Filed by:
G. Scott Shepherd, Site Development Specialist II - SBA Communications 134 Flanders Rd., Suite 125, Westborough, MA 01581 508.251.0720 x 3807 - GShepherd@sbasite.com

September 20, 2021

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

Application for Tower Share
150 Lost Acre Rd.,
North Granby, CT
Latitude: 42.009600
Longitude: -72.866544
T-Mobile #: CTHA238A-NSD

Dear Ms. Bachman:

Please accept this letter as notification pursuant to the Connecticut General Statutes § 16-50aa and R.C.S.A § 16-50j-88 of T-Mobile's Application for Tower Sharing at the existing 170-foot Monopole Tower at 150 Lost Acre Rd., North Granby, CT.

- **The new antennas would support 5G services and would be installed at the 150-foot level of the tower.**

Per the requirements under R.C.S.A §16-50j-89 please find the following statements in support of T-Mobile's Application:

1. Facility and Proposed Modifications

    A. Existing Facility and Appurtenances

This facility was originally approved by the North Granby's Planning and Zoning Commission on 5/12/98. Rebuild of the Tower was approved by the Town of North Granby's planning and Zoning Commission on 11/12/02, for which, final approval was provided February 4, 2008.

ON April 28, 1998, the Commission held an informal public information session and construction of a discussion of the proposed reconstruction of a communications tower at 150 Lost Acres Rd., North Granby, CT. On a motion by Fred Wilhelm and seconded by Put Brown, the Commission voted to inform the Zoning Enforcement Officer that based on their review of the matter, the proposed replacement of the existing tower at 150 Lost Acres Rd with a new modern design, of the same height and with supporting accessory components is a permissible intensification of the use. The vote was 4-2.

- Latitude / Longitude: 42.009600 / -72.866544
- Height of Tower: 170'
- Owned/operated by: SBA Towers II, LLC
- Property Owner: John G. & Deborah Lindsey Lombardi.
- Size/Components of existing equipment compound:

  - 35' 9" x 81' 5" fenced compound with 12' wide double swing gate containing:
    - Monopole
    - Verizon equipment shelter [northwest of monopole w/in compound]
    - AT&T equipment shelter [northeast of monopole w/in compound]
    - AT&T generator [northeast of monopole w/in compound]
  - Components of existing tower:
    - AT&T:
    - 170'

Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
170.0	3	Cci DMP65R-BU8DA Panel	(3) T-Frames w/Modifications	(7) 1 5/8" (3) 3/8" RET (1) 3" Conduit Housing (2) 3/4" DC and (1) 7/16" Fiber (2) 3" Conduit Housing (3) 1" DC and (1) 7/16" Fiber	AT&T
	3	Powerwave 7770 Panel			
	3	Cci OPA65R-BU8DA Panel			
	6	Powerwave TT08-19DB111-001 TMA			
	3	Ericsson 4449 B5/B12 RRU			
	3	Ericsson RRUS 8843 B2 B66A RRU			
	1	Raycap DC6-48-60-18-8F - OVP			
	1	Raycap DC9-48-60-24-8C-EV - OVP			
	3	Andrew ABT-DF-DMADBH Bias-T			

- Verizon:
- 160':

160.0	1	Antel BXA-70063-4CF Panel	(3) T-Frames	(12) 1 5/8" (1) 1/2"	Verizon
	3	Antel BXA-171085-12BF Panel			
	2	Antel BXA-70063-6CF Panel			
	4	Antel LPA-80063/4CF Panel			
	2	Antel LPA-80080/6CF Panel			
	1	GPS			
	6	RFS FD9R6004/2C-3L Diplexer			

B. Nature and Extent of Proposed Modifications

T-Mobile proposes to install (9) panel antennas at the 150' level of the existing 170'-foot Monopole Tower and occupy a ground lease area of 10'x15' within the existing 35' 9" x 81' 5" fenced compound. T-Mobile's full proposed scope of work is as follows:

Remove:

- N/A

Remove and Replace:

- N/A

Install: Tower: *At 150':*

(3) RFS - APX16DWV-16DWVS-E-A20 - Panel
(3) RFS - APXVAALL24_43-U-NA20 - Panel
(3) Ericsson - AIR6449 B41 - Panel
(3) Ericsson 4460 B25 + B66 RRUs
(3) Ericsson 4480 B71 + B85 RRUs (3)
SitePro VFA12-HD (antenna
mount)
(3) 1.9" Hybrid

Ground (within existing compound):

- 10'x15' concrete pad
- Generac RD025 25kw generator
- GPS antenna
- Ericsson 6160 equipment cabinet
- 2" RGS conduit for AAV to RAC24
- 10' x 8' Ice canopy
- 1" RGS conduit for DC power to RAC24
- (1) 2" RGS conduit for power from proposed PPC
- Breakers within PPC
- (1) 2" RGS conduit for Ethernet cable for generator controls & Alarms
- (1) 1-1/2" RGS conduit for generator heater & battery charger
- 2" RGS conduit for emergency power
- Generac 200A, 120/240v automatic transfer switch
- (1) 2" RGS conduit for emergency power from generator to Prop. ATS
- Purcell RAC24
- 2" RGS conduit with LBs for DC power wiring
- (2) 2" RGS conduit for alarm & Spare
- Ericsson B160 equipment cabinet

Equipment to Remain: N/A

Reason for Request / Change in Generator Size and Fuel

In an effort to further enhance network reliability, T-Mobile is proposing to install a diesel-based backup generator, the Generac RD025 25kw Diesel Generator.
The proposed diesel generator measures 84.2" x 35" x 91.7" (w/fuel tank: 103.4" x 35" x 91.7"). It will sit fully within the leased area of the compound and will not require additional space for the supplementary tank. Generac's RD025 25kw Diesel Generator carries up to 98 hours of run time with 100% load, 125 hours of run time with a 75% load and 161 hours of run time with a 50% load. It can operate in temperatures of 122 degrees Fahrenheit.

Monitoring, Prevention and Containment Measures

It will be filled by a licensed fuel filling company. The Generac's RD025 25kw Diesel Generator is fuel efficient, rodent and corrosion resistant, and has a sound attenuated aluminum enclosure with a Rated Load Sound Output at 23ft. of 65dB. It further supports advanced, remote monitoring for diagnostics and control and shall be installed with a tank alarm system. The Sound Output from the Generac RD025kw meets/exceeds the allowable noise emissions levels for the Town of North Granby, Hartford County, which is as follows:

Maximum Continuous Noise Levels (measured in dBA):

No Person in a residential zone shall emit noise beyond the boundaries of his/her premises in excess of the noise levels stated herein and applicable to adjacent residential, commercial or industrial zones:

Receptor's Zone: Maximum Level:

Commercial:

- **Industrial…62 dBA**
- **Commercial…55 dBA**
- **Residential/Day…55 dBA**
- **Residential/Night…45 dBA**

Industrial:

- **Industrial…70 dBA**
- **Commercial…66 dBA**
- **Residential/Day…61 dBA**
- **Residential/Night…51 dBA**

The proposed modification will remain within the existing, fenced-in compound. The new generator and tank will be surrounded by the existing security fence and gate.

Additional safety specifications:

- Automatic Voltage Regulation with Over and Under Protection
- Overspeed Shutdown
- High Tempature Shutdown
- Meets ANSI/IEEE C62.41, SA CSA 22.2, SAE J1349, NFPA 37, 70 99

Revised Construction Drawings and Full Spec Sheets referencing the above are attached herewith.

The revised ground configuration continues to meet all requirements for a Notice of Exempt Modifications. The request remains technically, legally, environmentally, and economically feasible and meets public safety concerns per Connecticut General Statute Section 16-50aa.

There is no environmental impact associated with the revised ground configuration, including, but not limited to, visibility, wetlands and water resources, air quality or noise.

T-Mobile's revised ground configuration:

- Will not have any significant adverse visual impact on the surrounding areas

- Does not affect or alter the existing site with regard to wetlands, water resources or air quality
- The generator would only be used in cases of emergency and would provide backup time of approximately 60 hours in time of need.

The proposed work is not thought to have any substantial adverse environmental impact. Public Need for the additional coverage outweighs any minor environmental effects that would result from the construction, operation, and maintenance of the proposed collocation.

A Map of the Site Showing Nearest Wetlands, depicted in feet, is attached herewith.

C. This Proposal is technically, legally, environmentally, and economically feasible and meets public safety concerns per Connecticut General Statute Section 16-50aa.

T-Mobile proposes to collocate at the above-referenced existing telecommunication facility rather than to require additional tower construction. The need for the site was dictated by the existing lack of, or extremely poor service, and projected future capacity and coverage requirements for this particular geographic area. Because new wireless telecommunications sites must function as an integral part of an existing network, their locations affect the services areas of all surrounding site. In order to use mobile communications services, users must be "handed-off" efficiently from one site to the next as they travel. To accomplish this goal, new sites must be placed on very exact, calculated locations.

When the need for a new site in the North Granby area was established, SBA system engineers identified a target area in which to locate the facility. Within the general target area, there are no other tall structures that are suitable for this purpose. The Selection of this specific site location was determined by local topographic and geographic factors, mitigation of the antenna mounting structure's visual impact, compatibility with existing land use, and the ability to negotiate a mutually beneficial lease with a landlord. SBA engineers believe that the 150 Lost Acres Rd. site is ideally suited for the proposed monople tower facility. Two carriers are currently on the tower.

The proposed collocation meets with all legal and technical requirements. This Application contains all required information and statements per R.C.S.A §16-50j-89 and the proposed installation has been drafted per current code, and studied with regard to structural feasibility and RF emissions output. Drawings and Reports are attached. T-Mobile's proposed collocation presents no known material changes to environmental conditions from those as documented in the Council's original Findings of Fact and presents no known public safety concerns.

2. Engineering Drawings per the requirements under R.C.S.A. §16-50j-89 are enclosed herewith.
3. Engineering and Structural Analysis per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.
4. Engineering and Mount Analysis per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.
5. A Letter from SBA, as Owner of the Facility, agreeing to the proposed shared use of the facility, is enclosed herewith.
6. With regard to any potential environmental impact:

A. T-Mobile's collocation will not have any significant adverse visual impact on the surrounding areas. The antennas should result in only marginal additional equipment visibility from areas that already have views of the existing tower. The proposed work would not require any Federal Aviation Administration obstruction marking or lighting.

B. The proposed collocation does not affect or alter the existing site with regard to wetlands, water resources or air quality. National Wetlands Inventory Maps indicated that the site was not within the 100 year flood zone.

The proposed work is not thought to have any substantial adverse environmental impact. Public Need for the additional coverage outweighs any minor environmental effects that would result from the construction, operation, and maintenance of the proposed collocation.

7. The operation of T-Mobile's new antennas will not increase the total radio frequency electromagnetic power density at the site to a level at or above the applicable standards. The anticipated Maximum Composite contributions from the T-Mobile's facility are only 10.44% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 14.78% of the allowable FCC established general public limit sampled at the ground level. FCC guidelines state that if a site is to be out of compliance (over allowable thresholds), the carriers over 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 per the federal government. A Power Density / RF Report per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.

8. Per the Connecticut Siting Council's Guidelines, one original hard copy of this Tower Share Application and fifteen (15) copies are being submitted, along with check in the amount of $625 for the filing fee per Conn. Gen. Stat.
§4-189j; Regs., Conn. State Agencies §16-50v-1a.

   A. A copy of this Application and all attachments is being sent to:
      i. The Town of North Granby's Town Manager, William F. Smith, Jr.
      ii. The Town of North Granby's Building Official / Zoning Enforcement, Joel Skilton
      iii. The Property Owner, John G. Lombardi & Deborah Lindsey Lombardi
      iv. (Separate notice is not being sent to tower owner, as it belongs to SBA)

Please note, additionally: the planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification 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 significant change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

T-Mobile respectfully submits for the Council's review and approval this Application for Tower Share.

Sincerely,
G. Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA
01581
508.251.0720 x3807+
T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments

cc: William F. Smith, Jr., Town Manager/ with attachments
Granby Town Hall, 15 North Granby Rd., Granby, CT 06035
Joel Skilton, Building Official & Zoning Enforcement/ with attachments
Granby Town Hall, 15 North Granby Rd., Granby, CT 06035
John G. Lombardi & Deborah Lindsey Lombardi
150 Lost Acres Rd., North Granby Ct. 06060

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town of Granby Planning & Zoning Comm. 5/12/98
Exhibit 7	EME Report	EBI Consulting 9/19/21
Exhibit 8	Structural Analysis	TES 8/30/21
Exhibit 9	Mount Analysis	TES 8/12/21
Exhibit 10	Construction Drawings	Chappell Engineering 8/31/21
Exhibit 11	Generator Specifications	X Generac RD025
Exhibit 12	Wetlands Map	x

EXHIBIT 1

Copy of check

SBA Network Services, LLC

To: CONNECTICUT SITING COUNCIL 129986

Check Number: 2159599
Date: 08/27/2021

Invoice Number	Invoice Date	Description	Gross Amount	Taxes Withheld	Net Amount
PRSF08262111	08/27/2021	CSC FEE_CTHA238A_NSD	$ 625.00	$ 0.00	$ 625.00
			$ 625.00	$ 0.00	$ 625.00

SBA Network Services, LLC
8051 Congress Avenue
Boca Raton, FL 33487

(800) 487-7483

Wells Fargo Bank

061209756

2159599

129986

DATE 08/27/2021

AMOUNT $ 625.00

Void After 120 Days

Six Hundred Twenty Five Dollars And 00 Cents

Pay to the Order of:

CONNECTICUT SITING COUNCIL
ACCOUNTS RECEIVABLE
TEN FRANKLIN SQUARE

NEW BRITAIN, CT 06051

Brian Lazarus

⑈2159599⑈ ⑆061209756⑆ 2079900424566⑈

EXHIBIT 2
Letter of Intent

September 20, 2021

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

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **150 Lost Acres Rd., North Granby, CT**
T-Mobile Site No: CTHA238-A
SBA Site No: CT10017-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow T-Mobile's shared use of the existing SBA telecommunications site at **150 Lost Acres Rd., North Granby, CT**.

SBA Towers II, LLC ("Owner") and T-Mobile ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 150' for antennas and associated equipment.

Thank you,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

508.251.0720 x3800 + T
508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

EXHIBIT 3

Fedex Labels

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

FedEx

TRACK ANOTHER SHIPMENT

283896499669

ADD NICKNAME

Scheduled delivery:
Tuesday, September 21, 2021 before 10:30 am

IN TRANSIT
On FedEx vehicle for delivery
WINDSOR LOCKS, CT

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council

Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, September 21, 2021

8:03 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:51 AM	WINDSOR LOCKS, CT	At local FedEx facility
2:30 AM	NEWARK, NJ	Departed FedEx hub

Monday, September 20, 2021

11:45 PM	NEWARK, NJ	Arrived at FedEx hub
8:21 PM	FRAMINGHAM, MA	Left FedEx origin facility
4:51 PM	FRAMINGHAM, MA	Picked up
10:12 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
283896499669

SERVICE
FedEx Priority Overnight

WEIGHT
5 lbs / 2.27 kgs

DIMENSIONS
18x13x3 in.

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
5 lbs / 2.27 kgs

TERMS
Shipper

SHIPPER REFERENCE
10-56-92009-6089

PACKAGING
FedEx Box

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
9/20/21

STANDARD TRANSIT
9/21/21 before 10:30 am

SCHEDULED DELIVERY
9/21/21 before 10:30 am

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TRACK ANOTHER SHIPMENT

283896591958

ADD NICKNAME

Scheduled delivery:
Tuesday, September 21, 2021 before 10:30 am

IN TRANSIT
On FedEx vehicle for delivery
WINDSOR LOCKS, CT

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council

Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, September 21, 2021

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7:51 AM	WINDSOR LOCKS, CT	At local FedEx facility
2:30 AM	NEWARK, NJ	Departed FedEx hub

Monday, September 20, 2021

11:45 PM	NEWARK, NJ	Arrived at FedEx hub
8:21 PM	FRAMINGHAM, MA	Left FedEx origin facility
4:51 PM	FRAMINGHAM, MA	Picked up
10:13 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
283896591958

SERVICE
FedEx Priority Overnight

WEIGHT
5 lbs / 2.27 kgs

DIMENSIONS
18x13x3 in.

