



10 INDUSTRIAL AVENUE,
SUITE 3
MAHWAH, NJ 07430

PHONE: 201.684.0055
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June 12, 2018

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

Notice of Exempt Modification
623 Pine Street, Bridgeport, CT
Latitude- 41.16567777
Longitude- -73.216627777

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 180' level of the existing 250' self-support lattice at 623 Pine Street in Bridgeport, Connecticut. The tower and property is owned by Radio Communications Corp. T-Mobile now intends to replace (6) of its existing antennas with (6) new 1900/2100 MHz antennas, relocate 3 antennas, swap (3) TMAs, remove (5) RRUs and add (6) RRUs. These antennas and RRUs would be installed at the same 180' level of the tower. Twelve (12) 1-5/8" coax lines will be removed and (1) 6x12 hybrid cable installed.

This facility was approved by the City of Bridgeport Zoning Board of Appeals in 1999, with no record of conditions that would restrict exempt modifications. Therefore this modification complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to Joseph P. Ganim, Mayor of the City of Bridgeport, as well as the tower and property owner.

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

1. The proposed modification will not result in an increase in the height of the existing structure
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Elizabeth Jamieson

Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:

Mayor Joseph P. Ganim- as elected official
RCC Communications Corp/Bob Knapp - as tower and property owner
Thomas F. Gill- Director of Office of Planning and Economic Development

623 PINE ST

Location 623 PINE ST

Mblu 19/ 307/ 25/ /

Acct# RK-0259405

Owner KNAPP ANDREW & LILLIAN &

Assessment \$224,850

Appraisal \$321,210

PID 2504

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$251,840 | \$69,370 | \$321,210 |

| Assessment | | | |
|----------------|--------------|----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$176,290 | \$48,560 | \$224,850 |

Owner of Record

Owner KNAPP ANDREW & LILLIAN &
Co-Owner ROBERT KNAPP (SURV OF THEM)
Address 24 ROCKDALE RD
WEST HAVEN, CT 06516

Sale Price \$90,000
Certificate
Book & Page 2838/ 116
Sale Date 09/24/1990

Ownership History

| Ownership History | | | | |
|--------------------------|------------|-------------|-------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Sale Date |
| KNAPP ANDREW & LILLIAN & | \$90,000 | | 2838/ 116 | 09/24/1990 |

Building Information

Building 1 : Section 1

Year Built: 1964
Living Area: 2,625
Replacement Cost: \$237,462
Building Percent 85
Good:
Replacement Cost
Less Depreciation: \$201,840

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

| | |
|-------------------|-------------------|
| STYLE | Telephone Bldg |
| MODEL | Ind/Comm |
| Grade: | Above Ave |
| Stories: | 1 |
| Occupancy: | 1 |
| Exterior Wall 1: | Concr/CinderBl |
| Exterior Wall 2: | |
| Roof Struct: | Flat |
| Roof Cover: | T+G/Rubber |
| Interior Wall 1: | Minim/Masonry |
| Interior Wall 2: | |
| Interior Floor 1: | Concr-Finished |
| Interior Floor 2: | |
| Heating Fuel: | Gas |
| Heating Type: | Forced Air |
| AC Type: | Central |
| Bldg Use: | Industrial Mdl 96 |
| Ttl Rooms: | |
| Ttl Bedrms: | 00 |
| Ttl Baths: | 0 |
| Ttl Half Baths: | 0 |
| Ttl Xtra Fix: | 0 |
| 1st Floor Use: | |
| Heat/AC: | Heat/Ac Pkgs |
| Frame Type: | Masonry |
| Baths/Plumbing: | Average |
| Ceiling/Wall: | Ceil & Walls |
| Rooms/Prtns: | Average |
| Wall Height: | 14 |
| % Conn Wall: | |

Building Photo



(<http://images.vgsi.com/photos2/BridgeportCTPhotos//\00\08\99>)

Building Layout



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

| Building Sub-Areas (sq ft) | | | Legend |
|----------------------------|-------------|------------|-------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 2,625 | 2,625 |
| | | 2,625 | 2,625 |

Extra Features

| Extra Features | Legend |
|----------------------------|--------|
| No Data for Extra Features | |

Land

Land Use

Use Code 300

Land Line Valuation

Size (Acres) 0.09

Description Industrial Mdl 96
Zone ILI
Neighborhood IND
Alt Land Appr No
Category

Frontage 0
Depth 0
Assessed Value \$48,560
Appraised Value \$69,370

Outbuildings

| Outbuildings | | | | | | Legend |
|--------------|-------------|----------|-----------------|--------|----------|--------|
| Code | Description | Sub Code | Sub Description | Size | Value | Bldg # |
| TWR | Tower | | | 250 LF | \$50,000 | 1 |

Valuation History

| Appraisal | | | |
|----------------|--------------|----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$251,840 | \$69,370 | \$321,210 |
| 2016 | \$251,840 | \$69,370 | \$321,210 |
| 2015 | \$251,840 | \$69,370 | \$321,210 |

| Assessment | | | |
|----------------|--------------|----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$176,290 | \$48,560 | \$224,850 |
| 2016 | \$176,290 | \$48,560 | \$224,850 |
| 2015 | \$176,290 | \$48,560 | \$224,850 |

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Legend

- Parcels
- Streetname**
- Roadways**
 - Local
 - Collector
 - Minor Collector
 - Minor Arterial
 - Major Collector
 - PA Other
 - PA Other Expwy
 - PA Interstate

1:426

71.0 0 35.49 71.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Connecticut Metropolitan Council of Governments

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION





RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11014B

CT014/ I-95/ X24/ Bla
623 Pine Street
Bridgeport, CT 06605

June 5, 2018

EBI Project Number: 6218004245

| Site Compliance Summary | |
|---|------------------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general population allowable limit: | 11.64 % |



June 5, 2018

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11014B – CT014/ I-95/ X24/ Bla**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **623 Pine Street, Bridgeport, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz Band are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) 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 done for the proposed T-Mobile Wireless antenna facility located at **623 Pine Street, Bridgeport, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel
- 5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These channels have a transmit power of 30 Watts per channel.
- 6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These channels have a transmit power of 30 Watts per channel.



- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. 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. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the **Ericsson AIR 3246 B66 & Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz, 700 MHz and 1900 MHz (PCS) channels. This is based on feedback from the carrier with regard to anticipated antenna selection. Actual gain values per the manufacturers specifications were utilized for all calculations and are listed in the following Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is **180 feet** above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

| Sector: | A | Sector: | B | Sector: | C |
|--------------------|------------------------------------|--------------------|------------------------------------|--------------------|------------------------------------|
| Antenna #: | 1 | Antenna #: | 1 | Antenna #: | 1 |
| Make / Model: | Ericsson AIR 3246 B66 | Make / Model: | Ericsson AIR 3246 B66 | Make / Model: | Ericsson AIR 3246 B66 |
| Gain: | 15.9 dBd | Gain: | 15.9 dBd | Gain: | 15.9 dBd |
| Height (AGL): | 180 | Height (AGL): | 180 | Height (AGL): | 180 |
| Frequency Bands | 2100 MHz (AWS) | Frequency Bands | 2100 MHz (AWS) | Frequency Bands | 2100 MHz (AWS) |
| Channel Count | 4 | Channel Count | 4 | Channel Count | 4 |
| Total TX Power(W): | 240 | Total TX Power(W): | 240 | Total TX Power(W): | 240 |
| ERP (W): | 9,337.08 | ERP (W): | 9,337.08 | ERP (W): | 9,337.08 |
| Antenna A1 MPE% | 1.11 | Antenna B1 MPE% | 1.11 | Antenna C1 MPE% | 1.11 |
| Antenna #: | 2 | Antenna #: | 2 | Antenna #: | 2 |
| Make / Model: | Ericsson AIR21 B2A/B4P | Make / Model: | Ericsson AIR21 B2A/B4P | Make / Model: | Ericsson AIR21 B2A/B4P |
| Gain: | 15.9 dBd | Gain: | 15.9 dBd | Gain: | 15.9 dBd |
| Height (AGL): | 180 | Height (AGL): | 180 | Height (AGL): | 180 |
| Frequency Bands | 1900 MHz (PCS) / 2100 MHz (AWS) | Frequency Bands | 1900 MHz (PCS) / 2100 MHz (AWS) | Frequency Bands | 1900 MHz (PCS) / 2100 MHz (AWS) |
| Channel Count | 4 | Channel Count | 4 | Channel Count | 4 |
| Total TX Power(W): | 120 | Total TX Power(W): | 120 | Total TX Power(W): | 120 |
| ERP (W): | 4,668.54 | ERP (W): | 4,668.54 | ERP (W): | 4,668.54 |
| Antenna A2 MPE% | 0.55 | Antenna B2 MPE% | 0.55 | Antenna C2 MPE% | 0.55 |
| Antenna #: | 3 | Antenna #: | 3 | Antenna #: | 3 |
| Make / Model: | RFS APXVAARR24_43-U- NA20 | Make / Model: | RFS APXVAARR24_43-U- NA20 | Make / Model: | RFS APXVAARR24_43-U- NA20 |
| Gain: | 12.95/ 13.35 / 15.65 dBd | Gain: | 12.95/ 13.35 / 15.65 dBd | Gain: | 12.95/ 13.35 / 15.65 dBd |
| Height (AGL): | 180 | Height (AGL): | 180 | Height (AGL): | 180 |
| Frequency Bands | 600 MHz/ 700 MHz / 1900 MHz | Frequency Bands | 600 MHz/ 700 MHz / 1900 MHz | Frequency Bands | 600 MHz/ 700 MHz / 1900 MHz |
| Channel Count | 6 | Channel Count | 6 | Channel Count | 6 |
| Total TX Power(W): | 240 | Total TX Power(W): | 240 | Total TX Power(W): | 240 |
| ERP (W): | 6,888.47 | ERP (W): | 6,888.47 | ERP (W): | 6,888.47 |
| Antenna A3 MPE% | 1.21 | Antenna B3 MPE% | 1.21 | Antenna C3 MPE% | 1.21 |

