



January 4, 2019

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

Regarding: Notice of Exempt Modification – Swapping (3) panel antennas and upgrading ancillary equipment as follows: add (6) diplexers, add (12) RRUs, and add (2) Surge Arrestors with associated cables.

Property Address: 144 Old Boston Post Road Moses Mountain Danbury CT

Applicant: AT&T Mobility (“AT&T”, Site # CT2133)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 65-foot self – support tower at the above-referenced address, latitude 41.35944444, -73.46611111 longitude. Said self-support tower and ground space is owned and operated by NEW CINGULAR WIRELESS PCS LLC (AT&T).

AT&T desires to modify its existing telecommunications facility by Swapping (3) panel antennas and upgrading ancillary equipment as follows: add (6) diplexers, add (12) RRUs, and add (2) Surge Arrestors with associated cables.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72 (b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Town of Danbury’s Mayor, the Planning and Zoning Director, and the property owner.

The planned modifications to AT&T’s facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T’s antennas and associated lines will be installed at the existing mount height of 68’; the existing self-support tower structure is 65’.
2. The proposed modifications will not involve any changes to ground-space footprint and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.



January 4, 2019

144 Old Boston Post Road, Moses Mountain, Danbury CT

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5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural Analysis completed by GPD Engineering and Architecture Professional Corporation Report dated November 16, 2018).

For the foregoing reasons AT&T respectfully requests that the proposed swap of antennas, addition of radios and addition of squids be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kristen White

Kristen White, Site Acquisition Specialist

Empire Telecom USA, LLC

kwhite@empiretelecomm.com

978-284-3801

Enclosures:

Exhibit 1: GIS Map of 144 Old Boston Road; Moses Mountain, Danbury CT

Exhibit 2: Property Card Information from Danbury GIS System

Exhibit 3: Construction Plans by Maser Engineering, dated 11/30/2018

Exhibit 4: GPD Engineering Report dated 11/16/2018

Exhibit 5: Radio Frequency Emissions Analysis Report dated 12/20/2019.

CC:

Hon. Mark D. Boughton, Mayor

155 Deer Hill Ave

Danbury, CT 06810

New Cingular Wireless PCS

675 W Peachtree st NW #2756

Atlanta, GA 30308

Sharon B. Calitro, Zoning Director

155 Deer Hill Ave

Danbury, CT 06810

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please visit a [Post Office™](#) location if you wish to ship with this service.

Create Label

Preferences

Shipping History

Address Book

Account # 161958927

Label Details

Label Number:

[9405503699300379168133](#)

SCAN® Form: 9475703699300299510442

Terms

Acceptance Cutoff: 01/04/2019 4:30 PM

Acceptance Time: 01/07/2019 9:28 AM

Scheduled Date: 01/07/2019 11:59 PM

Delivery Status: Delivered, In/At Mailbox

Label Actions 2019-01-09 13:20:00.0

[USPS Tracking®](#)

[Ship Again](#)

Need help

[File an insurance claim](#)

[Request A Service Refund](#)

Return Address:

KRISTEN WHITE
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Package:

Ship Date: 01/04/19
Value: \$50.00
Weight: 3 lbs 0 oz
From: 01862

Service:

Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Delivery Address:

NEW CINGULAR WIRELESS PCS
675 W PEACHTREE ST NE
ATLANTA, GA 30308-1989

Transaction Number: **453536923**

Transaction Type: Label

Payment Method: AMEX-1004

Payment Status: Account Charged

Postage Cost
USPS Tracking®

Label Total: **\$6.70**

Order Total: **\$20.10**

\$6.70
Free

Feedback

| Timestamp | Message |
|---------------------|-----------------|
| 01-04-2019 14:28:12 | LABEL REPRINTED |
| 01-04-2019 14:27:51 | LABEL PRINTED |
| 01-04-2019 14:27:26 | Getting Payment |
| 01-04-2019 14:27:11 | Setting Payment |

[Back to Shipping History](#)

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please visit a [Post Office™](#) location if you wish to ship with this service.

[Create Label](#)

[Preferences](#)

[Shipping History](#)

[Address Book](#)

Account # 161958927

Label Details

Label Number:

[9405503699300379168140](#)

SCAN® Form: 9475703699300299510442

Terms

Acceptance Cutoff: 01/04/2019 4:30 PM

Acceptance Time: 01/07/2019 9:28 AM

Scheduled Date: 01/07/2019 11:59 PM

Delivery Status: **Delivered, Front Door/Porch**

Label Actions
2019-01-09
10:03:00.0

[USPS Tracking®](#)

[Ship Again](#)

Need help

[File an insurance claim](#)

[Request A Service Refund](#)

Return Address:

KRISTEN WHITE
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Package:

Ship Date: 01/04/19
Value: \$50.00
Weight: 3 lbs 0 oz
From: 01862

Service:

Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Delivery Address:

SHARON B CALITRO
ZONING DIRECTOR
155 DEER HILL AVE
DANBURY, CT 06810-7726

Transaction Number: **453536923**

Transaction Type: Label

Payment Method: AMEX-1004

Payment Status: Account Charged

Postage Cost
USPS Tracking®

\$6.70
Free

Label Total: **\$6.70**

Order Total: **\$20.10**

| Timestamp | Message |
|---------------------|-----------------|
| 01-04-2019 14:28:12 | LABEL REPRINTED |
| 01-04-2019 14:27:54 | LABEL PRINTED |
| 01-04-2019 14:27:26 | Getting Payment |
| 01-04-2019 14:27:11 | Setting Payment |

[Back to Shipping History](#)

Feedback

First-Class Package International Service® is temporarily unavailable on Click-N-Ship®. Please visit a [Post Office™](#) location if you wish to ship with this service.

Create Label

Preferences

Shipping History

Address Book

Account # 161958927

Label Details

Label Number:

[9405503699300379168126](#)

SCAN® Form: 9475703699300299510442

Terms

Acceptance Cutoff: 01/04/2019 4:30 PM

Acceptance Time: 01/07/2019 9:28 AM

Scheduled Date: 01/07/2019 11:59 PM

Delivery Status: **Delivered, Front Door/Porch**

Label Actions
2019-01-09
10:03:00.0

[USPS Tracking®](#)

[Ship Again](#)

Need help

[File an insurance claim](#)

[Request A Service Refund](#)

Return Address:

KRISTEN WHITE
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Package:

Ship Date: 01/04/19
Value: \$50.00
Weight: 3 lbs 0 oz
From: 01862

Service:

Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Delivery Address:

HON. MARK D BOUGHTON, MAYOR
155 DEER HILL AVE
DANBURY, CT 06810-7726

Transaction Number: [453536923](#)

Transaction Type: Label

Payment Method: AMEX-1004

Payment Status: Account Charged

Postage Cost
USPS Tracking®

\$6.70
Free

Label Total: **\$6.70**

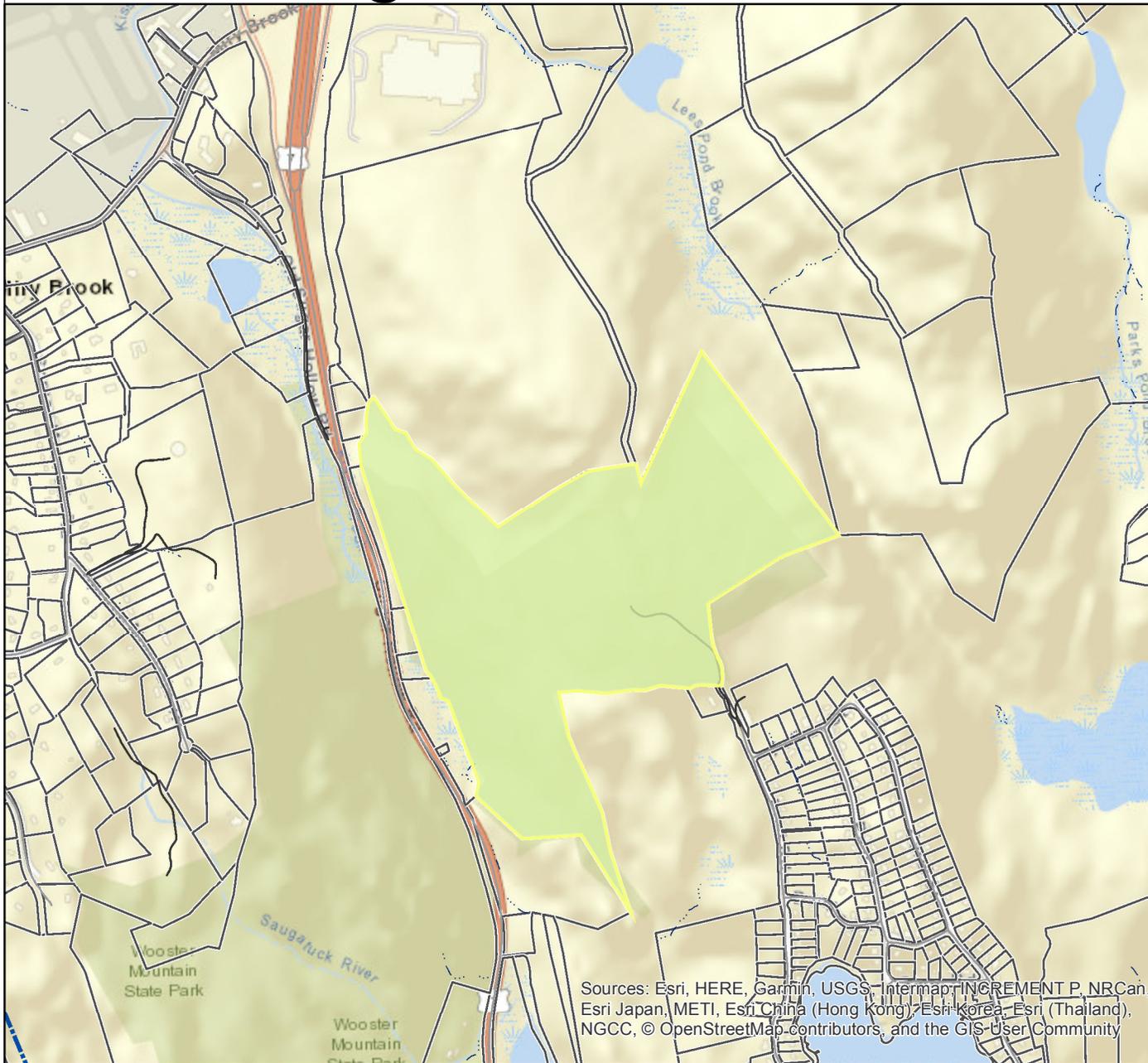
Order Total: **\$20.10**

| Timestamp | Message |
|---------------------|-----------------|
| 01-04-2019 14:28:12 | LABEL REPRINTED |
| 01-04-2019 14:27:48 | LABEL PRINTED |
| 01-04-2019 14:27:26 | Getting Payment |
| 01-04-2019 14:27:11 | Setting Payment |

[Back to Shipping History](#)

Feedback

AT&T @ 144 Old Boston Post Road - Moses Mountain



- Channel
- Stream
- Paved
- Unpaved
- Driveway (Paved)
- Driveway (Unpaved)
- Light Pole
- Building
- Foundation
- House Trailer
- Ruins
- Deck
- Bridges
- Curb
- Road (Paved)
- Road (Unpaved)
- Fence
- Stone Wall
- Parking (Paved)
- Parking (Unpaved)
- Sidewalk
- Other
- Parcel
- Private Right of Way
- Public Right of Way
- Rail Right of Way
- Traffic Island
- Water

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Not a legal survey.

144 OLD BOSTON POST RD

Location 144 OLD BOSTON POST RD

Mblu G20/ / 9/ /

Acct#

Owner NEW CINGULAR WIRELESS
PCS LLC

Assessment \$31,200

Appraisal \$44,500

PID 20447

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|------|----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$44,500 | \$0 | \$44,500 |

| Assessment | | | |
|----------------|--------------|------|----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$31,200 | \$0 | \$31,200 |

Owner of Record

Owner NEW CINGULAR WIRELESS PCS LLC
Co-Owner
Address 675 WEST PEACHTREE ST NW #2756
ATLANTA, GA 30308

Sale Price \$0
Book & Page 2357/ 864
Sale Date 06/06/2016
Instrument 29

Ownership History

| Ownership History | | | | |
|-------------------------------|------------|-------------|------------|------------|
| Owner | Sale Price | Book & Page | Instrument | Sale Date |
| NEW CINGULAR WIRELESS PCS LLC | \$0 | 2357/ 864 | 29 | 06/06/2016 |

Building Information

Building 1 : Section 1

Year Built: 1988
Living Area: 1,092
Replacement Cost: \$59,285
Building Percent 75
Good:
Replacement Cost
Less Depreciation: \$44,500

| Building Attributes | |
|---------------------|-------------|
| Field | Description |

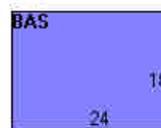
| | |
|------------------|------------------|
| STYLE | Light Industrial |
| MODEL | Ind/Comm |
| Grade | Average |
| Stories: | 1 |
| Occupancy | 1 |
| Exterior Wall 1 | Concr/Cinder |
| Exterior Wall 2 | |
| Roof Structure | Gable/Hip |
| Roof Cover | Asphalt Shngl. |
| Interior Wall 1 | Minim/Masonry |
| Interior Wall 2 | |
| Interior Floor 1 | Concr-Finished |
| Interior Floor 2 | |
| Heating Fuel | Electric |
| Heating Type | Electr Basebrd |
| AC Type | None |
| Bldg Use | Pub. Util MDL-96 |
| Total Rooms | |
| Total Bedrms | 00 |
| Total Baths | 0 |
| 1st Floor Use: | 400 |
| Heat/AC | NONE |
| Frame Type | MASONRY |
| Baths/Plumbing | AVERAGE |
| Ceiling/Wall | CEILING ONLY |
| Rooms/Prtns | AVERAGE |
| Wall Height | 10 |
| % Comn Wall | 0 |

Building Photo



(<http://images.vgsi.com/photos2/DanburyCTPhotos/\00\02\83/>)

Building Layout



(<http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/2/>)

| Building Sub-Areas (sq ft) | | | <u>Legend</u> |
|----------------------------|-------------|------------|---------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 1,092 | 1,092 |
| | | 1,092 | 1,092 |

Extra Features

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

Land

Land Use

| | |
|--------------------|------------------|
| Use Code | 400 |
| Description | Pub. Util MDL-96 |
| Zone | IL40 |

Land Line Valuation

| | |
|---------------------|---|
| Size (Acres) | 0 |
| Frontage | 0 |
| Depth | 0 |

Neighborhood 5500
Alt Land Appr No
Category

Assessed Value \$0
Appraised Value \$0

Outbuildings

| Outbuildings | Legend |
|--------------------------|---------------|
| No Data for Outbuildings | |

Valuation History

| Appraisal | | | |
|-----------------------|---------------------|-------------|--------------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$44,500 | \$0 | \$44,500 |
| 2016 | \$43,500 | \$0 | \$43,500 |
| 2015 | \$43,500 | \$0 | \$43,500 |

| Assessment | | | |
|-----------------------|---------------------|-------------|--------------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$31,200 | \$0 | \$31,200 |
| 2016 | \$30,500 | \$0 | \$30,500 |
| 2015 | \$30,500 | \$0 | \$30,500 |

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SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing modified structure is capable of carrying the proposed loading configuration as specified by AT&T Mobility to Empire Telecom. This report was commissioned by Ms. Kristen White of Empire Telecom.

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 MPH converted to a nominal 3-second gust wind speed of 93 MPH per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 2.19 and Risk Category II were used in this analysis.

Modifications designed by GPD (Project #: 2016723.01.SNET005.03, dated 10/28/2016) have been installed and were considered in this analysis.

The proposed coax shall be installed in a single row with the existing DC/Fiber cables on Face C in order for the analysis to be valid. See Appendix C for the proposed coax layout.

TOWER SUMMARY AND RESULTS

| Member | Capacity | Results |
|-------------|----------|---------|
| Leg | 56.0% | Pass |
| Diagonal | 25.9% | Pass |
| Horizontal | 53.5% | Pass |
| Bolt Checks | 64.0% | Pass |
| Anchor Rods | 27.5% | Pass |
| | | |
| Foundation | 90.7% | Pass |

ANALYSIS METHOD

RISA-3D (Version 17.0.0) and tnxTower (version 8.0.4.0), commercially available software programs, were used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a recent site visit.