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
5 lbs / 2.27 kgs

TERMS
Shipper

SHIPPER REFERENCE
10-56-92009-6089

PACKAGING
FedEx Box

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
9/20/21

STANDARD TRANSIT
9/21/21 before 10:30 am

SCHEDULED DELIVERY
9/21/21 before 10:30 am

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283896856120

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Scheduled delivery:
Tuesday, September 21, 2021 before 10:30 am

IN TRANSIT
On FedEx vehicle for delivery
WINDSOR LOCKS, CT

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
William F. Smith
Granby Town Hall

First Selectman
15 North Granby Rd
GRANBY, CT US 06035
508-251-0720

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, September 21, 2021

9:36 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
8:04 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:40 AM	EAST GRANBY, CT	At destination sort facility
4:49 AM	NEWARK, NJ	Departed FedEx hub

Monday, September 20, 2021

11:45 PM	NEWARK, NJ	Arrived at FedEx hub
8:10 PM	FRAMINGHAM, MA	Left FedEx origin facility
4:51 PM	FRAMINGHAM, MA	Picked up
10:15 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
283896856120

SERVICE
FedEx Priority Overnight

WEIGHT
0.5 lbs / 0.23 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
0.5 lbs / 0.23 kgs

TERMS
Shipper

SHIPPER REFERENCE
10-56-92009-6089

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
9/20/21

STANDARD TRANSIT
9/21/21 before 10:30 am

SCHEDULED DELIVERY
9/21/21 before 10:30 am

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FedEx

TRACK ANOTHER SHIPMENT

283897018557

ADD NICKNAME

Scheduled delivery:
Tuesday, September 21, 2021 before 10:30 am

IN TRANSIT
On FedEx vehicle for delivery
WINDSOR LOCKS, CT

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Joel Skilton
Granby Town Hall
Building Official & Zoning Enf. Off
15 North Granby Rd
GRANBY, CT US 06035
508-251-0720

MANAGE DELIVERY

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8:05 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:40 AM	EAST GRANBY, CT	At destination sort facility
4:49 AM	NEWARK, NJ	Departed FedEx hub

Monday, September 20, 2021

11:45 PM	NEWARK, NJ	Arrived at FedEx hub
8:10 PM	FRAMINGHAM, MA	Left FedEx origin facility
4:51 PM	FRAMINGHAM, MA	Picked up
10:17 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
283897018557

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

SHIPPER REFERENCE
10-56-92009-6089

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
9/20/21

STANDARD TRANSIT
9/21/21 before 10:30 am

SCHEDULED DELIVERY
9/21/21 before 10:30 am

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

FedEx

TRACK ANOTHER SHIPMENT

283897243130

ADD NICKNAME

Scheduled delivery:
Tuesday, September 21, 2021 before 12:00 pm

IN TRANSIT
On FedEx vehicle for delivery
WINDSOR LOCKS, CT

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
John G. & Deborah Lindsey Lombardi
150 Lost Acres Rd
NORTH GRANBY, CT US 06060
508-251-0720

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, September 21, 2021

9:36 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
8:15 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:40 AM	EAST GRANBY, CT	At destination sort facility
4:49 AM	NEWARK, NJ	Departed FedEx hub

Monday, September 20, 2021

11:45 PM	NEWARK, NJ	Arrived at FedEx hub
8:10 PM	FRAMINGHAM, MA	Left FedEx origin facility
4:51 PM	FRAMINGHAM, MA	Picked up
10:20 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
283897243130

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

SHIPPER REFERENCE
10-56-92009-6089

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
9/20/21

STANDARD TRANSIT
9/21/21 before 12:00 pm

SCHEDULED DELIVERY
9/21/21 before 12:00 pm

EXHIBIT 4

Property Card

150 LOST ACRES RD

Location	150 LOST ACRES RD	**Mblu**	C-20/ 6/ 82/ /
Acct#	09000150	**Owner**	LOMBARDI JOHN G &
Assessment	$198,310	**Appraisal**	$283,300
PID	1748	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$215,000	$68,300	$283,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$150,500	$47,810	$198,310

Owner of Record

Owner	LOMBARDI JOHN G &	**Sale Price**	$0
Co-Owner	LOMBARDI DEBORAH LINDSEY	**Certificate**	
Address	150 LOST ACRES RD NORTH GRANBY, CT 06060	**Book & Page**	414/0219
		Sale Date	07/12/2016

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
LOMBARDI JOHN G &	$0		414/0219	07/12/2016
LOMBARDI JOHN G &	$260,000		336/ 706	09/13/2006
KEMP MARGARET W	$0		251/0786	07/06/2001
KEMP MARGARET W	$0		166/0026	01/26/1990
KEMP GEORGE L & MARGARET W	$0		097/0655	05/06/1976

Building Information

Building 1 : Section 1

Year Built:	1953
Living Area:	2,295

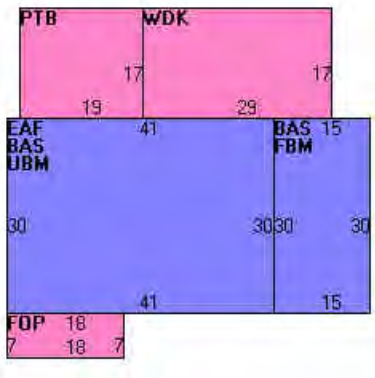
Replacement Cost: $217,402
Building Percent Good: 70
Replacement Cost Less Depreciation: $152,200

Building Attributes	
Field	**Description**
Style	Cape Cod
Model	Residential
Grade:	Average
Stories:	1 1/4 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	6 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	9 Rooms
Bath Style:	Average
Kitchen Style:	Average
Extra Kitchens	
Solar Panels	

Building Photo

(http://images.vgsi.com/photos2/GranbyCTPhotos/\00\01\16/17.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/1748_1748.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,680	1,680
EAF	Attic, Expansion, Finished	1,230	615
FBM	Basement, Finished	450	0
FOP	Porch, Open	126	0
PTB	Patio, Brick	323	0
UBM	Basement, Unfinished	1,230	0
WDK	Deck, Wood	493	0
		5,532	2,295

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL2	FIREPLACE 1.5 ST	1 UNITS	$2,300	1

Land

Land Use

Use Code	1010
Description	Single Fam M01
Zone	R2A
Neighborhood	400
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.22
Frontage	0
Depth	0
Assessed Value	$47,810
Appraised Value	$68,300

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR1	GARAGE-AVE			400 S.F.	$5,800	1
SHP5	W/IMPROV GOOD			360 S.F.	$10,800	1
FN3	FENCE-6' CHAIN			240 L.F.	$2,900	1
SHP5	W/IMPROV GOOD			240 S.F.	$7,200	1
CELL	CELL TOWER			1 UNITS	$33,800	1

Valuation History

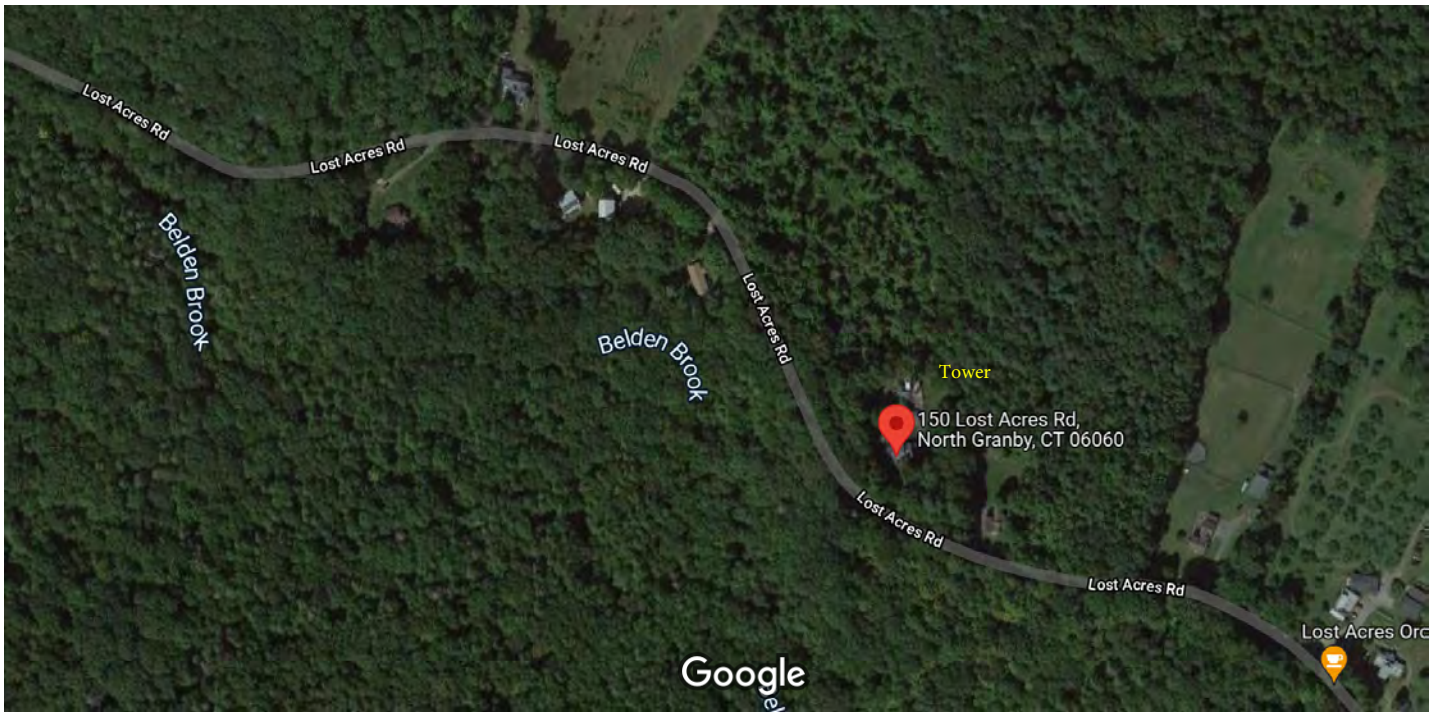
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$215,000	$68,300	$283,300
2019	$215,000	$68,300	$283,300
2018	$215,000	$68,300	$283,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$150,500	$47,810	$198,310
2019	$150,500	$47,810	$198,310
2018	$150,500	$47,810	$198,310

EXHIBIT 5

Property Map

Google Maps 150 Lost Acres Rd



Imagery ©2021 MassGIS, Commonwealth of Massachusetts EOEA, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 200 ft

150 Lost Acres Rd

Building

Directions Save Nearby Send to your phone Share

150 Lost Acres Rd, North Granby, CT 06060

Photos

EXHIBIT 6

Zoning Approval

SITE NAME: NORTH GRANBY SITE ID: CT10017-A

Transaction: Mariner Tower

ZONING/PERMITTING COMPLETION FORM

Address: 150 Lost Acres Road, North Granby,CT

Jurisdiction: Town of Granby (time tower constructed) Zoning District:
Connecticut Siting Council (currently)

Zoning Approval Type: Planning & Zoning Commission approval Case #:

Approval Date: 5/12/98 (original) Approved Height: 150 Tower Build Date: 2002
11/12/02 (rebuild)

If tower is destroyed or drop/swap required, tower can likely be rebuilt? ☐ YES ☐ NO

Conditions of Approval:	Yes	No	N/A
Removal Bond	☐	☒	☐
Site Plan Submittal	☐	☒	☐
Fall Zone	☐	☒	☐
Periodic Inspections	☐	☒	☐
Periodic Reporting	☐	☒	☐
Approval Renewal	☐	☒	☐
Additional Conditions	☐	☒	☐

Cell towers currently fall under complete jurisdiction of Connecticut Siting Council (CSD). Tower build pre-dates CSC & obtained Town of Granby zoning approvals. No CSC Review on this tower & no Cert. of Environmental Compatibility & Public Need issued. Any modifications/collocations must go through CSC Review.

JURISDICTION POC/DEPT.

Planning/Zoning: Fran Armentano (Town of Granby)

Phone: 860-844-5319 Fax:

Bldg./Code Enforcement: Henry Miga

Phone: 860-844-5318 Fax: 860-844-5325

Submitted by: Patches Estes Date: 2/4/08
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	
Ordinance Attached (required)	☐	☒	☐	
Building Permit Attached (required) 19338	☒	☐	☐	Date Recd 7/20/98
Certificate of Occupancy or Compliance (CO) attached (required)	☒	☐	☐	4/17/07

Zoning Manager Approval: FINAL Diane E. Borchardt, AICP Date 2/4/2008

PLANNING & ZONING COMMISSION
Town of Granby
Minutes
May 12, 1998

Present: Paula Johnson, Chairwoman, Put Brown, Margaret Chapple, Charles Kraiza, Eric Lukingbeal, John Morgan, Fred Wilhelm. Francis Armentano, Director of Community Development and Ed Sweeney, Town Engineer.

The meeting opened at 7:06 p.m.

Public session: There was no public comment.

ON A MOTION by Put Brown, seconded by Fred Wilhelm, the Commission voted to approve the minutes of April 28, 1998. All approved. Margaret Chapple and Eric Lukingbeal abstained.

The Commission held an informal public information session and continuation of a discussion of the proposed reconstruction of a communications tower at 150 Lost Acres Road. Mr. Wayne Kemp, business owner and the Zoning Enforcement Officer are seeking a determination regarding the non-conforming use of the property. The use of the property by Kemp Communications predates the current Zoning prohibitions of this type of commercial use within residential zones. At issue is whether the replacement of the existing tower with a new modern design, of the same height and with supporting accessory components is a illegal extension of the use or a permissible intensification of the use. Notices of the hearing were sent throughout the Lost Acres Road area. An abutting neighbor questioned the maintenance of the tower and if the proposed changes would increased traffic to the area. A resident commented that the existing tower is not visible from the road. The public information session was closed as no further comments were forthcoming.

The Commission opened a continuation of a discussion with Ed Lally, Engineer, representing Tom Fredo Builders, regarding the development of property located on Mountain Road, FRD subdivision. Fred Wilhelm and Put Brown abstained from any discussion. Mr. Lally continued to discuss the evolving design of the proposed development. Mr. Lally outlined property which could be donated to the Granby Land Trust, Homeowners Association and the Town of Granby, sequence of the building plan and schedule, landscaping, road elevation and grade. Mr. Lally also discussed the elimination of lots, changed lot numbers, storm water management, private drives and easements, driveway drains, fire pond and road entrance plans. Mr. Lally invited the members to walk the site. The public questioned various aspects of the proposal including increased traffic, trucks, the need for a public works facility, the preservation of ridge lines, driveways and future access to abutting property. One abutter expressed his displeasure for the location of the proposed new road, which would make his property a corner lot. The public hearing is set for May 26, 1998. Commission members intend to walk the property before the next meeting.

ON A MOTION by Fred Wilhelm, seconded by Put Brown, the Commission voted to inform the Zoning Enforcement Officer that, based on their review of the matter, the proposed replacement of the existing tower at 150 Lost Acres Road with a new modern design, of the same height and with supporting accessory components is a permissible intensification of the use. The vote was 4-2. Paula Johnson, Put Brown, John Morgan, Fred Wilhelm approved. Margaret Chapple and Eric Lukingbeal opposed.

The meeting adjourned at 9:50 p.m.

Respectfully submitted,

Dorcus S. Forsyth
Recording Secretary

PHONE (203) 653-8945
FAX (203) 653-4769

TOWN OF GRANBY
PERMIT APPLICATION

15 NORTH GRANBY ROAD
Granby, CT 06035

PROPERTY ADDRESS 150 Lost Acres Rd.

EST. COST OF JOB 37,000 COST OF PERMIT 444 CHECK# 6873 RCPT# 6499 BLANKET _____

TYPE OF PERMIT: BUILDING ☒ MECHANICAL ☐ PLUMBING ☐ ELECTRICAL ☒ OTHER ☐

DESCRIPTION OF WORK: Build 30X30 st Garage - Install new electric service Replace Existing Tower

NEW HOME ☐ ADDITION ☐ ROOF ☐ SIDING ☐ POOL ☐ DECK ☐ SHED ☐

BUILDING OFFICIAL COMMENTS: Min. 30' TO SIDE & ~~REAR~~ 50' TO REAR

OWNER(S) Margaret W. Kemp	CONTRACTOR Wayne Kemp
ADDRESS 150 Lost Acres Rd	ADDRESS 1050 Buckley Highway
TOWN North Granby ST CT ZIP 06060	TOWN Union ST CT ZIP 06076
HOME PHONE # 653-6097 WORK PHONE #	LICENSE # WORK PHONE # 684-3060

AFFIDAVIT AND AGREEMENT

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY WHICH IS THE SUBJECT OF THIS APPLICATION OR THE AUTHORIZED AGENT OF THE PROPERTY OWNER; I AGREE TO CALL AT LEAST 24 HRS. IN ADVANCE FOR EACH INSPECTION INDICATED ON THE PERMIT; I AGREE TO UNCOVER AND EXPOSE ANY WORK WHICH IS COVERED OR CONCEALED WITHOUT INSPECTOR'S APPROVAL; I UNDERSTAND THAT WHEN A PERMIT IS ISSUED IT GRANTS NO RIGHT TO VIOLATE ANY CODE, ORDINANCE OR STATUTE, REGARDLESS OF WHAT MAY BE SHOWN OR OMITTED ON THE APPROVED PLANS AND SPECIFICATIONS AND REGARDLESS OF ANY AGREEMENT WITH ANY OFFICIAL.