| Site Composite MPE% | |
|---------------------------|----------------|
| Carrier | MPE% |
| T-Mobile (Per Sector Max) | 2.87 % |
| Sprint | 2.19 % |
| Sprint MW | 0.14 % |
| Clearwire | 0.14 % |
| Verizon Wireless | 3.44 % |
| Unknown | 1.58 % |
| MetroPCS | 1.28 % |
| Site Total MPE %: | 11.64 % |

| | |
|--------------------------|----------------|
| T-Mobile Sector A Total: | 2.87 % |
| T-Mobile Sector B Total: | 2.87 % |
| T-Mobile Sector C Total: | 2.87 % |
| Site Total: | 11.64 % |



T-Mobile Max Power Values (All Sectors)

| T-Mobile_per sector | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ($\mu\text{W}/\text{cm}^2$) | Frequency (MHz) | Allowable MPE ($\mu\text{W}/\text{cm}^2$) | Calculated % MPE |
|------------------------------|------------|-------------------------|---------------|---|-----------------|---|------------------|
| T-Mobile AWS - 2100 MHz LTE | 4 | 2,334.27 | 180 | 11.09 | AWS - 2100 MHz | 1000 | 1.11% |
| T-Mobile AWS - 2100 MHz UMTS | 2 | 1,167.14 | 180 | 2.77 | AWS - 2100 MHz | 1000 | 0.28% |
| T-Mobile PCS - 1900 MHz GSM | 2 | 1,167.14 | 180 | 2.77 | PCS - 1900 MHz | 1000 | 0.28% |
| T-Mobile PCS - 1900 MHz LTE | 2 | 2,203.69 | 180 | 5.23 | PCS - 1900 MHz | 1000 | 0.52% |
| T-Mobile 600 MHz LTE | 2 | 591.73 | 180 | 1.41 | 600 MHz | 400 | 0.35% |
| T-Mobile 700 MHz LTE | 2 | 648.82 | 180 | 1.54 | 700 MHz | 467 | 0.33% |
| | | | | | | Total: | 2.87% |

Summary

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

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

| T-Mobile Sector | Power Density Value (%) |
|------------------------------|-------------------------|
| Sector A: | 2.87 % |
| Sector B: | 2.87 % |
| Sector C: | 2.87 % |
| T-Mobile Per Sector Maximum: | 2.87 % |
| | |
| Site Total: | 11.64 % |
| | |
| Site Compliance Status: | COMPLIANT |

The anticipated composite MPE value for this site assuming all carriers present is **11.64%** 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.

STRUCTURAL ANALYSIS REPORT

for



Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, NJ 07430

Bridgeport (CT11014B)
KM No. 180416.00

250' Self-Support Tower
623 Pine Street
Bridgeport, CT 06605
41.16573, -73.21666

Prepared By:



KM CONSULTING ENGINEERS, INC.

262 Upper Ferry Road Ewing, NJ 08628
Ph: (609) 538-0400 www.kmengr.com

May 25, 2018

Prepared to ANSI/TIA-222-G-4 December 2014
Structural Standards for Antenna Supporting
Structures and Antennas

**Transcend Wireless
Bridgeport (CT11014B)**

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Load Case No. 1: Existing tower superstructure with existing inventory and proposed T-Mobile installation.

1.0 EXECUTIVE SUMMARY

Structure

Owner: Radio Communications Tower

Location: 623 Pine Street
Bridgeport, CT 06605
41.16573, -73.21666

Manufacturer: Rohn
Eng. File No. 37679AE dated 7/1/98

Equipment

Existing tower inventory plus the proposed installation are detailed in Section 2.0 "Tower Inventory."

Synopsis

Load Case No. 1: The existing tower superstructure with the current inventory and proposed T-Mobile installation.

The existing tower superstructure and base foundation have sufficient capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower superstructure is rated at 71.3% and the foundation is rated at 51.8%.

2.0 TOWER INVENTORY

DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|-----------|---|-----------|
| yaggi in radom | 256 | mounting frames w/stable bar (MetroPCS) | 138 |
| Beacon | 256 | | |
| Omni antenna | 256 | VHLP1-23-2WH (Clearwire) | 121 |
| Omni antenna | 256 | VHLP1-23-2WH (Clearwire) | 121 |
| Omni antenna | 256 | VHLP2.5-11-4WH (Clearwire) | 121 |
| Omni antenna | 256 - 239 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| Top Platform | 256 | | |
| Omni antenna | 248 - 238 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| mounting frames w/stable bar (T-Mobile) | 180 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| mounting frames w/stable bar (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| mounting frames w/stable bar (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| mounting frames w/stable bar (T-Mobile) | 180 | Distribution Box (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T9 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T6 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T9 (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | Distribution Box (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | 2x60 700 RRH B13 (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | 2x60 700 RRH B13 (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | 2x60 700 RRH B13 (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | GPS antenna (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| mounting frames w/stable bar (MetroPCS) | 138 | TV 65 antenna | 100 |
| mounting frames w/stable bar (MetroPCS) | 138 | 4' Side Arm | 100 |
| mounting frames w/stable bar (MetroPCS) | 138 | TV 65 antenna | 100 |

Proposed T-Mobile Installation:

- *relocation of (3) existing AIR21 B2A/B4P panel antennas @ 180' AGL
- *relocation of (3) existing RRUS 32 B2's @ 180' AGL
- *(3) AIR 3246 panel antennas @ 180' AGL
- *(3) APXXVAARR24 43-U-NA20 panel antennas @ 180' AGL
- *(3) Radio 4449 B12 B71's @ 180' AGL
- *(3) twin style 1BX TMA's @ 180' AGL
- *(1) 6x12 hybrid cable up to 180' AGL
- *removal of (3) AIR32 B4A/B2P panel antennas @ 180' AGL
- *removal of (3) LNX-6515DS-A1M panel antennas @ 180' AGL
- *removal of (3) RRUS 11 B12's @ 180' AGL
- *removal of (2) RRUS 32 B2's @ 180' AGL
- *removal of (3) twin style 1B AWS TMA's @ 180' AGL
- *removal of (12) 1-5/8" coax lines up to 180' AGL

3.0 COMMENTARY

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed T-Mobile equipment noted in the tower inventory. The tower is a 250' tall Rohn self-support tower with a triangular platform located at the top.

Tower member sizes, layout and foundation information was taken from previous structural analysis by KM Consulting Engineers, Inc. (KMCE) dated 10/13/17. Existing antenna inventory and coax cable layout was also taken from the above mentioned analysis. Proposed equipment was obtained from a T-Mobile RFDS dated 4/3/18 and by correspondence with the client.

The following report will provide analytical calculations and commentary regarding the capacity of the proposed tower and subsequent recommendations.

4.0 ANALYSIS PROCEDURE

KM Consulting Engineers, Inc. carried out their structural analysis by correlating field inspection and tower member data into proprietary software designed specifically for communication tower analysis.

These programs run in conjunction with the guidelines set down in the ANSI/TIA-222-G Standard entitled "Structural Standards for Antenna Supporting Structures and Antennas."

The existing tower is analyzed by placing wind forces on the structure in 30° positional increments around the tower (i.e. wind pressure directly onto the tower corners, faces and parallel to the faces). This enables the user to "create" a three-dimensional representation, yielding results for worst case scenarios. In effect, the production of these results allows the user to study the structural integrity of the tower when influenced by wind forces from any direction.

