



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

December 20, 2022

Domenica Tatasciore
Site Acquisition Specialist
Crown Castle
1800 W. Park Drive
Westborough, MA 01581
Domenica.Tatasciore@crowncastle.com

RE: EM-AT&T-027-221109 – AT&T notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton, Connecticut.

Dear Domenica Tatasciore:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 20, 2022 submitted in response to the Council's November 16, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

From: Tatasciore, Domenica <Domenica.Tatasciore@crowncastle.com>
Sent: Tuesday, December 20, 2022 8:42 AM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>; CSC-DL Siting Council <Siting.Council@ct.gov>
Cc: Chapman, Veronica <Veronica.Chapman@crowncastle.com>
Subject: RE: Council Incomplete Letter for EM-AT&T-027-221109 (48 Cow Hill Road, Clinton)

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good morning,

With reference to the documents cited in the Council's Incomplete Letter, dated November 16, 2022, please find attached the following revised documents that the letter asked me to send electronically prior to the January 9 deadline:

1. Construction Drawings;
2. Structural Analysis;
3. Mount Analysis;
4. EME.

Please advise if you have any questions.

Take care,

DOMENICA TATASCIORE
Site Acquisition Specialist
T: 508-621-9161

CROWN CASTLE
1800 West Park Drive, Westborough, MA 01581
CrownCastle.com

Date: July 25, 2022



MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject: Mount Analysis Report

Carrier Designation: AT&T Mobility Equipment Change-Out
Carrier Site Number: CT2024
Carrier Site Name: CLINTON
Carrier FA Number: 10035028

Crown Castle Designation: BU Number: 806363
Site Name: HRT 105 943201
JDE Job Number: 715640
Order Number: 614848, Rev. 0

Engineering Firm Designation: Report Designation: 100083.010.01

Site Data: 48 Cow Hill Road, Clinton, CT, Middlesex County, 06413
Latitude 41° 17' 20.20" Longitude -72° 32' 18.50"

Structure Information: Tower Height & Type: 212.625 ft. Self- Support Tower
Mount Elevation: 189 ft.
Mount Type: 14.5 ft. Sector Mount

We are pleased to submit this “Mount Analysis Report” to determine the structural integrity of AT&T Mobility’s antenna mounting system with the proposed appurtenance and equipment addition on the above-mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level to be:

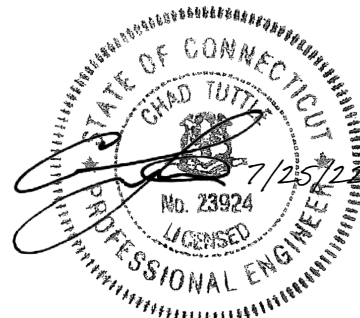
Sector Mount (typical)

**Sufficient
(Sufficient Capacity – 51.0%)**

This analysis has been performed in accordance with the 2022 CBC based upon an ultimate 3-second gust wind speed of 124 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Erik Perez

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER: 2386985 Expires: 02/01/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Documents Provided

3) ANALYSIS PROCEDURE

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

Table 4 - Tieback End Reactions

4.1) Recommendations

5) APPENDIX A

Wire Frame and Rendered Models

6) APPENDIX B

Software Input Calculations

7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

1) INTRODUCTION

This is a proposed 3 - sector 14.5 ft. Sector Mount, designed by SitePro1 (Part# VFA14-WLL-30120) and analyzed by MTS Engineering, P.L.L.C.

2) ANALYSIS CRITERIA

| | |
|---|-----------|
| Building Code: | 2021 IBC |
| TIA-222 Revision: | TIA-222-H |
| Risk Category: | II |
| Ultimate Wind Speed: | 124 mph |
| Exposure Category: | B |
| Topographic Factor at Base: | 1 |
| Topographic Factor at Mount: | 1 |
| Ice Thickness: | 1.0 in |
| Wind Speed with Ice: | 50 mph |
| Seismic S_s: | 0.205 |
| Seismic S₁: | 0.054 |
| Live Loading Wind Speed: | 30 mph |
| Man Live Load at Mid/End-Points: | 250 lb. |
| Man Live Load at Mount Pipes: | 500 lb. |

Table 1 - Proposed Equipment Configuration

| Mount Centerline (ft.) | Antenna Centerline (ft.) | Number of Antennas | Manufacturer | Model / Type | Mount / Modification Details |
|------------------------|--------------------------|--------------------|--------------------------|---------------------|------------------------------|
| 189 | 190 | 3 | CCI Antennas | DMP65R-BU4D | 14.5 ft. Sector Mount |
| | | 3 | Ericsson | AIR 6419 B77G | |
| | | 3 | Ericsson | AIR 6449 B77D CCV12 | |
| | | 3 | Quintel Technology | QD4616-7 | |
| | | 2 | Ericsson | RADIO 4478 B14 | |
| | | 3 | Ericsson | RRUS 32 | |
| | | 3 | Ericsson | RRUS 32 B66 | |
| | | 3 | Ericsson | RRUS 4415 B25 | |
| | | 3 | Ericsson | RRUS 4449 B5/B12 | |
| | 3 | Raycap | DC9-48-60-24-8C-EV CCIV2 | | |
| 189 | 1 | Ericsson | RADIO 4478 B14 | | |

Table 2 - Documents Provided

| Document | Remarks | Reference | Source |
|----------------------------|--------------------------------------|------------------|--------------|
| CCI Order | Proposed Loading Existing Loading | Date: 07/18/2022 | Crown Castle |
| RFDS | | Date: 07/01/2022 | |
| Mount Mapping | MTS Engineering, P.L.L.C. | Date: 10/26/2021 | On File |
| Mount Analysis | | Date: 05/11/2021 | |
| Mount Replacement Analysis | | Date: 02/16/2022 | |

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by us, was used to calculate wind loading on all appurtenances, dishes, and mount members for various loading cases. Selected output from the analysis is included in Appendix B

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D). In addition, this analysis is in accordance with AT&T's *Mount Technical Directive – R22.0*.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
 - (a) Connection Bolts : ASTM A325
 - (b) Steel Pipe : ASTM A53 (GR. 35)
 - (c) HSS (Round) : ASTM 500 (GR. B-42)
 - (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
 - (e) Channel : ASTM A36 (GR. 36)
 - (f) Steel Solid Rod : ASTM A36 (GR. 36)
 - (g) Steel Plate : ASTM A36 (GR. 36)
 - (h) Steel Angle : ASTM A36 (GR. 36)
 - (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Mount)

| Notes | Component | Centerline (ft.) | Critical Member | % Capacity | Pass / Fail |
|-------|-------------------|------------------|-----------------|------------|-------------|
| 1,2 | Face Horizontals | 189 | 1 | 46.4 | Pass |
| | Support Arms | 189 | 11 | 33.4 | Pass |
| | Connection Plates | 189 | 6 | 40.9 | Pass |
| | Verticals | 189 | 29 | 51.0 | Pass |
| | Diagonals | 189 | 33 | 17.7 | Pass |
| | Mount Pipes | 189 | 52 | 26.9 | Pass |
| | Tiebacks | 189 | 46 | 12.1 | Pass |
| 3 | Connection Bolts | 189 | -- | 23.2 | Pass |

| | |
|---|--------------|
| Structure Rating (max from all components) = | 51.0% |
|---|--------------|

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) All sectors are typical
- 3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

Table 4 - Tieback Connection Data Table

| Tower Connection Node No. | Existing / Proposed | Resultant End Reaction (lb.) | Connected Member Type | Connected Member Size | Member Compressive Capacity ³ (lb.) | Notes |
|---------------------------|---------------------|------------------------------|-----------------------|-----------------------|--|-------|
| 82 | Proposed | 1032.906 | Leg | ROHN 3 EH | 4694.40 | 1 |
| 83 | Proposed | 738.5398 | | | | |

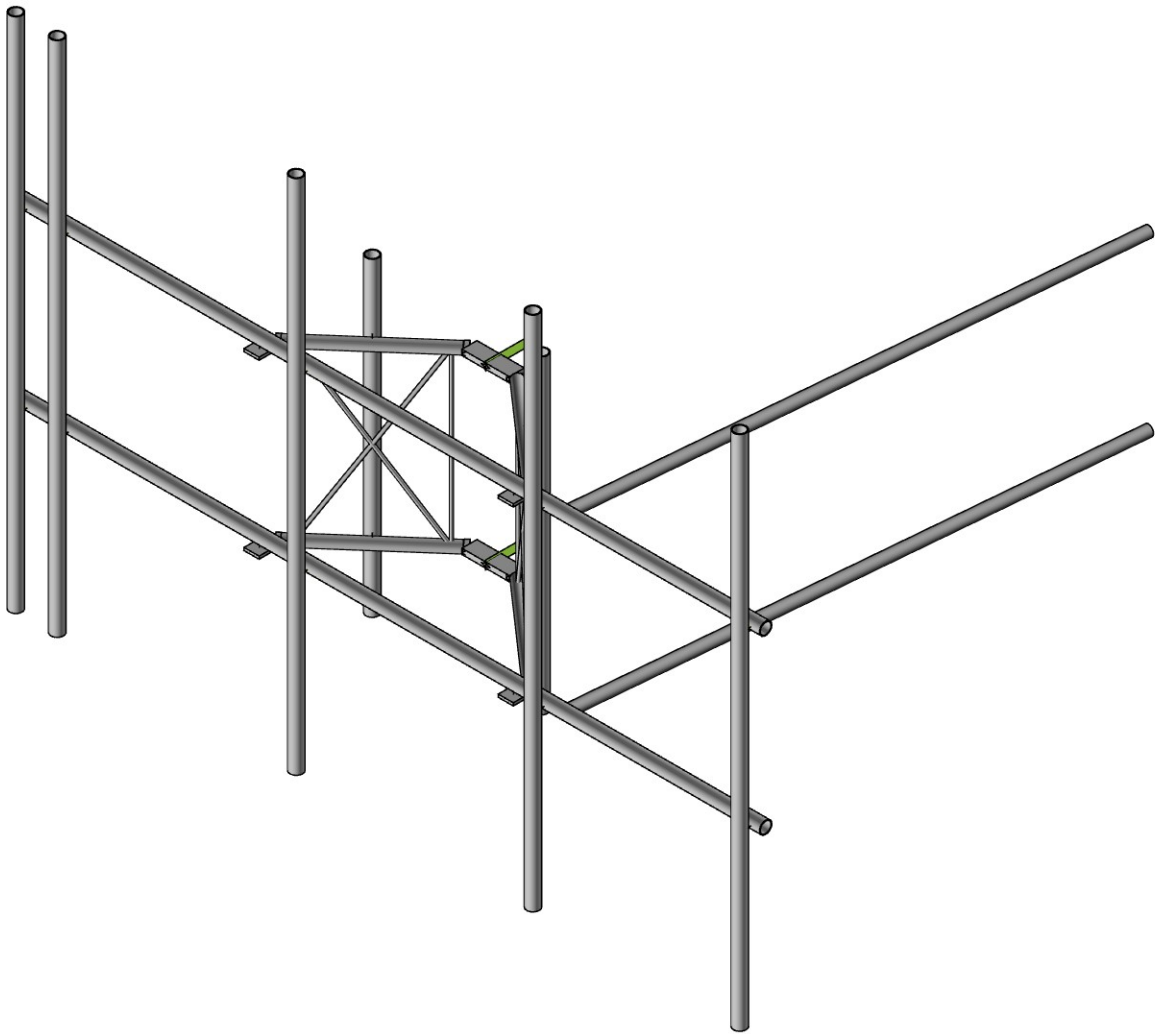
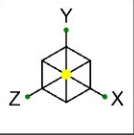
Notes:

- 1) Tieback connection point is within 25% of either end of the connected tower member
- 2) Tieback connection point is NOT within 25% of either end of the connected tower member
- 3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

4.1) Recommendations

The SitePro1 (Part# VFA14-WLL-30120) has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

B+T Group

APK

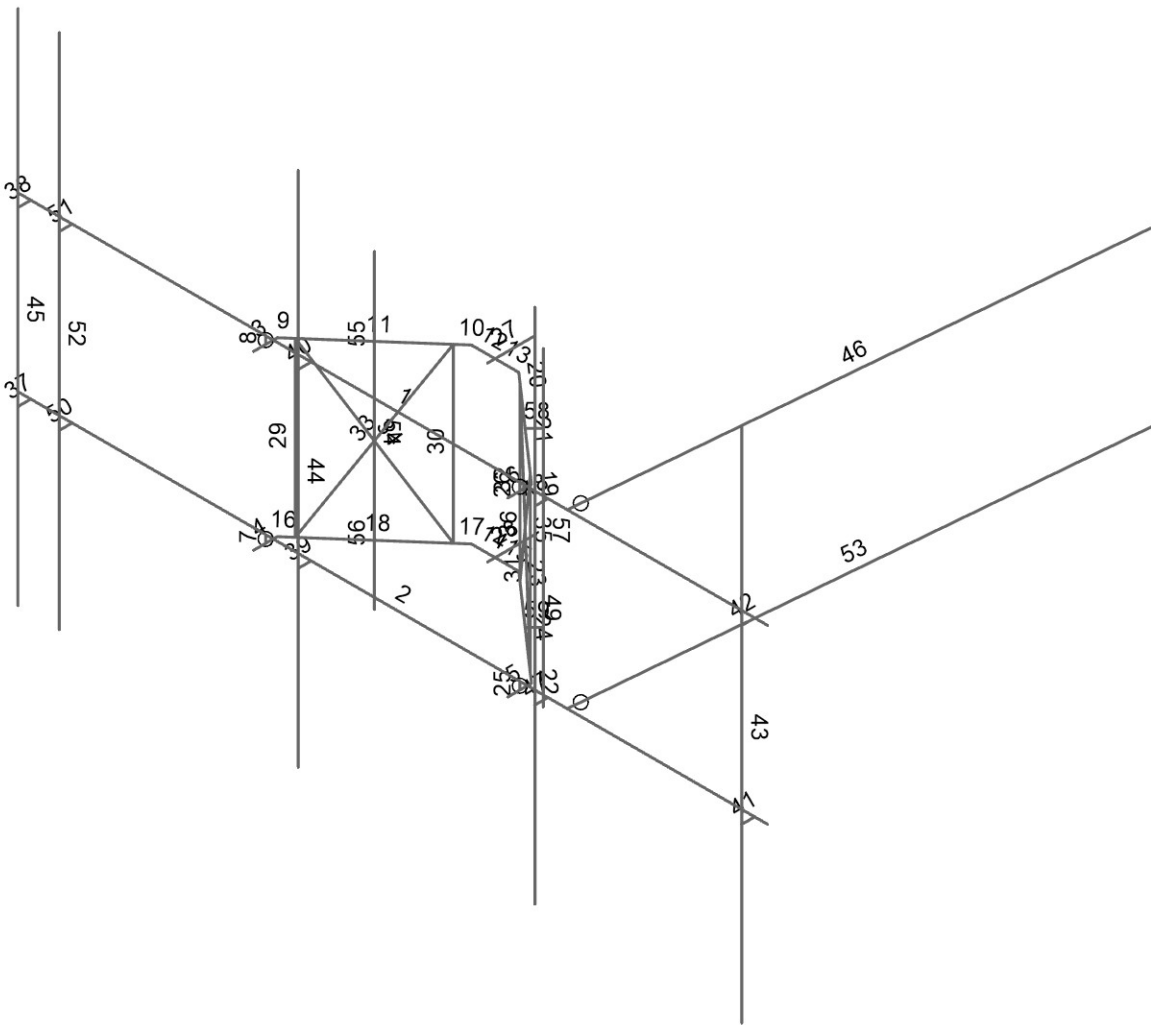
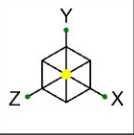
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806363 - HRT 105 943201

