35.07	0.00	0.00
40	108.00	RFS	3	10.061	11.067	0.58	0.80	34.97	384.00	0.000	0.000	387.08	0.00	0.00
41	108.00	Mount Pipes	9	10.061	11.067	0.80	0.80	8.71	540.00	0.000	0.000	96.42	0.00	0.00
							Totals:		**17,272.85**			**6,655.46**		

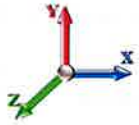
Total Applied Force Summary

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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		153.14	1746.89	0.00	0.00
10.00		149.87	1712.67	0.00	0.00
15.00		146.60	1678.45	0.00	0.00
20.00		152.07	1644.23	0.00	0.00
25.00		155.75	1610.01	0.00	0.00
30.00		158.06	1575.79	0.00	0.00
35.00		159.37	1541.57	0.00	0.00
40.00		159.90	1507.35	0.00	0.00
45.00		159.79	1473.13	0.00	0.00
45.50		15.79	145.43	0.00	0.00
50.00		145.35	2465.56	0.00	0.00
53.25		104.23	1746.21	0.00	0.00
55.00		55.75	494.98	0.00	0.00
60.00		159.29	1391.14	0.00	0.00
65.00		157.55	1356.92	0.00	0.00
70.00		155.50	1322.70	0.00	0.00
75.00		153.19	1288.48	0.00	0.00
80.00		150.64	1254.26	0.00	0.00
85.00		147.87	1220.04	0.00	0.00
90.00		144.89	1185.82	0.00	0.00
93.00		85.24	695.06	0.00	0.00
95.00		57.11	801.10	0.00	0.00
99.00		112.89	1571.69	0.00	0.00
100.00		27.79	196.94	0.00	0.00
105.00		137.46	967.09	0.00	0.00
108.00	(24) attachments	1263.68	3031.88	0.00	0.00
110.00		52.94	346.38	0.00	0.00
115.00		130.08	845.43	0.00	0.00
117.50	(32) attachments	1074.47	3377.72	0.00	0.00
120.00		62.46	394.84	0.00	0.00
125.00		122.17	767.69	0.00	0.00
130.00		118.04	738.35	0.00	0.00
135.00		113.79	709.02	0.00	0.00
140.00		109.43	679.69	0.00	0.00
145.00		104.98	650.36	0.00	0.00
146.50		30.53	189.39	0.00	0.00
150.00	(30) attachments	1127.39	4391.54	0.00	0.00
155.00		95.78	404.54	0.00	0.00
160.00	(20) attachments	985.58	3283.98	0.00	0.00
165.00		86.22	360.43	0.00	0.00
170.00		81.31	340.88	0.00	0.00
175.00		76.33	321.32	0.00	0.00
180.00	(52) attachments	2580.42	5158.47	0.00	0.00
	Totals:	**11,420.69**	**58,585.37**	**0.00**	**0.00**

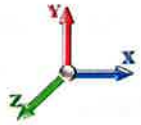
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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	0.015	0.000	6.649	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	6.649	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	6.649	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	6.649	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	6.649	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	6.649	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	7.054	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	7.054	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	7.394	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	7.394	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	7.683	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.016	0.000	7.683	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	7.937	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	7.937	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.017	0.000	8.163	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	8.163	0.00	5.20
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	8.368	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	8.368	0.00	5.20
45.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.018	0.000	8.387	0.00	0.14
45.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.018	0.000	8.387	0.00	0.52
50.00	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.018	0.000	8.555	0.00	1.23
50.00	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.018	0.000	8.555	0.00	4.68
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.019	0.000	8.670	0.00	0.89
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.019	0.000	8.670	0.00	3.38
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.019	0.000	8.729	0.00	0.48
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.019	0.000	8.729	0.00	1.82
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.890	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.890	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	9.041	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	9.041	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	9.183	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	9.183	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.318	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.318	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.445	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.445	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	9.567	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	9.567	0.00	5.20
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	9.682	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	9.682	0.00	5.20
93.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.023	0.000	9.749	0.00	0.82
93.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.023	0.000	9.749	0.00	3.12
95.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.024	0.000	9.793	0.00	0.55
95.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.024	0.000	9.793	0.00	2.08
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.024	0.000	9.879	0.00	1.09
99.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.024	0.000	9.879	0.00	4.16
100.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.024	0.000	9.900	0.00	0.27

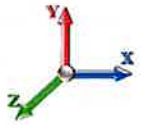
Linear Appurtenance Segment Forces (Factored)

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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	1.00	0.000	0.63	0.05	0.00	0.024	0.000	9.900	0.00	1.04
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	10.002	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	10.002	0.00	5.20
108.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.025	0.000	10.061	0.00	0.82
108.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.025	0.000	10.061	0.00	3.12
110.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.026	0.000	10.100	0.00	0.55
110.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.026	0.000	10.100	0.00	2.08
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	10.195	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	10.195	0.00	5.20
117.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.027	0.000	10.241	0.00	0.68
117.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.027	0.000	10.241	0.00	2.60
120.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.028	0.000	10.287	0.00	0.68
120.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.028	0.000	10.287	0.00	2.60
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	10.376	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	10.376	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	10.462	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	10.462	0.00	5.20
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	10.545	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	10.545	0.00	5.20
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	10.626	0.00	1.37
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	10.626	0.00	5.20
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	10.705	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	10.705	0.00	5.20
146.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.036	0.000	10.728	0.00	0.41
146.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.036	0.000	10.728	0.00	1.56
150.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.037	0.000	10.782	0.00	0.96
150.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.037	0.000	10.782	0.00	3.64
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	10.856	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	10.856	0.00	5.20
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	10.929	0.00	1.37
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	10.929	0.00	5.20
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.043	0.000	11.000	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.043	0.000	11.000	0.00	5.20
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.046	0.000	11.070	0.00	1.37
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.046	0.000	11.070	0.00	5.20
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.049	0.000	11.137	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.049	0.000	11.137	0.00	5.20
180.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.053	0.000	11.204	0.00	1.37
180.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.053	0.000	11.204	0.00	5.20
										Totals:	**0.0**	**236.3**

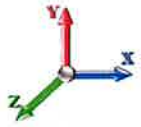
Calculated Forces

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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	-58.58	-11.44	0.00	-1444.7	0.00	1444.70	6005.12	1659.14	9371.99	8424.20	0.00	0.000	0.000	0.181
5.00	-56.83	-11.32	0.00	-1387.5	0.00	1387.51	5934.54	1623.84	8977.45	8146.93	0.02	-0.036	0.000	0.180
10.00	-55.11	-11.21	0.00	-1330.9	0.00	1330.90	5861.47	1588.54	8591.40	7870.57	0.08	-0.074	0.000	0.179
15.00	-53.42	-11.09	0.00	-1274.8	0.00	1274.87	5785.91	1553.24	8213.82	7595.33	0.18	-0.112	0.000	0.177
20.00	-51.77	-10.97	0.00	-1219.4	0.00	1219.40	5707.87	1517.94	7844.74	7321.44	0.31	-0.151	0.000	0.176
25.00	-50.15	-10.85	0.00	-1164.5	0.00	1164.54	5627.34	1482.64	7484.13	7049.12	0.49	-0.191	0.000	0.174
30.00	-48.57	-10.72	0.00	-1110.3	0.00	1110.30	5544.33	1447.34	7132.01	6778.61	0.72	-0.232	0.000	0.173
35.00	-47.02	-10.59	0.00	-1056.7	0.00	1056.71	5458.83	1412.05	6788.38	6510.12	0.98	-0.274	0.000	0.171
40.00	-45.51	-10.45	0.00	-1003.7	0.00	1003.77	5370.85	1376.75	6453.22	6243.87	1.29	-0.317	0.000	0.169
45.00	-44.03	-10.30	0.00	-951.49	0.00	951.49	5280.38	1341.45	6126.56	5980.10	1.65	-0.361	0.000	0.168
45.50	-43.88	-10.31	0.00	-946.34	0.00	946.34	5271.20	1337.92	6094.36	5953.86	1.68	-0.365	0.000	0.167
50.00	-41.41	-10.17	0.00	-899.97	0.00	899.97	5187.42	1306.15	5808.37	5719.01	2.05	-0.406	0.000	0.165
53.25	-39.66	-10.07	0.00	-866.92	0.00	866.92	5183.10	1304.53	5793.97	5707.10	2.34	-0.436	0.000	0.160
55.00	-39.16	-10.03	0.00	-849.30	0.00	849.30	5149.93	1292.18	5684.75	5616.44	2.50	-0.453	0.000	0.159
60.00	-37.76	-9.89	0.00	-799.15	0.00	799.15	5053.51	1256.88	5378.41	5359.50	3.00	-0.498	0.000	0.157
65.00	-36.40	-9.75	0.00	-749.71	0.00	749.71	4954.60	1221.58	5080.55	5105.79	3.54	-0.543	0.000	0.154
70.00	-35.07	-9.61	0.00	-700.97	0.00	700.97	4853.20	1186.28	4791.18	4855.53	4.14	-0.590	0.000	0.152
75.00	-33.78	-9.47	0.00	-652.92	0.00	652.92	4749.32	1150.98	4510.29	4608.95	4.78	-0.638	0.000	0.149
80.00	-32.52	-9.33	0.00	-605.57	0.00	605.57	4642.95	1115.68	4237.89	4366.27	5.47	-0.686	0.000	0.146
85.00	-31.29	-9.20	0.00	-558.91	0.00	558.91	4534.09	1080.38	3973.97	4127.73	6.22	-0.735	0.000	0.142
90.00	-30.10	-9.06	0.00	-512.93	0.00	512.93	4422.75	1045.09	3718.53	3893.53	7.02	-0.785	0.000	0.139
93.00	-29.40	-8.98	0.00	-485.76	0.00	485.76	4334.54	1023.91	3569.35	3737.76	7.52	-0.816	0.000	0.137
95.00	-28.60	-8.92	0.00	-467.81	0.00	467.81	4274.77	1009.79	3471.58	3634.86	7.87	-0.837	0.000	0.135
99.00	-27.02	-8.80	0.00	-432.12	0.00	432.12	3526.84	858.30	2926.12	2978.05	8.59	-0.878	0.000	0.153
100.00	-26.82	-8.78	0.00	-423.32	0.00	423.32	3508.98	852.25	2885.00	2941.89	8.77	-0.889	0.000	0.152
105.00	-25.85	-8.65	0.00	-379.41	0.00	379.41	3418.17	821.99	2683.80	2763.09	9.73	-0.944	0.000	0.145
108.00	-22.84	-7.35	0.00	-353.46	0.00	353.46	3362.49	803.84	2566.56	2657.49	10.34	-0.979	0.000	0.140
110.00	-22.49	-7.30	0.00	-338.76	0.00	338.76	3324.88	791.74	2489.86	2587.82	10.75	-1.002	0.000	0.138
115.00	-21.64	-7.17	0.00	-302.24	0.00	302.24	3223.60	761.48	2303.20	2412.17	11.83	-1.057	0.000	0.132
117.50	-18.28	-6.05	0.00	-284.31	0.00	284.31	3159.56	746.35	2212.60	2316.80	12.39	-1.086	0.000	0.129
120.00	-17.88	-5.99	0.00	-269.19	0.00	269.19	3095.51	731.22	2123.81	2223.36	12.97	-1.115	0.000	0.127
125.00	-17.11	-5.87	0.00	-239.25	0.00	239.25	2967.43	700.97	1951.69	2042.24	14.17	-1.171	0.000	0.123
130.00	-16.37	-5.75	0.00	-209.90	0.00	209.90	2839.35	670.71	1786.85	1868.81	15.42	-1.227	0.000	0.118
135.00	-15.66	-5.64	0.00	-181.15	0.00	181.15	2711.27	640.46	1629.27	1703.08	16.74	-1.283	0.000	0.112
140.00	-14.97	-5.53	0.00	-152.96	0.00	152.96	2583.18	610.20	1478.97	1545.05	18.11	-1.337	0.000	0.105
145.00	-14.32	-5.41	0.00	-125.33	0.00	125.33	2455.10	579.94	1335.94	1394.71	19.54	-1.390	0.000	0.096
146.50	-14.13	-5.39	0.00	-117.21	0.00	117.21	2416.67	570.87	1294.45	1351.10	19.98	-1.406	0.000	0.093
146.50	-14.13	-5.39	0.00	-117.21	0.00	117.21	1569.99	382.32	870.88	885.79	19.98	-1.406	0.000	0.142
150.00	-9.77	-4.16	0.00	-98.36	0.00	98.36	1527.89	368.20	807.74	829.92	21.02	-1.441	0.000	0.125
155.00	-9.36	-4.06	0.00	-77.56	0.00	77.56	1465.64	348.03	721.67	752.08	22.57	-1.509	0.000	0.110
160.00	-6.10	-3.00	0.00	-57.25	0.00	57.25	1387.93	327.86	640.44	670.52	24.19	-1.570	0.000	0.090
165.00	-5.74	-2.90	0.00	-42.27	0.00	42.27	1302.55	307.69	564.06	590.15	25.86	-1.624	0.000	0.076
170.00	-5.40	-2.82	0.00	-27.75	0.00	27.75	1217.16	287.52	492.53	514.91	27.59	-1.670	0.000	0.058
175.00	-5.08	-2.73	0.00	-13.67	0.00	13.67	1131.77	267.35	425.85	444.79	29.36	-1.704	0.000	0.035
180.00	0.00	-2.58	0.00	0.00	0.00	0.00	1046.38	247.18	364.02	379.81	31.15	-1.717	0.000	0.000

Final Analysis Summary

Structure:	CT46142-S	**Code:**	TIA-222-H	11/15/2023	
Site Name:	South Ledyard- Town Dump	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

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 + 1.0W 127 mph Wind	57.3	0.00	70.21	0.00	0.00	7272.22
0.9D + 1.0W 127 mph Wind	57.3	0.00	52.63	0.00	0.00	7190.83
1.2D + 1.0Di + 1.0Wi 50 mph Wind	13.2	0.00	96.31	0.00	0.00	1660.13
1.2D + 1.0Ev + 1.0Eh	1.0	0.00	72.67	0.00	0.00	159.35
0.9D + 1.0Ev + 1.0Eh	1.0	0.00	55.05	0.00	0.00	157.72
1.0D + 1.0W 60 mph Wind	11.4	0.00	58.58	0.00	0.00	1444.70

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 + 1.0W 127 mph Wind	-70.21	-57.30	0.00	-7272.2	0.00	-7272.2	6005.12	1659.1	9371.99	8424.20	0.00	0.876
0.9D + 1.0W 127 mph Wind	-52.63	-57.27	0.00	-7190.8	0.00	-7190.8	6005.12	1659.1	9371.99	8424.20	0.00	0.864
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-96.31	-13.20	0.00	-1660.1	0.00	-1660.1	6005.12	1659.1	9371.99	8424.20	0.00	0.213
1.2D + 1.0Ev + 1.0Eh	-17.68	-0.82	0.00	-17.63	0.00	-17.63	2416.67	570.87	1294.45	1351.10	146.50	0.031
0.9D + 1.0Ev + 1.0Eh	-13.40	-0.81	0.00	-17.44	0.00	-17.44	2416.67	570.87	1294.45	1351.10	146.50	0.028
1.0D + 1.0W 60 mph Wind	-58.58	-11.44	0.00	-1444.7	0.00	-1444.7	6005.12	1659.1	9371.99	8424.20	0.00	0.181

Base Plate Summary

Structure:	CT46142-S		**Code:**	TIA-222-H	11/15/2023
Site Name:	South Ledyard- Town Dump		**Exposure:**	C	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

SBA

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	75.75
Moment (kip-ft):	8321.33	**Width (in):**	81.50	**Number Bolts:**	22.00
Axial (kip):	64.49	**Style:**	Round	**Bolt Type:**	2.25" 18J
Shear (kip):	65.05	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.25
		Clip Length (in):	0.00	**Yield (ksi):**	75.00
Analysis (1.2D + 1.0W)				**Ultimate (ksi):**	100.00
Moment (kip-ft):	7272.22	**Effective Len (in):**	12.69	**Arrangement:**	Radial
Axial (kip):	70.21	**Moment (kip-in):**	768.74	**Cluster Dist (in):**	0.00
Shear (kip):	57.30	**Allow Stress (ksi):**	67.50	**Start Angle (deg):**	0.00
		Applied Stress (ksi):	58.05	Compression	
		Stress Ratio:	0.86	**Force (kip):**	212.65
				Allowable (kip):	268.39
				Ratio:	0.79
				Tension	
				Force (kip):	206.27
				Allowable (kip):	243.75
				Ratio:	0.85

Pier Foundation Design For Monopole

				Date
				11/15/2023
Customer Name:	Verizon		TIA Standard:	TIA-222-H
Site Name:			Structure Height (Ft.):	180
Site Number:	CT46142-S		Engineer Name:	SBA Engineer
Engr. Number:			Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	70.2	Shear Force (Kips):	57.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	7272.2

Foundation Geometries:

Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	8.0	Depth of Base B. G. S. :	22.0	ft.
Pier Height A. G. (ft.):	0.50			

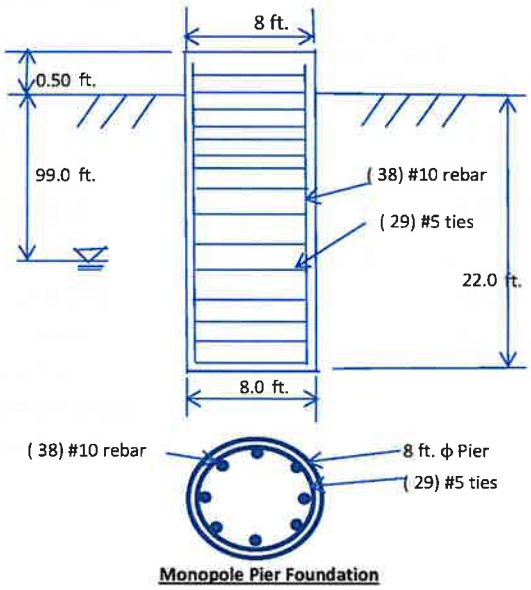
Material Properties and Reabr Info:

Concrete Strength (psi):	4500	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	38	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft) Top	Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	4.0	113	0	0			Sand
4.0	6.0	104	41	0			Sand
6.0	8.0	112	0	700			Clay
8.0	10.0	124	36	0			Sand
10.0	15.0	117	45	0			Sand
15.0	16.0	124	45	0			Sand
16.0	21.0	139	45	0			Sand
21.0	22.0	149	45	800			Sand
22.0	27.0	149					

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	7203	Dry Soil Weight from Conical Failure:	915	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	0	Buoyant Soil Weight from Conical Failure (Ki	0	Kips
Total Dry Concrete Volume (cu. Ft.):	1131	Total Dry Concrete Weight:	169.6	Kips
Total Buoyant Concrete Volume (cu. Ft.):	0.0	Total Buoyant Concrete Weight:	0.00	Kips
Total Effective Concrete Weight (Kips):	169.6	Total Effective Soil Weight:	915.1	Kips
Total Effective Vertical Load on Base (Kips):	99.4			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	8953.3	>	Design Factored Moment (kips-ft):	8215	0.92	OK!
Factor of Safety of Passive Soil Resistance against Moment:	1.09	OK!				

Check the capacities of Reinforceing Concrete:

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

Reinforcing Concrete Pier:

					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.27		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	9265.1	>	Design Factored Moment (Mu, K-Ft):	7577.5	0.82	OK!
Calculated Shear Capacity (Kips):	1561.6	>	Design Factored Shear (Kips):	891.8	0.57	OK!
Calculated Tension Capacity (Tn, Kips):	2606.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	14301	>	Design Factored Axial Load (Pu Kips):	70.2	0.00	OK!
Moment & Axial Strength Combination:	0.82	OK!	Max. Allowable Tie/Stirrup Spacing:	7.70	in.	
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI				

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

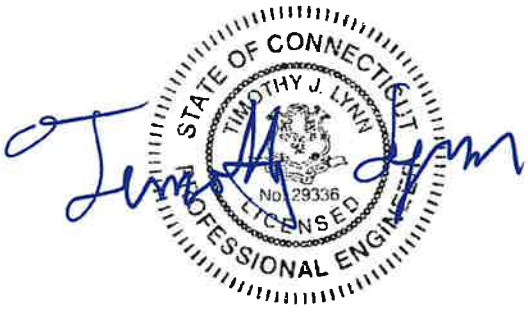
Proposed Verizon Antenna Installation

Site Ref: Mystic North

130 Welles Road
Groton (Mystic), CT

CENTEK Project No. 22017.04

Date: October 9, 2023



Prepared for:

Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

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Table of Contents

Introduction

This structural analysis report (SAR) was prepared to address the structural viability of installing Verizon's proposed antenna configuration on the proposed low profile platform mount. The antenna mount is attached to the proposed 180-ft host monopole located at 130 Welles Road, Mystic, Connecticut.

The proposed low profile platform mount (SitePro1 P/N: F3P-12W) with attached handrail kit (SitePro1 P/N: F3P-HRK12) consists of four (4) pipe masts per sector, connected at the bottom by the sector frame and at the top by the handrail extension. This structural analysis report variffies the adequacy of aforementioned antenna mount assembly only.

Proposed/existing antenna and appurtenance information was taken from an RF data sheet dated 08/22/2023 provided by Verizon.

Primary Assumptions Used in the Analysis

- The host structure's theoretical capacity not including any assessment of the condition of the host structure.
- The existing elevated steel antenna frames carry the horizontal and vertical loads due to the weight of equipment, and wind and transfers into host structure.
- Structure is in plumb condition.
- Loading for equipment and enclosure as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All members are assumed to be as observed during roof framing mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.

Antenna and Equipment Summary

Location	Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
Alpha	**(2) COMMSCOPE NHH-65B-R2B Antennas** **(1) Samsung MT6413-77A Antenna** **(1) Samsung RF4439d-25A RRU** **(1) Samsung RF4461d-13A RRU** **(1) RAYCAP RVZDC-6627-PF-48 OVP BOX**	150-ft	Proposed Low Profile Platform
Beta	**(2) COMMSCOPE NHH-65B-R2B Antennas** **(1) Samsung MT6413-77A Antenna** **(1) Samsung RF4439d-25A RRU** **(1) Samsung RF4461d-13A RRU**	150-ft	Proposed Low Profile Platform
Gamma	**(2) COMMSCOPE NHH-65B-R2B Antennas** **(1) Samsung MT6413-77A Antenna** **(1) Samsung RF4439d-25A RRU** **(1) Samsung RF4461d-13A RRU**	150-ft	Proposed Low Profile Platform

Equipment – Indicates proposed equipment to be installed.

Analysis

The antenna frames were analyzed using a comprehensive computer program titled Risa3D. The program examines the antenna mounts considering the worst-case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

Design Loading

Loading was determined per the requirements of the 2017 ANSI/TIA-222-H, 2021 International Building Code amended by the 2022 CSBC and ASCE 7-16 "Minimum Design Loads for Buildings and Other Structures".

Basic Wind Speed:	V = 130 mph	*Appendix P of the 2022 CT State Building Code*
Basic Wind Speed w/ Ice:	V_i = 50 mph	*Annex B of TIA-222-H*
Risk Category:	II	*2021 IBC; Table 1604.05*
Exposure Category:	Surface Roughness B	*ASCE 7-16; Section 26.7.2*
Dead Load	Equipment and framing self-weight	*Identified within SAR design calculations*

Reference Standards

2021 International Building Code:

1. AISC 360-10, *Specification for Structural Steel Buildings*.

Results

Member stresses and design reactions were calculated utilizing the structural analysis software RISA 3D.

The antenna mounting assembly and impacted host building components were found to be structurally acceptable as presented in the following table:

Sector	Component	Stress Ratio (percentage of capacity)	Result
All Sectors	Pipe 2.5 STD (Proposed Antenna Mast)	22%	**PASS**
	Pipe 2.0 STD (Proposed Handrail Horizontal)	28%	**PASS**
	Pipe 2.5 STD (Proposed Sector Frame Horizontal)	21%	**PASS**
	L3x3x6 (Proposed Low Platform Frame Member)	26%	**PASS**
	5/8" ø threaded rod (Sector Frame connection to host monopole)	37%	**PASS**

Conclusion

This analysis shows that the proposed subject antenna mount assemblies are **STRUCTURALLY ADEQUETE** to support the proposed Verizon modified antenna configuration.

The analysis is based, in part, on the information provided to this office by Verizon. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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Subject:	TIA-222-H Loads
Location:	Mystic, CT
Rev. 0: 10/9/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22017.04

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-H

Wind Speeds

Basic Wind Speed	$V := 130$	mph	(User Input - CSBC 2022 Appendix P)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input - TIA-222-H Annex B)
Basic Wind Speed (Mount)	$V_m := 30$	mph	(User Input - TIA-222-H Section 16.3)

Input

Structure Type =	Structure_Type := Flexible		(User Input)
Structure Category =	SC := II		(User Input)
Exposure Category =	Exp := B		(User Input)
Structure Height =	$h := 180$	ft	(User Input)
Height to Center of Antennas =	$z_{ant} := 150$	ft	(User Input)
Radial Ice Thickness =	$t_i := 1.0$	in	(User Input per Annex B of TIA-222-H)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1$		(User Input)
Shielding Factor for Appurtenances =	$K_a := 1.0$		(User Input)
Rooftop Wind Speed-up Factor =	$K_s := 1.0$		(User Input)
Ground Elevation Factor =	$K_e = 0.996$		(User Input)
Gust Response Factor =	$G_H = 1.35$		(User Input)

Output

Wind Direction Probability Factor = $K_d := 0.95$ (Per Table 2-2 of TIA-222-H)

Importance Factors =

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \\ 1.25 & \text{if } SC = 4 \end{cases} = 1$$

(Per Table 2-3 of TIA-222-H)

$$I_{Seismic} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \\ 1.50 & \text{if } SC = 4 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z_{ant}}{33}\right)^{0.1} = 1.163$$

$$t_{iz} := t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.163$$

Velocity Pressure Coefficient Antennas =

$$Kz_{ant} := 2.01\left(\left(\frac{z_{ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.11$$

Velocity Pressure w/o Ice Antennas = $qz_{ant} := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V^2 = 45.405$

Velocity Pressure with Ice Antennas = $qz_{ice.ant} := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V_i^2 = 6.717$

Velocity Pressure with Ice Antennas = $qz_m := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V_m^2 = 2.418$

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Subject:	TIA-222-H Loads
Location:	Mystic, CT
Rev. 0: 10/9/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22017.04

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	Commscope NHH-65B-R2B		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height =	$L_{app} := 72$	in	(User Input)
Appurtenance Width =	$W_{app} := 11.85$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 7.1$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 50$	lbs	(User Input)
Number of Appurtenances =	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 6.1$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.36$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 5.9$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 494$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 3.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 296$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front) =	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 7.3$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 90$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 4.9$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 60$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 5.9$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 26$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 3.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 16$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 6058$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 3876$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 126$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 126$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	Samsung MT6413-77A		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height =	$L_{app} := 28.9$	in	(User Input)
Appurtenance Width =	$W_{app} := 15.75$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 5.51$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 60$	lbs	(User Input)
Number of Appurtenances =	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 1.8$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.2$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 3.2$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 233$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 81$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front) =	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 3.9$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 43$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 1.7$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 18$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 3.2$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 12$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 4$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 2508$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 1916$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 62$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 62$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	Samsung RF4439-25A(B2/B66A)RRH		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height =	$L_{app} := 15$	in	(User Input)
Appurtenance Width =	$W_{app} := 15$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 10$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 75$	lbs	(User Input)
Number of Appurtenances =	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 1.0$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.2$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 1.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 115$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 77$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front) =	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 2.1$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 23$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 1.5$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 16$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 1.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 6$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 4$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 2250$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 1451$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 47$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 47$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	Samsung RF4461d-13ARRH		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height =	$L_{app} := 15$	in	(User Input)
Appurtenance Width =	$W_{app} := 15$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 10.23$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 80$	lbs	(User Input)
Number of Appurtenances =	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 1.0$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.2$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 1.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 115$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 78$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front) =	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 2.1$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 23$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 1.5$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 16$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 1.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 6$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 4$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 2302$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 1468$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 48$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 48$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	OVP Box		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height=	$L_{app} := 29.5$	in	(User Input)
Appurtenance Width =	$W_{app} := 16.5$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 12.6$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 32$	lbs	(User Input)
Number of Appurtenances=	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 1.8$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.2$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 3.4$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 249$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 2.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 190$	lbs

Wind Load (with ice)

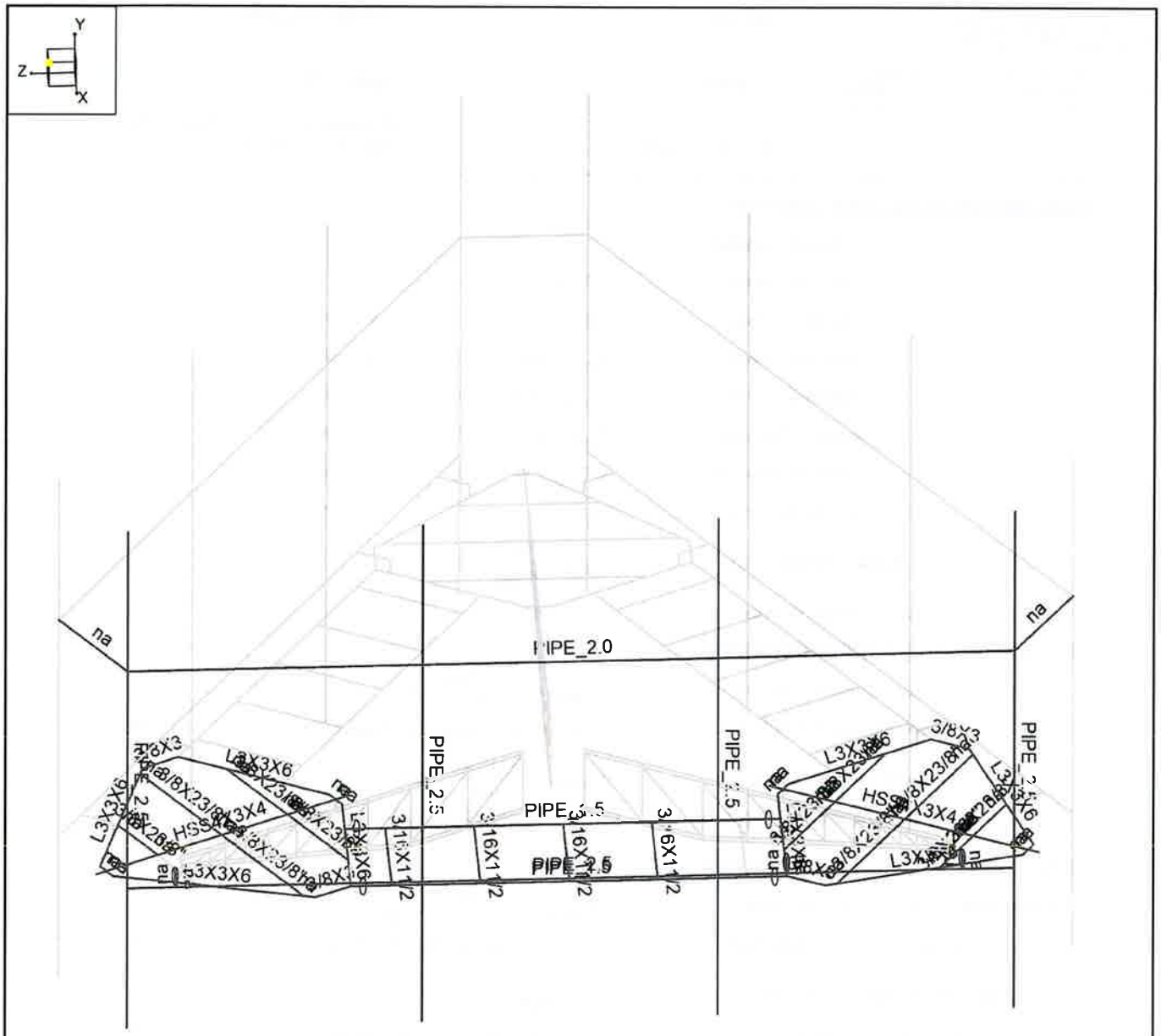
Surface Area for One Appurtenance w/ Ice (Front)=	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 4.2$	sf
Total Appurtenance Wind Force w/ Ice=	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 45$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 3.3$	sf
Total Appurtenance Wind Force w/ Ice=	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 36$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 3.4$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 13$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 2.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 10$	lbs