The proceeding report includes analysis for the tower with the addition of antennas in the scenarios stated. For clarity, the analysis shall include worst case loadings and a typical elevation view with maximum foundation loads tabulated.

Should the client require to be furnished with a full copy of our analysis, we will gladly do so.

Codes and Standards

ACI - American Concrete Institute - Building Code Requirements for Structural Concrete (ACI 318-11), 2011

AISC - American Institute of Steel Construction - Manual of Steel Construction, Allowable Stress Design, 14th edition, 2011

TIA - Telecommunications Industry Association – ANSI/TIA-222-G-4 Structural Standards for Antenna Supporting Structures and Antennas, 2014

CSBC - Connecticut State Building Code 2016

5.0 TOWER ANALYSIS RESULTS

The tower was analyzed for the inventory detailed in Section 2.0 “Tower Inventory”.

The basic wind speed of 97 MPH with no radial ice in accordance with ANSI/TIA-222-G is taken from Appendix N in the 2016 Connecticut State Building Code for the nominal design wind speed for the municipality of Bridgeport, CT. The basic wind speed of 50 MPH concurrent with ¾” design ice thickness is taken from the ANSI/TIA-222-G listing applicable for Fairfield County, CT. Additional criteria include Structure Class II, Exposure Category B, and Topographic Category 1.

Load Case No. 1: Existing inventory and the proposed T-Mobile installation of the relocation of (3) existing AIR21 B2A/B4P panel antennas and (3) existing RRUS 32 B2’s, and additions of (3) AIR 3246 panel antennas, (3) APXXVAARR24 43-U-NA20 panel antennas, (3) Radio 4449 B12 B71’s, (3) twin style 1BX TMA’s, and (1) 6x12 hybrid cable. The proposed loading includes the removal of (3) AIR32 B4A/B2P panel antennas, (3) LNX-6515DS-A1M panel antennas, (3) RRUS 11 B12’s, (2) RRUS 32 B2’s, (3) twin style 1B AWS TMA’s, and (12) 1-5/8” coax lines.

The existing tower superstructure and base foundation have sufficient capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower superstructure is rated at 71.3% and the foundation is rated at 51.8%.

Table 1. Base Foundation Rating

| Force | Actual (kip·ft) | Allowable (kip·ft) | Capacity |
|--------------------|------------------------|---------------------------|-----------------|
| overturning moment | 9,076 | 17,511 | 51.8% |

6.0 RECOMMENDATIONS

Further to our calculations, we conclude that the tower superstructure and base foundation have adequate capacity and therefore meet the current ANSI/TIA-222-G design standards. The tower is acceptable to support the proposed T-Mobile installation.

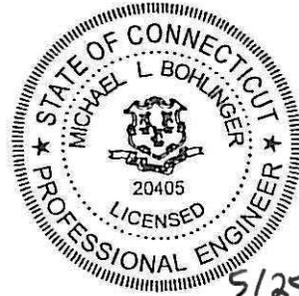
Please do not hesitate to contact our office with any questions or concerns regarding this report.

Sincerely,
KM CONSULTING ENGINEERS, INC.

Reviewed and Approved by:



Domenic Aversa, PE
Project Manager



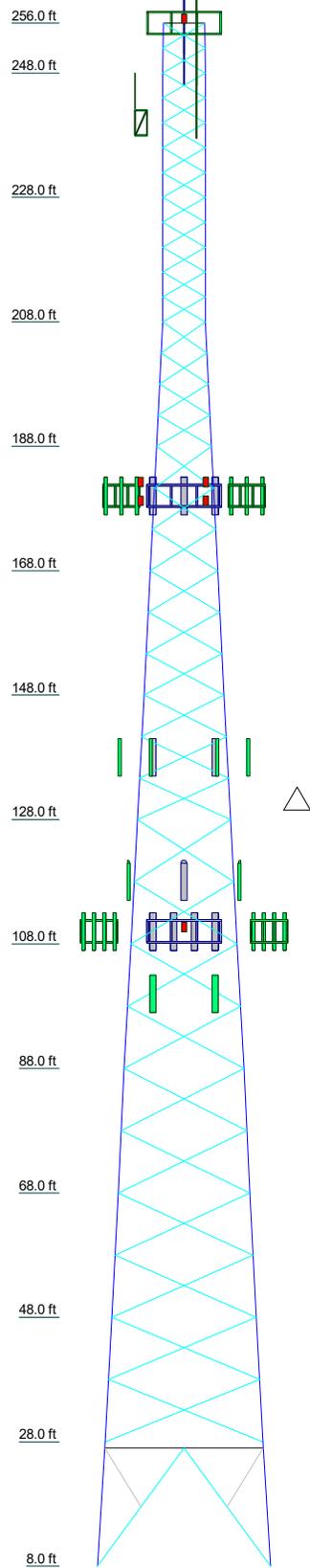
Michael L. Bohlinger, PE
Principal
CT License No. 20405

5/25/18

7.0 APPENDIX

LOAD CASE 1

| | | | | | | | | | | | | | |
|-----------------|---------|--------|----------|---------|-----------|------------|---------|-------------|--------|-----------|-----------|-----------|-------|
| Section | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | T5 | T4 | T3 | T2 | T1 |
| Legs | | P10x.5 | | | ROHN 8 EH | ROHN 8 EHS | A572-50 | ROHN 6 EH | | ROHN 5 EH | ROHN 4 EH | ROHN 3 EH | A |
| Leg Grade | | | | | | | | | | | L2x2x1/4 | | B |
| Diagonals | | | L5x5x3/8 | | L4x4x0.31 | L4x4x3/8 | | L3x3x1/4 | | | | | |
| Diagonal Grade | | | | | | | | | | | | | |
| Top Girts | | | | | | | | | | | | | |
| Red. Diagonals | | | | | | | | | | | | | |
| Red. Hips | | | | | | | | | | | | | |
| Inner Bracing | | | | | | | | | | | | | |
| Face Width (ft) | 27.8333 | 23.229 | 21.25 | 19.25 | 17.0833 | 14.988 | 12.916 | 10.916 | 8.916 | 6.833 | | | 6.604 |
| # Panels @ (ft) | 1 @ 19 | | | 10 @ 10 | | | | 9 @ 6.66667 | | 4 @ 5 | | 12 @ 4 | |
| Weight (lb) | 49432.4 | 7164.6 | 6887.4 | 6822.3 | 4628.8 | 4195.6 | 3063.2 | 2993.5 | 2590.2 | 1865.2 | 1860.8 | 1370.5 | 478.2 |



DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|-----------|---|-----------|
| yaggi in radom | 256 | mounting frames w/stable bar (MetroPCS) | 138 |
| Beacon | 256 | | |
| Omni antenna | 256 | VHLP1-23-2WH (Clearwire) | 121 |
| Omni antenna | 256 | VHLP1-23-2WH (Clearwire) | 121 |
| Omni antenna | 256 | VHLP2.5-11-4WH (Clearwire) | 121 |
| Omni antenna | 256 - 239 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| Top Platform | 256 | | |
| Omni antenna | 248 - 238 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| mounting frames w/stable bar (T-Mobile) | 180 | Panel Antenna w/mount pipe (Clearwire) | 118 |
| mounting frames w/stable bar (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| mounting frames w/stable bar (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| mounting frames w/stable bar (T-Mobile) | 180 | Distribution Box (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| Ericsson AIR21 B2A/B4P (T-Mobile) | 180 | 800 10736V01 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T9 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T6 (Verizon) | 110 |
| AIR 3246 B66 (T-Mobile) | 180 | (2) APL-866513-42T9 (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| APXVAARR24 43-U-NA20 (T-Mobile) | 180 | Rohn 6'x15' Boom Gate (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| RRUS32 B2 (T-Mobile) | 180 | 2x60 AWS RRH (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | Distribution Box (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | 2x60 700 RRH B13 (Verizon) | 110 |
| twin style 1BX TMA (T-Mobile) | 180 | 2x60 700 RRH B13 (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| Radio 4449 B12 B71 (T-Mobile) | 180 | 2x60 PCS RRH B25 (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | 2x60 700 RRH B13 (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | GPS antenna (Verizon) | 110 |
| (2) MetroPCS Antenna (MetroPCS) | 138 | (2) HBXX-6516DS-A2M (Verizon) | 110 |
| mounting frames w/stable bar (MetroPCS) | 138 | TV 65 antenna | 100 |
| mounting frames w/stable bar (MetroPCS) | 138 | 4' Side Arm | 100 |
| | | TV 65 antenna | 100 |

SYMBOL LIST

| MARK | SIZE | MARK | SIZE |
|------|-------------------|------|----------|
| A | ROHN 3 STD | C | L3x3x1/4 |
| B | L1 3/4x1 3/4x3/16 | | |

MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|-------|----|----|
| A572-50 | 50 ksi | 65 ksi | | | |



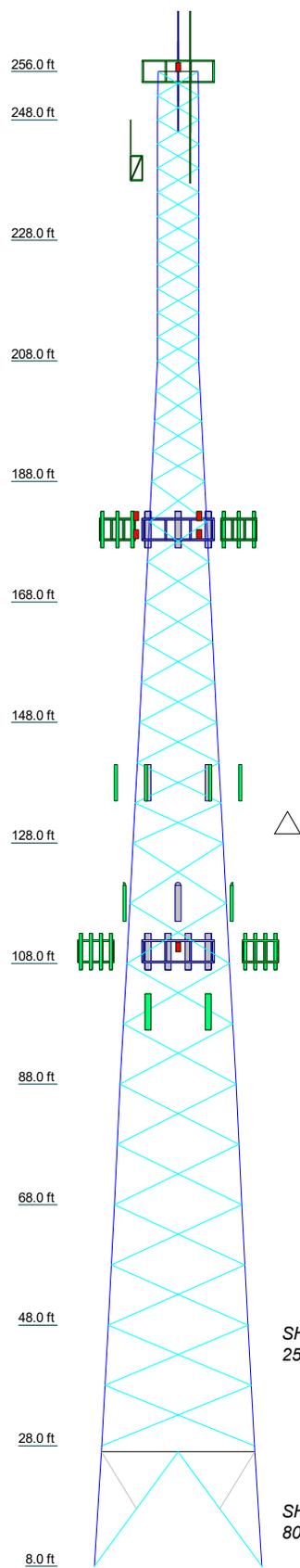
KM Consulting Engineers, Inc.
262 Upper Ferry Road
Ewing, NJ 08628
Phone: (609) 538-0400
FAX:

Job: Bridgeport LC1

Project: **250' Rohn Self Support Tower**

| | | |
|--|----------------|-------------|
| Client: Transcend Wireless | Drawn by: DA | App'd: |
| Code: TIA-222-G | Date: 05/25/18 | Scale: NTS |
| Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.er | | Dwg No. E-1 |

| | | | | | | | | | | | | | |
|-----------------|-----------|-----------|-------------|-------------|-------------|------------------|------------|-----------|-----------|----------|---------|---------|--------------|
| Section | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 |
| Legs | ROHN 3 EH | ROHN 3 EH | ROHN 4 EH | ROHN 5 EH | ROHN 6 EH | ROHN 8 EH | ROHN 8 EHS | ROHN 8 EH | ROHN 8 EH | P10x.5 | P10x.5 | P10x.5 | P10x.5 |
| Leg Grade | | | | | | | | | | | | | |
| Diagonals | | | L2x2x1/4 | | | L2 1/2x2 1/2x1/4 | L3x3x1/4 | L4x4x3/8 | L4x4x0.31 | L5x5x3/8 | | | ROHN 3 STD |
| Diagonal Grade | | | | | | | | | | | | | |
| Top Girts | | | | | | | | | | | | | ROHN 3 STD |
| Red. Diagonals | | | | | | | | | | | | | ROHN 3 STD |
| Red. Hips | | | | | | | | | | | | | ROHN 1.5 STD |
| Inner Bracing | | | | | | | | | | | | | ROHN 3 STD |
| Face Width (ft) | 6.604 | 6.833 | 8.916 | 10.916 | 12.916 | 14.988 | 17.0833 | 19.25 | 21.25 | 23.229 | 25.333 | 27.8333 | 25.333 |
| # Panels @ (ft) | 12 @ 4 | 4 @ 5 | 9 @ 6.66667 | 9 @ 6.66667 | 9 @ 6.66667 | 10 @ 10 | 10 @ 10 | 10 @ 10 | 10 @ 10 | 10 @ 10 | 10 @ 10 | 10 @ 10 | 1 @ 19 |
| Weight (lb) | 478.2 | 1370.5 | 1860.8 | 1865.2 | 2590.2 | 2993.5 | 3063.2 | 4195.6 | 4628.8 | 6887.4 | 7164.6 | 5552.3 | 49432.4 |



SYMBOL LIST

| MARK | SIZE | MARK | SIZE |
|------|-------------------|------|----------|
| A | ROHN 3 STD | C | L3x3x1/4 |
| B | L1 3/4x1 3/4x3/16 | | |

MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|-------|----|----|
| A572-50 | 50 ksi | 65 ksi | | | |

TOWER DESIGN NOTES

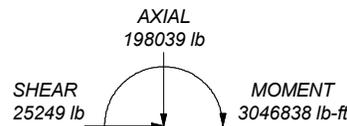
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 71.3%

ALL REACTIONS
ARE FACTORED

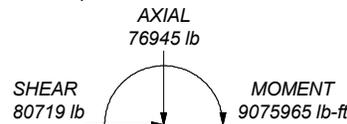
MAX. CORNER REACTIONS AT BASE:

DOWN: 402176 lb
SHEAR: 48536 lb

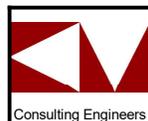
UPLIFT: -339267 lb
SHEAR: 43034 lb



TORQUE 40254 lb-ft
50 mph WIND - 0.7500 in ICE



TORQUE 125905 lb-ft
REACTIONS - 97 mph WIND



KM Consulting Engineers, Inc.

262 Upper Ferry Road

Ewing, NJ 08628

Phone: (609) 538-0400

FAX:

Job: **Bridgeport LC1**

Project: **250' Rohn Self Support Tower**

Client: Transcend Wireless

Drawn by: DA

App'd:

Code: TIA-222-G

Date: 05/25/18

Scale: NTS

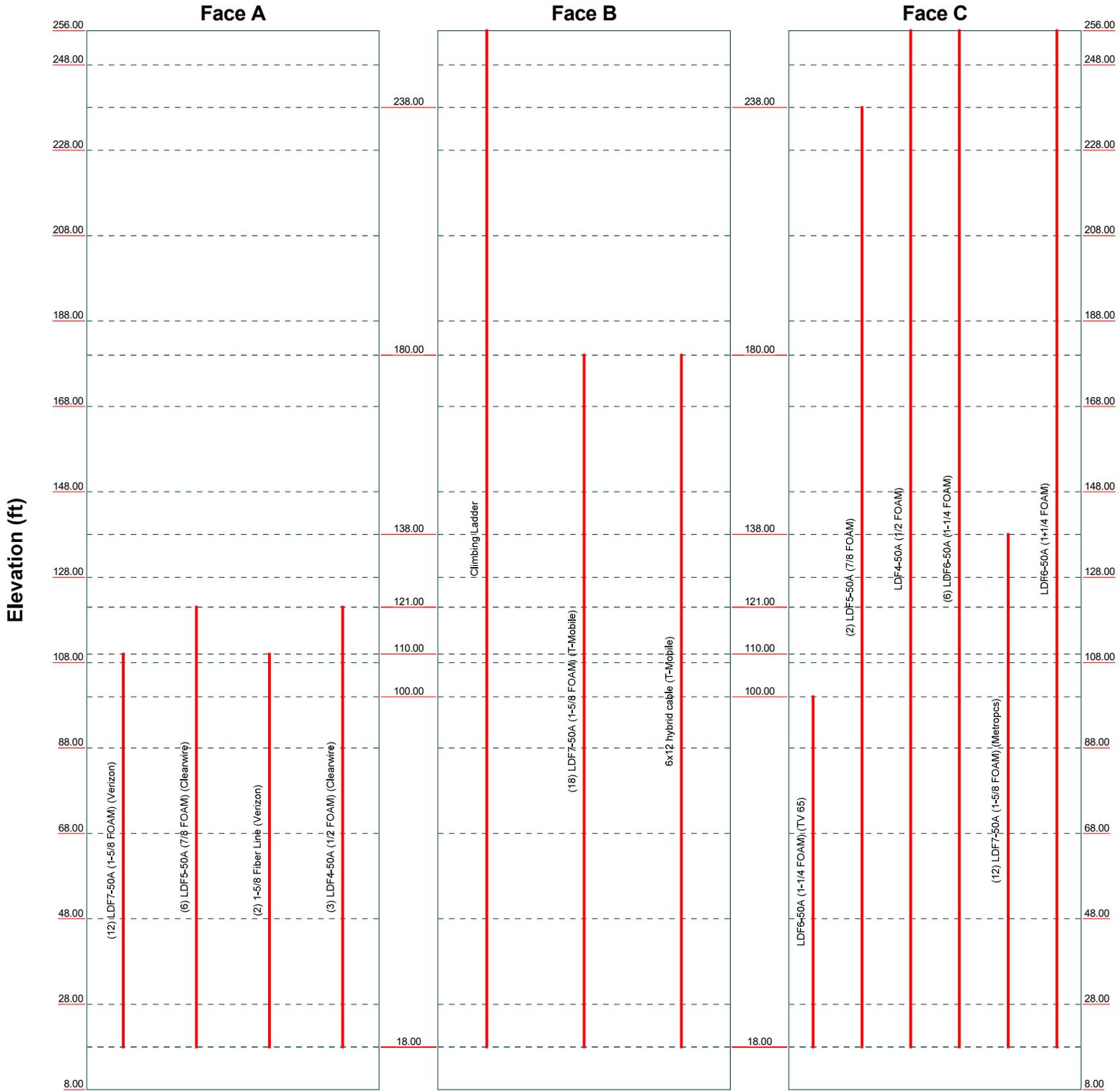
Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.er