SK-1

Jul 25, 2022

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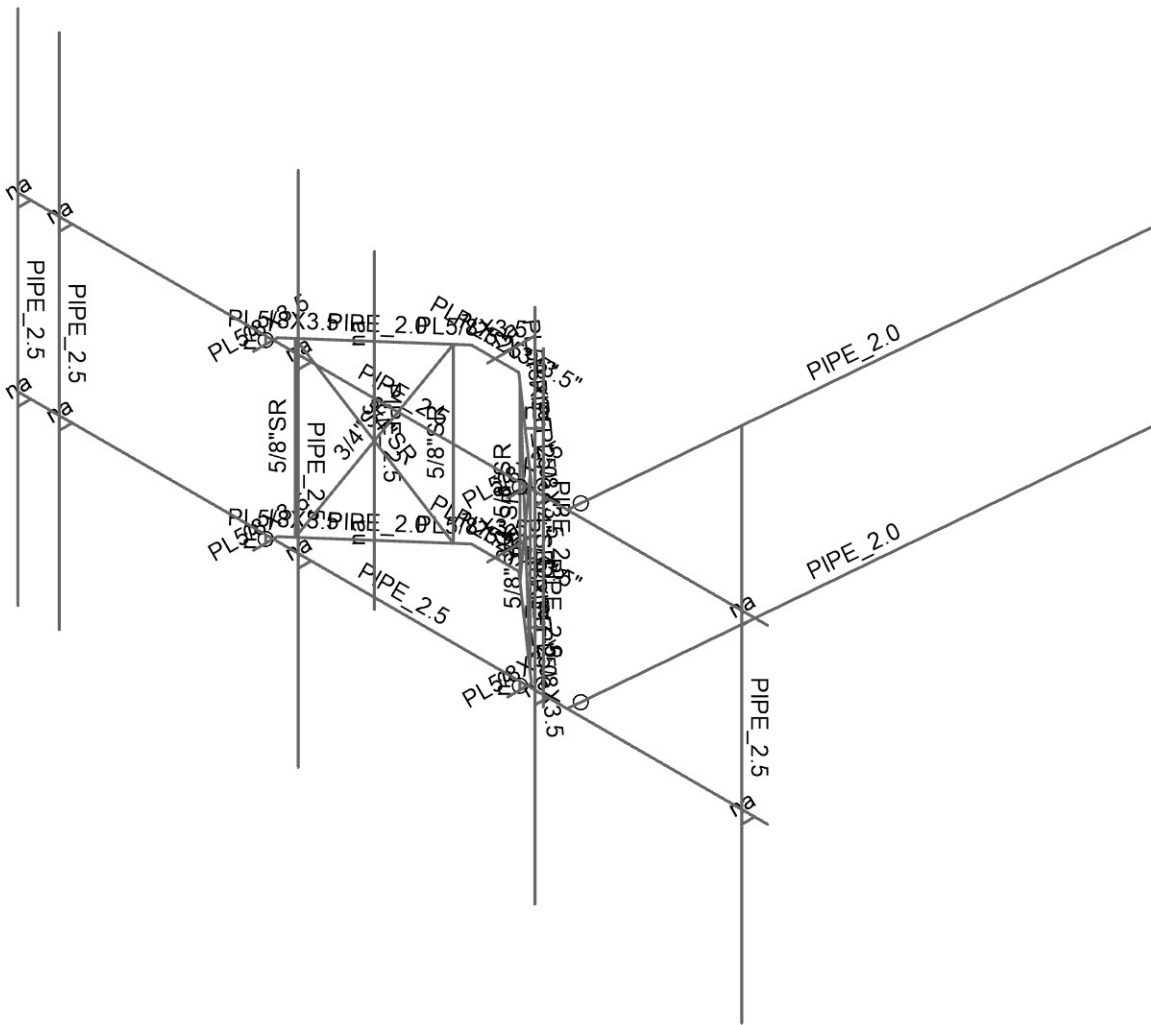
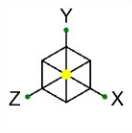


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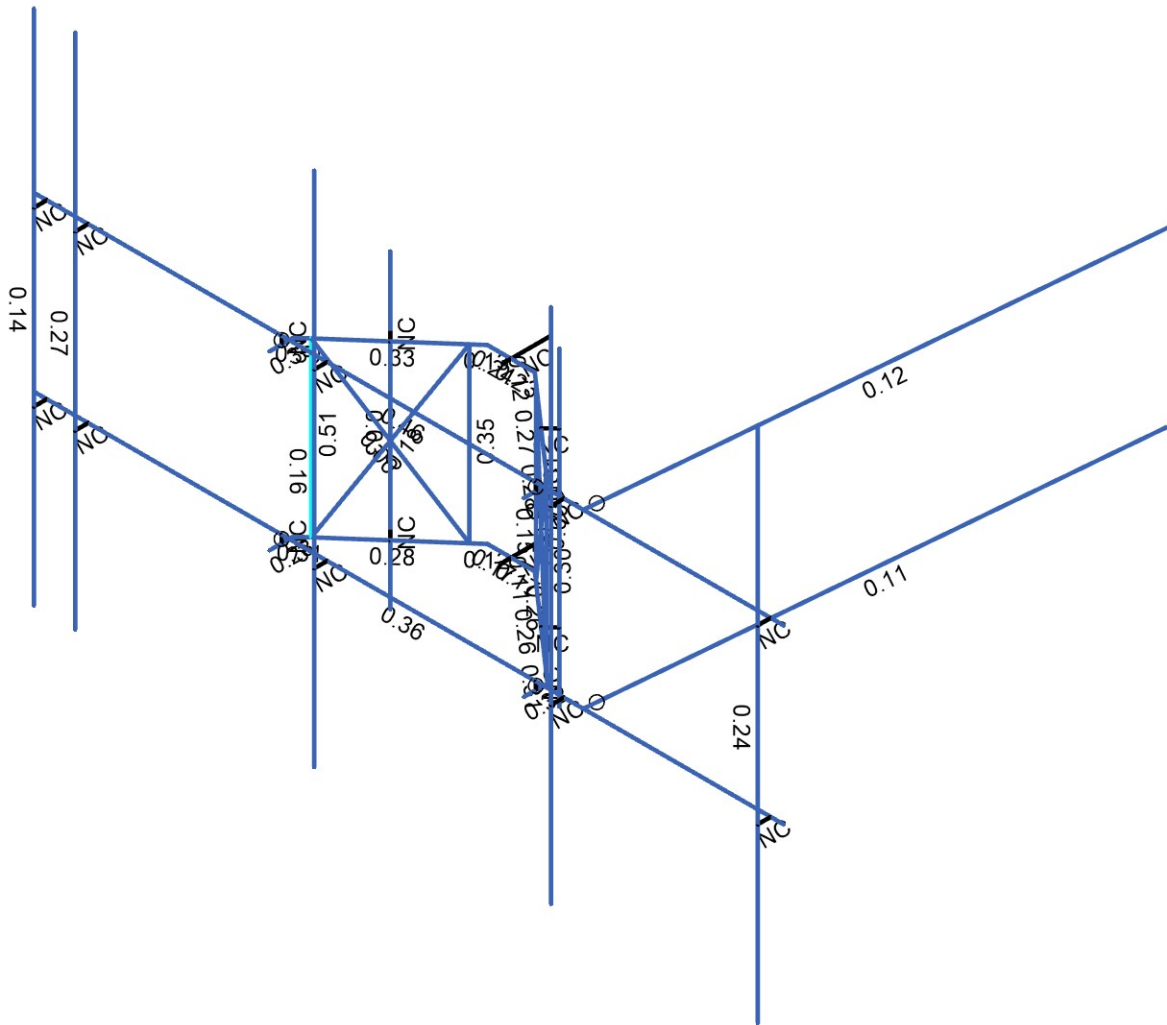
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| Code Check (Env) | |
|------------------|---------|
| Black | No Calc |
| Red | > 1.0 |
| Magenta | .90-1.0 |
| Green | .75-.90 |
| Cyan | .50-.75 |
| Blue | 0.-.50 |



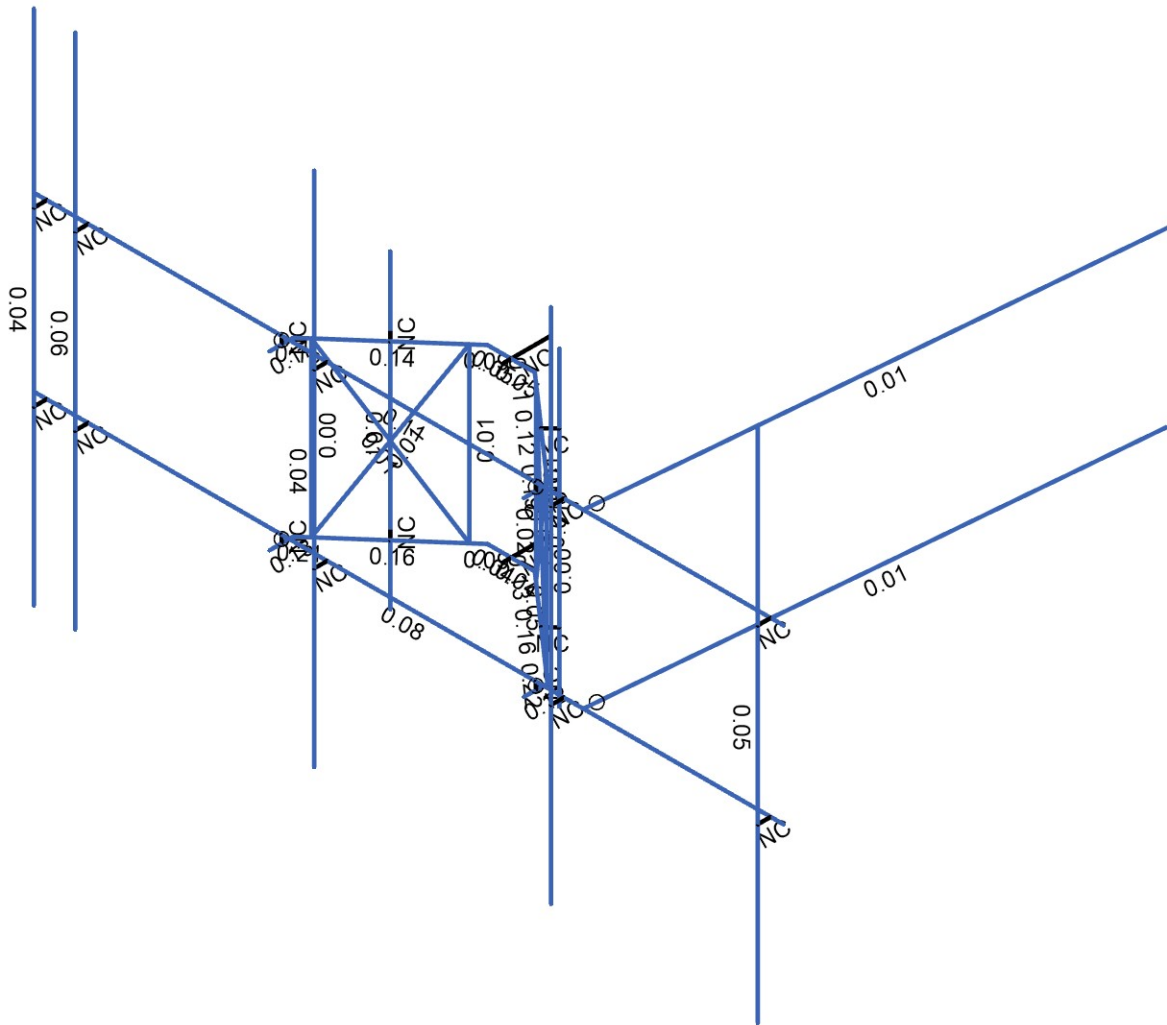
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

| | | |
|---------------|-------------------------|---------------------------------|
| B+T Group | 806363 - HRT 105 943201 | SK-4 |
| APK | | Jul 25, 2022 |
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Shear Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

| | | |
|---------------|-------------------------|---------------------------------|
| B+T Group | 806363 - HRT 105 943201 | SK-5 |
| APK | | Jul 25, 2022 |
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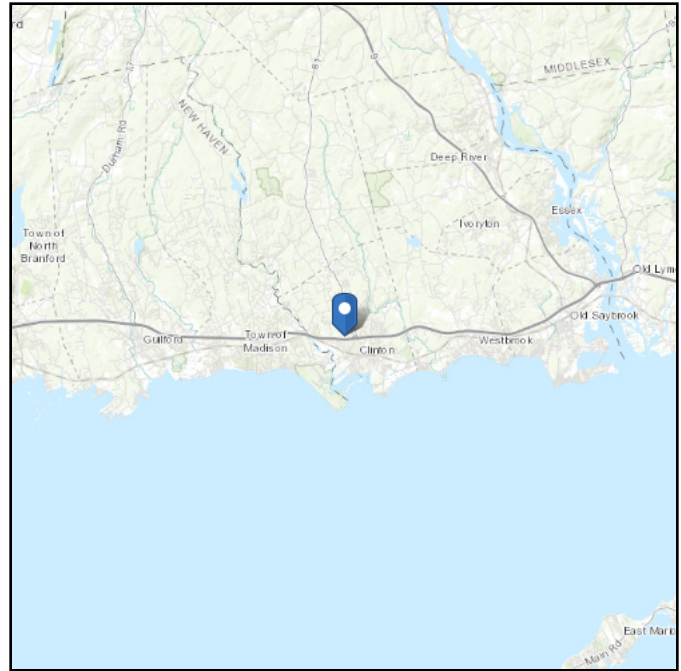
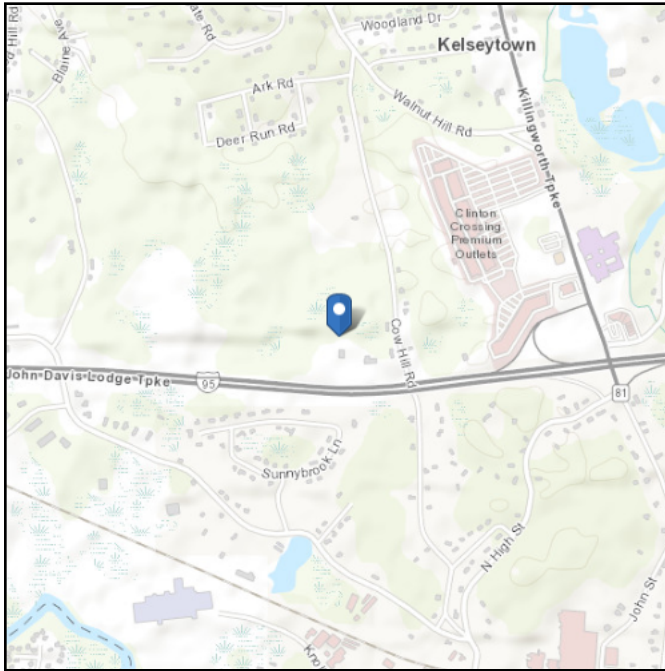
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 18.95 ft (NAVD 88)
Latitude: 41.288944
Longitude: -72.538472



Wind

Results:

| | |
|--------------|----------|
| Wind Speed | 124 Vmph |
| 10-year MRI | 75 Vmph |
| 25-year MRI | 85 Vmph |
| 50-year MRI | 95 Vmph |
| 100-year MRI | 101 Vmph |

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sat Jul 23 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

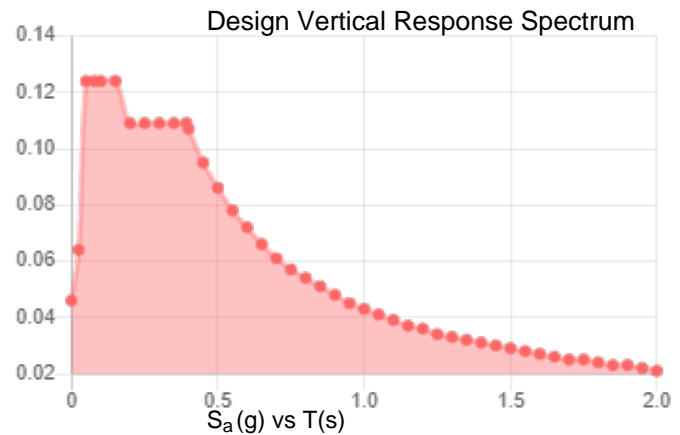
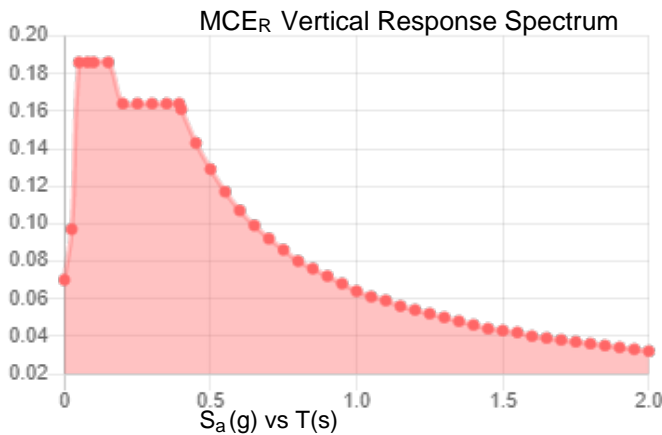
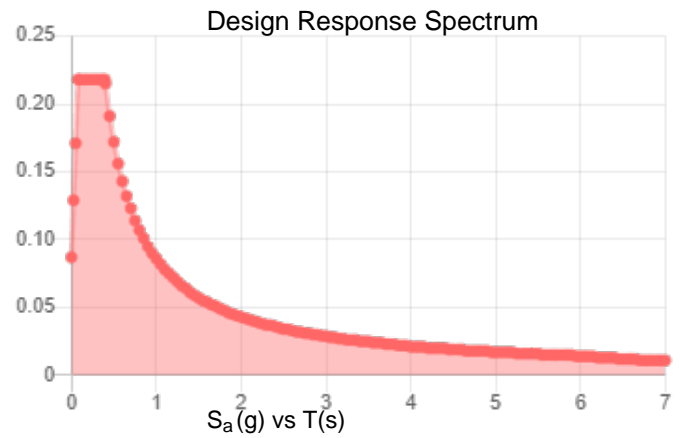
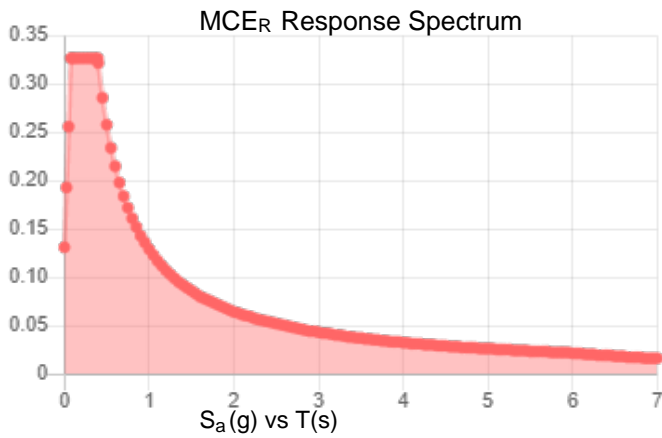
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

| | | | |
|------------|-------|--------------------|-------|
| S_s : | 0.205 | S_{D1} : | 0.086 |
| S_1 : | 0.054 | T_L : | 6 |
| F_a : | 1.6 | PGA : | 0.114 |
| F_v : | 2.4 | PGA _M : | 0.18 |
| S_{MS} : | 0.327 | F_{PGA} : | 1.571 |
| S_{M1} : | 0.129 | I_e : | 1 |
| S_{DS} : | 0.218 | C_v : | 0.709 |