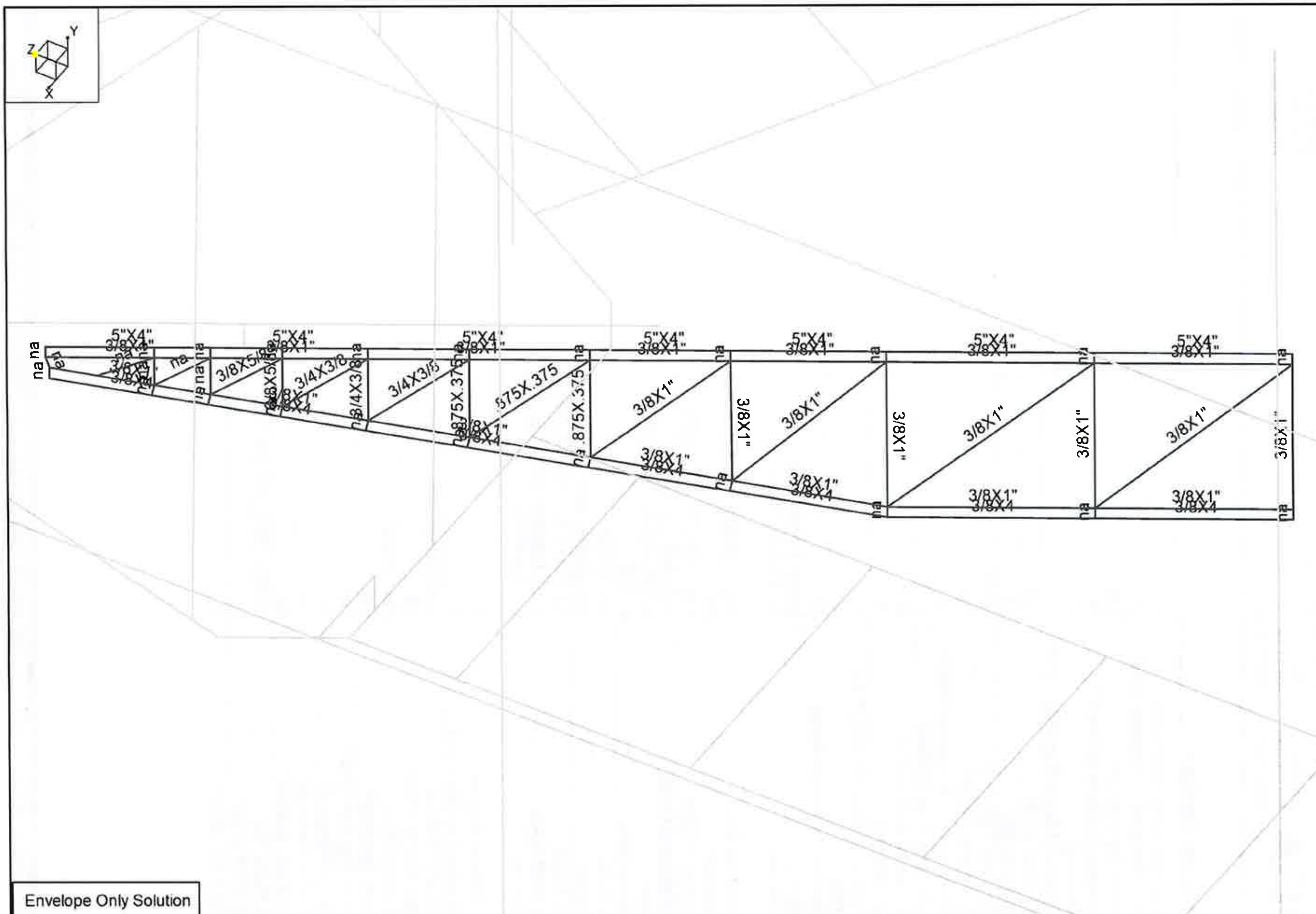
Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 6133$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 2811$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 91$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 91$	lbs



Envelope Only Solution

RISA	Centek Engineering		SK-2
	CMT		Jul 24, 2023 at 09:53 AM
	22017.04 Mystic CT		Mystic CT Model.r3d



Envelope Only Solution

RISA A NEMETSCHEK COMPANY	Centek Engineering	SK-3
	CMT	Jul 24, 2023 at 09:57 AM
	22017.04 Mystic CT	Mystic CT Model.r3d

(Global) Model Settings

Display Sections for Member Calcs	20
Max Internal Sections for Member Calcs	39
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	No
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	No
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI NAS-01: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1.5
Optimize for OTM/Sliding	No
Check Concrete Bearing	Yes
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#4
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
8	Q235	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HR1A	W4X13	Beam	Wide Flange	A992	Typical	3.83	3.86	11.3	.151