Dwg No. E-1

Feed Line Distribution Chart

8' - 256'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg

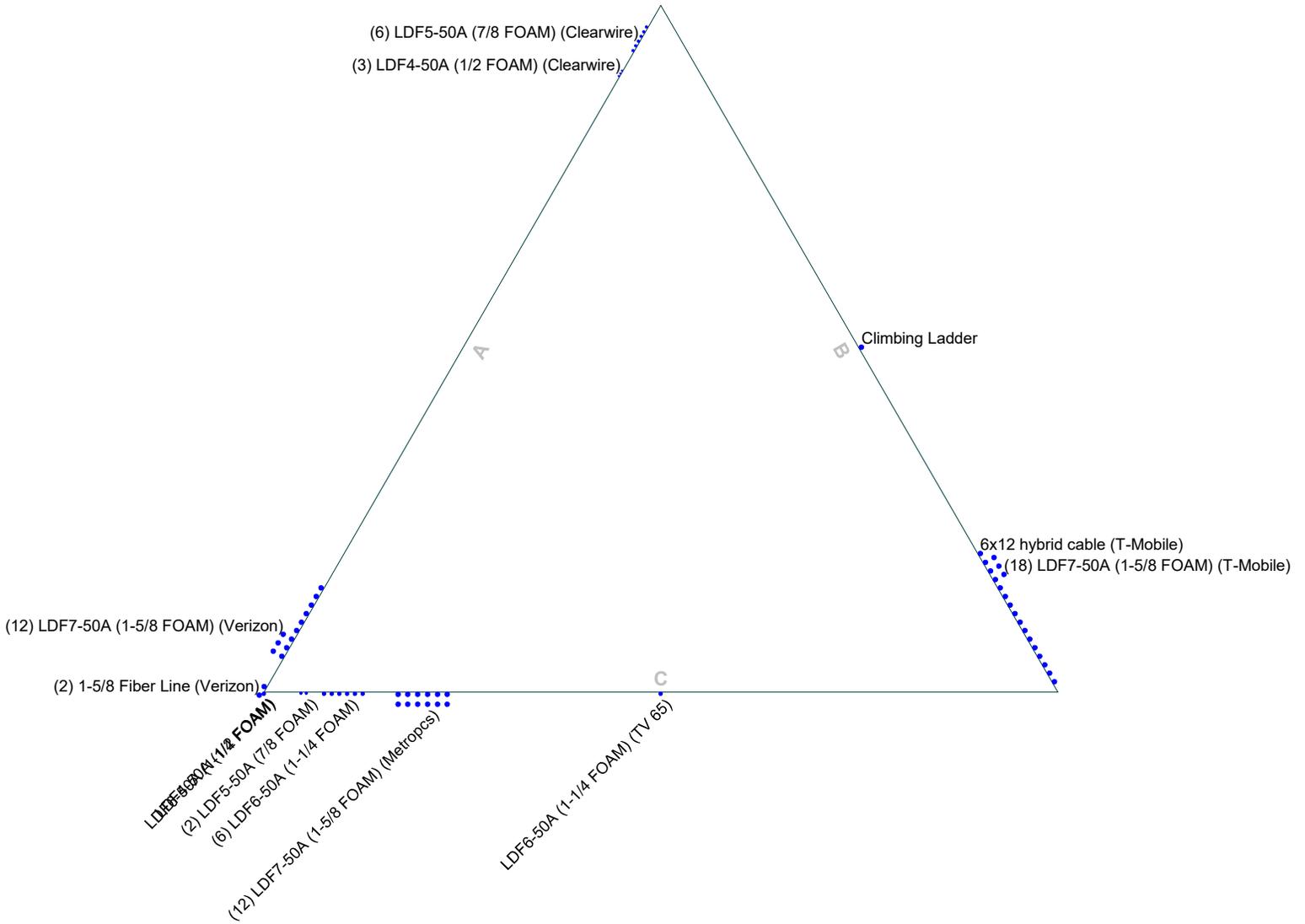


KM Consulting Engineers, Inc.
 262 Upper Ferry Road
 Ewing, NJ 08628
 Phone: (609) 538-0400
 FAX:

| | | |
|--|----------------|-------------|
| Job: Bridgeport LC1 | | |
| Project: 250' Rohn Self Support Tower | | |
| Client: Transcend Wireless | Drawn by: DA | App'd: |
| Code: TIA-222-G | Date: 05/25/18 | Scale: NTS |
| Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.er | | Dwg No. E-7 |

Feed Line Plan

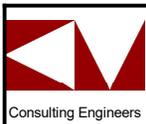
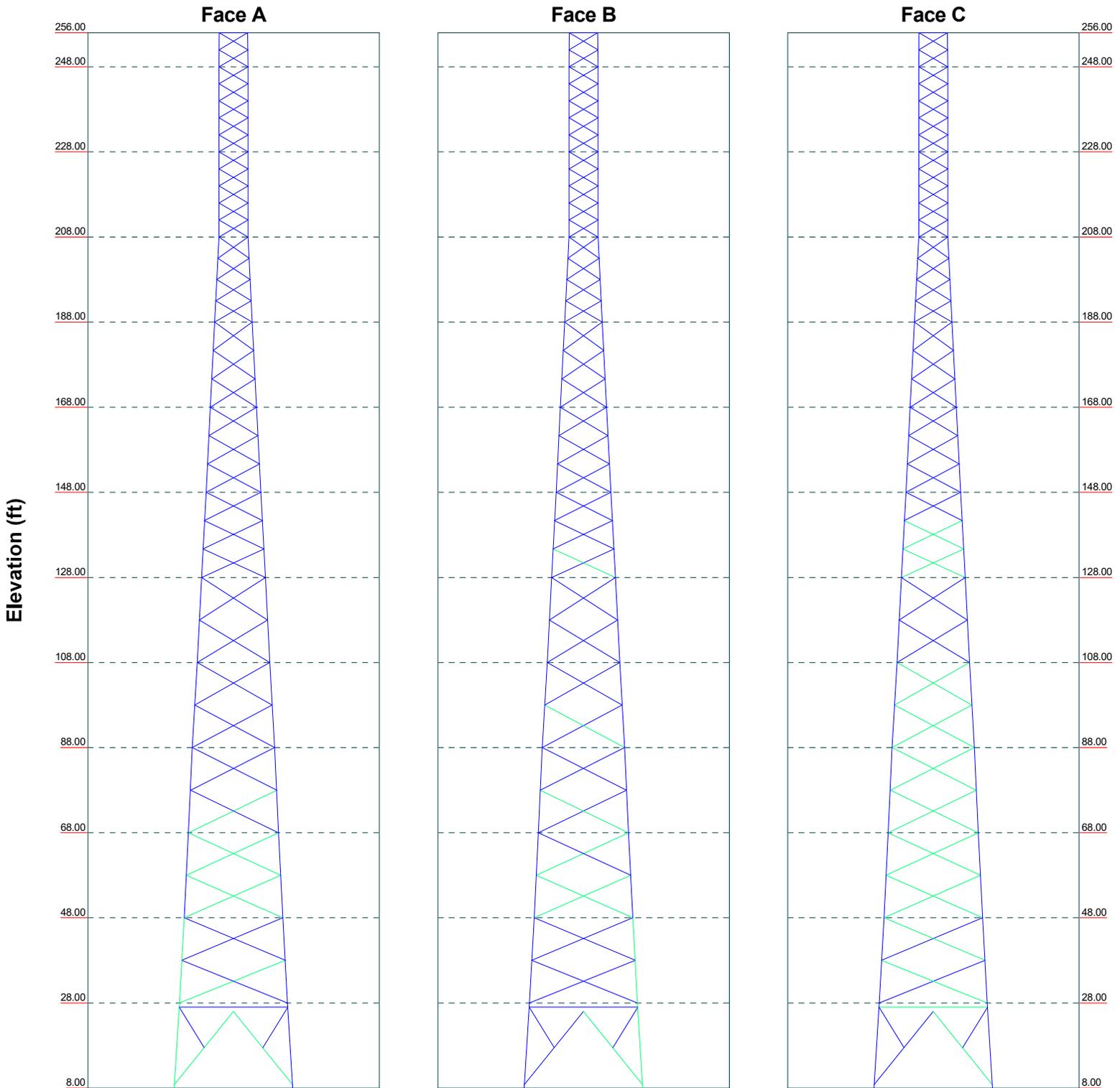
— Round
 — Flat
 — App In Face
 — App Out Face



| | | | | | |
|---|--------------------------------------|----------------------------|--|----------------|------------|
|  Consulting Engineers | KM Consulting Engineers, Inc. | Job: Bridgeport LC1 | | | |
| | 262 Upper Ferry Road | | Project: 250' Rohn Self Support Tower | | |
| | Ewing, NJ 08628 | | Client: Transcend Wireless | Drawn by: DA | App'd: |
| | Phone: (609) 538-0400 | | Code: TIA-222-G | Date: 05/25/18 | Scale: NTS |
| | FAX: | | Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.er | Dwg No. E-7 | |