Seismic Design Category B



Data Accessed: Sat Jul 23 2022

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Sat Jul 23 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

| | | |
|---------|---|--|
| PROJECT | 100083.010.01 - HRT 105 943201, CT KSC | |
| SUBJECT | Sector Mount Analysis | |
| DATE | 07-25-22 | |



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

B+T GRP

| | | | |
|-----------------------|----------|----------|-------------------------|
| Tower Type | : | SST | |
| Ground Elevation | z_s | 19 | ft [ASCE7 Hazard Tool] |
| Tower Height | : | 212.63 | ft |
| Mount Elevation | : | 189.00 | ft |
| Antenna Elevation | : | 190.00 | ft |
| Crest Height | : | 0 | ft |
| Risk Category | : | II | [Table 2-1] |
| Exposure Category | : | B | [Sec. 2.6.5.1.2] |
| Topography Category | : | 1.00 | [Sec. 2.6.6.2] |
| Wind Velocity | V | 124 | mph [ASCE7 Hazard Tool] |
| Ice wind Velocity | V_i | 50 | mph [ASCE7 Hazard Tool] |
| Service Velocity | V_s | 30 | mph [ASCE7 Hazard Tool] |
| Base Ice thickness | t_i | 1.00 | in [ASCE7 Hazard Tool] |
| Seismic Design Cat. | : | B | [ASCE7 Hazard Tool] |
| | S_S | 0.21 | |
| | S_1 | 0.05 | |
| | S_{DS} | 0.22 | |
| | S_{D1} | 0.09 | |
| Gust Factor | G_h | 1.00 | [Sec. 16.6] |
| Pressure Coefficient | K_z | 1.19 | [Sec. 2.6.5.2] |
| Topography Factor | K_{zt} | 1.00 | [Sec. 2.6.6] |
| Elevation Factor | K_e | 1.00 | [Sec. 2.6.8] |
| Directionality Factor | K_d | 0.95 | [Sec. 16.6] |
| Shielding Factor | K_a | 0.90 | [Sec. 16.6] |
| Design Ice Thickness | t_{iz} | 1.19 | in [Sec. 2.6.10] |
| Importance Factor | I_e | 1 | [Table 2-3] |
| Response Coefficient | C_s | 0.109 | [Sec. 2.7.7.1] |
| Amplification | A_s | 2.555556 | [Sec. 16.7] |
| | q_z | 44.30 | psf |

| | |
|---------|---|
| PROJECT | 100083.010.01 - HRT 105 943201, CT KSC |
| SUBJECT | Sector Mount Analysis |
| DATE | 07-25-22 |



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

B+T GRP

| Manufacturer | Model | Qty | Height (in ²) | Width (in ²) | Depth (in ²) | Weight (lbs) | C _a A _a (N) (ft ²) | C _a A _a (T) (ft ²) | C _a A _a (N) Ice (ft ²) | C _a A _a (T) Ice (ft ²) | F _A (N) (k) | F _A (T) (k) | F _A (N) Ice (k) | F _A (T) Ice (k) |
|-----------------|-------------------------|-----|------------------------------|-----------------------------|-----------------------------|-----------------|--|--|--|--|---------------------------|---------------------------|----------------------------------|----------------------------------|
| INTEL TECHNOLOG | QD4616-7 | 0.5 | 51.5 | 22.0 | 9.6 | 109.0 | 4.82 | 2.10 | 5.46 | 2.64 | 0.21 | 0.09 | 0.04 | 0.02 |
| INTEL TECHNOLOG | QD4616-7 | 0.5 | | | | | 4.82 | 2.10 | 5.46 | 2.64 | 0.21 | 0.09 | 0.04 | 0.02 |
| ERICSSON | TME-RRUS 32 B66 | 1 | 27.2 | 12.1 | 7.0 | 53.0 | 2.74 | 1.67 | 3.57 | 2.43 | 0.11 | 0.06 | 0.02 | 0.01 |
| ERICSSON | AIR 6419 B77G | 0.5 | 28.0 | 15.8 | 6.7 | 66.2 | 2.32 | 0.94 | 2.80 | 1.31 | 0.10 | 0.04 | 0.02 | 0.01 |
| ERICSSON | AIR 6419 B77G | 0.5 | | | | | 2.32 | 0.94 | 2.80 | 1.31 | 0.10 | 0.04 | 0.02 | 0.01 |
| ERICSSON | AIR 6449 B77D_CCIV2 | 0.5 | 30.4 | 15.9 | 8.1 | 81.6 | 2.01 | 1.07 | 2.49 | 1.49 | 0.08 | 0.04 | 0.01 | 0.01 |
| ERICSSON | AIR 6449 B77D_CCIV2 | 0.5 | 30.4 | 15.9 | 8.1 | 81.6 | 2.01 | 1.07 | 2.49 | 1.49 | 0.08 | 0.04 | 0.01 | 0.01 |
| CCI ANTENNAS | DMP65R-BU4D | 0.5 | 48.0 | 20.7 | 7.7 | 76.5 | 3.74 | 1.41 | 4.28 | 1.84 | 0.17 | 0.06 | 0.03 | 0.01 |
| CCI ANTENNAS | DMP65R-BU4D | 0.5 | | | | | 3.74 | 1.41 | 4.28 | 1.84 | 0.17 | 0.06 | 0.03 | 0.01 |
| ERICSSON | RRUS 4449 B5/B12 | 1 | 17.9 | 13.2 | 9.4 | 71.0 | 1.97 | 1.41 | 2.63 | 2.00 | 0.08 | 0.06 | 0.01 | 0.01 |
| ERICSSON | TME-RRUS 4478 B14 | 1 | 16.5 | 13.4 | 7.7 | 59.9 | 1.84 | 1.06 | 2.48 | 1.59 | 0.07 | 0.04 | 0.01 | 0.01 |
| ERICSSON | RRUS 4415 B25 | 1 | 15.0 | 13.2 | 5.4 | 44.0 | 1.64 | 0.68 | 2.25 | 1.13 | 0.07 | 0.03 | 0.01 | 0.00 |
| RAYCAP | Ξ-DC9-48-60-24-8C-EV_CC | 1 | 31.4 | 10.2 | 10.2 | 16.0 | 2.74 | 2.74 | 3.63 | 3.63 | 0.11 | 0.11 | 0.02 | 0.02 |
| ERICSSON | TME-RRUS 32 | 1 | 27.6 | 12.4 | 7.4 | 55.1 | 2.86 | 1.78 | 3.70 | 2.55 | 0.11 | 0.07 | 0.02 | 0.01 |

APPENDIX C
SOFTWARE ANALYSIS OUTPUT



Company : B+T Group
 Designer : APK
 Job Number : 100083.010.01
 Model Name : 806363 - HRT 105 943201

7/25/2022
 5:04:27 PM
 Checked By : _____

Node Coordinates

| | Label | X [ft] | Y [ft] | Z [ft] | Detach From Diaphragm |
|----|-------|-----------|-----------|----------|-----------------------|
| 1 | 1 | 7.25 | 0.145833 | 2.91666 | |
| 2 | 2 | -7.25 | 0.145833 | 2.91666 | |
| 3 | 3 | 7.25 | -3.1875 | 2.91666 | |
| 4 | 4 | -7.25 | -3.1875 | 2.91666 | |
| 5 | 5 | -2.458333 | 0.145833 | 2.91666 | |
| 6 | 6 | -2.458333 | -3.1875 | 2.91666 | |
| 7 | 7 | 2.458333 | -3.1875 | 2.91666 | |
| 8 | 8 | 2.458333 | 0.145833 | 2.91666 | |
| 9 | 9 | 0 | 0 | 0.16666 | |
| 10 | 10 | -2.458333 | 0 | 2.91666 | |
| 11 | 11 | -2.458333 | -3.333334 | 2.91666 | |
| 12 | 12 | 2.458333 | -3.333334 | 2.91666 | |
| 13 | 13 | 2.458333 | 0 | 2.91666 | |
| 14 | 14 | -2.458333 | 0 | 3.151035 | |
| 15 | 15 | -2.458333 | -3.333334 | 3.151035 | |
| 16 | 16 | 2.458333 | -3.333334 | 3.151035 | |
| 17 | 17 | 2.458333 | 0 | 3.151035 | |
| 18 | 18 | -2.458333 | 0 | 2.692702 | |
| 19 | 19 | -2.458333 | -3.333334 | 2.692702 | |
| 20 | 20 | 2.458333 | -3.333334 | 2.692702 | |
| 21 | 21 | 2.458333 | 0 | 2.692702 | |
| 22 | 22 | 0 | -3.333334 | 0.16666 | |
| 23 | 23 | 0 | 0 | 1.083327 | |
| 24 | 24 | 0 | -3.333334 | 1.083327 | |
| 25 | 25 | 0 | 0 | 0.937493 | |
| 26 | 26 | 0 | -3.333334 | 0.937493 | |
| 27 | 27 | 0.458333 | 0 | 0.937493 | |
| 28 | 28 | 0.458333 | -3.333334 | 0.937493 | |
| 29 | 29 | -0.458333 | 0 | 0.937493 | |
| 30 | 30 | -0.458333 | -3.333334 | 0.937493 | |
| 31 | 31 | -0.518814 | 0 | 0.990572 | |
| 32 | 32 | -2.397829 | 0 | 2.639603 | |
| 33 | 33 | -0.518814 | -3.333334 | 0.990572 | |
| 34 | 34 | -2.397829 | -3.333334 | 2.639603 | |
| 35 | 35 | 0.518814 | 0 | 0.990572 | |
| 36 | 36 | 2.397829 | 0 | 2.639603 | |
| 37 | 37 | 0.518814 | -3.333334 | 0.990572 | |
| 38 | 38 | 2.397829 | -3.333334 | 2.639603 | |
| 39 | 39 | -2.272561 | 0 | 2.529667 | |
| 40 | 40 | -2.272561 | -3.333334 | 2.529667 | |
| 41 | 41 | -0.644082 | 0 | 1.100507 | |
| 42 | 42 | -0.644082 | -3.333334 | 1.100507 | |
| 43 | 43 | 2.272561 | 0 | 2.529667 | |
| 44 | 44 | 2.272561 | -3.333334 | 2.529667 | |
| 45 | 45 | 0.644082 | 0 | 1.100507 | |
| 46 | 46 | 0.644082 | -3.333334 | 1.100507 | |
| 47 | 47 | -7.000004 | 0.145833 | 2.91666 | |
| 48 | 48 | -7.000004 | -3.1875 | 2.91666 | |
| 49 | 49 | -1.577917 | 0.145833 | 2.91666 | |
| 50 | 50 | -1.577917 | -3.1875 | 2.91666 | |
| 51 | 51 | 7 | 0.145833 | 2.91666 | |
| 52 | 52 | 7 | -3.1875 | 2.91666 | |
| 53 | 53 | -7.000004 | 0.145833 | 3.16666 | |
| 54 | 54 | -7.000004 | -3.1875 | 3.16666 | |
| 55 | 55 | -1.577917 | 0.145833 | 3.16666 | |

Node Coordinates (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Detach From Diaphragm |
|----|-------|-----------|-----------|-----------|-----------------------|
| 56 | 56 | -1.577917 | -3.1875 | 3.16666 | |
| 57 | 57 | 7 | 0.145833 | 3.16666 | |
| 58 | 58 | 7 | -3.1875 | 3.16666 | |
| 59 | 59 | -7.000004 | -6.520834 | 3.16666 | |
| 60 | 60 | -1.577917 | -6.520834 | 3.16666 | |
| 61 | 61 | 7 | -6.520834 | 3.16666 | |
| 62 | 62 | -7.000004 | 3.479166 | 3.16666 | |
| 63 | 63 | -1.577917 | 3.479166 | 3.16666 | |
| 64 | 64 | 7 | 3.479166 | 3.16666 | |
| 65 | 65 | 3.375 | 0.145833 | 2.91666 | |
| 66 | 66 | 3 | 0.145833 | 2.91666 | |
| 67 | 67 | 3 | -3.1875 | 2.91666 | |
| 68 | 68 | 3 | 0.145833 | 3.16666 | |
| 69 | 69 | 3 | -3.1875 | 3.16666 | |
| 70 | 70 | 3 | -6.520834 | 3.16666 | |
| 71 | 71 | 3 | 3.479166 | 3.16666 | |
| 72 | 72 | -6.200004 | 0.145833 | 2.91666 | |
| 73 | 73 | -6.200004 | -3.1875 | 2.91666 | |
| 74 | 74 | -6.200004 | 0.145833 | 3.16666 | |
| 75 | 75 | -6.200004 | -3.1875 | 3.16666 | |
| 76 | 76 | -6.200004 | -6.520834 | 3.16666 | |
| 77 | 77 | -6.200004 | 3.479166 | 3.16666 | |
| 78 | 78 | 0 | 0 | 0 | |
| 79 | 79 | 3.375 | -3.1875 | 2.91666 | |
| 80 | 82 | 4.29868 | 0.146 | -7.445533 | |
| 81 | 83 | 4.29868 | -3.18733 | -7.445533 | |
| 82 | 85A | -1.458322 | 0 | 1.815087 | |
| 83 | 86A | -1.458322 | -3.333334 | 1.815087 | |
| 84 | 87 | -1.635098 | 0 | 1.638311 | |
| 85 | 88A | -1.635098 | -3.333334 | 1.638311 | |
| 86 | 89 | -1.635098 | 1.33333 | 1.638311 | |
| 87 | 90 | -1.635098 | -4.66667 | 1.638311 | |
| 88 | 91 | 1.458322 | 0 | 1.815087 | |
| 89 | 92 | 1.458322 | -3.333334 | 1.815087 | |
| 90 | 93 | 1.635098 | 0 | 1.638311 | |
| 91 | 94 | 1.635098 | -3.333334 | 1.638311 | |
| 92 | 95 | 1.635098 | 1.33333 | 1.638311 | |
| 93 | 96 | 1.635098 | -4.66667 | 1.638311 | |
| 94 | 97 | 4.29868 | 0 | -7.445533 | |
| 95 | 98 | -4.29868 | 0 | -7.445533 | |

Node Boundary Conditions

| | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|---|------------|----------|----------|----------|------------------|------------------|
| 1 | 22 | Reaction | Reaction | Reaction | Reaction | Reaction |
| 2 | 9 | Reaction | Reaction | Reaction | Reaction | Reaction |
| 3 | 78 | | | | | |
| 4 | 82 | Reaction | Reaction | Reaction | | |
| 5 | 83 | Reaction | Reaction | Reaction | | |

Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm. Coeff. [1e ⁶ F ⁻¹] | Density [k/ft ³] | Yield [ksi] | Ry | Fu [ksi] | Rt |
|---|-----------|---------|---------|-----|--|------------------------------|-------------|-----|----------|-----|
| 1 | A992 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 2 | A36 Gr.36 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 36 | 1.5 | 58 | 1.2 |