DOCUMENTS PROVIDED

| Document | Remarks | Source |
|------------------------------|--------------------------------------------------------------|--------|
| RF Data Sheet | AT&T RFDS Name: CTV2133 v4.00, updated 8/30/2018 | Empire |
| Tower Design | Not Provided | N/A |
| Foundation Design | Not Provided | N/A |
| Geotechnical Report | GPD Project #: 2016712.71, dated 9/7/2016 | AT&T |
| Foundation Mapping | GPD Project #: 2016712.71, dated 9/7/2016 | AT&T |
| Tower Mapping | GPD Project #: 2016712.71, dated 9/12/2016 | AT&T |
| Mount Mapping | TEP Project #: 145551.185295, dated 10/8/2018 | AT&T |
| Modification Design | GPD Project #: 2016723.01.SNET005.03, dated 10/28/2016 | AT&T |
| Post Modification Inspection | GPD Project #: 2017506.02, dated 5/9/2017 | AT&T |
| Previous Structural Analysis | GPD Project #: 2017723.01.SNET005.04 Rev. 1, dated 7/24/2017 | AT&T |

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower shaft sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
11. All existing loading was obtained from the previous structural analysis by GPD (Project #: 2017723.01.SNET005.04 Rev. 1, dated 7/24/2017), the provided mount mapping (TEP Project #: 145551.185295, dated 10/8/2018), the provided RF Data Sheet and site photos and is assumed to be accurate.
12. The proposed coax shall be installed in a single row with the existing DC/Fiber cables on Face C in order for the analysis to be valid. See Appendix C for the proposed coax layout.
13. Leg A was assumed to be at a 30° azimuth based on the recent tower mapping by GPD.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD has not performed a recent site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Rigorous Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

APPENDIX B

RISA-3D & tnxTower Output Files

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 1 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 64.25 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 13.17 ft at the top and 13.17 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 93 mph.

Structure Class II.

Exposure Category B.

Topographic Category 5.

Crest Height 521.00 ft.

SEAW RSM-03 procedures for wind speed-up calculations are used.

Topographic Feature: Hill.

Slope Distance L: 1580.00 ft.

Distance from Crest x: 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Face Offset in | Lateral Offset (Frac FW) | # | # Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight klf |
|----------------------|-------------|--------------|----------------|-----------------|-------------------|-----------------------------|---|-----------|---------------------|-------------------------|-----------------|---------------|
| *** | | | | | | | | | | | | |
| Step Pegs | A | No | Ar (CaAa) | 64.25 - 8.00 | 0.0000 | 0.5 | 1 | 1 | 0.8000 | 0.8000 | | 0.003 |
| Safety Line (3/8") | A | No | Ar (CaAa) | 64.25 - 8.00 | 0.0000 | 0.5 | 1 | 1 | 0.3750 | 0.3750 | | 0.000 |
| Lighting Cable | A | No | Ar (CaAa) | 64.25 - 8.00 | 0.0000 | -0.5 | 1 | 1 | 0.5000 0.6300 | 0.6300 | | 0.000 |
| *** | | | | | | | | | | | | |
| EW90 | A | No | Ar (CaAa) | 63.00 - 60.00 | 0.0000 | 0.4 | 1 | 1 | 0.5000 | 0.9869 | | 0.000 |
| EW90 | A | No | Ar (CaAa) | 60.00 - 8.00 | 0.0000 | 0.4 | 2 | 2 | 0.5000 | 0.9869 | | 0.000 |
| LDF5-50A (7/8 FOAM) | A | No | Ar (CaAa) | 50.00 - 8.00 | 0.0000 | 0.415 | 1 | 1 | 1.0000 | 1.0900 | | 0.000 |
| *** | | | | | | | | | | | | |
| Feedline Ladder (Af) | C | No | Af (CaAa) | 64.25 - 8.00 | -2.0000 | 0.3 | 1 | 1 | 3.0000 | 3.0000 | | 0.008 |
| LDF2-50A (3/8 FOAM) | C | No | Ar (CaAa) | 64.00 - 62.00 | -2.0000 | 0.39 | 1 | 1 | 0.4400 | 0.4400 | | 0.000 |
| LDF2-50A | C | No | Ar (CaAa) | 62.00 - 8.00 | -2.0000 | 0.39 | 1 | 1 | 0.4400 | 0.4400 | | 0.000 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 2 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Face Offset in | Lateral Offset (Frac FW) | # | # Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight klf |
|-----------------------|-------------|--------------|----------------|---------------|----------------|--------------------------|----|-----------|------------------|----------------------|--------------|------------|
| (3/8 FOAM) | | | | | | | | | | | | |
| 1-1/2" Hybrid Cable | C | No | Ar (CaAa) | 64.00 - 8.00 | -2.0000 | 0.22 | 2 | 2 | 1.0000 | 1.5400 | | 0.001 |
| 1-1/4" Hybrid Cable | C | No | Ar (CaAa) | 64.00 - 8.00 | -2.0000 | 0.21 | 1 | 1 | 1.0000 | 1.2500 | | 0.001 |
| 3/4" DC Power Line | C | No | Ar (CaAa) | 62.00 - 8.00 | -7.0000 | 0.26 | 6 | 6 | 0.5000 | 0.7500 | | 0.000 |
| 3/8" Fiber Cable | C | No | Ar (CaAa) | 62.00 - 8.00 | -7.0000 | 0.29 | 2 | 2 | 0.5000 | 0.3750 | | 0.000 |
| LDF4-50A (1/2 FOAM) | C | No | Ar (CaAa) | 58.00 - 53.00 | -5.0000 | 0.206 | 1 | 1 | 0.5000 | 0.6300 | | 0.000 |
| LDF4-50A (1/2 FOAM) | C | No | Ar (CaAa) | 53.00 - 50.00 | -5.0000 | 0.206 | 2 | 2 | 0.5000 | 0.6300 | | 0.000 |
| LDF4-50A (1/2 FOAM) | C | No | Ar (CaAa) | 50.00 - 46.00 | -5.0000 | 0.206 | 5 | 2 | 0.5000 | 0.6300 | | 0.000 |
| LDF4-50A (1/2 FOAM) | C | No | Ar (CaAa) | 46.00 - 8.00 | -5.0000 | 0.206 | 6 | 2 | 0.5000 | 0.6300 | | 0.000 |
| *** | | | | | | | | | | | | |
| Feedline Ladder (Af) | C | No | Af (CaAa) | 64.25 - 8.00 | -1.0000 | -0.3 | 1 | 1 | 3.0000 | 3.0000 | | 0.008 |
| LDF7-50A (1-5/8 FOAM) | C | No | Ar (CaAa) | 50.00 - 8.00 | -3.0000 | -0.28 | 5 | 3 | 1.0000 | 1.9800 | | 0.001 |
| LDF5-50A (7/8 FOAM) | C | No | Ar (CaAa) | 50.00 - 8.00 | -1.0000 | -0.33 | 2 | 2 | 0.7500 | 1.0900 | | 0.000 |
| LDF4-50A (1/2 FOAM) | C | No | Ar (CaAa) | 50.00 - 8.00 | -1.0000 | -0.24 | 1 | 1 | 0.6300 | 0.6300 | | 0.000 |
| *** | | | | | | | | | | | | |
| LDF6-50A (1-1/4 FOAM) | C | No | Ar (CaAa) | 57.00 - 50.00 | 0.0000 | 0.49 | 1 | 1 | 0.5000 | 1.5500 | | 0.001 |
| LDF6-50A (1-1/4 FOAM) | C | No | Ar (CaAa) | 50.00 - 8.00 | 0.0000 | 0.49 | 3 | 3 | 0.5000 | 1.5500 | | 0.001 |
| *** | | | | | | | | | | | | |
| WEP65(ELLI PTICAL) | C | No | Ar (CaAa) | 60.00 - 55.00 | -2.0000 | -0.46 | 1 | 1 | 0.5000 | 2.0300 | | 0.001 |
| WEP65(ELLI PTICAL) | C | No | Ar (CaAa) | 55.00 - 8.00 | -2.0000 | -0.46 | 2 | 2 | 0.5000 | 2.0300 | | 0.001 |
| *** | | | | | | | | | | | | |
| LDF4P-50A (1/2 FOAM) | C | No | Ar (CaAa) | 64.25 - 8.00 | -2.0000 | 0.35 | 1 | 1 | 0.6300 | 0.6300 | | 0.000 |
| *** | | | | | | | | | | | | |
| LDF7-50A (1-5/8 FOAM) | C | No | Ar (CaAa) | 64.00 - 62.00 | -2.0000 | 0.32 | 12 | 8 | 0.7500 | 1.9800 | | 0.001 |
| LDF7-50A (1-5/8 FOAM) | C | No | Ar (CaAa) | 62.00 - 8.00 | -5.0000 | 0.31 | 24 | 10 | 0.7500 | 1.9800 | | 0.001 |

Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | CAAA Front ft ² | CAAA Side ft ² | Weight lb |
|--------------------|-------------|-------------|-------------------------------------|----------------------|--------------|----------------------------|---------------------------|-----------|
| Pipe Mount 7'x4.5" | A | From Leg | 0.00 | 0.000 | 64.25 | No Ice | 2.10 | 83.000 |
| | | | 0.000 | | | 1/2" Ice | 3.21 | 105.150 |
| | | | 3.000 | | | 1" Ice | 3.64 | 132.187 |
| (2) Flash Beacon | A | From Leg | 0.00 | 0.000 | 64.25 | No Ice | 3.00 | 100.000 |
| | | | 0.000 | | | 1/2" Ice | 4.50 | 150.000 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 3 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight | |
|-----------------------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------------|----------------------|--------|---------|
| | | | Horz | Lateral | | | | | | |
| | | | Vert | | | | | | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | lb | |
| | | | ft | | | | | | | |
| 14' I-Beam Mount | A | From Leg | 6.000 | | 0.000 | 64.00 | 1" Ice | 6.00 | 6.00 | 200.000 |
| | | | 0.00 | | | | No Ice | 7.44 | 0.98 | 349.700 |
| | | | 0.000 | | | | 1/2" Ice | 10.60 | 1.54 | 568.100 |
| | | | 0.000 | | | | 1" Ice | 13.75 | 2.10 | 786.500 |
| 14' I-Beam Mount | C | From Leg | 0.00 | | 0.000 | 64.00 | No Ice | 7.44 | 0.98 | 349.700 |
| | | | 0.000 | | | | 1/2" Ice | 10.60 | 1.54 | 568.100 |
| | | | 0.000 | | | | 1" Ice | 13.75 | 2.10 | 786.500 |
| | | | 0.00 | | | | No Ice | 1.43 | 1.43 | 26.100 |
| Pipe Mount 6'x2.375" | C | From Leg | 0.000 | | 0.000 | 64.00 | 1/2" Ice | 1.92 | 1.92 | 36.927 |
| | | | 3.000 | | | | 1" Ice | 2.29 | 2.29 | 51.814 |
| | | | 0.00 | | | | No Ice | 0.11 | 0.11 | 0.870 |
| | | | 0.000 | | | | 1/2" Ice | 0.21 | 0.21 | 3.845 |
| GPS | C | From Leg | 9.500 | | 0.000 | 64.00 | 1" Ice | 0.28 | 0.28 | 7.851 |
| | | | 0.00 | | | | No Ice | 0.30 | 0.30 | 5.000 |
| | | | 0.000 | | | | 1/2" Ice | 0.43 | 0.43 | 8.283 |
| | | | 6.000 | | | | 1" Ice | 0.58 | 0.58 | 13.145 |
| 800 10734V01 w/ Mount Pipe | A | From Leg | 1.00 | | 0.000 | 64.00 | No Ice | 6.12 | 4.07 | 63.440 |
| | | | 0.000 | | | | 1/2" Ice | 6.57 | 4.76 | 113.237 |
| | | | 5.000 | | | | 1" Ice | 7.03 | 5.47 | 170.184 |
| | | | 1.00 | | | | No Ice | 6.12 | 4.07 | 63.440 |
| 800 10734V01 w/ Mount Pipe | C | From Leg | 0.000 | | 0.000 | 64.00 | 1/2" Ice | 6.57 | 4.76 | 113.237 |
| | | | 5.000 | | | | 1" Ice | 7.03 | 5.47 | 170.184 |
| | | | 1.00 | | | | No Ice | 6.12 | 4.07 | 63.440 |
| | | | 0.000 | | | | 1/2" Ice | 6.57 | 4.76 | 113.237 |
| (2) HBXX-6516DS-A2M w/ Mount Pipe | A | From Leg | 5.000 | | 0.000 | 64.00 | 1" Ice | 7.03 | 5.47 | 170.184 |
| | | | 1.00 | | | | No Ice | 5.66 | 4.53 | 49.732 |
| | | | 0.000 | | | | 1/2" Ice | 6.06 | 5.20 | 98.969 |
| | | | 5.000 | | | | 1" Ice | 6.47 | 5.86 | 154.423 |
| (2) HBXX-6516DS-A2M w/ Mount Pipe | C | From Leg | 1.00 | | 0.000 | 64.00 | No Ice | 5.66 | 4.53 | 49.732 |
| | | | 0.000 | | | | 1/2" Ice | 6.06 | 5.20 | 98.969 |
| | | | 5.000 | | | | 1" Ice | 6.47 | 5.86 | 154.423 |
| | | | 1.00 | | | | No Ice | 7.27 | 7.82 | 46.550 |
| (2) DB846F65ZAXY w/ Mount Pipe | A | From Leg | 0.000 | | 0.000 | 64.00 | 1/2" Ice | 7.83 | 9.01 | 113.929 |
| | | | 5.000 | | | | 1" Ice | 8.35 | 9.91 | 189.249 |
| | | | 1.00 | | | | No Ice | 7.27 | 7.82 | 46.550 |
| | | | 0.000 | | | | 1/2" Ice | 7.83 | 9.01 | 113.929 |
| (2) DB846F65ZAXY w/ Mount Pipe | C | From Leg | 5.000 | | 0.000 | 64.00 | 1" Ice | 8.35 | 9.91 | 189.249 |
| | | | 1.00 | | | | No Ice | 2.66 | 1.59 | 64.000 |
| | | | 0.000 | | | | 1/2" Ice | 2.88 | 1.77 | 84.354 |
| | | | 5.000 | | | | 1" Ice | 3.10 | 1.96 | 107.846 |
| RRH4X45-AWS4 B66 | A | From Leg | 1.00 | | 0.000 | 64.00 | No Ice | 2.66 | 1.59 | 64.000 |
| | | | 0.000 | | | | 1/2" Ice | 2.88 | 1.77 | 84.354 |
| | | | 5.000 | | | | 1" Ice | 3.10 | 1.96 | 107.846 |
| | | | 1.00 | | | | No Ice | 2.66 | 1.59 | 64.000 |
| RRH4X45-AWS4 B66 | C | From Leg | 0.000 | | 0.000 | 64.00 | 1/2" Ice | 2.88 | 1.77 | 84.354 |
| | | | 5.000 | | | | 1" Ice | 3.10 | 1.96 | 107.846 |
| | | | 1.00 | | | | No Ice | 2.66 | 1.12 | 55.000 |
| | | | 0.000 | | | | 1/2" Ice | 2.86 | 1.27 | 74.108 |
| RRH 2x60-PCS | A | From Leg | 5.000 | | 0.000 | 64.00 | 1" Ice | 3.07 | 1.42 | 96.158 |
| | | | 1.00 | | | | No Ice | 2.66 | 1.12 | 55.000 |
| | | | 0.000 | | | | 1/2" Ice | 2.86 | 1.27 | 74.108 |
| | | | 5.000 | | | | 1" Ice | 3.07 | 1.42 | 96.158 |
| RC2DC-3315-PF-48 | A | From Leg | 1.00 | | 0.000 | 64.00 | No Ice | 3.79 | 2.51 | 32.000 |
| | | | 0.000 | | | | 1/2" Ice | 4.04 | 2.72 | 63.468 |
| | | | 5.000 | | | | 1" Ice | 4.30 | 2.94 | 98.694 |
| | | | 1.00 | | | | No Ice | 3.79 | 2.51 | 32.000 |
| RC2DC-3315-PF-48 | C | From Leg | 0.000 | | 0.000 | 64.00 | 1/2" Ice | 4.04 | 2.72 | 63.468 |
| | | | 5.000 | | | | 1" Ice | 4.30 | 2.94 | 98.694 |
| | | | 1.00 | | | | No Ice | 3.79 | 2.51 | 32.000 |
| | | | 0.000 | | | | 1/2" Ice | 4.04 | 2.72 | 63.468 |
| *** Pipe Mount 6'x2.375" | B | From Leg | 5.000 | | 0.000 | 63.00 | 1" Ice | 4.30 | 2.94 | 98.694 |
| | | | 1.00 | | | | No Ice | 1.43 | 1.43 | 26.100 |
| | | | 0.000 | | | | 1/2" Ice | 1.92 | 1.92 | 36.927 |
| | | | 0.000 | | | | 1" Ice | 2.29 | 2.29 | 51.814 |
| *** | | | | | | | | | | |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 4 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|------------------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------------|----------------------|---------|
| | | | Horz | Vert | | | | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | lb |
| Sabre 10' T-Boom | A | From Face | 1.50 | -10.000 | 60.00 | No Ice | 16.28 | 10.62 | 474.300 |
| | | | 0.000 | | | 1/2" Ice | 21.50 | 15.16 | 663.180 |
| | | | 0.000 | | | 1" Ice | 26.72 | 19.70 | 852.060 |
| Sabre 10' T-Boom | B | From Face | 1.50 | -10.000 | 60.00 | No Ice | 16.28 | 10.62 | 474.300 |
| | | | 0.000 | | | 1/2" Ice | 21.50 | 15.16 | 663.180 |
| | | | 0.000 | | | 1" Ice | 26.72 | 19.70 | 852.060 |
| Sabre 10' T-Boom | C | From Face | 1.50 | 0.000 | 60.00 | No Ice | 16.28 | 10.62 | 474.300 |
| | | | 0.000 | | | 1/2" Ice | 21.50 | 15.16 | 663.180 |
| | | | 0.000 | | | 1" Ice | 26.72 | 19.70 | 852.060 |
| 7770.00 w/ Mount Pipe | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 5.84 | 4.35 | 56.900 |
| | | | 0.000 | | | 1/2" Ice | 6.32 | 5.20 | 105.421 |
| | | | -3.000 | | | 1" Ice | 6.77 | 5.92 | 160.417 |
| 7770.00 w/ Mount Pipe | B | From Face | 3.00 | -10.000 | 60.00 | No Ice | 5.84 | 4.35 | 56.900 |
| | | | 0.000 | | | 1/2" Ice | 6.32 | 5.20 | 105.421 |
| | | | -3.000 | | | 1" Ice | 6.77 | 5.92 | 160.417 |
| 7770.00 w/ Mount Pipe | C | From Face | 3.00 | 0.000 | 60.00 | No Ice | 5.84 | 4.35 | 56.900 |
| | | | 0.000 | | | 1/2" Ice | 6.32 | 5.20 | 105.421 |
| | | | -3.000 | | | 1" Ice | 6.77 | 5.92 | 160.417 |
| EPBQ-654L8H6 w/ Mount Pipe | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 9.18 | 8.94 | 117.200 |
| | | | 0.000 | | | 1/2" Ice | 9.83 | 10.26 | 197.630 |
| | | | -3.000 | | | 1" Ice | 10.45 | 11.43 | 286.688 |
| EPBQ-654L8H6 w/ Mount Pipe | B | From Face | 3.00 | -10.000 | 60.00 | No Ice | 9.18 | 8.94 | 117.200 |
| | | | 0.000 | | | 1/2" Ice | 9.83 | 10.26 | 197.630 |
| | | | -3.000 | | | 1" Ice | 10.45 | 11.43 | 286.688 |
| EPBQ-654L8H6 w/ Mount Pipe | C | From Face | 3.00 | 0.000 | 60.00 | No Ice | 9.18 | 8.94 | 117.200 |
| | | | 0.000 | | | 1/2" Ice | 9.83 | 10.26 | 197.630 |
| | | | -3.000 | | | 1" Ice | 10.45 | 11.43 | 286.688 |
| HPA-65R-BUU-H6 w/ Mount Pipe | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 9.90 | 8.11 | 76.550 |
| | | | 0.000 | | | 1/2" Ice | 10.47 | 9.30 | 158.030 |
| | | | -3.000 | | | 1" Ice | 11.01 | 10.21 | 247.793 |
| HPA-65R-BUU-H6 w/ Mount Pipe | B | From Face | 3.00 | -10.000 | 60.00 | No Ice | 9.90 | 8.11 | 76.550 |
| | | | 0.000 | | | 1/2" Ice | 10.47 | 9.30 | 158.030 |
| | | | -3.000 | | | 1" Ice | 11.01 | 10.21 | 247.793 |
| HPA-65R-BUU-H6 w/ Mount Pipe | C | From Face | 3.00 | 0.000 | 60.00 | No Ice | 9.90 | 8.11 | 76.550 |
| | | | 0.000 | | | 1/2" Ice | 10.47 | 9.30 | 158.030 |
| | | | -3.000 | | | 1" Ice | 11.01 | 10.21 | 247.793 |
| (2) LGP17201 | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 1.67 | 0.47 | 31.000 |
| | | | 0.000 | | | 1/2" Ice | 1.83 | 0.57 | 41.949 |
| | | | -3.000 | | | 1" Ice | 2.00 | 0.68 | 55.167 |
| (2) LGP17201 | B | From Face | 3.00 | -10.000 | 60.00 | No Ice | 1.67 | 0.47 | 31.000 |
| | | | 0.000 | | | 1/2" Ice | 1.83 | 0.57 | 41.949 |
| | | | -3.000 | | | 1" Ice | 2.00 | 0.68 | 55.167 |
| (2) LGP17201 | C | From Face | 3.00 | 0.000 | 60.00 | No Ice | 1.67 | 0.47 | 31.000 |
| | | | 0.000 | | | 1/2" Ice | 1.83 | 0.57 | 41.949 |
| | | | -3.000 | | | 1" Ice | 2.00 | 0.68 | 55.167 |
| RRUS 11 | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 2.78 | 1.19 | 50.700 |
| | | | 0.000 | | | 1/2" Ice | 2.99 | 1.33 | 71.500 |
| | | | -3.000 | | | 1" Ice | 3.21 | 1.49 | 95.335 |
| RRUS 11 | B | From Face | 3.00 | -10.000 | 60.00 | No Ice | 2.78 | 1.19 | 50.700 |
| | | | 0.000 | | | 1/2" Ice | 2.99 | 1.33 | 71.500 |
| | | | -3.000 | | | 1" Ice | 3.21 | 1.49 | 95.335 |
| RRUS 11 | C | From Face | 3.00 | 0.000 | 60.00 | No Ice | 2.78 | 1.19 | 50.700 |
| | | | 0.000 | | | 1/2" Ice | 2.99 | 1.33 | 71.500 |
| | | | -3.000 | | | 1" Ice | 3.21 | 1.49 | 95.335 |
| RRUS 32 B2 | A | From Face | 3.00 | -10.000 | 60.00 | No Ice | 2.73 | 1.67 | 52.900 |
| | | | 0.000 | | | 1/2" Ice | 2.95 | 1.86 | 73.957 |
| | | | -3.000 | | | 1" Ice | 3.18 | 2.05 | 98.206 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 5 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | CAAA Front ft ² | CAAA Side ft ² | Weight lb |
|----------------------------------------|-------------|-------------|----------------------------------------------|-------------------------|-----------------|---------------------------------------------|------------------------------|------------------------------|
| RRUS 32 B2 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 2.73 1/2" Ice 2.95 1" Ice 3.18 | 1.67 1.86 2.05 | 52.900 73.957 98.206 |
| RRUS 32 B2 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 2.73 1/2" Ice 2.95 1" Ice 3.18 | 1.67 1.86 2.05 | 52.900 73.957 98.206 |
| RRUS 32 | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81 | 2.42 2.64 2.86 | 77.000 104.928 136.466 |
| RRUS 32 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81 | 2.42 2.64 2.86 | 77.000 104.928 136.466 |
| RRUS 32 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81 | 2.42 2.64 2.86 | 77.000 104.928 136.466 |
| RRUS B14 4478 | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98 | 0.81 0.93 1.06 | 60.000 74.366 91.233 |
| RRUS B14 4478 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98 | 0.81 0.93 1.06 | 60.000 74.366 91.233 |
| RRUS B14 4478 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98 | 0.81 0.93 1.06 | 60.000 74.366 91.233 |
| RRUS 4478 B5 | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 | 1.06 1.20 1.34 | 59.900 75.777 94.286 |
| RRUS 4478 B5 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 | 1.06 1.20 1.34 | 59.900 75.777 94.286 |
| RRUS 4478 B5 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 | 1.06 1.20 1.34 | 59.900 75.777 94.286 |
| RRUS 4426 B66 | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 | 0.73 0.84 0.97 | 48.400 61.219 76.432 |
| RRUS 4426 B66 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 | 0.73 0.84 0.97 | 48.400 61.219 76.432 |
| RRUS 4426 B66 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 | 0.73 0.84 0.97 | 48.400 61.219 76.432 |
| (2) DBCT108F1V92-1 | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 0.20 1/2" Ice 0.26 1" Ice 0.32 | 0.19 0.24 0.31 | 7.060 10.036 14.187 |
| (2) DBCT108F1V92-1 | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 0.20 1/2" Ice 0.26 1" Ice 0.32 | 0.19 0.24 0.31 | 7.060 10.036 14.187 |
| (2) DBCT108F1V92-1 | C | From Face | 3.00 0.000 -3.000 | 0.000 | 60.00 | No Ice 0.20 1/2" Ice 0.26 1" Ice 0.32 | 0.19 0.24 0.31 | 7.060 10.036 14.187 |
| DC6-48-60-0-8F Surge Suppression Unit | A | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 0.92 1/2" Ice 1.46 1" Ice 1.64 | 0.92 1.46 1.64 | 18.900 36.615 56.825 |
| DC6-48-60-18-8F Surge Suppression Unit | B | From Face | 3.00 0.000 -3.000 | -10.000 | 60.00 | No Ice 0.92 1/2" Ice 1.46 1" Ice 1.64 | 0.92 1.46 1.64 | 18.900 36.615 56.825 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 6 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} | | Weight |
|-------------------------------------------|-------------------|----------------|-------------------------|------|-----------------------|-----------|-----------------------------------------------|----------------------|-------------------------------|
| | | | Horz Lateral | Vert | | | Front | Side | |
| | | | ft | ft | ° | ft | ft ² | ft ² | lb |
| DC6-48-60-18-8F Surge Suppression Unit | C | From Face | 3.00 0.000 -3.000 | | 0.000 | 60.00 | No Ice 0.92 1/2" Ice 1.46 1" Ice 1.64 | 0.92 1.46 1.64 | 18.900 36.615 56.825 |
| *** | | | | | | | | | |
| Pipe Mount 6'x2.375" | B | From Leg | 0.50 0.000 0.000 | | 0.000 | 60.00 | No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 | 1.43 1.92 2.29 | 26.100 36.927 51.814 |
| *** | | | | | | | | | |
| Pipe Mount 6'x2.375" | A | From Leg | 1.00 0.000 0.000 | | 0.000 | 60.00 | No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 | 1.43 1.92 2.29 | 26.100 36.927 51.814 |
| *** | | | | | | | | | |
| 12"x10"x4" ODU | C | From Face | 0.50 0.000 0.000 | | 0.000 | 58.00 | No Ice 1.17 1/2" Ice 1.31 1" Ice 1.47 | 0.47 0.57 0.69 | 50.000 57.616 67.111 |
| Pipe Mount 6'x2.375" | C | From Leg | 0.50 0.000 0.000 | | 0.000 | 55.00 | No Ice 1.43 1/2" Ice 1.92 1" Ice 2.29 | 1.43 1.92 2.29 | 26.100 36.927 51.814 |
| *** | | | | | | | | | |
| 14' I-Beam Mount | C | From Leg | 4.00 0.000 0.000 | | 0.000 | 50.00 | No Ice 7.44 1/2" Ice 10.60 1" Ice 13.75 | 0.98 1.54 2.10 | 349.700 568.100 786.500 |
| 432E-831-01T | C | From Leg | 6.00 0.000 0.000 | | 0.000 | 50.00 | No Ice 1.20 1/2" Ice 1.34 1" Ice 1.48 | 0.75 0.86 0.98 | 25.000 36.553 50.343 |
| LeBlanc 18" Standoff | C | From Leg | 4.00 0.000 2.000 | | 0.000 | 50.00 | No Ice 2.96 1/2" Ice 4.10 1" Ice 5.24 | 2.11 2.93 3.75 | 96.000 117.100 138.200 |
| DB806D | C | From Leg | 4.00 0.000 7.000 | | 0.000 | 50.00 | No Ice 1.14 1/2" Ice 1.68 1" Ice 2.03 | 1.14 1.68 2.03 | 21.000 29.934 42.706 |
| SC479-HF1LDF | C | From Leg | 8.00 0.000 -5.000 | | 0.000 | 50.00 | No Ice 4.75 1/2" Ice 6.54 1" Ice 8.04 | 4.75 6.54 8.04 | 34.000 69.823 114.983 |
| WPA-700120-4CF-EDIN-0 w/ Mount Pipe | C | From Leg | 3.00 0.000 0.000 | | 0.000 | 50.00 | No Ice 3.81 1/2" Ice 4.17 1" Ice 4.54 | 3.97 4.58 5.19 | 29.998 68.119 111.883 |
| *** | | | | | | | | | |
| *** | | | | | | | | | |
| Pipe Mount 12'x2.375" | C | From Face | 1.00 0.000 5.500 | | 0.000 | 50.00 | No Ice 2.85 1/2" Ice 4.08 1" Ice 5.32 | 2.85 4.08 5.32 | 45.600 66.965 96.054 |
| LeBlanc 18" Standoff | C | From Face | 2.00 0.000 0.000 | | 0.000 | 50.00 | No Ice 2.96 1/2" Ice 4.10 1" Ice 5.24 | 2.11 2.93 3.75 | 96.000 117.100 138.200 |
| 10' Omni | C | From Face | 3.00 0.000 -5.000 | | 0.000 | 50.00 | No Ice 2.00 1/2" Ice 3.02 1" Ice 4.07 | 2.00 3.02 4.07 | 25.000 40.501 62.466 |
| 20"x8"x6" TMA | C | From Face | 1.50 0.000 2.000 | | 0.000 | 50.00 | No Ice 1.33 1/2" Ice 1.49 1" Ice 1.66 | 1.03 1.17 1.32 | 30.000 41.764 55.926 |
| *** | | | | | | | | | |
| MTS 72" Standoff | B | From Leg | 3.00 0.000 0.000 | | 0.000 | 50.00 | No Ice 0.98 1/2" Ice 1.70 1" Ice 2.42 | 3.03 5.22 7.41 | 53.000 78.750 104.500 |
| SC479-HF1LDF | B | From Leg | 6.00 0.000 | | 0.000 | 50.00 | No Ice 4.75 1/2" Ice 6.54 | 4.75 6.54 | 34.000 69.823 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 7 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | C _{AA} Front ft ² | C _{AA} Side ft ² | Weight lb | |
|-----------------------|-------------|-------------|----------------------------------------------|-------------------------|-----------------|------------------------------------------|-----------------------------------------|------------------------|-------------------------------|
| *** | | | -5.000 | | | 1" Ice | 8.04 | 8.04 | 114.983 |
| Andrew Collar Mount | B | From Leg | 0.50 0.000 0.000 | 0.000 | 57.00 | No Ice 1/2" Ice 1" Ice | 2.14 2.35 2.57 | 2.14 2.35 2.57 | 190.300 247.390 304.480 |
| 12' Omni | B | From Leg | 1.00 0.000 6.000 | 0.000 | 57.00 | No Ice 1/2" Ice 1" Ice | 5.09 7.09 8.71 | 5.09 7.09 8.71 | 70.000 108.796 157.672 |
| *** | | | | | | | | | |
| MTS 72" Standoff | B | From Leg | 3.00 0.000 0.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 0.98 1.70 2.42 | 3.03 5.22 7.41 | 53.000 78.750 104.500 |
| 10' Omni | B | From Leg | 6.00 0.000 5.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 2.00 3.02 4.07 | 2.00 3.02 4.07 | 25.000 40.501 62.466 |
| *** | | | | | | | | | |
| Pipe Mount 4'x2.375" | B | From Leg | 0.00 0.000 0.000 | 0.000 | 53.00 | No Ice 1/2" Ice 1" Ice | 0.87 1.11 1.36 | 0.87 1.11 1.36 | 18.500 25.815 35.968 |
| 8' Dipole | B | From Leg | 0.00 0.000 4.000 | 0.000 | 53.00 | No Ice 1/2" Ice 1" Ice | 1.60 2.42 3.24 | 1.60 2.42 3.24 | 15.000 27.446 45.136 |
| *** | | | | | | | | | |
| 14' I-Beam Mount | B | From Leg | 4.00 0.000 0.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 7.44 10.60 13.75 | 0.98 1.54 2.10 | 349.700 568.100 786.500 |
| BA80-41-DIN | B | From Leg | 8.00 0.000 10.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 6.79 10.38 12.50 | 6.79 10.38 12.50 | 68.000 125.447 196.078 |
| *** | | | | | | | | | |
| Pipe Mount 4'x2.375" | B | From Face | 0.00 0.000 2.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 0.87 1.11 1.36 | 0.87 1.11 1.36 | 18.500 25.815 35.968 |
| UHF450 Antenna | B | From Face | 0.00 0.000 4.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 5.59 7.66 9.74 | 5.59 7.66 9.74 | 30.000 70.726 124.306 |
| *** | | | | | | | | | |
| Pipe Mount 12'x2.375" | B | From Face | 1.00 0.000 5.500 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 2.85 4.08 5.32 | 2.85 4.08 5.32 | 45.600 66.965 96.054 |
| LeBlanc 18" Standoff | B | From Face | 2.00 0.000 0.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 2.96 4.10 5.24 | 2.11 2.93 3.75 | 96.000 117.100 138.200 |
| *** | | | | | | | | | |
| 14' I-Beam Mount | A | From Leg | 4.00 0.000 0.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 7.44 10.60 13.75 | 0.98 1.54 2.10 | 349.700 568.100 786.500 |
| DB264-A | A | From Leg | 8.00 0.000 -6.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 3.16 5.69 8.22 | 3.16 5.69 8.22 | 36.000 46.800 57.600 |
| VHF150 | A | From Leg | 8.00 0.000 9.000 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 1.29 1.60 1.91 | 1.29 1.60 1.91 | 12.000 22.284 36.056 |
| *** | | | | | | | | | |
| Pipe Mount 12'x2.375" | A | From Leg | 1.00 0.000 5.500 | 0.000 | 50.00 | No Ice 1/2" Ice 1" Ice | 2.85 4.08 5.32 | 2.85 4.08 5.32 | 45.600 66.965 96.054 |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|-------------------|
| tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235 | Job | 60417 (SNET005) DANBURY | Page | 8 of 8 |
| | Project | 2019701.02 | Date | 08:07:33 11/15/18 |
| | Client | Empire Telecom | Designed by | mrisley |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} | | Weight | |
|-----------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------|-----------------|--------|---------|
| | | | Horz | Lateral | | | Front | Side | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | lb | |
| 8' Dipole | A | From Leg | 1.00 | 0.000 | 0.000 | 50.00 | No Ice | 1.60 | 1.60 | 15.000 |
| | | | 0.000 | | | | 1/2" Ice | 2.42 | 2.42 | 27.446 |
| | | | 4.000 | | | | 1" Ice | 3.24 | 3.24 | 45.136 |
| *** | | | | | | | | | | |
| Pipe Mount 12'x2.375" | A | From Face | 1.00 | 0.000 | 0.000 | 50.00 | No Ice | 2.85 | 2.85 | 45.600 |
| | | | 0.000 | | | | 1/2" Ice | 4.08 | 4.08 | 66.965 |
| | | | 5.500 | | | | 1" Ice | 5.32 | 5.32 | 96.054 |
| *** | | | | | | | | | | |
| Pipe Mount 12'x2.375" | A | From Face | 1.00 | 0.000 | 0.000 | 50.00 | No Ice | 2.85 | 2.85 | 45.600 |
| | | | 0.000 | | | | 1/2" Ice | 4.08 | 4.08 | 66.965 |
| | | | 5.500 | | | | 1" Ice | 5.32 | 5.32 | 96.054 |
| *** | | | | | | | | | | |
| MTS 72" Standoff | C | From Leg | 3.00 | 0.000 | 0.000 | 50.00 | No Ice | 0.98 | 3.03 | 53.000 |
| | | | 0.000 | | | | 1/2" Ice | 1.70 | 5.22 | 78.750 |
| | | | 0.000 | | | | 1" Ice | 2.42 | 7.41 | 104.500 |
| 12' Omni | C | From Leg | 6.00 | 0.000 | 0.000 | 50.00 | No Ice | 3.00 | 3.00 | 20.000 |
| | | | 0.000 | | | | 1/2" Ice | 4.23 | 4.23 | 42.303 |
| | | | -6.000 | | | | 1" Ice | 5.47 | 5.47 | 72.344 |