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M45A	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
2	M68	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
3	M74B	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
4	M75B	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
5	M54	HSS4X3X4	4.244			Lbyy			1	1		Lateral
6	M66	3/8 x 3	.605			Lbyy			.65	.65		Lateral
7	M74C	3/8 x 3	.605			Lbyy			.65	.65		Lateral
8	M31	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
9	M33	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
10	M34A	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
11	M60	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
12	M61	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
13	M62	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
14	M73	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
15	M74	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
16	M75	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
17	M76	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
18	M77	HSS4X3X4	4.244			Lbyy			1	1		Lateral
19	M78	3/8 x 3	.605			Lbyy			.65	.65		Lateral
20	M79	3/8 x 3	.605			Lbyy			.65	.65		Lateral
21	M80	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
22	M81	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
23	M82	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
24	M83	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
25	M84	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
26	M85	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
27	M122	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
28	M123	L3X3X6	2.914	Segment	Segment	Lbyy			.65	.65		Lateral
29	M124	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
30	M125	L3X3X6	2.386	Segment	Segment	Lbyy			.65	.65		Lateral
31	M126	HSS4X3X4	4.244			Lbyy			1	1		Lateral
32	M127	3/8 x 3	.605			Lbyy			.65	.65		Lateral
33	M128	3/8 x 3	.605			Lbyy			.65	.65		Lateral
34	M129	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
35	M130	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
36	M131	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
37	M132	3/8 x 2 3/8 "	1.659	.5	.5	Lbyy			.65	.65		Lateral
38	M133	3/8 x 2 3/8 "	1.124	.5	.5	Lbyy			.65	.65		Lateral
39	M134	3/8 x 2 3/8 "	.583	.5	.5	Lbyy			.65	.65		Lateral
40	M146A	PIPE 2.5	12.5			Lbyy			.65	.65		Lateral
41	M177	PIPE 2.5	12.5			Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
42	M182	PIPE 2.5	12.5			Lbyy			.65	.65		Lateral
43	M283	.5" x 4"	1.023			Lbyy			.65	.65		Lateral
44	M284	.5" x 4"	.648			Lbyy			.65	.65		Lateral
45	M285	.5" x 4"	.718			Lbyy			.65	.65		Lateral
46	M286	3/8 x 4	1.045			Lbyy			.65	.65		Lateral
47	M287	3/8 x 4	.667			Lbyy			.65	.65		Lateral
48	M288	3/8 x 4	.742			Lbyy			.65	.65		Lateral
49	M289	3/8 x 1"	1.023			Lbyy			.65	.65		Lateral
50	M290	3/8 x 1"	.648			Lbyy			.65	.65		Lateral
51	M291	3/8 x 1"	.718			Lbyy			.65	.65		Lateral
52	M292	3/8 x 1"	1.045			Lbyy			.65	.65		Lateral
53	M293	3/8 x 1"	.667			Lbyy			.65	.65		Lateral
54	M294	3/8 x 1"	.731			Lbyy			.65	.65		Lateral
55	M295	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
56	M297	3/8 x 1"	1.013			Lbyy			.65	.65		Lateral
57	M298	3/8 x 1"	.719			Lbyy			.65	.65		Lateral
58	M299	3/8 x 1"	.872			Lbyy			.65	.65		Lateral
59	M300	.875 x .375	.583			Lbyy			.65	.65		Lateral
60	M301	.875 x .375	.727			Lbyy			.65	.65		Lateral
61	M302	.875 x .375	.467			Lbyy			.65	.65		Lateral
62	M303	3/4 x 3/8	.595			Lbyy			.65	.65		Lateral
63	M304	3/4 x 3/8	.37			Lbyy			.65	.65		Lateral
64	M305	3/4 x 3/8	.487			Lbyy			.65	.65		Lateral
65	M306	3/8 x 5/8	.288			Lbyy			.65	.65		Lateral
66	M307A	3/8 x 5/8	.397			Lbyy			.65	.65		Lateral
67	M313A	3/8 x 4	.958			Lbyy			.65	.65		Lateral
68	M314A	3/8 x 4	.917			Lbyy			.65	.65		Lateral
69	M315A	3/8 x 1"	.957			Lbyy			.65	.65		Lateral
70	M316A	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
71	M317A	3/8 x 1"	.958			Lbyy			.65	.65		Lateral
72	M318A	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
73	M319A	3/8 x 1"	1.294			Lbyy			.65	.65		Lateral
74	M320A	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
75	M321A	3/8 x 1"	1.264			Lbyy			.65	.65		Lateral
76	M322A	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
77	M323	.5" x 4"	.958			Lbyy			.65	.65		Lateral
78	M324	.5" x 4"	.917			Lbyy			.65	.65		Lateral
79	M329	3/8 x 4	.748			Lbyy			.65	.65		Lateral
80	M330	.5" x 4"	.761			Lbyy			.65	.65		Lateral
81	M331	3/8 x 1"	.761			Lbyy			.65	.65		Lateral
82	M332	3/8 x 1"	.759			Lbyy			.65	.65		Lateral
83	M332A	.5" x 4"	.725			Lbyy			.65	.65		Lateral
84	M333	3/8 x 1"	.725			Lbyy			.65	.65		Lateral
85	M334	3/8 x 1"	.741			Lbyy			.65	.65		Lateral
86	M335	3/8 x 4	.741			Lbyy			.65	.65		Lateral
87	M216	.5" x 4"	1.023			Lbyy			.65	.65		Lateral
88	M217	.5" x 4"	.648			Lbyy			.65	.65		Lateral
89	M218	.5" x 4"	.718			Lbyy			.65	.65		Lateral
90	M219	3/8 x 4	1.045			Lbyy			.65	.65		Lateral
91	M220	3/8 x 4	.667			Lbyy			.65	.65		Lateral
92	M221	3/8 x 4	.742			Lbyy			.65	.65		Lateral
93	M222	3/8 x 1"	1.023			Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
94	M223	3/8 x 1"	.648			Lbyy			.65	.65		Lateral
95	M224	3/8 x 1"	.718			Lbyy			.65	.65		Lateral
96	M225	3/8 x 1"	1.045			Lbyy			.65	.65		Lateral
97	M226	3/8 x 1"	.667			Lbyy			.65	.65		Lateral
98	M227	3/8 x 1"	.731			Lbyy			.65	.65		Lateral
99	M228	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
100	M230	3/8 x 1"	1.013			Lbyy			.65	.65		Lateral
101	M231	3/8 x 1"	.719			Lbyy			.65	.65		Lateral
102	M232	3/8 x 1"	.872			Lbyy			.65	.65		Lateral
103	M233	.875 x .375	.583			Lbyy			.65	.65		Lateral
104	M234	.875 x .375	.727			Lbyy			.65	.65		Lateral
105	M235	.875 x .375	.467			Lbyy			.65	.65		Lateral
106	M236	3/4 x 3/8	.595			Lbyy			.65	.65		Lateral
107	M237	3/4 x 3/8	.37			Lbyy			.65	.65		Lateral
108	M238	3/4 x 3/8	.487			Lbyy			.65	.65		Lateral
109	M239	3/8 x 5/8	.288			Lbyy			.65	.65		Lateral
110	M240	3/8 x 5/8	.397			Lbyy			.65	.65		Lateral
111	M245	3/8 x 4	.958			Lbyy			.65	.65		Lateral
112	M246	3/8 x 4	.917			Lbyy			.65	.65		Lateral
113	M247	3/8 x 1"	.957			Lbyy			.65	.65		Lateral
114	M248	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
115	M249	3/8 x 1"	.958			Lbyy			.65	.65		Lateral
116	M250	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
117	M251	3/8 x 1"	1.294			Lbyy			.65	.65		Lateral
118	M252	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
119	M253	3/8 x 1"	1.264			Lbyy			.65	.65		Lateral
120	M254	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
121	M255	.5" x 4"	.958			Lbyy			.65	.65		Lateral
122	M256	.5" x 4"	.917			Lbyy			.65	.65		Lateral
123	M261	3/8 x 4	.748			Lbyy			.65	.65		Lateral
124	M262	.5" x 4"	.761			Lbyy			.65	.65		Lateral
125	M263	3/8 x 1"	.761			Lbyy			.65	.65		Lateral
126	M264	3/8 x 1"	.759			Lbyy			.65	.65		Lateral
127	M265A	.5" x 4"	.725			Lbyy			.65	.65		Lateral
128	M266A	3/8 x 1"	.725			Lbyy			.65	.65		Lateral
129	M267A	3/8 x 1"	.741			Lbyy			.65	.65		Lateral
130	M268A	3/8 x 4	.741			Lbyy			.65	.65		Lateral
131	M287A	.5" x 4"	1.023			Lbyy			.65	.65		Lateral
132	M288A	.5" x 4"	.648			Lbyy			.65	.65		Lateral
133	M289A	.5" x 4"	.718			Lbyy			.65	.65		Lateral
134	M290A	3/8 x 4	1.045			Lbyy			.65	.65		Lateral
135	M291A	3/8 x 4	.667			Lbyy			.65	.65		Lateral
136	M292A	3/8 x 4	.742			Lbyy			.65	.65		Lateral
137	M293A	3/8 x 1"	1.023			Lbyy			.65	.65		Lateral
138	M294A	3/8 x 1"	.648			Lbyy			.65	.65		Lateral
139	M295A	3/8 x 1"	.718			Lbyy			.65	.65		Lateral
140	M296A	3/8 x 1"	1.045			Lbyy			.65	.65		Lateral
141	M297A	3/8 x 1"	.667			Lbyy			.65	.65		Lateral
142	M298A	3/8 x 1"	.731			Lbyy			.65	.65		Lateral
143	M299A	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
144	M301A	3/8 x 1"	1.013			Lbyy			.65	.65		Lateral
145	M302A	3/8 x 1"	.719			Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
146	M303A	3/8 x 1"	.872			Lbyy			.65	.65		Lateral
147	M304A	.875 x .375	.583			Lbyy			.65	.65		Lateral
148	M305A	.875 x .375	.727			Lbyy			.65	.65		Lateral
149	M306A	.875 x .375	.467			Lbyy			.65	.65		Lateral
150	M307	3/4 x 3/8	.595			Lbyy			.65	.65		Lateral
151	M308	3/4 x 3/8	.37			Lbyy			.65	.65		Lateral
152	M309	3/4 x 3/8	.487			Lbyy			.65	.65		Lateral
153	M310	3/8 x 5/8	.288			Lbyy			.65	.65		Lateral
154	M311	3/8 x 5/8	.397			Lbyy			.65	.65		Lateral
155	M316	3/8 x 4	.958			Lbyy			.65	.65		Lateral
156	M317	3/8 x 4	.917			Lbyy			.65	.65		Lateral
157	M318	3/8 x 1"	.957			Lbyy			.65	.65		Lateral
158	M319	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
159	M320	3/8 x 1"	.958			Lbyy			.65	.65		Lateral
160	M321	3/8 x 1"	.917			Lbyy			.65	.65		Lateral
161	M322	3/8 x 1"	1.294			Lbyy			.65	.65		Lateral
162	M323A	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
163	M324A	3/8 x 1"	1.264			Lbyy			.65	.65		Lateral
164	M325A	3/8 x 1"	.871			Lbyy			.65	.65		Lateral
165	M326A	.5" x 4"	.958			Lbyy			.65	.65		Lateral
166	M327A	.5" x 4"	.917			Lbyy			.65	.65		Lateral
167	M332B	3/8 x 4	.748			Lbyy			.65	.65		Lateral
168	M333A	.5" x 4"	.761			Lbyy			.65	.65		Lateral
169	M334A	3/8 x 1"	.761			Lbyy			.65	.65		Lateral
170	M335A	3/8 x 1"	.759			Lbyy			.65	.65		Lateral
171	M336	.5" x 4"	.725			Lbyy			.65	.65		Lateral
172	M337	3/8 x 1"	.725			Lbyy			.65	.65		Lateral
173	M338	3/8 x 1"	.741			Lbyy			.65	.65		Lateral
174	M339	3/8 x 4	.741			Lbyy			.65	.65		Lateral
175	M346	PIPE 1.5	6.142			Lbyy						Lateral
176	M347	PIPE 1.5	6.142			Lbyy						Lateral
177	M348	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
178	M349	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
179	M350	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
180	M351	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
181	M352	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
182	M353	PIPE 1.5	6.142			Lbyy						Lateral
183	M354	PIPE 1.5	6.142			Lbyy						Lateral
184	M355	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
185	M356	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
186	M357	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
187	M358	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
188	M359	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
189	M360	PIPE 1.5	6.142			Lbyy						Lateral
190	M361	PIPE 1.5	6.142			Lbyy						Lateral
191	M362	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
192	M363	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
193	M364	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
194	M365	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
195	M366	3/16 X 1 1/2	1.667	.833	.833	Lbyy						Lateral
196	M367	PIPE 2.0	12.5			Lbyy			.65	.65		Lateral
197	M372	PIPE 2.0	12.5			Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
198	M377	PIPE_2.0	12.5			Lbyy			.65	.65		Lateral
199	M368	PIPE_2.5	8			Lbyy						Lateral
200	M369	PIPE_2.5	8			Lbyy						Lateral
201	M370	PIPE_2.5	8			Lbyy						Lateral
202	M371	PIPE_2.5	8			Lbyy						Lateral
203	M373	PIPE_2.5	8			Lbyy						Lateral
204	M374	PIPE_2.5	8			Lbyy						Lateral
205	M375	PIPE_2.5	8			Lbyy						Lateral
206	M376	PIPE_2.5	8			Lbyy						Lateral
207	M378	PIPE_2.5	8			Lbyy						Lateral
208	M379	PIPE_2.5	8			Lbyy						Lateral
209	M380	PIPE_2.5	8			Lbyy						Lateral
210	M381	PIPE_2.5	8			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	R3	N77	N35			RIGID	None	None	RIGID	Typical
2	R4	N27	N38			RIGID	None	None	RIGID	Typical
3	R5	N28	N39			RIGID	None	None	RIGID	Typical
4	R6	N79	N41			RIGID	None	None	RIGID	Typical
5	R7	N29	N41A			RIGID	None	None	RIGID	Typical
6	R8	N31	N42			RIGID	None	None	RIGID	Typical
7	R9	N47	N50			RIGID	None	None	RIGID	Typical
8	R10	N49	N52A			RIGID	None	None	RIGID	Typical
9	M57	N77	N69			RIGID	None	None	RIGID	Typical
10	M58	N27	N70			RIGID	None	None	RIGID	Typical
11	M59	N28	N71			RIGID	None	None	RIGID	Typical
12	M63	N64	N72			RIGID	None	None	RIGID	Typical
13	M64	N67	N73			RIGID	None	None	RIGID	Typical
14	M65	N68	N74			RIGID	None	None	RIGID	Typical
15	M67	N47	N78			RIGID	None	None	RIGID	Typical
16	M70	N49	N80			RIGID	None	None	RIGID	Typical
17	M45A	N50	N52		180	L3X3X6	Beam	Single An...	Q235	Typical
18	M68	N78	N79A		90	L3X3X6	Beam	Single An...	Q235	Typical
19	M74B	N80	N60		180	L3X3X6	Beam	Single An...	Q235	Typical
20	M75B	N52A	N62		90	L3X3X6	Beam	Single An...	Q235	Typical
21	M54	N74A	N75A		90	HSS4X3X4	Beam	Tube	Q235	Typical
22	M66	N79A	N60			3/8 x 3	Beam	RECT	Q235	Typical
23	M74C	N52	N62			3/8 x 3	Beam	RECT	Q235	Typical
24	M31	N38	N29			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
25	M33	N39	N31			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
26	M34A	N35	N79			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
27	M60	N70	N67			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
28	M61	N71	N68			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
29	M62	N69	N64			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
30	M50	N63	N69A			RIGID	None	None	RIGID	Typical
31	M51	N65	N70A			RIGID	None	None	RIGID	Typical
32	M52	N66	N71A			RIGID	None	None	RIGID	Typical
33	M53	N64A	N72A			RIGID	None	None	RIGID	Typical
34	M54A	N67A	N73B			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
35	M55	N68A	N74B			RIGID	None	None	RIGID	Typical
36	M56	N75	N77A			RIGID	None	None	RIGID	Typical
37	M57A	N76A	N79B			RIGID	None	None	RIGID	Typical
38	M59A	N63	N83			RIGID	None	None	RIGID	Typical
39	M60A	N65	N84			RIGID	None	None	RIGID	Typical
40	M61A	N66	N85			RIGID	None	None	RIGID	Typical
41	M62A	N80A	N86			RIGID	None	None	RIGID	Typical
42	M63A	N81	N87			RIGID	None	None	RIGID	Typical
43	M64A	N82	N88			RIGID	None	None	RIGID	Typical
44	M65A	N75	N89			RIGID	None	None	RIGID	Typical
45	M66A	N76A	N91			RIGID	None	None	RIGID	Typical
46	M73	N77A	N78A		180	L3X3X6	Beam	Single An...	Q235	Typical
47	M74	N89	N90		90	L3X3X6	Beam	Single An...	Q235	Typical
48	M75	N91	N93		180	L3X3X6	Beam	Single An...	Q235	Typical
49	M76	N79B	N94		90	L3X3X6	Beam	Single An...	Q235	Typical
50	M77	N60A	N61		90	HSS4X3X4	Beam	Tube	Q235	Typical
51	M78	N90	N93			3/8 x 3	Beam	RECT	Q235	Typical
52	M79	N78A	N94			3/8 x 3	Beam	RECT	Q235	Typical
53	M80	N70A	N67A			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
54	M81	N71A	N68A			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
55	M82	N69A	N64A			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
56	M83	N84	N81			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
57	M84	N85	N82			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
58	M85	N83	N80A			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
59	M94	N111	N109			RIGID	None	None	RIGID	Typical
60	M95	N109	N112			RIGID	None	None	RIGID	Typical
61	M96	N113	N110			RIGID	None	None	RIGID	Typical
62	M97	N110	N114			RIGID	None	None	RIGID	Typical
63	M99	N120	N126			RIGID	None	None	RIGID	Typical
64	M100	N122	N127			RIGID	None	None	RIGID	Typical
65	M101	N123	N128			RIGID	None	None	RIGID	Typical
66	M102	N121	N129			RIGID	None	None	RIGID	Typical
67	M103	N124	N130			RIGID	None	None	RIGID	Typical
68	M104	N125	N131			RIGID	None	None	RIGID	Typical
69	M105	N132	N134			RIGID	None	None	RIGID	Typical
70	M106	N133	N136			RIGID	None	None	RIGID	Typical
71	M108	N120	N140			RIGID	None	None	RIGID	Typical
72	M109	N122	N141			RIGID	None	None	RIGID	Typical
73	M110	N123	N142			RIGID	None	None	RIGID	Typical
74	M111	N137	N143			RIGID	None	None	RIGID	Typical
75	M112	N138	N144			RIGID	None	None	RIGID	Typical
76	M113	N139	N145			RIGID	None	None	RIGID	Typical
77	M114	N132	N146			RIGID	None	None	RIGID	Typical
78	M115	N133	N148			RIGID	None	None	RIGID	Typical
79	M116	N162	N149			RIGID	None	None	RIGID	Typical
80	M117	N149	N163			RIGID	None	None	RIGID	Typical
81	M118	N164	N152			RIGID	None	None	RIGID	Typical
82	M119	N152	N165			RIGID	None	None	RIGID	Typical
83	M122	N134	N135		180	L3X3X6	Beam	Single An...	Q235	Typical
84	M123	N146	N147		90	L3X3X6	Beam	Single An...	Q235	Typical
85	M124	N148	N150		180	L3X3X6	Beam	Single An...	Q235	Typical
86	M125	N136	N151		90	L3X3X6	Beam	Single An...	Q235	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
87	M126	N117	N118		90	HSS4X3X4	Beam	Tube	Q235	Typical
88	M127	N147	N150			3/8 x 3	Beam	RECT	Q235	Typical
89	M128	N135	N151			3/8 x 3	Beam	RECT	Q235	Typical
90	M129	N127	N124			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
91	M130	N128	N125			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
92	M131	N126	N121			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
93	M132	N141	N138			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
94	M133	N142	N139			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
95	M134	N140	N137			3/8 x 2 3/8 "	Beam	RECT	Q235	Typical
96	M146A	N193	N192			PIPE_2.5	Beam	Pipe	Q235	Typical
97	M127A	N154A	N152A			RIGID	None	None	RIGID	Typical
98	M128A	N152A	N155A			RIGID	None	None	RIGID	Typical
99	M129A	N156A	N153A			RIGID	None	None	RIGID	Typical
100	M130A	N153A	N157A			RIGID	None	None	RIGID	Typical
101	M131A	N160A	N158A			RIGID	None	None	RIGID	Typical
102	M132A	N158A	N161A			RIGID	None	None	RIGID	Typical
103	M133A	N162A	N159A			RIGID	None	None	RIGID	Typical
104	M134A	N159A	N163A			RIGID	None	None	RIGID	Typical
105	M136A	N168	N166			RIGID	None	None	RIGID	Typical
106	M137A	N166	N169			RIGID	None	None	RIGID	Typical
107	M138A	N170	N167			RIGID	None	None	RIGID	Typical
108	M139A	N167	N171			RIGID	None	None	RIGID	Typical
109	M140A	N174	N172A			RIGID	None	None	RIGID	Typical
110	M141A	N172A	N175			RIGID	None	None	RIGID	Typical
111	M142	N52C	N173A			RIGID	None	None	RIGID	Typical
112	M143	N173A	N177			RIGID	None	None	RIGID	Typical
113	M177	N196A	N195			PIPE_2.5	Beam	Pipe	Q235	Typical
114	M182	N205	N204			PIPE_2.5	Beam	Pipe	Q235	Typical
115	M265	N266	N261A			RIGID	None	None	RIGID	Typical
116	M266	N273	N267			RIGID	None	None	RIGID	Typical
117	M267	N274	N268			RIGID	None	None	RIGID	Typical
118	M268	N275	N269			RIGID	None	None	RIGID	Typical
119	M269	N276	N270			RIGID	None	None	RIGID	Typical
120	M270	N277	N263			RIGID	None	None	RIGID	Typical
121	M271	N278	N271			RIGID	None	None	RIGID	Typical
122	M272	N279	N272			RIGID	None	None	RIGID	Typical
123	M273	N295A	N264			RIGID	None	None	RIGID	Typical
124	M274	N297A	N296A			RIGID	None	None	RIGID	Typical
125	M275	N288	N294			RIGID	None	None	RIGID	Typical
126	M276	N287	N293			RIGID	None	None	RIGID	Typical
127	M277	N286	N292			RIGID	None	None	RIGID	Typical
128	M278	N285	N291			RIGID	None	None	RIGID	Typical
129	M279	N283	N290			RIGID	None	None	RIGID	Typical
130	M280	N284	N281			RIGID	None	None	RIGID	Typical
131	M281	N282	N289			RIGID	None	None	RIGID	Typical
132	M282	N265	N280			RIGID	None	None	RIGID	Typical
133	M283	N270	N268		90	.5" x 4"	Beam	RECT	A992	Typical
134	M284	N268	N267		90	.5" x 4"	Beam	RECT	A992	Typical
135	M285	N267	N261A		90	.5" x 4"	Beam	RECT	A992	Typical
136	M286	N285	N284		90	3/8 x 4	Beam	RECT	A992	Typical
137	M287	N284	N282		90	3/8 x 4	Beam	RECT	A992	Typical
138	M288	N282	N265		90	3/8 x 4	Beam	RECT	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
139	M289	N276	N274			3/8 x 1"	Beam	RECT	A992	Typical
140	M290	N274	N273			3/8 x 1"	Beam	RECT	A992	Typical
141	M291	N273	N266			3/8 x 1"	Beam	RECT	A992	Typical
142	M292	N291	N281			3/8 x 1"	Beam	RECT	A992	Typical
143	M293	N281	N289			3/8 x 1"	Beam	RECT	A992	Typical
144	M294	N289	N280			3/8 x 1"	Beam	RECT	A992	Typical
145	M295	N280	N266			3/8 x 1"	Beam	RECT	A992	Typical
146	M296	N296A	N295A			RIGID	None	None	RIGID	Typical
147	M297	N266	N289			3/8 x 1"	Beam	RECT	A992	Typical
148	M298	N289	N273			3/8 x 1"	Beam	RECT	A992	Typical
149	M299	N273	N281			3/8 x 1"	Beam	RECT	A992	Typical
150	M300	N281	N274		60	.875 x .375	Beam	RECT	A992	Typical
151	M301	N290	N274			.875 x .375	Beam	RECT	A992	Typical
152	M302	N290	N275		60	.875 x .375	Beam	RECT	A992	Typical
153	M303	N291	N275			3/4 x 3/8	Beam	RECT	A992	Typical
154	M304	N291	N276		60	3/4 x 3/8	Beam	RECT	A992	Typical
155	M305	N292	N276			3/4 x 3/8	Beam	RECT	A992	Typical
156	M306	N292	N277		60	3/8 x 5/8	Beam	RECT	A992	Typical
157	M307A	N293	N277			3/8 x 5/8	Beam	RECT	A992	Typical
158	M308A	N293	N278		60	RIGID	None	None	RIGID	Typical
159	M310A	N294	N279			RIGID	None	None	RIGID	Typical
160	M311A	N306	N307			RIGID	None	None	RIGID	Typical
161	M312A	N262	N76A			RIGID	None	None	RIGID	Typical
162	M313A	N265	N299A		90	3/8 x 4	Beam	RECT	A992	Typical
163	M314A	N299A	N303		90	3/8 x 4	Beam	RECT	A992	Typical
164	M315A	N280	N301A			3/8 x 1"	Beam	RECT	A992	Typical
165	M316A	N301A	N305			3/8 x 1"	Beam	RECT	A992	Typical
166	M317A	N266	N300			3/8 x 1"	Beam	RECT	A992	Typical
167	M318A	N300	N304			3/8 x 1"	Beam	RECT	A992	Typical
168	M319A	N280	N300			3/8 x 1"	Beam	RECT	A992	Typical
169	M320A	N301A	N300		60	3/8 x 1"	Beam	RECT	A992	Typical
170	M321A	N301A	N304			3/8 x 1"	Beam	RECT	A992	Typical
171	M322A	N305	N304		60	3/8 x 1"	Beam	RECT	A992	Typical
172	M323	N261A	N298A		90	.5" x 4"	Beam	RECT	A992	Typical
173	M324	N298A	N302		90	.5" x 4"	Beam	RECT	A992	Typical
174	M325	N300	N298A		90	RIGID	None	None	RIGID	Typical
175	M326	N304	N302		90	RIGID	None	None	RIGID	Typical
176	M327	N303	N305		90	RIGID	None	None	RIGID	Typical
177	M328	N299A	N301A		90	RIGID	None	None	RIGID	Typical
178	M329	N297A	N287		90	3/8 x 4	Beam	RECT	A992	Typical
179	M330	N264	N271		90	.5" x 4"	Beam	RECT	A992	Typical
180	M331	N295A	N278			3/8 x 1"	Beam	RECT	A992	Typical
181	M332	N296A	N293			3/8 x 1"	Beam	RECT	A992	Typical
182	M332A	N271	N270		90	.5" x 4"	Beam	RECT	A992	Typical
183	M333	N278	N276			3/8 x 1"	Beam	RECT	A992	Typical
184	M334	N293	N291			3/8 x 1"	Beam	RECT	A992	Typical
185	M335	N287	N285		90	3/8 x 4	Beam	RECT	A992	Typical
186	M198	N218	N213			RIGID	None	None	RIGID	Typical
187	M199	N225	N219			RIGID	None	None	RIGID	Typical
188	M200	N226	N220			RIGID	None	None	RIGID	Typical
189	M201	N227	N221			RIGID	None	None	RIGID	Typical
190	M202	N228	N222			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
191	M203	N229	N215			RIGID	None	None	RIGID	Typical
192	M204	N230	N223			RIGID	None	None	RIGID	Typical
193	M205	N231	N224			RIGID	None	None	RIGID	Typical
194	M206	N247	N216			RIGID	None	None	RIGID	Typical
195	M207	N249	N248			RIGID	None	None	RIGID	Typical
196	M208	N240	N246			RIGID	None	None	RIGID	Typical
197	M209	N239	N245			RIGID	None	None	RIGID	Typical
198	M210	N238	N244			RIGID	None	None	RIGID	Typical
199	M211	N237	N243			RIGID	None	None	RIGID	Typical
200	M212	N235	N242			RIGID	None	None	RIGID	Typical
201	M213	N236	N233			RIGID	None	None	RIGID	Typical
202	M214	N234	N241			RIGID	None	None	RIGID	Typical
203	M215	N217	N232			RIGID	None	None	RIGID	Typical
204	M216	N222	N220		90	.5" x 4"	Beam	RECT	A992	Typical
205	M217	N220	N219		90	.5" x 4"	Beam	RECT	A992	Typical
206	M218	N219	N213		90	.5" x 4"	Beam	RECT	A992	Typical
207	M219	N237	N236		90	3/8 x 4	Beam	RECT	A992	Typical
208	M220	N236	N234		90	3/8 x 4	Beam	RECT	A992	Typical
209	M221	N234	N217		90	3/8 x 4	Beam	RECT	A992	Typical
210	M222	N228	N226			3/8 x 1"	Beam	RECT	A992	Typical
211	M223	N226	N225			3/8 x 1"	Beam	RECT	A992	Typical
212	M224	N225	N218			3/8 x 1"	Beam	RECT	A992	Typical
213	M225	N243	N233			3/8 x 1"	Beam	RECT	A992	Typical
214	M226	N233	N241			3/8 x 1"	Beam	RECT	A992	Typical
215	M227	N241	N232			3/8 x 1"	Beam	RECT	A992	Typical
216	M228	N232	N218			3/8 x 1"	Beam	RECT	A992	Typical
217	M229	N248	N247			RIGID	None	None	RIGID	Typical
218	M230	N218	N241			3/8 x 1"	Beam	RECT	A992	Typical
219	M231	N241	N225			3/8 x 1"	Beam	RECT	A992	Typical
220	M232	N225	N233			3/8 x 1"	Beam	RECT	A992	Typical
221	M233	N233	N226			.875 x .375	Beam	RECT	A992	Typical
222	M234	N242	N226			.875 x .375	Beam	RECT	A992	Typical
223	M235	N242	N227			.875 x .375	Beam	RECT	A992	Typical
224	M236	N243	N227			3/4 x 3/8	Beam	RECT	A992	Typical
225	M237	N243	N228			3/4 x 3/8	Beam	RECT	A992	Typical
226	M238	N244	N228			3/4 x 3/8	Beam	RECT	A992	Typical
227	M239	N244	N229			3/8 x 5/8	Beam	RECT	A992	Typical
228	M240	N245	N229			3/8 x 5/8	Beam	RECT	A992	Typical
229	M241	N245	N230			RIGID	None	None	RIGID	Typical
230	M242	N246	N231			RIGID	None	None	RIGID	Typical
231	M243	N258	N212			RIGID	None	None	RIGID	Typical
232	M244	N214	N49			RIGID	None	None	RIGID	Typical
233	M245	N217	N251		90	3/8 x 4	Beam	RECT	A992	Typical
234	M246	N251	N255		90	3/8 x 4	Beam	RECT	A992	Typical
235	M247	N232	N253			3/8 x 1"	Beam	RECT	A992	Typical
236	M248	N253	N257			3/8 x 1"	Beam	RECT	A992	Typical
237	M249	N218	N252			3/8 x 1"	Beam	RECT	A992	Typical
238	M250	N252	N256			3/8 x 1"	Beam	RECT	A992	Typical
239	M251	N232	N252			3/8 x 1"	Beam	RECT	A992	Typical
240	M252	N253	N252			3/8 x 1"	Beam	RECT	A992	Typical
241	M253	N253	N256			3/8 x 1"	Beam	RECT	A992	Typical
242	M254	N257	N256			3/8 x 1"	Beam	RECT	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
243	M255	N213	N250		90	.5" x 4"	Beam	RECT	A992	Typical
244	M256	N250	N254		90	.5" x 4"	Beam	RECT	A992	Typical
245	M257	N252	N250		90	RIGID	None	None	RIGID	Typical
246	M258	N256	N254		90	RIGID	None	None	RIGID	Typical
247	M259	N255	N257		90	RIGID	None	None	RIGID	Typical
248	M260	N251	N253		90	RIGID	None	None	RIGID	Typical
249	M261	N249	N239		90	3/8 x 4	Beam	RECT	A992	Typical
250	M262	N216	N223		90	.5" x 4"	Beam	RECT	A992	Typical
251	M263	N247	N230			3/8 x 1"	Beam	RECT	A992	Typical
252	M264	N248	N245			3/8 x 1"	Beam	RECT	A992	Typical
253	M265A	N223	N222		90	.5" x 4"	Beam	RECT	A992	Typical
254	M266A	N230	N228			3/8 x 1"	Beam	RECT	A992	Typical
255	M267A	N245	N243			3/8 x 1"	Beam	RECT	A992	Typical
256	M268A	N239	N237		90	3/8 x 4	Beam	RECT	A992	Typical
257	M269A	N266A	N261			RIGID	None	None	RIGID	Typical
258	M270A	N273A	N267A			RIGID	None	None	RIGID	Typical
259	M271A	N274A	N268A			RIGID	None	None	RIGID	Typical
260	M272A	N275A	N269A			RIGID	None	None	RIGID	Typical
261	M273A	N276A	N270A			RIGID	None	None	RIGID	Typical
262	M274A	N277A	N263A			RIGID	None	None	RIGID	Typical
263	M275A	N278A	N271A			RIGID	None	None	RIGID	Typical
264	M276A	N279A	N272A			RIGID	None	None	RIGID	Typical
265	M277A	N295	N264A			RIGID	None	None	RIGID	Typical
266	M278A	N297	N296			RIGID	None	None	RIGID	Typical
267	M279A	N288A	N294A			RIGID	None	None	RIGID	Typical
268	M280A	N287A	N293A			RIGID	None	None	RIGID	Typical
269	M281A	N286A	N292A			RIGID	None	None	RIGID	Typical
270	M282A	N285A	N291A			RIGID	None	None	RIGID	Typical
271	M283A	N283A	N290A			RIGID	None	None	RIGID	Typical
272	M284A	N284A	N281A			RIGID	None	None	RIGID	Typical
273	M285A	N282A	N289A			RIGID	None	None	RIGID	Typical
274	M286A	N265A	N280A			RIGID	None	None	RIGID	Typical
275	M287A	N270A	N268A		90	.5" x 4"	Beam	RECT	A992	Typical
276	M288A	N268A	N267A		90	.5" x 4"	Beam	RECT	A992	Typical
277	M289A	N267A	N261		90	.5" x 4"	Beam	RECT	A992	Typical
278	M290A	N285A	N284A		90	3/8 x 4	Beam	RECT	A992	Typical
279	M291A	N284A	N282A		90	3/8 x 4	Beam	RECT	A992	Typical
280	M292A	N282A	N265A		90	3/8 x 4	Beam	RECT	A992	Typical
281	M293A	N276A	N274A			3/8 x 1"	Beam	RECT	A992	Typical
282	M294A	N274A	N273A			3/8 x 1"	Beam	RECT	A992	Typical
283	M295A	N273A	N266A			3/8 x 1"	Beam	RECT	A992	Typical
284	M296A	N291A	N281A			3/8 x 1"	Beam	RECT	A992	Typical
285	M297A	N281A	N289A			3/8 x 1"	Beam	RECT	A992	Typical
286	M298A	N289A	N280A			3/8 x 1"	Beam	RECT	A992	Typical
287	M299A	N280A	N266A			3/8 x 1"	Beam	RECT	A992	Typical
288	M300A	N296	N295			RIGID	None	None	RIGID	Typical
289	M301A	N266A	N289A			3/8 x 1"	Beam	RECT	A992	Typical
290	M302A	N289A	N273A			3/8 x 1"	Beam	RECT	A992	Typical
291	M303A	N273A	N281A			3/8 x 1"	Beam	RECT	A992	Typical
292	M304A	N281A	N274A		120	.875 x .375	Beam	RECT	A992	Typical
293	M305A	N290A	N274A			.875 x .375	Beam	RECT	A992	Typical
294	M306A	N290A	N275A		120	.875 x .375	Beam	RECT	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
295	M307	N291A	N275A			3/4 x 3/8	Beam	RECT	A992	Typical
296	M308	N291A	N276A		120	3/4 x 3/8	Beam	RECT	A992	Typical
297	M309	N292A	N276A			3/4 x 3/8	Beam	RECT	A992	Typical
298	M310	N292A	N277A		120	3/8 x 5/8	Beam	RECT	A992	Typical
299	M311	N293A	N277A			3/8 x 5/8	Beam	RECT	A992	Typical
300	M312	N293A	N278A		120	RIGID	None	None	RIGID	Typical
301	M313	N294A	N279A			RIGID	None	None	RIGID	Typical
302	M314	N306A	N260			RIGID	None	None	RIGID	Typical
303	M315	N262A	N133			RIGID	None	None	RIGID	Typical
304	M316	N265A	N299		90	3/8 x 4	Beam	RECT	A992	Typical
305	M317	N299	N303A		90	3/8 x 4	Beam	RECT	A992	Typical
306	M318	N280A	N301			3/8 x 1"	Beam	RECT	A992	Typical
307	M319	N301	N305A			3/8 x 1"	Beam	RECT	A992	Typical
308	M320	N266A	N300A			3/8 x 1"	Beam	RECT	A992	Typical
309	M321	N300A	N304A			3/8 x 1"	Beam	RECT	A992	Typical
310	M322	N280A	N300A			3/8 x 1"	Beam	RECT	A992	Typical
311	M323A	N301	N300A		120	3/8 x 1"	Beam	RECT	A992	Typical
312	M324A	N301	N304A			3/8 x 1"	Beam	RECT	A992	Typical
313	M325A	N305A	N304A		120	3/8 x 1"	Beam	RECT	A992	Typical
314	M326A	N261	N298		90	.5" x 4"	Beam	RECT	A992	Typical
315	M327A	N298	N302A		90	.5" x 4"	Beam	RECT	A992	Typical
316	M328A	N300A	N298		90	RIGID	None	None	RIGID	Typical
317	M329A	N304A	N302A		90	RIGID	None	None	RIGID	Typical
318	M330A	N303A	N305A		90	RIGID	None	None	RIGID	Typical
319	M331A	N299	N301		90	RIGID	None	None	RIGID	Typical
320	M332B	N297	N287A		90	3/8 x 4	Beam	RECT	A992	Typical
321	M333A	N264A	N271A		90	.5" x 4"	Beam	RECT	A992	Typical
322	M334A	N295	N278A			3/8 x 1"	Beam	RECT	A992	Typical
323	M335A	N296	N293A			3/8 x 1"	Beam	RECT	A992	Typical
324	M336	N271A	N270A		90	.5" x 4"	Beam	RECT	A992	Typical
325	M337	N278A	N276A			3/8 x 1"	Beam	RECT	A992	Typical
326	M338	N293A	N291A			3/8 x 1"	Beam	RECT	A992	Typical
327	M339	N287A	N285A		90	3/8 x 4	Beam	RECT	A992	Typical
328	M340	N230	N246			RIGID	None	None	RIGID	Typical
329	M341	N231	N259			RIGID	None	None	RIGID	Typical
330	M342	N278	N294			RIGID	None	None	RIGID	Typical
331	M343	N279	N307B			RIGID	None	None	RIGID	Typical
332	M344	N278A	N294A			RIGID	None	None	RIGID	Typical
333	M345	N279A	N307C			RIGID	None	None	RIGID	Typical
334	M346	N150	N94			PIPE_1.5	Beam	Pipe	Q235	Typical
335	M347	N312A	N311A			PIPE_1.5	Beam	Pipe	Q235	Typical
336	M348	N323	N322			3/16 X 1 1/2	Beam	RECT	A992	Typical
337	M349	N321	N320			3/16 X 1 1/2	Beam	RECT	A992	Typical
338	M350	N315	N314			3/16 X 1 1/2	Beam	RECT	A992	Typical
339	M351	N317	N316			3/16 X 1 1/2	Beam	RECT	A992	Typical
340	M352	N319	N318			3/16 X 1 1/2	Beam	RECT	A992	Typical
341	M353	N93	N62			PIPE_1.5	Beam	Pipe	Q235	Typical
342	M354	N310A	N309A			PIPE_1.5	Beam	Pipe	Q235	Typical
343	M355	N337	N336			3/16 X 1 1/2	Beam	RECT	A992	Typical
344	M356	N335	N334			3/16 X 1 1/2	Beam	RECT	A992	Typical
345	M357	N329	N328			3/16 X 1 1/2	Beam	RECT	A992	Typical
346	M358	N331	N330			3/16 X 1 1/2	Beam	RECT	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
347	M359	N333	N332			3/16 X 1 1/2	Beam	RECT	A992	Typical
348	M360	N60	N151			PIPE_1.5	Beam	Pipe	Q235	Typical
349	M361	N308C	N313			PIPE_1.5	Beam	Pipe	Q235	Typical
350	M362	N347	N346			3/16 X 1 1/2	Beam	RECT	A992	Typical
351	M363	N345	N344			3/16 X 1 1/2	Beam	RECT	A992	Typical
352	M364	N339	N338			3/16 X 1 1/2	Beam	RECT	A992	Typical
353	M365	N341	N340			3/16 X 1 1/2	Beam	RECT	A992	Typical
354	M366	N343	N342			3/16 X 1 1/2	Beam	RECT	A992	Typical
355	M367	N353	N352			PIPE_2.0	Beam	Pipe	Q235	Typical
356	M372	N359	N358			PIPE_2.0	Beam	Pipe	Q235	Typical
357	M377	N365	N364			PIPE_2.0	Beam	Pipe	Q235	Typical
358	M368	N354	N375			PIPE_2.5	Beam	HSS Pipe	A992	Typical
359	M369	N349	N374			PIPE_2.5	Beam	HSS Pipe	A992	Typical
360	M370	N357	N381			PIPE_2.5	Beam	HSS Pipe	A992	Typical
361	M371	N350	N378			PIPE_2.5	Beam	HSS Pipe	A992	Typical
362	M373	N356	N380			PIPE_2.5	Beam	HSS Pipe	A992	Typical
363	M374	N355	N376			PIPE_2.5	Beam	HSS Pipe	A992	Typical
364	M375	N360	N372			PIPE_2.5	Beam	HSS Pipe	A992	Typical
365	M376	N351	N379			PIPE_2.5	Beam	HSS Pipe	A992	Typical
366	M378	N348	N373			PIPE_2.5	Beam	HSS Pipe	A992	Typical
367	M379	N361	N377			PIPE_2.5	Beam	HSS Pipe	A992	Typical
368	M380	N362	N382			PIPE_2.5	Beam	HSS Pipe	A992	Typical
369	M381	N363	N383			PIPE_2.5	Beam	HSS Pipe	A992	Typical
370	M382	N359	N364			RIGID	None	None	RIGID	Typical
371	M383	N365	N352			RIGID	None	None	RIGID	Typical
372	M384	N353	N358			RIGID	None	None	RIGID	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N74A	-7.66975	.125	0.	0	
2	N75A	-3.425417	.125	0.	0	
3	N77	-6.633292	.125	0.	0	
4	N79	-6.633292	.125	-0.75	0	
5	N27	-5.558292	.125	0.	0	
6	N28	-4.450866	.125	0.	0	
7	N29	-5.558292	.125	-1.825583	0	
8	N31	-4.455625	.125	-1.2905	0	
9	N35	-6.633292	.125	-0.166667	0	
10	N38	-5.558292	.125	-0.166667	0	
11	N39	-4.455625	.125	-0.166667	0	
12	N41	-6.633292	.125	-1.034517	0	
13	N41A	-5.558292	.125	-2.10975	0	
14	N42	-4.455625	.125	-1.575018	0	
15	N47	-7.501143	.125	0.	0	
16	N49	-3.642525	.125	0.	0	
17	N50	-7.501143	.125	-0.166667	0	
18	N52	-5.440441	.125	-2.227593	0	
19	N52A	-3.642525	.125	-0.166667	0	
20	N64	-6.633292	.125	0.75	0	
21	N67	-5.558292	.125	1.825583	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
22	N68	-4.455625	.125	1.2905	0	
23	N69	-6.633292	.125	0.166667	0	
24	N70	-5.558292	.125	0.166667	0	
25	N71	-4.455625	.125	0.166667	0	
26	N72	-6.633292	.125	1.034517	0	
27	N73	-5.558292	.125	2.10975	0	
28	N74	-4.455625	.125	1.575018	0	
29	N78	-7.501143	.125	0.166667	0	
30	N79A	-5.440441	.125	2.227593	0	
31	N80	-3.642525	.125	0.166667	0	
32	N60	-4.835417	.125	2.232836	0	
33	N62	-4.835417	.125	-2.232836	0	
34	N52C	-6.863962	.125	0.803917	0	
35	N60A	3.834871	.125	-6.642192	0	
36	N61	1.712704	.125	-2.966491	0	
37	N63	3.316642	.125	-5.744592	0	
38	N64A	3.966165	.125	-5.36959	0	
39	N65	2.779142	.125	-4.813615	0	
40	N66	2.227809	.125	-3.858678	0	
41	N67A	4.360148	.125	-3.900821	0	
42	N68A	3.345419	.125	-3.213425	0	
43	N69A	3.460984	.125	-5.661257	0	
44	N70A	2.923484	.125	-4.730279	0	
45	N71A	2.37215	.125	-3.775342	0	
46	N72A	4.212564	.125	-5.227332	0	
47	N73B	4.606243	.125	-3.758738	0	
48	N74B	3.591818	.125	-3.071167	0	
49	N75	3.750567	.125	-6.496173	0	
50	N76A	1.821259	.125	-3.154512	0	
51	N77A	3.894909	.125	-6.412837	0	
52	N78A	4.649373	.125	-3.597754	0	
53	N79B	1.9656	.125	-3.071177	0	
54	N80A	2.667127	.125	-6.11959	0	
55	N81	1.198145	.125	-5.726404	0	
56	N82	1.110207	.125	-4.503925	0	
57	N83	3.172309	.125	-5.827923	0	
58	N84	2.634809	.125	-4.896946	0	
59	N85	2.083475	.125	-3.942009	0	
60	N86	2.420728	.125	-6.261848	0	
61	N87	0.952049	.125	-5.868488	0	
62	N88	0.863808	.125	-4.646184	0	
63	N89	3.606234	.125	-6.579504	0	
64	N90	0.791068	.125	-5.825348	0	
65	N91	1.676925	.125	-3.237843	0	
66	N93	0.484016	.125	-5.304002	0	
67	N94	4.351401	.125	-3.071167	0	
68	N109	4.120184	0.33325	-3.071168	0	
69	N110	4.128194	0.33325	-5.542398	0	
70	N111	4.120184	.125	-3.071168	0	
71	N112	4.641048	0.33325	-3.071168	0	
72	N113	4.128194	.125	-5.542398	0	
73	N114	4.641048	0.33325	-5.542398	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
74	N117	3.834853	.125	6.642189	0	
75	N118	1.712686	.125	2.966489	0	
76	N120	3.316624	.125	5.74459	0	
77	N121	2.667105	.125	6.11959	0	
78	N122	2.779124	.125	4.813613	0	
79	N123	2.22779	.125	3.858675	0	
80	N124	1.198122	.125	5.726404	0	
81	N125	1.110185	.125	4.503925	0	
82	N126	3.172286	.125	5.827923	0	
83	N127	2.634786	.125	4.896946	0	
84	N128	2.083453	.125	3.942009	0	
85	N129	2.420706	.125	6.261848	0	
86	N130	0.952027	.125	5.868488	0	
87	N131	0.863785	.125	4.646184	0	
88	N132	3.750549	.125	6.496171	0	
89	N133	1.82124	.125	3.15451	0	
90	N134	3.606211	.125	6.579504	0	
91	N135	0.791046	.125	5.825348	0	
92	N136	1.676903	.125	3.237843	0	
93	N137	3.966143	.125	5.36959	0	
94	N138	4.360125	.125	3.900821	0	
95	N139	3.345396	.125	3.213425	0	
96	N140	3.460961	.125	5.661257	0	
97	N141	2.923461	.125	4.730279	0	
98	N142	2.372128	.125	3.775342	0	
99	N143	4.212541	.125	5.227332	0	
100	N144	4.606221	.125	3.758738	0	
101	N145	3.591795	.125	3.071167	0	
102	N146	3.894887	.125	6.412837	0	
103	N147	4.649351	.125	3.597754	0	
104	N148	1.965578	.125	3.071177	0	
105	N149	4.120161	0.33325	3.071168	0	
106	N150	4.351379	.125	3.071167	0	
107	N151	0.483994	.125	5.304002	0	
108	N152	4.128171	0.33325	5.542398	0	
109	N162	4.120161	.125	3.071168	0	
110	N163	4.641025	0.33325	3.071168	0	
111	N164	4.128171	.125	5.542398	0	
112	N165	4.641025	0.33325	5.542398	0	
113	N167	2.735747	0.33325	6.346315	0	
114	N152A	-4.719809	0.33325	-2.032595	0	
115	N153A	-6.863962	0.33325	-0.803917	0	
116	N154A	-4.719809	.125	-2.032595	0	
117	N155A	-4.980241	0.33325	-2.483677	0	
118	N156A	-6.863962	.125	-0.803917	0	
119	N157A	-7.120381	0.33325	-1.248066	0	
120	N158A	0.599626	0.33325	-5.103763	0	
121	N159A	2.735769	0.33325	-6.346315	0	
122	N160A	0.599626	.125	-5.103763	0	
123	N161A	0.339194	0.33325	-5.554844	0	
124	N162A	2.735769	.125	-6.346315	0	
125	N163A	2.479338	0.33325	-6.790457	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
126	N166	0.599603	0.33325	5.103763	0	
127	N168	0.599603	.125	5.103763	0	
128	N169	0.339171	0.33325	5.554844	0	
129	N170	2.735747	.125	6.346315	0	
130	N171	2.479332	0.33325	6.790467	0	
131	N172A	-4.719809	0.33325	2.032595	0	
132	N173A	-6.863962	0.33325	0.803917	0	
133	N174	-4.719809	.125	2.032595	0	
134	N175	-4.980241	0.33325	2.483677	0	
135	N177	-7.120381	0.33325	1.248066	0	
136	N192	4.641025	0.33325	6.250009	0	
137	N193	4.641048	0.33325	-6.250009	0	
138	N195	3.092151	0.33325	-7.144265	0	
139	N196A	-7.733198	0.33325	-0.894256	0	
140	N204	-7.733198	0.33325	0.894256	0	
141	N205	3.092129	0.33325	7.144265	0	
142	N212	-5.333333	.125	0.	0	
143	N260	2.666667	.125	4.618802	0	
144	N307	2.666667	.125	-4.618802	0	
145	N307A	4.64104	0.33325	-2.083336	0	
146	N308	4.641033	0.33325	2.083336	0	
147	N309	-4.124748	0.33325	-2.977592	0	
148	N310	-0.516299	0.33325	-5.060929	0	
149	N311	-0.516314	0.33325	5.060929	0	
150	N312	-4.124756	0.33325	2.977592	0	
151	N261A	1.187484	-0.020833	-2.056783	0	
152	N262	1.821262	-0.020833	-3.154519	0	
153	N263	2.578812	-0.020833	-4.466634	0	
154	N264	3.125	-0.020833	-5.412659	0	
155	N265	1.187484	-1.0155	-2.056783	0	
156	N266	1.187484	-0.083333	-2.056783	0	
157	N267	1.54662	-0.020833	-2.678824	0	
158	N268	1.870615	-0.020833	-3.24	0	
159	N269	2.148887	-0.020833	-3.721981	0	
160	N270	2.382214	-0.020833	-4.126116	0	
161	N271	2.744672	-0.020833	-4.753912	0	
162	N272	2.874395	-0.020833	-4.978598	0	
163	N273	1.54662	-0.083333	-2.678824	0	
164	N274	1.870615	-0.083333	-3.24	0	
165	N275	2.148887	-0.083333	-3.721981	0	
166	N276	2.382214	-0.083333	-4.126116	0	
167	N277	2.578812	-0.083333	-4.466634	0	
168	N278	2.744672	-0.083333	-4.753912	0	
169	N279	2.874395	-0.083333	-4.978598	0	
170	N280	1.186809	-0.95406	-2.055613	0	
171	N281	1.870615	-0.666612	-3.24	0	
172	N282	1.550746	-0.863854	-2.685971	0	
173	N283	2.155251	-0.611498	-3.733005	0	
174	N284	1.876985	-0.727663	-3.251033	0	
175	N285	2.38858	-0.514094	-4.137142	0	
176	N286	2.585176	-0.432023	-4.477657	0	
177	N287	2.751035	-0.362784	-4.764932	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
178	N288	2.880756	-0.308631	-4.989615	0	
179	N289	1.544367	-0.802709	-2.674921	0	
180	N290	2.148887	-0.550497	-3.721981	0	
181	N291	2.382214	-0.453078	-4.126116	0	
182	N292	2.578812	-0.371028	-4.466634	0	
183	N293	2.744672	-0.301807	-4.753912	0	
184	N294	2.874395	-0.247667	-4.978598	0	
185	N295A	3.125	-0.083333	-5.412659	0	
186	N296A	3.115908	-0.146105	-5.39691	0	
187	N297A	3.117052	-0.209988	-5.398892	0	
188	N298A	0.708318	-0.020833	-1.226842	0	
189	N299A	0.708318	-1.0155	-1.226842	0	
190	N300	0.708318	-0.083333	-1.226842	0	
191	N301A	0.708318	-0.954046	-1.226842	0	
192	N302	.25	-0.020833	-0.433013	0	
193	N303	.25	-1.0155	-0.433013	0	
194	N304	.25	-0.083333	-0.433013	0	
195	N305	.25	-0.954046	-0.433013	0	
196	N306	2.666667	-0.020833	-4.618802	0	
197	N307B	3.005854	-0.192151	-5.206291	0	
198	N308A	3.005854	-0.083333	-5.206291	0	
199	N213	-2.374968	-0.020833	0.	0	
200	N214	-3.642525	-0.020833	0.	0	
201	N215	-5.157624	-0.020833	0.	0	
202	N216	-6.25	-0.020833	0.	0	
203	N217	-2.374969	-1.0155	0.	0	
204	N218	-2.374968	-0.083333	0.	0	
205	N219	-3.09324	-0.020833	0.	0	
206	N220	-3.74123	-0.020833	0.	0	
207	N221	-4.297774	-0.020833	0.	0	
208	N222	-4.764428	-0.020833	0.	0	
209	N223	-5.489345	-0.020833	0.	0	
210	N224	-5.74879	-0.020833	0.	0	
211	N225	-3.09324	-0.083333	0.	0	
212	N226	-3.74123	-0.083333	0.	0	
213	N227	-4.297774	-0.083333	0.	0	
214	N228	-4.764428	-0.083333	0.	0	
215	N229	-5.157624	-0.083333	0.	0	
216	N230	-5.489345	-0.083333	0.	0	
217	N231	-5.74879	-0.083333	0.	0	
218	N232	-2.373617	-0.95406	0.	0	
219	N233	-3.74123	-0.666612	0.	0	
220	N234	-3.101492	-0.863854	0.	0	
221	N235	-4.310503	-0.611498	0.	0	
222	N236	-3.75397	-0.727663	0.	0	
223	N237	-4.77716	-0.514094	0.	0	
224	N238	-5.170352	-0.432023	0.	0	
225	N239	-5.502069	-0.362784	0.	0	
226	N240	-5.761511	-0.308631	0.	0	
227	N241	-3.088733	-0.802709	0.	0	
228	N242	-4.297774	-0.550497	0.	0	
229	N243	-4.764428	-0.453078	0.	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
230	N244	-5.157624	-0.371028	0.	0	
231	N245	-5.489345	-0.301807	0.	0	
232	N246	-5.74879	-0.247667	0.	0	
233	N247	-6.25	-0.083333	0.	0	
234	N248	-6.231815	-0.146105	0.	0	
235	N249	-6.234103	-0.209988	0.	0	
236	N250	-1.416635	-0.020833	0.	0	
237	N251	-1.416635	-1.0155	0.	0	
238	N252	-1.416635	-0.083333	0.	0	
239	N253	-1.416635	-0.954046	0.	0	
240	N254	-.5	-0.020833	0.	0	
241	N255	-.5	-1.0155	0.	0	
242	N256	-.5	-0.083333	0.	0	
243	N257	-.5	-0.954046	0.	0	
244	N258	-5.333333	-0.020833	0.	0	
245	N259	-6.011707	-0.192151	0.	0	
246	N260A	-6.011707	-0.083333	0.	0	
247	N261	1.187484	-0.020833	2.056783	0	
248	N262A	1.821262	-0.020833	3.154519	0	
249	N263A	2.578812	-0.020833	4.466634	0	
250	N264A	3.125	-0.020833	5.412659	0	
251	N265A	1.187484	-1.0155	2.056783	0	
252	N266A	1.187484	-0.083333	2.056783	0	
253	N267A	1.54662	-0.020833	2.678824	0	
254	N268A	1.870615	-0.020833	3.24	0	
255	N269A	2.148887	-0.020833	3.721981	0	
256	N270A	2.382214	-0.020833	4.126116	0	
257	N271A	2.744672	-0.020833	4.753912	0	
258	N272A	2.874395	-0.020833	4.978598	0	
259	N273A	1.54662	-0.083333	2.678824	0	
260	N274A	1.870615	-0.083333	3.24	0	
261	N275A	2.148887	-0.083333	3.721981	0	
262	N276A	2.382214	-0.083333	4.126116	0	
263	N277A	2.578812	-0.083333	4.466634	0	
264	N278A	2.744672	-0.083333	4.753912	0	
265	N279A	2.874395	-0.083333	4.978598	0	
266	N280A	1.186809	-0.95406	2.055613	0	
267	N281A	1.870615	-0.666612	3.24	0	
268	N282A	1.550746	-0.863854	2.685971	0	
269	N283A	2.155251	-0.611498	3.733005	0	
270	N284A	1.876985	-0.727663	3.251033	0	
271	N285A	2.38858	-0.514094	4.137142	0	
272	N286A	2.585176	-0.432023	4.477657	0	
273	N287A	2.751035	-0.362784	4.764932	0	
274	N288A	2.880756	-0.308631	4.989615	0	
275	N289A	1.544367	-0.802709	2.674921	0	
276	N290A	2.148887	-0.550497	3.721981	0	
277	N291A	2.382214	-0.453078	4.126116	0	
278	N292A	2.578812	-0.371028	4.466634	0	
279	N293A	2.744672	-0.301807	4.753912	0	
280	N294A	2.874395	-0.247667	4.978598	0	
281	N295	3.125	-0.083333	5.412659	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
282	N296	3.115908	-0.146105	5.39691	0	
283	N297	3.117052	-0.209988	5.398892	0	
284	N298	0.708318	-0.020833	1.226842	0	
285	N299	0.708318	-1.0155	1.226842	0	
286	N300A	0.708318	-0.083333	1.226842	0	
287	N301	0.708318	-0.954046	1.226842	0	
288	N302A	.25	-0.020833	0.433013	0	
289	N303A	.25	-1.0155	0.433013	0	
290	N304A	.25	-0.083333	0.433013	0	
291	N305A	.25	-0.954046	0.433013	0	
292	N306A	2.666667	-0.020833	4.618802	0	
293	N307C	3.005854	-0.192151	5.206291	0	
294	N308B	3.005854	-0.083333	5.206291	0	
295	N307D	0	0	0	0	
296	N308C	-4.002106	.125	0.789485	0	
297	N309A	-4.002106	.125	-0.789485	0	
298	N310A	1.317339	.125	-3.860658	0	
299	N311A	2.684767	.125	-3.071174	0	
300	N312A	2.684745	.125	3.071174	0	
301	N313	1.317317	.125	3.860658	0	
302	N314	4.35139	.125	0	0	
303	N315	2.684756	.125	0	0	
304	N316	4.35139	.125	-1.25	0	
305	N317	2.684756	.125	-1.25	0	
306	N318	4.35139	.125	-2.5	0	
307	N319	2.684756	.125	-2.5	0	
308	N320	4.35139	.125	1.25	0	
309	N321	2.684756	.125	1.25	0	
310	N322	4.35139	.125	2.5	0	
311	N323	2.684756	.125	2.5	0	
312	N328	-2.175695	.125	-3.768414	0	
313	N329	-1.342378	.125	-2.325067	0	
314	N330	-3.258227	.125	-3.143414	0	
315	N331	-2.42491	.125	-1.700067	0	
316	N332	-4.340758	.125	-2.518414	0	
317	N333	-3.507441	.125	-1.075067	0	
318	N334	-1.093163	.125	-4.393414	0	
319	N335	-0.259846	.125	-2.950067	0	
320	N336	-0.010631	.125	-5.018414	0	
321	N337	0.822686	.125	-3.575067	0	
322	N338	-2.175695	.125	3.768414	0	
323	N339	-1.342378	.125	2.325067	0	
324	N340	-1.093163	.125	4.393414	0	
325	N341	-0.259846	.125	2.950067	0	
326	N342	-0.010631	.125	5.018414	0	
327	N343	0.822686	.125	3.575067	0	
328	N344	-3.258227	.125	3.143414	0	
329	N345	-2.42491	.125	1.700067	0	
330	N346	-4.340758	.125	2.518414	0	
331	N347	-3.507441	.125	1.075067	0	
332	N348	4.641025	6.08325	6.250009	0	
333	N349	4.641048	6.08325	-6.250009	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
334	N350	4.641048	6.08325	-2.083336	0	
335	N351	4.641025	6.08325	2.083336	0	
336	N352	4.641025	3.83325	6.250009	0	
337	N353	4.641048	3.83325	-6.250009	0	
338	N354	3.092151	6.08325	-7.144265	0	
339	N355	-7.733198	6.08325	-0.894256	0	
340	N356	-4.124748	6.08325	-2.977592	0	
341	N357	-0.516299	6.08325	-5.060929	0	
342	N358	3.092151	3.83325	-7.144265	0	
343	N359	-7.733198	3.83325	-0.894256	0	
344	N360	-7.733198	6.08325	0.894256	0	
345	N361	3.092128	6.08325	7.144265	0	
346	N362	-0.516314	6.08325	5.060929	0	
347	N363	-4.124756	6.08325	2.977592	0	
348	N364	-7.733198	3.83325	0.894256	0	
349	N365	3.092129	3.83325	7.144265	0	
350	N366	4.64104	3.83325	-2.083336	0	
351	N367	4.641033	3.83325	2.083336	0	
352	N368	-4.124748	3.83325	-2.977592	0	
353	N369	-0.516299	3.83325	-5.060929	0	
354	N370	-0.516314	3.83325	5.060929	0	
355	N371	-4.124756	3.83325	2.977592	0	
356	N372	-7.733198	-1.91675	0.894256	0	
357	N373	4.641025	-1.91675	6.250009	0	
358	N374	4.641048	-1.91675	-6.250009	0	
359	N375	3.092151	-1.91675	-7.144265	0	
360	N376	-7.733198	-1.91675	-0.894256	0	
361	N377	3.092129	-1.91675	7.144265	0	
362	N378	4.64104	-1.91675	-2.083336	0	
363	N379	4.641033	-1.91675	2.083336	0	
364	N380	-4.124748	-1.91675	-2.977592	0	
365	N381	-0.516299	-1.91675	-5.060929	0	
366	N382	-0.516314	-1.91675	5.060929	0	
367	N383	-4.124756	-1.91675	2.977592	0	