Hot Rolled Steel Properties (Continued)

| | Label | E [ksi] | G [ksi] | Nu | Therm. Coeff. [1e ⁵ F ⁻¹] | Density [k/ft ³] | Yield [ksi] | Ry | Fu [ksi] | Rt |
|---|----------------|---------|---------|-----|--|------------------------------|-------------|-----|----------|-----|
| 3 | A572 Gr.50 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A500 Gr.B RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 42 | 1.4 | 58 | 1.3 |
| 5 | A500 Gr.B Rect | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 58 | 1.3 |
| 6 | A53 Gr.B | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 35 | 1.6 | 60 | 1.2 |
| 7 | A1085 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.4 | 65 | 1.3 |

Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rule | Area [in ²] | Iyy [in ⁴] | Izz [in ⁴] | J [in ⁴] |
|---|---------|--------------|--------|-------------|-----------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 1 | MF-H1 | PIPE 2.5 | Beam | Pipe | A53 Gr.B | Typical | 1.61 | 1.45 | 1.45 | 2.89 |
| 2 | SF-H1 | PIPE 2.0 | Beam | Pipe | A53 Gr.B | Typical | 1.02 | 0.627 | 0.627 | 1.25 |
| 3 | MF-CP1 | PL5/8X3.5 | Beam | RECT | A36 Gr.36 | Typical | 2.205 | 0.073 | 2.251 | 0.259 |
| 4 | MF-CP2 | PL1.25"X3.5" | Beam | RECT | A36 Gr.36 | Typical | 4.375 | 0.57 | 4.466 | 1.767 |
| 5 | SF-V1 | 5/8"SR | Column | BAR | A36 Gr.36 | Typical | 0.307 | 0.007 | 0.007 | 0.015 |
| 6 | SF-D1 | 3/4"SR | VBrace | BAR | A36 Gr.36 | Typical | 0.442 | 0.016 | 0.016 | 0.031 |
| 7 | MF-P1 | PIPE 2.5 | Column | Pipe | A53 Gr.B | Typical | 1.61 | 1.45 | 1.45 | 2.89 |
| 8 | Tieback | PIPE 2.0 | Beam | Pipe | A53 Gr.B | Typical | 1.02 | 0.627 | 0.627 | 1.25 |

Member Primary Data

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|----|-------|--------|--------|-------------|---------------|--------|-------------|-----------|-------------|
| 1 | 1 | 1 | 2 | | MF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 2 | 2 | 3 | 4 | | MF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 3 | 3 | 14 | 18 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 4 | 4 | 15 | 19 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 5 | 5 | 16 | 20 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 6 | 6 | 17 | 21 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 7 | 7 | 11 | 6 | | RIGID | None | None | RIGID | Typical |
| 8 | 8 | 10 | 5 | | RIGID | None | None | RIGID | Typical |
| 9 | 9 | 18 | 32 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 10 | 10 | 31 | 29 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 11 | 11 | 32 | 31 | | SF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 12 | 12 | 29 | 25 | 90 | MF-CP2 | Beam | RECT | A36 Gr.36 | Typical |
| 13 | 13 | 25 | 27 | 90 | MF-CP2 | Beam | RECT | A36 Gr.36 | Typical |
| 14 | 14 | 30 | 26 | 90 | MF-CP2 | Beam | RECT | A36 Gr.36 | Typical |
| 15 | 15 | 26 | 28 | 90 | MF-CP2 | Beam | RECT | A36 Gr.36 | Typical |
| 16 | 16 | 19 | 34 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 17 | 17 | 33 | 30 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 18 | 18 | 34 | 33 | | SF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 19 | 19 | 21 | 36 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 20 | 20 | 35 | 27 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 21 | 21 | 36 | 35 | | SF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 22 | 22 | 20 | 38 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 23 | 23 | 37 | 28 | 90 | MF-CP1 | Beam | RECT | A36 Gr.36 | Typical |
| 24 | 24 | 38 | 37 | | SF-H1 | Beam | Pipe | A53 Gr.B | Typical |
| 25 | 25 | 12 | 7 | | RIGID | None | None | RIGID | Typical |
| 26 | 26 | 13 | 8 | | RIGID | None | None | RIGID | Typical |
| 27 | 27 | 23 | 9 | | RIGID | None | None | RIGID | Typical |
| 28 | 28 | 24 | 22 | | RIGID | None | None | RIGID | Typical |
| 29 | 29 | 40 | 39 | | SF-V1 | Column | BAR | A36 Gr.36 | Typical |
| 30 | 30 | 42 | 41 | | SF-V1 | Column | BAR | A36 Gr.36 | Typical |
| 31 | 31 | 44 | 43 | | SF-V1 | Column | BAR | A36 Gr.36 | Typical |
| 32 | 32 | 46 | 45 | | SF-V1 | Column | BAR | A36 Gr.36 | Typical |
| 33 | 33 | 40 | 41 | | SF-D1 | VBrace | BAR | A36 Gr.36 | Typical |
| 34 | 34 | 39 | 42 | | SF-D1 | VBrace | BAR | A36 Gr.36 | Typical |

Member Primary Data (Continued)

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|----|-------|--------|--------|-------------|---------------|--------|-------------|-----------|-------------|
| 35 | 35 | 45 | 44 | | SF-D1 | VBrace | BAR | A36 Gr.36 | Typical |
| 36 | 36 | 46 | 43 | | SF-D1 | VBrace | BAR | A36 Gr.36 | Typical |
| 37 | 37 | 54 | 48 | | RIGID | None | None | RIGID | Typical |
| 38 | 38 | 53 | 47 | | RIGID | None | None | RIGID | Typical |
| 39 | 39 | 56 | 50 | | RIGID | None | None | RIGID | Typical |
| 40 | 40 | 55 | 49 | | RIGID | None | None | RIGID | Typical |
| 41 | 41 | 58 | 52 | | RIGID | None | None | RIGID | Typical |
| 42 | 42 | 57 | 51 | | RIGID | None | None | RIGID | Typical |
| 43 | 43 | 64 | 61 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 44 | 44 | 63 | 60 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 45 | 45 | 62 | 59 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 46 | 46 | 65 | 82 | | Tieback | Beam | Pipe | A53 Gr.B | Typical |
| 47 | 47 | 69 | 67 | | RIGID | None | None | RIGID | Typical |
| 48 | 48 | 68 | 66 | | RIGID | None | None | RIGID | Typical |
| 49 | 49 | 71 | 70 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 50 | 50 | 75 | 73 | | RIGID | None | None | RIGID | Typical |
| 51 | 51 | 74 | 72 | | RIGID | None | None | RIGID | Typical |
| 52 | 52 | 77 | 76 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 53 | 53 | 79 | 83 | | Tieback | Beam | Pipe | A53 Gr.B | Typical |
| 54 | 54 | 89 | 90 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 55 | 55 | 85A | 87 | | RIGID | None | None | RIGID | Typical |
| 56 | 56 | 86A | 88A | | RIGID | None | None | RIGID | Typical |
| 57 | 57 | 95 | 96 | | MF-P1 | Column | Pipe | A53 Gr.B | Typical |
| 58 | 58 | 91 | 93 | | RIGID | None | None | RIGID | Typical |
| 59 | 59 | 92 | 94 | | RIGID | None | None | RIGID | Typical |

Member Advanced Data

| | Label | I Release | J Release | T/C Only | Physical | Deflection Ratio Options | Seismic DR |
|----|-------|-----------|-----------|----------|----------|--------------------------|------------|
| 1 | 1 | | | | Yes | N/A | None |
| 2 | 2 | | | | Yes | N/A | None |
| 3 | 3 | | | | Yes | N/A | None |
| 4 | 4 | | | | Yes | N/A | None |
| 5 | 5 | | | | Yes | N/A | None |
| 6 | 6 | | | | Yes | N/A | None |
| 7 | 7 | | OOOOXO | | Yes | ** NA ** | None |
| 8 | 8 | | OOOOXO | | Yes | ** NA ** | None |
| 9 | 9 | | | | Yes | N/A | None |
| 10 | 10 | | | | Yes | N/A | None |
| 11 | 11 | | | | Yes | N/A | None |
| 12 | 12 | | | | Yes | N/A | None |
| 13 | 13 | | | | Yes | N/A | None |
| 14 | 14 | | | | Yes | N/A | None |
| 15 | 15 | | | | Yes | N/A | None |
| 16 | 16 | | | | Yes | N/A | None |
| 17 | 17 | | | | Yes | N/A | None |
| 18 | 18 | | | | Yes | Default | None |
| 19 | 19 | | | | Yes | N/A | None |
| 20 | 20 | | | | Yes | N/A | None |
| 21 | 21 | | | | Yes | N/A | None |
| 22 | 22 | | | | Yes | N/A | None |
| 23 | 23 | | | | Yes | N/A | None |
| 24 | 24 | | | | Yes | N/A | None |
| 25 | 25 | | OOOOXO | | Yes | ** NA ** | None |
| 26 | 26 | | OOOOXO | | Yes | ** NA ** | None |
| 27 | 27 | | | | Yes | ** NA ** | None |

Member Advanced Data (Continued)

| | Label | I Release | J Release | T/C Only | Physical | Deflection Ratio Options | Seismic DR |
|----|-------|-----------|-----------|----------------|----------|--------------------------|------------|
| 28 | 28 | | | | Yes | ** NA ** | None |
| 29 | 29 | | | | Yes | ** NA ** | None |
| 30 | 30 | | | | Yes | ** NA ** | None |
| 31 | 31 | | | | Yes | ** NA ** | None |
| 32 | 32 | | | | Yes | ** NA ** | None |
| 33 | 33 | | | | Yes | ** NA ** | None |
| 34 | 34 | | | Euler Buckling | Yes | ** NA ** | None |
| 35 | 35 | | | | Yes | ** NA ** | None |
| 36 | 36 | | | Euler Buckling | Yes | ** NA ** | None |
| 37 | 37 | | | | Yes | ** NA ** | None |
| 38 | 38 | | | | Yes | ** NA ** | None |
| 39 | 39 | | | | Yes | ** NA ** | None |
| 40 | 40 | | | | Yes | ** NA ** | None |
| 41 | 41 | | | | Yes | ** NA ** | None |
| 42 | 42 | | | | Yes | ** NA ** | None |
| 43 | 43 | | | | Yes | ** NA ** | None |
| 44 | 44 | | | | Yes | ** NA ** | None |
| 45 | 45 | | | | Yes | ** NA ** | None |
| 46 | 46 | BenPIN | | | Yes | Default | None |
| 47 | 47 | | | | Yes | ** NA ** | None |
| 48 | 48 | | | | Yes | ** NA ** | None |
| 49 | 49 | | | | Yes | ** NA ** | None |
| 50 | 50 | | | | Yes | ** NA ** | None |
| 51 | 51 | | | | Yes | ** NA ** | None |
| 52 | 52 | | | | Yes | ** NA ** | None |
| 53 | 53 | BenPIN | | | Yes | Default | None |
| 54 | 54 | | | | Yes | ** NA ** | None |
| 55 | 55 | | | | Yes | ** NA ** | None |
| 56 | 56 | | | | Yes | ** NA ** | None |
| 57 | 57 | | | | Yes | ** NA ** | None |
| 58 | 58 | | | | Yes | ** NA ** | None |
| 59 | 59 | | | | Yes | ** NA ** | None |

Hot Rolled Steel Design Parameters

| | Label | Shape | Length [ft] | Lb y-y [ft] | Lb z-z [ft] | Lcomp top [ft] | Channel Conn. | a [ft] | Function |
|----|-------|--------|-------------|-------------|-------------|----------------|---------------|--------|----------|
| 1 | 1 | MF-H1 | 14.5 | | | Lbyy | N/A | N/A | Lateral |
| 2 | 2 | MF-H1 | 14.5 | | | Lbyy | N/A | N/A | Lateral |
| 3 | 3 | MF-CP1 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 4 | 4 | MF-CP1 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 5 | 5 | MF-CP1 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 6 | 6 | MF-CP1 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 7 | 9 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 8 | 10 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 9 | 11 | SF-H1 | 2.5 | | | Lbyy | N/A | N/A | Lateral |
| 10 | 12 | MF-CP2 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 11 | 13 | MF-CP2 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 12 | 14 | MF-CP2 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 13 | 15 | MF-CP2 | 0.458 | | | Lbyy | N/A | N/A | Lateral |
| 14 | 16 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 15 | 17 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 16 | 18 | SF-H1 | 2.5 | | | Lbyy | N/A | N/A | Lateral |
| 17 | 19 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 18 | 20 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 19 | 21 | SF-H1 | 2.5 | | | Lbyy | N/A | N/A | Lateral |
| 20 | 22 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |

Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length [ft] | Lb y-y [ft] | Lb z-z [ft] | Lcomp top [ft] | Channel Conn. | a [ft] | Function |
|----|-------|---------|-------------|-------------|-------------|----------------|---------------|--------|----------|
| 21 | 23 | MF-CP1 | 0.08 | | | Lbyy | N/A | N/A | Lateral |
| 22 | 24 | SF-H1 | 2.5 | | | Lbyy | N/A | N/A | Lateral |
| 23 | 29 | SF-V1 | 3.333 | 2.5 | 2.5 | Lbyy | N/A | N/A | Lateral |
| 24 | 30 | SF-V1 | 3.333 | 2.5 | 2.5 | Lbyy | N/A | N/A | Lateral |
| 25 | 31 | SF-V1 | 3.333 | 2.5 | 2.5 | Lbyy | N/A | N/A | Lateral |
| 26 | 32 | SF-V1 | 3.333 | 2.5 | 2.5 | Lbyy | N/A | N/A | Lateral |
| 27 | 33 | SF-D1 | 3.976 | | | Lbyy | N/A | N/A | Lateral |
| 28 | 34 | SF-D1 | 3.976 | | | Lbyy | N/A | N/A | Lateral |
| 29 | 35 | SF-D1 | 3.976 | | | Lbyy | N/A | N/A | Lateral |
| 30 | 36 | SF-D1 | 3.976 | | | Lbyy | N/A | N/A | Lateral |
| 31 | 43 | MF-P1 | 10 | | | Lbyy | N/A | N/A | Lateral |
| 32 | 44 | MF-P1 | 10 | | | Lbyy | N/A | N/A | Lateral |
| 33 | 45 | MF-P1 | 10 | | | Lbyy | N/A | N/A | Lateral |
| 34 | 46 | Tieback | 10.403 | | | Lbyy | N/A | N/A | Lateral |
| 35 | 49 | MF-P1 | 10 | | | Lbyy | N/A | N/A | Lateral |
| 36 | 52 | MF-P1 | 10 | | | Lbyy | N/A | N/A | Lateral |
| 37 | 53 | Tieback | 10.403 | | | Lbyy | N/A | N/A | Lateral |
| 38 | 54 | MF-P1 | 6 | | | Lbyy | N/A | N/A | Lateral |
| 39 | 57 | MF-P1 | 6 | | | Lbyy | N/A | N/A | Lateral |

Member Point Loads (BLC 1 : Dead)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Y | -0.054 | %5 |
| 2 | 49 | Y | -0.054 | %45 |
| 3 | 49 | Y | -0.053 | %55 |
| 4 | 49 | Y | 0 | 0 |
| 5 | 49 | Y | 0 | 0 |
| 6 | 44 | Y | -0.033 | %5 |
| 7 | 44 | Y | -0.033 | %25 |
| 8 | 44 | Y | -0.041 | %75 |
| 9 | 44 | Y | -0.041 | %95 |
| 10 | 44 | Y | 0 | 0 |
| 11 | 52 | Y | -0.038 | %5 |
| 12 | 52 | Y | -0.038 | %45 |
| 13 | 52 | Y | -0.071 | %55 |
| 14 | 52 | Y | 0 | 0 |
| 15 | 52 | Y | 0 | 0 |
| 16 | 57 | Y | -0.06 | %25 |
| 17 | 57 | Y | -0.044 | %55 |
| 18 | 57 | Y | 0 | 0 |
| 19 | 57 | Y | 0 | 0 |
| 20 | 57 | Y | 0 | 0 |
| 21 | 54 | Y | -0.016 | %25 |
| 22 | 54 | Y | -0.055 | %55 |
| 23 | 54 | Y | 0 | 0 |
| 24 | 54 | Y | 0 | 0 |
| 25 | 54 | Y | 0 | 0 |

Member Point Loads (BLC 2 : 0 Wind - No Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Z | -0.214 | %5 |
| 2 | 49 | Z | -0.214 | %45 |
| 3 | 49 | Z | -0.11 | %55 |

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 4 | 49 | Z | 0 | 0 |
| 5 | 49 | Z | 0 | 0 |
| 6 | 44 | Z | -0.103 | %5 |
| 7 | 44 | Z | -0.103 | %25 |
| 8 | 44 | Z | -0.08 | %75 |
| 9 | 44 | Z | -0.08 | %95 |
| 10 | 44 | Z | 0 | 0 |
| 11 | 52 | Z | -0.166 | %5 |
| 12 | 52 | Z | -0.166 | %45 |
| 13 | 52 | Z | -0.079 | %55 |
| 14 | 52 | Z | 0 | 0 |
| 15 | 52 | Z | 0 | 0 |
| 16 | 57 | Z | -0.074 | %25 |
| 17 | 57 | Z | -0.066 | %55 |
| 18 | 57 | Z | 0 | 0 |
| 19 | 57 | Z | 0 | 0 |
| 20 | 57 | Z | 0 | 0 |
| 21 | 54 | Z | -0.109 | %25 |
| 22 | 54 | Z | -0.114 | %55 |
| 23 | 54 | Z | 0 | 0 |
| 24 | 54 | Z | 0 | 0 |
| 25 | 54 | Z | 0 | 0 |