I HAVE READ AND AGREE TO ALL THE ABOVE

SIGNATURE: Wayne Kemp DATE: 7-20-98

TOWN OF GRANBY BUILDING PERMIT

DATE ISSUED 7/20/98 BUILDING PERMIT # 19338

DATE CLOSED _____

BUILDING OFFICIAL SIGNATURE

** OTHER APPROVALS OR PERMITS REQUIRED **

FIRE MARSHAL ☐ FVHD ☐ WETLANDS ☐ DRIVEWAY ☐ P&Z ☐ ZBA ☐ ZONING ☐ TAX ☐
WATER ☐ SEWER ☐

REQUIRED INSPECTIONS

- ☑ FOOTING (FORMS IN PLACE BEFORE CONCRETE)
- ☐ DAMPPROOF/DRAINS
- ☐ INGROUND MECHANICALS
- ☐ FIREPLACE/THROAT
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ ROUGH FRAME/MECHANICALS
- ☐ INSULATION
- ☐ DRIVEWAY
- ☑ FINAL INSPECTION

** THIS PERMIT IS NOT VALID UNLESS PERTINENT INFORMATION IS ATTACHED **

CT10017-A; North Granby

PHONE (860) 653-8945
FAX (860) 653-4769

TOWN OF GRANBY
PERMIT APPLICATION

15 NORTH GRANBY ROAD
Granby, CT 06035

PROPERTY ADDRESS 150 LOST ACRES Rd.

EST. COST OF JOB $2800.00 COST OF PERMIT 36.00 CHECK# 5553 RCPT# 6359 ✓

TYPE OF PERMIT: BLANKET ( ) NON-BLANKET ( )

BUILDING ( ) HEATING ( ) PLUMBING ( ) ELECTRICAL (X) OTHER ( )

DESCRIPTION OF WORK: WIRING FOR NEW 4 METER LOOP / DISCONNECT
POWER FOR COMMUNICATION COMPANIES

NEW HOME ( ) ADDITION ( ) ROOF ( ) SIDING ( ) POOL ( ) DECK ( ) SHED ( ) OTHER (X)

BUILDING OFFICIAL COMMENTS:

OWNER(S)		CONTRACTOR	
NEW ENGLAND SITE MANAGEMENT		ASHMORE ELECTRIC INC.	
ADDRESS 1515 NORTH STONE RD.		ADDRESS 173 HARTFORD AVE.	
TOWN SUFFIELD	ST CT. ZIP	TOWN EAST GRANBY	ST CT. ZIP 06026
HOME PHONE #	WORK PHONE # 668-6208	LICENSE # 125326	WORK PHONE # 653-6320

AFFIDAVIT AND AGREEMENT

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY WHICH IS THE SUBJECT OF THIS APPLICATION OR THE AUTHORIZED AGENT OF THE PROPERTY OWNER; I AGREE TO CALL AT LEAST 24 HRS. IN ADVANCE FOR EACH INSPECTION INDICATED ON THE PERMIT; I AGREE TO UNCOVER AND EXPOSE ANY WORK WHICH IS COVERED OR CONCEALED WITHOUT INSPECTOR'S APPROVAL; I UNDERSTAND THAT WHEN A PERMIT IS ISSUED IT GRANTS NO RIGHT TO VIOLATE ANY CODE, ORDINANCE OR STATUTE, REGARDLESS OF WHAT MAY BE SHOWN OR OMITTED ON THE APPROVED PLANS AND SPECIFICATIONS AND REGARDLESS OF ANY AGREEMENT WITH ANY OFFICIAL.

I HAVE READ AND AGREE TO ALL THE ABOVE

SIGNATURE: Joseph Ashmore DATE: 12/14/01

TOWN OF GRANBY BUILDING PERMIT

DATE ISSUED 12/19/01 BUILDING PERMIT # 22613

DATE CLOSED _____

Edward L. Mezzo
BUILDING OFFICIAL SIGNATURE

**** OTHER APPROVALS OR PERMITS REQUIRED ****

FIRE MARSHAL ( ) FVHD ( ) WETLANDS ( ) DRIVEWAY ( ) P&Z ( ) ZBA ( ) ZONING ( ) TAX ( )
WATER ( ) SEWER ( )

REQUIRED INSPECTIONS

( ) FOOTING (FORMS IN PLACE BEFORE CONCRETE)
( ) DAMPPROOF/ WATERPROOF/DRAINS
( ) INGROUND MECHANICALS
( ) FIREPLACE/THROAT
( ) CERTIFICATE OF OCCUPANCY
( ) ROUGH FRAME/MECHANICALS
( ) INSULATION
( ) DRIVEWAY
( ) FINAL INSPECTION

**** THIS PERMIT IS NOT VALID UNLESS PERTINENT INFORMATION IS ATTACHED ****

Pd
#20.00
chk#3557
rcp# 0157

TOWN OF GRANBY
PERMIT FOR EXCAVATION WITHIN TOWN RIGHT-OF-WAY

Permit Fee: $20.00
Permit #_____

RECEIVED
MAY 14 2002

Nature of Work: Road Crossing for Utilities

Location: 150 Lost Acres Rd.

Start Date: A.S.A.P **Completion Date:**_____

Contractor: Copper Hill Exc. LLC

Address: Po Box 246 Suffield CT.

Phone: 860-668-7171

Permission Granted: Yes ✓ No_____

By: James Klase

Title: Public Works Superint. **Date:** 5-17-02

- ✓ **Please note that you must contact Call Before You Dig at 1(800) 922-4455, before you start work.**
- ✓ **The Town may require a plan of the construction before issuing the permit.**
- ✓ **Construction, which is done in conjunction with a Building Permit, may be exempt from this permit.**
- ✓ **All contractors shall have a minimum $1,000 bond, or a bond in an amount as directed by the Town Engineer.**

AVON
BURKHAMSTED
CANTON
COLEBROOK
EAST GRANBY
FARMINGTON
GRANBY
HARTLAND
NEW HARTFORD
SIMSBURY

FVHD

FEE: $25.00

christin
susan

FARMINGTON VALLEY HEALTH DISTRICT

50 SIMSBURY ROAD, AVON, CONNECTICUT 06001 Telephone (860) 676-1953 Fax (860) 676-2131 800# 1-800-906-FVHD

APPLICATION FOR LOCATION APPROVAL/ADDITION

PROPERTY OWNER: Margaret W. Kemp PHONE # (H): 653-6097

ADDRESS: 150 Lost Acres Rd. N. Granby CT (W): _____

CONTRACTOR: Wayne Kemp PHONE #: 860-614-3060

RECEIVED
OCT 16 1998
SANITATION DEPT.

YOU MUST PROVIDE A PLAN OR A SKETCH SHOWING THE EXISTING AND PROPOSED STRUCTURES AND THEIR SEPARATING DISTANCES TO THE SEPTIC SYSTEM AND WELL

I. TYPE OF ADDITION: Garage

Detached Building? X YES ☐ NO Plumbing: ☐ YES X NO

Size of addition: 28x28 Garage Is this an Accessory Apartment? No

Number of rooms in addition: 1 Use of rooms: Garage + Equip storage

Number of bedrooms in existing home: _____ Number of bedrooms after addition: _____

Please check: ☐ Full foundation ☐ Crawl Space X Slab ☐ Piers ☐ None Footing Drains ☐ Yes X No

II. SWIMMING POOL

Please check: ☐ In-ground ☐ Above ground Deck provided ☐ Yes ☐ No

Type of filter system: _____

Filter backwash & pool water discharge to: _____

III. DISTANCE BETWEEN ADDITION AND/OR POOL AND:

Septic system: 17 ft. (NA if sewers) Well: 70 ft. (NA if public water)

Size of septic tank: 1,000 gallons; Please check: X concrete ☐ metal

SIGNED: Wayne Kemp DATE: 10-13-98

I certify that I am the owner or the owners contractual representative and that the information above is accurate to the best of my knowledge and that I have received the attached information sheet.

FOR OFFICE USE ONLY: Soil testing required? No Date of testing: _____ Observed By: _____

THE FVHD ASSUMES NO RESPONSIBILITY OF THE PRESENT OR FUTURE OPERATION OF THE SEPTIC SYSTEM OR FOR ANY DAMAGE TO THE SEPTIC SYSTEM CAUSED BY THE NEW CONSTRUCTION OR ANY NECESSARY TESTING.

APPROVED BY: Dustin M. Hallyn DATE: 10/15/98

NOTES:

EXHIBIT 7

EME Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA238A

150 Lost Acres Road
North Granby, Connecticut 06060

September 19, 2021

EBI Project Number: 6221005366

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**14.78%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

September 19, 2021

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

Emissions Analysis for Site: CTHA238A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **150 Lost Acres Road** in **North Granby, Connecticut** 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. 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 150 Lost Acres Road in North Granby, Connecticut 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 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.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 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.

4) 4 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.

5) 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.

6) 2 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.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

13) The antennas used in this modeling are the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and

associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

14) The antenna mounting height centerline of the proposed antennas is 150 feet above ground level (AGL).

15) 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.

16) 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:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	14,005.63	ERP (W):	14,005.63	ERP (W):	14,005.63
Antenna A1 MPE %:	**2.43%**	Antenna B1 MPE %:	**2.43%**	Antenna C1 MPE %:	**2.43%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**1.71%**	Antenna B2 MPE %:	**1.71%**	Antenna C2 MPE %:	**1.71%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A3 MPE %:	**6.30%**	Antenna B3 MPE %:	**6.30%**	Antenna C3 MPE %:	**6.30%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.44%
Verizon	1.9%
AT&T	2.44%
Site Total MPE % :	14.78%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.44%
T-Mobile Sector B Total:	10.44%
T-Mobile Sector C Total:	10.44%
Site Total MPE % :	14.78%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1167.14	150.0	8.09	1900 MHz GSM	1000	0.81%
T-Mobile 1900 MHz LTE	2	2334.27	150.0	8.09	1900 MHz LTE	1000	0.81%
T-Mobile 2100 MHz LTE	2	2334.27	150.0	8.09	2100 MHz LTE	1000	0.81%
T-Mobile 600 MHz LTE	2	591.73	150.0	2.05	600 MHz LTE	400	0.51%
T-Mobile 600 MHz NR	1	1577.94	150.0	2.74	600 MHz NR	400	0.68%
T-Mobile 700 MHz LTE	2	695.22	150.0	2.41	700 MHz LTE	467	0.52%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	150.0	19.15	2500 MHz LTE 1C & 2C Traffic	1000	1.91%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	150.0	1.86	2500 MHz LTE 1C & 2C Broadcast	1000	0.19%
T-Mobile 2500 MHz NR Traffic	1	22089.26	150.0	38.30	2500 MHz NR Traffic	1000	3.83%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	150.0	3.72	2500 MHz NR Broadcast	1000	0.37%
						Total:	**10.44%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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:	10.44%
Sector B:	10.44%
Sector C:	10.44%
T-Mobile Maximum MPE % (Sector A):	10.44%
Site Total:	14.78%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.78%** 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.

EXHIBIT 8

Structural Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 170 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10017-A

Customer Site Name: North Granby

Carrier Name: T-Mobile (App#: 162863-1)

Carrier Site ID / Name: CTHA238A / CTHA238A

Site Location: 150 Lost Acres Road

North Granby, Connecticut

Hartford County

Latitude: 42.009600

Longitude: -72.866544

Exp.10/31/2021

Analysis Result:

Max Structural Usage: 90.4% [Pass]

Max Foundation Usage: 69.5% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

08/30/2021

Report Prepared By: Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 170 ft Rohn Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Rohn, Eng. File # 37696Mp Dated 08/03/1998
Foundation Drawing	N/A
Geotechnical Report	N/A
Modification Drawings	Extension Drawings by FDH, Project # 09-07094E S2 Dated 10/23/2009 PCI by FDH, Project # 09-07094E S2 Dated 01/06/2010

Analysis Criteria

The feasibility analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESTowers,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.176, S_1 = 0.065

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

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	170.0	3	Cci DMP65R-BU8DA Panel	(3) T-Frames w/Modifications	(7) 1 5/8" (3) 3/8" RET (1) 3" Conduit Housing (2) 3/4" DC and (1) 7/16" Fiber (2) 3" Conduit Housing (3) 1" DC and (1) 7/16" Fiber	AT&T
2		3	Powerwave 7770 Panel			
3		3	Cci OPA65R-BU8DA Panel			
4		6	Powerwave TT08-19DB111-001 TMA			
5		3	Ericsson 4449 B5/B12 RRU			
6		3	Ericsson RRUS 8843 B2 B66A RRU			
7		1	Raycap DC6-48-60-18-8F - OVP			
8		1	Raycap DC9-48-60-24-8C-EV - OVP			
9		3	Andrew ABT-DF-DMADBH Bias-T			
10	160.0	1	Antel BXA-70063-4CF Panel	(3) T-Frames	(12) 1 5/8" (1) 1/2"	Verizon
11		3	Antel BXA-171085-12BF Panel			
12		2	Antel BXA-70063-6CF Panel			
13		4	Antel LPA-80063/4CF Panel			
14		2	Antel LPA-80080/6CF Panel			
15		1	GPS			
16		6	RFS FD9R6004/2C-3L Diplexer			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
17	150.0	3	RFS - APX16DWV-16DWVS-E-A20 - Panel	(3) Sitepro VFA12-HD	(3) 1.9" Fiber	T-Mobile
18		3	RFS - APXVAALL24_43-U-NA20 - Panel			
19		3	Ericsson - AIR6449 B41 - Panel			
20		3	Ericsson 4460 B25 + B66			
21		3	Ericsson 4480 B71 + B85			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**90.4%**	**73.8%**	**24.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Original Design Reactions	240.1	214.2	28.5
Analysis Reactions	225.3	191.2	22.9
Factored Reactions*	324.1	289.2	38.5
% of Design Reactions	69.5%	66.1%	59.5%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

No foundation drawing or geotechnical report is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2974 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure was found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT10017-A-SBA

Site Name:	North Granby			**Code:**	EIA/TIA-222-G	8/30/2021
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	93.00	
Height:	170.00 (ft)	**Base Width:**	20.96	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	6.58	**Operational WS:**	60.00	Page: 1

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Section Properties

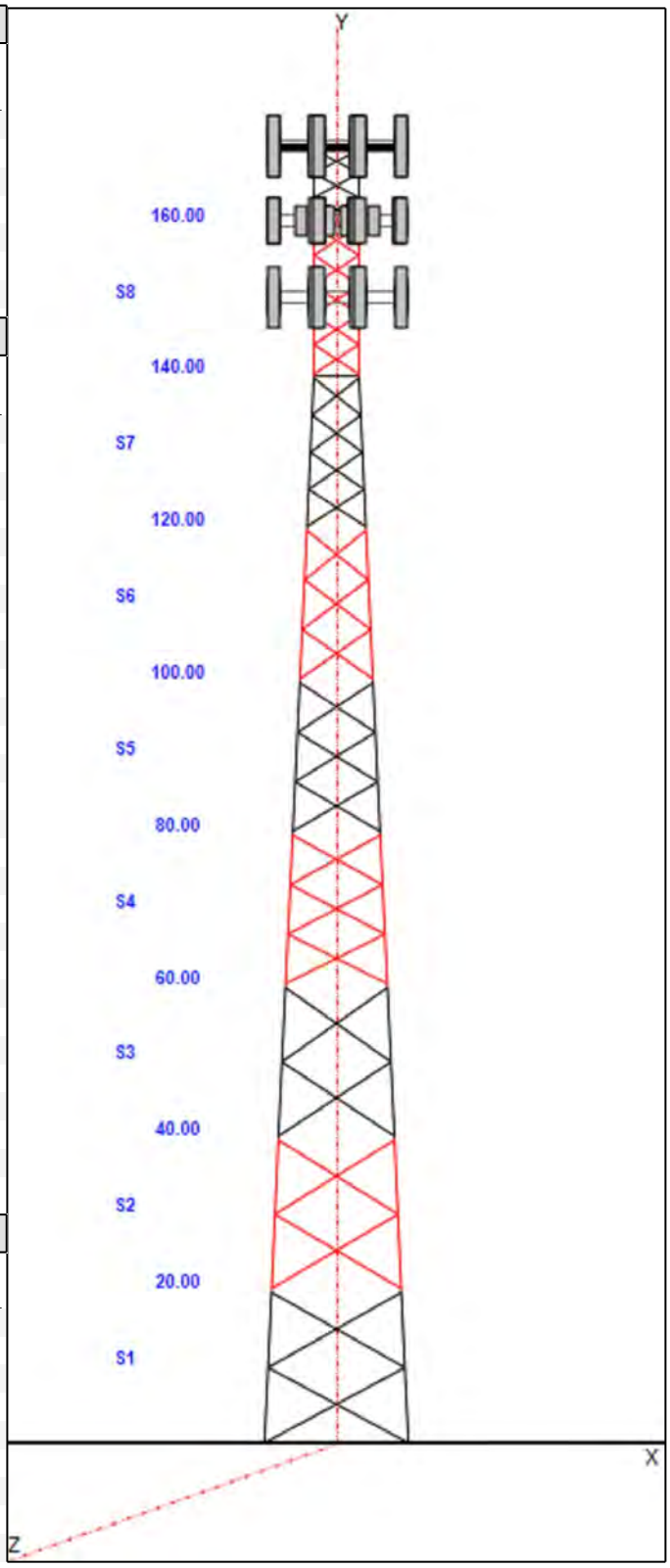
Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 6" DIA PIPE	SAE 3.5X3.5X0.25	
3	PSP ROHN 6 EHS	SAE 3.5X3.5X0.25	
4	PX 5" DIA PIPE	SAE 3X3X0.25	
5	PX 4" DIA PIPE	SAE 2.5X2.5X0.1875	
6	PX 3-1/2" DIA PIPE	SAE 2.5X2.5X0.1875	
7	PST 3" DIA PIPE	SAE 2X2X0.1875	SAE 2X2X0.1875
8-9	PST 2-1/2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.1875