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	N261A						
2	N265						
3	N298A						
4	N299A						
5	N302	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N303	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N213						
8	N217						
9	N250						
10	N251						
11	N254	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N255	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
13	N261						

Joint Boundary Conditions (Continued)

	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]
14	N265A						
15	N298						
16	N299						
17	N302A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
18	N303A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	Y	-.025	1.5
2	M371	Y	-.025	1.5
3	M373	Y	-.025	1.5
4	M381	Y	-.025	1.5
5	M376	Y	-.025	1.5
6	M380	Y	-.025	1.5
7	M370	Y	-.025	6.5
8	M371	Y	-.025	6.5
9	M373	Y	-.025	6.5
10	M381	Y	-.025	6.5
11	M376	Y	-.025	6.5
12	M380	Y	-.025	6.5
13	M374	Y	-.03	3
14	M369	Y	-.03	3
15	M379	Y	-.03	3
16	M374	Y	-.03	5
17	M369	Y	-.03	5
18	M379	Y	-.03	5
19	M371	Y	-.075	%50
20	M373	Y	-.075	%50
21	M380	Y	-.075	%50
22	M370	Y	-.08	%50
23	M376	Y	-.08	%50
24	M381	Y	-.08	%50
25	M375	Y	-.032	%50

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	Y	-.063	1.5
2	M371	Y	-.063	1.5
3	M373	Y	-.063	1.5
4	M381	Y	-.063	1.5
5	M376	Y	-.063	1.5
6	M380	Y	-.063	1.5
7	M370	Y	-.063	6.5
8	M371	Y	-.063	6.5
9	M373	Y	-.063	6.5
10	M381	Y	-.063	6.5
11	M376	Y	-.063	6.5
12	M380	Y	-.063	6.5
13	M374	Y	-.031	3
14	M369	Y	-.031	3

Member Point Loads (BLC 3 : Ice Load) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	M379	Y	-.031	3
16	M374	Y	-.031	5
17	M369	Y	-.031	5
18	M379	Y	-.031	5
19	M371	Y	-.047	%50
20	M373	Y	-.047	%50
21	M380	Y	-.047	%50
22	M370	Y	-.048	%50
23	M376	Y	-.048	%50
24	M381	Y	-.048	%50
25	M375	Y	-.091	%50

Member Point Loads (BLC 6 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	X	.03	1.5
2	M373	X	.03	1.5
3	M381	X	.03	1.5
4	M380	X	.03	1.5
5	M370	X	.03	6.5
6	M373	X	.03	6.5
7	M381	X	.03	6.5
8	M380	X	.03	6.5
9	M371	X	.045	1.5
10	M376	X	.045	1.5
11	M371	X	.045	6.5
12	M376	X	.045	6.5
13	M374	X	.009	3
14	M379	X	.009	3
15	M374	X	.009	5
16	M379	X	.009	5
17	M369	X	.022	3
18	M369	X	.022	5
19	M373	X	.023	%50
20	M380	X	.023	%50
21	M370	X	.023	%50
22	M381	X	.023	%50
23	M375	X	.045	%50

Member Point Loads (BLC 7 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	X	.148	1.5
2	M373	X	.148	1.5
3	M381	X	.148	1.5
4	M380	X	.148	1.5
5	M370	X	.148	6.5
6	M373	X	.148	6.5
7	M381	X	.148	6.5
8	M380	X	.148	6.5
9	M371	X	.247	1.5
10	M376	X	.247	1.5
11	M371	X	.247	6.5

Member Point Loads (BLC 7 : Wind X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	M376	X	.247	6.5
13	M374	X	.041	3
14	M379	X	.041	3
15	M374	X	.041	5
16	M379	X	.041	5
17	M369	X	.117	3
18	M369	X	.117	5
19	M373	X	.115	%50
20	M380	X	.115	%50
21	M370	X	.115	%50
22	M381	X	.115	%50
23	M375	X	.249	%50

Member Point Loads (BLC 8 : Wm Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	X	.008	1.5
2	M373	X	.008	1.5
3	M381	X	.008	1.5
4	M380	X	.008	1.5
5	M370	X	.008	6.5
6	M373	X	.008	6.5
7	M381	X	.008	6.5
8	M380	X	.008	6.5
9	M371	X	.013	1.5
10	M376	X	.013	1.5
11	M371	X	.013	6.5
12	M376	X	.013	6.5
13	M374	X	.002	3
14	M379	X	.002	3
15	M374	X	.002	5
16	M379	X	.002	5
17	M369	X	.006	3
18	M369	X	.006	5
19	M373	X	.006	%50
20	M380	X	.006	%50
21	M370	X	.006	%50
22	M381	X	.006	%50
23	M375	X	.013	%50

Member Point Loads (BLC 9 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	Z	.045	1.5
2	M373	Z	.045	1.5
3	M381	Z	.045	1.5
4	M380	Z	.045	1.5
5	M370	Z	.045	6.5
6	M373	Z	.045	6.5
7	M381	Z	.045	6.5
8	M380	Z	.045	6.5
9	M371	Z	.03	1.5
10	M376	Z	.03	1.5

Member Point Loads (BLC 9 : Wind with Ice Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
11	M371	Z	.03	6.5
12	M376	Z	.03	6.5
13	M374	Z	.022	3
14	M379	Z	.022	3
15	M374	Z	.022	5
16	M379	Z	.022	5
17	M369	Z	.009	3
18	M369	Z	.009	5
19	M371	Z	.023	%50
20	M376	Z	.023	%50
21	M375	Z	.045	%50

Member Point Loads (BLC 10 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	Z	.247	1.5
2	M373	Z	.247	1.5
3	M381	Z	.247	1.5
4	M380	Z	.247	1.5
5	M370	Z	.247	6.5
6	M373	Z	.247	6.5
7	M381	Z	.247	6.5
8	M380	Z	.247	6.5
9	M371	Z	.148	1.5
10	M376	Z	.148	1.5
11	M371	Z	.148	6.5
12	M376	Z	.148	6.5
13	M374	Z	.117	3
14	M379	Z	.117	3
15	M374	Z	.117	5
16	M379	Z	.117	5
17	M369	Z	.041	3
18	M369	Z	.041	5
19	M371	Z	.115	%50
20	M376	Z	.115	%50
21	M375	Z	.249	%50

Member Point Loads (BLC 11 : Wm Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M370	Z	.013	1.5
2	M373	Z	.013	1.5
3	M381	Z	.013	1.5
4	M380	Z	.013	1.5
5	M370	Z	.013	6.5
6	M373	Z	.013	6.5
7	M381	Z	.013	6.5
8	M380	Z	.013	6.5
9	M371	Z	.008	1.5
10	M376	Z	.008	1.5
11	M371	Z	.008	6.5
12	M376	Z	.008	6.5
13	M374	Z	.006	3

Member Point Loads (BLC 11 : Wm Wind Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	M379	Z	.006	3
15	M374	Z	.006	5
16	M379	Z	.006	5
17	M369	Z	.002	3
18	M369	Z	.002	5
19	M371	Z	.006	%50
20	M376	Z	.006	%50
21	M375	Z	.013	%50

Member Distributed Loads (BLC 6 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PX	.004	.004	0	0
2	M68	PX	.004	.004	0	0
3	M74B	PX	.004	.004	0	0
4	M75B	PX	.004	.004	0	0
5	M73	PX	.004	.004	0	0
6	M74	PX	.004	.004	0	0
7	M75	PX	.004	.004	0	0
8	M76	PX	.004	.004	0	0
9	M122	PX	.004	.004	0	0
10	M123	PX	.004	.004	0	0
11	M124	PX	.004	.004	0	0
12	M125	PX	.004	.004	0	0
13	M146A	PX	.004	.004	0	0
14	M177	PX	.004	.004	0	0
15	M182	PX	.004	.004	0	0
16	M346	PX	.004	.004	0	0
17	M347	PX	.004	.004	0	0
18	M353	PX	.004	.004	0	0
19	M354	PX	.004	.004	0	0
20	M360	PX	.004	.004	0	0
21	M361	PX	.004	.004	0	0
22	M367	PX	.004	.004	0	0
23	M372	PX	.004	.004	0	0
24	M377	PX	.004	.004	0	0
25	M368	X	.004	.004	0	0
26	M369	X	.004	.004	0	0
27	M370	X	.004	.004	0	0
28	M371	X	.004	.004	0	0
29	M373	X	.004	.004	0	0
30	M374	X	.004	.004	0	0
31	M375	X	.004	.004	0	0
32	M376	X	.004	.004	0	0
33	M378	X	.004	.004	0	0
34	M379	X	.004	.004	0	0
35	M380	X	.004	.004	0	0
36	M381	X	.004	.004	0	0

Member Distributed Loads (BLC 7 : Wind X)

Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 7 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PX	.012	.012	0	0
2	M68	PX	.012	.012	0	0
3	M74B	PX	.012	.012	0	0
4	M75B	PX	.012	.012	0	0
5	M73	PX	.012	.012	0	0
6	M74	PX	.012	.012	0	0
7	M75	PX	.012	.012	0	0
8	M76	PX	.012	.012	0	0
9	M122	PX	.012	.012	0	0
10	M123	PX	.012	.012	0	0
11	M124	PX	.012	.012	0	0
12	M125	PX	.012	.012	0	0
13	M146A	PX	.012	.012	0	0
14	M177	PX	.012	.012	0	0
15	M182	PX	.012	.012	0	0
16	M346	PX	.012	.012	0	0
17	M347	PX	.012	.012	0	0
18	M353	PX	.012	.012	0	0
19	M354	PX	.012	.012	0	0
20	M360	PX	.012	.012	0	0
21	M361	PX	.012	.012	0	0
22	M367	PX	.012	.012	0	0
23	M372	PX	.012	.012	0	0
24	M377	PX	.012	.012	0	0
25	M368	X	.012	.012	0	0
26	M369	X	.012	.012	0	0
27	M370	X	.012	.012	0	0
28	M371	X	.012	.012	0	0
29	M373	X	.012	.012	0	0
30	M374	X	.012	.012	0	0
31	M375	X	.012	.012	0	0
32	M376	X	.012	.012	0	0
33	M378	X	.012	.012	0	0
34	M379	X	.012	.012	0	0
35	M380	X	.012	.012	0	0
36	M381	X	.012	.012	0	0

Member Distributed Loads (BLC 8 : Wm Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PX	.004	.004	0	0
2	M68	PX	.004	.004	0	0
3	M74B	PX	.004	.004	0	0
4	M75B	PX	.004	.004	0	0
5	M73	PX	.004	.004	0	0
6	M74	PX	.004	.004	0	0
7	M75	PX	.004	.004	0	0
8	M76	PX	.004	.004	0	0
9	M122	PX	.004	.004	0	0
10	M123	PX	.004	.004	0	0
11	M124	PX	.004	.004	0	0
12	M125	PX	.004	.004	0	0

Member Distributed Loads (BLC 8 : Wm Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
13	M146A	PX	.004	.004	0	0
14	M177	PX	.004	.004	0	0
15	M182	PX	.004	.004	0	0
16	M346	PX	.004	.004	0	0
17	M347	PX	.004	.004	0	0
18	M353	PX	.004	.004	0	0
19	M354	PX	.004	.004	0	0
20	M360	PX	.004	.004	0	0
21	M361	PX	.004	.004	0	0
22	M367	PX	.004	.004	0	0
23	M372	PX	.004	.004	0	0
24	M377	PX	.004	.004	0	0
25	M368	X	.004	.004	0	0
26	M369	X	.004	.004	0	0
27	M370	X	.004	.004	0	0
28	M371	X	.004	.004	0	0
29	M373	X	.004	.004	0	0
30	M374	X	.004	.004	0	0
31	M375	X	.004	.004	0	0
32	M376	X	.004	.004	0	0
33	M378	X	.004	.004	0	0
34	M379	X	.004	.004	0	0
35	M380	X	.004	.004	0	0
36	M381	X	.004	.004	0	0

Member Distributed Loads (BLC 9 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PZ	.004	.004	0	0
2	M68	PZ	.004	.004	0	0
3	M74B	PZ	.004	.004	0	0
4	M75B	PZ	.004	.004	0	0
5	M73	PZ	.004	.004	0	0
6	M74	PZ	.004	.004	0	0
7	M75	PZ	.004	.004	0	0
8	M76	PZ	.004	.004	0	0
9	M122	PZ	.004	.004	0	0
10	M123	PZ	.004	.004	0	0
11	M124	PZ	.004	.004	0	0
12	M125	PZ	.004	.004	0	0
13	M146A	PZ	.004	.004	0	0
14	M177	PZ	.004	.004	0	0
15	M182	PZ	.004	.004	0	0
16	M346	PZ	.004	.004	0	0
17	M347	PZ	.004	.004	0	0
18	M353	PZ	.004	.004	0	0
19	M354	PZ	.004	.004	0	0
20	M360	PZ	.004	.004	0	0
21	M361	PZ	.004	.004	0	0
22	M367	PZ	.004	.004	0	0
23	M372	PZ	.004	.004	0	0
24	M377	PZ	.004	.004	0	0

Member Distributed Loads (BLC 9 : Wind with Ice Z) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
25	M368	Z	.004	.004	0	0
26	M369	Z	.004	.004	0	0
27	M370	Z	.004	.004	0	0
28	M371	Z	.004	.004	0	0
29	M373	Z	.004	.004	0	0
30	M374	Z	.004	.004	0	0
31	M375	Z	.004	.004	0	0
32	M376	Z	.004	.004	0	0
33	M378	Z	.004	.004	0	0
34	M379	Z	.004	.004	0	0
35	M380	Z	.004	.004	0	0
36	M381	Z	.004	.004	0	0

Member Distributed Loads (BLC 10 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PZ	.012	.012	0	0
2	M68	PZ	.012	.012	0	0
3	M74B	PZ	.012	.012	0	0
4	M75B	PZ	.012	.012	0	0
5	M73	PZ	.012	.012	0	0
6	M74	PZ	.012	.012	0	0
7	M75	PZ	.012	.012	0	0
8	M76	PZ	.012	.012	0	0
9	M122	PZ	.012	.012	0	0
10	M123	PZ	.012	.012	0	0
11	M124	PZ	.012	.012	0	0
12	M125	PZ	.012	.012	0	0
13	M146A	PZ	.012	.012	0	0
14	M177	PZ	.012	.012	0	0
15	M182	PZ	.012	.012	0	0
16	M346	PZ	.012	.012	0	0
17	M347	PZ	.012	.012	0	0
18	M353	PZ	.012	.012	0	0
19	M354	PZ	.012	.012	0	0
20	M360	PZ	.012	.012	0	0
21	M361	PZ	.012	.012	0	0
22	M367	PZ	.012	.012	0	0
23	M372	PZ	.012	.012	0	0
24	M377	PZ	.012	.012	0	0
25	M368	Z	.012	.012	0	0
26	M369	Z	.012	.012	0	0
27	M370	Z	.012	.012	0	0
28	M371	Z	.012	.012	0	0
29	M373	Z	.012	.012	0	0
30	M374	Z	.012	.012	0	0
31	M375	Z	.012	.012	0	0
32	M376	Z	.012	.012	0	0
33	M378	Z	.012	.012	0	0
34	M379	Z	.012	.012	0	0
35	M380	Z	.012	.012	0	0
36	M381	Z	.012	.012	0	0