Dishes

| Description | Face or Leg | Dish Type | Offset Type | Offsets: | | Azimuth Adjustment | 3 dB Beam Width | Elevation | Outside Diameter | Aperture Area | Weight | |
|---------------|-------------|--------------------------|-------------|----------|---------|--------------------|-----------------|-----------|------------------|---------------|--------|---------|
| | | | | Horz | Lateral | | | | | | | |
| | | | ft | ft | ° | ° | ft | ft | ft ² | lb | | |
| VHLP3-11W-6GR | B | Paraboloid w/Shroud (HP) | From Leg | 1.00 | 0.000 | 0.000 | | 63.00 | 3.28 | No Ice | 8.47 | 53.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 8.90 | 100.000 |
| | | | | 14.000 | | | | | | 1" Ice | 9.34 | 140.000 |
| VHLP3-11W-6GR | A | Paraboloid w/Shroud (HP) | From Leg | 1.00 | 0.000 | 0.000 | | 60.00 | 3.28 | No Ice | 8.47 | 53.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 8.90 | 100.000 |
| | | | | 12.900 | | | | | | 1" Ice | 9.34 | 140.000 |
| PA6-65 | B | Paraboloid w/Radome | From Leg | 1.00 | 0.000 | 0.000 | | 60.00 | 6.58 | No Ice | 34.04 | 140.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 34.91 | 320.000 |
| | | | | 0.000 | | | | | | 1" Ice | 35.77 | 500.000 |
| SPD2-5.8NS | C | Paraboloid w/Radome | From Face | 1.00 | 0.000 | 0.000 | | 58.00 | 2.00 | No Ice | 3.14 | 22.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 3.41 | 40.000 |
| | | | | 0.000 | | | | | | 1" Ice | 3.68 | 60.000 |
| PA6-65 | C | Paraboloid w/Radome | From Leg | 1.00 | 0.000 | 0.000 | | 55.00 | 6.58 | No Ice | 34.04 | 140.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 34.91 | 320.000 |
| | | | | 0.000 | | | | | | 1" Ice | 35.77 | 500.000 |
| PRFTV 48/75 | A | Grid | From Face | 5.00 | 0.000 | 0.000 | | 46.00 | 4.65 | No Ice | 6.35 | 40.000 |
| | | | | 0.000 | | | | | | 1/2" Ice | 17.60 | 90.000 |
| | | | | 0.000 | | | | | | 1" Ice | 18.21 | 140.000 |



Company : GPD
 Designer : MR
 Job Number : 2019701.02
 Model Name : 60417 (SNET005) DANBURY

Nov 15, 2018
 9:26 AM
 Checked By: _____

Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (\1E...Density[k/ft... | Yield[ksi] | Ry | Fu[ksi] | Rt | |
|---|---------|---------|---------|------|------------------------------|------------|----|---------|----|-----|
| 1 | A572-50 | 29000 | 11200 | .295 | .65 | .49 | 50 | 1.1 | 58 | 1.2 |

Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design ... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|-----------------|--------|--------|-------------|----------|------------|---------|-----------|-----------|---------|
| 1 | TWR_TOP_GIRT_T3 | W10X33 | Beam | Wide Flange | A572-50 | Typical | 9.71 | 36.6 | 171 | .583 |
| 2 | TWR_DIAG_T4 | W6X25 | Column | Wide Flange | A572-50 | Typical | 7.34 | 17.1 | 53.4 | .461 |

Basic Load Cases

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed Area(Me... | Surface(P... |
|----|----------------------|----------|-----------|-----------|-----------|-------|-------|------------------------|--------------|
| 1 | Dead | None | | -1 | | 24 | 295 | 11 | |
| 2 | No Ice Wind 0 deg | None | | | | 24 | 758 | 32 | |
| 3 | No Ice Wind 30 deg | None | | | | 48 | 836 | 44 | |
| 4 | No Ice Wind 60 deg | None | | | | 48 | 861 | 44 | |
| 5 | No Ice Wind 90 deg | None | | | | 24 | 762 | 32 | |
| 6 | No Ice Wind 120 deg | None | | | | 48 | 860 | 44 | |
| 7 | No Ice Wind 150 deg | None | | | | 48 | 825 | 44 | |
| 8 | No Ice Wind 180 deg | None | | | | 24 | 758 | 32 | |
| 9 | No Ice Wind 210 deg | None | | | | 48 | 836 | 44 | |
| 10 | No Ice Wind 240 deg | None | | | | 48 | 861 | 44 | |
| 11 | No Ice Wind 270 deg | None | | | | 24 | 762 | 32 | |
| 12 | No Ice Wind 300 deg | None | | | | 48 | 860 | 44 | |
| 13 | No Ice Wind 330 deg | None | | | | 48 | 825 | 44 | |
| 14 | Ice | None | | | | 24 | 295 | 42 | |
| 15 | Temperature Drop | None | | | | | | 30 | |
| 16 | Ice Wind 0 deg | None | | | | 24 | 759 | 32 | |
| 17 | Ice Wind 30 deg | None | | | | 48 | 827 | 44 | |
| 18 | Ice Wind 60 deg | None | | | | 48 | 865 | 44 | |
| 19 | Ice Wind 90 deg | None | | | | 24 | 761 | 32 | |
| 20 | Ice Wind 120 deg | None | | | | 48 | 864 | 44 | |
| 21 | Ice Wind 150 deg | None | | | | 48 | 816 | 44 | |
| 22 | Ice Wind 180 deg | None | | | | 24 | 759 | 32 | |
| 23 | Ice Wind 210 deg | None | | | | 48 | 827 | 44 | |
| 24 | Ice Wind 240 deg | None | | | | 48 | 865 | 44 | |
| 25 | Ice Wind 270 deg | None | | | | 24 | 761 | 32 | |
| 26 | Ice Wind 300 deg | None | | | | 48 | 864 | 44 | |
| 27 | Ice Wind 330 deg | None | | | | 48 | 816 | 44 | |
| 28 | Service Wind 0 deg | None | | | | 24 | 755 | 32 | |
| 29 | Service Wind 30 deg | None | | | | 48 | 828 | 44 | |
| 30 | Service Wind 60 deg | None | | | | 48 | 854 | 44 | |
| 31 | Service Wind 90 deg | None | | | | 24 | 761 | 32 | |
| 32 | Service Wind 120 deg | None | | | | 48 | 853 | 44 | |
| 33 | Service Wind 150 deg | None | | | | 48 | 818 | 44 | |
| 34 | Service Wind 180 deg | None | | | | 24 | 755 | 32 | |
| 35 | Service Wind 210 deg | None | | | | 48 | 828 | 44 | |
| 36 | Service Wind 240 deg | None | | | | 48 | 854 | 44 | |
| 37 | Service Wind 270 deg | None | | | | 24 | 761 | 32 | |
| 38 | Service Wind 300 deg | None | | | | 48 | 853 | 44 | |
| 39 | Service Wind 330 deg | None | | | | 48 | 818 | 44 | |



Company : GPD
 Designer : MR
 Job Number : 2019701.02
 Model Name : 60417 (SNET005) DANBURY

Nov 15, 2018
 9:26 AM
 Checked By: _____

Load Combinations

| | Description | S... | P... | S... | B... | Fa... |
|----|---------------------------------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| 1 | Dead Only | Yes | | | 1 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 2 | 1.2 Dead+1.6 Wind 0 deg - No... | Yes | | | 1 | 1.2 | 2 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 3 | 0.9 Dead+1.6 Wind 0 deg - No... | Yes | | | 1 | .9 | 2 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 4 | 1.2 Dead+1.6 Wind 30 deg - N... | Yes | | | 1 | 1.2 | 3 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 5 | 0.9 Dead+1.6 Wind 30 deg - N... | Yes | | | 1 | .9 | 3 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 6 | 1.2 Dead+1.6 Wind 60 deg - N... | Yes | | | 1 | 1.2 | 4 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 7 | 0.9 Dead+1.6 Wind 60 deg - N... | Yes | | | 1 | .9 | 4 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 8 | 1.2 Dead+1.6 Wind 90 deg - N... | Yes | | | 1 | 1.2 | 5 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 9 | 0.9 Dead+1.6 Wind 90 deg - N... | Yes | | | 1 | .9 | 5 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 10 | 1.2 Dead+1.6 Wind 120 deg - ... | Yes | | | 1 | 1.2 | 6 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 11 | 0.9 Dead+1.6 Wind 120 deg - ... | Yes | | | 1 | .9 | 6 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 12 | 1.2 Dead+1.6 Wind 150 deg - ... | Yes | | | 1 | 1.2 | 7 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 13 | 0.9 Dead+1.6 Wind 150 deg - ... | Yes | | | 1 | .9 | 7 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 14 | 1.2 Dead+1.6 Wind 180 deg - ... | Yes | | | 1 | 1.2 | 8 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 15 | 0.9 Dead+1.6 Wind 180 deg - ... | Yes | | | 1 | .9 | 8 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 16 | 1.2 Dead+1.6 Wind 210 deg - ... | Yes | | | 1 | 1.2 | 9 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 17 | 0.9 Dead+1.6 Wind 210 deg - ... | Yes | | | 1 | .9 | 9 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 18 | 1.2 Dead+1.6 Wind 240 deg - ... | Yes | | | 1 | 1.2 | 10 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 19 | 0.9 Dead+1.6 Wind 240 deg - ... | Yes | | | 1 | .9 | 10 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 20 | 1.2 Dead+1.6 Wind 270 deg - ... | Yes | | | 1 | 1.2 | 11 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 21 | 0.9 Dead+1.6 Wind 270 deg - ... | Yes | | | 1 | .9 | 11 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 22 | 1.2 Dead+1.6 Wind 300 deg - ... | Yes | | | 1 | 1.2 | 12 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 23 | 0.9 Dead+1.6 Wind 300 deg - ... | Yes | | | 1 | .9 | 12 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 24 | 1.2 Dead+1.6 Wind 330 deg - ... | Yes | | | 1 | 1.2 | 13 | 1.6 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 25 | 0.9 Dead+1.6 Wind 330 deg - ... | Yes | | | 1 | .9 | 13 | 1.6 | 40 | .9 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 26 | 1.2 Dead+1.0 Ice+1.0 Temp | Yes | | | 1 | 1.2 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | |
| 27 | 1.2 Dead+1.0 Wind 0 deg+1.0... | Yes | | | 1 | 1.2 | 16 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 28 | 1.2 Dead+1.0 Wind 30 deg+1.... | Yes | | | 1 | 1.2 | 17 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 29 | 1.2 Dead+1.0 Wind 60 deg+1.... | Yes | | | 1 | 1.2 | 18 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 30 | 1.2 Dead+1.0 Wind 90 deg+1.... | Yes | | | 1 | 1.2 | 19 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 31 | 1.2 Dead+1.0 Wind 120 deg+1... | Yes | | | 1 | 1.2 | 20 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 32 | 1.2 Dead+1.0 Wind 150 deg+1... | Yes | | | 1 | 1.2 | 21 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 33 | 1.2 Dead+1.0 Wind 180 deg+1... | Yes | | | 1 | 1.2 | 22 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 34 | 1.2 Dead+1.0 Wind 210 deg+1... | Yes | | | 1 | 1.2 | 23 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 35 | 1.2 Dead+1.0 Wind 240 deg+1... | Yes | | | 1 | 1.2 | 24 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 36 | 1.2 Dead+1.0 Wind 270 deg+1... | Yes | | | 1 | 1.2 | 25 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 37 | 1.2 Dead+1.0 Wind 300 deg+1... | Yes | | | 1 | 1.2 | 26 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 38 | 1.2 Dead+1.0 Wind 330 deg+1... | Yes | | | 1 | 1.2 | 27 | 1 | 14 | 1 | 15 | 1 | 40 | 1.2 | 41 | 1 | 0 | | 0 | | 0 | | 0 | |
| 39 | Dead+Wind 0 deg - Service | Yes | | | 1 | 1 | 28 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 40 | Dead+Wind 30 deg - Service | Yes | | | 1 | 1 | 29 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 41 | Dead+Wind 60 deg - Service | Yes | | | 1 | 1 | 30 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 42 | Dead+Wind 90 deg - Service | Yes | | | 1 | 1 | 31 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 43 | Dead+Wind 120 deg - Service | Yes | | | 1 | 1 | 32 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 44 | Dead+Wind 150 deg - Service | Yes | | | 1 | 1 | 33 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 45 | Dead+Wind 180 deg - Service | Yes | | | 1 | 1 | 34 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 46 | Dead+Wind 210 deg - Service | Yes | | | 1 | 1 | 35 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 47 | Dead+Wind 240 deg - Service | Yes | | | 1 | 1 | 36 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 48 | Dead+Wind 270 deg - Service | Yes | | | 1 | 1 | 37 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 49 | Dead+Wind 300 deg - Service | Yes | | | 1 | 1 | 38 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 50 | Dead+Wind 330 deg - Service | Yes | | | 1 | 1 | 39 | 1 | 40 | 1 | 41 | 1 | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |



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

| Member | Shape | Code | Loc | LC | Shear | Loc | Dir | LC | phi*Pn | phi*Pnt | phi*Mn | phi*Mn | Cb | Eqn |
|--------|-------|--------|------|-------|-------|------|-------|----|--------|---------|--------|--------|--------|------------|
| 1 | M16 | W10X33 | .536 | 0 | 20 | .142 | 1.92 | y | 20 | 269.23 | 436.95 | 52.5 | 145.5 | 2... H1-1b |
| 2 | M17 | W10X33 | .508 | 13.1 | 24 | .135 | 13.1 | y | 24 | 269.23 | 436.95 | 52.5 | 145.5 | 2... H1-1b |
| 3 | M18 | W10X33 | .565 | 0 | 4 | .149 | 1.372 | y | 4 | 269.23 | 436.95 | 52.5 | 145.5 | 2... H1-1b |
| 4 | M25 | W6X25 | .283 | 6.181 | 18 | .003 | 14.1 | z | 4 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |
| 5 | M26 | W6X25 | .287 | 6.181 | 10 | .003 | 14.1 | z | 14 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |
| 6 | M27 | W6X25 | .251 | 6.181 | 10 | .003 | 14.1 | z | 18 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |
| 7 | M28 | W6X25 | .256 | 5.887 | 4 | .003 | 14.1 | z | 18 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |
| 8 | M29 | W6X25 | .278 | 5.887 | 24 | .003 | 14.1 | z | 12 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |
| 9 | M30 | W6X25 | .266 | 6.181 | 18 | .003 | 14.1 | z | 10 | 134.017 | 330.3 | 32.1 | 70.875 | 1... H1-1a |