Member Point Loads (BLC 3 : 90 Wind - No Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | X | -0.093 | %5 |
| 2 | 49 | X | -0.093 | %45 |
| 3 | 49 | X | -0.063 | %55 |
| 4 | 49 | X | 0 | 0 |
| 5 | 49 | X | 0 | 0 |
| 6 | 44 | X | -0.042 | %5 |
| 7 | 44 | X | -0.042 | %25 |
| 8 | 44 | X | -0.041 | %75 |
| 9 | 44 | X | -0.041 | %95 |
| 10 | 44 | X | 0 | 0 |
| 11 | 52 | X | -0.062 | %5 |
| 12 | 52 | X | -0.062 | %45 |
| 13 | 52 | X | -0.056 | %55 |
| 14 | 52 | X | 0 | 0 |
| 15 | 52 | X | 0 | 0 |
| 16 | 57 | X | -0.042 | %25 |
| 17 | 57 | X | -0.027 | %55 |
| 18 | 57 | X | 0 | 0 |
| 19 | 57 | X | 0 | 0 |
| 20 | 57 | X | 0 | 0 |
| 21 | 54 | X | -0.109 | %25 |
| 22 | 54 | X | -0.068 | %55 |
| 23 | 54 | X | 0 | 0 |
| 24 | 54 | X | 0 | 0 |
| 25 | 54 | X | 0 | 0 |

Member Point Loads (BLC 4 : 0 Wind - Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Z | -0.039 | %5 |
| 2 | 49 | Z | -0.039 | %45 |
| 3 | 49 | Z | -0.018 | %55 |
| 4 | 49 | Z | 0 | 0 |
| 5 | 49 | Z | 0 | 0 |
| 6 | 44 | Z | -0.02 | %5 |
| 7 | 44 | Z | -0.02 | %25 |
| 8 | 44 | Z | -0.013 | %75 |
| 9 | 44 | Z | -0.013 | %95 |
| 10 | 44 | Z | 0 | 0 |
| 11 | 52 | Z | -0.031 | %5 |
| 12 | 52 | Z | -0.031 | %45 |
| 13 | 52 | Z | -0.013 | %55 |
| 14 | 52 | Z | 0 | 0 |
| 15 | 52 | Z | 0 | 0 |
| 16 | 57 | Z | -0.012 | %25 |
| 17 | 57 | Z | -0.011 | %55 |
| 18 | 57 | Z | 0 | 0 |
| 19 | 57 | Z | 0 | 0 |
| 20 | 57 | Z | 0 | 0 |
| 21 | 54 | Z | -0.018 | %25 |
| 22 | 54 | Z | -0.018 | %55 |
| 23 | 54 | Z | 0 | 0 |
| 24 | 54 | Z | 0 | 0 |
| 25 | 54 | Z | 0 | 0 |

Member Point Loads (BLC 5 : 90 Wind - Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | X | -0.019 | %5 |
| 2 | 49 | X | -0.019 | %45 |
| 3 | 49 | X | -0.01 | %55 |
| 4 | 49 | X | 0 | 0 |
| 5 | 49 | X | 0 | 0 |
| 6 | 44 | X | -0.009 | %5 |
| 7 | 44 | X | -0.009 | %25 |
| 8 | 44 | X | -0.007 | %75 |
| 9 | 44 | X | -0.007 | %95 |
| 10 | 44 | X | 0 | 0 |
| 11 | 52 | X | -0.013 | %5 |
| 12 | 52 | X | -0.013 | %45 |
| 13 | 52 | X | -0.009 | %55 |
| 14 | 52 | X | 0 | 0 |
| 15 | 52 | X | 0 | 0 |
| 16 | 57 | X | -0.007 | %25 |
| 17 | 57 | X | -0.004 | %55 |
| 18 | 57 | X | 0 | 0 |
| 19 | 57 | X | 0 | 0 |
| 20 | 57 | X | 0 | 0 |
| 21 | 54 | X | -0.018 | %25 |
| 22 | 54 | X | -0.011 | %55 |
| 23 | 54 | X | 0 | 0 |
| 24 | 54 | X | 0 | 0 |
| 25 | 54 | X | 0 | 0 |

Member Point Loads (BLC 6 : 0 Wind - Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Z | -0.013 | %5 |
| 2 | 49 | Z | -0.013 | %45 |
| 3 | 49 | Z | -0.006 | %55 |
| 4 | 49 | Z | 0 | 0 |
| 5 | 49 | Z | 0 | 0 |
| 6 | 44 | Z | -0.006 | %5 |
| 7 | 44 | Z | -0.006 | %25 |
| 8 | 44 | Z | -0.005 | %75 |
| 9 | 44 | Z | -0.005 | %95 |
| 10 | 44 | Z | 0 | 0 |
| 11 | 52 | Z | -0.01 | %5 |
| 12 | 52 | Z | -0.01 | %45 |
| 13 | 52 | Z | -0.005 | %55 |
| 14 | 52 | Z | 0 | 0 |
| 15 | 52 | Z | 0 | 0 |
| 16 | 57 | Z | -0.004 | %25 |
| 17 | 57 | Z | -0.004 | %55 |
| 18 | 57 | Z | 0 | 0 |
| 19 | 57 | Z | 0 | 0 |
| 20 | 57 | Z | 0 | 0 |
| 21 | 54 | Z | -0.006 | %25 |
| 22 | 54 | Z | -0.007 | %55 |
| 23 | 54 | Z | 0 | 0 |
| 24 | 54 | Z | 0 | 0 |
| 25 | 54 | Z | 0 | 0 |

Member Point Loads (BLC 7 : 90 Wind - Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | X | -0.005 | %5 |
| 2 | 49 | X | -0.005 | %45 |
| 3 | 49 | X | -0.004 | %55 |
| 4 | 49 | X | 0 | 0 |
| 5 | 49 | X | 0 | 0 |
| 6 | 44 | X | -0.002 | %5 |
| 7 | 44 | X | -0.002 | %25 |
| 8 | 44 | X | -0.002 | %75 |
| 9 | 44 | X | -0.002 | %95 |
| 10 | 44 | X | 0 | 0 |
| 11 | 52 | X | -0.004 | %5 |
| 12 | 52 | X | -0.004 | %45 |
| 13 | 52 | X | -0.003 | %55 |
| 14 | 52 | X | 0 | 0 |
| 15 | 52 | X | 0 | 0 |
| 16 | 57 | X | -0.003 | %25 |
| 17 | 57 | X | -0.002 | %55 |
| 18 | 57 | X | 0 | 0 |
| 19 | 57 | X | 0 | 0 |
| 20 | 57 | X | 0 | 0 |
| 21 | 54 | X | -0.006 | %25 |
| 22 | 54 | X | -0.004 | %55 |
| 23 | 54 | X | 0 | 0 |
| 24 | 54 | X | 0 | 0 |
| 25 | 54 | X | 0 | 0 |

Member Point Loads (BLC 8 : Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Y | -0.12 | %5 |
| 2 | 49 | Y | -0.12 | %45 |
| 3 | 49 | Y | -0.05 | %55 |
| 4 | 49 | Y | 0 | 0 |
| 5 | 49 | Y | 0 | 0 |
| 6 | 44 | Y | -0.06 | %5 |
| 7 | 44 | Y | -0.06 | %25 |
| 8 | 44 | Y | -0.035 | %75 |
| 9 | 44 | Y | -0.035 | %95 |
| 10 | 44 | Y | 0 | 0 |
| 11 | 52 | Y | -0.093 | %5 |
| 12 | 52 | Y | -0.093 | %45 |
| 13 | 52 | Y | -0.038 | %55 |
| 14 | 52 | Y | 0 | 0 |
| 15 | 52 | Y | 0 | 0 |
| 16 | 57 | Y | -0.033 | %25 |
| 17 | 57 | Y | -0.028 | %55 |
| 18 | 57 | Y | 0 | 0 |
| 19 | 57 | Y | 0 | 0 |
| 20 | 57 | Y | 0 | 0 |
| 21 | 54 | Y | -0.06 | %25 |
| 22 | 54 | Y | -0.052 | %55 |
| 23 | 54 | Y | 0 | 0 |
| 24 | 54 | Y | 0 | 0 |
| 25 | 54 | Y | 0 | 0 |

Member Point Loads (BLC 9 : 0 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | Z | -0.03 | %5 |
| 2 | 49 | Z | -0.03 | %45 |
| 3 | 49 | Z | -0.015 | %55 |
| 4 | 49 | Z | 0 | 0 |
| 5 | 49 | Z | 0 | 0 |
| 6 | 44 | Z | -0.018 | %5 |
| 7 | 44 | Z | -0.018 | %25 |
| 8 | 44 | Z | -0.023 | %75 |
| 9 | 44 | Z | -0.023 | %95 |
| 10 | 44 | Z | 0 | 0 |
| 11 | 52 | Z | -0.021 | %5 |
| 12 | 52 | Z | -0.021 | %45 |
| 13 | 52 | Z | -0.02 | %55 |
| 14 | 52 | Z | 0 | 0 |
| 15 | 52 | Z | 0 | 0 |
| 16 | 57 | Z | -0.017 | %25 |
| 17 | 57 | Z | -0.012 | %55 |
| 18 | 57 | Z | 0 | 0 |
| 19 | 57 | Z | 0 | 0 |
| 20 | 57 | Z | 0 | 0 |
| 21 | 54 | Z | -0.004 | %25 |
| 22 | 54 | Z | -0.015 | %55 |
| 23 | 54 | Z | 0 | 0 |
| 24 | 54 | Z | 0 | 0 |
| 25 | 54 | Z | 0 | 0 |

Member Point Loads (BLC 10 : 90 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 49 | X | -0.03 | %5 |
| 2 | 49 | X | -0.03 | %45 |
| 3 | 49 | X | -0.015 | %55 |
| 4 | 49 | X | 0 | 0 |
| 5 | 49 | X | 0 | 0 |
| 6 | 44 | X | -0.018 | %5 |
| 7 | 44 | X | -0.018 | %25 |
| 8 | 44 | X | -0.023 | %75 |
| 9 | 44 | X | -0.023 | %95 |
| 10 | 44 | X | 0 | 0 |
| 11 | 52 | X | -0.021 | %5 |
| 12 | 52 | X | -0.021 | %45 |
| 13 | 52 | X | -0.02 | %55 |
| 14 | 52 | X | 0 | 0 |
| 15 | 52 | X | 0 | 0 |
| 16 | 57 | X | -0.017 | %25 |
| 17 | 57 | X | -0.012 | %55 |
| 18 | 57 | X | 0 | 0 |
| 19 | 57 | X | 0 | 0 |
| 20 | 57 | X | 0 | 0 |
| 21 | 54 | X | -0.004 | %25 |
| 22 | 54 | X | -0.015 | %55 |
| 23 | 54 | X | 0 | 0 |
| 24 | 54 | X | 0 | 0 |
| 25 | 54 | X | 0 | 0 |

Member Point Loads (BLC 15 : Maint LL 1)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 11 | Y | -0.25 | %50 |

Member Point Loads (BLC 16 : Maint LL 2)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 21 | Y | -0.25 | %50 |

Member Point Loads (BLC 17 : Maint LL 3)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 24 | Y | -0.25 | %50 |

Member Point Loads (BLC 18 : Maint LL 4)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 18 | Y | -0.25 | %50 |

Member Point Loads (BLC 19 : Maint LL 5)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 1 | Y | -0.25 | %95 |

Member Point Loads (BLC 20 : Maint LL 6)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Y | -0.25 | %95 |

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|----|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.011 | -0.011 | 0 | %100 |
| 2 | 2 | Z | -0.011 | -0.011 | 0 | %100 |
| 3 | 3 | Z | -0.003 | -0.003 | 0 | %100 |
| 4 | 4 | Z | -0.003 | -0.003 | 0 | %100 |
| 5 | 5 | Z | -0.003 | -0.003 | 0 | %100 |
| 6 | 6 | Z | -0.003 | -0.003 | 0 | %100 |
| 7 | 9 | Z | -0.003 | -0.003 | 0 | %100 |
| 8 | 10 | Z | -0.003 | -0.003 | 0 | %100 |
| 9 | 11 | Z | -0.007 | -0.007 | 0 | %100 |
| 10 | 12 | Z | -0.005 | -0.005 | 0 | %100 |
| 11 | 13 | Z | -0.005 | -0.005 | 0 | %100 |
| 12 | 14 | Z | -0.005 | -0.005 | 0 | %100 |
| 13 | 15 | Z | -0.005 | -0.005 | 0 | %100 |
| 14 | 16 | Z | -0.003 | -0.003 | 0 | %100 |
| 15 | 17 | Z | -0.003 | -0.003 | 0 | %100 |
| 16 | 18 | Z | -0.007 | -0.007 | 0 | %100 |
| 17 | 19 | Z | -0.003 | -0.003 | 0 | %100 |
| 18 | 20 | Z | -0.003 | -0.003 | 0 | %100 |
| 19 | 21 | Z | -0.007 | -0.007 | 0 | %100 |
| 20 | 22 | Z | -0.003 | -0.003 | 0 | %100 |
| 21 | 23 | Z | -0.003 | -0.003 | 0 | %100 |
| 22 | 24 | Z | -0.007 | -0.007 | 0 | %100 |
| 23 | 29 | Z | -0.003 | -0.003 | 0 | %100 |
| 24 | 30 | Z | -0.003 | -0.003 | 0 | %100 |
| 25 | 31 | Z | -0.003 | -0.003 | 0 | %100 |
| 26 | 32 | Z | -0.003 | -0.003 | 0 | %100 |
| 27 | 33 | Z | -0.003 | -0.003 | 0 | %100 |
| 28 | 34 | Z | -0.003 | -0.003 | 0 | %100 |
| 29 | 35 | Z | -0.003 | -0.003 | 0 | %100 |
| 30 | 36 | Z | -0.003 | -0.003 | 0 | %100 |
| 31 | 43 | Z | -0.011 | -0.011 | 0 | %100 |
| 32 | 44 | Z | -0.011 | -0.011 | 0 | %100 |
| 33 | 45 | Z | -0.011 | -0.011 | 0 | %100 |
| 34 | 46 | Z | -0.009 | -0.009 | 0 | %100 |
| 35 | 49 | Z | -0.011 | -0.011 | 0 | %100 |
| 36 | 52 | Z | -0.011 | -0.011 | 0 | %100 |
| 37 | 53 | Z | -0.009 | -0.009 | 0 | %100 |
| 38 | 54 | Z | -0.011 | -0.011 | 0 | %100 |
| 39 | 57 | Z | -0.011 | -0.011 | 0 | %100 |

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.011 | -0.011 | 0 | %100 |
| 2 | 2 | X | -0.011 | -0.011 | 0 | %100 |
| 3 | 3 | X | -0.003 | -0.003 | 0 | %100 |
| 4 | 4 | X | -0.003 | -0.003 | 0 | %100 |
| 5 | 5 | X | -0.003 | -0.003 | 0 | %100 |
| 6 | 6 | X | -0.003 | -0.003 | 0 | %100 |

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 7 | 9 | X | -0.003 | -0.003 | 0 | %100 |
| 8 | 10 | X | -0.003 | -0.003 | 0 | %100 |
| 9 | 11 | X | -0.007 | -0.007 | 0 | %100 |
| 10 | 12 | X | -0.005 | -0.005 | 0 | %100 |
| 11 | 13 | X | -0.005 | -0.005 | 0 | %100 |
| 12 | 14 | X | -0.005 | -0.005 | 0 | %100 |
| 13 | 15 | X | -0.005 | -0.005 | 0 | %100 |
| 14 | 16 | X | -0.003 | -0.003 | 0 | %100 |
| 15 | 17 | X | -0.003 | -0.003 | 0 | %100 |
| 16 | 18 | X | -0.007 | -0.007 | 0 | %100 |
| 17 | 19 | X | -0.003 | -0.003 | 0 | %100 |
| 18 | 20 | X | -0.003 | -0.003 | 0 | %100 |
| 19 | 21 | X | -0.007 | -0.007 | 0 | %100 |
| 20 | 22 | X | -0.003 | -0.003 | 0 | %100 |
| 21 | 23 | X | -0.003 | -0.003 | 0 | %100 |
| 22 | 24 | X | -0.007 | -0.007 | 0 | %100 |
| 23 | 29 | X | -0.003 | -0.003 | 0 | %100 |
| 24 | 30 | X | -0.003 | -0.003 | 0 | %100 |
| 25 | 31 | X | -0.003 | -0.003 | 0 | %100 |
| 26 | 32 | X | -0.003 | -0.003 | 0 | %100 |
| 27 | 33 | X | -0.003 | -0.003 | 0 | %100 |
| 28 | 34 | X | -0.003 | -0.003 | 0 | %100 |
| 29 | 35 | X | -0.003 | -0.003 | 0 | %100 |
| 30 | 36 | X | -0.003 | -0.003 | 0 | %100 |
| 31 | 43 | X | -0.011 | -0.011 | 0 | %100 |
| 32 | 44 | X | -0.011 | -0.011 | 0 | %100 |
| 33 | 45 | X | -0.011 | -0.011 | 0 | %100 |
| 34 | 46 | X | -0.009 | -0.009 | 0 | %100 |
| 35 | 49 | X | -0.011 | -0.011 | 0 | %100 |
| 36 | 52 | X | -0.011 | -0.011 | 0 | %100 |
| 37 | 53 | X | -0.009 | -0.009 | 0 | %100 |
| 38 | 54 | X | -0.011 | -0.011 | 0 | %100 |
| 39 | 57 | X | -0.011 | -0.011 | 0 | %100 |