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
170.00	170.00	1	6' Lightning rod
170.00	170.00	1	Beacon
170.00	170.00	3	DMP65R-BU8DA
170.00	170.00	3	7770.00
170.00	170.00	3	OPA65R-BU8DA
170.00	170.00	6	TT08-19DB111-001
170.00	170.00	3	4449 B5/B12
170.00	170.00	3	B2 B66A 8843
170.00	170.00	1	DC6-48-60-18-8F
170.00	170.00	1	DC9-48-60-24-8C-EV
170.00	170.00	3	ABT-DMDF-ADBH
170.00	170.00	3	T-Frames
170.00	170.00	1	(3) 12.5' - 2" Horizontal Pipe
170.00	170.00	2	(3) Stabilizer Kit (12' FW)
160.00	160.00	3	T-Frames
160.00	160.00	1	BXA-70063-4CF-EDIN-10
160.00	160.00	3	BXA-171085-12BF-EDIN-X
160.00	160.00	2	BXA-70063-6CF-EDIN-X
160.00	160.00	4	LPA-80063/4CF
160.00	160.00	2	LPA-80080/6CF ___
160.00	160.00	1	GPS
160.00	160.00	6	FD9R6004/2C-3L 3.1#
150.00	150.00	3	APX16DWV-16DWVS-E-A20
150.00	150.00	3	APXVAALL24_43-U-NA20
150.00	150.00	3	AIR6449 B41
150.00	150.00	3	4460 B25 + B66
150.00	150.00	3	4480 B71 + B85
150.00	150.00	1	(3) VFA12-HD

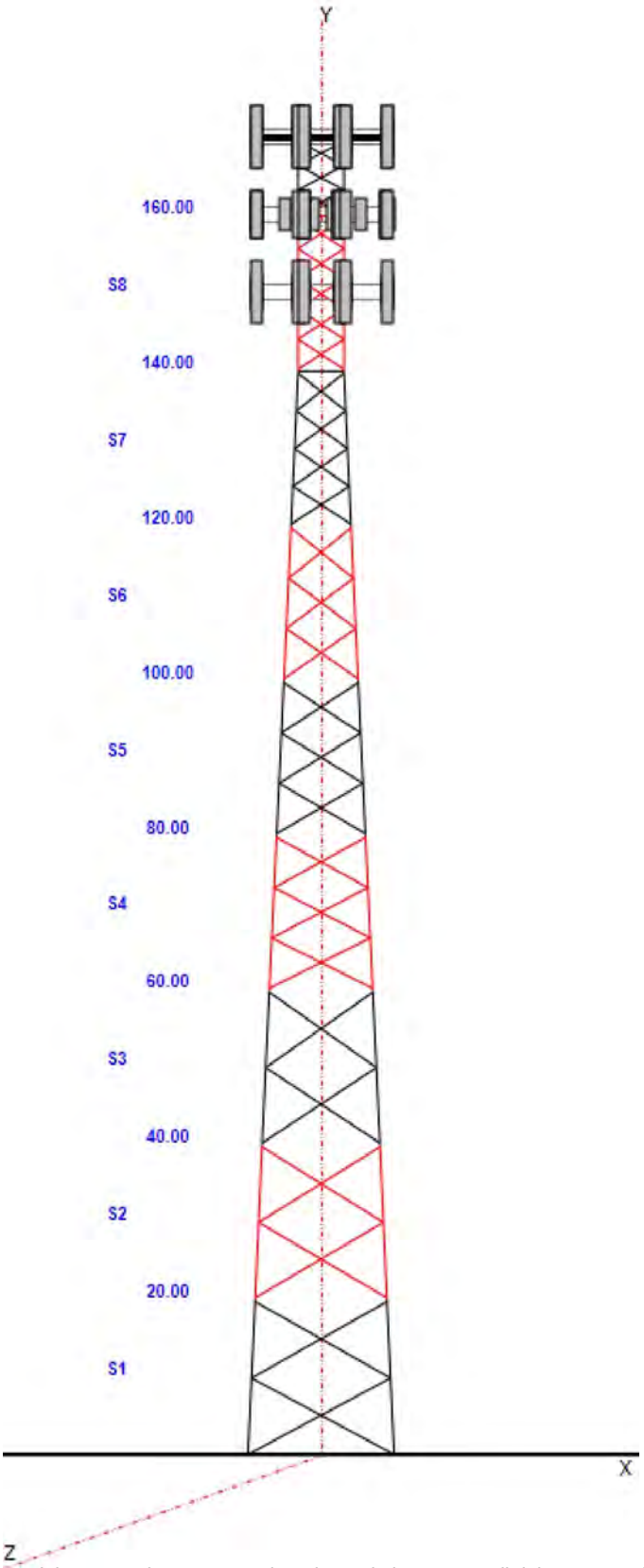
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	170.00	7	1 5/8" Coax
0.00	170.00	3	1" DC
0.00	170.00	3	3" Conduit
0.00	170.00	2	3/4" DC
0.00	170.00	3	3/8" RET
0.00	170.00	2	7/16" Fiber
0.00	170.00	1	W/G Ladder
0.00	160.00	12	1 5/8" Coax
0.00	160.00	1	1/2" Coax
0.00	160.00	1	W/G Ladder
0.00	150.00	3	1.9" Fiber



Base Reactions

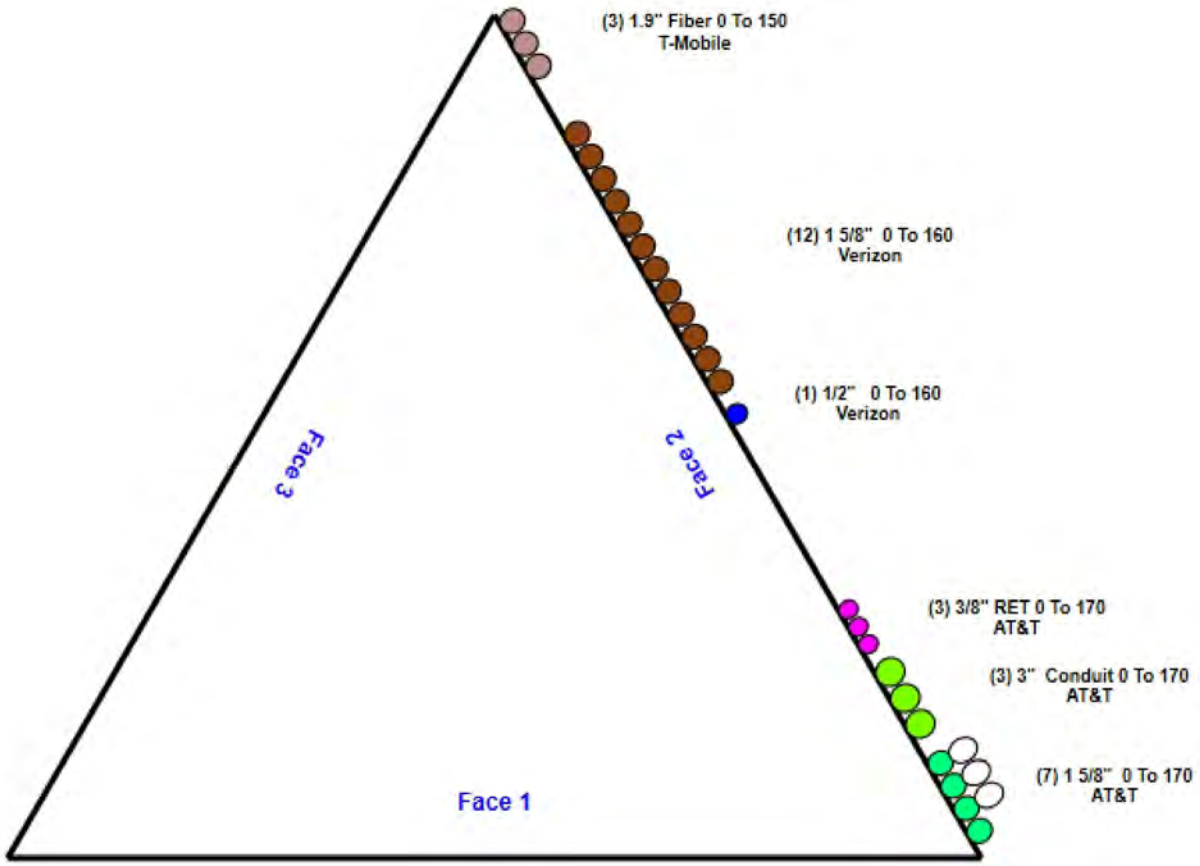
Leg			Overturning		
Max Uplift:	-191.21	(kips	Moment:	3830.55	(ft-kips)
Max Down:	225.25	(kips	Total Down:	42.67	(kips)
Max Shear:	22.91	(kips	Total Shear:	36.92	(kips)



Structure: CT10017-A-SBA - Coax Line Placement

Type: Self Support
Site Name: North Granby
Height: 170.00 (ft)

8/30/2021



Loading Summary

Structure:	CT10017-A-SBA		**Code:**	EIA/TIA-222-G	8/30/2021
Site Name:	North Granby		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 5

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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
170.00	6' Lightning rod	1	6.50	0.380	55.36	1.844	72.000	0.600	0.600	1.00	1.00	0.000
170.00	Beacon	1	36.00	2.720	215.29	3.998	28.000	17.500	17.500	1.00	1.00	0.000
170.00	DMP65R-BU8DA	3	95.70	17.870	714.95	20.288	96.000	20.700	7.700	0.80	0.72	0.000
170.00	7770.00	3	35.00	5.500	231.52	6.966	55.000	11.000	5.000	0.80	0.30	0.000
170.00	OPA65R-BU8DA	3	76.50	17.870	571.51	20.288	96.000	21.000	7.800	0.80	0.72	0.000
170.00	TT08-19DB111-001	6	22.00	0.920	57.83	1.915	14.200	6.700	5.400	0.80	0.75	0.000
170.00	4449 B5/B12	3	71.00	1.970	142.86	2.707	17.900	13.200	9.400	0.80	0.67	0.000
170.00	B2 B66A 8843	3	70.00	1.640	131.90	2.335	15.000	13.200	9.300	0.80	0.67	0.000
170.00	DC6-48-60-18-8F	1	31.80	0.920	115.02	1.510	24.000	11.000	11.000	0.80	1.00	0.000
170.00	DC9-48-60-24-8C-EV	1	26.20	1.140	168.87	3.276	31.400	10.200	18.200	0.80	1.00	0.000
170.00	ABT-DMDF-ADBH	3	1.10	0.050	4.10	0.309	1.700	1.600	3.200	0.80	0.98	0.000
170.00	T-Frames	3	525.00	16.000	1265.01	44.066	0.000	0.000	0.000	0.75	0.75	0.000
170.00	(3) 12.5' - 2" Horizontal Pipe	1	137.25	5.938	317.81	15.980	0.000	0.000	0.000	0.75	1.00	0.000
170.00	(3) Stabilizer Kit (12' FW)	2	180.00	6.100	484.46	14.698	0.000	0.000	0.000	0.75	1.00	0.000
160.00	T-Frames	3	525.00	16.000	1257.99	43.799	0.000	0.000	0.000	0.75	0.75	0.000
160.00	BXA-70063-4CF-EDIN-10	1	9.90	4.720	145.70	7.185	47.400	11.200	5.200	0.80	0.73	0.000
160.00	BXA-171085-12BF-EDIN-X	3	15.00	4.740	141.58	7.872	71.700	6.100	4.100	0.80	0.84	0.000
160.00	BXA-70063-6CF-EDIN-X	2	17.00	7.570	214.73	11.255	71.000	11.200	5.200	0.80	0.73	0.000
160.00	LPA-80063/4CF	4	20.00	6.150	309.76	7.559	47.400	15.200	13.200	0.80	0.93	0.000
160.00	LPA-80080/6CF ___	2	21.00	4.330	298.07	5.952	70.900	5.500	13.200	0.80	0.80	0.000
160.00	GPS	1	10.00	1.000	49.09	1.949	12.000	9.000	6.000	0.80	1.00	0.000
160.00	FD9R6004/2C-3L 3.1#	6	3.10	0.360	13.80	0.951	5.800	6.500	1.500	0.80	0.50	0.000
150.00	APX16DWV-16DWVS-E-A20	3	40.70	6.610	196.78	9.514	55.900	13.300	3.100	0.80	0.62	0.000
150.00	APXVAALL24_43-U-NA20	3	128.00	20.240	709.08	22.805	95.900	24.000	7.800	0.80	0.70	0.000
150.00	AIR6449 B41	3	103.00	5.650	285.82	6.917	33.100	20.500	8.300	0.80	0.71	0.000
150.00	4460 B25 + B66	3	109.00	2.850	204.88	3.749	21.800	15.700	7.500	0.80	0.67	0.000
150.00	4480 B71 + B85	3	93.00	2.850	188.91	3.749	21.800	15.700	7.500	0.80	0.67	0.000
150.00	(3) VFA12-HD	1	2322.0	50.700	5347.78	135.64	0.000	0.000	0.000	0.75	0.75	0.000
	Totals:	**72**	**8,910.25**		**28,218.94**						**Number of Appurtenances :**	**28**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	170.00	1 5/8" Coax	7	1.98	1.04	50.00	2	Block		N	0.50	1.00	
0.00	170.00	1" DC	3	0.00	1.00	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	3" Conduit	3	3.00	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	170.00	3/4" DC	2	0.00	0.40	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	3/8" RET	3	0.38	0.06	100.00	2	Individual NR		N	1.00	1.00	
0.00	170.00	7/16" Fiber	2	0.00	0.08	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	W/G Ladder	1	3.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	1 5/8" Coax	12	1.98	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	W/G Ladder	1	3.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.00	1.9" Fiber	3	1.90	6.00	100.00	2	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 93 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	36.58	92.76	0.00	5,344.5	0.0	1901.26	1333.23	3,234.48
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	34.43	92.76	0.00	5,188.6	0.0	1774.87	1334.35	3,109.22
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	32.08	92.76	0.00	4,629.4	0.0	1890.70	1544.03	3,434.73
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.93	92.76	0.00	4,537.9	0.0	2040.60	1699.84	3,740.44
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.60	92.76	0.00	3,393.6	0.0	1719.88	1826.38	3,546.26
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	92.76	0.00	3,097.5	0.0	1586.24	1934.16	3,520.40
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	92.76	0.00	2,664.1	0.0	1451.25	2028.71	3,479.96
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	2,260.5	0.0	1340.74	2016.25	3,356.99
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	866.2	0.0	770.52	471.05	1,241.57
														31,982.2	**0.0**			**28,664.05**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 93 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	31.51	92.76	0.00	5,344.5	0.0	1638.12	1333.23	2,971.34
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	29.80	92.76	0.00	5,188.6	0.0	1536.30	1334.35	2,870.65
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	27.86	92.76	0.00	4,629.4	0.0	1642.01	1544.03	3,186.05
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	27.50	92.76	0.00	4,537.9	0.0	1757.24	1699.84	3,457.08
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.35	92.76	0.00	3,393.6	0.0	1492.54	1826.38	3,318.93
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	92.76	0.00	3,097.5	0.0	1379.76	1934.16	3,313.92
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	92.76	0.00	2,664.1	0.0	1260.69	2028.71	3,289.40
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	2,260.5	0.0	1157.61	2016.25	3,173.86
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	866.2	0.0	659.24	471.05	1,130.28
														31,982.2	**0.0**			**26,711.51**