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 | N16 | max | 25.383 | 18 | 157.415 | 18 | 11.503 | 7 | 0 | 50 | .009 | 24 | 0 | 50 |
| 2 | | min | -21.007 | 7 | -130.279 | 7 | -14.009 | 18 | 0 | 1 | -.01 | 13 | 0 | 1 |
| 3 | N17 | max | 20.96 | 23 | 152.711 | 10 | 10.997 | 23 | 0 | 50 | .005 | 23 | 0 | 50 |
| 4 | | min | -25.137 | 10 | -129.247 | 23 | -13.219 | 10 | 0 | 1 | -.006 | 10 | 0 | 1 |
| 5 | N18 | max | 2.481 | 9 | 144.624 | 2 | 27.523 | 2 | 0 | 50 | .005 | 24 | 0 | 50 |
| 6 | | min | -2.626 | 20 | -137.885 | 15 | -25.426 | 15 | 0 | 1 | -.006 | 13 | 0 | 1 |
| 7 | Totals: | max | 34.819 | 21 | 88.993 | 28 | 36.144 | 3 | | | | | | |
| 8 | | min | -34.721 | 8 | 26.583 | 3 | -38.027 | 14 | | | | | | |

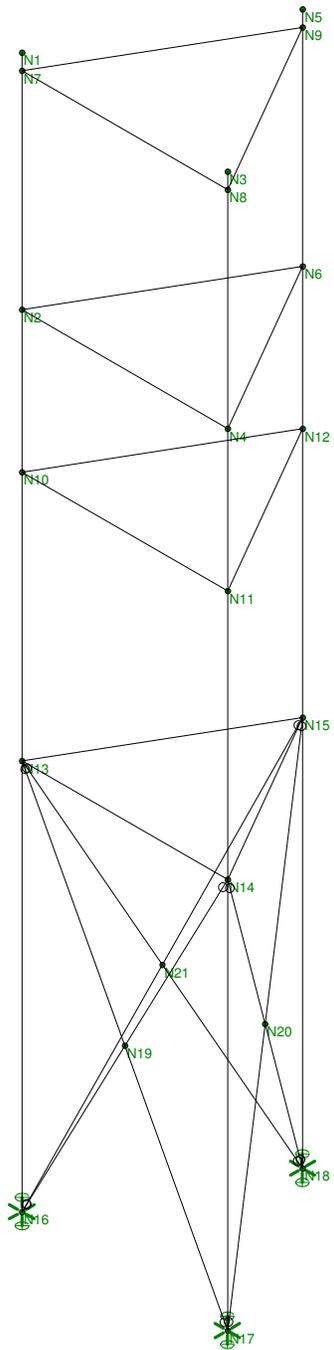


Member Stress Results
60417 (SNET005) DANBURY
 2019701.02

| Section Number | Elevation (ft) | Component Type | Size | Pu (k) | ΦPn (K) | % Capacity | Pass/Fail |
|-----------------|----------------|----------------|---------------------|--------|---------|--------------|--------------|
| T1 | 50 - 64.3 | LEG | POLY15.50x1/4 (GPD) | 16.454 | 706.289 | 20.4% | Pass |
| T1 | 50 - 64.3 | TOP GIRT | POLY12.45x1/4 (GPD) | 2.621 | 565.031 | 28.9% | Pass |
| T2 | 41 - 50 | LEG | POLY15.50x1/4 (GPD) | 35.87 | 706.289 | 35.6% | Pass |
| T2 | 41 - 50 | TOP GIRT | POLY12.45x1/4 (GPD) | 2.573 | 565.031 | 53.5% | Pass |
| T3 | 25 - 41 | LEG | POLY15.50x1/4 (GPD) | 58.221 | 706.289 | 56.0% | Pass |
| T4 | 0 - 25 | LEG | POLY15.50x1/4 (GPD) | 93.845 | 706.289 | 26.9% | Pass |
| T4 | 0 - 25 | TOP GIRT | POLY12.45x1/4 (GPD) | 3.161 | 565.031 | 39.3% | Pass |
| T3 | 25 - 41 | TOP GIRT | W10x33 | 2.838 | 269.23 | 46.9% | Pass |
| T4 | 0 - 25 | DIAG | W6x25 | 37.394 | 134.02 | 25.9% | Pass |
| Summary | | | | | | ELC: | Load Case 18 |
| Leg (T3) | | | | | | 56.0% | Pass |
| Diagonal (T4) | | | | | | 25.9% | Pass |
| Top Girt (T2) | | | | | | 53.5% | Pass |
| Rating = | | | | | | 56.0% | Pass |

APPENDIX D

Anchor Rod Analysis



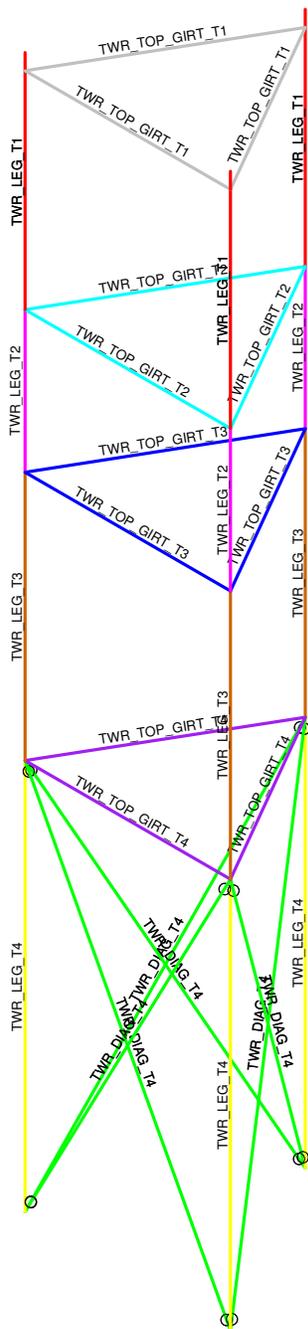
GPD
MR
2019701.02

60417 (SNET005) DANBURY

SK - 1
Nov 15, 2018 at 9:23 AM
60417 SNET005.rt3



- Section Sets
- TWR_TOP_GIRT_T3
 - TWR_DIAG_T4
 - TWR_LEG_T1
 - TWR_TOP_GIRT_T1
 - TWR_TOP_GIRT_T2
 - TWR_LEG_T2
 - TWR_LEG_T3
 - TWR_LEG_T4
 - TWR_TOP_GIRT_T4



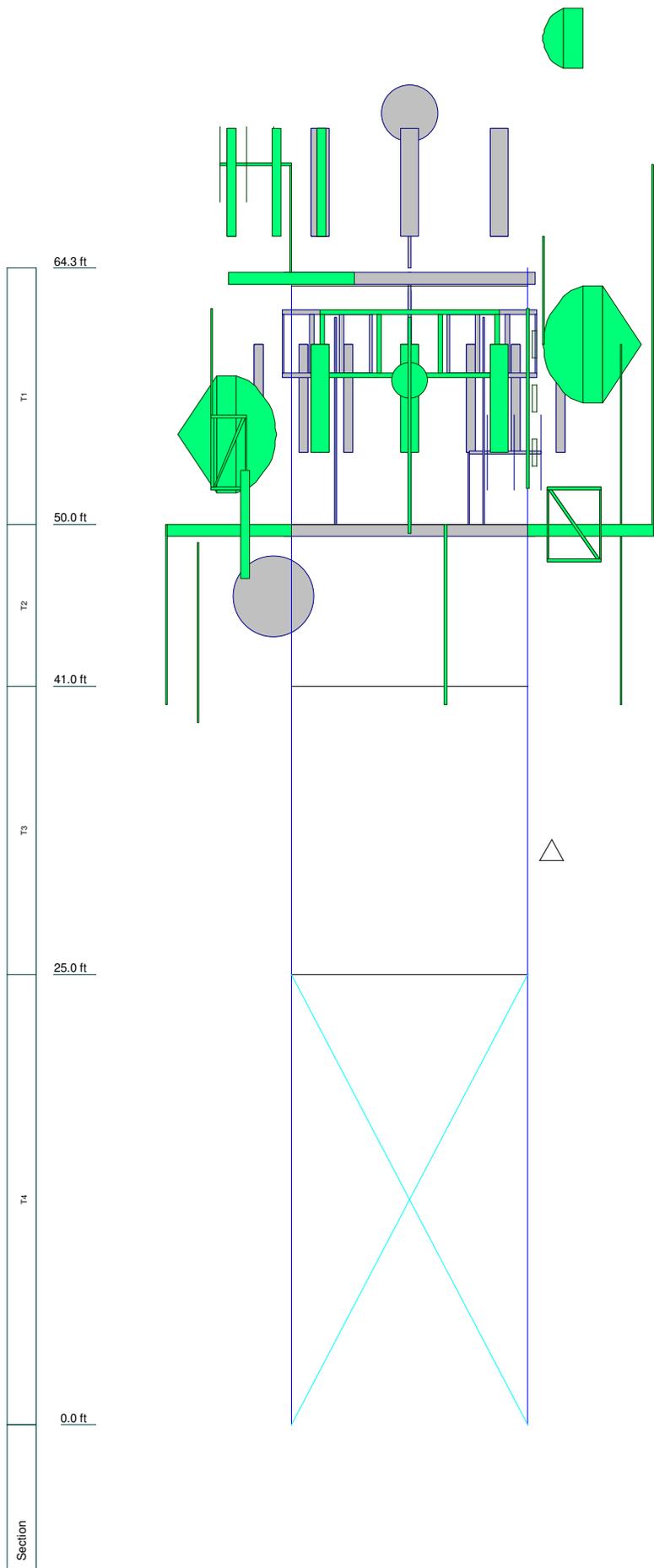
GPD
 MR
 2019701.02

60417 (SNET005) DANBURY

SK - 2

Nov 15, 2018 at 9:24 AM

60417 SNET005.rt3



GPD
 520 South Main Street Suite 2531
 Akron, Ohio 44311
 Phone: (555) 555-1234
 FAX: (555) 555-1235

| | | |
|--------------------------------------------------------------------|-------------------|-------------|
| Job: 60417 (SNET005) DANBURY | | |
| Project: 2019701.02 | | |
| Client: Empire Telecom | Drawn by: mrisley | App'd: |
| Code: TIA-222-G | Date: 11/15/18 | Scale: NTS |
| Path: T:\ATandT\60417\03 2019701 02 Empire SA\TX\60417 SNET005.dwg | | Dwg No: E-1 |

APPENDIX C

Tower Elevation Drawing



Existing Flange Connection @ T2 Elevation
60417 (SNET005) DANBURY
 2019701.02

| | | |
|---------------|-------|------|
| O.T. Moment = | 73.3 | k*ft |
| Axial = | 0.023 | kips |
| Shear = | 11.32 | kips |

| | | |
|-------------------------|---|--------|
| Acceptable Stress Ratio | = | 105.0% |
|-------------------------|---|--------|

| Flange Bolts | | |
|---------------------------------------------------------|--------------|-----------------|
| # Bolts = | 4 | |
| Bolt Type = | A325 | |
| Threads Included? = | Yes | |
| Bolt Diameter = | 1.25 | in |
| Bolt Circle = | 18 | in |
| ϕ_t = | 0.75 | |
| ϕ_v = | 0.75 | |
| <i>Tension & Shear (TIA-222-G-1, Section 4.9.6)</i> | | |
| F_{ub} = | 105 | ksi |
| A_b = | 1.227185 | in ² |
| A_n = | 0.969 | in ² |
| ϕR_{nv} = | 43.49 | kips |
| ϕR_{nt} = | 76.31 | kips |
| ϕR_{nt} (adjusted) = | 76.15 | kips |
| V_{ub} = | 2.83 | kips |
| T_{ub} = | 48.74 | kips |
| <i>Prying Action Check</i> | | |
| N/A, top flange thickness > tc | | |
| Max Comp. on Bolt = | 48.75 | kips |
| Shear Capacity = | 6.5% | |
| Tensile Capacity = | 63.9% | |
| Interaction Capacity = | 64.0% | |
| Bolt Capacity = | 64.0% | OK |

| Upper Flange Plate | | |
|----------------------------|--------------|-----------------|
| Location = | External | |
| Plate Strength (F_y) = | 36 | ksi |
| Plate Tensile (F_u) = | 58 | ksi |
| Plate Thickness = | 1.5 | in |
| Outer Diameter = | 16 | in |
| ϕ_t = | 0.9 | |
| wcalc = | 13.00 | in |
| wmax = | 15.00 | in |
| w = | 13.00 | in |
| Z = | 7.31 | in ³ |
| M_u = | 135.29 | k-in |
| ϕM_n = | 236.9232 | k-in |
| UP Capacity = | 57.1% | OK |

| Pole Information | | |
|-----------------------|-------|-----|
| Shaft Diam. (Upper) = | 12.45 | in |
| Thickness (Upper) = | 0.25 | in |
| # of Sides (Upper) = | 8 | |
| F_y (Upper) = | 50 | ksi |
| Shaft Diam. (Lower) = | 12.45 | in |
| Thickness (Lower) = | 0.25 | in |
| # of Sides (Lower) = | 8 | |
| F_y (Lower) = | 50 | ksi |



Self-Support Anchor Rod Analysis
60417 (SNET005) DANBURY
2019701.02

| General Info | |
|---------------------------------|-----------|
| Code | TIA-222-G |
| Modified Anchor Rods | No |
| Clear Distance > d _b | No |
| Leg Eccentricity | No |
| Max Capacity | 1.05 |

| Anchor Rod Results | | |
|---------------------------------------------------------|-------|-----------|
| (P _u + V _u /η) | 41.5 | kips |
| φ*R _{nt} = φ*F _{ub} *A _n = | 150.8 | kips |
| Anchor Rod Stress Ratio = | 27.5% | OK |

| Tower Reactions | |
|--------------------------------|-------------|
| Detail Type = | C |
| Eta Factor, η = | 0.55 |
| Uplift, P _u = | 137.89 kips |
| Uplift Shear, V _u = | 15.53 kips |

| Anchor Rods | |
|---------------------------------------|---------|
| Number of Anchor Rods, N = | 4 |
| Anchor Rod Grade = | A36 |
| Anchor Rod Diameter, d _d = | 2.25 in |
| Bolt Circle, BC = | 22.6 in |
| Yield, F _y = | 36 ksi |
| Tensile, F _{ub} = | 58 ksi |

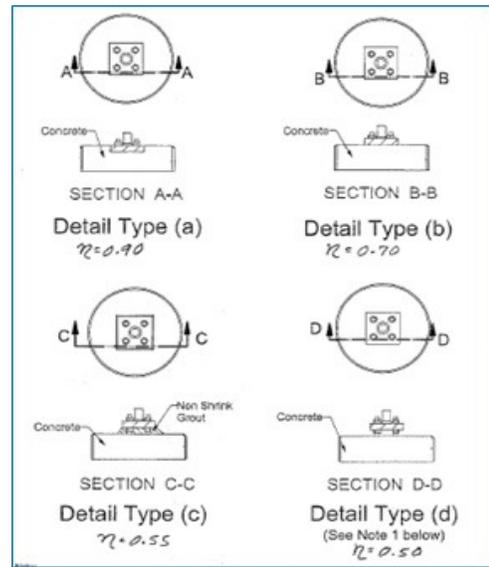
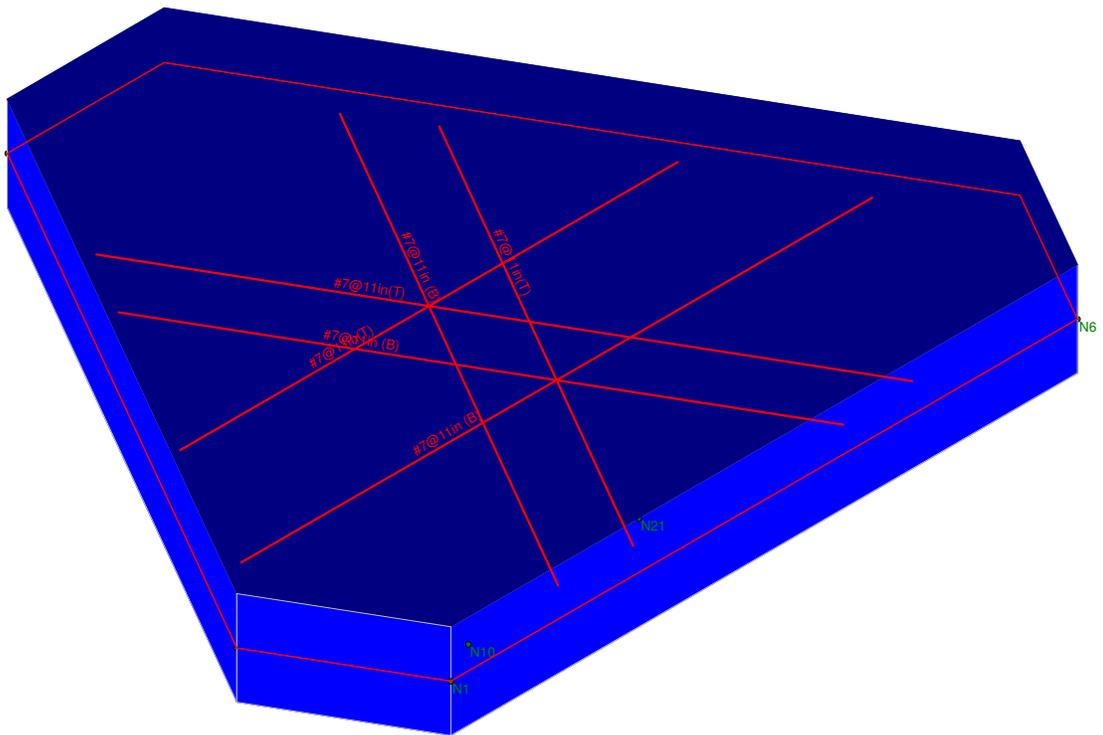