Member Distributed Loads (BLC 11 : Wm Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M45A	PZ	.004	.004	0	0
2	M68	PZ	.004	.004	0	0
3	M74B	PZ	.004	.004	0	0
4	M75B	PZ	.004	.004	0	0
5	M73	PZ	.004	.004	0	0
6	M74	PZ	.004	.004	0	0
7	M75	PZ	.004	.004	0	0
8	M76	PZ	.004	.004	0	0
9	M122	PZ	.004	.004	0	0
10	M123	PZ	.004	.004	0	0
11	M124	PZ	.004	.004	0	0
12	M125	PZ	.004	.004	0	0
13	M146A	PZ	.004	.004	0	0
14	M177	PZ	.004	.004	0	0
15	M182	PZ	.004	.004	0	0
16	M346	PZ	.004	.004	0	0
17	M347	PZ	.004	.004	0	0
18	M353	PZ	.004	.004	0	0
19	M354	PZ	.004	.004	0	0
20	M360	PZ	.004	.004	0	0
21	M361	PZ	.004	.004	0	0
22	M367	PZ	.004	.004	0	0
23	M372	PZ	.004	.004	0	0
24	M377	PZ	.004	.004	0	0
25	M368	Z	.004	.004	0	0
26	M369	Z	.004	.004	0	0
27	M370	Z	.004	.004	0	0
28	M371	Z	.004	.004	0	0
29	M373	Z	.004	.004	0	0
30	M374	Z	.004	.004	0	0
31	M375	Z	.004	.004	0	0
32	M376	Z	.004	.004	0	0
33	M378	Z	.004	.004	0	0
34	M379	Z	.004	.004	0	0
35	M380	Z	.004	.004	0	0
36	M381	Z	.004	.004	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib...	Area(...	Surfa...
1	Self Weight	None		-1						
2	Dead Load	None					25			
3	Ice Load	None					25			
4	Lm Maintenance Load (500lb)	None								
5	Lv Maintenance Load (250lb)	None								
6	Wind with Ice X	None					23	36		
7	Wind X	None					23	36		
8	Wm Wind X	None					23	36		
9	Wind with Ice Z	None					21	36		
10	Wind Z	None					21	36		
11	Wm Wind Z	None					21	36		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4D	Yes	Y		1	1.4	2	1.4																
2	1.2D +1.5Lv	Yes	Y		1	1.2	2	1.2	5	1.5														
3	1.2D + 1.0W (X-directi...	Yes	Y		1	1.2	2	1.2	7	1														
4	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	6	1												
5	1.2D +1.5Lm+ 1.0Wm ...	Yes	Y		1	1.2	2	1.2	4	1.5	8	1												
6	1.2D + 1.0W (Z-directi...	Yes	Y		1	1.2	2	1.2	10	1														
7	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	9	1												
8	1.2D +1.5Lm+ 1.0Wm ...	Yes	Y		1	1.2	2	1.2	4	1.5	11	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N302	max	3.001	6	1.508	4	6.805	3	.042	6	.765	3	.034	6
2		min	-4.501	3	.13	6	-5.024	6	-.079	3	-.663	6	-.033	3
3	N303	max	4.027	3	.062	4	1.348	6	.02	6	0	2	.002	6
4		min	-.648	6	.011	6	-6.915	3	-.057	3	-.485	6	-.028	3
5	N254	max	5.288	7	1.552	7	.056	3	0	2	.15	3	.058	7
6		min	-6.549	3	.091	3	-.909	6	-.012	6	-1.812	6	-.061	3
7	N255	max	1.817	3	.064	7	.013	3	.001	3	.059	3	.056	7
8		min	-7.402	7	.01	3	-.027	6	-.014	6	-.321	6	-.021	3
9	N302A	max	-1.589	2	1.898	6	-2.755	2	.103	6	.003	1	-.018	2
10		min	-6.188	6	1.015	2	-10.531	6	.031	2	-.646	6	-.07	6
11	N303A	max	5.307	6	.072	6	9.37	6	.079	6	.139	3	-.017	2
12		min	2.33	2	.044	2	4.039	2	.03	2	-.468	6	-.036	6
13	Totals:	max	0	2	4.532	4	0	3						
14		min	-5.56	3	3.214	6	-5.774	6						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N74A	max	.007	3	.067	3	.228	6	4.834e-03	6	2.537e-03	6	7.839e-04	7
2		min	-.002	7	-.066	7	-.027	3	-4.2e-05	3	-3.521e-04	3	-1.751e-03	3
3	N75A	max	.006	3	.001	3	.098	6	3.818e-03	6	2.423e-03	6	8.499e-04	7
4		min	-.003	7	-.022	7	-.009	3	-2.058e-05	3	-3.637e-04	3	-1.097e-03	3
5	N77	max	.007	3	.045	3	.196	6	4.695e-03	6	2.584e-03	6	1.049e-03	7
6		min	-.003	7	-.055	7	-.023	3	-3.383e-05	3	-3.583e-04	3	-1.745e-03	3
7	N79	max	.011	3	.046	3	.196	6	4.481e-03	6	2.587e-03	6	7.438e-04	7
8		min	-.024	6	-.048	7	-.023	3	-5.957e-04	1	-3.241e-04	3	-1.774e-03	3
9	N27	max	.006	3	.024	3	.162	6	4.423e-03	6	2.578e-03	6	9.143e-04	7
10		min	-.003	7	-.041	7	-.018	3	-3.308e-05	3	-3.586e-04	3	-1.269e-03	3
11	N28	max	.006	3	.012	3	.129	6	4.019e-03	6	2.493e-03	6	6.595e-04	7
12		min	-.003	7	-.031	7	-.014	3	-2.345e-05	3	-3.563e-04	3	-7.937e-04	3
13	N29	max	.015	3	.064	6	.162	6	4.174e-03	6	2.664e-03	6	5.769e-04	7
14		min	-.057	6	-.046	1	-.018	3	-1.025e-03	4	-6.102e-04	3	-1.109e-03	3
15	N31	max	.014	3	.032	6	.128	6	3.017e-03	6	2.914e-03	6	5.761e-04	1
16		min	-.037	6	-.033	1	-.014	3	-1.18e-03	4	-4.075e-04	3	-1.461e-03	3
17	N35	max	.007	3	.045	3	.196	6	4.695e-03	6	2.584e-03	6	1.049e-03	7
18		min	-.007	6	-.053	7	-.023	3	-3.383e-05	3	-3.583e-04	3	-1.745e-03	3
19	N38	max	.007	3	.024	3	.162	6	4.423e-03	6	2.578e-03	6	9.143e-04	7
20		min	-.007	6	-.039	7	-.018	3	-3.308e-05	3	-3.586e-04	3	-1.269e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
21	N39	max	.007	3	.012	3	.129	6	4.019e-03	6	2.493e-03	6	6.595e-04	7
22		min	-.007	6	-.03	7	-.014	3	-2.345e-05	3	-3.563e-04	3	-7.937e-04	3
23	N41	max	.012	3	.047	3	.196	6	4.481e-03	6	2.587e-03	6	7.438e-04	7
24		min	-.033	6	-.047	7	-.023	3	-5.957e-04	1	-3.241e-04	3	-1.774e-03	3
25	N41A	max	.017	3	.078	6	.162	6	4.174e-03	6	2.664e-03	6	5.769e-04	7
26		min	-.066	6	-.049	1	-.018	3	-1.025e-03	4	-6.102e-04	3	-1.109e-03	3
27	N42	max	.015	3	.043	6	.128	6	3.017e-03	6	2.914e-03	6	5.761e-04	1
28		min	-.047	6	-.037	1	-.014	3	-1.18e-03	4	-4.075e-04	3	-1.461e-03	3
29	N47	max	.007	3	.063	3	.223	6	4.834e-03	6	2.537e-03	6	7.839e-04	7
30		min	-.002	7	-.065	7	-.027	3	-4.2e-05	3	-3.521e-04	3	-1.751e-03	3
31	N49	max	.006	3	.004	3	.105	6	3.818e-03	6	2.423e-03	6	8.499e-04	7
32		min	-.003	7	-.024	7	-.01	3	-2.058e-05	3	-3.637e-04	3	-1.097e-03	3
33	N50	max	.008	3	.063	3	.223	6	4.834e-03	6	2.537e-03	6	7.839e-04	7
34		min	-.007	6	-.062	7	-.027	3	-4.2e-05	3	-3.521e-04	3	-1.751e-03	3
35	N52	max	.018	3	.083	6	.159	6	4.88e-03	6	2.674e-03	6	1.685e-04	1
36		min	-.07	6	-.05	1	-.017	3	-6.952e-04	4	-6.381e-04	3	-8.89e-04	6
37	N52A	max	.007	3	.004	3	.105	6	3.818e-03	6	2.423e-03	6	8.499e-04	7
38		min	-.007	6	-.023	7	-.01	3	-2.058e-05	3	-3.637e-04	3	-1.097e-03	3
39	N64	max	.021	6	.046	3	.196	6	5.503e-03	6	2.614e-03	6	8.602e-04	7
40		min	-.002	1	-.081	6	-.023	3	-3.468e-04	3	-3.998e-04	3	-1.811e-03	3
41	N67	max	.055	6	.033	3	.162	6	5.935e-03	6	2.675e-03	6	1.013e-03	6
42		min	-.001	1	-.142	6	-.019	3	-5.682e-04	3	-1.217e-04	3	-1.126e-03	3
43	N68	max	.034	6	.015	3	.129	6	4.968e-03	6	2.941e-03	6	2.216e-03	6
44		min	-.001	1	-.09	6	-.013	3	-3.178e-04	3	-3.118e-04	3	-1.521e-03	3
45	N69	max	.006	3	.045	3	.196	6	4.695e-03	6	2.584e-03	6	1.049e-03	7
46		min	-.002	1	-.057	7	-.023	3	-3.383e-05	3	-3.583e-04	3	-1.745e-03	3
47	N70	max	.006	3	.024	3	.162	6	4.423e-03	6	2.578e-03	6	9.143e-04	7
48		min	-.002	1	-.043	7	-.018	3	-3.308e-05	3	-3.586e-04	3	-1.269e-03	3
49	N71	max	.005	3	.012	3	.129	6	4.019e-03	6	2.493e-03	6	6.595e-04	7
50		min	-.002	1	-.033	7	-.014	3	-2.345e-05	3	-3.563e-04	3	-7.937e-04	3
51	N72	max	.03	6	.047	3	.196	6	5.503e-03	6	2.614e-03	6	8.602e-04	7
52		min	-.002	1	-.1	6	-.023	3	-3.468e-04	3	-3.998e-04	3	-1.811e-03	3
53	N73	max	.064	6	.035	3	.162	6	5.935e-03	6	2.675e-03	6	1.013e-03	6
54		min	-.001	1	-.163	6	-.019	3	-5.682e-04	3	-1.217e-04	3	-1.126e-03	3
55	N74	max	.044	6	.016	3	.129	6	4.968e-03	6	2.941e-03	6	2.216e-03	6
56		min	-.001	1	-.107	6	-.013	3	-3.178e-04	3	-3.118e-04	3	-1.521e-03	3
57	N78	max	.006	3	.064	3	.223	6	4.834e-03	6	2.537e-03	6	7.839e-04	7
58		min	-.002	1	-.067	7	-.027	3	-4.2e-05	3	-3.521e-04	3	-1.751e-03	3
59	N79A	max	.068	6	.034	3	.158	6	6.039e-03	6	2.674e-03	6	1.114e-03	6
60		min	-.001	1	-.17	6	-.019	3	-3.431e-04	3	-9.514e-05	3	-8.555e-04	3
61	N80	max	.005	3	.004	3	.105	6	3.818e-03	6	2.423e-03	6	8.499e-04	7
62		min	-.002	1	-.026	7	-.01	3	-2.058e-05	3	-3.637e-04	3	-1.097e-03	3
63	N60	max	.069	6	.028	3	.143	6	6.44e-03	6	2.899e-03	6	1.24e-03	6
64		min	-.001	1	-.162	6	-.014	3	-1.24e-03	3	-3.37e-04	3	-8.876e-04	3
65	N62	max	.018	3	.076	6	.142	6	3.902e-03	6	2.817e-03	6	1.204e-04	1
66		min	-.07	6	-.049	1	-.016	3	-1.427e-03	1	-3.687e-04	3	-1.099e-03	6
67	N52C	max	.023	6	.052	3	.203	6	6.717e-03	6	2.552e-03	6	1.908e-03	6
68		min	-.002	1	-.086	6	-.024	3	-1.081e-03	3	-4.126e-04	3	-2.74e-03	3
69	N60A	max	.037	3	.06	6	.015	3	2.423e-03	6	3.036e-03	6	-2.237e-04	2
70		min	-.181	6	-.093	3	-.097	6	-3.782e-04	1	-9.441e-05	3	-4.064e-03	3
71	N61	max	.032	3	0	6	.012	3	1.638e-03	6	3.1e-03	6	-2.471e-04	2
72		min	-.048	6	-.022	3	-.022	6	-4.893e-04	1	-5.489e-06	3	-3.216e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
73	N63	max	.036	3	.04	6	.015	3	2.379e-03	6	3.014e-03	6	-2.98e-04	2
74		min	-.148	6	-.073	3	-.079	6	-5.483e-04	1	-1.33e-04	3	-4.075e-03	3
75	N64A	max	.036	3	.023	6	.015	3	2.249e-03	6	3.033e-03	6	-6.412e-04	2
76		min	-.135	6	-.111	3	-.102	6	-1.268e-04	1	-1.941e-04	3	-5.09e-03	3
77	N65	max	.034	3	.021	6	.013	3	1.903e-03	6	2.96e-03	6	-2.647e-04	2
78		min	-.115	6	-.05	3	-.06	6	-5.03e-04	1	-1.527e-04	3	-3.69e-03	3
79	N66	max	.033	3	.01	6	.013	3	1.447e-03	6	2.996e-03	6	-1.964e-04	2
80		min	-.081	6	-.036	3	-.04	6	-3.801e-04	1	-8.878e-05	3	-3.199e-03	3
81	N67A	max	.033	3	-.016	6	.016	3	1.561e-03	6	2.799e-03	6	-9.331e-04	2
82		min	-.082	6	-.154	3	-.116	6	9.135e-05	2	-7.468e-05	3	-5.638e-03	3
83	N68A	max	.033	3	-.014	6	.011	3	1.357e-03	6	2.888e-03	6	-9.73e-04	6
84		min	-.057	6	-.097	3	-.081	6	-5.491e-05	3	-3.721e-04	3	-5.515e-03	3
85	N69A	max	.036	3	.036	6	.015	3	2.379e-03	6	3.014e-03	6	-2.98e-04	2
86		min	-.145	6	-.08	3	-.084	6	-5.483e-04	1	-1.33e-04	3	-4.075e-03	3
87	N70A	max	.034	3	.018	6	.014	3	1.903e-03	6	2.96e-03	6	-2.647e-04	2
88		min	-.112	6	-.057	3	-.065	6	-5.03e-04	1	-1.527e-04	3	-3.69e-03	3
89	N71A	max	.032	3	.007	6	.013	3	1.447e-03	6	2.996e-03	6	-1.964e-04	2
90		min	-.078	6	-.042	3	-.046	6	-3.801e-04	1	-8.878e-05	3	-3.199e-03	3
91	N72A	max	.035	3	.016	6	.016	3	2.249e-03	6	3.033e-03	6	-6.412e-04	2
92		min	-.13	6	-.127	3	-.111	6	-1.268e-04	1	-1.941e-04	3	-5.09e-03	3
93	N73B	max	.033	3	-.022	6	.017	3	1.561e-03	6	2.799e-03	6	-9.331e-04	2
94		min	-.077	6	-.173	3	-.124	6	9.135e-05	2	-7.468e-05	3	-5.638e-03	3
95	N74B	max	.033	3	-.019	6	.012	3	1.357e-03	6	2.888e-03	6	-9.73e-04	6
96		min	-.052	6	-.113	3	-.089	6	-5.491e-05	3	-3.721e-04	3	-5.515e-03	3
97	N75	max	.037	3	.057	6	.015	3	2.423e-03	6	3.036e-03	6	-2.237e-04	2
98		min	-.176	6	-.09	3	-.094	6	-3.782e-04	1	-9.441e-05	3	-4.064e-03	3
99	N76A	max	.032	3	.003	6	.012	3	1.638e-03	6	3.1e-03	6	-2.471e-04	2
100		min	-.055	6	-.026	3	-.026	6	-4.894e-04	1	-5.489e-06	3	-3.216e-03	3
101	N77A	max	.037	3	.053	6	.015	3	2.423e-03	6	3.036e-03	6	-2.237e-04	2
102		min	-.173	6	-.098	3	-.099	6	-3.782e-04	1	-9.441e-05	3	-4.064e-03	3
103	N78A	max	.032	3	-.025	6	.017	3	1.513e-03	3	2.777e-03	6	-5.492e-04	2
104		min	-.072	6	-.179	3	-.126	6	2.118e-04	2	-5.56e-05	3	-5.285e-03	3
105	N79B	max	.032	3	0	6	.012	3	1.638e-03	6	3.1e-03	6	-2.471e-04	2
106		min	-.052	6	-.032	3	-.031	6	-4.894e-04	1	-5.489e-06	3	-3.216e-03	3
107	N80A	max	.036	3	.06	6	.014	3	2.755e-03	6	2.977e-03	6	2.389e-04	1
108		min	-.162	6	-.049	4	-.054	6	-6.485e-04	1	-1.079e-04	3	-3.27e-03	3
109	N81	max	.035	3	.072	6	.012	3	2.463e-03	6	3.243e-03	6	6.305e-04	1
110		min	-.148	6	-.043	1	-.001	6	-8.445e-04	1	-2.79e-04	3	-2.422e-03	3
111	N82	max	.032	3	.038	6	.014	3	2.779e-03	6	2.953e-03	6	6.962e-04	1
112		min	-.107	6	-.033	4	-.001	1	-9.856e-04	1	-3.674e-04	3	-1.401e-03	3
113	N83	max	.036	3	.044	6	.014	3	2.379e-03	6	3.014e-03	6	-2.98e-04	2
114		min	-.151	6	-.065	3	-.073	6	-5.483e-04	1	-1.33e-04	3	-4.075e-03	3
115	N84	max	.034	3	.025	6	.013	3	1.903e-03	6	2.96e-03	6	-2.647e-04	2
116		min	-.118	6	-.044	3	-.054	6	-5.03e-04	1	-1.527e-04	3	-3.69e-03	3
117	N85	max	.033	3	.014	6	.012	3	1.447e-03	6	2.996e-03	6	-1.964e-04	2
118		min	-.084	6	-.03	3	-.035	6	-3.801e-04	1	-8.878e-05	3	-3.199e-03	3
119	N86	max	.037	3	.068	6	.014	3	2.755e-03	6	2.977e-03	6	2.389e-04	1
120		min	-.167	6	-.049	4	-.045	6	-6.485e-04	1	-1.079e-04	3	-3.27e-03	3
121	N87	max	.036	3	.081	6	.011	3	2.463e-03	6	3.243e-03	6	6.305e-04	1
122		min	-.153	6	-.046	1	0	1	-8.445e-04	1	-2.79e-04	3	-2.422e-03	3
123	N88	max	.033	3	.045	6	.012	3	2.779e-03	6	2.953e-03	6	6.962e-04	1
124		min	-.112	6	-.036	4	-.001	1	-9.856e-04	1	-3.674e-04	3	-1.401e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
125	N89	max	.037	3	.061	6	.015	3	2.423e-03	6	3.036e-03	6	-2.237e-04	2
126		min	-.179	6	-.082	3	-.089	6	-3.782e-04	1	-9.441e-05	3	-4.064e-03	3
127	N90	max	.036	3	.083	6	.015	6	2.337e-03	6	3.271e-03	6	5.247e-04	1
128		min	-.151	6	-.047	1	0	1	-3.695e-04	1	-3.007e-04	3	-2.695e-03	3
129	N91	max	.032	3	.006	6	.012	3	1.638e-03	6	3.1e-03	6	-2.471e-04	2
130		min	-.058	6	-.023	4	-.02	6	-4.894e-04	1	-5.489e-06	3	-3.216e-03	3
131	N93	max	.036	3	.075	6	.025	6	2.811e-03	6	2.763e-03	6	1.217e-03	1
132		min	-.135	6	-.047	1	0	1	-7.19e-04	1	-3.791e-04	3	-2.324e-03	6
133	N94	max	.033	3	-.028	6	.017	3	2.091e-03	3	2.726e-03	6	-9.583e-04	6
134		min	-.052	6	-.17	3	-.115	6	5.56e-04	2	-4.537e-04	3	-6.451e-03	3
135	N109	max	.049	3	-.026	6	.019	3	1.5e-03	6	2.332e-03	6	-9.111e-04	6
136		min	-.05	6	-.151	3	-.103	6	4.494e-04	2	1.228e-04	2	-6.622e-03	3
137	N110	max	.053	3	.026	6	.016	3	2.452e-03	6	2.702e-03	6	-5.564e-04	2
138		min	-.139	6	-.119	3	-.102	6	-1.485e-04	1	-1.901e-04	1	-6.805e-03	3
139	N111	max	.033	3	-.026	6	.015	3	1.5e-03	6	2.78e-03	6	-9.111e-04	6
140		min	-.052	6	-.151	3	-.107	6	4.494e-04	2	-6.724e-04	3	-6.622e-03	3
141	N112	max	.049	3	-.031	6	.017	3	1.5e-03	6	2.332e-03	6	-9.111e-04	6
142		min	-.05	6	-.193	3	-.118	6	4.494e-04	2	1.228e-04	2	-6.622e-03	3
143	N113	max	.036	3	.026	6	.016	3	2.452e-03	6	3.069e-03	6	-5.564e-04	2
144		min	-.141	6	-.119	3	-.108	6	-1.485e-04	1	-1.377e-04	3	-6.805e-03	3
145	N114	max	.053	3	.021	6	.017	3	2.452e-03	6	2.702e-03	6	-5.564e-04	2
146		min	-.139	6	-.161	3	-.118	6	-1.485e-04	1	-1.901e-04	1	-6.805e-03	3
147	N117	max	.182	6	-.039	2	.012	3	3.172e-03	6	3.07e-03	6	6.838e-04	6
148		min	-.011	3	-.138	6	-.095	6	-5.275e-04	3	-6.042e-04	3	-3.922e-03	3
149	N118	max	.049	6	-.014	2	.002	1	2.531e-03	6	3.116e-03	6	4.443e-04	6
150		min	0	2	-.029	6	-.018	6	-2.891e-04	3	-7.227e-04	3	-3.125e-03	3
151	N120	max	.149	6	-.033	2	.009	3	3.407e-03	6	3.029e-03	6	4.519e-04	6
152		min	-.004	3	-.105	6	-.076	6	-2.498e-04	3	-5.843e-04	3	-3.948e-03	3
153	N121	max	.163	6	-.036	2	.004	3	4.009e-03	6	2.953e-03	6	1.743e-03	6
154		min	-.007	3	-.13	6	-.052	6	-2.83e-04	3	-6.068e-04	3	-3.163e-03	3
155	N122	max	.115	6	-.025	2	.005	3	2.839e-03	6	2.956e-03	6	5.592e-04	6
156		min	0	2	-.071	6	-.056	6	-4.031e-04	3	-5.724e-04	3	-3.571e-03	3
157	N123	max	.082	6	-.02	2	.002	1	2.157e-03	6	3.002e-03	6	7.688e-04	6
158		min	0	2	-.05	6	-.037	6	-6.406e-04	3	-6.294e-04	3	-3.1e-03	3
159	N124	max	.148	6	.005	3	.001	7	4.011e-03	6	3.222e-03	6	2.873e-03	6
160		min	-.005	3	-.149	6	-.007	3	-4.969e-04	3	-4.557e-04	3	-2.343e-03	3
161	N125	max	.107	6	-.003	3	.006	6	4.6e-03	6	2.941e-03	6	1.939e-03	6
162		min	0	2	-.094	6	-.009	3	-5.597e-04	3	-3.52e-04	3	-1.367e-03	3
163	N126	max	.152	6	-.033	2	.008	3	3.407e-03	6	3.029e-03	6	4.519e-04	6
164		min	-.005	3	-.11	6	-.07	6	-2.498e-04	3	-5.843e-04	3	-3.948e-03	3
165	N127	max	.118	6	-.025	2	.004	3	2.839e-03	6	2.956e-03	6	5.592e-04	6
166		min	0	2	-.075	6	-.051	6	-4.031e-04	3	-5.724e-04	3	-3.571e-03	3
167	N128	max	.085	6	-.02	2	.002	1	2.157e-03	6	3.002e-03	6	7.688e-04	6
168		min	0	2	-.053	6	-.032	6	-6.406e-04	3	-6.294e-04	3	-3.1e-03	3
169	N129	max	.168	6	-.034	3	.002	3	4.009e-03	6	2.953e-03	6	1.743e-03	6
170		min	-.008	3	-.142	6	-.043	6	-2.83e-04	3	-6.068e-04	3	-3.163e-03	3
171	N130	max	.154	6	.012	3	.01	6	4.011e-03	6	3.222e-03	6	2.873e-03	6
172		min	-.005	3	-.164	6	-.008	3	-4.969e-04	3	-4.557e-04	3	-2.343e-03	3
173	N131	max	.112	6	.002	3	.014	6	4.6e-03	6	2.941e-03	6	1.939e-03	6
174		min	0	2	-.108	6	-.01	3	-5.597e-04	3	-3.52e-04	3	-1.367e-03	3
175	N132	max	.176	6	-.038	2	.012	3	3.172e-03	6	3.07e-03	6	6.838e-04	6
176		min	-.01	3	-.133	6	-.092	6	-5.276e-04	3	-6.042e-04	3	-3.922e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
177	N133	max	.056	6	-.016	2	.002	1	2.531e-03	6	3.116e-03	6	4.443e-04	6
178		min	0	2	-.034	6	-.022	6	-2.891e-04	3	-7.227e-04	3	-3.125e-03	3
179	N134	max	.179	6	-.038	2	.011	3	3.172e-03	6	3.07e-03	6	6.838e-04	6
180		min	-.01	3	-.137	6	-.086	6	-5.276e-04	3	-6.042e-04	3	-3.922e-03	3
181	N135	max	.152	6	.017	3	.017	6	3.083e-03	6	3.26e-03	6	2.689e-03	6
182		min	-.005	3	-.168	6	-.009	3	-1.69e-03	3	-4.347e-04	3	-2.608e-03	3
183	N136	max	.059	6	-.016	2	.002	1	2.531e-03	6	3.116e-03	6	4.443e-04	6
184		min	0	2	-.037	6	-.017	6	-2.891e-04	3	-7.227e-04	3	-3.125e-03	3
185	N137	max	.135	6	-.034	2	.014	3	2.535e-03	6	3.075e-03	6	-2.595e-04	6
186		min	-.001	3	-.11	3	-.1	6	-8.472e-04	3	-5.396e-04	3	-4.92e-03	3
187	N138	max	.082	6	-.036	2	.016	3	1.438e-03	6	2.817e-03	6	-6.016e-04	6
188		min	0	2	-.151	3	-.115	6	-1.346e-03	3	-6.778e-04	3	-5.496e-03	3
189	N139	max	.058	6	-.027	2	.013	3	1.179e-03	6	2.915e-03	6	-9.803e-04	6
190		min	0	2	-.095	3	-.079	6	-9.335e-05	4	-3.574e-04	3	-5.407e-03	3
191	N140	max	.146	6	-.033	2	.01	3	3.407e-03	6	3.029e-03	6	4.519e-04	6
192		min	-.004	3	-.101	6	-.081	6	-2.498e-04	3	-5.843e-04	3	-3.948e-03	3
193	N141	max	.112	6	-.025	2	.006	3	2.839e-03	6	2.956e-03	6	5.592e-04	6
194		min	0	2	-.068	6	-.062	6	-4.031e-04	3	-5.724e-04	3	-3.571e-03	3
195	N142	max	.079	6	-.02	2	.002	3	2.157e-03	6	3.002e-03	6	7.688e-04	6
196		min	0	2	-.046	6	-.042	6	-6.406e-04	3	-6.294e-04	3	-3.1e-03	3
197	N143	max	.13	6	-.036	2	.015	3	2.535e-03	6	3.075e-03	6	-2.595e-04	6
198		min	0	3	-.126	3	-.109	6	-8.472e-04	3	-5.396e-04	3	-4.92e-03	3
199	N144	max	.077	6	-.039	2	.018	3	1.438e-03	6	2.817e-03	6	-6.016e-04	6
200		min	0	2	-.17	3	-.123	6	-1.346e-03	3	-6.778e-04	3	-5.496e-03	3
201	N145	max	.053	6	-.03	2	.014	3	1.179e-03	6	2.915e-03	6	-9.803e-04	6
202		min	0	2	-.111	3	-.088	6	-9.335e-05	4	-3.574e-04	3	-5.407e-03	3
203	N146	max	.173	6	-.038	2	.013	3	3.172e-03	6	3.07e-03	6	6.838e-04	6
204		min	-.009	3	-.129	6	-.097	6	-5.276e-04	3	-6.042e-04	3	-3.922e-03	3
205	N147	max	.071	6	-.039	2	.018	3	1.023e-03	6	2.787e-03	6	6.913e-04	6
206		min	0	2	-.175	3	-.124	6	-1.489e-03	3	-7.e-04	3	-5.102e-03	3
207	N148	max	.052	6	-.016	2	.002	1	2.531e-03	6	3.116e-03	6	4.443e-04	6
208		min	0	2	-.032	3	-.028	6	-2.891e-04	3	-7.227e-04	3	-3.125e-03	3
209	N149	max	.055	6	-.037	2	.011	3	6.176e-04	6	2.094e-03	6	-1.044e-03	2
210		min	.003	2	-.149	3	-.104	6	-1.427e-03	3	-1.045e-03	3	-6.476e-03	3
211	N150	max	.053	6	-.039	2	.015	3	-9.991e-05	6	2.794e-03	6	-1.014e-03	6
212		min	0	2	-.167	3	-.114	6	-2.11e-03	3	-2.485e-04	3	-6.32e-03	3
213	N151	max	.134	6	.015	3	.027	6	4.183e-03	6	2.686e-03	6	4.562e-03	6
214		min	0	3	-.159	6	-.012	3	-1.049e-03	3	-3.245e-04	3	-1.176e-03	3
215	N152	max	.142	6	-.036	2	.014	3	2.749e-03	6	3.069e-03	6	-1.44e-04	6
216		min	.001	2	-.118	3	-.099	6	-3.814e-04	3	-7.174e-04	3	-6.347e-03	3
217	N162	max	.053	6	-.037	2	.015	3	6.176e-04	6	2.857e-03	6	-1.044e-03	2
218		min	0	2	-.149	3	-.106	6	-1.427e-03	3	-5.195e-05	3	-6.476e-03	3
219	N163	max	.055	6	-.043	2	.018	3	6.176e-04	6	2.094e-03	6	-1.044e-03	2
220		min	.003	2	-.189	3	-.117	6	-1.427e-03	3	-1.045e-03	3	-6.476e-03	3
221	N164	max	.141	6	-.036	2	.015	3	2.749e-03	6	3.081e-03	6	-1.44e-04	6
222		min	-.003	3	-.118	3	-.106	6	-3.814e-04	3	-5.846e-04	3	-6.347e-03	3
223	N165	max	.142	6	-.038	2	.018	3	2.749e-03	6	3.069e-03	6	-1.44e-04	6
224		min	.001	2	-.157	3	-.118	6	-3.814e-04	3	-7.174e-04	3	-6.347e-03	3
225	N167	max	.166	6	-.037	2	.003	1	5.611e-03	6	3.033e-03	6	2.005e-03	6
226		min	0	1	-.14	6	-.04	6	-1.042e-03	3	-8.096e-04	3	-3.552e-03	3
227	N152A	max	.021	3	.065	6	.148	6	4.061e-03	6	2.457e-03	6	2.433e-04	1
228		min	-.06	6	-.046	1	-.014	3	-1.376e-03	4	-7.908e-04	3	-1.528e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
229	N153A	max	.017	3	.051	3	.218	6	5.852e-03	6	2.121e-03	6	5.674e-04	1
230		min	-.023	6	-.05	7	-.022	3	-4.925e-04	1	-6.975e-04	3	-2.519e-03	3
231	N154A	max	.017	3	.065	6	.138	6	4.061e-03	6	3.073e-03	6	2.433e-04	1
232		min	-.063	6	-.046	1	-.016	3	-1.376e-03	4	-3.137e-04	3	-1.528e-03	3
233	N155A	max	.026	3	.091	6	.156	6	4.061e-03	6	2.457e-03	6	2.433e-04	1
234		min	-.074	6	-.054	1	-.016	3	-1.376e-03	4	-7.908e-04	3	-1.528e-03	3
235	N156A	max	.011	3	.051	3	.203	6	5.852e-03	6	2.567e-03	6	5.674e-04	1
236		min	-.026	6	-.05	7	-.024	3	-4.925e-04	1	-3.105e-04	3	-2.519e-03	3
237	N157A	max	.021	3	.063	3	.224	6	5.852e-03	6	2.121e-03	6	5.674e-04	1
238		min	-.035	6	-.051	1	-.024	3	-4.925e-04	1	-6.975e-04	3	-2.519e-03	3
239	N158A	max	.039	3	.065	6	.029	6	3.289e-03	6	3.195e-03	6	1.112e-03	1
240		min	-.124	6	-.043	1	-.003	1	-7.969e-04	1	-5.289e-04	3	-1.65e-03	6
241	N159A	max	.046	3	.066	6	.017	3	4.253e-03	6	3.386e-03	6	1.6e-04	1
242		min	-.166	6	-.051	4	-.046	6	-5.426e-04	1	1.468e-04	3	-3.687e-03	3
243	N160A	max	.035	3	.065	6	.021	6	3.289e-03	6	2.684e-03	6	1.112e-03	1
244		min	-.128	6	-.043	1	0	1	-7.969e-04	1	-4.813e-04	3	-1.65e-03	6
245	N161A	max	.042	3	.088	6	.039	6	3.289e-03	6	3.195e-03	6	1.112e-03	1
246		min	-.141	6	-.051	1	-.003	1	-7.969e-04	1	-5.289e-04	3	-1.65e-03	6
247	N162A	max	.037	3	.066	6	.014	3	4.253e-03	6	2.987e-03	6	1.6e-04	1
248		min	-.17	6	-.051	4	-.057	6	-5.426e-04	1	-1.065e-04	3	-3.687e-03	3
249	N163A	max	.045	3	.094	6	.018	3	4.253e-03	6	3.386e-03	6	1.6e-04	1
250		min	-.184	6	-.05	4	-.036	6	-5.426e-04	1	1.468e-04	3	-3.687e-03	3
251	N166	max	.119	6	.01	3	.036	6	4.834e-03	6	3.441e-03	6	3.653e-03	6
252		min	-.003	1	-.142	6	-.013	3	-8.687e-04	3	-1.354e-04	3	-1.565e-03	3
253	N168	max	.128	6	.01	3	.023	6	4.834e-03	6	2.586e-03	6	3.653e-03	6
254		min	0	1	-.142	6	-.011	3	-8.687e-04	3	-2.375e-04	3	-1.565e-03	3
255	N169	max	.137	6	.02	3	.046	6	4.834e-03	6	3.441e-03	6	3.653e-03	6
256		min	-.002	1	-.18	6	-.014	3	-8.687e-04	3	-1.354e-04	3	-1.565e-03	3
257	N170	max	.171	6	-.037	2	.004	3	5.611e-03	6	3.015e-03	6	2.005e-03	6
258		min	-.009	3	-.14	6	-.054	6	-1.042e-03	3	-6.086e-04	3	-3.552e-03	3
259	N171	max	.182	6	-.03	3	.002	1	5.611e-03	6	3.033e-03	6	2.005e-03	6
260		min	-.004	3	-.176	6	-.031	6	-1.042e-03	3	-8.096e-04	3	-3.552e-03	3
261	N172A	max	.058	6	.024	3	.155	6	6.491e-03	6	2.19e-03	6	1.528e-03	6
262		min	-.002	1	-.144	6	-.016	3	-9.143e-04	3	-1.555e-04	1	-1.593e-03	3
263	N173A	max	.018	6	.052	3	.22	6	6.717e-03	6	2.46e-03	6	1.908e-03	6
264		min	-.003	1	-.086	6	-.027	3	-1.081e-03	3	-1.607e-05	3	-2.74e-03	3
265	N174	max	.061	6	.024	3	.139	6	6.491e-03	6	3.172e-03	6	1.528e-03	6
266		min	-.001	1	-.144	6	-.014	3	-9.143e-04	3	-4.103e-04	3	-1.593e-03	3
267	N175	max	.069	6	.034	3	.162	6	6.491e-03	6	2.19e-03	6	1.528e-03	6
268		min	-.003	1	-.184	6	-.016	3	-9.143e-04	3	-1.555e-04	1	-1.593e-03	3
269	N177	max	.031	6	.066	3	.228	6	6.717e-03	6	2.46e-03	6	1.908e-03	6
270		min	-.002	1	-.128	6	-.027	3	-1.081e-03	3	-1.607e-05	3	-2.74e-03	3
271	N192	max	.169	6	-.04	2	.018	3	3.35e-03	6	3.377e-03	6	5.399e-04	6
272		min	.003	2	-.156	3	-.118	6	1.234e-04	3	-1.146e-03	3	-6.042e-03	3
273	N193	max	.052	3	.045	6	.017	3	3.033e-03	6	3.049e-03	6	-2.446e-04	2
274		min	-.164	6	-.16	3	-.118	6	-1.901e-04	1	-1.227e-04	1	-6.537e-03	3
275	N195	max	.044	3	.104	6	.015	3	4.678e-03	6	3.59e-03	6	-1.377e-05	2
276		min	-.199	6	-.057	4	-.061	6	-2.736e-04	1	1.275e-04	2	-4.313e-03	3
277	N196A	max	.018	3	.081	3	.239	6	6.469e-03	6	1.7e-03	6	4.023e-04	1
278		min	-.026	6	-.055	7	-.029	3	-1.54e-04	1	-5.857e-04	3	-3.201e-03	3
279	N204	max	.022	6	.085	3	.244	6	6.798e-03	6	1.932e-03	6	1.938e-03	6
280		min	-.002	1	-.114	6	-.027	3	-6.822e-04	3	-1.056e-04	3	-3.494e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
281	N205	max	.195	6	-.042	2	.006	3	5.633e-03	6	3.343e-03	6	9.58e-04	6
282		min	-.008	3	-.189	6	-.054	6	-1.412e-03	3	-1.158e-03	3	-4.163e-03	3
283	N212	max	.006	3	.021	3	.155	6	4.345e-03	6	2.552e-03	6	7.785e-04	7
284		min	-.003	7	-.038	7	-.017	3	-3.396e-05	3	-3.575e-04	3	-1.101e-03	3
285	N260	max	.108	6	-.024	2	.004	3	2.547e-03	6	2.952e-03	6	6.556e-04	6
286		min	0	2	-.066	6	-.053	6	-5.383e-04	3	-5.828e-04	3	-3.406e-03	3
287	N307	max	.034	3	.018	6	.013	3	1.737e-03	6	2.955e-03	6	-2.273e-04	2
288		min	-.108	6	-.047	3	-.056	6	-4.307e-04	1	-1.4e-04	3	-3.526e-03	3
289	N307A	max	.06	3	-.05	6	.017	3	1.741e-03	6	1.622e-03	6	-7.191e-04	2
290		min	-.027	6	-.206	3	-.117	6	3.528e-04	2	9.108e-05	2	-8.833e-03	3
291	N308	max	.05	3	-.046	6	.018	3	1.045e-03	6	1.448e-03	6	-3.418e-04	6
292		min	.004	2	-.203	3	-.117	6	-7.261e-04	3	-1.66e-03	3	-8.646e-03	3
293	N309	max	.031	3	.098	6	.14	6	6.373e-03	6	1.056e-03	6	1.076e-04	1
294		min	-.083	6	-.062	4	-.007	3	-9.423e-04	1	-9.82e-04	3	-3.003e-03	6
295	N310	max	.041	3	.083	6	.073	6	5.542e-03	6	3.089e-03	6	7.961e-04	1
296		min	-.122	6	-.058	1	-.005	1	-4.934e-04	1	-1.499e-04	4	-2.606e-03	3
297	N311	max	.117	6	.028	3	.082	6	6.651e-03	6	3.271e-03	6	3.945e-03	6
298		min	-.003	1	-.187	6	-.018	3	-2.457e-03	3	-4.308e-04	3	-2.524e-03	3
299	N312	max	.077	6	.021	3	.149	6	8.107e-03	6	8.369e-04	6	3.197e-03	6
300		min	-.003	1	-.203	6	-.019	3	-1.836e-03	3	-1.162e-04	1	-2.577e-03	3
301	N261A	max	.017	3	0	6	.008	3	7.103e-04	6	2.018e-03	6	-1.449e-04	2
302		min	-.022	6	-.016	3	-.01	6	-2.867e-04	1	-1.07e-03	3	-1.791e-03	3
303	N262	max	.027	3	.003	6	.012	3	1.638e-03	6	3.1e-03	6	-2.471e-04	2
304		min	-.056	6	-.026	3	-.028	6	-4.894e-04	1	-5.489e-06	3	-3.216e-03	3
305	N263	max	.028	3	.016	6	.012	3	1.323e-03	6	2.963e-03	6	-1.741e-04	2
306		min	-.104	6	-.044	3	-.056	6	-3.264e-04	1	-1.174e-04	3	-3.258e-03	3
307	N264	max	.029	3	.024	6	.013	3	1.017e-03	3	2.999e-03	6	-1.053e-04	2
308		min	-.138	6	-.053	3	-.075	6	-1.914e-04	1	-1.162e-04	3	-2.95e-03	3
309	N265	max	0	2	.001	6	.002	3	5.762e-04	3	1.753e-03	6	3.239e-03	6
310		min	-.019	6	-.015	3	-.011	6	-1.667e-03	6	2.008e-06	2	-1.54e-03	3
311	N266	max	.016	3	0	6	.007	3	7.103e-04	6	2.018e-03	6	-1.449e-04	2
312		min	-.022	6	-.016	3	-.011	6	-2.867e-04	1	-1.07e-03	3	-1.791e-03	3
313	N267	max	.024	3	.002	6	.011	3	8.714e-04	6	2.654e-03	6	-1.304e-04	2
314		min	-.04	6	-.021	3	-.02	6	-2.549e-04	1	-6.443e-04	3	-2.407e-03	3
315	N268	max	.027	3	.004	6	.012	3	1.38e-03	6	3.086e-03	6	-1.421e-04	2
316		min	-.06	6	-.027	3	-.03	6	-2.758e-04	1	-8.544e-06	3	-2.988e-03	3
317	N269	max	.027	3	.009	6	.012	3	1.151e-03	6	3.022e-03	6	-1.579e-04	2
318		min	-.077	6	-.033	3	-.04	6	-3.02e-04	1	-3.645e-05	3	-3.035e-03	3
319	N270	max	.027	3	.013	6	.012	3	1.193e-03	6	2.985e-03	6	-1.698e-04	2
320		min	-.092	6	-.039	3	-.049	6	-3.218e-04	1	-7.45e-05	3	-3.141e-03	3
321	N271	max	.028	3	.019	6	.012	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
322		min	-.114	6	-.048	3	-.061	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
323	N272	max	.028	3	.021	6	.012	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
324		min	-.122	6	-.05	3	-.066	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
325	N273	max	.022	3	.002	6	.01	3	8.714e-04	6	2.654e-03	6	-1.304e-04	2
326		min	-.04	6	-.021	3	-.02	6	-2.549e-04	1	-6.443e-04	3	-2.407e-03	3
327	N274	max	.024	3	.004	6	.011	3	1.38e-03	6	3.086e-03	6	-1.421e-04	2
328		min	-.06	6	-.027	3	-.031	6	-2.758e-04	1	-8.544e-06	3	-2.988e-03	3
329	N275	max	.025	3	.009	6	.011	3	1.151e-03	6	3.022e-03	6	-1.579e-04	2
330		min	-.078	6	-.033	3	-.041	6	-3.02e-04	1	-3.645e-05	3	-3.035e-03	3
331	N276	max	.025	3	.013	6	.011	3	1.193e-03	6	2.985e-03	6	-1.698e-04	2
332		min	-.092	6	-.039	3	-.049	6	-3.218e-04	1	-7.45e-05	3	-3.141e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
333	N277	max	.025	3	.016	6	.011	3	1.323e-03	6	2.963e-03	6	-1.741e-04	2
334		min	-.105	6	-.044	3	-.057	6	-3.264e-04	1	-1.174e-04	3	-3.258e-03	3
335	N278	max	.026	3	.019	6	.012	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
336		min	-.115	6	-.048	3	-.062	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
337	N279	max	.026	3	.021	6	.012	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
338		min	-.123	6	-.05	3	-.067	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
339	N280	max	0	2	.001	6	.003	3	5.762e-04	3	1.753e-03	6	3.239e-03	6
340		min	-.021	6	-.015	3	-.013	6	-1.667e-03	6	2.008e-06	2	-1.54e-03	3
341	N281	max	.006	3	.004	6	.005	3	6.927e-04	3	2.963e-03	6	8.091e-04	6
342		min	-.06	6	-.027	3	-.035	6	-2.5e-04	1	3.147e-06	2	-2.516e-03	3
343	N282	max	0	3	.002	6	.004	3	6.036e-04	3	2.592e-03	6	1.494e-03	6
344		min	-.039	6	-.021	3	-.023	6	-4.819e-04	6	2.803e-06	2	-2.12e-03	3