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 93 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	32.78	92.76	0.00	5,344.5	0.0	1703.90	1333.23	3,037.13
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	30.96	92.76	0.00	5,188.6	0.0	1595.94	1334.35	2,930.29
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	28.91	92.76	0.00	4,629.4	0.0	1704.18	1544.03	3,248.22
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	28.61	92.76	0.00	4,537.9	0.0	1828.08	1699.84	3,527.92
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.17	92.76	0.00	3,393.6	0.0	1549.38	1826.38	3,375.76
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	92.76	0.00	3,097.5	0.0	1431.38	1934.16	3,365.54
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	92.76	0.00	2,664.1	0.0	1308.33	2028.71	3,337.04
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	2,260.5	0.0	1203.39	2016.25	3,219.64
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	866.2	0.0	687.06	471.05	1,158.11
														31,982.2	**0.0**			**27,199.65**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 93 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	36.58	92.76	0.00	4,008.4	0.0	1901.26	1333.23	3,234.48
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	34.43	92.76	0.00	3,891.4	0.0	1774.87	1334.35	3,109.22
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	32.08	92.76	0.00	3,472.1	0.0	1890.70	1544.03	3,434.73
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.93	92.76	0.00	3,403.4	0.0	2040.60	1699.84	3,740.44
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.60	92.76	0.00	2,545.2	0.0	1719.88	1826.38	3,546.26
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	92.76	0.00	2,323.1	0.0	1586.24	1934.16	3,520.40
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	92.76	0.00	1,998.1	0.0	1451.25	2028.71	3,479.96
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	1,695.3	0.0	1340.74	2016.25	3,356.99
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	649.6	0.0	770.52	471.05	1,241.57
														23,986.7	**0.0**			**28,664.05**

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 93 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	31.51	92.76	0.00	4,008.4	0.0	1638.12	1333.23	2,971.34
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	29.80	92.76	0.00	3,891.4	0.0	1536.30	1334.35	2,870.65
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	27.86	92.76	0.00	3,472.1	0.0	1642.01	1544.03	3,186.05
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	27.50	92.76	0.00	3,403.4	0.0	1757.24	1699.84	3,457.08
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.35	92.76	0.00	2,545.2	0.0	1492.54	1826.38	3,318.93
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	92.76	0.00	2,323.1	0.0	1379.76	1934.16	3,313.92
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	92.76	0.00	1,998.1	0.0	1260.69	2028.71	3,289.40
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	1,695.3	0.0	1157.61	2016.25	3,173.86
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	649.6	0.0	659.24	471.05	1,130.28
														23,986.7	**0.0**			**26,711.51**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 93 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

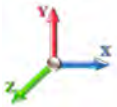
Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	32.78	92.76	0.00	4,008.4	0.0	1703.90	1333.23	3,037.13
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	30.96	92.76	0.00	3,891.4	0.0	1595.94	1334.35	2,930.29
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	28.91	92.76	0.00	3,472.1	0.0	1704.18	1544.03	3,248.22
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	28.61	92.76	0.00	3,403.4	0.0	1828.08	1699.84	3,527.92
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.17	92.76	0.00	2,545.2	0.0	1549.38	1826.38	3,375.76
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	92.76	0.00	2,323.1	0.0	1431.38	1934.16	3,365.54
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	92.76	0.00	1,998.1	0.0	1308.33	2028.71	3,337.04
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	1,695.3	0.0	1203.39	2016.25	3,219.64
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	649.6	0.0	687.06	471.05	1,158.11
														23,986.7	**0.0**			**27,199.65**

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	1.00	1.00	1.77	60.02	110.51	171.5	14,455.	9110.6	500.39	757.52	1,257.91
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	1.00	1.00	1.98	59.24	112.57	191.5	15,487.	10298.5	481.18	794.80	1,275.98
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	1.00	1.00	2.08	57.30	113.61	201.5	15,387.	10757.8	525.14	930.60	1,455.74
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	1.00	1.00	2.16	61.63	114.32	208.4	15,975.	11437.4	583.13	987.40	1,570.53
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	1.00	1.00	2.21	51.91	114.87	213.7	14,193.	10800.0	525.95	1075.16	1,601.10
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	1.00	1.00	2.26	47.41	115.32	218.0	13,734.	10637.4	492.62	1116.40	1,609.02
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	1.00	1.00	2.29	49.60	115.70	221.7	13,418.	10754.3	493.75	1049.52	1,543.28
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	1.00	1.00	2.33	50.35	111.28	213.3	12,704.	10443.8	498.30	943.79	1,442.10
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	1.00	1.00	2.35	30.13	26.62	50.90	4,535.3	3669.1	293.26	165.98	459.23
														119,891.3	**87909.1**			**12,214.89**

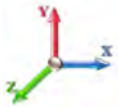
Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	0.80	1.00	1.77	54.96	110.51	171.5	14,455.	9110.6	458.19	757.52	1,215.70
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	0.80	1.00	1.98	54.62	112.57	191.5	15,487.	10298.5	443.59	794.80	1,238.39
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	0.80	1.00	2.08	53.08	113.61	201.5	15,387.	10757.8	486.47	930.60	1,417.07
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	0.80	1.00	2.16	57.20	114.32	208.4	15,975.	11437.4	541.18	987.40	1,528.58
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	0.80	1.00	2.21	48.65	114.87	213.7	14,193.	10800.0	492.99	1075.16	1,568.15
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	0.80	1.00	2.26	44.59	115.32	218.0	13,734.	10637.4	463.32	1116.40	1,579.72
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	0.80	1.00	2.29	47.07	115.70	221.7	13,418.	10754.3	468.49	1049.52	1,518.02
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	0.80	1.00	2.33	48.01	111.28	213.3	12,704.	10443.8	475.09	943.79	1,418.88
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	0.80	1.00	2.35	28.71	26.62	50.90	4,535.3	3669.1	279.43	165.98	445.40
														119,891.3	**87909.1**			**11,929.90**

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	



TES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	0.85	1.00	1.77	56.22	110.51	171.5	14,455.	9110.6	468.74	757.52	1,226.26
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	0.85	1.00	1.98	55.77	112.57	191.5	15,487.	10298.5	452.99	794.80	1,247.79
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	0.85	1.00	2.08	54.13	113.61	201.5	15,387.	10757.8	496.14	930.60	1,426.73
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	0.85	1.00	2.16	58.31	114.32	208.4	15,975.	11437.4	551.67	987.40	1,539.07
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	0.85	1.00	2.21	49.47	114.87	213.7	14,193.	10800.0	501.23	1075.16	1,576.39
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	0.85	1.00	2.26	45.30	115.32	218.0	13,734.	10637.4	470.65	1116.40	1,587.04
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	0.85	1.00	2.29	47.70	115.70	221.7	13,418.	10754.3	474.81	1049.52	1,524.33
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	0.85	1.00	2.33	48.59	111.28	213.3	12,704.	10443.8	480.89	943.79	1,424.68
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	0.85	1.00	2.35	29.06	26.62	50.90	4,535.3	3669.1	282.88	165.98	448.86
														119,891.3	**87909.1**			**12,001.15**

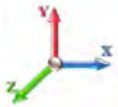
Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	37.81	92.76	0.00	4,453.8	0.0	511.28	346.83	858.11
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	35.64	92.76	0.00	4,323.8	0.0	478.00	347.13	825.13
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	33.62	92.76	0.00	3,857.8	0.0	515.44	401.67	917.12
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	32.70	92.76	0.00	3,781.6	0.0	543.63	442.21	985.84
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.76	92.76	0.00	2,828.0	0.0	450.31	475.13	925.43
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	92.76	0.00	2,581.2	0.0	412.65	503.16	915.82
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	92.76	0.00	2,220.1	0.0	377.54	527.76	905.30
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	1,883.7	0.0	348.79	524.52	873.31
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	721.8	0.0	200.45	122.54	322.99
														26,651.9	**0.0**			**7,529.04**

Section Forces

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	



Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	32.75	92.76	0.00	4,453.8	0.0	442.82	346.83	789.66
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	31.02	92.76	0.00	4,323.8	0.0	415.94	347.13	763.07
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	29.40	92.76	0.00	3,857.8	0.0	450.75	401.67	852.42
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	28.27	92.76	0.00	3,781.6	0.0	469.92	442.21	912.13
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.51	92.76	0.00	2,828.0	0.0	391.17	475.13	866.29
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	92.76	0.00	2,581.2	0.0	358.94	503.16	862.10
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	92.76	0.00	2,220.1	0.0	327.96	527.76	855.72
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	1,883.7	0.0	301.15	524.52	825.66
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	721.8	0.0	171.50	122.54	294.04
														26,651.9	**0.0**			**7,021.09**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

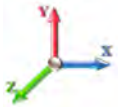
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	34.01	92.76	0.00	4,453.8	0.0	459.94	346.83	806.77
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	32.17	92.76	0.00	4,323.8	0.0	431.46	347.13	778.58
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	30.45	92.76	0.00	3,857.8	0.0	466.92	401.67	868.60
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	29.38	92.76	0.00	3,781.6	0.0	488.35	442.21	930.55
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.32	92.76	0.00	2,828.0	0.0	405.95	475.13	881.08
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	92.76	0.00	2,581.2	0.0	372.37	503.16	875.53
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	92.76	0.00	2,220.1	0.0	340.36	527.76	868.12
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	1,883.7	0.0	313.06	524.52	837.58
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	721.8	0.0	178.74	122.54	301.28
														26,651.9	**0.0**			**7,148.08**

Force/Stress Compression Summary

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 6" DIA PIPE	-220.06	1.2D + 1.6W Normal Wind	9.89	100	100	100	54.21	50.00	304.92	72.2	Member X
2	40	PX - 6" DIA PIPE	-197.28	1.2D + 1.6W Normal Wind	9.77	100	100	100	53.51	50.00	306.60	64.3	Member X
3	60	PSP - ROHN 6 EHS	-173.47	1.2D + 1.6W Normal Wind	9.77	100	100	100	52.68	50.00	246.61	70.3	Member X
4	80	PX - 5" DIA PIPE	-151.52	1.2D + 1.6W Normal Wind	6.51	100	100	100	42.47	50.00	240.98	62.9	Member X
5	100	PX - 4" DIA PIPE	-127.03	1.2D + 1.6W Normal Wind	6.51	100	100	100	52.80	50.00	161.86	78.5	Member X
6	120	PX - 3-1/2" DIA PIPE	-101.69	1.2D + 1.6W Normal Wind	6.51	100	100	100	59.65	50.00	127.67	79.7	Member X
7	140	PST - 3" DIA PIPE	-75.30	1.2D + 1.6W Normal Wind	4.88	100	100	100	50.52	50.00	83.27	90.4	Member X
8	160	PST - 2-1/2" DIA PIPE	-42.50	1.2D + 1.6W Normal Wind	3.90	100	100	100	49.42	50.00	64.14	66.3	Member X
9	170	PST - 2-1/2" DIA PIPE	-9.34	1.2D + 1.6W Normal Wind	0.25	100	100	100	3.17	50.00	76.62	12.2	Member X

Splices

Sect	Top Elev	Top Splice Load Case	Top Force (kips)	Top Cap (kips)	Top Use %	Top Bolt Type	Top Num Bolts	Bottom Splice Load Case	Bottom Force (kips)	Bottom Cap (kips)	Bottom Use %	Bottom Bolt Type	Bottom Num Bolts
1	20	1.2D + 1.6W Normal Wind	204.44	0.00	0.0			1.2D + 1.6W Normal Wind	225.76	0.00			
2	40	1.2D + 1.6W Normal Wind	180.15	0.00	0.0			1.2D + 1.6W Normal Wind	204.44	0.00		1 A325	6
3	60	1.2D + 1.6W Normal Wind	156.42	0.00	0.0			1.2D + 1.6W Normal Wind	180.15	0.00		1 A325	6
4	80	1.2D + 1.6W Normal Wind	131.88	0.00	0.0			1.2D + 1.6W Normal Wind	156.42	0.00		1 A325	6
5	100	1.2D + 1.6W Normal Wind	106.82	0.00	0.0			1.2D + 1.6W Normal Wind	131.88	0.00		1 A325	4
6	120	1.2D + 1.6W Normal Wind	79.44	0.00	0.0			1.2D + 1.6W Normal Wind	106.82	0.00		7/8 A325	4
7	140	1.2D + 1.6W Normal Wind	47.75	0.00	0.0			1.2D + 1.6W Normal Wind	79.44	0.00		7/8 A325	4
8	160	1.2D + 1.0Di + 1.0Wi Normal Wi	10.50	0.00	0.0			1.2D + 1.6W Normal Wind	47.75	0.00		3/4 A325	4
9	170	1.2D + 1.0Di + 1.0Wi 90° Wind	3.89	0.00	0.0			1.2D + 1.0Di + 1.0Wi Normal Wi	10.50	0.00		5/8 A325	4

HORIZONTAL MEMBERS

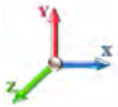
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	140	SAE - 2X2X0.1875	-0.27	1.2D + 1.6W 60° Wind	6.58	100	100	100	200.41	36.00	3.99	1	1	12.43	7.84	7	Member Z
8	160	SAE - 1.75X1.75X0.1875	-0.18	0.9D + 1.6W 60° Wind	6.58	100	100	100	230.20	36.00	2.64	1	1	12.43	7.82	7	Member Z
9	170	SAE - 1.75X1.75X0.1875	-0.64	0.9D + 1.6W 60° Wind	6.58	100	100	100	230.20	36.00	2.64	1	1	12.43	7.82	24	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.25	-6.22	1.2D + 1.6W 90° Wind	22.71	49	49	49	192.40	50.00	10.31	1	1	17.89	14.1	60	Member Z
2	40	SAE - 3.5X3.5X0.25	-6.52	1.2D + 1.6W 90° Wind	20.81	49	49	49	176.28	50.00	12.29	1	1	17.89	14.1	53	Member Z
3	60	SAE - 3.5X3.5X0.25	-5.97	1.2D + 1.6W 90° Wind	18.20	49	49	49	154.20	50.00	16.06	1	1	17.89	14.1	42	Bolt Bear
4	80	SAE - 3X3X0.25	-5.19	1.2D + 1.6W 90° Wind	14.63	49	49	49	145.32	50.00	15.41	1	1	12.43	11.7	44	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	-4.58	1.2D + 1.6W 90° Wind	13.98	49	49	49	166.05	36.00	7.39	1	1	12.43	7.84	62	Member Z
6	120	SAE - 2.5X2.5X0.1875	-4.73	1.2D + 1.6W 90° Wind	11.06	49	49	49	131.42	36.00	11.77	1	1	12.43	7.84	60	Bolt Bear
7	140	SAE - 2X2X0.1875	-4.52	1.2D + 1.6W 90° Wind	8.41	48	48	48	122.93	36.00	10.38	1	1	12.43	7.84	58	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	-5.15	1.2D + 1.6W 90° Wind	7.65	46	46	46	123.10	36.00	9.05	1	1	12.43	7.84	66	Bolt Bear
9	170	SAE - 1.75X1.75X0.1875	-1.95	1.2D + 1.6W 90° Wind	7.30	46	46	46	118.14	36.00	9.63	1	1	12.43	7.84	25	Bolt Bear

Force/Stress Compression Summary

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	



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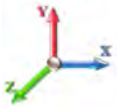
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls

Force/Stress Tension Summary

Structure:	CT10017-A-SBA	**Code:**	EIA/TIA-222-G	8/30/2021	
Site Name:	North Granby	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	



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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 6" DIA PIPE	187.21	0.9D + 1.6W 60° Wind	50	378.00	49.5	Member
2	40	PX - 6" DIA PIPE	174.27	0.9D + 1.6W 60° Wind	50	378.00	46.1	Member
3	60	PSP - ROHN 6 EHS	154.43	0.9D + 1.6W 60° Wind	50	302.09	51.1	Member
4	80	PX - 5" DIA PIPE	134.67	0.9D + 1.6W 60° Wind	50	274.95	49.0	Member
5	100	PX - 4" DIA PIPE	114.07	0.9D + 1.6W 60° Wind	50	198.45	57.5	Member
6	120	PX - 3-1/2" DIA PIPE	92.17	0.9D + 1.6W 60° Wind	50	165.60	55.7	Member
7	140	PST - 3" DIA PIPE	67.67	0.9D + 1.6W 60° Wind	50	100.35	67.4	Member
8	160	PST - 2-1/2" DIA PIPE	38.31	0.9D + 1.6W 60° Wind	50	76.68	50.0	Member
9	170	PST - 2-1/2" DIA PIPE	6.40	0.9D + 1.6W 60° Wind	50	76.68	8.3	Member