Figure 4-4 of TIA-222-G

APPENDIX E

Foundation Analysis



Results for LC 1, 1 Dead Only

GPD

MR

2019701.02

60417 (SNET005) DANBURY

SK - 2

Nov 15, 2018 at 9:55 AM

60417 SNET005.fnd



Company : GPD
 Designer : MR
 Job Number : 2019701.02
 Model Name : 60417 (SNET005) DANBURY

Nov 15, 2018
 9:47 AM
 Checked By: _____

Slabs

| | Label | Thickness [in] | Material | Local Axis Angle [d... | Analysis Offset [in] | Passive Pressure [k... | Soil Overb... |
|---|-------|----------------|------------|------------------------|----------------------|------------------------|---------------|
| 1 | S1 | 36 | Conc3000NW | 0 | 0 | 0 | 0 |

General Design Parameters

| | Label | Max Bending Chk | Max Shear Chk | Top Cover[in] | Bottom Cover[in] |
|---|---------|-----------------|---------------|---------------|------------------|
| 1 | Typical | 2 | 2 | 3 | 3 |

Slab Rebar Parameters

| | Label | Top Bar | Bottom Bar | Max Top Bar S... | Min Top Bar S... | Max Bot Bar S... | Min Bot Bar S... | Spacing In... | Rebar Options |
|---|---------|---------|------------|------------------|------------------|------------------|------------------|---------------|----------------------|
| 1 | Typical | #7 | #7 | 11 | 11 | 11 | 11 | 11 | Force Top and Bottom |

Envelope Slab Soil Pressures (By Combination)

| | Label | UC | LC | Soil Pressure[ksf] | Allowable Bearing[ksf] | Point |
|---|-------|-----|----|--------------------|------------------------|-------|
| 1 | S1 | .37 | 40 | 8.444 | 22.83 | N6 |

Slab Overturning Safety Factors

| | LC | Slab | Angle[deg] | Mo-xx[k-ft] | Ms-xx[k-ft] | Mo-zz[k-ft] | Ms-zz[k-ft] | Ms-xx/Mo-xx | Ms-zz/Mo-zz |
|----|----|------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 26 | S1 | 0 | 0 | 3946.484 | 0 | 2732.171 | 9.999+ | 9.999+ |
| 2 | 27 | S1 | 0 | 0 | 3613.79 | 1054.446 | 3193.221 | 9.999+ | 3.028 |
| 3 | 28 | S1 | 0 | 0 | 2737.12 | 1171.938 | 2394.916 | 9.999+ | 2.044 |
| 4 | 29 | S1 | 0 | 481.704 | 3072.769 | 1060.128 | 3193.221 | 6.379 | 3.012 |
| 5 | 30 | S1 | 0 | 595.004 | 2304.577 | 1177.62 | 2394.916 | 3.873 | 2.034 |
| 6 | 31 | S1 | 0 | 970.426 | 3072.769 | 443.469 | 3193.221 | 3.166 | 7.201 |
| 7 | 32 | S1 | 0 | 1083.726 | 2304.577 | 560.961 | 2394.916 | 2.127 | 4.269 |
| 8 | 33 | S1 | 0 | 1104.854 | 3072.769 | 0 | 2552.28 | 2.781 | 9.999+ |
| 9 | 34 | S1 | 0 | 1218.167 | 2304.577 | 0 | 1945.507 | 1.892 | 9.999+ |
| 10 | 35 | S1 | 0 | 882.873 | 3072.769 | 418.78 | 2128.814 | 3.48 | 5.083 |
| 11 | 36 | S1 | 0 | 996.183 | 2304.577 | 493.359 | 1596.611 | 2.313 | 3.236 |
| 12 | 37 | S1 | 0 | 260.938 | 3072.769 | 1078.171 | 2128.814 | 9.999+ | 1.974 |
| 13 | 38 | S1 | 0 | 374.254 | 2304.577 | 1152.744 | 1596.611 | 6.158 | 1.385 |
| 14 | 39 | S1 | 0 | 0 | 3377.559 | 1369.195 | 2128.814 | 9.999+ | 1.555 |
| 15 | 40 | S1 | 0 | 0 | 2500.889 | 1443.76 | 1596.611 | 9.999+ | 1.106 |
| 16 | 41 | S1 | 0 | 504.473 | 3072.769 | 1209.78 | 2128.814 | 6.091 | 1.76 |
| 17 | 42 | S1 | 0 | 612.954 | 2304.577 | 1284.345 | 1596.611 | 3.76 | 1.243 |
| 18 | 43 | S1 | 0 | 1041.995 | 3072.769 | 634.752 | 2128.814 | 2.949 | 3.354 |
| 19 | 44 | S1 | 0 | 1150.479 | 2304.577 | 709.322 | 1596.611 | 2.003 | 2.251 |
| 20 | 45 | S1 | 0 | 1132.91 | 3072.769 | 0 | 2312.489 | 2.712 | 9.999+ |
| 21 | 46 | S1 | 0 | 1241.388 | 2304.577 | 0 | 1705.72 | 1.856 | 9.999+ |
| 22 | 47 | S1 | 0 | 867.824 | 3072.769 | 234.727 | 3193.221 | 3.541 | 9.999+ |
| 23 | 48 | S1 | 0 | 976.299 | 2304.577 | 352.219 | 2394.916 | 2.361 | 6.8 |
| 24 | 49 | S1 | 0 | 278.109 | 3072.769 | 937.178 | 3193.221 | 9.999+ | 3.407 |
| 25 | 50 | S1 | 0 | 386.565 | 2304.577 | 1054.653 | 2394.916 | 5.962 | 2.271 |

Strip Reinforcing (Envelope)

| | Label | UC Top | LC | Top Bars | Governin... | UC Bot | LC | Bot Bars/... | Governin... | UC Shear | LC | Governin... |
|---|-------|--------|----|----------|-------------|--------|----|--------------|-------------|----------|----|-------------|
| 1 | DS1 | .123 | 15 | #7@11in | DS1-X24 | .546 | 7 | #7@11in | DS1-X24 | .732 | 21 | DS1-X10 |
| 2 | DS2 | .116 | 7 | #7@11in | DS2-X25 | .65 | 15 | #7@11in | DS2-X25 | .86 | 25 | DS2-X9 |
| 3 | DS3 | .113 | 23 | #7@11in | DS3-X24 | .676 | 17 | #7@11in | DS3-X37 | .907 | 17 | DS3-X38 |

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GE'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.



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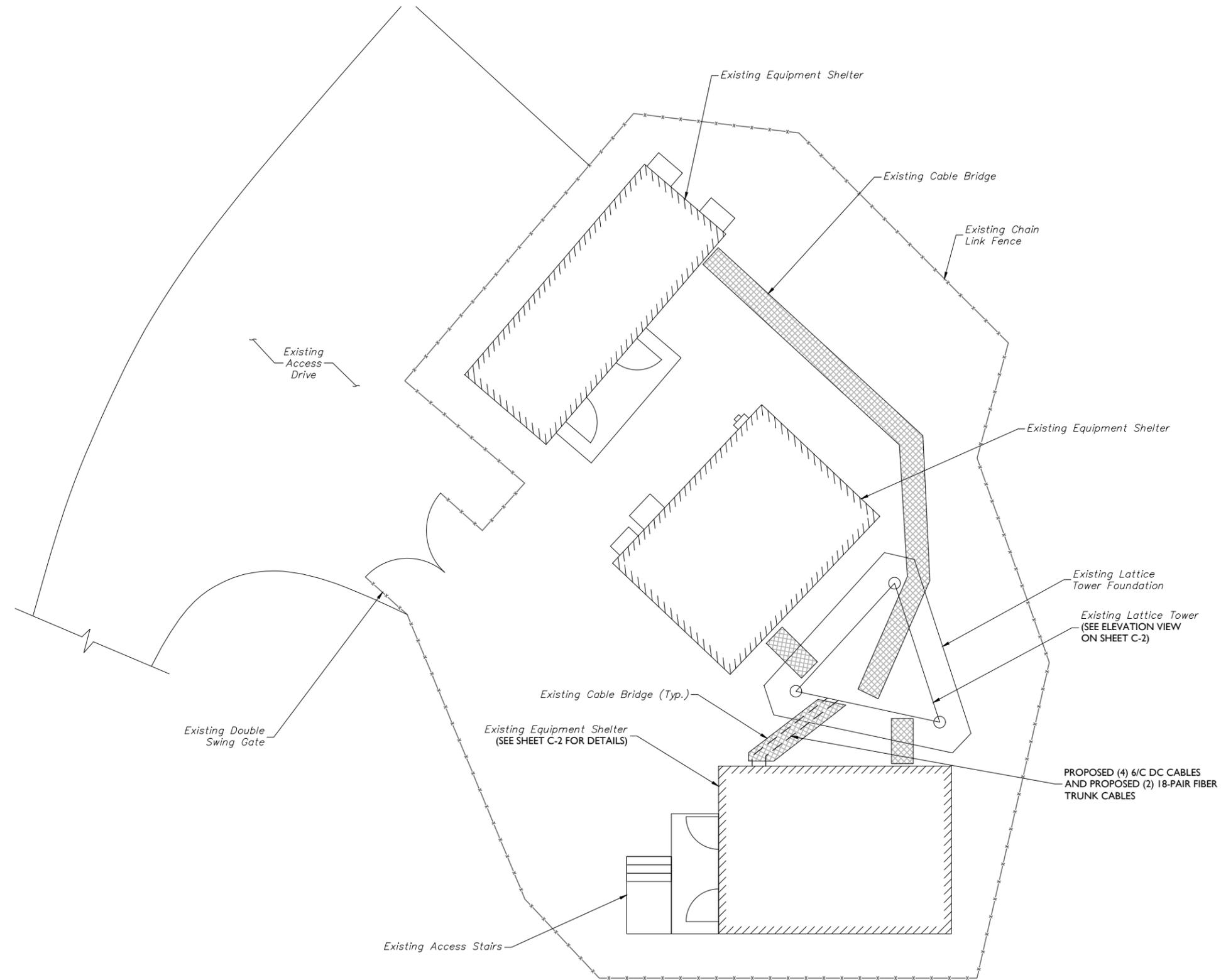
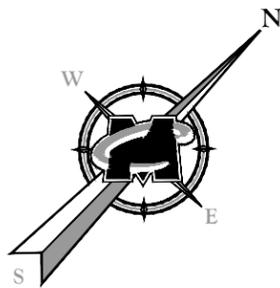
SITE NAME:
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 FA# 10034995
 SITE# CT2133
 MOSES MOUNTAIN
 DANBURY, CT 06810
 FAIRFIELD COUNTY

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SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

6/00014995_A3201_180916_CTT2133_REV A_CD.dwg(24/11) B7-A00A



COMPOUND PLAN



SCALE : 1" = 5' FOR 22"X34"
 (SCALE : 1" = 10' FOR 11"X17")



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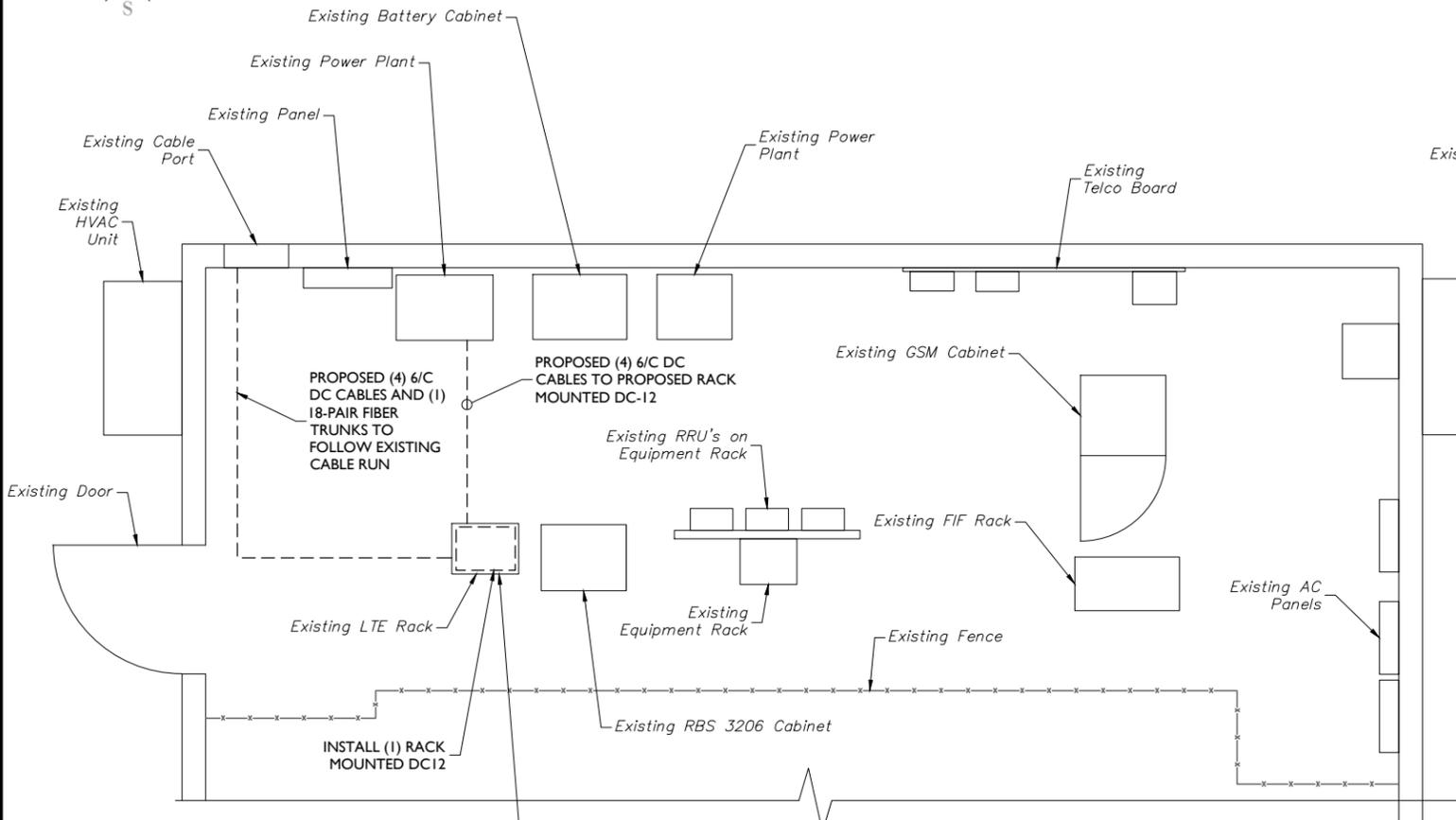
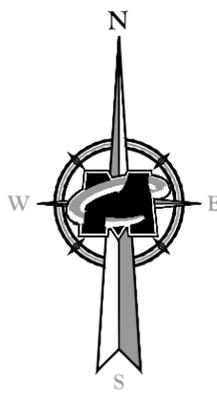
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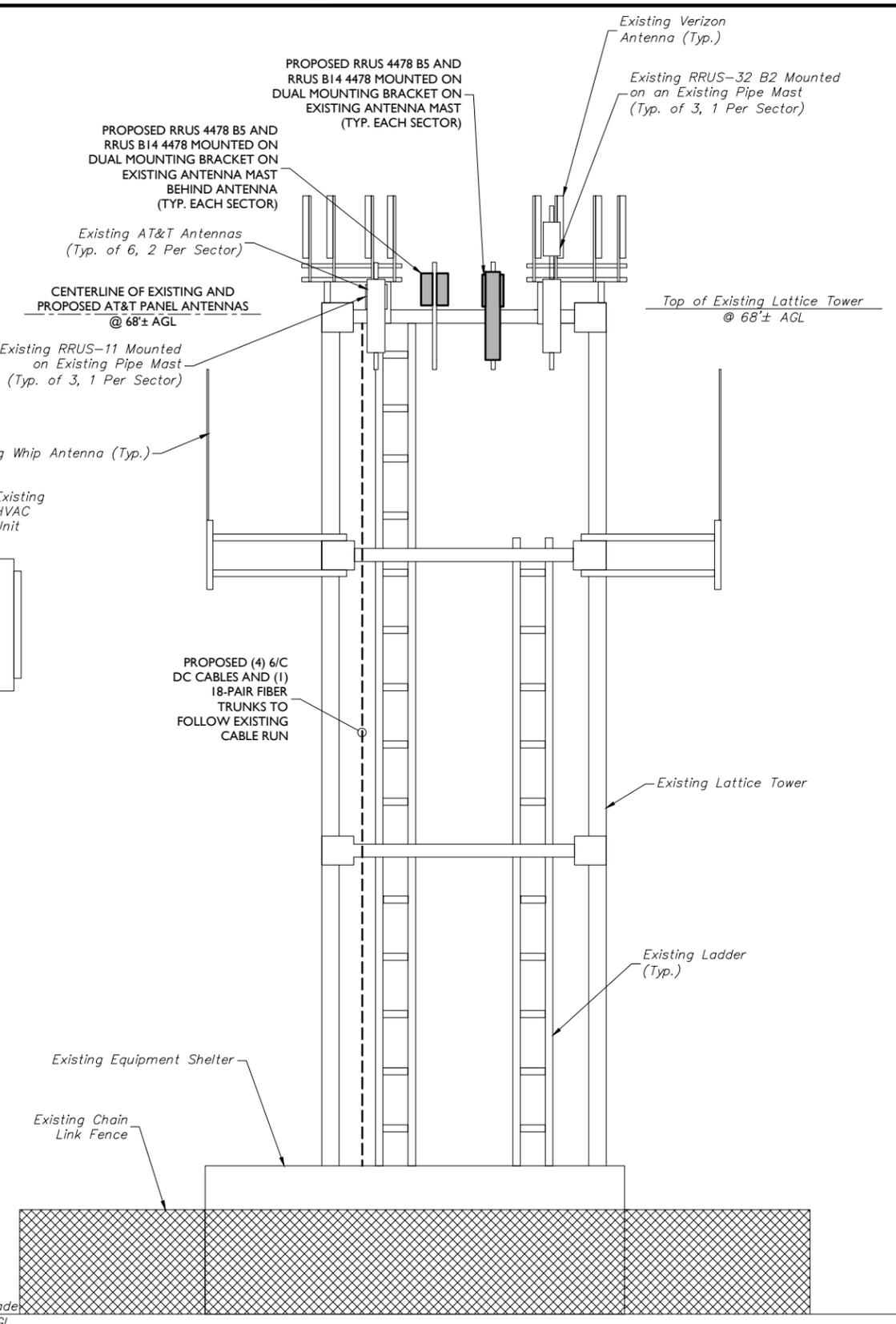