345	N283	max	.007	3	.008	6	.006	3	7.171e-04	3	3.088e-03	6	4.364e-04	6
346		min	-.078	6	-.033	3	-.045	6	-2.837e-04	1	3.102e-06	2	-2.724e-03	3
347	N284	max	.004	3	.004	6	.005	3	6.927e-04	3	2.963e-03	6	8.091e-04	6
348		min	-.06	6	-.027	3	-.035	6	-2.5e-04	1	3.147e-06	2	-2.516e-03	3
349	N285	max	.01	3	.013	6	.007	3	7.217e-04	3	3.095e-03	6	1.859e-04	6
350		min	-.094	6	-.039	3	-.053	6	-2.939e-04	1	-1.182e-05	3	-2.861e-03	3
351	N286	max	.013	3	.016	6	.007	3	7.905e-04	3	3.046e-03	6	-6.67e-05	6
352		min	-.106	6	-.044	3	-.06	6	-2.749e-04	1	-7.062e-05	3	-2.932e-03	3
353	N287	max	.016	3	.019	6	.008	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
354		min	-.117	6	-.048	3	-.065	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
355	N288	max	.018	3	.021	6	.009	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
356		min	-.124	6	-.05	3	-.069	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
357	N289	max	.002	3	.002	6	.004	3	6.036e-04	3	2.592e-03	6	1.494e-03	6
358		min	-.04	6	-.021	3	-.024	6	-4.819e-04	6	2.803e-06	2	-2.12e-03	3
359	N290	max	.009	3	.008	6	.006	3	7.171e-04	3	3.088e-03	6	4.364e-04	6
360		min	-.078	6	-.033	3	-.045	6	-2.837e-04	1	3.102e-06	2	-2.724e-03	3
361	N291	max	.012	3	.012	6	.007	3	7.217e-04	3	3.095e-03	6	1.859e-04	6
362		min	-.093	6	-.039	3	-.053	6	-2.939e-04	1	-1.182e-05	3	-2.861e-03	3
363	N292	max	.015	3	.016	6	.008	3	7.905e-04	3	3.046e-03	6	-6.67e-05	6
364		min	-.106	6	-.044	3	-.059	6	-2.749e-04	1	-7.062e-05	3	-2.932e-03	3
365	N293	max	.018	3	.019	6	.009	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
366		min	-.116	6	-.048	3	-.064	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
367	N294	max	.02	3	.021	6	.01	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
368		min	-.124	6	-.05	3	-.069	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
369	N295A	max	.027	3	.024	6	.012	3	1.017e-03	3	2.999e-03	6	-1.053e-04	2
370		min	-.138	6	-.053	3	-.076	6	-1.914e-04	1	-1.162e-04	3	-2.95e-03	3
371	N296A	max	.024	3	.024	6	.011	3	1.017e-03	3	2.999e-03	6	-1.053e-04	2
372		min	-.138	6	-.053	3	-.076	6	-1.914e-04	1	-1.162e-04	3	-2.95e-03	3
373	N297A	max	.022	3	.024	6	.01	3	1.017e-03	3	2.999e-03	6	-1.053e-04	2
374		min	-.139	6	-.053	3	-.077	6	-1.914e-04	1	-1.162e-04	3	-2.95e-03	3
375	N298A	max	.006	3	0	6	.002	3	3.422e-04	6	1.058e-03	6	-8.679e-05	2
376		min	-.006	6	-.007	3	-.002	6	-1.725e-04	1	-9.195e-04	3	-8.437e-04	3
377	N299A	max	0	2	0	6	.001	3	1.65e-04	3	9.841e-04	6	1.125e-03	6
378		min	-.005	6	-.006	3	-.003	6	-5.45e-04	6	1.262e-06	2	-6.06e-04	3
379	N300	max	.005	3	0	6	.002	3	3.422e-04	6	1.058e-03	6	-8.679e-05	2
380		min	-.006	6	-.007	3	-.002	6	-1.725e-04	1	-9.195e-04	3	-8.437e-04	3
381	N301A	max	0	2	0	6	.001	3	1.65e-04	3	9.841e-04	6	1.125e-03	6
382		min	-.006	6	-.006	3	-.004	6	-5.45e-04	6	1.262e-06	2	-6.06e-04	3
383	N302	max	0	8	0	8	0	8	0	8	0	8	0	8
384		min	0	1	0	1	0	1	0	1	0	1	0	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
385	N303	max	0	8	0	8	0	8	0	8	0	8	0	8
386		min	0	1	0	1	0	1	0	1	0	1	0	1
387	N304	max	0	8	0	8	0	8	0	8	0	8	0	8
388		min	0	1	0	1	0	1	0	1	0	1	0	1
389	N305	max	0	8	0	8	0	8	0	8	0	8	0	8
390		min	0	1	0	1	0	1	0	1	0	1	0	1
391	N306	max	.028	3	.018	6	.012	3	1.737e-03	6	2.955e-03	6	-2.273e-04	2
392		min	-.109	6	-.047	3	-.059	6	-4.307e-04	1	-1.4e-04	3	-3.526e-03	3
393	N307B	max	.023	3	.023	6	.011	3	1.016e-03	3	2.999e-03	6	-1.055e-04	2
394		min	-.132	6	-.051	3	-.073	6	-1.918e-04	1	-1.161e-04	3	-2.95e-03	3
395	N308A	max	.026	3	.023	6	.012	3	1.015e-03	3	2.999e-03	6	-1.062e-04	2
396		min	-.131	6	-.051	3	-.072	6	-1.932e-04	1	-1.162e-04	3	-2.951e-03	3
397	N213	max	.002	3	.001	3	.05	6	2.134e-03	6	3.378e-03	6	4.632e-04	7
398		min	-.001	7	-.015	7	-.005	3	-7.254e-06	3	-3.382e-04	3	-2.364e-04	3
399	N214	max	.004	3	.004	3	.098	6	3.818e-03	6	2.423e-03	6	8.499e-04	7
400		min	-.001	7	-.024	7	-.01	3	-2.058e-05	3	-3.637e-04	3	-1.097e-03	3
401	N215	max	.004	3	.019	3	.142	6	4.366e-03	6	2.521e-03	6	5.741e-04	7
402		min	-.001	7	-.037	7	-.017	3	-6.19e-05	3	-3.558e-04	3	-7.623e-04	3
403	N216	max	.004	3	.027	3	.176	6	4.54e-03	6	2.546e-03	6	3.429e-04	7
404		min	-.001	7	-.042	7	-.021	3	-1.281e-04	3	-3.617e-04	3	-5.79e-04	3
405	N217	max	.003	7	.002	3	.016	6	5.61e-03	6	1.335e-03	6	1.891e-04	7
406		min	0	3	-.015	7	-.003	3	-5.739e-04	3	-2.152e-04	3	-1.969e-04	3
407	N218	max	.002	3	.001	3	.048	6	2.134e-03	6	3.378e-03	6	4.632e-04	7
408		min	0	7	-.015	7	-.005	3	-7.254e-06	3	-3.382e-04	3	-2.364e-04	3
409	N219	max	.003	3	.003	3	.079	6	3.193e-03	6	3.152e-03	6	4.187e-04	7
410		min	-.001	7	-.02	7	-.008	3	-3.056e-05	3	-3.722e-04	3	-3.039e-04	3
411	N220	max	.004	3	.005	3	.101	6	3.901e-03	6	2.42e-03	6	4.945e-04	7
412		min	-.001	7	-.025	7	-.011	3	-3.728e-05	3	-3.618e-04	3	-8.301e-04	3
413	N221	max	.004	3	.01	3	.117	6	4.192e-03	6	2.426e-03	6	5.279e-04	7
414		min	-.001	7	-.029	7	-.013	3	-7.648e-05	3	-3.547e-04	3	-6.907e-04	3
415	N222	max	.004	3	.015	3	.131	6	4.323e-03	6	2.465e-03	6	5.635e-04	7
416		min	-.002	7	-.033	7	-.015	3	-8.011e-05	3	-3.537e-04	3	-7.28e-04	3
417	N223	max	.004	3	.022	3	.153	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
418		min	-.001	7	-.039	7	-.018	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
419	N224	max	.004	3	.024	3	.16	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
420		min	-.001	7	-.04	7	-.019	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
421	N225	max	.003	3	.003	3	.077	6	3.193e-03	6	3.152e-03	6	4.187e-04	7
422		min	0	7	-.02	7	-.008	3	-3.056e-05	3	-3.722e-04	3	-3.039e-04	3
423	N226	max	.003	3	.005	3	.098	6	3.901e-03	6	2.42e-03	6	4.945e-04	7
424		min	0	7	-.025	7	-.011	3	-3.728e-05	3	-3.618e-04	3	-8.301e-04	3
425	N227	max	.004	3	.01	3	.114	6	4.192e-03	6	2.426e-03	6	5.279e-04	7
426		min	-.001	7	-.029	7	-.013	3	-7.648e-05	3	-3.547e-04	3	-6.907e-04	3
427	N228	max	.004	3	.015	3	.127	6	4.323e-03	6	2.465e-03	6	5.635e-04	7
428		min	-.001	7	-.033	7	-.015	3	-8.011e-05	3	-3.537e-04	3	-7.28e-04	3
429	N229	max	.004	3	.019	3	.139	6	4.366e-03	6	2.521e-03	6	5.741e-04	7
430		min	-.001	7	-.037	7	-.017	3	-6.19e-05	3	-3.558e-04	3	-7.623e-04	3
431	N230	max	.004	3	.022	3	.149	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
432		min	-.001	7	-.039	7	-.018	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
433	N231	max	.004	3	.024	3	.157	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
434		min	-.001	7	-.04	7	-.019	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
435	N232	max	.003	7	.002	3	.02	6	5.61e-03	6	1.335e-03	6	1.891e-04	7
436		min	0	3	-.015	7	-.003	3	-5.739e-04	3	-2.152e-04	3	-1.969e-04	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
437	N233	max	.002	7	.006	3	.067	6	4.783e-03	6	2.176e-03	6	4.328e-04	7
438		min	0	3	-.025	7	-.009	3	-2.961e-04	3	-3.477e-04	3	-5.35e-04	3
439	N234	max	.003	7	.003	3	.039	6	4.825e-03	6	1.901e-03	6	3.842e-04	7
440		min	0	3	-.02	7	-.006	3	-3.706e-04	3	-3.077e-04	3	-3.685e-04	3
441	N235	max	.002	7	.01	3	.085	6	4.745e-03	6	2.343e-03	6	4.909e-04	7
442		min	0	3	-.029	7	-.012	3	-2.481e-04	3	-3.636e-04	3	-5.945e-04	3
443	N236	max	.002	7	.006	3	.063	6	4.783e-03	6	2.176e-03	6	4.328e-04	7
444		min	0	3	-.025	7	-.009	3	-2.961e-04	3	-3.477e-04	3	-5.35e-04	3
445	N237	max	.001	7	.015	3	.104	6	4.687e-03	6	2.445e-03	6	5.15e-04	7
446		min	0	3	-.033	7	-.014	3	-2.077e-04	3	-3.674e-04	3	-6.884e-04	3
447	N238	max	.001	3	.019	3	.12	6	4.622e-03	6	2.506e-03	6	4.859e-04	7
448		min	0	6	-.036	7	-.016	3	-1.719e-04	3	-3.648e-04	3	-6.971e-04	3
449	N239	max	.002	3	.022	3	.134	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
450		min	0	7	-.039	7	-.018	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
451	N240	max	.002	3	.024	3	.145	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
452		min	0	7	-.04	7	-.019	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
453	N241	max	.002	7	.003	3	.043	6	4.825e-03	6	1.901e-03	6	3.842e-04	7
454		min	0	3	-.02	7	-.006	3	-3.706e-04	3	-3.077e-04	3	-3.685e-04	3
455	N242	max	.001	7	.01	3	.088	6	4.745e-03	6	2.343e-03	6	4.909e-04	7
456		min	0	3	-.029	7	-.012	3	-2.481e-04	3	-3.636e-04	3	-5.945e-04	3
457	N243	max	.001	3	.015	3	.107	6	4.687e-03	6	2.445e-03	6	5.15e-04	7
458		min	0	6	-.033	7	-.014	3	-2.077e-04	3	-3.674e-04	3	-6.884e-04	3
459	N244	max	.002	3	.019	3	.123	6	4.622e-03	6	2.506e-03	6	4.859e-04	7
460		min	0	6	-.036	7	-.016	3	-1.719e-04	3	-3.648e-04	3	-6.971e-04	3
461	N245	max	.002	3	.022	3	.137	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
462		min	0	7	-.039	7	-.018	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
463	N246	max	.003	3	.024	3	.148	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
464		min	0	7	-.04	7	-.019	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
465	N247	max	.004	3	.027	3	.172	6	4.54e-03	6	2.546e-03	6	3.429e-04	7
466		min	-.001	7	-.042	7	-.021	3	-1.281e-04	3	-3.617e-04	3	-5.79e-04	3
467	N248	max	.003	3	.027	3	.168	6	4.54e-03	6	2.546e-03	6	3.429e-04	7
468		min	0	7	-.042	7	-.021	3	-1.281e-04	3	-3.617e-04	3	-5.79e-04	3
469	N249	max	.003	3	.027	3	.165	6	4.54e-03	6	2.546e-03	6	3.429e-04	7
470		min	0	7	-.042	7	-.021	3	-1.281e-04	3	-3.617e-04	3	-5.79e-04	3
471	N250	max	.001	3	0	3	.015	6	9.153e-04	6	2.38e-03	6	2.723e-04	7
472		min	0	7	-.007	7	-.001	3	1.238e-06	2	-2.112e-04	3	-8.587e-05	3
473	N251	max	.002	7	0	3	.004	6	2.009e-03	6	6.986e-04	6	1.201e-04	7
474		min	0	3	-.006	7	0	3	-2.022e-04	3	-1.203e-04	3	-1.014e-04	3
475	N252	max	.001	3	0	3	.014	6	9.153e-04	6	2.38e-03	6	2.723e-04	7
476		min	0	7	-.007	7	-.001	3	1.238e-06	2	-2.112e-04	3	-8.587e-05	3
477	N253	max	.001	7	0	3	.005	6	2.009e-03	6	6.986e-04	6	1.201e-04	7
478		min	0	3	-.006	7	0	3	-2.022e-04	3	-1.203e-04	3	-1.014e-04	3
479	N254	max	0	8	0	8	0	8	0	8	0	8	0	8
480		min	0	1	0	1	0	1	0	1	0	1	0	1
481	N255	max	0	8	0	8	0	8	0	8	0	8	0	8
482		min	0	1	0	1	0	1	0	1	0	1	0	1
483	N256	max	0	8	0	8	0	8	0	8	0	8	0	8
484		min	0	1	0	1	0	1	0	1	0	1	0	1
485	N257	max	0	8	0	8	0	8	0	8	0	8	0	8
486		min	0	1	0	1	0	1	0	1	0	1	0	1
487	N258	max	.004	3	.021	3	.148	6	4.345e-03	6	2.552e-03	6	7.785e-04	7
488		min	-.001	7	-.038	7	-.017	3	-3.396e-05	3	-3.575e-04	3	-1.101e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
489	N259	max	.003	3	.026	3	.159	6	4.54e-03	6	2.546e-03	6	3.433e-04	7
490		min	0	7	-.041	7	-.02	3	-1.281e-04	3	-3.617e-04	3	-5.786e-04	3
491	N260A	max	.004	3	.026	3	.165	6	4.54e-03	6	2.546e-03	6	3.446e-04	7
492		min	-.001	7	-.041	7	-.02	3	-1.281e-04	3	-3.617e-04	3	-5.772e-04	3
493	N261	max	.022	6	-.01	2	0	1	1.234e-03	6	1.98e-03	6	5.796e-04	6
494		min	0	2	-.021	6	-.009	6	-3.658e-04	3	-4.308e-06	1	-1.752e-03	3
495	N262A	max	.056	6	-.016	2	0	1	2.531e-03	6	3.116e-03	6	4.443e-04	6
496		min	0	2	-.034	6	-.027	6	-2.891e-04	3	-7.227e-04	3	-3.125e-03	3
497	N263A	max	.104	6	-.023	2	.005	3	1.949e-03	6	2.962e-03	6	6.703e-04	6
498		min	-.001	3	-.062	6	-.054	6	-7.479e-04	3	-6.016e-04	3	-3.093e-03	3
499	N264A	max	.138	6	-.026	2	.009	3	1.252e-03	6	2.998e-03	6	3.34e-04	6
500		min	-.008	3	-.076	6	-.073	6	-8.575e-04	3	-6.139e-04	3	-2.678e-03	3
501	N265A	max	.016	6	-.01	2	0	3	1.183e-04	1	1.739e-03	6	-4.954e-05	2
502		min	-.006	3	-.02	6	-.014	6	-1.49e-03	6	-4.313e-04	3	-3.383e-03	6
503	N266A	max	.022	6	-.01	2	0	1	1.234e-03	6	1.98e-03	6	5.796e-04	6
504		min	0	2	-.021	6	-.01	6	-3.658e-04	3	-4.308e-06	1	-1.752e-03	3
505	N267A	max	.04	6	-.013	2	0	1	1.35e-03	6	2.635e-03	6	7.764e-04	6
506		min	0	2	-.028	6	-.018	6	-7.035e-04	3	-1.006e-04	3	-2.312e-03	3
507	N268A	max	.06	6	-.016	2	0	1	1.906e-03	6	3.1e-03	6	6.785e-04	6
508		min	0	2	-.036	6	-.029	6	-6.722e-04	3	-7.163e-04	3	-2.87e-03	3
509	N269A	max	.077	6	-.019	2	.001	3	1.726e-03	6	3.03e-03	6	5.17e-04	6
510		min	0	2	-.046	6	-.039	6	-6.968e-04	3	-6.775e-04	3	-2.852e-03	3
511	N270A	max	.092	6	-.021	2	.003	3	1.807e-03	6	2.989e-03	6	5.072e-04	6
512		min	0	2	-.054	6	-.047	6	-6.944e-04	3	-6.392e-04	3	-2.95e-03	3
513	N271A	max	.114	6	-.024	2	.006	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
514		min	-.003	3	-.067	6	-.06	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
515	N272A	max	.123	6	-.025	2	.007	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
516		min	-.005	3	-.07	6	-.064	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
517	N273A	max	.04	6	-.013	2	0	1	1.35e-03	6	2.635e-03	6	7.764e-04	6
518		min	0	2	-.028	6	-.019	6	-7.035e-04	3	-1.006e-04	3	-2.312e-03	3
519	N274A	max	.06	6	-.016	2	0	1	1.906e-03	6	3.1e-03	6	6.785e-04	6
520		min	0	2	-.036	6	-.03	6	-6.722e-04	3	-7.163e-04	3	-2.87e-03	3
521	N275A	max	.078	6	-.019	2	.002	3	1.726e-03	6	3.03e-03	6	5.17e-04	6
522		min	0	2	-.046	6	-.04	6	-6.968e-04	3	-6.775e-04	3	-2.852e-03	3
523	N276A	max	.092	6	-.021	2	.004	3	1.807e-03	6	2.989e-03	6	5.072e-04	6
524		min	0	3	-.054	6	-.048	6	-6.944e-04	3	-6.392e-04	3	-2.95e-03	3
525	N277A	max	.105	6	-.023	2	.005	3	1.949e-03	6	2.962e-03	6	6.703e-04	6
526		min	-.004	3	-.062	6	-.055	6	-7.479e-04	3	-6.016e-04	3	-3.093e-03	3
527	N278A	max	.115	6	-.024	2	.006	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
528		min	-.005	3	-.067	6	-.061	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
529	N279A	max	.123	6	-.025	2	.007	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
530		min	-.007	3	-.07	6	-.065	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
531	N280A	max	.019	6	-.01	2	0	3	1.183e-04	1	1.739e-03	6	-4.954e-05	2
532		min	-.006	3	-.02	6	-.015	6	-1.49e-03	6	-4.313e-04	3	-3.383e-03	6
533	N281A	max	.059	6	-.016	2	.004	3	5.499e-04	6	2.978e-03	6	-1.086e-04	2
534		min	-.01	3	-.036	6	-.037	6	-3.787e-04	3	-7.745e-04	3	-1.978e-03	3
535	N282A	max	.037	6	-.013	2	.002	3	2.606e-04	7	2.598e-03	6	-1.031e-04	2
536		min	-.009	3	-.027	6	-.026	6	-2.168e-04	3	-6.772e-04	3	-1.712e-03	6
537	N283A	max	.077	6	-.018	2	.006	3	8.954e-04	6	3.104e-03	6	-1.197e-04	2
538		min	-.013	3	-.045	6	-.047	6	-4.481e-04	3	-7.714e-04	3	-2.264e-03	3
539	N284A	max	.058	6	-.016	2	.004	3	5.499e-04	6	2.978e-03	6	-1.086e-04	2
540		min	-.012	3	-.036	6	-.037	6	-3.787e-04	3	-7.745e-04	3	-1.978e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
541	N285A	max	.093	6	-.021	2	.007	3	1.164e-03	6	3.107e-03	6	-1.202e-04	2
542		min	-.014	3	-.054	6	-.054	6	-4.896e-04	3	-7.259e-04	3	-2.466e-03	3
543	N286A	max	.106	6	-.023	2	.009	3	1.291e-03	6	3.052e-03	6	-9.604e-05	7
544		min	-.015	3	-.061	6	-.06	6	-5.91e-04	3	-6.643e-04	3	-2.593e-03	3
545	N287A	max	.116	6	-.024	2	.009	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
546		min	-.014	3	-.067	6	-.065	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
547	N288A	max	.124	6	-.025	2	.01	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
548		min	-.014	3	-.07	6	-.069	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
549	N289A	max	.038	6	-.013	2	.002	3	2.606e-04	7	2.598e-03	6	-1.031e-04	2
550		min	-.008	3	-.027	6	-.026	6	-2.168e-04	3	-6.772e-04	3	-1.712e-03	6
551	N290A	max	.077	6	-.018	2	.005	3	8.954e-04	6	3.104e-03	6	-1.197e-04	2
552		min	-.012	3	-.045	6	-.046	6	-4.481e-04	3	-7.714e-04	3	-2.264e-03	3
553	N291A	max	.093	6	-.021	2	.007	3	1.164e-03	6	3.107e-03	6	-1.202e-04	2
554		min	-.012	3	-.053	6	-.053	6	-4.896e-04	3	-7.259e-04	3	-2.466e-03	3
555	N292A	max	.105	6	-.023	2	.008	3	1.291e-03	6	3.052e-03	6	-9.604e-05	7
556		min	-.013	3	-.061	6	-.059	6	-5.91e-04	3	-6.643e-04	3	-2.593e-03	3
557	N293A	max	.116	6	-.024	2	.009	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
558		min	-.012	3	-.067	6	-.064	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
559	N294A	max	.123	6	-.025	2	.009	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
560		min	-.012	3	-.07	6	-.068	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
561	N295	max	.138	6	-.026	2	.009	3	1.252e-03	6	2.998e-03	6	3.34e-04	6
562		min	-.01	3	-.076	6	-.074	6	-8.575e-04	3	-6.139e-04	3	-2.678e-03	3
563	N296	max	.138	6	-.026	2	.01	3	1.252e-03	6	2.998e-03	6	3.34e-04	6
564		min	-.012	3	-.075	6	-.075	6	-8.575e-04	3	-6.139e-04	3	-2.678e-03	3
565	N297	max	.138	6	-.026	2	.011	3	1.252e-03	6	2.998e-03	6	3.34e-04	6
566		min	-.014	3	-.075	6	-.076	6	-8.575e-04	3	-6.139e-04	3	-2.678e-03	3
567	N298	max	.006	6	-.005	2	0	1	6.554e-04	6	1.031e-03	6	3.038e-04	6
568		min	0	2	-.009	6	-.001	6	-1.312e-04	3	-3.305e-06	1	-8.412e-04	3
569	N299	max	.004	6	-.004	2	0	3	7.741e-05	4	9.632e-04	6	-3.341e-05	2
570		min	-.002	3	-.007	6	-.005	6	-4.262e-04	6	-2.631e-04	3	-1.204e-03	6
571	N300A	max	.006	6	-.005	2	0	1	6.554e-04	6	1.031e-03	6	3.038e-04	6
572		min	0	2	-.009	6	-.002	6	-1.312e-04	3	-3.305e-06	1	-8.412e-04	3
573	N301	max	.005	6	-.004	2	0	3	7.741e-05	4	9.632e-04	6	-3.341e-05	2
574		min	-.002	3	-.007	6	-.005	6	-4.262e-04	6	-2.631e-04	3	-1.204e-03	6
575	N302A	max	0	8	0	8	0	8	0	8	0	8	0	8
576		min	0	1	0	1	0	1	0	1	0	1	0	1
577	N303A	max	0	8	0	8	0	8	0	8	0	8	0	8
578		min	0	1	0	1	0	1	0	1	0	1	0	1
579	N304A	max	0	8	0	8	0	8	0	8	0	8	0	8
580		min	0	1	0	1	0	1	0	1	0	1	0	1
581	N305A	max	0	8	0	8	0	8	0	8	0	8	0	8
582		min	0	1	0	1	0	1	0	1	0	1	0	1
583	N306A	max	.11	6	-.024	2	.005	3	2.547e-03	6	2.952e-03	6	6.556e-04	6
584		min	-.002	3	-.066	6	-.057	6	-5.383e-04	3	-5.828e-04	3	-3.406e-03	3
585	N307C	max	.131	6	-.025	2	.01	3	1.252e-03	6	2.998e-03	6	3.338e-04	6
586		min	-.012	3	-.073	6	-.072	6	-8.571e-04	3	-6.14e-04	3	-2.678e-03	3
587	N308B	max	.131	6	-.025	2	.008	3	1.253e-03	6	2.998e-03	6	3.331e-04	6
588		min	-.009	3	-.073	6	-.07	6	-8.559e-04	3	-6.139e-04	3	-2.678e-03	3
589	N307D	max	0	8	0	8	0	8	0	8	0	8	0	8
590		min	0	1	0	1	0	1	0	1	0	1	0	1
591	N308C	max	.019	6	.007	3	.114	6	3.929e-03	6	2.294e-03	6	1.24e-03	6
592		min	-.001	1	-.056	6	-.011	3	-1.086e-04	3	-1.393e-04	3	-7.591e-04	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
593	N309A	max	.011	3	.013	6	.114	6	2.3e-03	6	2.174e-03	6	2.335e-04	1
594		min	-.021	6	-.025	4	-.013	3	-9.315e-04	1	-5.672e-04	3	-8.587e-04	6
595	N310A	max	.03	3	.02	6	.014	3	1.7e-03	6	3.322e-03	6	7.03e-04	1
596		min	-.084	6	-.026	4	-.005	6	-6.193e-04	1	6.292e-05	2	-9.629e-04	3
597	N311A	max	.032	3	-.009	6	.01	3	9.021e-04	6	2.909e-03	6	-7.66e-04	2
598		min	-.052	6	-.062	3	-.057	6	2.477e-04	2	-7.24e-05	1	-3.949e-03	3
599	N312A	max	.053	6	-.02	2	.008	3	4.189e-04	6	3.059e-03	6	-4.139e-04	6
600		min	0	2	-.061	3	-.055	6	-5.994e-04	3	-8.448e-04	3	-3.881e-03	3
601	N313	max	.084	6	-.009	3	.001	1	2.829e-03	6	3.22e-03	6	1.949e-03	6
602		min	0	1	-.062	6	-.008	3	-7.e-04	3	-8.027e-04	3	-9.287e-04	3
603	N314	max	.037	3	-.051	6	.016	3	2.122e-04	6	7.095e-04	6	-1.096e-03	6
604		min	0	6	-.207	3	-.114	6	-5.039e-05	3	-1.717e-04	3	-6.237e-03	3
605	N315	max	.037	3	-.028	6	.009	3	1.428e-04	6	7.078e-04	6	-1.138e-03	6
606		min	0	6	-.079	3	-.056	6	-1.774e-05	3	-1.716e-04	3	-6.278e-03	3
607	N316	max	.036	3	-.045	6	.016	3	8.039e-04	3	1.039e-03	6	-1.058e-03	6
608		min	-.013	6	-.201	3	-.114	6	2.99e-04	2	-2.56e-05	1	-6.173e-03	3
609	N317	max	.036	3	-.024	6	.009	3	4.637e-04	3	1.045e-03	6	-1.1e-03	6
610		min	-.013	6	-.075	3	-.056	6	2.263e-04	2	-2.473e-05	1	-6.215e-03	3
611	N318	max	.032	3	-.035	6	.017	3	1.702e-03	3	2.12e-03	6	-1.02e-03	6
612		min	-.035	6	-.183	3	-.114	6	5.191e-04	2	-4.801e-05	1	-5.985e-03	3
613	N319	max	.033	3	-.014	6	.01	3	7.761e-04	6	2.066e-03	6	-1.062e-03	6
614		min	-.035	6	-.066	3	-.056	6	3.009e-04	2	-5.013e-05	1	-6.027e-03	3
615	N320	max	.031	3	-.05	2	.016	3	-4.558e-05	6	1.083e-03	6	-1.101e-03	6
616		min	0	1	-.2	3	-.114	6	-8.94e-04	3	-6.148e-04	3	-6.135e-03	3
617	N321	max	.031	3	-.027	2	.008	3	-2.82e-06	6	1.088e-03	6	-1.143e-03	6
618		min	0	1	-.075	3	-.056	6	-4.903e-04	3	-6.136e-04	3	-6.177e-03	3
619	N322	max	.035	6	-.043	2	.016	3	-1.405e-04	6	2.209e-03	6	-1.061e-03	6
620		min	0	2	-.18	3	-.114	6	-1.754e-03	3	-7.505e-04	3	-5.92e-03	3
621	N323	max	.035	6	-.022	2	.008	3	1.838e-04	6	2.154e-03	6	-1.103e-03	6
622		min	0	2	-.065	3	-.055	6	-6.563e-04	3	-6.879e-04	3	-5.962e-03	3
623	N328	max	.03	3	.086	6	.093	6	2.897e-03	6	1.352e-03	6	7.174e-04	4
624		min	-.097	6	-.063	1	0	2	-1.185e-03	1	-5.009e-04	3	-1.816e-03	6
625	N329	max	.024	3	.016	6	.065	6	2.913e-03	6	1.353e-03	6	7.307e-04	1
626		min	-.047	6	-.034	1	0	2	-1.231e-03	1	-5.019e-04	3	-1.704e-03	6
627	N330	max	.025	3	.086	6	.11	6	3.027e-03	6	1.232e-03	6	3.99e-04	1
628		min	-.088	6	-.06	1	-.006	3	-1.35e-03	1	-6.179e-04	3	-1.651e-03	6
629	N331	max	.019	3	.017	6	.081	6	2.961e-03	6	1.233e-03	6	5.065e-04	4
630		min	-.039	6	-.032	1	-.002	3	-1.352e-03	1	-6.133e-04	3	-1.682e-03	6
631	N332	max	.02	3	.082	6	.129	6	3.253e-03	6	1.836e-03	6	1.657e-04	1
632		min	-.078	6	-.053	1	-.014	3	-1.443e-03	4	-5.683e-04	3	-1.177e-03	6
633	N333	max	.014	3	.015	6	.101	6	3.029e-03	6	1.901e-03	6	4.017e-04	1
634		min	-.028	6	-.027	4	-.01	3	-1.354e-03	1	-5.706e-04	3	-1.482e-03	6
635	N334	max	.033	3	.083	6	.072	6	2.748e-03	6	1.935e-03	6	1.012e-03	1
636		min	-.108	6	-.06	1	0	1	-9.814e-04	1	-3.237e-04	3	-1.858e-03	6
637	N335	max	.027	3	.017	6	.043	6	2.859e-03	6	1.932e-03	6	9.477e-04	1
638		min	-.058	6	-.031	1	0	1	-1.075e-03	1	-3.22e-04	3	-1.581e-03	6
639	N336	max	.035	3	.078	6	.042	6	2.509e-03	6	2.726e-03	6	1.211e-03	1
640		min	-.125	6	-.052	1	0	1	-8.023e-04	1	-1.419e-04	3	-1.966e-03	6
641	N337	max	.03	3	.019	6	.013	3	2.802e-03	6	2.679e-03	6	9.894e-04	1
642		min	-.075	6	-.027	4	0	1	-9.904e-04	4	-2.058e-04	3	-1.376e-03	6
643	N338	max	.096	6	.021	3	.094	6	5.061e-03	6	1.329e-03	6	3.062e-03	6
644		min	0	1	-.197	6	-.017	3	-1.051e-03	3	-3.099e-07	1	-7.302e-04	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
645	N339	max	.046	6	-.005	3	.065	6	5.141e-03	6	1.329e-03	6	3.008e-03	6
646		min	0	1	-.076	6	-.014	3	-1.029e-03	3	-3.177e-07	1	-6.851e-04	3
647	N340	max	.108	6	.02	3	.073	6	4.555e-03	6	1.892e-03	6	3.662e-03	6
648		min	0	1	-.19	6	-.018	3	-1.049e-03	3	-7.77e-05	3	-7.087e-04	3
649	N341	max	.058	6	-.005	3	.044	6	4.819e-03	6	1.89e-03	6	3.287e-03	6
650		min	0	2	-.072	6	-.014	3	-1.04e-03	3	-7.995e-05	3	-6.406e-04	3
651	N342	max	.125	6	.017	3	.044	6	3.99e-03	6	2.66e-03	6	4.154e-03	6
652		min	0	1	-.171	6	-.015	3	-9.308e-04	3	-4.41e-04	3	-8.758e-04	3
653	N343	max	.074	6	-.007	3	.015	6	4.61e-03	6	2.609e-03	6	3.164e-03	6
654		min	0	2	-.064	6	-.011	3	-9.207e-04	3	-3.74e-04	3	-8.097e-04	3
655	N344	max	.087	6	.023	3	.11	6	5.475e-03	6	1.246e-03	6	2.313e-03	6
656		min	0	1	-.193	6	-.015	3	-9.928e-04	3	1.97e-05	2	-8.041e-04	3
657	N345	max	.038	6	-.002	3	.081	6	5.388e-03	6	1.246e-03	6	2.547e-03	6
658		min	0	1	-.072	6	-.011	3	-9.241e-04	3	1.902e-05	2	-8.397e-04	3
659	N346	max	.076	6	.027	3	.129	6	5.838e-03	6	1.906e-03	6	1.408e-03	6
660		min	-.001	3	-.175	6	-.013	3	-9.481e-04	3	-1.525e-05	3	-7.881e-04	3
661	N347	max	.027	6	.004	3	.101	6	5.441e-03	6	1.974e-03	6	2.179e-03	6
662		min	0	1	-.062	6	-.01	3	-7.629e-04	3	-1.039e-05	3	-1.025e-03	3
663	N348	max	.369	3	-.04	2	.153	6	3.974e-03	6	5.867e-03	6	1.231e-03	6
664		min	-.011	1	-.156	3	-.012	3	-1.116e-03	3	-4.247e-03	3	-4.948e-03	3
665	N349	max	.436	3	.045	6	.162	6	4.32e-03	6	5.336e-03	6	8.457e-05	1
666		min	-.111	6	-.16	3	.008	2	2.487e-04	2	3.977e-05	2	-5.231e-03	3
667	N350	max	.917	3	-.05	6	.127	6	3.03e-03	6	2.997e-03	3	-1.902e-04	2
668		min	.021	6	-.206	3	0	1	-6.969e-05	1	2.948e-04	2	-1.35e-02	3
669	N351	max	.887	3	-.047	6	.131	6	3.171e-03	6	3.067e-04	6	6.999e-04	6
670		min	-.001	6	-.203	3	.003	2	2.89e-05	3	-3.843e-03	3	-1.322e-02	3
671	N352	max	.236	3	-.04	2	.046	6	3.896e-03	6	5.867e-03	6	1.231e-03	6
672		min	-.004	1	-.156	3	.001	2	-1.116e-03	3	-4.247e-03	3	-4.87e-03	3
673	N353	max	.296	3	.045	6	.046	6	4.241e-03	6	5.336e-03	6	8.456e-05	1
674		min	-.131	6	-.16	3	.001	2	2.487e-04	2	3.977e-05	2	-5.152e-03	3
675	N354	max	.394	3	.104	6	.261	6	4.32e-03	6	5.336e-03	6	8.457e-05	1
676		min	-.169	6	-.057	4	.009	2	2.487e-04	2	3.977e-05	2	-5.231e-03	3
677	N355	max	.272	3	.082	3	.694	6	6.476e-03	6	-4.829e-06	2	-1.988e-04	2
678		min	.004	2	-.055	7	-.039	3	-1.633e-04	3	-2.522e-03	6	-3.466e-03	3
679	N356	max	.357	3	.098	6	.892	6	1.185e-02	6	7.614e-04	6	2.219e-04	1
680		min	-.02	1	-.062	4	-.025	1	-1.425e-04	1	-2.416e-03	3	-4.538e-03	6
681	N357	max	.43	3	.083	6	.712	6	1.012e-02	6	5.277e-03	6	5.24e-05	1
682		min	-.014	1	-.059	1	-.024	1	-1.894e-04	1	-7.201e-04	3	-5.586e-03	3
683	N358	max	.254	3	.104	6	.145	6	4.241e-03	6	5.336e-03	6	8.456e-05	1
684		min	-.188	6	-.057	4	.002	2	2.487e-04	2	3.977e-05	2	-5.152e-03	3
685	N359	max	.179	3	.082	3	.52	6	6.397e-03	6	-4.829e-06	2	-1.988e-04	2
686		min	-.002	1	-.055	7	-.035	3	-1.633e-04	3	-2.522e-03	6	-3.388e-03	3
687	N360	max	.268	3	.085	3	.694	6	6.476e-03	6	-4.829e-06	2	-1.988e-04	2
688		min	-.022	6	-.114	6	-.039	3	-1.633e-04	3	-2.522e-03	6	-3.466e-03	3
689	N361	max	.324	3	-.042	2	.262	6	3.974e-03	6	5.867e-03	6	1.231e-03	6
690		min	-.011	1	-.19	6	-.09	3	-1.116e-03	3	-4.247e-03	3	-4.948e-03	3
691	N362	max	.381	3	.028	3	.78	6	1.083e-02	6	5.793e-03	6	4.058e-03	6
692		min	-.121	6	-.187	6	-.246	3	-3.945e-03	3	-1.046e-04	3	-5.401e-03	3
693	N363	max	.337	3	.021	3	.943	6	1.223e-02	6	1.586e-03	3	4.961e-03	6
694		min	-.217	6	-.203	6	-.178	3	-2.902e-03	3	-4.924e-04	7	-4.632e-03	3
695	N364	max	.175	3	.085	3	.52	6	6.397e-03	6	-4.829e-06	2	-1.988e-04	2
696		min	-.028	6	-.114	6	-.035	3	-1.633e-04	3	-2.522e-03	6	-3.388e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
697	N365	max	.191	3	-.042	2	.155	6	3.896e-03	6	5.867e-03	6	1.231e-03	6
698		min	-.004	1	-.19	6	-.06	3	-1.116e-03	3	-4.247e-03	3	-4.87e-03	3
699	N366	max	.553	3	-.05	6	.046	6	2.809e-03	6	2.997e-03	3	-1.901e-04	2
700		min	.004	6	-.206	3	.001	2	-6.967e-05	1	2.948e-04	2	-1.318e-02	3
701	N367	max	.531	3	-.047	6	.046	6	2.95e-03	6	3.067e-04	6	6.998e-04	6
702		min	.018	6	-.203	3	.001	2	2.889e-05	3	-3.843e-03	3	-1.29e-02	3
703	N368	max	.236	3	.098	6	.573	6	1.153e-02	6	7.614e-04	6	2.219e-04	1
704		min	-.014	1	-.062	4	-.021	1	-1.425e-04	1	-2.416e-03	3	-4.537e-03	6
705	N369	max	.28	3	.083	6	.44	6	9.799e-03	6	5.277e-03	6	5.239e-05	1
706		min	-.019	7	-.059	1	-.019	1	-1.893e-04	1	-7.201e-04	3	-5.364e-03	3
707	N370	max	.236	3	.028	3	.489	6	1.052e-02	6	5.793e-03	6	4.057e-03	6
708		min	-.026	7	-.187	6	-.14	3	-3.944e-03	3	-1.046e-04	3	-5.18e-03	3
709	N371	max	.213	3	.021	3	.614	6	1.191e-02	6	1.586e-03	3	4.96e-03	6
710		min	-.083	6	-.203	6	-.1	3	-2.901e-03	3	-4.924e-04	7	-4.41e-03	3
711	N372	max	.074	6	.085	3	.062	6	6.719e-03	6	1.932e-03	6	1.937e-03	6
712		min	-.082	3	-.114	6	-.009	3	-6.821e-04	3	-1.056e-04	3	-3.416e-03	3
713	N373	max	.183	6	-.04	2	.015	3	3.272e-03	6	3.377e-03	6	5.399e-04	6
714		min	-.156	3	-.156	3	-.206	6	1.234e-04	3	-1.146e-03	3	-5.963e-03	3
715	N374	max	-.004	2	.045	6	.02	3	2.954e-03	6	3.049e-03	6	-2.446e-04	2
716		min	-.184	6	-.16	3	-.198	6	-1.901e-04	1	-1.227e-04	1	-6.458e-03	3
717	N375	max	-.002	2	.104	6	.004	1	4.599e-03	6	3.59e-03	6	-1.377e-05	2
718		min	-.222	6	-.057	4	-.186	6	-2.736e-04	1	1.275e-04	2	-4.234e-03	3
719	N376	max	.008	1	.081	3	.066	6	6.391e-03	6	1.7e-03	6	4.023e-04	1
720		min	-.067	3	-.055	7	-.04	3	-1.54e-04	1	-5.857e-04	3	-3.123e-03	3
721	N377	max	.221	6	-.042	2	.044	3	5.554e-03	6	3.343e-03	6	9.579e-04	6
722		min	-.119	3	-.189	6	-.204	6	-1.411e-03	3	-1.158e-03	3	-4.085e-03	3
723	N378	max	-.015	2	-.05	6	-.002	3	1.52e-03	6	1.622e-03	6	-7.189e-04	2
724		min	-.171	3	-.206	3	-.159	6	3.527e-04	2	9.108e-05	2	-8.515e-03	3
725	N379	max	.025	6	-.046	6	.037	3	8.24e-04	6	1.448e-03	6	-3.418e-04	6
726		min	-.176	3	-.203	3	-.14	6	-7.26e-04	3	-1.66e-03	3	-8.328e-03	3
727	N380	max	0	2	.098	6	.021	1	6.056e-03	6	1.056e-03	6	1.076e-04	1
728		min	-.164	6	-.062	4	-.053	3	-9.421e-04	1	-9.82e-04	3	-3.002e-03	6
729	N381	max	.019	1	.083	6	.009	1	5.226e-03	6	3.089e-03	6	7.959e-04	1
730		min	-.188	6	-.058	1	-.069	6	-4.933e-04	1	-1.499e-04	4	-2.448e-03	6
731	N382	max	.223	6	.028	3	.048	3	6.334e-03	6	3.271e-03	6	3.944e-03	6
732		min	-.057	3	-.187	6	-.09	6	-2.456e-03	3	-4.308e-04	3	-2.303e-03	3
733	N383	max	.164	6	.021	3	.03	3	7.789e-03	6	8.369e-04	6	3.196e-03	6
734		min	-.058	3	-.203	6	-.063	6	-1.835e-03	3	-1.162e-04	1	-2.356e-03	3