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.002 | -0.002 | 0 | %100 |
| 2 | 2 | Z | -0.002 | -0.002 | 0 | %100 |
| 3 | 3 | Z | -0.003 | -0.003 | 0 | %100 |
| 4 | 4 | Z | -0.003 | -0.003 | 0 | %100 |
| 5 | 5 | Z | -0.003 | -0.003 | 0 | %100 |
| 6 | 6 | Z | -0.003 | -0.003 | 0 | %100 |
| 7 | 9 | Z | -0.007 | -0.007 | 0 | %100 |
| 8 | 10 | Z | -0.007 | -0.007 | 0 | %100 |
| 9 | 11 | Z | -0.002 | -0.002 | 0 | %100 |
| 10 | 12 | Z | -0.004 | -0.004 | 0 | %100 |
| 11 | 13 | Z | -0.004 | -0.004 | 0 | %100 |
| 12 | 14 | Z | -0.004 | -0.004 | 0 | %100 |
| 13 | 15 | Z | -0.004 | -0.004 | 0 | %100 |
| 14 | 16 | Z | -0.007 | -0.007 | 0 | %100 |
| 15 | 17 | Z | -0.007 | -0.007 | 0 | %100 |
| 16 | 18 | Z | -0.002 | -0.002 | 0 | %100 |
| 17 | 19 | Z | -0.007 | -0.007 | 0 | %100 |
| 18 | 20 | Z | -0.007 | -0.007 | 0 | %100 |
| 19 | 21 | Z | -0.002 | -0.002 | 0 | %100 |

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 20 | 22 | Z | -0.007 | -0.007 | 0 | %100 |
| 21 | 23 | Z | -0.007 | -0.007 | 0 | %100 |
| 22 | 24 | Z | -0.002 | -0.002 | 0 | %100 |
| 23 | 29 | Z | -0.002 | -0.002 | 0 | %100 |
| 24 | 30 | Z | -0.002 | -0.002 | 0 | %100 |
| 25 | 31 | Z | -0.002 | -0.002 | 0 | %100 |
| 26 | 32 | Z | -0.002 | -0.002 | 0 | %100 |
| 27 | 33 | Z | -0.002 | -0.002 | 0 | %100 |
| 28 | 34 | Z | -0.002 | -0.002 | 0 | %100 |
| 29 | 35 | Z | -0.002 | -0.002 | 0 | %100 |
| 30 | 36 | Z | -0.002 | -0.002 | 0 | %100 |
| 31 | 43 | Z | -0.002 | -0.002 | 0 | %100 |
| 32 | 44 | Z | -0.002 | -0.002 | 0 | %100 |
| 33 | 45 | Z | -0.002 | -0.002 | 0 | %100 |
| 34 | 46 | Z | -0.002 | -0.002 | 0 | %100 |
| 35 | 49 | Z | -0.002 | -0.002 | 0 | %100 |
| 36 | 52 | Z | -0.002 | -0.002 | 0 | %100 |
| 37 | 53 | Z | -0.002 | -0.002 | 0 | %100 |
| 38 | 54 | Z | -0.002 | -0.002 | 0 | %100 |
| 39 | 57 | Z | -0.002 | -0.002 | 0 | %100 |

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.002 | -0.002 | 0 | %100 |
| 2 | 2 | X | -0.002 | -0.002 | 0 | %100 |
| 3 | 3 | X | -0.003 | -0.003 | 0 | %100 |
| 4 | 4 | X | -0.003 | -0.003 | 0 | %100 |
| 5 | 5 | X | -0.003 | -0.003 | 0 | %100 |
| 6 | 6 | X | -0.003 | -0.003 | 0 | %100 |
| 7 | 9 | X | -0.007 | -0.007 | 0 | %100 |
| 8 | 10 | X | -0.007 | -0.007 | 0 | %100 |
| 9 | 11 | X | -0.002 | -0.002 | 0 | %100 |
| 10 | 12 | X | -0.004 | -0.004 | 0 | %100 |
| 11 | 13 | X | -0.004 | -0.004 | 0 | %100 |
| 12 | 14 | X | -0.004 | -0.004 | 0 | %100 |
| 13 | 15 | X | -0.004 | -0.004 | 0 | %100 |
| 14 | 16 | X | -0.007 | -0.007 | 0 | %100 |
| 15 | 17 | X | -0.007 | -0.007 | 0 | %100 |
| 16 | 18 | X | -0.002 | -0.002 | 0 | %100 |
| 17 | 19 | X | -0.007 | -0.007 | 0 | %100 |
| 18 | 20 | X | -0.007 | -0.007 | 0 | %100 |
| 19 | 21 | X | -0.002 | -0.002 | 0 | %100 |
| 20 | 22 | X | -0.007 | -0.007 | 0 | %100 |
| 21 | 23 | X | -0.007 | -0.007 | 0 | %100 |
| 22 | 24 | X | -0.002 | -0.002 | 0 | %100 |
| 23 | 29 | X | -0.002 | -0.002 | 0 | %100 |
| 24 | 30 | X | -0.002 | -0.002 | 0 | %100 |
| 25 | 31 | X | -0.002 | -0.002 | 0 | %100 |
| 26 | 32 | X | -0.002 | -0.002 | 0 | %100 |
| 27 | 33 | X | -0.002 | -0.002 | 0 | %100 |
| 28 | 34 | X | -0.002 | -0.002 | 0 | %100 |
| 29 | 35 | X | -0.002 | -0.002 | 0 | %100 |
| 30 | 36 | X | -0.002 | -0.002 | 0 | %100 |
| 31 | 43 | X | -0.002 | -0.002 | 0 | %100 |
| 32 | 44 | X | -0.002 | -0.002 | 0 | %100 |



Company : B+T Group
 Designer : APK
 Job Number : 100083.010.01
 Model Name : 806363 - HRT 105 943201

7/25/2022
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Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 33 | 45 | X | -0.002 | -0.002 | 0 | %100 |
| 34 | 46 | X | -0.002 | -0.002 | 0 | %100 |
| 35 | 49 | X | -0.002 | -0.002 | 0 | %100 |
| 36 | 52 | X | -0.002 | -0.002 | 0 | %100 |
| 37 | 53 | X | -0.002 | -0.002 | 0 | %100 |
| 38 | 54 | X | -0.002 | -0.002 | 0 | %100 |
| 39 | 57 | X | -0.002 | -0.002 | 0 | %100 |

Member Distributed Loads (BLC 6 : 0 Wind - Service)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 2 | 2 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 3 | 3 | Z | -0.0002 | -0.0002 | 0 | %100 |
| 4 | 4 | Z | -0.0002 | -0.0002 | 0 | %100 |
| 5 | 5 | Z | -0.0002 | -0.0002 | 0 | %100 |
| 6 | 6 | Z | -0.0002 | -0.0002 | 0 | %100 |
| 7 | 9 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 8 | 10 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 9 | 11 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 10 | 12 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 11 | 13 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 12 | 14 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 13 | 15 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 14 | 16 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 15 | 17 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 16 | 18 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 17 | 19 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 18 | 20 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 19 | 21 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 20 | 22 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 21 | 23 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 22 | 24 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 23 | 29 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 24 | 30 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 25 | 31 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 26 | 32 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 27 | 33 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 28 | 34 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 29 | 35 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 30 | 36 | Z | -0.0001 | -0.0001 | 0 | %100 |
| 31 | 43 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 32 | 44 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 33 | 45 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 34 | 46 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 35 | 49 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 36 | 52 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 37 | 53 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 38 | 54 | Z | -0.0003 | -0.0003 | 0 | %100 |
| 39 | 57 | Z | -0.0003 | -0.0003 | 0 | %100 |



Company : B+T Group
 Designer : APK
 Job Number : 100083.010.01
 Model Name : 806363 - HRT 105 943201

7/25/2022
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Member Distributed Loads (BLC 7 : 90 Wind - Service)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.0003 | -0.0003 | 0 | %100 |
| 2 | 2 | X | -0.0003 | -0.0003 | 0 | %100 |
| 3 | 3 | X | -0.0002 | -0.0002 | 0 | %100 |
| 4 | 4 | X | -0.0002 | -0.0002 | 0 | %100 |
| 5 | 5 | X | -0.0002 | -0.0002 | 0 | %100 |
| 6 | 6 | X | -0.0002 | -0.0002 | 0 | %100 |
| 7 | 9 | X | -0.0001 | -0.0001 | 0 | %100 |
| 8 | 10 | X | -0.0001 | -0.0001 | 0 | %100 |
| 9 | 11 | X | -0.0003 | -0.0003 | 0 | %100 |
| 10 | 12 | X | -0.0003 | -0.0003 | 0 | %100 |
| 11 | 13 | X | -0.0003 | -0.0003 | 0 | %100 |
| 12 | 14 | X | -0.0003 | -0.0003 | 0 | %100 |
| 13 | 15 | X | -0.0003 | -0.0003 | 0 | %100 |
| 14 | 16 | X | -0.0001 | -0.0001 | 0 | %100 |
| 15 | 17 | X | -0.0001 | -0.0001 | 0 | %100 |
| 16 | 18 | X | -0.0003 | -0.0003 | 0 | %100 |
| 17 | 19 | X | -0.0001 | -0.0001 | 0 | %100 |
| 18 | 20 | X | -0.0001 | -0.0001 | 0 | %100 |
| 19 | 21 | X | -0.0003 | -0.0003 | 0 | %100 |
| 20 | 22 | X | -0.0001 | -0.0001 | 0 | %100 |
| 21 | 23 | X | -0.0001 | -0.0001 | 0 | %100 |
| 22 | 24 | X | -0.0003 | -0.0003 | 0 | %100 |
| 23 | 29 | X | -0.0001 | -0.0001 | 0 | %100 |
| 24 | 30 | X | -0.0001 | -0.0001 | 0 | %100 |
| 25 | 31 | X | -0.0001 | -0.0001 | 0 | %100 |
| 26 | 32 | X | -0.0001 | -0.0001 | 0 | %100 |
| 27 | 33 | X | -0.0001 | -0.0001 | 0 | %100 |
| 28 | 34 | X | -0.0001 | -0.0001 | 0 | %100 |
| 29 | 35 | X | -0.0001 | -0.0001 | 0 | %100 |
| 30 | 36 | X | -0.0001 | -0.0001 | 0 | %100 |
| 31 | 43 | X | -0.0003 | -0.0003 | 0 | %100 |
| 32 | 44 | X | -0.0003 | -0.0003 | 0 | %100 |
| 33 | 45 | X | -0.0003 | -0.0003 | 0 | %100 |
| 34 | 46 | X | -0.0003 | -0.0003 | 0 | %100 |
| 35 | 49 | X | -0.0003 | -0.0003 | 0 | %100 |
| 36 | 52 | X | -0.0003 | -0.0003 | 0 | %100 |
| 37 | 53 | X | -0.0003 | -0.0003 | 0 | %100 |
| 38 | 54 | X | -0.0003 | -0.0003 | 0 | %100 |
| 39 | 57 | X | -0.0003 | -0.0003 | 0 | %100 |

Member Distributed Loads (BLC 8 : Ice)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Y | -0.006 | -0.006 | 0 | %100 |
| 2 | 2 | Y | -0.006 | -0.006 | 0 | %100 |
| 3 | 3 | Y | -0.012 | -0.012 | 0 | %100 |
| 4 | 4 | Y | -0.012 | -0.012 | 0 | %100 |
| 5 | 5 | Y | -0.012 | -0.012 | 0 | %100 |
| 6 | 6 | Y | -0.012 | -0.012 | 0 | %100 |
| 7 | 9 | Y | -0.012 | -0.012 | 0 | %100 |
| 8 | 10 | Y | -0.012 | -0.012 | 0 | %100 |
| 9 | 11 | Y | -0.005 | -0.005 | 0 | %100 |
| 10 | 12 | Y | -0.007 | -0.007 | 0 | %100 |
| 11 | 13 | Y | -0.007 | -0.007 | 0 | %100 |
| 12 | 14 | Y | -0.007 | -0.007 | 0 | %100 |

Member Distributed Loads (BLC 8 : Ice) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 13 | 15 | Y | -0.007 | -0.007 | 0 | %100 |
| 14 | 16 | Y | -0.012 | -0.012 | 0 | %100 |
| 15 | 17 | Y | -0.012 | -0.012 | 0 | %100 |
| 16 | 18 | Y | -0.005 | -0.005 | 0 | %100 |
| 17 | 19 | Y | -0.012 | -0.012 | 0 | %100 |
| 18 | 20 | Y | -0.012 | -0.012 | 0 | %100 |
| 19 | 21 | Y | -0.005 | -0.005 | 0 | %100 |
| 20 | 22 | Y | -0.012 | -0.012 | 0 | %100 |
| 21 | 23 | Y | -0.012 | -0.012 | 0 | %100 |
| 22 | 24 | Y | -0.005 | -0.005 | 0 | %100 |
| 23 | 29 | Y | -0.003 | -0.003 | 0 | %100 |
| 24 | 30 | Y | -0.003 | -0.003 | 0 | %100 |
| 25 | 31 | Y | -0.003 | -0.003 | 0 | %100 |
| 26 | 32 | Y | -0.003 | -0.003 | 0 | %100 |
| 27 | 33 | Y | -0.003 | -0.003 | 0 | %100 |
| 28 | 34 | Y | -0.003 | -0.003 | 0 | %100 |
| 29 | 35 | Y | -0.003 | -0.003 | 0 | %100 |
| 30 | 36 | Y | -0.003 | -0.003 | 0 | %100 |
| 31 | 43 | Y | -0.006 | -0.006 | 0 | %100 |
| 32 | 44 | Y | -0.006 | -0.006 | 0 | %100 |
| 33 | 45 | Y | -0.006 | -0.006 | 0 | %100 |
| 34 | 46 | Y | -0.005 | -0.005 | 0 | %100 |
| 35 | 49 | Y | -0.006 | -0.006 | 0 | %100 |
| 36 | 52 | Y | -0.006 | -0.006 | 0 | %100 |
| 37 | 53 | Y | -0.005 | -0.005 | 0 | %100 |
| 38 | 54 | Y | -0.006 | -0.006 | 0 | %100 |
| 39 | 57 | Y | -0.006 | -0.006 | 0 | %100 |

Member Distributed Loads (BLC 9 : 0 Seismic)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.002 | -0.002 | 0 | %100 |
| 2 | 2 | Z | -0.002 | -0.002 | 0 | %100 |
| 3 | 3 | Z | -0.002 | -0.002 | 0 | %100 |
| 4 | 4 | Z | -0.002 | -0.002 | 0 | %100 |
| 5 | 5 | Z | -0.002 | -0.002 | 0 | %100 |
| 6 | 6 | Z | -0.002 | -0.002 | 0 | %100 |
| 7 | 9 | Z | -0.002 | -0.002 | 0 | %100 |
| 8 | 10 | Z | -0.002 | -0.002 | 0 | %100 |
| 9 | 11 | Z | -0.001 | -0.001 | 0 | %100 |
| 10 | 12 | Z | -0.004 | -0.004 | 0 | %100 |
| 11 | 13 | Z | -0.004 | -0.004 | 0 | %100 |
| 12 | 14 | Z | -0.004 | -0.004 | 0 | %100 |
| 13 | 15 | Z | -0.004 | -0.004 | 0 | %100 |
| 14 | 16 | Z | -0.002 | -0.002 | 0 | %100 |
| 15 | 17 | Z | -0.002 | -0.002 | 0 | %100 |
| 16 | 18 | Z | -0.001 | -0.001 | 0 | %100 |
| 17 | 19 | Z | -0.002 | -0.002 | 0 | %100 |
| 18 | 20 | Z | -0.002 | -0.002 | 0 | %100 |
| 19 | 21 | Z | -0.001 | -0.001 | 0 | %100 |
| 20 | 22 | Z | -0.002 | -0.002 | 0 | %100 |
| 21 | 23 | Z | -0.002 | -0.002 | 0 | %100 |
| 22 | 24 | Z | -0.001 | -0.001 | 0 | %100 |
| 23 | 29 | Z | -0.0005 | -0.0005 | 0 | %100 |
| 24 | 30 | Z | -0.0005 | -0.0005 | 0 | %100 |
| 25 | 31 | Z | -0.0005 | -0.0005 | 0 | %100 |