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COMPOUND PLAN

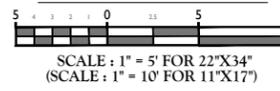
SHEET NUMBER:
C-1



EQUIPMENT LAYOUT



ELEVATION VIEW



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SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SHEET NUMBER:
C-2

C:\00014995_A3201_180916_CTT2133_NEW_A_CD.dwg/C3 By: ACCOA

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| 1 | 09/18/18 | ISSUED FOR REVIEW | JRF | RA |
| REV | DATE | DRAWN BY | CHECKED BY | |



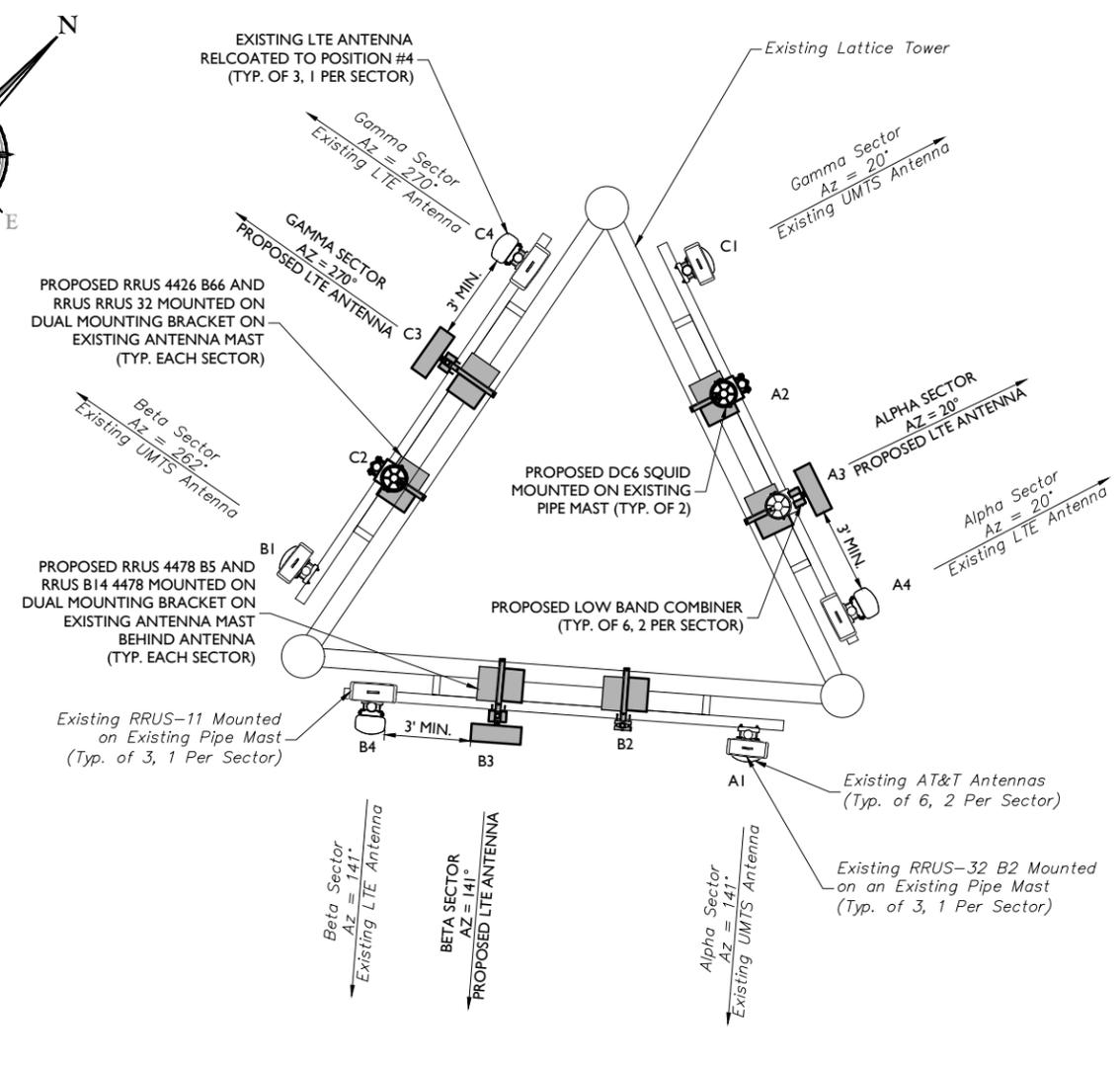
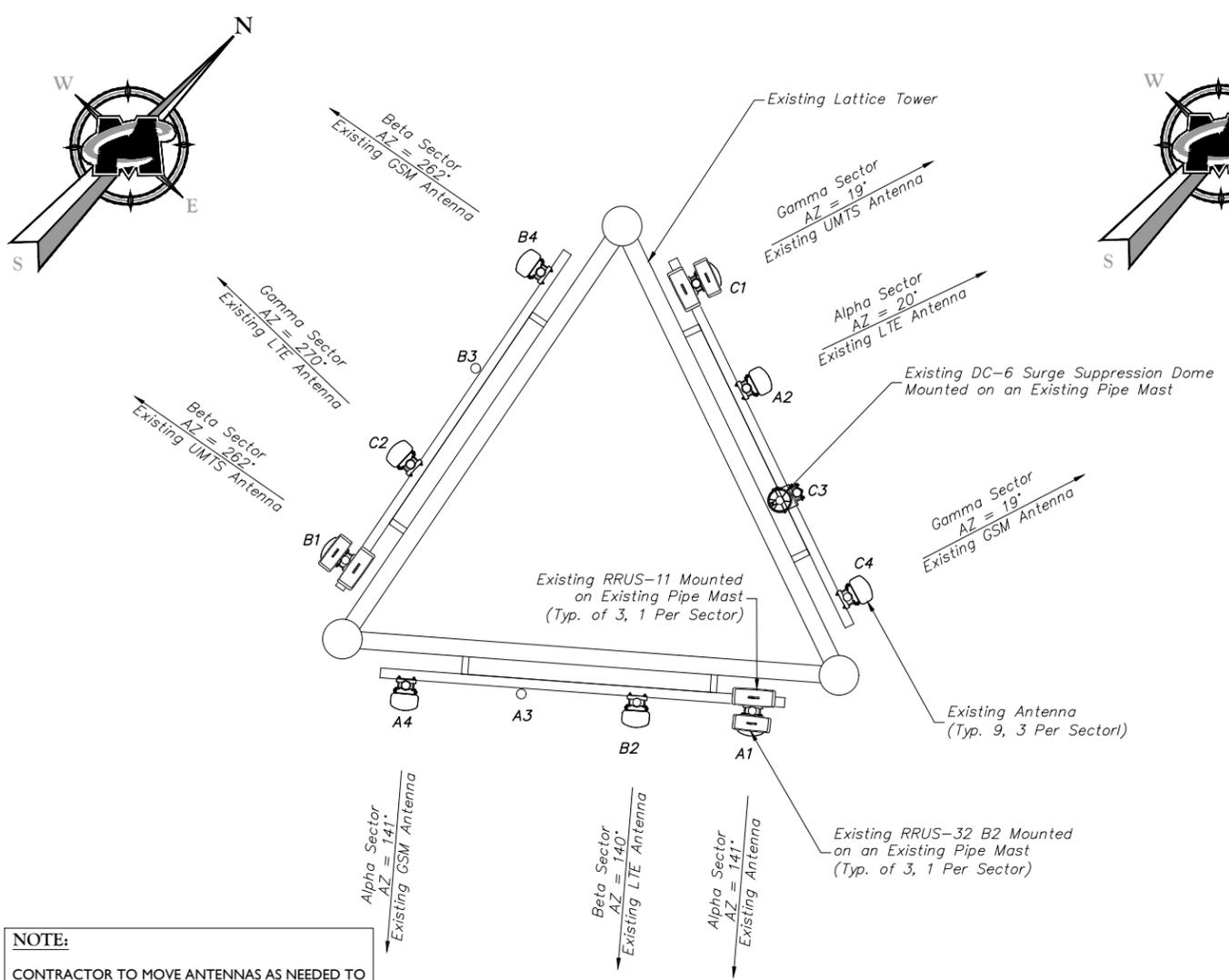
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SHEET TITLE:
ANTENNA LAYOUT AND ANTENNA SCHEDULE

SHEET NUMBER:
C-3



ANTENNA SCHEDULE

| SECTOR | EXISTING ANTENNA | PROPOSED ANTENNA | TECHNOLOGY | ANTENNA STATUS | HEIGHT (in) | WIDTH (in) | DEPTH (in) | WEIGHT (lbs) | ANTENNA AZIMUTH (DEG.) | ANT. CL. ELEV. (ft.) | REMOTE RADIO/TMA CONFIGURATION | TRANSMISSION CABLE | | | |
|----------|------------------------|------------------------|------------|----------------|-------------|------------|------------|--------------|------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|-------------|----------|
| | | | | | | | | | | | | QUANTITY | LENGTH | TYPE | STATUS |
| Sector 1 | POWERWAVE 7770 | POWERWAVE 7770 | UMTS | EXISTING | 55.00 | 11.00 | 5.00 | 35.00 | 141 | 68 | (2) LGP 21901 Diplexer (GRADE) (2) LGP 17201 TMA | 2 | - | 1 5/8" COAX | REMAIN |
| | CCI HPA-65R-BUJH-H6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | KMW EPBQ-654L8H6-L2 | LTE | PROPOSED | #N/A | #N/A | #N/A | #N/A | 20 | 68 | RRUS B14 4478 (PROPOSED) RRUS 4478 B5 (PROPOSED) RRUS 32 B2 (PROPOSED) RRUS 4426 B66 (PROPOSED) (2) DBCT108F1V92-1 | 2/4 | - | FIBER/DC | PROPOSED |
| | POWERWAVE 7770 | CCI HPA-65R-BUJH-H6 | LTE | RELOCATED | 72.30 | 14.40 | 7.30 | 55.50 | 20 | 68 | RRU 11 (RELOCATED) RRUS 32 (RELOCATED) | 1/2 | - | FIBER/DC | EXISTING |
| Sector 2 | POWERWAVE 7770 | POWERWAVE 7770 | UMTS | EXISTING | 55.00 | 11.00 | 5.00 | 35.00 | 262 | 68 | (2) LGP 21901 Diplexer (GRADE) (2) LGP 17201 TMA | 2 | - | 1 5/8" COAX | REMAIN |
| | CCI HPA-65R-BUJH-H6 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | - | KMW EPBQ-654L8H6-L2 | LTE | PROPOSED | #N/A | #N/A | #N/A | #N/A | 140 | 68 | RRUS B14 4478 (PROPOSED) RRUS 4478 B5 (PROPOSED) RRUS 32 B2 (PROPOSED) RRUS 4426 B66 (PROPOSED) (2) DBCT108F1V92-1 | - | - | FIBER/DC | SHARED |
| | POWERWAVE 7770 | CCI HPA-65R-BUJH-H6 | LTE | RELOCATED | 72.30 | 14.40 | 7.30 | 55.50 | 140 | 68 | RRU 11 (RELOCATED) RRUS 32 (RELOCATED) | 1/2 | - | FIBER/DC | EXISTING |
| Sector 3 | POWERWAVE 7770 | POWERWAVE 7770 | UMTS | EXISTING | 55.00 | 11.00 | 5.00 | 35.00 | 20 | 68 | (2) LGP 21901 Diplexer (GRADE) (2) LGP 17201 TMA | 2 | - | 1 5/8" COAX | REMAIN |
| | CCI HPA-65R-BUJH-H6 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | - | KMW EPBQ-654L8H6-L2 | LTE | PROPOSED | #N/A | #N/A | #N/A | #N/A | 270 | 68 | RRUS B14 4478 (PROPOSED) RRUS 4478 B5 (PROPOSED) RRUS 32 B2 (PROPOSED) RRUS 4426 B66 (PROPOSED) (2) DBCT108F1V92-1 | - | - | FIBER/DC | SHARED |
| | POWERWAVE 7770 | CCI HPA-65R-BUJH-H6 | LTE | RELOCATED | 72.30 | 14.40 | 7.30 | 55.50 | 270 | 68 | RRU 11 (RELOCATED) RRUS 32 (RELOCATED) | 1/2 | - | FIBER/DC | EXISTING |

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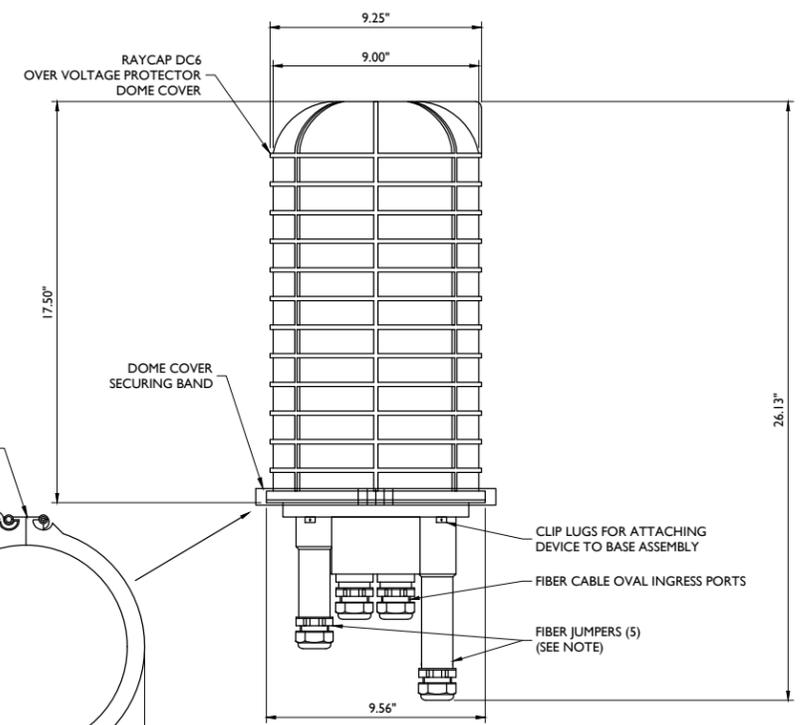
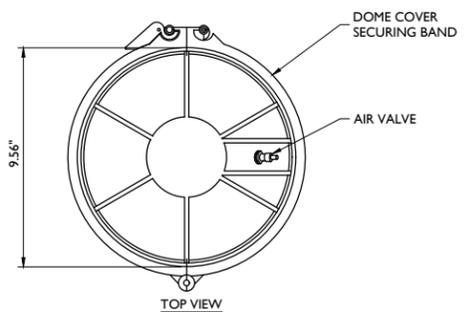