Stress Distribution Chart 8' - 256'

■ > 100%
 ■ 90%-100%
 ■ 75%-90%
 ■ 50%-75%
 ■ < 50% Overstress



KM Consulting Engineers, Inc.
 262 Upper Ferry Road
 Ewing, NJ 08628
 Phone: (609) 538-0400
 FAX:

| | | |
|--|----------------|-------------|
| Job: Bridgeport LC1 | | |
| Project: 250' Rohn Self Support Tower | | |
| Client: Transcend Wireless | Drawn by: DA | App'd: |
| Code: TIA-222-G | Date: 05/25/18 | Scale: NTS |
| Path: K:\Transcend Wireless\Bridgeport\Engineering\Bridgeport LC1.er | | Dwg No. E-8 |

| | | |
|---|--|----------------------------------|
| tnxTower KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: | Job Bridgeport LC1 | Page 42 of 43 |
| | Project 250' Rohn Self Support Tower | Date 14:59:00 05/25/18 |
| | Client Transcend Wireless | Designed by DA |

Section Capacity Table

| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | ϕP_{allow} lb | % Capacity | Pass Fail | |
|-------------|--------------|-----------------------|-------------------|------------------|------------|---------------------|----------------------------|-----------|------|
| T1 | 256 - 248 | Leg | ROHN 3 STD | 3 | -4045.69 | 88543.60 | 4.6 | Pass | |
| | | Diagonal | L1 3/4x1 3/4x3/16 | 8 | -1558.17 | 7836.45 | 19.9 | Pass | |
| | | Top Girt | L3x3x1/4 | 4 | -569.30 | 19705.80 | 2.9 | Pass | |
| T2 | 248 - 228 | Leg | ROHN 3 EH | 21 | -23293.10 | 119117.00 | 19.6 | Pass | |
| | | Diagonal | L2x2x1/4 | 23 | -2903.45 | 15423.50 | 18.8 | Pass | |
| | | | | | | | 24.7 (b) | | |
| T3 | 228 - 208 | Leg | ROHN 4 EH | 54 | -52531.40 | 183589.00 | 28.6 | Pass | |
| | | Diagonal | L2x2x1/4 | 59 | -4213.92 | 16011.80 | 26.3 | Pass | |
| | | | | | | | 34.4 (b) | | |
| T4 | 208 - 188 | Leg | ROHN 5 EH | 87 | -72445.20 | 254372.00 | 28.5 | Pass | |
| | | Diagonal | L2x2x1/4 | 89 | -2780.69 | 9442.17 | 29.4 | Pass | |
| T5 | 188 - 168 | Leg | ROHN 6 EH | 114 | -94747.20 | 343100.00 | 27.6 | Pass | |
| | | Diagonal | L2 1/2x2 1/2x1/4 | 116 | -5177.35 | 11996.10 | 43.2 | Pass | |
| T6 | 168 - 148 | Leg | ROHN 6 EH | 135 | -122370.00 | 343100.00 | 35.7 | Pass | |
| | | Diagonal | L3x3x1/4 | 137 | -6330.48 | 16173.10 | 39.1 | Pass | |
| | | | | | | | 44.2 (b) | | |
| T7 | 148 - 128 | Leg | ROHN 6 EH | 156 | -151949.00 | 343092.00 | 44.3 | Pass | |
| | | Diagonal | L3x3x1/4 | 158 | -7719.49 | 12584.10 | 61.3 | Pass | |
| T8 | 128 - 108 | Leg | ROHN 8 EHS | 177 | -182658.00 | 386381.00 | 47.3 | Pass | |
| | | Diagonal | L4x4x3/8 | 179 | -10662.10 | 30486.60 | 35.0 | Pass | |
| | | | | | | | 49.6 (b) | | |
| T9 | 108 - 88 | Leg | ROHN 8 EH | 192 | -221087.00 | 505517.00 | 43.7 | Pass | |
| | | Diagonal | L4x4x0.31 | 194 | -13273.90 | 21205.70 | 62.6 | Pass | |
| | | | | | | | 63.7 (b) | | |
| T10 | 88 - 68 | Leg | P10x.5 | 207 | -264049.00 | 668659.00 | 39.5 | Pass | |
| | | Diagonal | L5x5x3/8 | 209 | -15996.20 | 43484.70 | 36.8 | Pass | |
| | | | | | | | 65.7 (b) | | |
| T11 | 68 - 48 | Leg | P10x.5 | 222 | -309633.00 | 668663.00 | 46.3 | Pass | |
| | | Diagonal | L5x5x3/8 | 224 | -18007.20 | 37294.00 | 48.3 | Pass | |
| | | | | | | | 71.3 (b) | | |
| T12 | 48 - 28 | Leg | P10x.5 | 237 | -355075.00 | 668640.00 | 53.1 | Pass | |
| | | Diagonal | L5x5x3/8 | 239 | -19716.10 | 31978.80 | 61.7 | Pass | |
| T13 | 28 - 8 | Leg | P10x.5 | 252 | -370877.00 | 673820.00 | 55.0 | Pass | |
| | | Diagonal | ROHN 3 STD | 258 | -27255.80 | 38509.50 | 70.8 | Pass | |
| | | Top Girt | ROHN 3 STD | 253 | -16854.80 | 31030.70 | 54.3 | Pass | |
| | | Redund Diag 1 | ROHN 3 STD | 263 | -5623.04 | 44234.90 | 12.7 | Pass | |
| | | Bracing | | | | | | | |
| | | Redund Hip 1 | ROHN 1.5 STD | 272 | -84.85 | 12002.20 | 0.7 | Pass | |
| | | Bracing | | | | | | | |
| | | Redund Hip Diagonal 1 | ROHN 1.5 STD | 273 | -53.78 | 2211.89 | 2.4 | Pass | |
| | | Bracing | | | | | | | |
| | | Inner Bracing | ROHN 3 STD | 274 | -291.93 | 29213.70 | 13.9 | Pass | |
| | | | | | | | Summary | | |
| | | | | | | | Leg (T13) | 55.0 | Pass |
| | | | | | | | Diagonal (T11) | 71.3 | Pass |
| | | | | | | | Top Girt (T13) | 54.3 | Pass |
| | | | | | | | Redund Diag 1 | 12.7 | Pass |
| | | | | | | | Bracing (T13) | | |
| | | | | | | | Redund Hip 1 Bracing (T13) | 0.7 | Pass |
| | | | | | | | Redund Hip Diagonal 1 | 2.4 | Pass |

| | | |
|---|--|----------------------------------|
| tnxTower KM Consulting Engineers, Inc. 262 Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: | Job Bridgeport LC1 | Page 43 of 43 |
| | Project 250' Rohn Self Support Tower | Date 14:59:00 05/25/18 |
| | Client Transcend Wireless | Designed by DA |

| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | ϕP_{allow} lb | % Capacity | Pass Fail |
|-------------|--------------|----------------|------|------------------|------|---------------------|-------------|-------------|
| | | | | | | Bracing (T13) | 13.9 | Pass |
| | | | | | | Bracing (T13) | | |
| | | | | | | Bolt Checks | 71.3 | Pass |
| | | | | | | RATING = | 71.3 | Pass |



BRIDGEPORT

623 PINE STREET
 BRIDGEPORT, CT 06605
 SITE ID: CT11014B

CLIENT:
Transcend Wireless

INDUSTRIAL AVE
 WASHINGTON, IN 47250
 TEL: (317) 841-5565
 FAX: (317) 841-5566

KM Consulting Engineers, Inc.
 Wireless Experience and Project Management
 262 UPPER FERRY RD., SUITE 100
 BRIDGEPORT, CT 06605
 TEL: (860) 338-0100
 E-MAIL: info@kme.com
 WWW: www.kme.com
 CERTIFICATION OF AUTHORIZATION: 2626427986800

UNAUTHORIZED ALTERATION OR ADDITIONS TO A PLAN BEARING THE SEAL OF A LICENSED ENGINEER, LAND SURVEYOR, ARCHITECT, OR PROFESSIONAL ENGINEER, OR COMING FROM THE ORIGINAL OF THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER, ARCHITECT, LAND SURVEYOR, OR PROFESSIONAL ENGINEER, LAND SURVEYOR, AND/OR ARCHITECT SHALL NOT BE CONSIDERED VALID COPIES.