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 26 | 32 | Z | -0.0005 | -0.0005 | 0 | %100 |
| 27 | 33 | Z | -0.0007 | -0.0007 | 0 | %100 |
| 28 | 34 | Z | -0.0007 | -0.0007 | 0 | %100 |
| 29 | 35 | Z | -0.0007 | -0.0007 | 0 | %100 |
| 30 | 36 | Z | -0.0007 | -0.0007 | 0 | %100 |
| 31 | 43 | Z | -0.002 | -0.002 | 0 | %100 |
| 32 | 44 | Z | -0.002 | -0.002 | 0 | %100 |
| 33 | 45 | Z | -0.002 | -0.002 | 0 | %100 |
| 34 | 46 | Z | -0.001 | -0.001 | 0 | %100 |
| 35 | 49 | Z | -0.002 | -0.002 | 0 | %100 |
| 36 | 52 | Z | -0.002 | -0.002 | 0 | %100 |
| 37 | 53 | Z | -0.001 | -0.001 | 0 | %100 |
| 38 | 54 | Z | -0.002 | -0.002 | 0 | %100 |
| 39 | 57 | Z | -0.002 | -0.002 | 0 | %100 |

Member Distributed Loads (BLC 10 : 90 Seismic)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.002 | -0.002 | 0 | %100 |
| 2 | 2 | X | -0.002 | -0.002 | 0 | %100 |
| 3 | 3 | X | -0.002 | -0.002 | 0 | %100 |
| 4 | 4 | X | -0.002 | -0.002 | 0 | %100 |
| 5 | 5 | X | -0.002 | -0.002 | 0 | %100 |
| 6 | 6 | X | -0.002 | -0.002 | 0 | %100 |
| 7 | 9 | X | -0.002 | -0.002 | 0 | %100 |
| 8 | 10 | X | -0.002 | -0.002 | 0 | %100 |
| 9 | 11 | X | -0.001 | -0.001 | 0 | %100 |
| 10 | 12 | X | -0.004 | -0.004 | 0 | %100 |
| 11 | 13 | X | -0.004 | -0.004 | 0 | %100 |
| 12 | 14 | X | -0.004 | -0.004 | 0 | %100 |
| 13 | 15 | X | -0.004 | -0.004 | 0 | %100 |
| 14 | 16 | X | -0.002 | -0.002 | 0 | %100 |
| 15 | 17 | X | -0.002 | -0.002 | 0 | %100 |
| 16 | 18 | X | -0.001 | -0.001 | 0 | %100 |
| 17 | 19 | X | -0.002 | -0.002 | 0 | %100 |
| 18 | 20 | X | -0.002 | -0.002 | 0 | %100 |
| 19 | 21 | X | -0.001 | -0.001 | 0 | %100 |
| 20 | 22 | X | -0.002 | -0.002 | 0 | %100 |
| 21 | 23 | X | -0.002 | -0.002 | 0 | %100 |
| 22 | 24 | X | -0.001 | -0.001 | 0 | %100 |
| 23 | 29 | X | -0.0005 | -0.0005 | 0 | %100 |
| 24 | 30 | X | -0.0005 | -0.0005 | 0 | %100 |
| 25 | 31 | X | -0.0005 | -0.0005 | 0 | %100 |
| 26 | 32 | X | -0.0005 | -0.0005 | 0 | %100 |
| 27 | 33 | X | -0.0007 | -0.0007 | 0 | %100 |
| 28 | 34 | X | -0.0007 | -0.0007 | 0 | %100 |
| 29 | 35 | X | -0.0007 | -0.0007 | 0 | %100 |
| 30 | 36 | X | -0.0007 | -0.0007 | 0 | %100 |
| 31 | 43 | X | -0.002 | -0.002 | 0 | %100 |
| 32 | 44 | X | -0.002 | -0.002 | 0 | %100 |
| 33 | 45 | X | -0.002 | -0.002 | 0 | %100 |
| 34 | 46 | X | -0.001 | -0.001 | 0 | %100 |
| 35 | 49 | X | -0.002 | -0.002 | 0 | %100 |
| 36 | 52 | X | -0.002 | -0.002 | 0 | %100 |
| 37 | 53 | X | -0.001 | -0.001 | 0 | %100 |
| 38 | 54 | X | -0.002 | -0.002 | 0 | %100 |



Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 39 | 57 X | -0.002 | -0.002 | 0 | %100 |

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

| Node Label | L, D, M | Direction | Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)] | |
|------------|---------|-----------|--|------|
| 1 | 48 | L | Y | -0.5 |

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

| Node Label | L, D, M | Direction | Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)] | |
|------------|---------|-----------|--|------|
| 1 | 73 | L | Y | -0.5 |

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

| Node Label | L, D, M | Direction | Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)] | |
|------------|---------|-----------|--|------|
| 1 | 50 | L | Y | -0.5 |

Node Loads and Enforced Displacements (BLC 14 : Live Load d)

| Node Label | L, D, M | Direction | Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)] | |
|------------|---------|-----------|--|------|
| 1 | 67 | L | Y | -0.5 |

Node Loads and Enforced Displacements (BLC 21 : Maint LL 7)

| Node Label | L, D, M | Direction | Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)] | |
|------------|---------|-----------|--|------|
| 1 | 52 | L | Y | -0.5 |

Basic Load Cases

| | BLC Description | Category | Y Gravity | Nodal | Point | Distributed |
|----|-------------------|----------|-----------|-------|-------|-------------|
| 1 | Dead | DL | -1 | | 25 | |
| 2 | 0 Wind - No Ice | WLZ | | | 25 | 39 |
| 3 | 90 Wind - No Ice | WLX | | | 25 | 39 |
| 4 | 0 Wind - Ice | WLZ | | | 25 | 39 |
| 5 | 90 Wind - Ice | WLX | | | 25 | 39 |
| 6 | 0 Wind - Service | WLZ | | | 25 | 39 |
| 7 | 90 Wind - Service | WLX | | | 25 | 39 |
| 8 | Ice | OL1 | | | 25 | 39 |
| 9 | 0 Seismic | ELZ | | | 25 | 39 |
| 10 | 90 Seismic | ELX | | | 25 | 39 |
| 11 | Live Load a | LL | | 1 | | |
| 12 | Live Load b | LL | | 1 | | |
| 13 | Live Load c | LL | | 1 | | |
| 14 | Live Load d | LL | | 1 | | |
| 15 | Maint LL 1 | LL | | | 1 | |
| 16 | Maint LL 2 | LL | | | 1 | |
| 17 | Maint LL 3 | LL | | | 1 | |
| 18 | Maint LL 4 | LL | | | 1 | |
| 19 | Maint LL 5 | LL | | | 1 | |
| 20 | Maint LL 6 | LL | | | 1 | |
| 21 | Maint LL 7 | LL | | 1 | | |
| 22 | Maint LL 8 | LL | | | | |
| 23 | Maint LL 9 | LL | | | | |



Basic Load Cases (Continued)

| | BLC Description | Category | Y Gravity | Nodal | Point | Distributed |
|----|-----------------|----------|-----------|-------|-------|-------------|
| 24 | Maint LL 10 | LL | | | | |
| 25 | Maint LL 11 | LL | | | | |
| 26 | Maint LL 12 | LL | | | | |
| 27 | Maint LL 13 | LL | | | | |
| 28 | Maint LL 14 | LL | | | | |
| 29 | Maint LL 15 | LL | | | | |

Load Combinations

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1 | 1.4 Dead | Yes | Y | 1 | 1.4 | | | | | | |
| 2 | 1.2 D + 1.0 - 0 W | Yes | Y | 1 | 1.2 | 2 | 1 | | | | |
| 3 | 1.2 D + 1.0 - 30 W | Yes | Y | 1 | 1.2 | 2 | 0.866 | 3 | 0.5 | | |
| 4 | 1.2 D + 1.0 - 60 W | Yes | Y | 1 | 1.2 | 3 | 0.866 | 2 | 0.5 | | |
| 5 | 1.2 D + 1.0 - 90 W | Yes | Y | 1 | 1.2 | 3 | 1 | | | | |
| 6 | 1.2 D + 1.0 - 120 W | Yes | Y | 1 | 1.2 | 3 | 0.866 | 2 | -0.5 | | |
| 7 | 1.2 D + 1.0 - 150 W | Yes | Y | 1 | 1.2 | 2 | -0.866 | 3 | 0.5 | | |
| 8 | 1.2 D + 1.0 - 180 W | Yes | Y | 1 | 1.2 | 2 | -1 | | | | |
| 9 | 1.2 D + 1.0 - 210 W | Yes | Y | 1 | 1.2 | 2 | -0.866 | 3 | -0.5 | | |
| 10 | 1.2 D + 1.0 - 240 W | Yes | Y | 1 | 1.2 | 3 | -0.866 | 2 | -0.5 | | |
| 11 | 1.2 D + 1.0 - 270 W | Yes | Y | 1 | 1.2 | 3 | -1 | | | | |
| 12 | 1.2 D + 1.0 - 300 W | Yes | Y | 1 | 1.2 | 3 | -0.866 | 2 | 0.5 | | |
| 13 | 1.2 D + 1.0 - 330 W | Yes | Y | 1 | 1.2 | 2 | 0.866 | 3 | -0.5 | | |
| 14 | 1.2 D + 1.0 - 0 W/Ice | Yes | Y | 1 | 1.2 | 4 | 1 | | | 8 | 1 |
| 15 | 1.2 D + 1.0 - 30 W/Ice | Yes | Y | 1 | 1.2 | 4 | 0.866 | 5 | 0.5 | 8 | 1 |
| 16 | 1.2 D + 1.0 - 60 W/Ice | Yes | Y | 1 | 1.2 | 5 | 0.866 | 4 | 0.5 | 8 | 1 |
| 17 | 1.2 D + 1.0 - 90 W/Ice | Yes | Y | 1 | 1.2 | 5 | 1 | | | 8 | 1 |
| 18 | 1.2 D + 1.0 - 120 W/Ice | Yes | Y | 1 | 1.2 | 5 | 0.866 | 4 | -0.5 | 8 | 1 |
| 19 | 1.2 D + 1.0 - 150 W/Ice | Yes | Y | 1 | 1.2 | 4 | -0.866 | 5 | 0.5 | 8 | 1 |
| 20 | 1.2 D + 1.0 - 180 W/Ice | Yes | Y | 1 | 1.2 | 4 | -1 | | | 8 | 1 |
| 21 | 1.2 D + 1.0 - 210 W/Ice | Yes | Y | 1 | 1.2 | 4 | -0.866 | 5 | -0.5 | 8 | 1 |
| 22 | 1.2 D + 1.0 - 240 W/Ice | Yes | Y | 1 | 1.2 | 5 | -0.866 | 4 | -0.5 | 8 | 1 |
| 23 | 1.2 D + 1.0 - 270 W/Ice | Yes | Y | 1 | 1.2 | 5 | -1 | | | 8 | 1 |
| 24 | 1.2 D + 1.0 - 300 W/Ice | Yes | Y | 1 | 1.2 | 5 | -0.866 | 4 | 0.5 | 8 | 1 |
| 25 | 1.2 D + 1.0 - 330 W/Ice | Yes | Y | 1 | 1.2 | 4 | 0.866 | 5 | -0.5 | 8 | 1 |
| 26 | 1.2 D + 1.0 E - 0 | Yes | Y | 1 | 1.2 | 9 | 1 | | | | |
| 27 | 1.2 D + 1.0 E - 30 | Yes | Y | 1 | 1.2 | 9 | 0.866 | 10 | 0.5 | | |
| 28 | 1.2 D + 1.0 E - 60 | Yes | Y | 1 | 1.2 | 10 | 0.866 | 9 | 0.5 | | |
| 29 | 1.2 D + 1.0 E - 90 | Yes | Y | 1 | 1.2 | 10 | 1 | | | | |
| 30 | 1.2 D + 1.0 E - 120 | Yes | Y | 1 | 1.2 | 10 | 0.866 | 9 | -0.5 | | |
| 31 | 1.2 D + 1.0 E - 150 | Yes | Y | 1 | 1.2 | 9 | -0.866 | 10 | 0.5 | | |
| 32 | 1.2 D + 1.0 E - 180 | Yes | Y | 1 | 1.2 | 9 | -1 | | | | |
| 33 | 1.2 D + 1.0 E - 210 | Yes | Y | 1 | 1.2 | 9 | -0.866 | 10 | -0.5 | | |
| 34 | 1.2 D + 1.0 E - 240 | Yes | Y | 1 | 1.2 | 10 | -0.866 | 9 | -0.5 | | |
| 35 | 1.2 D + 1.0 E - 270 | Yes | Y | 1 | 1.2 | 10 | -1 | | | | |
| 36 | 1.2 D + 1.0 E - 300 | Yes | Y | 1 | 1.2 | 10 | -0.866 | 9 | 0.5 | | |
| 37 | 1.2 D + 1.0 E - 330 | Yes | Y | 1 | 1.2 | 9 | 0.866 | 10 | -0.5 | | |
| 38 | 1.2 D + 1.5 LL a + Service - 0 W | Yes | Y | 1 | 1.2 | 6 | 1 | | | 11 | 1.5 |
| 39 | 1.2 D + 1.5 LL a + Service - 30 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | 0.5 | 11 | 1.5 |
| 40 | 1.2 D + 1.5 LL a + Service - 60 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | 0.5 | 11 | 1.5 |
| 41 | 1.2 D + 1.5 LL a + Service - 90 W | Yes | Y | 1 | 1.2 | 7 | 1 | | | 11 | 1.5 |
| 42 | 1.2 D + 1.5 LL a + Service - 120 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | -0.5 | 11 | 1.5 |
| 43 | 1.2 D + 1.5 LL a + Service - 150 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | 0.5 | 11 | 1.5 |
| 44 | 1.2 D + 1.5 LL a + Service - 180 W | Yes | Y | 1 | 1.2 | 6 | -1 | | | 11 | 1.5 |
| 45 | 1.2 D + 1.5 LL a + Service - 210 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | -0.5 | 11 | 1.5 |
| 46 | 1.2 D + 1.5 LL a + Service - 240 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | -0.5 | 11 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 47 | 1.2 D + 1.5 LL a + Service - 270 W | Yes | Y | 1 | 1.2 | 7 | -1 | | | 11 | 1.5 |
| 48 | 1.2 D + 1.5 LL a + Service - 300 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | 0.5 | 11 | 1.5 |
| 49 | 1.2 D + 1.5 LL a + Service - 330 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | -0.5 | 11 | 1.5 |
| 50 | 1.2 D + 1.5 LL b + Service - 0 W | Yes | Y | 1 | 1.2 | 6 | 1 | | | 12 | 1.5 |
| 51 | 1.2 D + 1.5 LL b + Service - 30 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | 0.5 | 12 | 1.5 |
| 52 | 1.2 D + 1.5 LL b + Service - 60 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | 0.5 | 12 | 1.5 |
| 53 | 1.2 D + 1.5 LL b + Service - 90 W | Yes | Y | 1 | 1.2 | 7 | 1 | | | 12 | 1.5 |
| 54 | 1.2 D + 1.5 LL b + Service - 120 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | -0.5 | 12 | 1.5 |
| 55 | 1.2 D + 1.5 LL b + Service - 150 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | 0.5 | 12 | 1.5 |
| 56 | 1.2 D + 1.5 LL b + Service - 180 W | Yes | Y | 1 | 1.2 | 6 | -1 | | | 12 | 1.5 |
| 57 | 1.2 D + 1.5 LL b + Service - 210 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | -0.5 | 12 | 1.5 |
| 58 | 1.2 D + 1.5 LL b + Service - 240 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | -0.5 | 12 | 1.5 |
| 59 | 1.2 D + 1.5 LL b + Service - 270 W | Yes | Y | 1 | 1.2 | 7 | -1 | | | 12 | 1.5 |
| 60 | 1.2 D + 1.5 LL b + Service - 300 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | 0.5 | 12 | 1.5 |
| 61 | 1.2 D + 1.5 LL b + Service - 330 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | -0.5 | 12 | 1.5 |
| 62 | 1.2 D + 1.5 LL c + Service - 0 W | Yes | Y | 1 | 1.2 | 6 | 1 | | | 13 | 1.5 |
| 63 | 1.2 D + 1.5 LL c + Service - 30 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | 0.5 | 13 | 1.5 |
| 64 | 1.2 D + 1.5 LL c + Service - 60 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | 0.5 | 13 | 1.5 |
| 65 | 1.2 D + 1.5 LL c + Service - 90 W | Yes | Y | 1 | 1.2 | 7 | 1 | | | 13 | 1.5 |
| 66 | 1.2 D + 1.5 LL c + Service - 120 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | -0.5 | 13 | 1.5 |
| 67 | 1.2 D + 1.5 LL c + Service - 150 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | 0.5 | 13 | 1.5 |
| 68 | 1.2 D + 1.5 LL c + Service - 180 W | Yes | Y | 1 | 1.2 | 6 | -1 | | | 13 | 1.5 |
| 69 | 1.2 D + 1.5 LL c + Service - 210 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | -0.5 | 13 | 1.5 |
| 70 | 1.2 D + 1.5 LL c + Service - 240 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | -0.5 | 13 | 1.5 |
| 71 | 1.2 D + 1.5 LL c + Service - 270 W | Yes | Y | 1 | 1.2 | 7 | -1 | | | 13 | 1.5 |
| 72 | 1.2 D + 1.5 LL c + Service - 300 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | 0.5 | 13 | 1.5 |
| 73 | 1.2 D + 1.5 LL c + Service - 330 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | -0.5 | 13 | 1.5 |
| 74 | 1.2 D + 1.5 LL d + Service - 0 W | Yes | Y | 1 | 1.2 | 6 | 1 | | | 14 | 1.5 |
| 75 | 1.2 D + 1.5 LL d + Service - 30 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | 0.5 | 14 | 1.5 |
| 76 | 1.2 D + 1.5 LL d + Service - 60 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | 0.5 | 14 | 1.5 |
| 77 | 1.2 D + 1.5 LL d + Service - 90 W | Yes | Y | 1 | 1.2 | 7 | 1 | | | 14 | 1.5 |
| 78 | 1.2 D + 1.5 LL d + Service - 120 W | Yes | Y | 1 | 1.2 | 7 | 0.866 | 6 | -0.5 | 14 | 1.5 |
| 79 | 1.2 D + 1.5 LL d + Service - 150 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | 0.5 | 14 | 1.5 |
| 80 | 1.2 D + 1.5 LL d + Service - 180 W | Yes | Y | 1 | 1.2 | 6 | -1 | | | 14 | 1.5 |
| 81 | 1.2 D + 1.5 LL d + Service - 210 W | Yes | Y | 1 | 1.2 | 6 | -0.866 | 7 | -0.5 | 14 | 1.5 |
| 82 | 1.2 D + 1.5 LL d + Service - 240 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | -0.5 | 14 | 1.5 |
| 83 | 1.2 D + 1.5 LL d + Service - 270 W | Yes | Y | 1 | 1.2 | 7 | -1 | | | 14 | 1.5 |
| 84 | 1.2 D + 1.5 LL d + Service - 300 W | Yes | Y | 1 | 1.2 | 7 | -0.866 | 6 | 0.5 | 14 | 1.5 |
| 85 | 1.2 D + 1.5 LL d + Service - 330 W | Yes | Y | 1 | 1.2 | 6 | 0.866 | 7 | -0.5 | 14 | 1.5 |
| 86 | 1.2 D + 1.5 LL Maint (1) | Yes | Y | 1 | 1.2 | | | | | 15 | 1.5 |
| 87 | 1.2 D + 1.5 LL Maint (2) | Yes | Y | 1 | 1.2 | | | | | 16 | 1.5 |
| 88 | 1.2 D + 1.5 LL Maint (3) | Yes | Y | 1 | 1.2 | | | | | 17 | 1.5 |
| 89 | 1.2 D + 1.5 LL Maint (4) | Yes | Y | 1 | 1.2 | | | | | 18 | 1.5 |
| 90 | 1.2 D + 1.5 LL Maint (5) | Yes | Y | 1 | 1.2 | | | | | 19 | 1.5 |
| 91 | 1.2 D + 1.5 LL Maint (6) | Yes | Y | 1 | 1.2 | | | | | 20 | 1.5 |
| 92 | 1.2 D + 1.5 LL Maint (7) | Yes | Y | 1 | 1.2 | | | | | 21 | 1.5 |
| 93 | 1.2 D + 1.5 LL Maint (8) | Yes | Y | 1 | 1.2 | | | | | 22 | 1.5 |
| 94 | 1.2 D + 1.5 LL Maint (9) | Yes | Y | 1 | 1.2 | | | | | 23 | 1.5 |
| 95 | 1.2 D + 1.5 LL Maint (10) | Yes | Y | 1 | 1.2 | | | | | 24 | 1.5 |
| 96 | 1.2 D + 1.5 LL Maint (11) | Yes | Y | 1 | 1.2 | | | | | 25 | 1.5 |
| 97 | 1.2 D + 1.5 LL Maint (12) | Yes | Y | 1 | 1.2 | | | | | 26 | 1.5 |
| 98 | 1.2 D + 1.5 LL Maint (13) | Yes | Y | 1 | 1.2 | | | | | 27 | 1.5 |
| 99 | 1.2 D + 1.5 LL Maint (14) | Yes | Y | 1 | 1.2 | | | | | 28 | 1.5 |
| 100 | 1.2 D + 1.5 LL Maint (15) | Yes | Y | 1 | 1.2 | | | | | 29 | 1.5 |