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

	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...phi*P...	phi*P...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
1	M367	PIPE_2.0	.281	1...	6	.132	12.5		3 14.56	32.13	1.872	1.8...	3....	H1...
2	M256	.5" x 4"	.275	.9...	6	.042	0	y	6 75.326	90	.938	7.5	1....	H1...
3	M76	L3X3X6	.258	2....	3	.069	2.386	y	3 66.294	66.465	2.243	5.1...	1.2	H2...
4	M372	PIPE_2.0	.257	8....	3	.107	12.5		6 14.56	32.13	1.872	1.8...	3....	H1...
5	M75B	L3X3X6	.252	2....	6	.082	.691	y	6 66.294	66.465	2.243	5.1...	1....	H2...
6	M75	L3X3X6	.251	2....	6	.073	.691	z	3 66.294	66.465	2.243	5.1...	1....	H2...
7	M124	L3X3X6	.247	2....	3	.066	2.197	z	3 66.294	66.465	2.243	5.1...	1....	H2...
8	M377	PIPE_2.0	.245	4....	3	.122	0		6 14.56	32.13	1.872	1.8...	3....	H1...
9	M125	L3X3X6	.238	2....	6	.085	2.386	z	6 66.294	66.465	2.243	5.1...	1....	H2...

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

	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...	phi*P...	phi*P...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
10	M74B	L3X3X6	.230	2....	6	.058	2.197	y	3	66.294	66.465	2.243	5.1...	1....	H2...
11	M336	.5" x 4"	.225	.1...	6	.105	0	y	6	80.519	90	.938	7.5	2....	H1...
12	M376	PIPE 2.5	.221	5....	6	.044	5.684		6	34.284	72.45	5.138	5.1...	2....	H1...
13	M131	3/8 x 2 3/8 "	.217	0	6	.032	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
14	M370	PIPE 2.5	.216	5....	3	.048	5.684		6	34.284	72.45	5.138	5.1...	3....	H1...
15	M310	3/8 x 5/8	.216	.2...	6	.021	0	y	6	10.221	10.547	.082	.137	2....	H1...
16	M177	PIPE 2.5	.215	3....	6	.264	3.289		6	29.547	50.715	3.596	3.5...	2....	H1...
17	M373	PIPE 2.5	.212	5....	6	.044	5.684		3	34.284	72.45	5.138	5.1...	3....	H1...
18	M129	3/8 x 2 3/8 "	.208	0	6	.019	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
19	M380	PIPE 2.5	.206	5....	3	.055	5.684		6	34.284	72.45	5.138	5.1...	3....	H1...
20	M130	3/8 x 2 3/8 "	.205	0	6	.036	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
21	M317	3/8 x 4	.199	.9...	6	.021	0	y	6	49.067	67.5	.527	5.5...	1....	H1...
22	M182	PIPE 2.5	.194	9....	6	.199	9.211		6	29.547	50.715	3.596	3.5...	2....	H1...
23	M316	3/8 x 4	.179	.9...	6	.037	0	y	6	47.632	67.5	.527	5.6...	1....	H1...
24	M133	3/8 x 2 3/8 "	.178	0	6	.035	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
25	M318	3/8 x 1"	.176	.9...	6	.042	.957	y	6	11.92	16.875	.132	.352	2....	H1...
26	M371	PIPE 2.5	.176	5....	6	.037	5.684		3	34.284	72.45	5.138	5.1...	2....	H1...
27	M146A	PIPE 2.5	.176	4....	6	.196	3.289		3	29.547	50.715	3.596	3.5...	3....	H1...
28	M327A	.5" x 4"	.176	.9...	6	.025	0	y	3	75.326	90	.938	7.5	1....	H1...
29	M338	3/8 x 1"	.175	0	6	.054	.331	y	6	13.704	16.875	.132	.352	2....	H1...
30	M134	3/8 x 2 3/8 "	.173	0	6	.036	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
31	M381	PIPE 2.5	.172	5....	3	.038	5.684		3	34.284	72.45	5.138	5.1...	3....	H1...
32	M82	3/8 x 2 3/8 "	.167	0	3	.023	0	y	4	26.252	28.055	.219	1.3...	1....	H1...
33	M324	.5" x 4"	.166	.9...	3	.029	0	y	3	75.326	90	.938	7.5	1....	H1...
34	M132	3/8 x 2 3/8 "	.166	0	6	.022	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
35	M319	3/8 x 1"	.164	0	6	.024	.917	y	6	12.267	16.875	.132	.352	2....	H1...
36	M353	PIPE 1.5	.162	6....	6	.026	6.142		6	11.59	23.593	1.105	1.1...	2....	H1...
37	M84	3/8 x 2 3/8 "	.158	0	3	.026	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
38	M288A	.5" x 4"	.158	.1...	6	.026	.102	y	3	82.341	90	.938	7.3...	1....	H1...
39	M360	PIPE 1.5	.157	0	6	.025	0		6	11.59	23.593	1.105	1.1...	1....	H1...
40	M284	.5" x 4"	.155	.1...	3	.029	.102	y	3	82.341	90	.938	7.5	1....	H1...
41	M80	3/8 x 2 3/8 "	.154	0	3	.013	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
42	M322	3/8 x 1"	.154	0	6	.038	1.294	y	6	8.939	16.875	.132	.352	2....	H1...
43	M255	.5" x 4"	.153	.9...	6	.046	0	y	6	74.089	90	.938	7.5	1....	H1...
44	M33	3/8 x 2 3/8 "	.151	0	7	.038	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
45	M308	3/4 x 3/8	.150	.37	6	.015	0	y	6	12.016	12.656	.099	.198	2....	H1...
46	M332A	.5" x 4"	.148	.1...	3	.103	0	y	6	80.519	90	.938	7.5	1....	H1...
47	M326A	.5" x 4"	.143	.9...	6	.027	0	y	3	74.089	90	.938	7.4...	1....	H1...
48	M122	L3X3X6	.141	0	6	.119	2.761	y	3	65.969	66.465	2.243	5.1...	1....	H2...
49	M81	3/8 x 2 3/8 "	.140	0	3	.036	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
50	M323A	3/8 x 1"	.136	0	6	.011	0	y	3	12.655	16.875	.132	.352	1....	H1...
51	M61	3/8 x 2 3/8 "	.136	0	7	.032	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
52	M62	3/8 x 2 3/8 "	.135	0	7	.023	0	y	7	26.252	28.055	.219	1.3...	1....	H1...
53	M126	HSS4X3X4	.133	2....	6	.087	2.234	z	6	83.04	91.665	8.19	10....	1....	H1...
54	M314A	3/8 x 4	.132	0	3	.022	0	y	6	49.067	67.5	.527	5.6...	1....	H1...
55	M217	.5" x 4"	.130	.1...	6	.044	.102	y	6	82.341	90	.938	7.5	1....	H1...
56	M60	3/8 x 2 3/8 "	.130	0	7	.011	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
57	M34A	3/8 x 2 3/8 "	.129	0	7	.028	0	y	7	26.252	28.055	.219	1.3...	1....	H1...
58	M321	3/8 x 1"	.128	.9...	6	.017	.917	y	3	12.267	16.875	.132	.352	2....	H1...
59	M311	3/8 x 5/8	.128	0	6	.018	.397	y	6	9.934	10.547	.082	.137	1....	H1...
60	M85	3/8 x 2 3/8 "	.128	0	4	.034	0	y	3	26.252	28.055	.219	1.3...	1....	H1...
61	M315A	3/8 x 1"	.127	.9...	3	.032	.957	y	6	11.92	16.875	.132	.352	2....	H1...

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

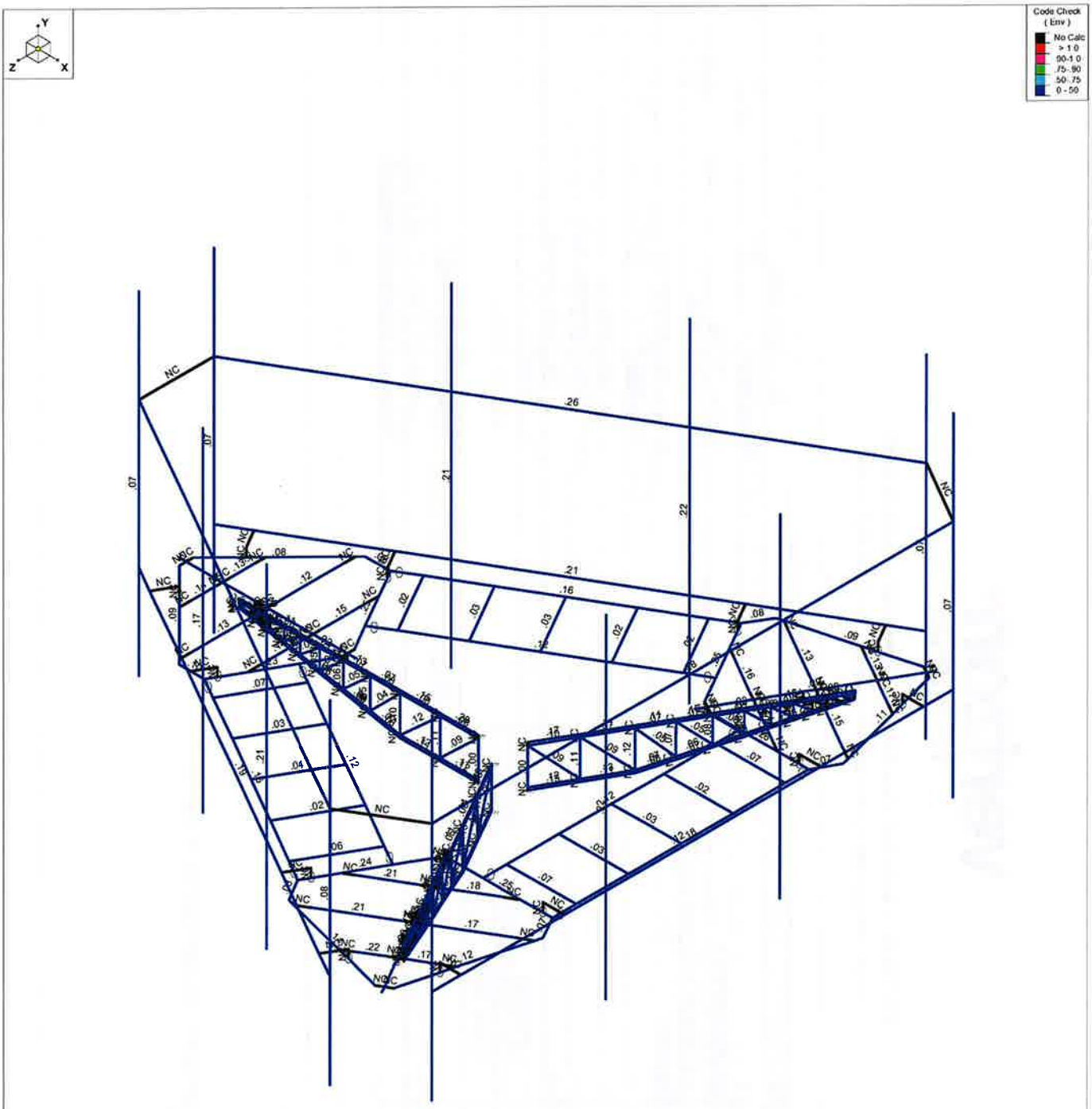
	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...	phi*P...	phi*P...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
62	M83	3/8 x 2 3/8 "	.125	0	4	.019	0	y	3	26.252	28.055	.219	1.3...	1...	H1...
63	M337	3/8 x 1"	.124	0	6	.045	.324	y	6	13.824	16.875	.132	.352	2....	H1...
64	M247	3/8 x 1"	.124	.9...	7	.053	.957	y	6	11.92	16.875	.132	.352	2....	H1...
65	M306	3/8 x 5/8	.124	.2...	3	.014	0	y	3	10.221	10.547	.082	.137	2....	H1...
66	M316A	3/8 x 1"	.123	0	3	.018	.917	y	6	12.267	16.875	.132	.352	2....	H1...
67	M246	3/8 x 4	.122	0	7	.029	0	y	6	49.067	67.5	.527	5.2...	1....	H1...
68	M346	PIPE 1.5	.122	6....	3	.023	6.142		3	11.59	23.593	1.105	1.1...	1....	H1...
69	M324A	3/8 x 1"	.121	1....	6	.018	1.264	y	6	9.2	16.875	.132	.352	2....	H1...
70	M347	PIPE 1.5	.121	0	6	.014	.485		3	11.59	23.593	1.105	1.1...	2....	H1...
71	M31	3/8 x 2 3/8 "	.120	0	7	.015	0	y	6	26.252	28.055	.219	1.3...	1....	H1...
72	M361	PIPE 1.5	.120	6....	6	.016	5.657		3	11.59	23.593	1.105	1.1...	1....	H1...
73	M299A	3/8 x 1"	.120	0	6	.012	0	y	3	12.655	16.875	.132	.352	1....	H1...
74	M354	PIPE 1.5	.120	0	6	.016	.485		6	11.59	23.593	1.105	1.1...	2....	H1...
75	M292A	3/8 x 4	.118	.7...	6	.045	0	y	6	54.764	67.5	.527	5.6...	1....	H1...
76	M296A	3/8 x 1"	.117	.4...	6	.026	.468	y	6	11.147	16.875	.132	.352	2....	H1...
77	M334	3/8 x 1"	.117	0	3	.031	.331	y	3	13.704	16.875	.132	.352	2....	H1...
78	M295	3/8 x 1"	.117	0	6	.016	0	y	3	12.655	16.875	.132	.352	2....	H1...
79	M123	L3X3X6	.116	0	6	.135	2.761	z	6	65.969	66.465	2.243	5.1...	1....	H2...
80	M251	3/8 x 1"	.115	0	6	.028	1.294	y	6	8.939	16.875	.132	.352	2....	H1...
81	M248	3/8 x 1"	.115	0	7	.032	.917	y	6	12.267	16.875	.132	.352	2....	H1...
82	M323	.5" x 4"	.115	.9...	6	.031	0	y	3	74.089	90	.938	7.5	1....	H1...
83	M306A	.875 x .375	.115	.4...	6	.008	0	y	6	13.592	14.766	.115	.269	2....	H1...
84	M290A	3/8 x 4	.112	1....	6	.017	.495	y	6	44.585	67.5	.527	5.6...	2....	H1...
85	M252	3/8 x 1"	.112	0	7	.024	0	y	6	12.655	16.875	.132	.352	1.5	H1...
86	M313A	3/8 x 4	.111	0	3	.037	0	y	6	47.632	67.5	.527	5.6...	1....	H1...
87	M289A	.5" x 4"	.109	.7...	6	.026	0	y	3	80.683	90	.938	7.4...	1....	H1...
88	M320A	3/8 x 1"	.108	0	4	.014	0	y	3	12.655	16.875	.132	.352	1....	H1...
89	M285	.5" x 4"	.108	.7...	6	.031	0	y	3	80.683	90	.938	7.5	1....	H1...
90	M265A	.5" x 4"	.106	.1...	3	.025	0	z	6	80.519	90	.938	7.5	2....	H1...
91	M73	L3X3X6	.106	0	3	.090	1.227	y	3	65.969	66.465	2.243	5.1...	1....	H2...
92	M245	3/8 x 4	.106	.9...	6	.050	0	y	6	47.632	67.5	.527	5.4...	1....	H1...
93	M304A	.875 x .375	.105	.5...	6	.008	0	y	6	12.977	14.766	.115	.269	2....	H1...
94	M339	3/8 x 4	.100	0	6	.018	0	y	6	54.815	67.5	.527	5.6...	1....	H1...
95	M66	3/8 x 3	.099	.6...	6	.038	0	y	7	32.153	35.438	.277	2.2...	1....	H1...
96	M309	3/4 x 3/8	.099	.4...	6	.018	.487	y	6	11.566	12.656	.099	.198	1....	H1...
97	M291A	3/8 x 4	.098	.6...	6	.025	0	y	6	57.024	67.5	.527	5.6...	1....	H1...
98	M228	3/8 x 1"	.098	0	6	.030	.871	y	6	12.655	16.875	.132	.352	1....	H1...
99	M318A	3/8 x 1"	.095	.9...	3	.017	.917	y	3	12.267	16.875	.132	.352	2....	H1...
100	M77	HSS4X3X4	.095	2....	3	.073	2.234	z	3	83.04	91.665	8.19	10....	1....	H1...
101	M319A	3/8 x 1"	.095	0	3	.035	0	y	6	8.939	16.875	.132	.352	2....	H1...
102	M320	3/8 x 1"	.094	.9...	6	.016	.958	y	3	11.908	16.875	.132	.352	2....	H1...
103	M253	3/8 x 1"	.091	1....	7	.021	1.264	y	6	9.2	16.875	.132	.352	2....	H1...
104	M305A	.875 x .375	.090	.7...	6	.023	0	y	6	12.084	14.766	.115	.269	2....	H1...
105	M321A	3/8 x 1"	.089	1....	3	.016	1.264	y	6	9.2	16.875	.132	.352	2....	H1...
106	M307	3/4 x 3/8	.088	.5...	6	.019	.595	y	6	11.063	12.656	.099	.198	2....	H1...
107	M74	L3X3X6	.087	.8...	4	.123	2.761	z	3	65.969	66.465	2.243	5.1...	1....	H2...
108	M68	L3X3X6	.087	0	7	.084	1.227	y	6	65.969	66.465	2.243	5.1...	1....	H2...
109	M298A	3/8 x 1"	.086	.7...	6	.044	.731	y	6	13.777	16.875	.132	.352	2....	H1...
110	M54	HSS4X3X4	.086	2....	3	.052	2.234	z	6	83.04	91.665	8.19	10....	1....	H1...
111	M267A	3/8 x 1"	.086	0	7	.020	0	y	3	13.704	16.875	.132	.352	2....	H1...
112	M304	3/4 x 3/8	.086	.37	3	.010	0	y	3	12.016	12.656	.099	.198	2....	H1...
113	M297A	3/8 x 1"	.084	.6...	6	.022	.667	y	6	14.256	16.875	.132	.352	2....	H1...

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

	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...phi*P...	phi*P...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
114	M240	3/8 x 5/8	.084	0	3	.005	.397	y	6	9.934	10.547	.082	.137	1....	H1...
115	M300	.875 x .375	.082	.5...	6	.006	0	y	6	12.977	14.766	.115	.269	2....	H1...
116	M379	PIPE 2.5	.082	2....	6	.051	5.684		3	34.284	72.45	5.138	5.1...	4....	H1...
117	M249	3/8 x 1"	.081	0	3	.019	.958	y	6	11.908	16.875	.132	.352	2....	H1...
118	M250	3/8 x 1"	.081	.9...	7	.017	.917	y	6	12.267	16.875	.132	.352	2....	H1...
119	M239	3/8 x 5/8	.081	.2...	7	.009	0	y	7	10.221	10.547	.082	.137	2....	H1...
120	M292	3/8 x 1"	.080	.4...	3	.016	0	y	6	11.147	16.875	.132	.352	2....	H1...
121	M45A	L3X3X6	.079	0	7	.102	2.761	z	6	65.969	66.465	2.243	5.1...	1....	H2...
122	M78	3/8 x 3	.079	0	3	.060	0	y	3	32.153	35.438	.277	2.2...	1....	H1...
123	M288	3/8 x 4	.079	.7...	3	.044	0	y	6	54.764	67.5	.527	5.6...	1....	H1...
124	M238	3/4 x 3/8	.078	0	3	.007	.487	y	6	11.566	12.656	.099	.198	1....	H1...
125	M307A	3/8 x 5/8	.078	0	3	.017	0	y	6	9.934	10.547	.082	.137	1....	H1...
126	M333	3/8 x 1"	.077	0	3	.034	0	y	6	13.824	16.875	.132	.352	2....	H1...
127	M128	3/8 x 3	.077	0	3	.084	0	y	6	32.153	35.438	.277	2.2...	1....	H1...
128	M224	3/8 x 1"	.077	0	3	.020	.718	y	6	13.874	16.875	.132	.352	2....	H1...
129	M286	3/8 x 4	.077	1....	3	.016	.495	y	6	44.585	67.5	.527	5.6...	1....	H1...
130	M74C	3/8 x 3	.077	0	6	.041	0	y	7	32.153	35.438	.277	2.2...	1....	H1...
131	M221	3/8 x 4	.076	.7...	6	.018	0	y	6	54.764	67.5	.527	5.6...	1....	H1...
132	M218	.5" x 4"	.075	0	3	.049	0	y	6	80.683	90	.938	7.5	1....	H1...
133	M369	PIPE 2.5	.074	2....	3	.060	2.316		3	34.284	72.45	5.138	5.1...	1....	H1...
134	M317A	3/8 x 1"	.074	0	6	.017	.958	y	3	11.908	16.875	.132	.352	2....	H1...
135	M362	3/16 X 1 1/2	.072	0	6	.005	1.667	y	6	1.877	12.69	.05	.349	1	H1...
136	M223	3/8 x 1"	.072	0	3	.017	.648	y	6	14.389	16.875	.132	.352	2....	H1...
137	M378	PIPE 2.5	.072	2....	3	.051	5.684		3	34.284	72.45	5.138	5.1...	1....	H1...
138	M305	3/4 x 3/8	.071	0	6	.017	0	y	6	11.566	12.656	.099	.198	1....	H1...
139	M79	3/8 x 3	.070	.6...	3	.052	0	y	3	32.153	35.438	.277	2.2...	2....	H1...
140	M375	PIPE 2.5	.070	5....	3	.071	2.316		6	34.284	72.45	5.138	5.1...	2....	H1...
141	M291	3/8 x 1"	.070	0	6	.014	.718	y	3	13.874	16.875	.132	.352	2....	H1...
142	M348	3/16 X 1 1/2	.070	0	3	.006	1.667	y	3	1.877	12.69	.05	.349	1	H1...
143	M287	3/8 x 4	.069	.6...	3	.024	0	y	6	57.024	67.5	.527	5.6...	1....	H1...
144	M352	3/16 X 1 1/2	.068	0	3	.006	1.667	y	3	1.877	12.69	.05	.349	1	H1...
145	M227	3/8 x 1"	.068	.7...	7	.019	.731	y	6	13.777	16.875	.132	.352	2....	H1...
146	M127	3/8 x 3	.068	0	6	.077	0	y	6	32.153	35.438	.277	2.2...	1....	H1...
147	M236	3/4 x 3/8	.068	0	3	.008	.595	y	6	11.063	12.656	.099	.198	3....	H1...
148	M290	3/8 x 1"	.068	0	6	.012	.648	y	3	14.389	16.875	.132	.352	2....	H1...
149	M298	3/8 x 1"	.067	0	6	.013	.719	y	3	13.865	16.875	.132	.352	2....	H1...
150	M374	PIPE 2.5	.067	5....	3	.071	5.684		6	34.284	72.45	5.138	5.1...	4....	H1...
151	M294	3/8 x 1"	.067	.7...	3	.041	.731	y	6	13.777	16.875	.132	.352	2....	H1...
152	M368	PIPE 2.5	.066	2....	6	.054	5.684		3	34.284	72.45	5.138	5.1...	4....	H1...
153	M293A	3/8 x 1"	.064	.4...	6	.014	.458	y	6	11.341	16.875	.132	.352	2....	H1...
154	M301	.875 x .375	.064	.7...	6	.023	.727	y	6	12.084	14.766	.115	.269	2....	H1...
155	M302A	3/8 x 1"	.063	0	6	.010	.719	y	3	13.865	16.875	.132	.352	2....	H1...
156	M233	.875 x .375	.063	0	7	.006	0	y	6	12.977	14.766	.115	.269	2....	H1...
157	M335	3/8 x 4	.062	0	3	.018	0	y	6	54.815	67.5	.527	5.5...	1....	H1...
158	M234	.875 x .375	.062	0	3	.010	.727	y	6	12.084	14.766	.115	.269	2....	H1...
159	M302	.875 x .375	.062	0	3	.006	0	y	3	13.592	14.766	.115	.269	2....	H1...
160	M366	3/16 X 1 1/2	.061	0	6	.007	1.667	y	6	1.877	12.69	.05	.349	1	H1...
161	M303	3/4 x 3/8	.061	0	6	.018	0	y	6	11.063	12.656	.099	.198	3....	H1...
162	M226	3/8 x 1"	.061	.6...	7	.006	.667	y	4	14.256	16.875	.132	.352	2....	H1...
163	M237	3/4 x 3/8	.061	.37	7	.006	0	y	7	12.016	12.656	.099	.198	2....	H1...
164	M225	3/8 x 1"	.061	1....	7	.009	0	y	3	11.147	16.875	.132	.352	2....	H1...
165	M293	3/8 x 1"	.060	.6...	3	.021	.667	y	6	14.256	16.875	.132	.352	2....	H1...