MICHAEL L. BOHLINGER, PE
 CONNECTICUT PROFESSIONAL ENGINEER
 LICENSE # 20405

REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|---------|--------------------------|
| 1 | 5/25/18 | DCA PER CLIENTS COMMENTS |

PROJECT PARTICIPANTS
 SITE ACQUISITION: _____ DATE: _____
 SIGN OFF INTL: _____ DATE: _____
 RF ENGINEER: _____ DATE: _____
 SIGN OFF INTL: _____ DATE: _____
 CONSTR. SUPV: _____ DATE: _____
 SIGN OFF INTL: _____ DATE: _____
 A & E: KM CONSULTING ENGR'S, INC.

P.C.: [CHKD:] [PRN:] [DATE:]
 M.L.B. D.C.A. 5/9/18

PROJECT NAME:
 BRIDGEPORT

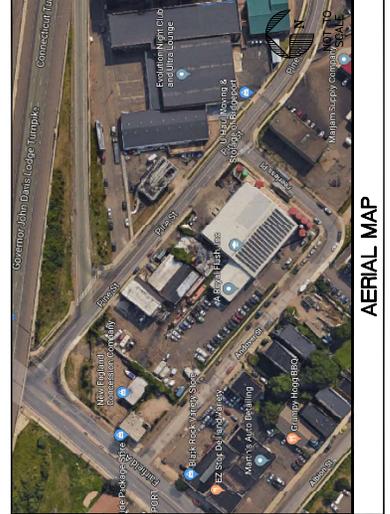
SITE ADDRESS:
 623 PINE STREET
 BRIDGEPORT, CT 06605

DRAWING TITLE:
 TITLE SHEET

SITE ID #: CT11014B
 PROJECT #: 180416.00
 DRAWING #: T-1
 REV. #: 1
 FILE NAME: Bridgeport_CTI1014B_CDS.dwg

APPROVALS

| | |
|------------------|--|
| LANDLORD: | |
| CHAIRPERSON: | |
| BOARD SECRETARY: | |
| BOARD ENGINEER: | |



DRAWING INDEX

| SHEET | SHEET TITLE |
|-------|--------------------------|
| T-1 | TITLE SHEET |
| S-1 | SITE PLAN |
| S-2 | TOWER ELEVATION |
| A-1 | ANTENNA PLAN AND DETAILS |
| G-1 | GROUNDING DETAILS |
| GN-1 | GENERAL NOTES |

SITE INFORMATION

| | | | |
|---------------------|---|------------------------|--------------------------------------|
| PROPERTY OWNER: | RADIO COMMUNICATIONS SERVICES 24 FRODOALE ROAD WEST HAVEN, CT 06616 | LATITUDE: | 41° 9' 50.7" N |
| APPLICANT: | T-MOBILE NORTHEAST LLC 35 GREEN ROAD SOUTH BLOOMFIELD, CT 06002 | LONGITUDE: | 73° 13' 00.0" W |
| ARCHITECT/ENGINEER: | KM CONSULTING ENGINEERS 262 UPPER FERRY ROAD BRIDGEPORT, CT 06605 | POWER COMPANY: | TBD |
| SITE ADDRESS: | 623 PINE STREET BRIDGEPORT, CT 06605 | T-MOBILE CONTACT: | (860) 648-1116 |
| COUNTY: | FARFIELD | EXISTING/PROPOSED USE: | UNMANNED TELECOMMUNICATIONS FACILITY |
| GROUND ELEVATION: | 11' | | |

PROJECT DESCRIPTION

T-MOBILE IS PROPOSING TO REMOVE (1) EXISTING AIR 32 84A/B2/B ANTENNA AND RELOCATE (1) EXISTING #RE1 B2A/B4P ANTENNA FROM POSITION 2 TO POSITION 1 AT EACH SECTOR. FOR EACH SECTOR (1) EXISTING LUM-6518S-A1M ANTENNA IS PROPOSED TO BE REMOVED AND REPLACED WITH (1) APYAWAR2A 43-U-INX20, AND (1) EXISTING LUM-6518S-A1M ANTENNA IS PROPOSED TO BE REMOVED AND REPLACED WITH (1) APYAWAR2A 43-U-INX20. (1) EXISTING BRGS 32 B2 FROM SECTOR 2 AND SECTOR 3 TO BE REMOVED. (1) ANTENNA TO PROPOSED POSITION 3 ANTENNA LOCATION, AND (1) EXISTING BRGS 32 (1) RAD00 449 870/2P1 FOR EACH SECTOR. (1) EXISTING TWIN STYLE 11 B12 TO BE REMOVED AND REPLACED WITH (1) RAD00 449 870/2P1 FOR EACH SECTOR. (1) EXISTING TWIN STYLE 19 AND TMA TO BE REMOVED AND (1) TWIN STYLE 19A TO BE INSTALLED FOR EACH SECTOR.

(12) EXISTING T-MOBILE 1-5/8" COAX LINES TO BE REMOVED FROM THE SITE.

A TOTAL OF (3) ANTENNAS TO BE RELOCATED, (6) ANTENNAS SWAPPED OUT, (3) BRGS REMOVED, (3) BRGS RELOCATED, (3) TMA'S REMOVED, (3) RRAS'S REMOVED, (3) RRAS'S INSTALLED AND (3) TMA'S INSTALLED.



LOCATION MAP

CLIENT:



100 WASHINGTON AVE
MIDDLETOWN, CT 06457
TEL: (860) 684-3666
FAX: (203) 944-9066

KM Consulting Engineers, Inc.
www.kmce.com
262 WINTER FERRY RD.
PRINCETON, NEW JERSEY 08540
PHONE: (609) 536-4000
FAX: (609) 536-4001
E-MAIL: info@kmce.com
www.kmce.com
CERTIFICATION BY AUTHORIZATION: 26242798600

UNAUTHORIZED REVISION OR ADDITIONS TO A PLAN BEARING THE SEAL OF A LICENSED ENGINEER, LAND SURVEYOR, ARCHITECT, OR PROFESSIONAL ENGINEER, COMES FROM THE ORIGINAL OF THIS DOCUMENT WITHOUT A WRITTEN PERMISSION FROM THE ENGINEER, LAND SURVEYOR, ARCHITECT, OR PROFESSIONAL ENGINEER. ANY SUCH REVISIONS OR ADDITIONS SHALL NOT BE CONSIDERED VALID COPIES.

MICHAEL L. BOHLINGER, PE
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE # 20405

REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|---------|---------------------------|
| 1 | 5/25/18 | DCA PER CLIENT'S COMMENTS |
| NO. | DATE | DESCRIPTION |

PROJECT PARTICIPANTS

SITE ACQUISITION: _____ DATE: _____

SIGN OFF INTL: _____ DATE: _____

RF ENGINEER: _____

SIGN OFF INTL: _____ DATE: _____

CONSTR. SUPV: _____ DATE: _____

SIGN OFF INTL: _____ DATE: _____

A & E: KM CONSULTING ENGR'S, INC.

P.C.: [CHKD.] [PRN.] [DATE: 5/9/18]
MLB DCA

PROJECT NAME: BRIDGEPORT

SITE ADDRESS: 623 PINE STREET
BRIDGEPORT, CT 06605

DRAWING TITLE: ANTENNA PLAN & DETAILS

PROJECT PARTICIPANTS

PROJECT #:

FILE NAME: Bridgeport (CT110148) Cds.dwg

NOTE:
GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY KM CONSULTING ENGINEERS, INC. DATED MAY 8TH, 2018 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION.