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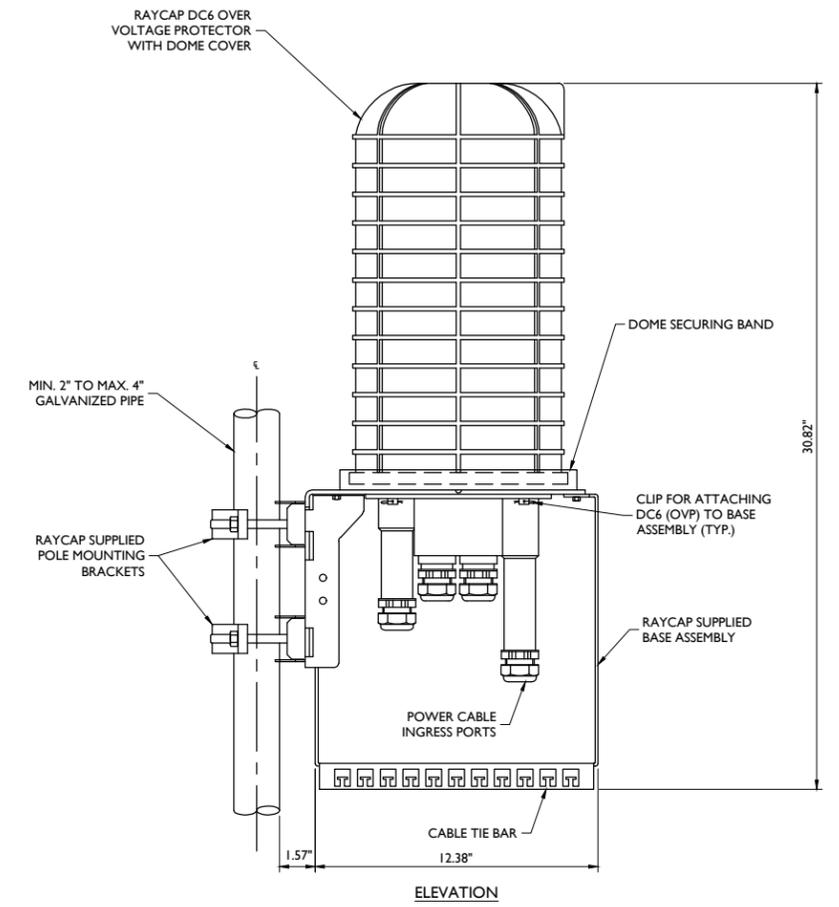
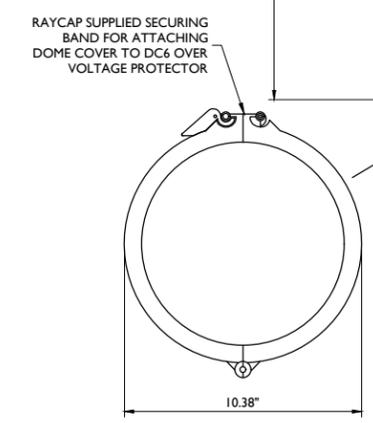
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SHEET NUMBER: **A-2**

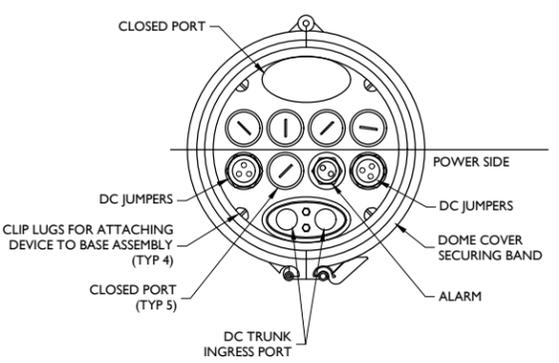


SIDE VIEW DC6-48-60-18-8C WEIGHT = 32.8lbs (EACH)

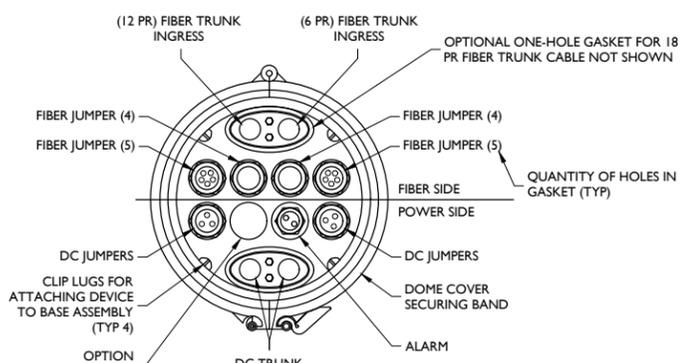


NOTES:
RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

**RAYCAP DC6-48-60-18-8F & DC6-48-60-0-8F
DC POWER OVER VOLTAGE PROTECTOR (OVP)
POLE MOUNT BASE ASSEMBLY**
NOT TO SCALE



BOTTOM VIEW DC6-48-60-0-8C



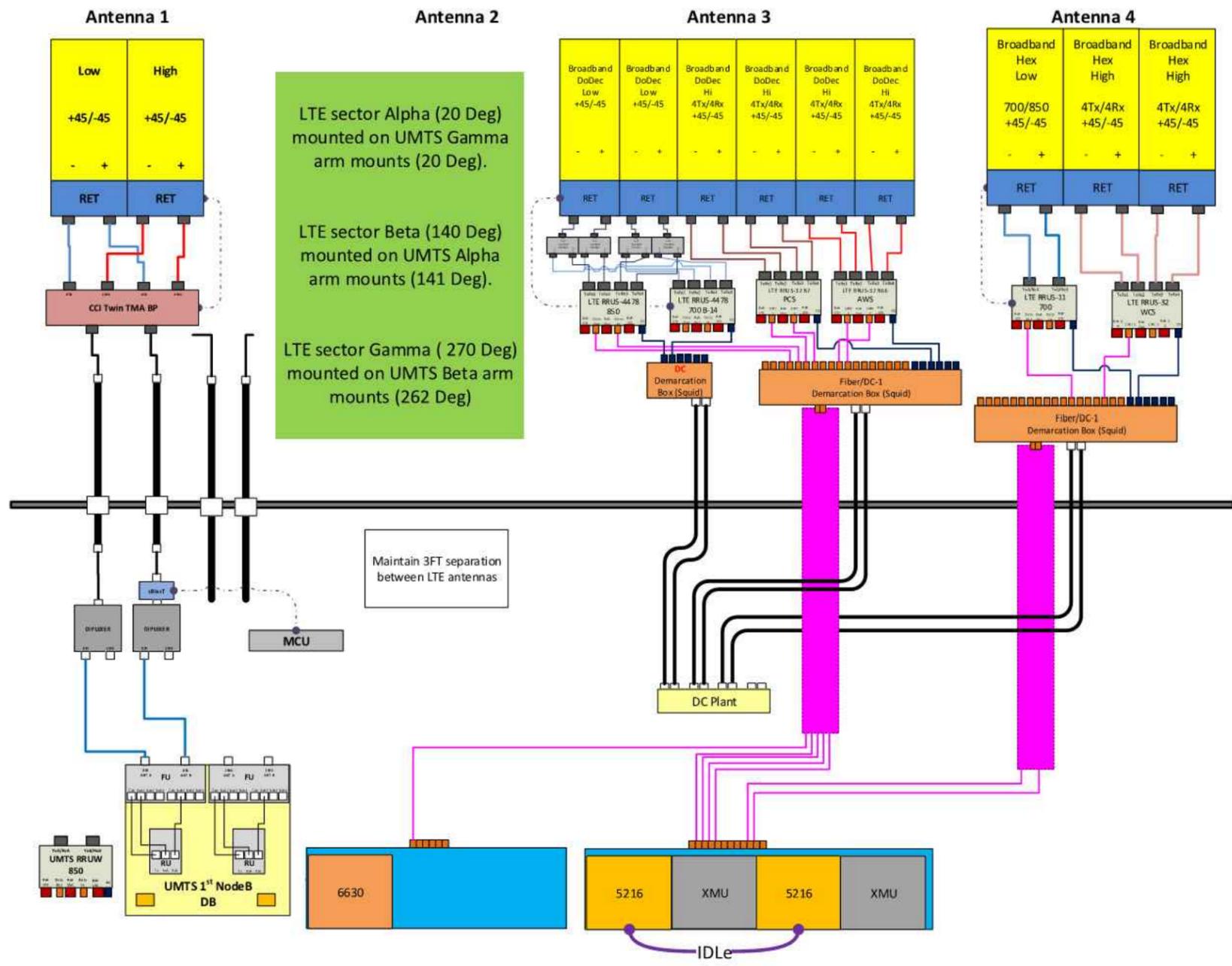
BOTTOM VIEW DC6-48-60-18-8C

NOTE:
REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1\"/>

DC6 SURGE SUPPRESSION DOME DETAIL
NOT TO SCALE

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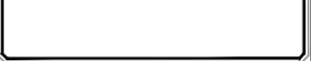
Diagram - Sector A Diagram File Name - CT2133_A_B_C_LTE6C_Rev1.vsd
 Atoll Site Name - CTV2133 Location Name - DANBURY- MOSES MTN. Market - CONNECTICUT Market Cluster - NEW ENGLAND
 Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna Radio Connection Drawings Playbook v6.0 Ericsson



BASED ON: RF ENGINEERING DESIGN ENTITLED "CTV2133_2018-LTE-Next-Carrier_LTE_om636a_2051A0GHC3_10034995_60417" LAST REVISED ON 08/30/2018.

RF PLUMBING DIAGRAM (TYP. ALL SECTORS)

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 SITE# CT2133
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SHEET TITLE:
 RF PLUMBING DIAGRAM

SHEET NUMBER:
 A-3

10034995_A3D01_18963025A.ctb



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2133

FA#: 10034995

Moses Mountain
144 Old Boston Post Road
Danbury, CT 6810

December 20, 2018

Centerline Communications Project Number: 950006-160

| Site Compliance Summary | |
|---------------------------------------------------------------------|------------------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general population allowable limit: | 39.61 % |



December 20, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2133 – Moses Mountain**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **144 Old Boston Post Road, Danbury, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **144 Old Boston Post Road, Danbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

| Technology | Frequency Band | Channel Count | Transmit Power per Channel (W) |
|------------|-------------------|---------------|--------------------------------|
| UMTS | 850 MHz | 2 | 30 |
| LTE | 700 MHz | 2 | 40 |
| LTE | 2300 MHz (WCS) | 4 | 30 |
| LTE | 700 MHz (Band 14) | 4 | 40 |
| LTE | 850 MHz | 2 | 40 |
| LTE | 2100 MHz (AWS) | 4 | 30 |
| LTE | 1900 MHz (PCS) | 4 | 40 |
| 5G | 850 MHz | 2 | 25 |

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

| Sector | Antenna Number | Antenna Make / Model | Antenna Centerline (ft) |
|--------|----------------|----------------------|-------------------------|
| A | 1 | Powerwave 7770 | 68 |
| A | 2 | KMW EPBQ-654L8H6-L2 | 68 |
| A | 3 | CCI HPA-65R-BUU-H6 | 68 |
| B | 1 | Powerwave 7770 | 68 |
| B | 2 | KMW EPBQ-654L8H6-L2 | 68 |
| B | 3 | CCI HPA-65R-BUU-H6 | 68 |
| C | 1 | Powerwave 7770 | 68 |
| C | 2 | KMW EPBQ-654L8H6-L2 | 68 |
| C | 3 | CCI HPA-65R-BUU-H6 | 68 |

Table 2: Antenna Data

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



RESULTS

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

| Antenna ID | Antenna Make / Model | Frequency Bands | Antenna Gain (dBd) | Channel Count | Total TX Power (W) | ERP (W) | MPE % |
|-------------------------|----------------------|-----------------------------------------------------|-------------------------------|---------------|--------------------|-----------|--------------|
| Antenna A1 | Powerwave 7770 | 850 MHz | 11.4 | 2 | 60 | 828.23 | 1.37 |
| Antenna A2 | KMW EPBQ-654L8H6-L2 | 700 MHz / 850 MHz / 2100 MHz (AWS) / 1900 MHz (PCS) | 12.35 / 12.45 / 14.95 / 15.05 | 14 | 570 | 13,903.48 | 17.57 |
| Antenna A3 | CCI HPA-65R-BUU-H6 | 700 MHz / 2300 MHz (WCS) | 11.95 / 15.25 | 6 | 200 | 5,272.99 | 6.27 |
| Sector A Composite MPE% | | | | | | | 25.20 |
| Antenna B1 | Powerwave 7770 | 850 MHz | 11.4 | 2 | 60 | 828.23 | 1.37 |
| Antenna B2 | KMW EPBQ-654L8H6-L2 | 700 MHz / 850 MHz / 2100 MHz (AWS) / 1900 MHz (PCS) | 12.35 / 12.45 / 14.95 / 15.05 | 14 | 570 | 13,903.48 | 17.57 |
| Antenna B3 | CCI HPA-65R-BUU-H6 | 700 MHz / 2300 MHz (WCS) | 11.95 / 15.25 | 6 | 200 | 5,272.99 | 6.27 |
| Sector B Composite MPE% | | | | | | | 25.20 |
| Antenna C1 | Powerwave 7770 | 850 MHz | 11.4 | 2 | 60 | 828.23 | 1.37 |
| Antenna C2 | KMW EPBQ-654L8H6-L2 | 700 MHz / 850 MHz / 2100 MHz (AWS) / 1900 MHz (PCS) | 12.35 / 12.45 / 14.95 / 15.05 | 14 | 570 | 13,903.48 | 17.57 |
| Antenna C3 | CCI HPA-65R-BUU-H6 | 700 MHz / 2300 MHz (WCS) | 11.95 / 15.25 | 6 | 200 | 5,272.99 | 6.27 |
| Sector C Composite MPE% | | | | | | | 25.20 |

Table 3: AT&T Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

| Site Composite MPE% | |
|-----------------------------|----------------|
| Carrier | MPE% |
| AT&T – Max Per Sector Value | 25.20 % |
| Marcus - antenna #1 | 0.83 % |
| Marcus - antenna #2 | 0.83 % |
| Marcus - antenna #4 | 0.02 % |
| Pagenet | 1.81 % |
| Verizon Wireless | 10.92 % |
| Site Total MPE %: | 39.61 % |

Table 4: All Carrier MPE Contributions

| | |
|----------------------|---------|
| AT&T Sector A Total: | 25.20 % |
| AT&T Sector B Total: | 25.20 % |
| AT&T Sector C Total: | 25.20 % |
| | |
| Site Total: | 39.61 % |

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

| AT&T _ Frequency Band / Technology Max Power Values (Per Sector) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ($\mu\text{W}/\text{cm}^2$) | Frequency (MHz) | Allowable MPE ($\mu\text{W}/\text{cm}^2$) | Calculated % MPE |
|------------------------------------------------------------------------|---------------|----------------------------|------------------|---------------------------------------------------------|--------------------|---------------------------------------------------|---------------------|
| AT&T 850 MHz UMTS – Antenna 1 | 2 | 414.12 | 68 | 7.75 | 850 MHz | 567 | 1.37% |
| AT&T 700 MHz (Band 14) LTE – Antenna 2 | 4 | 687.16 | 68 | 25.71 | 700 MHz | 467 | 5.50% |
| AT&T 850 MHz LTE – Antenna 2 | 2 | 703.17 | 68 | 13.15 | 850 MHz | 567 | 2.32% |
| AT&T 2100 MHz (AWS) LTE – Antenna 2 | 4 | 937.82 | 68 | 35.08 | 2100 MHz (AWS) | 1000 | 3.51% |
| AT&T 1900 MHz (PCS) LTE – Antenna 2 | 4 | 1,279.56 | 68 | 47.87 | 1900 MHz (PCS) | 1000 | 4.79% |
| AT&T 850 MHz 5G – Antenna 2 | 2 | 439.48 | 68 | 8.22 | 850 MHz | 567 | 1.45% |
| AT&T 700 MHz LTE – Antenna 3 | 2 | 626.70 | 68 | 11.72 | 700 MHz | 467 | 2.51% |
| AT&T 2300 MHz (WCS) LTE – Antenna 3 | 4 | 1,004.90 | 68 | 37.59 | 2300 MHz (WCS) | 1000 | 3.76% |
| | | | | | | Total: | 25.20% |

Table 6: AT&T Maximum Sector MPE Power Values



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| AT&T Sector | Power Density Value (%) |
|-------------------------------------|-------------------------|
| Sector A: | 25.20 % |
| Sector B: | 25.20 % |
| Sector C: | 25.20 % |
| AT&T Maximum Total (per sector): | 25.20 % |
| | |
| Site Total: | 39.61 % |
| | |
| Site Compliance Status: | COMPLIANT |

The anticipated composite MPE value for this site assuming all carriers present is **39.61 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is written over a light blue horizontal line.

Scott Heffernan

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