Envelope Node Reactions

| Node Label | X [k] | LC | Y [k] | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|---------------|--------|----|-------|----|--------|----|-----------|-----|-----------|-----|-----------|-----|
| 1 22 max | 1.082 | 92 | 1.341 | 15 | 1.828 | 3 | -0.571 | 9 | 0 | 100 | 0.185 | 92 |
| 2 min | -1.564 | 47 | 0.663 | 9 | -0.437 | 9 | -1.152 | 15 | 0 | 1 | -0.273 | 41 |
| 3 9 max | 1.597 | 41 | 1.886 | 21 | 1.976 | 3 | -0.585 | 3 | 0 | 100 | 0.402 | 92 |
| 4 min | -1.093 | 11 | 0.66 | 3 | -3.364 | 9 | -1.589 | 21 | 0 | 1 | -0.545 | 40 |
| 5 82 max | 0.141 | 5 | 0.048 | 17 | 0.841 | 11 | 0 | 100 | 0 | 100 | 0 | 100 |
| 6 min | -0.124 | 11 | 0.021 | 92 | -1.023 | 5 | 0 | 1 | 0 | 1 | 0 | 1 |
| 7 83 max | 0.095 | 5 | 0.048 | 16 | 0.73 | 10 | 0 | 100 | 0 | 100 | 0 | 100 |
| 8 min | -0.111 | 11 | 0.021 | 10 | -0.547 | 4 | 0 | 1 | 0 | 1 | 0 | 1 |
| 9 Totals: max | 2.256 | 5 | 3.292 | 15 | 3.091 | 2 | | | | | | |
| 10 min | -2.256 | 11 | 1.586 | 9 | -3.091 | 8 | | | | | | |

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

| Member | Shape | Code Check | Loc [ft] | LC | Shear Check | Loc [ft] | Dir | LC | phi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb | Eqn |
|--------|--------------|------------|----------|-----|-------------|----------|------|---------|-------------|-------------|-------------------|-------------------|--------|-----|
| 1 1 | PIPE 2.5 | 0.464 | 9.818 | 8 | 0.108 | 4.682 | 3 | 10.82 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 2 2 | PIPE 2.5 | 0.356 | 13.443 | 56 | 0.084 | 9.667 | 8 | 10.82 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 3 3 | PL5/8X3.5 | 0.349 | 0.239 | 8 | 0.172 | 0.458 | y 8 | 68.084 | 71.442 | 0.938 | 5.209 | 2.54 | H1-1b | |
| 4 4 | PL5/8X3.5 | 0.276 | 0.458 | 8 | 0.131 | 0.458 | y 60 | 68.084 | 71.442 | 0.938 | 5.209 | 2.457 | H1-1b | |
| 5 5 | PL5/8X3.5 | 0.318 | 0.458 | 9 | 0.116 | 0.458 | y 45 | 68.084 | 71.442 | 0.938 | 5.209 | 2.55 | H1-1b | |
| 6 6 | PL5/8X3.5 | 0.409 | 0.239 | 3 | 0.149 | 0.458 | y 9 | 68.084 | 71.442 | 0.938 | 5.209 | 2.622 | H1-1b | |
| 7 9 | PL5/8X3.5 | 0.304 | 0.08 | 8 | 0.15 | 0.08 | y 67 | 71.336 | 71.442 | 0.938 | 5.209 | 1.022 | H1-1b | |
| 8 10 | PL5/8X3.5 | 0.132 | 0.08 | 40 | 0.088 | 0.08 | y 92 | 71.336 | 71.442 | 0.938 | 5.209 | 1.02 | H1-1b | |
| 9 11 | PIPE 2.0 | 0.334 | 0 | 3 | 0.142 | 2.5 | 16 | 29.81 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 10 12 | PL1.25"X3.5" | 0.243 | 0.458 | 43 | 0.053 | 0.458 | y 19 | 140.027 | 141.75 | 3.691 | 10.336 | 1.372 | H1-1b | |
| 11 13 | PL1.25"X3.5" | 0.227 | 0 | 92 | 0.05 | 0.458 | y 92 | 140.027 | 141.75 | 3.691 | 10.336 | 1.493 | H1-1b | |
| 12 14 | PL1.25"X3.5" | 0.167 | 0.458 | 49 | 0.042 | 0.458 | y 24 | 140.027 | 141.75 | 3.691 | 10.336 | 1.404 | H1-1b | |
| 13 15 | PL1.25"X3.5" | 0.165 | 0 | 92 | 0.041 | 0.458 | y 17 | 140.027 | 141.75 | 3.691 | 10.336 | 1.521 | H1-1b | |
| 14 16 | PL5/8X3.5 | 0.306 | 0.08 | 44 | 0.208 | 0.003 | y 68 | 71.336 | 71.442 | 0.938 | 5.209 | 1.032 | H1-1b | |
| 15 17 | PL5/8X3.5 | 0.12 | 0.08 | 46 | 0.09 | 0.08 | y 92 | 71.336 | 71.442 | 0.938 | 5.209 | 1.02 | H1-1b | |
| 16 18 | PIPE 2.0 | 0.276 | 0 | 9 | 0.164 | 0.156 | 68 | 29.81 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 17 19 | PL5/8X3.5 | 0.277 | 0 | 9 | 0.186 | 0.08 | y 10 | 71.336 | 71.442 | 0.938 | 5.209 | 1.022 | H1-1b | |
| 18 20 | PL5/8X3.5 | 0.116 | 0.08 | 92 | 0.106 | 0.003 | y 44 | 71.336 | 71.442 | 0.938 | 5.209 | 1.018 | H1-1b | |
| 19 21 | PIPE 2.0 | 0.27 | 0 | 9 | 0.118 | 2.5 | 92 | 29.81 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 20 22 | PL5/8X3.5 | 0.311 | 0.08 | 9 | 0.222 | 0 | y 9 | 71.336 | 71.442 | 0.938 | 5.209 | 1.017 | H1-1b | |
| 21 23 | PL5/8X3.5 | 0.106 | 0.08 | 92 | 0.128 | 0.08 | y 42 | 71.336 | 71.442 | 0.938 | 5.209 | 1.018 | H1-1b | |
| 22 24 | PIPE 2.0 | 0.257 | 0.156 | 9 | 0.162 | 0.156 | 92 | 29.81 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 23 29 | 5/8"SR | 0.51 | 0 | 38 | 0.004 | 3.333 | 8 | 1.88 | 9.94 | 0.104 | 0.104 | 1 | H1-1a | |
| 24 30 | 5/8"SR | 0.353 | 0 | 40 | 0.011 | 3.333 | 41 | 1.88 | 9.94 | 0.104 | 0.104 | 1 | H1-1a | |
| 25 31 | 5/8"SR | 0.302 | 0 | 92 | 0.004 | 3.333 | 44 | 1.88 | 9.94 | 0.104 | 0.104 | 1 | H1-1a | |
| 26 32 | 5/8"SR | 0.309 | 0 | 92 | 0.012 | 0 | 41 | 1.88 | 9.94 | 0.104 | 0.104 | 1 | H1-1a | |
| 27 33 | 3/4"SR | 0.177 | 3.976 | 43 | 0.015 | 3.976 | 7 | 1.542 | 14.314 | 0.179 | 0.179 | 1 | H1-1b* | |
| 28 34 | 3/4"SR | 0 | 3.976 | 100 | 0.013 | 3.976 | 13 | 1.542 | 14.314 | 0.179 | 0.179 | 1 | H1-1a | |
| 29 35 | 3/4"SR | 0.151 | 0 | 92 | 0.017 | 0 | 10 | 1.542 | 14.314 | 0.179 | 0.179 | 1 | H1-1b* | |
| 30 36 | 3/4"SR | 0 | 3.976 | 100 | 0.009 | 0 | 4 | 1.542 | 14.314 | 0.179 | 0.179 | 1 | H1-1a | |
| 31 43 | PIPE 2.5 | 0.236 | 3.333 | 92 | 0.052 | 6.667 | 92 | 22.373 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 32 44 | PIPE 2.5 | 0.161 | 3.333 | 8 | 0.037 | 3.333 | 41 | 22.373 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 33 45 | PIPE 2.5 | 0.142 | 6.667 | 41 | 0.039 | 6.667 | 38 | 22.373 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 34 46 | PIPE 2.0 | 0.121 | 5.202 | 11 | 0.006 | 10.403 | 11 | 9.089 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 35 49 | PIPE 2.5 | 0.259 | 6.667 | 92 | 0.052 | 6.667 | 92 | 22.373 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 36 52 | PIPE 2.5 | 0.269 | 6.667 | 44 | 0.059 | 3.333 | 8 | 22.373 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 37 53 | PIPE 2.0 | 0.113 | 5.202 | 11 | 0.006 | 10.403 | 11 | 9.089 | 32.13 | 1.872 | 1.872 | 1 | H1-1b | |
| 38 54 | PIPE 2.5 | 0.034 | 1.375 | 43 | 0.015 | 1.375 | 8 | 37.774 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |
| 39 57 | PIPE 2.5 | 0.035 | 1.375 | 92 | 0.012 | 1.375 | 2 | 37.774 | 50.715 | 3.596 | 3.596 | 1 | H1-1b | |

APPENDIX D
ADDITIONAL CALCULATIONS

| | | | |
|---------|---|------|--------|
| PROJECT | 100083.010.01 - HRT 105 943201, CT KSC | | |
| SUBJECT | Sector Mount Analysis | | |
| DATE | 07/25/22 | PAGE | 1 OF 1 |



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

B+T GRP

[REF: AISC 360-05]

Reactions at Bolted Connection

| | | | |
|-------------------------------|---|-------|------|
| Tension | : | 3.364 | k |
| Vertical Shear | : | 1.886 | k |
| Horizontal Shear | : | 1.597 | k |
| Torsion | : | 0.545 | k.ft |
| Moment from Horizontal Forces | : | 0 | k.ft |
| Moment from Vertical Forces | : | 1.589 | k.ft |

Bolt Parameters

| | | | |
|----------------------------------|---|-------|-----------------|
| Bolt Grade | : | A325 | |
| Bolt Diameter | : | 0.625 | in |
| Nominal Bolt Area | : | 0.307 | in ² |
| Bolt spacing, Horizontal | : | 7 | in |
| Bolt spacing, Vertical | : | 7 | in |
| Bolt edge distance, plate height | : | 1.5 | in |
| Bolt edge distance, plate width | : | 1.5 | in |
| Total Number of Bolts | : | 4 | bolts |

Summary of Forces

| | | | |
|-------------------------------|---|------|---|
| Shear Resultant Force | : | 2.47 | k |
| Force from Horz. Moment | : | 0.00 | k |
| Force from Vert. Moment | : | 2.50 | k |
| Shear Load / Bolt | : | 0.62 | k |
| Tension Load / Bolt | : | 0.84 | k |
| Resultant from Moments / Bolt | : | 1.25 | k |

Bolt Checks

| | | | | |
|---|---|---------------|--------|-------------------|
| Nominal Tensile Stress, F_{nt} | : | 90.00 | ksi | [AISC Table J3.2] |
| Available Tensile Stress, ΦR_{nt} | : | 20.72 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Tension | : | 10.09% | | OKAY |
| Nominal Shear Stress, F_{nv} | : | 48.00 | ksi | [AISC Table J3.2] |
| Available Shear Stress, ΦR_{nv} | : | 11.05 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Shear | : | 13.20% | | OKAY |
| Unity Check, Combined | : | 23.29% | | OKAY |
| Available Bearing Strength, ΦR_n | : | 34.66 | k/bolt | |
| Unity Check, Bolt Bearing | : | 1.78% | | OKAY |