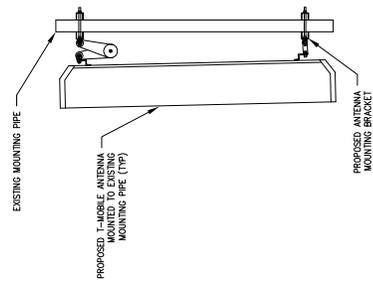
EXISTING ANTENNA SCHEDULE

| SECTOR | POSITION | MANUFACTURER | MODEL | TMA/RRR | SIZE (HxWxD) |
|--------|----------|--------------|----------------|-------------------|------------------|
| 1 | 1 | ERICSSON | AR 32 B4A/B2P | RRUS 32 B2 | 58.6"x12.9"x8.7" |
| | 2 | ERICSSON | AIR21 B2A/B4P | TWIN STYLE TB AWS | 55"x12"x7.9" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | ANDREW | LWX-65150S-ATM | RRUS 11 B12 | 107"x15.4"x11.6" |
| 2 | 1 | ERICSSON | AR 32 B4A/B2P | (2) RRUS 32 B2 | 58.6"x12.9"x8.7" |
| | 2 | ERICSSON | AIR21 B2A/B4P | TWIN STYLE TB AWS | 55"x12"x7.9" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | ANDREW | LWX-65150S-ATM | RRUS 11 B12 | 107"x15.4"x11.6" |
| 3 | 1 | ERICSSON | AR 32 B4A/B2P | (2) RRUS 32 B2 | 58.6"x12.9"x8.7" |
| | 2 | ERICSSON | AIR21 B2A/B4P | TWIN STYLE TB AWS | 55"x12"x7.9" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | ANDREW | LWX-65150S-ATM | RRUS 11 B12 | 107"x15.4"x11.6" |

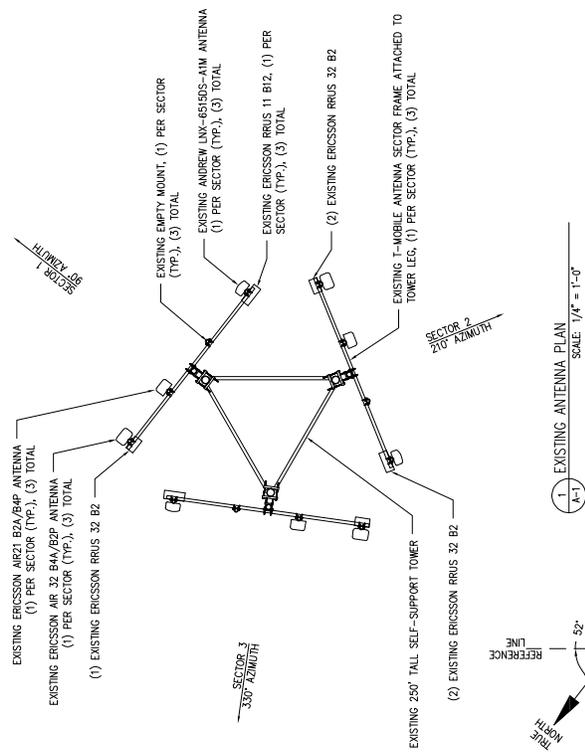
PROPOSED ANTENNA SCHEDULE

| SECTOR | POSITION | MANUFACTURER | MODEL | TMA/RRR | SIZE (HxWxD) |
|--------|----------|--------------|----------------------|--------------------|-------------------|
| 1 | 1 | ERICSSON | AIR21 B2A/B4P | RRUS 32 B2 | 55"x12"x7.9" |
| | 2 | ERICSSON | AIR 3246 B66 | TWIN STYLE TB AWS | 58.1"x15.75"x8.4" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | RFS | APYVAARR24 43-U-NA20 | RRUS 32 B2 | 95.9"x24"x8.7" |
| 2 | 1 | ERICSSON | AIR21 B2A/B4P | RADIO 4449 B12/B71 | 55"x12"x7.9" |
| | 2 | ERICSSON | AIR 3246 B66 | TWIN STYLE TB AWS | 58.1"x15.75"x8.4" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | RFS | APYVAARR24 43-U-NA20 | RRUS 32 B2 | 95.9"x24"x8.7" |
| 3 | 1 | ERICSSON | AIR21 B2A/B4P | RADIO 4449 B12/B71 | 55"x12"x7.9" |
| | 2 | ERICSSON | AIR 3246 B66 | TWIN STYLE TB AWS | 58.1"x15.75"x8.4" |
| | 3 | EMPTY MOUNT | | | |
| | 4 | RFS | APYVAARR24 43-U-NA20 | RRUS 32 B2 | 95.9"x24"x8.7" |

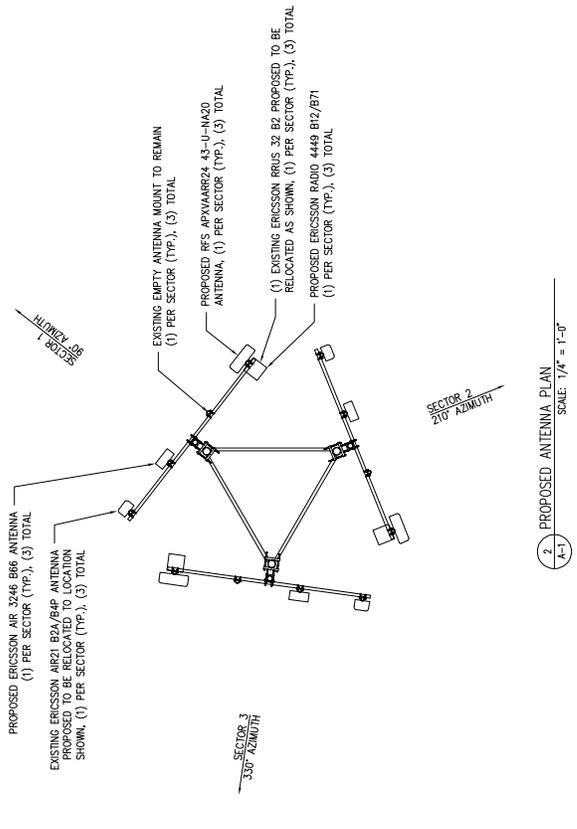
3 ANTENNA SPECIFICATION TABLE
SCALE: N.T.S.



4 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION



UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

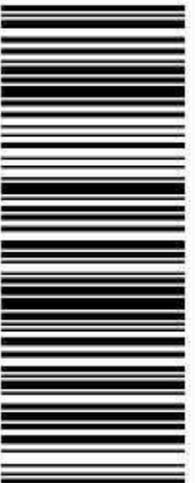
Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages. Hand the package to any UPS driver in your area.

UPS Access Point™
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
POSTNET 74
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE

| | | | |
|---|---|--|---|
| <p>JENNIFER ARDIS TRANSCEND WIRELESS 10 INDUSTRIAL AVE SUITE 3 MAHWAH NJ 07430</p> <p>SHIP TO: THOMAS F. GILL CITY OF BRIDGEPORT 999 BROAD STREET OFFICE OF PLANNING AND ECONOMIC DEV BRIDGEPORT CT 06604-4320</p> | <p>1.0 LBS LTR 1 OF 1</p> <p>CT 066 9-04</p>  | <p>UPS NEXT DAY AIR</p> <p>TRACKING #: 1Z V25 742 01 9504 0490</p> <p>1</p>  | <p>BILLING: P/P</p> <p>Reference#1: CTT1014B</p> <p>100 36.0-43 WPTNUS01 06 06 05/2018</p>  |
|---|---|--|---|

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
3. **GETTING YOUR SHIPMENT TO UPS**
Customers with a Daily Pickup
 Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

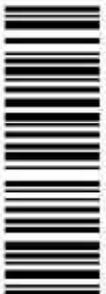
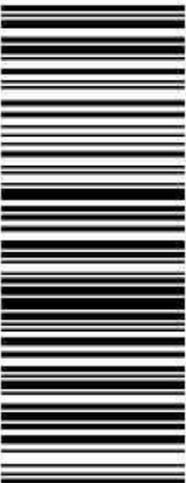
Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages. Hand the package to any UPS driver in your area.

UPS Access Point™
 THE UPS STORE
 115 FRANKLIN TPKE
 MAHWAH ,NJ 07430

UPS Access Point™
 THE UPS STORE
 120 E MAIN ST
 RAMSEY ,NJ 07446

UPS Access Point™
 POSTNET 74
 74 LAFAYETTE AVE
 SUFFERN ,NY 10901

FOLD HERE

| | | | | |
|---|---------------------------|---|--|--|
| <p>JENNIFER ARDIS TRANSCEND WIRELESS 10 INDUSTRIAL AVE SUITE 3 MAHWAH NJ 07430</p> <p>SHIP TO: ROBERT KNAPP RADIO COMMUNICATIONS CORP CAMPBELL AVE 24 ROCKDALE ROAD WEST HAVEN CT 06516-1929</p> | <p>1.0 LBS LTR 1 OF 1</p> | <p>CT 064 7-02</p>  | <p>UPS NEXT DAY AIR</p> <p>TRACKING #: 1Z V25 742 01 9808 0478</p> <p>1</p>  | <p>BILLING: P/P</p> <p>Reference#1: CTT1014B</p>  <p>100 36.0-43 WPTNUS01 06 06 05/2018</p> |
|---|---------------------------|---|--|--|