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

	Mem...	Shape	Code Check	L...	LC	Sh...	Loc[ft]	Dir	...	phi*P...	phi*P...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
166	M220	3/8 x 4	.060	.6...	6	.005	0	y	6	57.024	67.5	.527	5.6...	1....	H1...
167	M266A	3/8 x 1"	.058	0	3	.013	0	y	3	13.824	16.875	.132	.352	2....	H1...
168	M219	3/8 x 4	.057	1....	7	.005	0	y	6	44.585	67.5	.527	5.6...	1....	H1...
169	M295A	3/8 x 1"	.052	.7...	6	.013	.718	y	3	13.874	16.875	.132	.352	2....	H1...
170	M232	3/8 x 1"	.052	0	6	.008	0	y	6	12.646	16.875	.132	.352	2....	H1...
171	M294A	3/8 x 1"	.050	.6...	6	.011	.648	y	3	14.389	16.875	.132	.352	1....	H1...
172	M231	3/8 x 1"	.049	0	7	.023	.719	y	6	13.865	16.875	.132	.352	2....	H1...
173	M287A	.5" x 4"	.048	.4...	6	.008	.485	y	6	72.099	90	.938	7.5	1....	H1...
174	M235	.875 x .375	.046	0	7	.005	0	y	6	13.592	14.766	.115	.269	2....	H1...
175	M299	3/8 x 1"	.046	0	3	.024	0	y	6	12.646	16.875	.132	.352	2....	H1...
176	M303A	3/8 x 1"	.046	0	6	.025	0	y	6	12.646	16.875	.132	.352	2....	H1...
177	M297	3/8 x 1"	.045	1....	6	.028	0	y	6	11.428	16.875	.132	.352	2....	H1...
178	M301A	3/8 x 1"	.045	1....	6	.029	1.013	y	6	11.428	16.875	.132	.352	2....	H1...
179	M222	3/8 x 1"	.045	.4...	3	.009	1.023	y	6	11.341	16.875	.132	.352	3....	H1...
180	M289	3/8 x 1"	.044	.4...	3	.011	.458	y	3	11.341	16.875	.132	.352	2....	H1...
181	M230	3/8 x 1"	.042	1....	6	.011	1.013	y	6	11.428	16.875	.132	.352	1....	H1...
182	M268A	3/8 x 4	.035	0	7	.005	0	y	6	54.815	67.5	.527	5.6...	1....	H1...
183	M364	3/16 X 1 1/2	.035	1....	6	.002	0	y	6	1.877	12.69	.05	.349	1	H1...
184	M283	.5" x 4"	.033	0	3	.008	.485	y	6	72.099	90	.938	7.5	1....	H1...
185	M363	3/16 X 1 1/2	.032	1....	6	.002	0	y	6	1.877	12.69	.05	.349	1	H1...
186	M350	3/16 X 1 1/2	.030	1....	6	.002	0	y	3	1.877	12.69	.05	.349	1	H1...
187	M349	3/16 X 1 1/2	.028	1....	6	.003	0	y	3	1.877	12.69	.05	.349	1	H1...
188	M358	3/16 X 1 1/2	.027	0	6	.001	1.667	y	6	1.877	12.69	.05	.349	1	H1...
189	M357	3/16 X 1 1/2	.027	0	6	.001	1.667	y	6	1.877	12.69	.05	.349	1	H1...
190	M216	.5" x 4"	.025	.4...	3	.011	.485	y	6	72.099	90	.938	7.5	1....	H1...
191	M365	3/16 X 1 1/2	.023	1....	6	.003	0	y	6	1.877	12.69	.05	.349	1	H1...
192	M355	3/16 X 1 1/2	.023	1....	6	.004	0	y	6	1.877	12.69	.05	.349	1	H1...
193	M351	3/16 X 1 1/2	.023	1....	6	.003	0	y	3	1.877	12.69	.05	.349	1	H1...
194	M359	3/16 X 1 1/2	.022	1....	6	.002	0	y	6	1.877	12.69	.05	.349	1	H1...
195	M356	3/16 X 1 1/2	.017	0	6	.002	1.667	y	6	1.877	12.69	.05	.349	1	H1...
196	M264	3/8 x 1"	.001	0	6	.000	.22	y	1	13.564	16.875	.132	.352	2....	H1...
197	M332	3/8 x 1"	.001	0	3	.000	.22	y	1	13.564	16.875	.132	.352	2....	H1...
198	M335A	3/8 x 1"	.001	0	3	.000	.22	y	1	13.564	16.875	.132	.352	2....	H1...
199	M334A	3/8 x 1"	.000	.5	1	.000	.5	y	1	13.548	16.875	.132	.352	2....	H1...
200	M331	3/8 x 1"	.000	.5	1	.000	.5	y	1	13.548	16.875	.132	.352	2....	H1...
201	M263	3/8 x 1"	.000	.5	1	.000	.5	y	1	13.548	16.875	.132	.352	2....	H1...
202	M333A	.5" x 4"	.000	.5	1	.000	.5	z	1	79.618	90	.938	7.2...	1	H1...
203	M330	.5" x 4"	.000	.5	1	.000	.5	z	1	79.618	90	.938	7.2...	1	H1...
204	M262	.5" x 4"	.000	.5	1	.000	.5	z	1	79.618	90	.938	7.2...	1	H1...
205	M332B	3/8 x 4	.000	.4...	1	.000	.472	z	1	54.59	67.5	.527	5.2...	1	H1...
206	M329	3/8 x 4	.000	.4...	1	.000	.472	z	1	54.59	67.5	.527	5.2...	1	H1...
207	M261	3/8 x 4	.000	.4...	1	.000	.472	z	1	54.59	67.5	.527	5.2...	1	H1...
208	M254	3/8 x 1"	.000	0	1	.000	0	y	8	12.655	16.875	.132	.348	1	H1...
209	M325A	3/8 x 1"	.000	0	1	.000	0	y	8	12.655	16.875	.132	.348	1	H1...
210	M322A	3/8 x 1"	.000	0	1	.000	0	y	8	12.655	16.875	.132	.348	1	H1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering		
CMT	Mystic North	Oct 9, 2023 at 4:40 PM
22017.04	Unity Check	Mystic CT Model.r3d

verizon
NPP RFDS

NORTHEAST > North East > New England > Wallingford-1 > Mystic North CT

Stevens, Wesley - wesley.stevens@verizonwireless.com - 20230822_091347

Project Details		Location Information	
Carrier Aggregation	N	Site Id	617225908
Ecip	N	Search Ring#	
Project Name	MYSTIC NORTH CT	E-NodeB ID#	null
Project Alt Name	MYSTIC NORTH CT NEW BUILD MACRO	PSLC#	713454
Project Id	16883073	Switch Name	Wallingford-1
Designed Sector Carrier 4G	12	Tower Type	
Designed Sector Carrier 5G	6	Site Type	MACRO
Additional Sector Carrier 4G	null	Street Address	130 Welles Road
Additional Sector Carrier 5G	null	City	Groton (Mystic)
Suffix	Rev2_20230822	State	CT
FP Solution Type & Tech Type	MCR;4G_700;5G_850;4G_850;4G_AWS;5G _L-Sub6;4G_PCS	Zip Code	06340
		County	New London
		Latitude	41.39283/ 41° 23' 34.188"
		Longitude	-71.97001/ 71° 58' 12.036"

Project Scope

New build Macro with 700/AWS/PCS/850/C-Band
Separated NHH-65B antennas for LTE
64T MMU for C-Band
No diplexing needed

Rev2_20230822: updated C-Band and low-band radio models, removed mount for LTE antennas
Rev1_20230321: updated RRHs to ORAN models
Rev0_20220425:initial design

Antenna Summary

Added Antenna

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	Install Type	Quantity
				5G	Samsung	MT6413-77A	150	151.2	90(1),210(2),330(3)	PHYSICAL	3
LTE	5G,LTE	LTE	LTE		COMMSCOPE	NHH-65B-R2B	150	153	90(1),210(2),330(3)	PHYSICAL	6

Removed Antenna

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	Install Type	Quantity

Retained Antenna

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	Install Type	Quantity

Added: 9	Removed: 0	Retained: 0

Non Antenna Summary

Added Non Antenna

Equipment Type	Location	700	850	1900	AWS	Make	Model	Install Type	Quantity
OVP	Tower						12 OVP	PHYSICAL	1
Hybrid Cable	Tower					N/A	6x12 Hybrid Cable	PHYSICAL	2
RRU	Tower			LTE	LTE	Samsung	B2/B66A RRH ORAN (RF4439d-25A)	PHYSICAL	3
RRU	Tower	LTE	5G,LTE			Samsung	RF4461d-13A	PHYSICAL	3

Removed Non Antenna

Equipment Type	Location	700	850	1900	AWS	Make	Model	Install Type	Quantity

Retained Non Antenna

Equipment Type	Location	700	850	1900	AWS	Make	Model	Install Type	Quantity

Added: 9	Removed: 0	Retained: 0

Services		
1900 LTE		**0002 (8275722)**

Sector	01	02	03
Azimuth	90	210	330
Cell/Enodeb-Id	064152	064152	064152
Antenna Model	NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	150	150	150
DLEARFCN	1075	1075	1075
Mech Down-tilt	0	0	0
Elect Down-tilt	2	2	2
Tip Height	153	153	153
Regulatory Power	161.20 (W/MHz) EIRP	161.20 (W/MHz) EIRP	161.20 (W/MHz) EIRP
Cell Max Power	46.0 dBm	46.0 dBm	46.0 dBm
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B2/B66A RRH ORAN (RF4439d-25A)	B2/B66A RRH ORAN (RF4439d-25A)	B2/B66A RRH ORAN (RF4439d-25A)
Number of Tx,Rx	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	12681066	12681067	12681068
Source	VZNPP	VZNPP	VZNPP
Bandwidth	15	15	15
Ant. Dimensions H x W x D(inch)	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1
Weight(lb)	43.7	43.7	43.7

Services				
700 LTE		**0002 (8275722)**		
Sector		01	02	03
Azimuth		90	210	330
Cell/Enodeb-Id		064152	064152	064152
Antenna Model		NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		150	150	150
DLEARFCN		5230	5230	5230
Mech Down-tilt		0	0	0
Elect Down-tilt		2	2	2
Tip Height		153	153	153
Regulatory Power		73.58 (W/MHz) ERP	73.58 (W/MHz) ERP	73.58 (W/MHz) ERP
Cell Max Power		46.0 dBm	46.0 dBm	46.0 dBm
TMA Make				
TMA Model				
RRU Make		Samsung	Samsung	Samsung
RRU Model		RF4461d-13A	RF4461d-13A	RF4461d-13A
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		1948015	1948026	1948035
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1
Weight(lb)		43.7	43.7	43.7

Services				
850 LTE		**0002 (8275722)**		
Sector		01	02	03
Azimuth		90	210	330
Cell/Enodeb-Id		064152	064152	064152
Antenna Model		NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		150	150	150
DLEARFCN		2450	2450	2450
Mech Down-tilt		0	0	0
Elect Down-tilt		2	2	2
Tip Height		153	153	153
Regulatory Power		177.67 (W/MHz) ERPSD	177.67 (W/MHz) ERPSD	177.67 (W/MHz) ERPSD
Cell Max Power		44.0 dBm	44.0 dBm	44.0 dBm
TMA Make				
TMA Model				
RRU Make		Samsung	Samsung	Samsung
RRU Model		RF4461d-13A	RF4461d-13A	RF4461d-13A
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		12681069	12681070	12681071
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1
Weight(lb)		43.7	43.7	43.7

Services				
850 NR		**0002 (8275722)**		
Sector		0001	0002	0003
Azimuth		90	210	330
Cell/Enodeb-Id		0649403	0649403	0649403
Antenna Model		NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		150	150	150
DLEARFCN		2450	2450	2450
Mech Down-tilt		0	0	0
Elect Down-tilt		2	2	2
Tip Height		153	153	153
Regulatory Power		177.67 (W/MHz) ERPSD	177.67 (W/MHz) ERPSD	177.67 (W/MHz) ERPSD
Cell Max Power		44.0 dBm	44.0 dBm	44.0 dBm
TMA Make				
TMA Model				
RRU Make		Samsung	Samsung	Samsung
RRU Model		RF4461d-13A	RF4461d-13A	RF4461d-13A
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		12681069	12681070	12681071
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1
Weight(lb)		43.7	43.7	43.7

Services				
AWS LTE		**0002 (8275722)**		
Sector		01	02	03
Azimuth		90	210	330
Cell/Enodeb-Id		064152	064152	064152
Antenna Model		NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		150	150	150
DLEARFCN		2050	2050	2050
Mech Down-tilt		0	0	0
Elect Down-tilt		2	2	2
Tip Height		153	153	153
Regulatory Power		141.17 (W/MHz) EIRP	141.17 (W/MHz) EIRP	141.17 (W/MHz) EIRP
Cell Max Power		46.0 dBm	46.0 dBm	46.0 dBm
TMA Make				
TMA Model				
RRU Make		Samsung	Samsung	Samsung
RRU Model		B2/B66A RRH ORAN (RF4439d-25A)	B2/B66A RRH ORAN (RF4439d-25A)	B2/B66A RRH ORAN (RF4439d-25A)
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		1960960	1960961	1960962
Source		VZNPP	VZNPP	VZNPP
Bandwidth		20	20	20
Ant. Dimensions H x W x D(inch)		72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1	72.0 x 11.9 x 7.1
Weight(lb)		43.7	43.7	43.7

Services				
CBAND NR		**0002 (8275722)**		
Sector		0001	0002	0003
Azimuth		90	210	330
Cell/Enodeb-Id		0649403	0649403	0649403
Antenna Model		MT6413-77A	MT6413-77A	MT6413-77A
Antenna Make		Samsung	Samsung	Samsung
Centerline		150	150	150
DLEARFCN		650006, 655324	650006, 655324	650006, 655324
Mech Down-tilt		0	0	0
Elect Down-tilt		1	1	1
Tip Height		151.2	151.2	151.2
Regulatory Power		739.92 (W/MHz) EIRP, 739.92 (W/MHz) EIRP	739.92 (W/MHz) EIRP, 739.92 (W/MHz) EIRP	739.92 (W/MHz) EIRP, 739.92 (W/MHz) EIRP
Cell Max Power		52.0 dBm	52.0 dBm	52.0 dBm
TMA Make				
TMA Model				
RRU Make		Samsung	Samsung	Samsung
RRU Model		MT6413-77A	MT6413-77A	MT6413-77A
Number of Tx.Rx		2 , 2	2 , 2	2 , 2
Position				
Transmitter Id		12681072	12681073	12681074
Source		VZNPP	VZNPP	VZNPP
Bandwidth		100, 60	60, 100	100, 60
Ant. Dimensions H x W x D(inch)		29.53 x 15.75 x 5.51	29.53 x 15.75 x 5.51	29.53 x 15.75 x 5.51
Weight(lb)		55.1	55.1	55.1

CallSigns Per Antenna

Sector	Make	Model	Ant CL Height AG	Ant Tip Height	Azimuth	Elect Down-tilt	Mech Down-tilt	Gain	Bandwidth	Regulatory Power	700	850	1900	2100	28 GHz	31 GHz	39 GHz	LSub-6	CBRS
0001	Samsung	MT6413-77A	150	151.2	90	1	0	23.15	105	739.92								WRNE581,WRNE582,WRNE583,WRNE584,WRNE585	
02	COMMSCOPE	NHH-65B-R2	150	153	210	2	0	12.511	58.25	177.67		KNKA745							
0002	COMMSCOPE	NHH-65B-R2	150	153	210	2	0	12.511	58.25	177.67		KNKA745							
03	COMMSCOPE	NHH-65B-R2	150	153	330	2	0	15.657	67.25	161.2			KNLH263,WQDU931,WQEM954						
03	COMMSCOPE	NHH-65B-R2	150	153	330	2	0	16.280001	64.25	141.17				WQGA906,WQGD494					
03	COMMSCOPE	NHH-65B-R2	150	153	330	2	0	12.271	64.75	73.58	WQJQ689								
0002	Samsung	MT6413-77A	150	151.2	210	1	0	23.15	105	739.92								WRNE585,WRNE586,WRNE587,WRNE58	
0003	COMMSCOPE	NHH-65B-R2	150	153	330	2	0	12.511	58.25	177.67		KNKA745							
02	COMMSCOPE	NHH-65B-R2	150	153	210	2	0	16.280001	64.25	141.17				WQGA906,WQGD494					
0003	Samsung	MT6413-77A	150	151.2	330	1	0	23.15	105	739.92								WRNE581,WRNE582,WRNE583,WRNE584,WRNE585	
0001	COMMSCOPE	NHH-65B-R2	150	153	90	2	0	12.511	58.25	177.67		KNKA745							
01	COMMSCOPE	NHH-65B-R2	150	153	90	2	0	15.657	67.25	161.2			KNLH263,WQDU931,WQEM954						
01	COMMSCOPE	NHH-65B-R2	150	153	90	2	0	12.271	64.75	73.58	WQJQ689								
0001	Samsung	MT6413-77A	150	151.2	90	1	0	23.15	105	739.92								WRNE585,WRNE586,WRNE587,WRNE58	
0002	Samsung	MT6413-77A	150	151.2	210	1	0	23.15	105	739.92								WRNE581,WRNE582,WRNE583,WRNE584,WRNE585	
03	COMMSCOPE	NHH-65B-R2	150	153	330	2	0	12.511	58.25	177.67		KNKA745							
01	COMMSCOPE	NHH-65B-R2	150	153	90	2	0	12.511	58.25	177.67		KNKA745							
01	COMMSCOPE	NHH-65B-R2	150	153	90	2	0	16.280001	64.25	141.17				WQGA906,WQGD494					
0003	Samsung	MT6413-77A	150	151.2	330	1	0	23.15	105	739.92								WRNE585,WRNE586,WRNE587,WRNE58	
02	COMMSCOPE	NHH-65B-R2	150	153	210	2	0	15.657	67.25	161.2			KNLH263,WQDU931,WQEM954						
02	COMMSCOPE	NHH-65B-R2	150	153	210	2	0	12.271	64.75	73.58	WQJQ689								

Callsigns

Callsign	Market	Radio Code	Market #	Block	State	County	License Name	Wholly Owner	Total MHZ	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs/Sq. mil	Status	Action	Approve for Insvc
WQJQ689	Northeast	WU	REA001	C	CT	9011	Cellco Partnershi	Yes	22.000	746.000 - 757.000/.000 - .000	776.000 - 787.000/.000 - .000	746.000 - 757.000/.000 - .000	776.000 - 787.000/.000 - .000	73.58	1000	403.90	proposed	added	1
KNKA745	New London-Norwich, CT	CL	CMA154	A	CT	9011	Cellco Partnershi	Yes	25.000	824.000 - 835.000/845.000 - 846.500	869.000 - 880.000/890.000 - 891.500	824.000 - 835.000/845.000 - 846.500	869.000 - 880.000/890.000 - 891.500	177.67	400	403.90	proposed	added	1
WQDU931	New London-Norwich, CT	CW	BTA319	C	CT	9011	Cellco Partnershi	Yes	10.000	1900.000 - 1905.000/.000 - .000	1980.000 - 1985.000/.000 - .000	1900.000 - 1905.000/.000 - .000	1980.000 - 1985.000/.000 - .000	161.2	1640	403.90	proposed	added	1
WQEM954	New London-Norwich, CT	CW	BTA319	C	CT	9011	Cellco Partnershi	Yes	10.000	1895.000 - 1900.000/.000 - .000	1975.000 - 1980.000/.000 - .000	1895.000 - 1900.000/.000 - .000	1975.000 - 1980.000/.000 - .000	161.2	1640	403.90	proposed	added	1
KNLH263	New London-Norwich, CT	CW	BTA319	F	CT	9011	Cellco Partnershi	Yes	10.000	1890.000 - 1895.000/.000 - .000	1970.000 - 1975.000/.000 - .000	1890.000 - 1895.000/.000 - .000	1970.000 - 1975.000/.000 - .000	161.2	1640	403.90	proposed	added	1
WQGD494	New London-Norwich, CT	AW	CMA154	A	CT	9011	Cellco Partnershi	Yes	20.000	1710.000 - 1720.000/.000 - .000	2110.000 - 2120.000/.000 - .000	1710.000 - 1720.000/.000 - .000	2110.000 - 2120.000/.000 - .000	141.17	1640	403.90	proposed	added	1
WRNE581	New York, NY	PM	PEA001	A1	CT	9011	Cellco Partnershi	Yes	20.000	3700.000 - 3720.000/.000 - .000	.000 - .000/.000 - .000	3700.000 - 3720.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE582	New York, NY	PM	PEA001	A2	CT	9011	Cellco Partnershi	Yes	20.000	3720.000 - 3740.000/.000 - .000	.000 - .000/.000 - .000	3720.000 - 3740.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE583	New York, NY	PM	PEA001	A3	CT	9011	Cellco Partnershi	Yes	20.000	3740.000 - 3760.000/.000 - .000	.000 - .000/.000 - .000	3740.000 - 3760.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE584	New York, NY	PM	PEA001	A4	CT	9011	Cellco Partnershi	Yes	20.000	3760.000 - 3780.000/.000 - .000	.000 - .000/.000 - .000	3760.000 - 3780.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE585	New York, NY	PM	PEA001	A5	CT	9011	Cellco Partnershi	Yes	20.000	3780.000 - 3800.000/.000 - .000	.000 - .000/.000 - .000	3780.000 - 3800.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WQGA906	New York-No. New Jer.-Long Island, NY-NJ-CT-PA-MA-	AW	BEA010	B	CT	9011	Cellco Partnershi	Yes	20.000	1720.000 - 1730.000/.000 - .000	2120.000 - 2130.000/.000 - .000	1720.000 - 1730.000/.000 - .000	2120.000 - 2130.000/.000 - .000	141.17	1640	403.90	proposed	added	1
WRNE586	New York, NY	PM	PEA001	B1	CT	9011	Cellco Partnershi	Yes	20.000	3800.000 - 3820.000/.000 - .000	.000 - .000/.000 - .000	3800.000 - 3820.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE587	New York, NY	PM	PEA001	B2	CT	9011	Cellco Partnershi	Yes	20.000	3820.000 - 3840.000/.000 - .000	.000 - .000/.000 - .000	3820.000 - 3840.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1
WRNE588	New York, NY	PM	PEA001	B3	CT	9011	Cellco Partnershi	Yes	20.000	3840.000 - 3860.000/.000 - .000	.000 - .000/.000 - .000	3840.000 - 3860.000/.000 - .000	.000 - .000/.000 - .000	739.92	1640	403.90	proposed	added	1

ATTACHMENT 6

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Calculated Radio Frequency Emissions Report

verizon

Mystic North

130 Welles Road, Groton, CT 06340

September 8, 2023

Table of Contents

List of Figures

List of Tables

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of Verizon's antenna arrays to be mounted at 150' AGL on an existing monopole tower located at 130 Welles Road in Groton, CT. The coordinates of the monopole tower are 41 23 34.188 N, 71 58 12.036 W.

Verizon is proposing the following:

1) Install nine (9) multi-band antennas, three (3) per sector to support its commercial LTE network.

This report considers the planned antenna configuration for Verizon[1] and the existing antennas for AT&T[2], DISH Wireless[3], T-Mobile[4] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to Verizon's Radio Frequency Design Sheet updated 08/22/2023.

[2] As referenced to Connecticut Siting Council, Tower Share Application – 130 Welles Road, Groton CT, Dated 03/23/2021

[3] As referenced to Connecticut Siting Council, Tower Share Application – 130 Welles Road, Groton CT, Dated 03/23/2021

[4] As referenced to Connecticut Siting Council, Notice of Exempt Modification – 130 Welles Road, Groton CT, Dated 03/23/2021

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{\text{GRF}^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor (GRF) of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines Verizon's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha / 90°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	150
		850	160	15.0	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		64			
		3700	160	26.5	71469	MT6413-77A	105	0	2.46	150
	Beta / 210°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	150
		850	160	15.0	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		18.4			
		3700	160	26.5	71469	MT6413-77A	105	0	2.46	150
	Gamma / 330°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	150
		850	160	15.0	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		18.4			
		3700	160	26.5	71469	MT6413-77A	105	0	2.46	150

Table 1: Proposed Antenna Inventory[5][6]

[5] As referenced to Verizon's Radio Frequency Design Sheet updated 03/21/2023.

[6] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

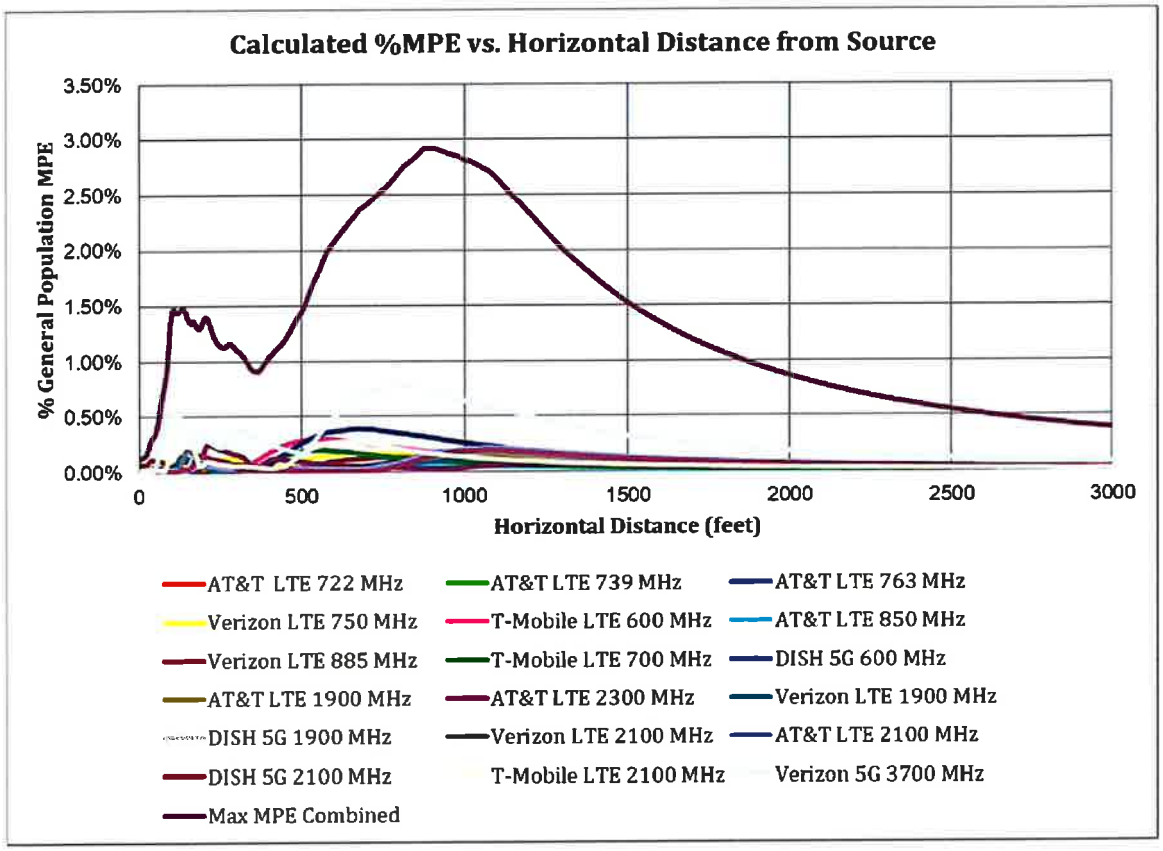


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (2.91% of the General Population limit) is calculated to occur at a horizontal distance of 909 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 593 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T LTE 722 MHz	1	40.0	176.0	909	0.000238	0.481	0.05%
AT&T LTE 1900 MHz	1	160.0	176.0	909	0.001204	1.000	0.12%
AT&T LTE 2100 MHz	1	240.0	176.0	909	0.001795	1.000	0.18%
AT&T LTE 2300 MHz	1	100.0	176.0	909	0.000299	1.000	0.03%
AT&T LTE 739 MHz	1	160.0	176.0	909	0.000558	0.493	0.11%
AT&T LTE 763 MHz	1	160.0	176.0	909	0.000545	0.509	0.11%
AT&T LTE 850 MHz	1	40.0	176.0	909	0.000368	0.590	0.06%
DISH 5G 1900 MHz	1	160.0	160.0	909	0.001362	1.000	0.14%
DISH 5G 2100 MHz	1	160.0	160.0	909	0.001431	1.000	0.14%
DISH 5G 600 MHz	1	246.0	160.0	909	0.001203	0.400	0.30%
T-Mobile LTE 2100 MHz	1	120.0	108.0	909	0.001613	1.000	0.16%
T-Mobile LTE 600 MHz	1	80.0	108.0	909	0.000690	0.400	0.17%
T-Mobile LTE 700 MHz	1	40.0	108.0	909	0.000447	0.467	0.10%
Verizon 5G 3700 MHz	1	160.0	150.0	909	0.007280	1.000	0.73%
Verizon LTE 1900 MHz	1	160.0	150.0	909	0.001002	1.000	0.10%
Verizon LTE 2100 MHz	1	240.0	150.0	909	0.001610	1.000	0.16%
Verizon LTE 750 MHz	1	160.0	150.0	909	0.000670	0.500	0.13%
Verizon LTE 885 MHz	1	160.0	150.0	909	0.000670	0.567	0.12%
						Total	**2.91%**

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with Verizon's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be 2.91% of the FCC limit (General Population/Uncontrolled). This maximum cumulative percent of MPE value is calculated to occur 909 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

September 7, 2023
Date

Report Prepared By: Ram Acharya
RF Engineer 1
C Squared Systems, LLC

September 8, 2023
Date

Reviewed/Approved By: Martin Lavin
Senior RF Engineer
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Verizon's Radio Frequency Design Sheet updated 10/21/2022

AT&T's filing, Connecticut Siting Council Notice of Exempt Modification – Antenna Add - 130 Welles Road (aka 1 Service Road) Groton, CT, dated 9/23/2022

As referenced to Dish Wireless LLC's filing, Connecticut Siting Council Tower Share Application – 130 Welles Road , Groton, CT, dated 11/19/2021

T-Mobile's filing, Connecticut Siting Council Notice of Exempt Modification – 130 Welles Road , Groton, CT, dated 10/1/2020

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[7]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[8]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[7] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[8] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

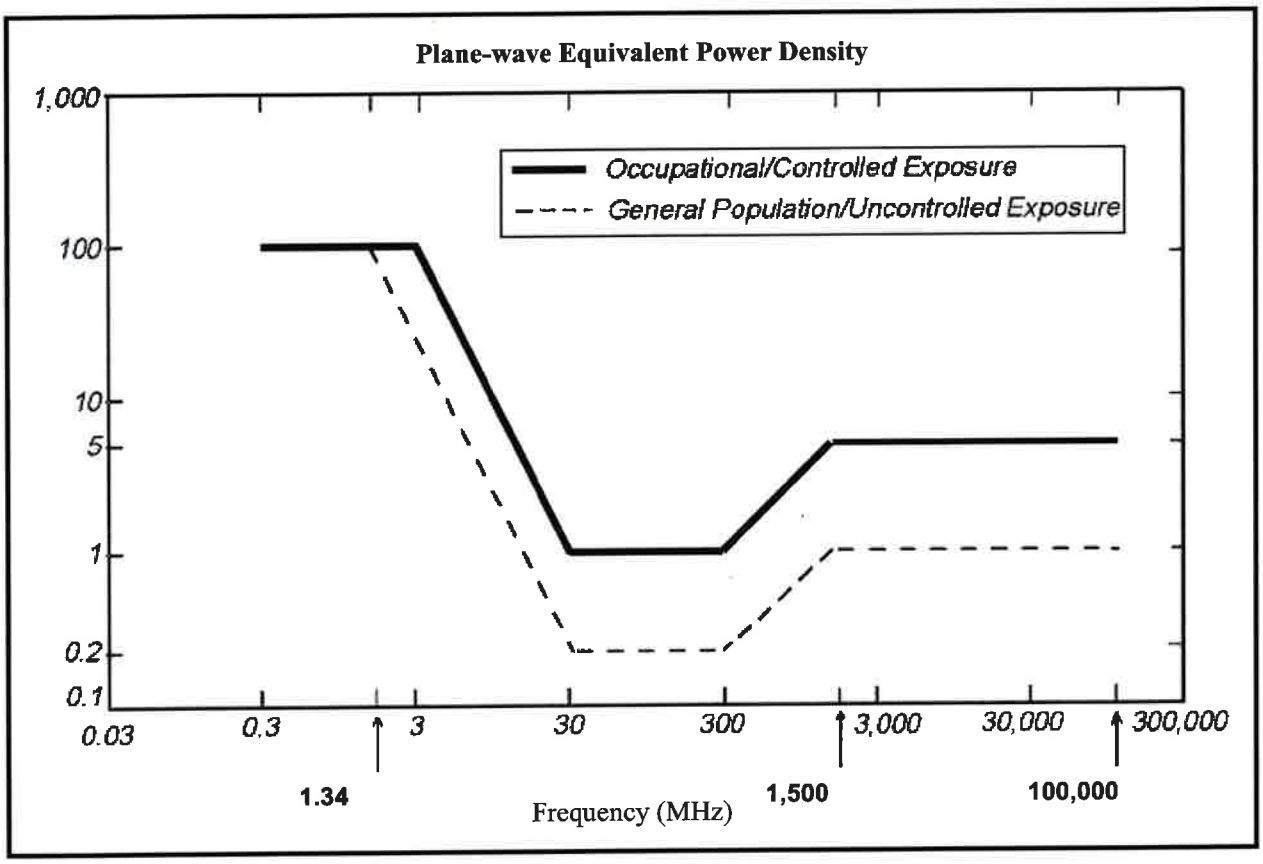
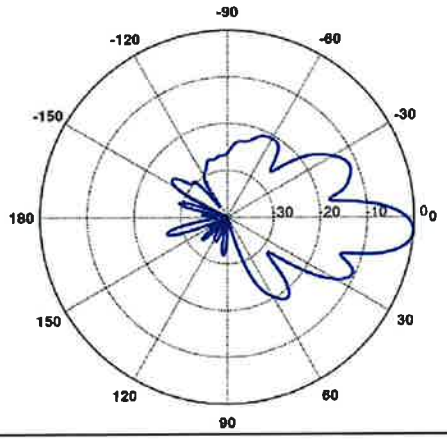


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Antenna Model Data Sheets and Electrical Patterns

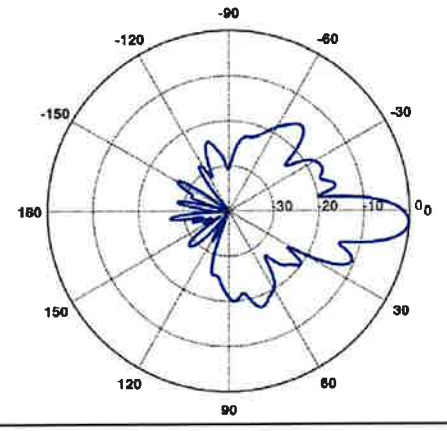
750 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	698-806 MHz
Gain:	14.9 dBi
Vertical Beamwidth:	12.4°
Horizontal Beamwidth:	65.0°
Polarization:	±45°
Dimensions (L x W x D):	71.97" x 11.85" x 7.09"



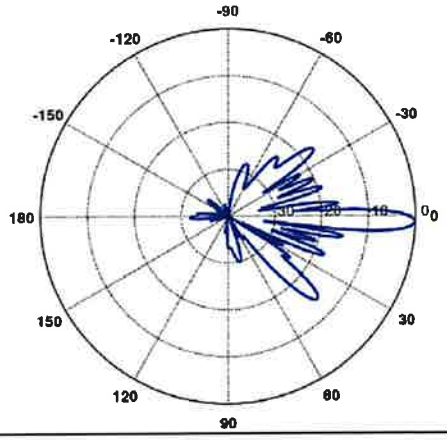
885 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	806-896 MHz
Gain:	15.0 dBi
Vertical Beamwidth:	11.2°
Horizontal Beamwidth:	60°
Polarization:	±45°
Dimensions (L x W x D):	71.97" x 11.85" x 7.09"



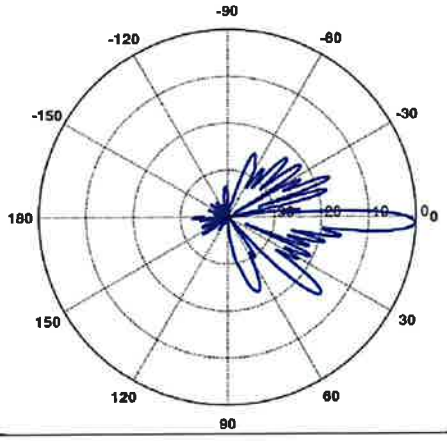
1900 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	1850-1990 MHz
Gain:	17.9 dBi
Vertical Beamwidth:	5.2°
Horizontal Beamwidth:	69°
Polarization:	±45°
Dimensions (L x W x D):	71.97" x 11.85" x 7.09"



2100 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	1920-2200 MHz
Gain:	18.4 dBi
Vertical Beamwidth:	4.9°
Horizontal Beamwidth:	64.0°
Polarization:	±45°
Dimensions (L x W x D):	71.97" x 11.85" x 7.09"



ATTACHMENT 7

Verizon/Mystic North

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103			neopost 11/20/2023 US POSTAGE $003.19⁰ ZIP 06103 041L12203937
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	John Burt, Town Manager Town of Groton 45 Fort Hill Road Groton, CT 06340				
2.	Ann-Marie Aubrey, Director of Planning Town of Groton 134 Groton Long Point Road Groton, CT 06340				
3.	SBA Communications Corporation 8051 Congress Avenue Boca Raton, FL 33487				
4.					
5.					
6.					

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See Reverse for Instructions