Splices

		Top Splice					Bottom Splice					
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	173.98	0.00	0.0			0.9D + 1.6W 60° Wind	192.4	0.00			
2	40	0.9D + 1.6W 60° Wind	154.09	0.00	0.0			0.9D + 1.6W 60° Wind	173.9	318.06	54.7	1 A325	6
3	60	0.9D + 1.6W 60° Wind	134.40	0.00	0.0			0.9D + 1.6W 60° Wind	154.0	318.06	48.4	1 A325	6
4	80	0.9D + 1.6W 60° Wind	113.86	0.00	0.0			0.9D + 1.6W 60° Wind	134.4	318.06	42.3	1 A325	6
5	100	0.9D + 1.6W 60° Wind	92.02	0.00	0.0			0.9D + 1.6W 60° Wind	113.8	212.04	53.7	1 A325	4
6	120	0.9D + 1.6W 60° Wind	67.54	0.00	0.0			0.9D + 1.6W 60° Wind	92.02	166.24	55.4	7/8 A325	4
7	140	0.9D + 1.6W 60° Wind	38.52	0.00	0.0			0.9D + 1.6W 60° Wind	67.54	166.24	40.6	7/8 A325	4
8	160	0.9D + 1.6W 60° Wind	5.80	0.00	0.0			0.9D + 1.6W 60° Wind	38.52	120.40	32.0	3/4 A325	4
9	170		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	5.80	82.80	7.0	5/8 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			50	0.00	0	0					
2	40	-			50	0.00	0	0					
3	60	-			50	0.00	0	0					
4	80	-			50	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE - 2X2X0.1875	0.15	0.9D + 1.6W Normal Wi	36	18.58	1	1	12.43	7.84	7.85	1.9	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	0.28	1.2D + 1.0Di + 1.0Wi Nc	36	15.64	1	1	12.43	7.82	6.83	4.2	Blck Shear
9	170	SAE - 1.75X1.75X0.1875	0.67	1.2D + 1.6W Normal Wi	36	15.64	1	1	12.43	7.82	6.83	9.8	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.25	6.41	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	45.3	Bolt Bear
2	40	SAE - 3.5X3.5X0.25	6.44	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	45.6	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	5.77	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	40.8	Bolt Bear
4	80	SAE - 3X3X0.25	5.06	0.9D + 1.6W 90° Wind	50	45.79	1	1	12.43	11.71	17.83	43.2	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	4.70	1.2D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	60.0	Bolt Bear
6	120	SAE - 2.5X2.5X0.1875	4.55	0.9D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	58.0	Bolt Bear
7	140	SAE - 2X2X0.1875	4.26	0.9D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	54.4	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	5.04	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	73.8	Blck Shear
9	170	SAE - 1.75X1.75X0.1875	1.91	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	27.9	Blck Shear

Seismic Section Forces

Structure:	CT10017-A-SBA		**Code:**	EIA/TIA-222-G	8/30/2021
Site Name:	North Granby		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 16

Load Case: 1.2D + 1.0E

Dead Load Factor	1.20	**Sds**	0.187	**Ss**	0.1760	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.104	**S1**	0.0650	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.185	**R**	3.0000	**Vs**	2.6361	**f1**	1.7810

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4453.7	0.01	0.05	0.03	15.31
2	30.00	4323.8	0.06	0.07	0.04	34.62
3	50.00	3857.8	0.16	0.07	0.03	54.51
4	70.00	3781.5	0.32	0.04	0.01	84.11
5	90.00	2828.0	0.53	-0.03	0.01	87.31
6	110.00	2581.2	0.79	-0.11	0.05	105.37
7	130.00	2220.0	1.11	-0.07	0.19	130.01
8	150.00	7441.3	1.47	0.43	0.51	713.75
9	165.00	4074.4	1.78	1.45	0.94	586.63

Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	**Sds**	0.187	**Ss**	0.1760	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.104	**S1**	0.0650	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.185	**R**	3.0000	**Vs**	2.6361	**f1**	1.7810

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4453.7	0.01	0.05	0.03	15.31
2	30.00	4323.8	0.06	0.07	0.04	34.62
3	50.00	3857.8	0.16	0.07	0.03	54.51
4	70.00	3781.5	0.32	0.04	0.01	84.11
5	90.00	2828.0	0.53	-0.03	0.01	87.31
6	110.00	2581.2	0.79	-0.11	0.05	105.37
7	130.00	2220.0	1.11	-0.07	0.19	130.01
8	150.00	7441.3	1.47	0.43	0.51	713.75
9	165.00	4074.4	1.78	1.45	0.94	586.63

Support Forces Summary

Structure:	CT10017-A-SBA		**Code:**	EIA/TIA-222-G	8/30/2021
Site Name:	North Granby		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 17

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	225.25	-22.91	
	1a	7.72	-91.29	-7.01	
	1b	-7.72	-91.29	-7.01	
1.2D + 1.6W 60° Wind	1	-2.06	115.32	-11.32	
	1a	-10.83	115.32	3.87	
	1b	-17.40	-187.97	-10.04	
1.2D + 1.6W 90° Wind	1	-2.42	14.23	-0.84	
	1a	-17.26	191.24	8.56	
	1b	-15.78	-162.79	-7.72	
0.9D + 1.6W Normal Wind	1	0.00	221.36	-22.68	
	1a	7.91	-94.68	-7.12	
	1b	-7.91	-94.68	-7.12	
0.9D + 1.6W 60° Wind	1	-2.06	111.61	-11.09	
	1a	-10.63	111.61	3.76	
	1b	-17.59	-191.21	-10.16	
0.9D + 1.6W 90° Wind	1	-2.42	10.67	-0.61	
	1a	-17.06	187.40	8.45	
	1b	-15.98	-166.07	-7.83	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	133.14	-10.18	
	1a	2.26	7.04	-2.34	
	1b	-2.26	7.04	-2.34	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.87	90.47	-5.66	
	1a	-5.34	90.47	2.08	
	1b	-6.40	-33.73	-3.70	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.01	49.07	-1.31	
	1a	-7.94	121.07	4.00	
	1b	-5.68	-22.92	-2.69	
1.2D + 1.0E	1	0.00	27.92	1.98	
	1a	3.18	7.38	-1.87	
	1b	-3.18	7.38	-1.87	
0.9D + 1.0E	1	0.00	24.34	2.21	
	1a	3.38	3.83	-1.99	
	1b	-3.38	3.83	-1.99	
1.0D + 1.0W Normal Wind	1	0.00	66.73	-6.52	
	1a	1.55	-15.58	-1.57	
	1b	-1.55	-15.58	-1.57	
1.0D + 1.0W 60° Wind	1	-0.54	38.14	-3.49	
	1a	-3.29	38.14	1.27	
	1b	-4.09	-40.73	-2.36	
1.0D + 1.0W 90° Wind	1	-0.64	11.85	-0.75	
	1a	-4.97	57.89	2.50	
	1b	-3.67	-34.18	-1.75	

Max Reactions

Leg			Overturning		
Max Uplift:	-191.21	(kips)	Moment:	3830.55	(ft-kips)
Max Down:	225.25	(kips)	Total Down:	42.67	(kips)
Max Shear:	22.91	(kips)	Total Shear:	36.92	(kips)

Analysis Summary

Structure:	CT10017-A-SBA		**Code:**	EIA/TIA-222-G	8/30/2021
Site Name:	North Granby		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 19

Max Reactions

Leg			Overturning		
Max Uplift:	-191.21	(kips)	Moment:	3830.55	(ft-kips)
Max Down:	225.25	(kips)	Total Down:	42.67	(kips)
Max Shear:	22.91	(kips)	Total Shear:	36.92	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	8
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00
Detail Type:	C		

Interaction Ratio: 0.48

Max Usages

Max Leg: 90.4% (1.2D + 1.6W Normal Wind - Sect 7)
Max Diag: 73.8% (1.2D + 1.6W 90° Wind - Sect 8)
Max Horiz: 24.1% (0.9D + 1.6W 60° Wind - Sect 9)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	148.05	0.0832	-0.0015	0.0883
	160.00	0.1020	-0.0013	0.1060
	170.00	0.1179	-0.0012	0.0925
0.9D + 1.6W 93 mph Wind at 60° From Face	148.05	1.0321	-0.0325	0.9974
	160.00	1.2445	-0.0331	1.1858
	170.00	1.4263	-0.0326	1.1215
0.9D + 1.6W 93 mph Wind at 90° From Face	148.05	1.0408	-0.0373	1.0056
	160.00	1.2546	-0.0372	1.1739
	170.00	1.4377	-0.0372	1.1206
0.9D + 1.6W 93 mph Wind at Normal To Face	148.05	1.0674	-0.0346	1.0270
	160.00	1.2858	-0.0339	1.2184
	170.00	1.4728	-0.0343	1.1486
1.0D + 1.0W 60 mph Wind at 60° From Face	148.05	0.2681	-0.0065	0.2603
	160.00	0.3232	-0.0060	0.3087
	170.00	0.3704	-0.0057	0.2923
1.0D + 1.0W 60 mph Wind at 90° From Face	148.05	0.2704	-0.0075	0.2622
	160.00	0.3259	-0.0069	0.3055
	170.00	0.3735	-0.0067	0.2920
1.0D + 1.0W 60 mph Wind at Normal To Face	148.05	0.2774	0.0070	0.2676
	160.00	0.3342	0.0063	0.3158
	170.00	0.3828	0.0061	0.2974
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	148.05	0.4117	-0.0112	0.3918
	160.00	0.4938	-0.0109	0.4566
	170.00	0.5638	-0.0106	0.4318

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	148.05	0.4129	-0.0137	0.3922
	160.00	0.4952	-0.0133	0.4502
	170.00	0.5654	-0.0132	0.4297
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	148.05	0.4164	0.0126	0.3934
	160.00	0.4993	0.0121	0.4543
	170.00	0.5700	0.0121	0.4265
1.2D + 1.0E - Normal To Face	148.05	0.0834	0.0015	0.0887
	160.00	0.1022	0.0013	0.1060
	170.00	0.1182	0.0012	0.0926
1.2D + 1.6W 93 mph Wind at 60° From Face	148.05	1.0349	-0.0326	1.0009
	160.00	1.2479	-0.0332	1.1904
	170.00	1.4304	-0.0327	1.1259
1.2D + 1.6W 93 mph Wind at 90° From Face	148.05	1.0435	-0.0374	1.0091
	160.00	1.2581	-0.0374	1.1784
	170.00	1.4418	-0.0373	1.1250
1.2D + 1.6W 93 mph Wind at Normal To Face	148.05	1.0702	0.0347	1.0308
	160.00	1.2894	0.0340	1.2227
	170.00	1.4770	0.0344	1.1523

EXHIBIT 9

Antenna Mount Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Antenna Mount Analysis Report

Existing 170-Ft Self Support Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT10017-A-SBA / North Granby
Customer Site Name: North Granby
Carrier Name: T-Mobile (App#: 162863, V-1)
Carrier Site ID / Name: CTHA238A / CTHA238A
Site Location: 150 Lost Acres Road
North Granby, Connecticut
Hartford County
Latitude: 42.009600
Longitude: -72.866544

Exp.10/31/2021

08/12/2021

Analysis Result:

Max Structural Usage: 69.0% [Pass]

Report Prepared By : Biraj Man Dangol

NOTE: The proposed (3) SitePro1 VFA12-HD w/ (12) SitePro1 P296 is not currently installed on the Monopole. The proposed mount was assumed to be installed per the manufacturer's instructions, and it was assumed that the mount can be installed properly on the existing Monopole. TES cannot verify that the proposed mount will fit properly and is not liable for any fit-up issues during installation.

Introduction

The purpose of this report is to summarize the analysis results on the (3) SitePro1 VFA12-HD at 150.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount Structural Info as per SitePro1 DWG NO. VFA12-HD, dated 12/13/2017
Antenna Loading	SBA, Application #: 162863, v1, dated 08/05/2021
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 125mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 97 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G
Exposure Category: B
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

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

Mount Information

(3) SitePro1 VFA12-HD at 150.00' elevation

Final Antenna Configuration

3 RFS APX16DWV-16DWVS-E-A20
3 RFS APXVAALL24_43-U-NA20
3 Ericsson AIR6449 B41
3 Ericsson 4460 B25 + B66
3 Ericsson 4480 B71 + B85

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 69.0%, which occurs in the Plate Connection. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

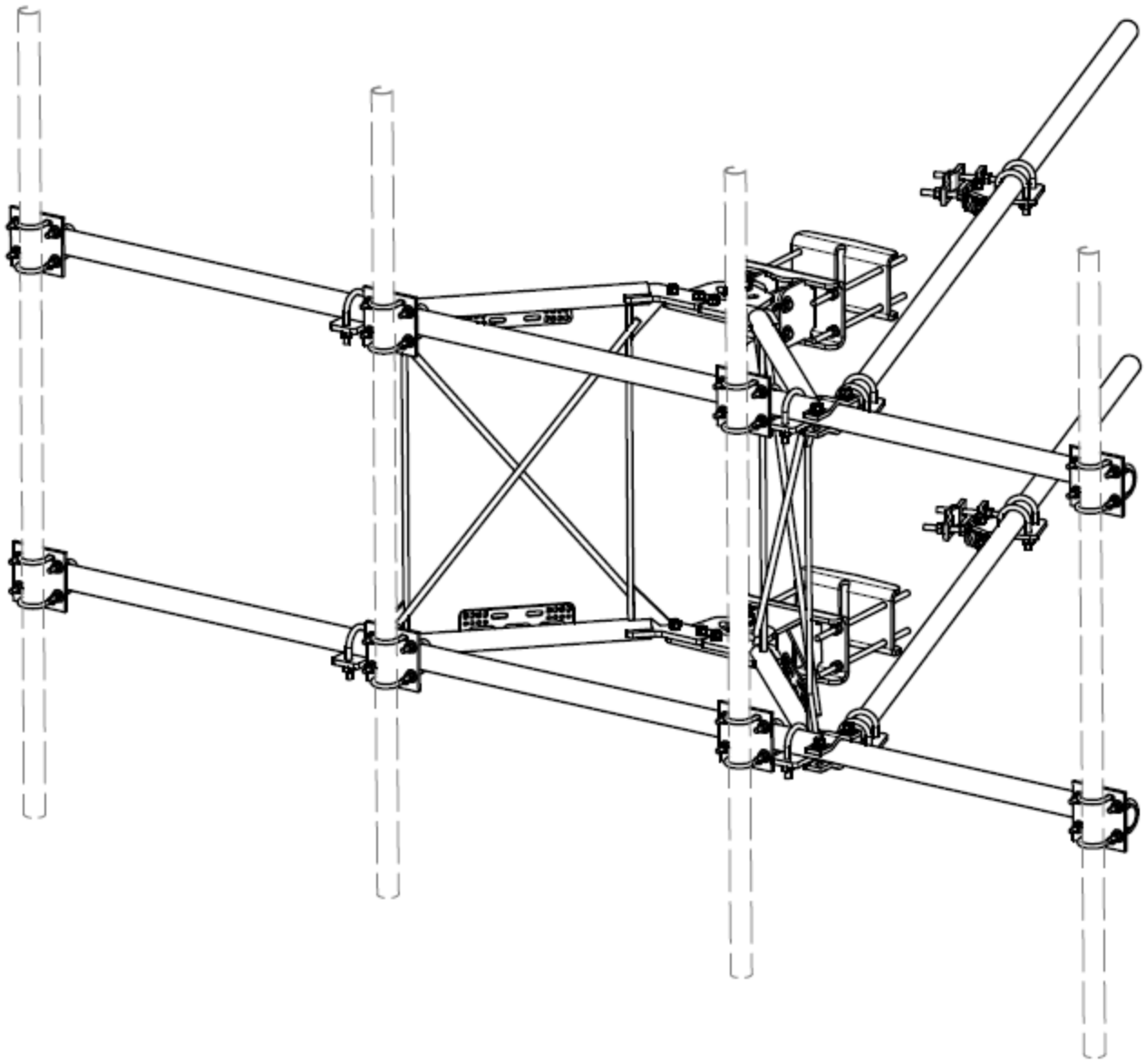
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.



SITE PRO 1

A valmont COMPANY

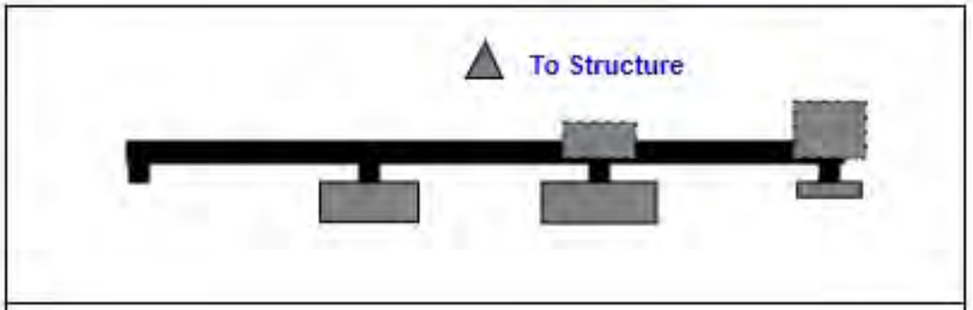
VFA12-HD

Structure: CT10017-A-SBA - North Granby

Sector: A
Structure Type: Self Support
Mount Elev: 150.00

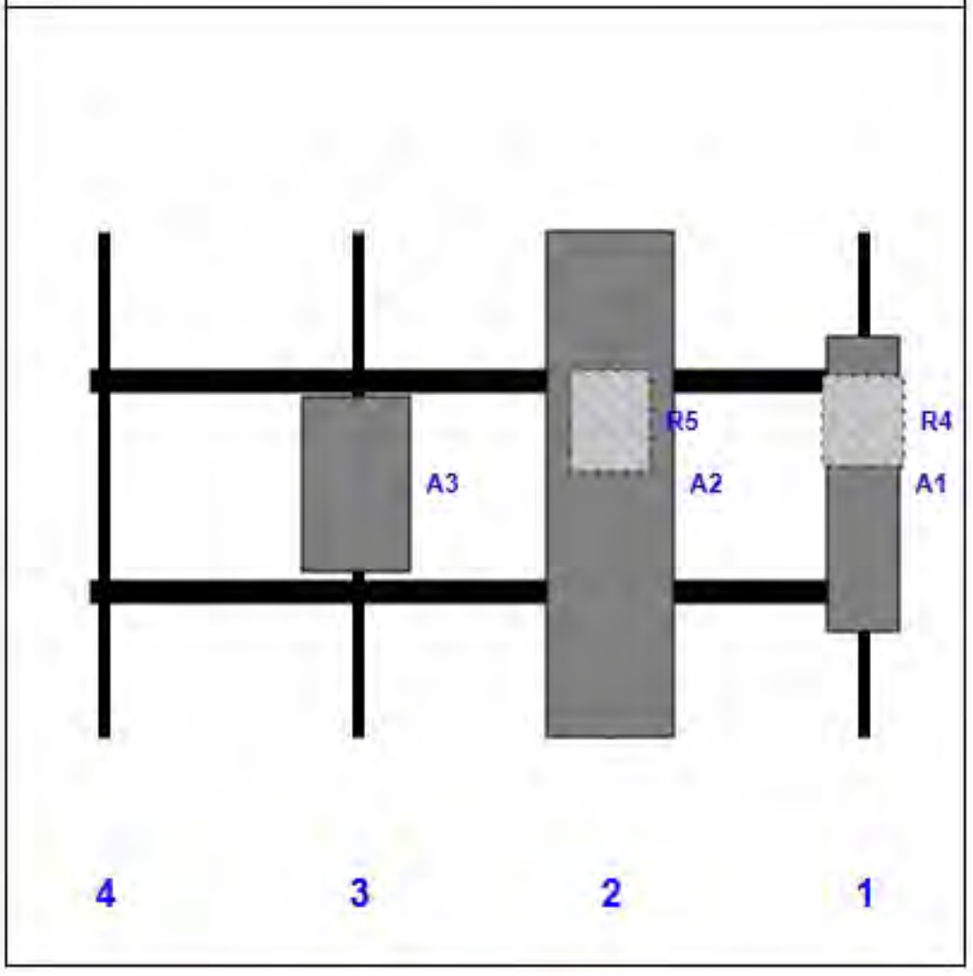
8/12/2021

Plan View



Front View

Looking Toward Structure



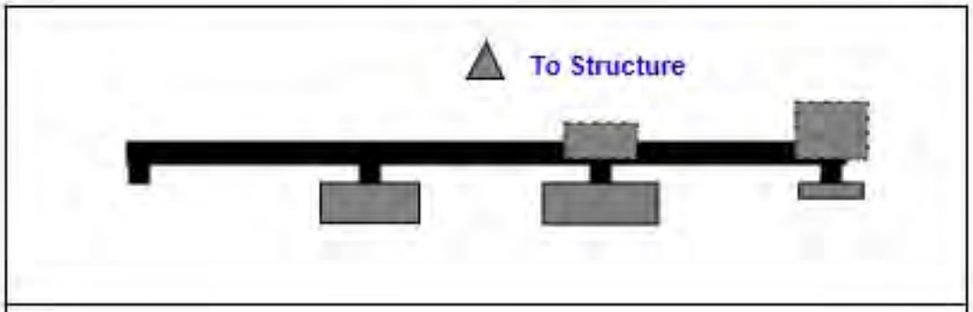
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16DWV-16DWVS-E-A20	55.90	13.30	147.00	1	a	Front	48.00			
R4	4460 B25 + B66	17.00	15.10	147.00	1	b	Behind	36.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	99.00	2	b	Behind	36.00			
A3	AIR6449 B41	33.10	20.50	51.00	3	a	Front	48.00			

Sector: B
Structure Type: Self Support
Mount Elev: 150.00

8/12/2021

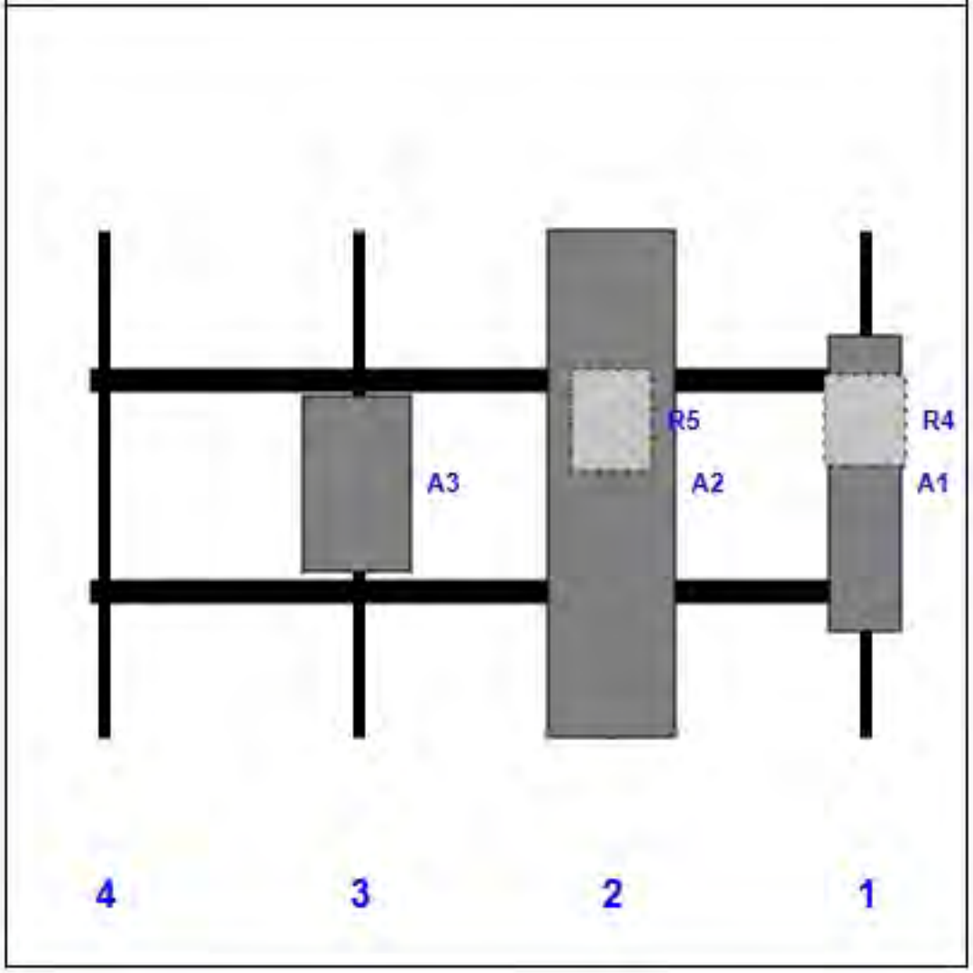
TES Tower Engineering Solutions

Plan View



Front View

Looking Toward Structure



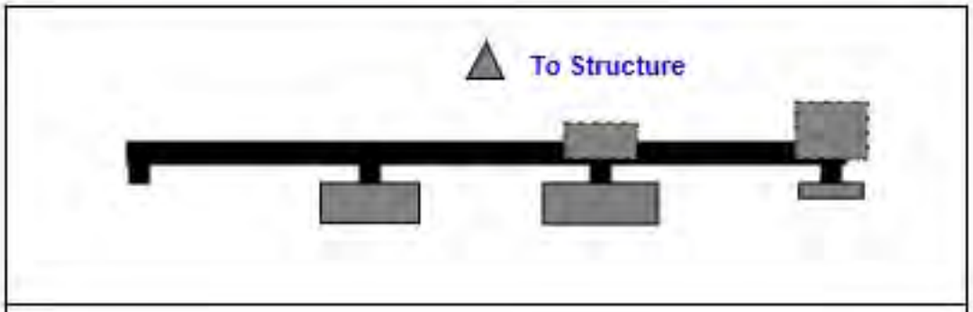
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16DWV-16DWVS-E-A20	55.90	13.30	147.00	1	a	Front	48.00			
R4	4460 B25 + B66	17.00	15.10	147.00	1	b	Behind	36.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	99.00	2	b	Behind	36.00			
A3	AIR6449 B41	33.10	20.50	51.00	3	a	Front	48.00			

Sector: C
Structure Type: Self Support
Mount Elev: 150.00

8/12/2021

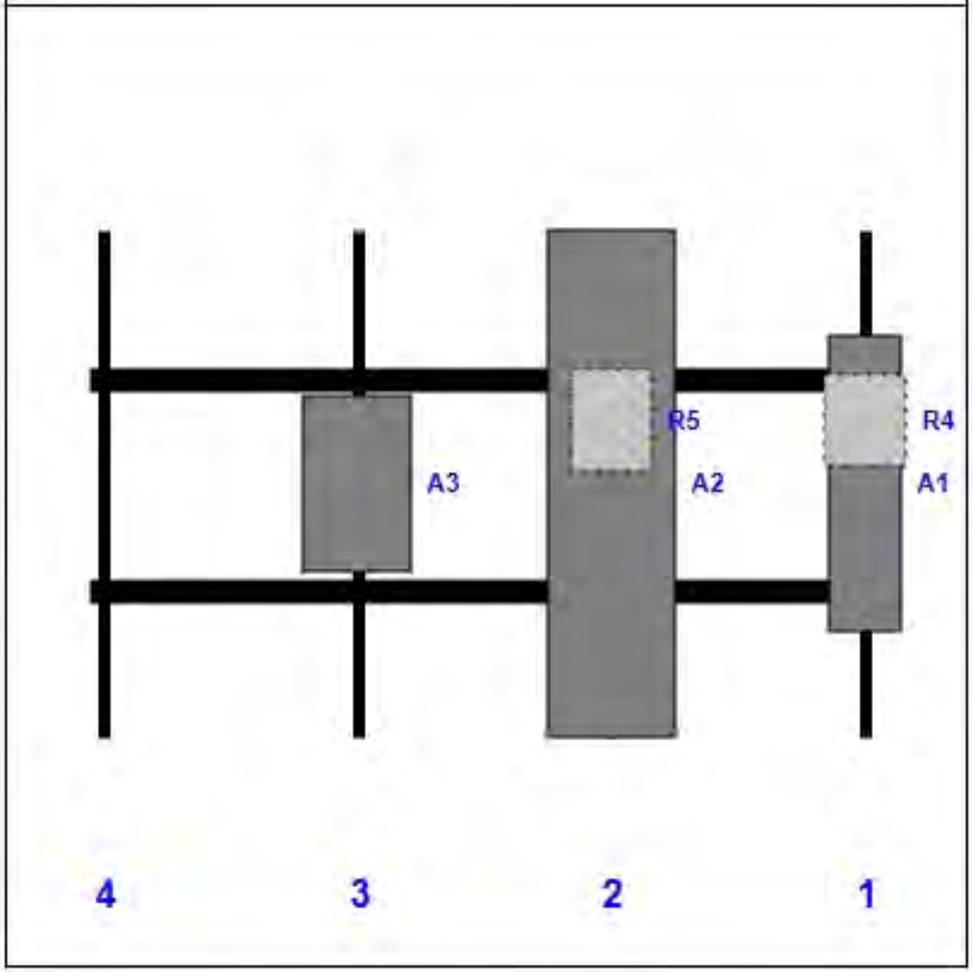
TES Tower Engineering Solutions

Plan View

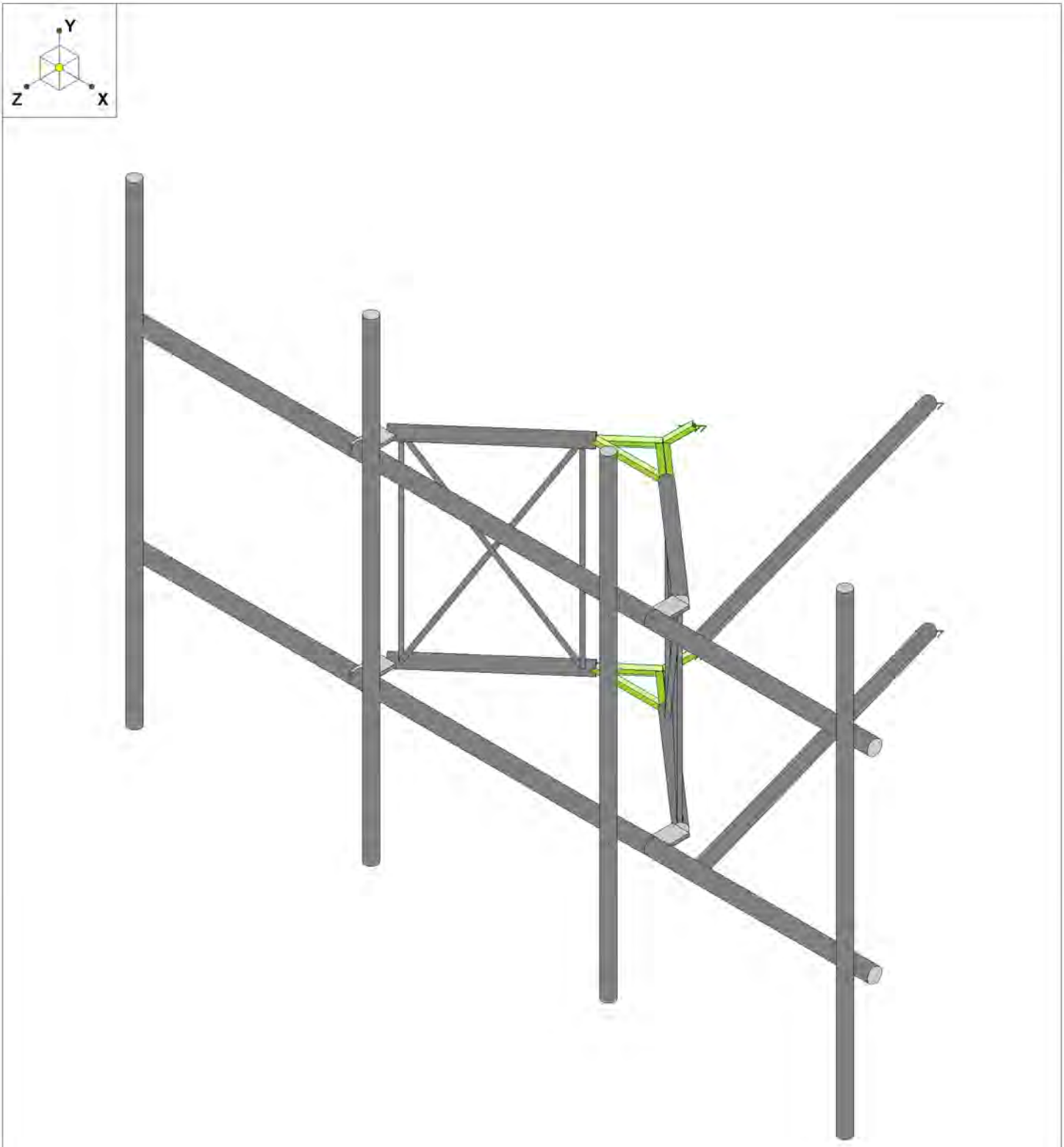


Front View

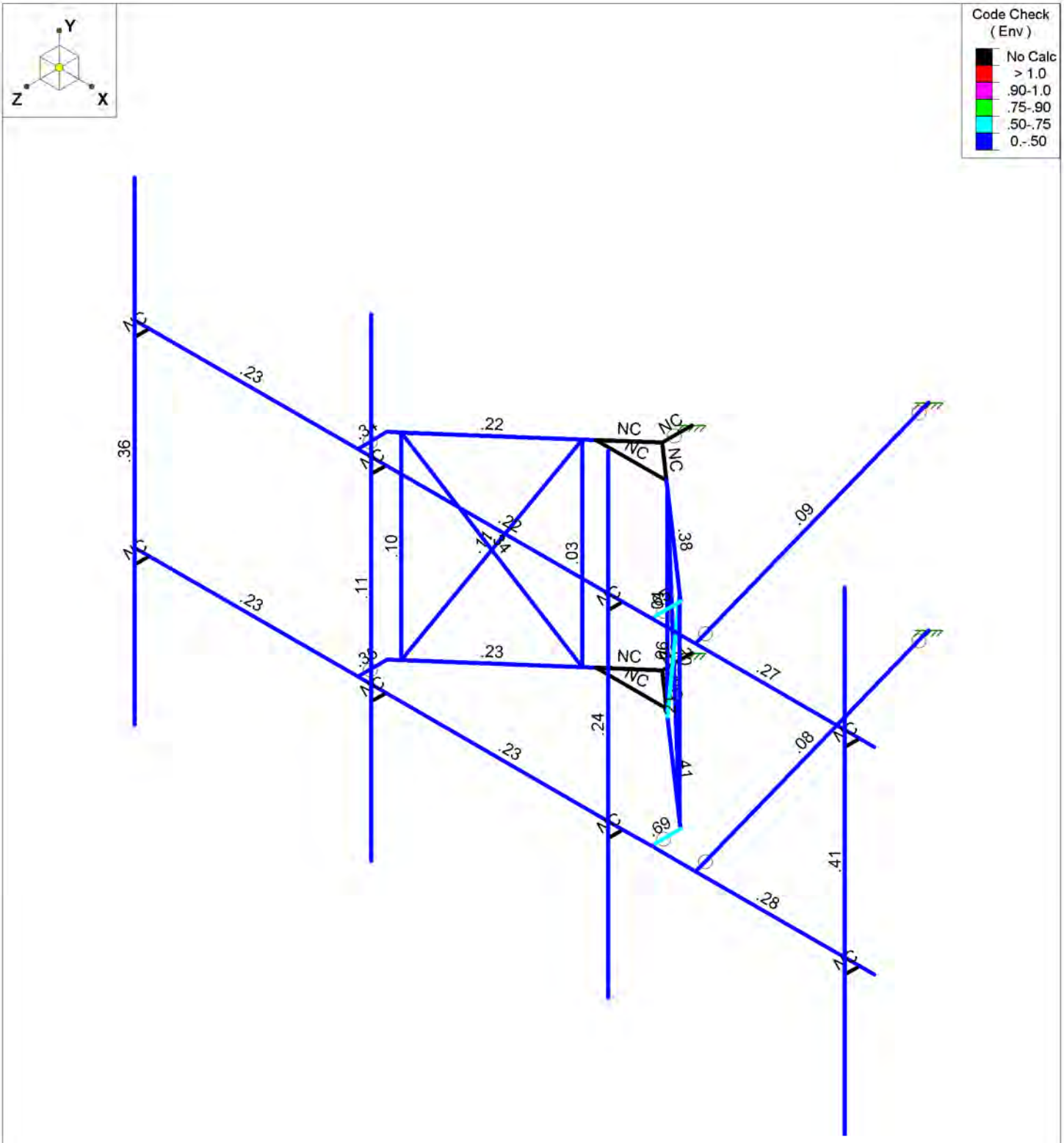
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16DWV-16DWVS-E-A20	55.90	13.30	147.00	1	a	Front	48.00			
R4	4460 B25 + B66	17.00	15.10	147.00	1	b	Behind	36.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	99.00	2	b	Behind	36.00			
A3	AIR6449 B41	33.10	20.50	51.00	3	a	Front	48.00			

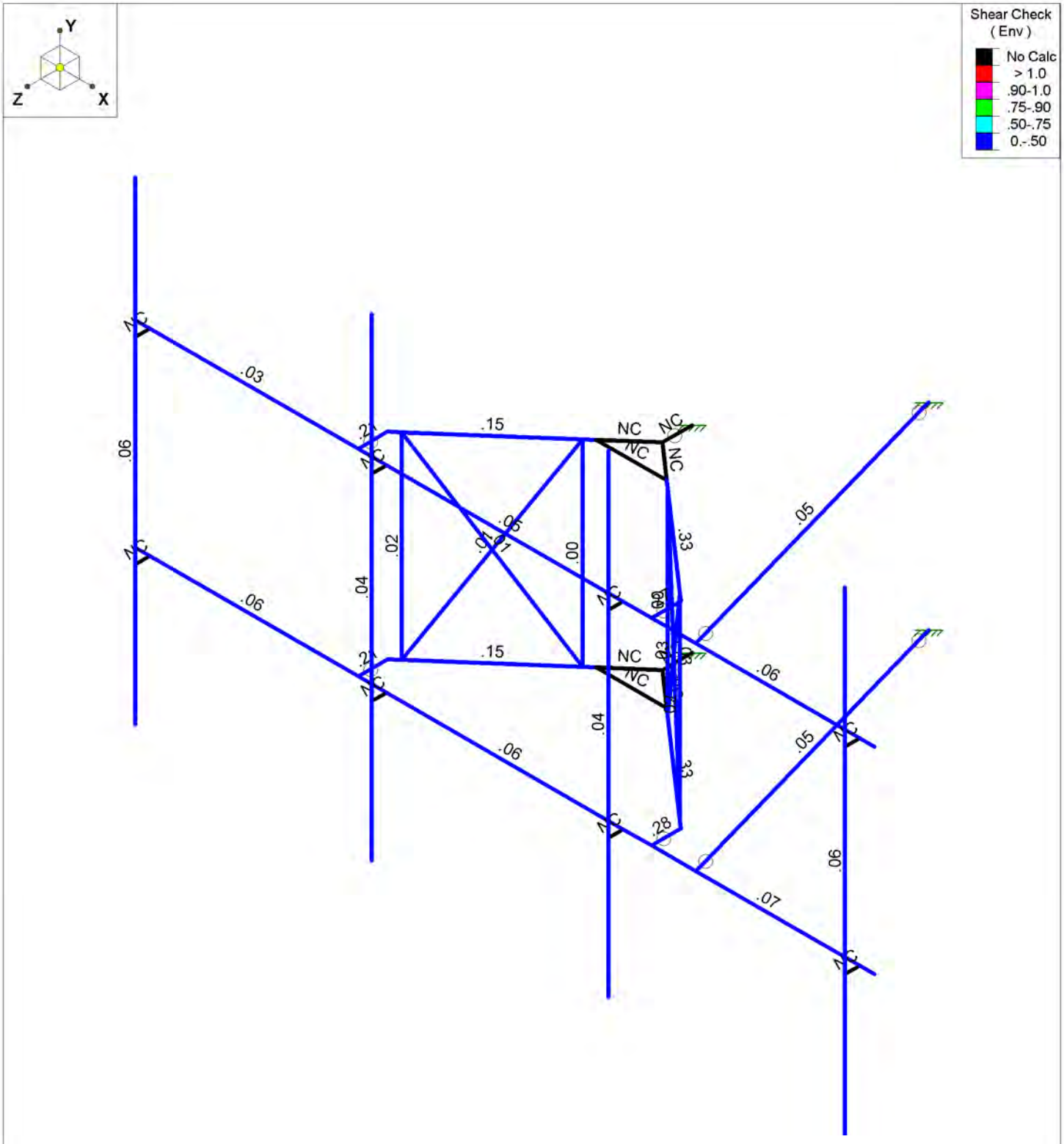


Tower Engineering Solutio...	CT10017-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 1
		Aug 12, 2021 at 10:11 AM
TES Project No. 113663		CT10017-A-SBA_113663_G_RISA_...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT10017-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
		Aug 12, 2021 at 10:12 AM
TES Project No. 113663		CT10017-A-SBA_113663_G_RISA_...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT10017-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
		Aug 12, 2021 at 10:12 AM
TES Project No. 113663		CT10017-A-SBA_113663_G_RISA_...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					8			
2	Antenna Di	None					8			
3	Antenna W Front	None					8			
4	Antenna Wi Front	None					8			
5	Antenna W Side	None					8			
6	Antenna Wi Side	None					8			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1						
10	Structure Di	None						28		
11	Structure W Front	None						28		
12	Structure Wi Front	None						28		
13	Structure W Side	None						28		
14	Structure Wi Side	None						28		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (Fro...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
8	1.2D+1.0Di+1.0Wi (Rig...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1										
9	1.2D+1.5L1+.16W (Mai...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16												
10	1.2D+1.5L2+.16W (Mai...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16												
11	1.4D	Yes	Y		1	1.4	9	1.4																		

Hot Rolled Steel Properties

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

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...	Density[...	Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	.173	Table B...	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3	.173	Table B...	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3	.173	Table B...	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3	.173	Table B...	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3	.173	Table B...	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3	.173	Table B...	1	24	15	15	15	141

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Standoff Horizontal	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Stanodff Vertical	SR_0.625	Beam	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
4	Standoff Diagonal	SR_0.75	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
5	Face Horizontal	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Tie-back	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	Connection Plate	PL5/8x3.5	Beam	RECT	A36 Gr.36	Typical	2.188	.071	2.233	.253

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF	4CU5.25X0375	Beam	None	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

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

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N2	0	0	.5	0	
2	N3	-2.479167	0	2.665361	0	
3	N5	2.479167	0	2.665361	0	
4	N5A	-2.479167	0	3.165361	0	
5	N6	2.479167	0	3.165361	0	
6	N7	-6.25	0	3.165361	0	
7	N9	6.25	0	3.165361	0	
8	N16	0	3.333333	.5	0	
9	N17	-2.479167	3.333333	2.665361	0	
10	N18	2.479167	3.333333	2.665361	0	
11	N19	-2.479167	3.333333	3.165361	0	
12	N20	2.479167	3.333333	3.165361	0	
13	N21	-6.25	3.333333	3.165361	0	
14	N22	6.25	3.333333	3.165361	0	
15	N29	-6	0	3.165361	0	
16	N30	-6	3.333333	3.165361	0	
17	N19A	-0.596256	3.333333	1.020783	0	
18	N20A	-0.596256	0	1.020783	0	
19	N21A	0.596256	3.333333	1.020783	0	
20	N22A	0.596256	0	1.020783	0	
21	N23	-2	0	3.165361	0	
22	N24	-2	3.333333	3.165361	0	
23	N25	6	0	3.165361	0	
24	N26	6	3.333333	3.165361	0	
25	N27	2	0	3.165361	0	
26	N28	2	3.333333	3.165361	0	
27	N29A	-6	5.666667	3.415361	0	
28	N30A	-2	5.666667	3.415361	0	
29	N31	6	5.666667	3.415361	0	
30	N32	2	5.666667	3.415361	0	
31	N33	-6	-2.333333	3.415361	0	
32	N34	-2	-2.333333	3.415361	0	
33	N35	6	-2.333333	3.415361	0	
34	N36	2	-2.333333	3.415361	0	
35	N41	0	0	0	0	
36	N42	0	3.333333	0	0	
37	N43	0	1.666667	-4	0	
38	N45	-0.721783	3.333333	1.130421	0	
39	N46	-0.721783	0	1.130421	0	
40	N47	0.721783	3.333333	1.130421	0	
41	N48	0.721783	0	1.130421	0	
42	N49	-2.353641	3.333333	2.555723	0	
43	N50	-2.353641	0	2.555723	0	
44	N51	2.353641	3.333333	2.555723	0	
45	N52	2.353641	0	2.555723	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
46	N53A	3.229167	3.333333	3.165361	0	
47	N49A	0	-1.666666	-4	0	
48	N50A	3.229167	0	3.165361	0	
49	N51A	-6	0	3.415361	0	
50	N52A	-6	3.333333	3.415361	0	
51	N53B	-2	0	3.415361	0	
52	N54A	-2	3.333333	3.415361	0	
53	N55	6	0	3.415361	0	
54	N56	6	3.333333	3.415361	0	
55	N57	2	0	3.415361	0	
56	N58	2	3.333333	3.415361	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N42	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N41	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N43	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N49A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N5A		90	Connection Pla...	Beam	RECT	A36 Gr.36	Typical
2	M2	N5	N6		90	Connection Pla...	Beam	RECT	A36 Gr.36	Typical
3	M3	N17	N19		90	Connection Pla...	Beam	RECT	A36 Gr.36	Typical
4	M4	N18	N20		90	Connection Pla...	Beam	RECT	A36 Gr.36	Typical
5	M5	N21	N19			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
6	M6	N19	N20			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
7	M7	N20	N22			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
8	M8	N7	N5A			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
9	M9	N5A	N6			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
10	M10	N6	N9			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
11	M11	N19A	N17			Standoff Horiz...	Beam	Pipe	A53 Gr.B	Typical
12	M12	N20A	N3			Standoff Horiz...	Beam	Pipe	A53 Gr.B	Typical
13	M13	N21A	N18			Standoff Horiz...	Beam	Pipe	A53 Gr.B	Typical
14	M14	N22A	N5			Standoff Horiz...	Beam	Pipe	A53 Gr.B	Typical
15	M15	N16	N19A			RIGID	Beam	None	RIGID	DR1
16	M16	N16	N21A			RIGID	Beam	None	RIGID	DR1
17	M17	N2	N20A			RIGID	Beam	None	RIGID	DR1
18	M18	N2	N22A			RIGID	Beam	None	RIGID	DR1
19	MP4A	N29A	N33			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
20	MP3A	N30A	N34			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
21	MP2A	N32	N36			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
22	MP1A	N31	N35			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
23	M23	N42	N16			RIGID	Beam	None	RIGID	DR1
24	M24	N41	N2			RIGID	Beam	None	RIGID	DR1
25	M25	N53A	N43			Tie-back	Beam	Pipe	A53 Gr.B	Typical
26	M26	N45	N46			Stanodff Vertical	Beam	BAR	A36 Gr.36	Typical
27	M27	N49	N50			Stanodff Vertical	Beam	BAR	A36 Gr.36	Typical
28	M28	N47	N48			Stanodff Vertical	Beam	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
29	M29	N51	N52			Stanodff Vertical	Beam	BAR	A36 Gr.36	Typical
30	M30	N45	N50			Standoff Diago...	Beam	BAR	A36 Gr.36	Typical
31	M31	N49	N46			Standoff Diago...	Beam	BAR	A36 Gr.36	Typical
32	M32	N47	N52			Standoff Diago...	Beam	BAR	A36 Gr.36	Typical
33	M33	N51	N48			Standoff Diago...	Beam	BAR	A36 Gr.36	Typical
34	M34	N19A	N21A			RIGID	Beam	None	RIGID	DR1
35	M35	N20A	N22A			RIGID	Beam	None	RIGID	DR1
36	M36	N50A	N49A			Tie-back	Beam	Pipe	A53 Gr.B	Typical
37	M37	N26	N56			RIGID	Beam	None	RIGID	DR1
38	M38	N25	N55			RIGID	Beam	None	RIGID	DR1
39	M39	N28	N58			RIGID	Beam	None	RIGID	DR1
40	M40	N27	N57			RIGID	Beam	None	RIGID	DR1
41	M41	N24	N54A			RIGID	Beam	None	RIGID	DR1
42	M42	N23	N53B			RIGID	Beam	None	RIGID	DR1
43	M43	N30	N52A			RIGID	Beam	None	RIGID	DR1
44	M44	N29	N51A			RIGID	Beam	None	RIGID	DR1

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1		BenPIN				Yes				None
2	M2		BenPIN				Yes				None
3	M3		BenPIN				Yes				None
4	M4		BenPIN				Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	MP4A						Yes				None
20	MP3A						Yes				None
21	MP2A						Yes				None
22	MP1A						Yes				None
23	M23		OOOOOO				Yes				None
24	M24		OOOOOO				Yes				None
25	M25	BenPIN	BenPIN				Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29						Yes				None
30	M30						Yes				None
31	M31						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
32	M32						Yes				None
33	M33						Yes				None
34	M34						Yes				None
35	M35						Yes				None
36	M36	BenPIN	BenPIN				Yes				None
37	M37						Yes				None
38	M38						Yes				None
39	M39						Yes				None
40	M40						Yes				None
41	M41						Yes				None
42	M42						Yes				None
43	M43						Yes				None
44	M44						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Connection ...	.5			Lbyy						Lateral
2	M2	Connection ...	.5			Lbyy						Lateral
3	M3	Connection ...	.5			Lbyy						Lateral
4	M4	Connection ...	.5			Lbyy						Lateral
5	M5	Face Horizo...	3.771			Lbyy			2.1	2.1		Lateral
6	M6	Face Horizo...	4.958			Lbyy						Lateral
7	M7	Face Horizo...	3.771			Lbyy			2.1	2.1		Lateral
8	M8	Face Horizo...	3.771			Lbyy			2.1	2.1		Lateral
9	M9	Face Horizo...	4.958			Lbyy						Lateral
10	M10	Face Horizo...	3.771			Lbyy			2.1	2.1		Lateral
11	M11	Standoff Ho...	2.5			Lbyy						Lateral
12	M12	Standoff Ho...	2.5			Lbyy						Lateral
13	M13	Standoff Ho...	2.5			Lbyy						Lateral
14	M14	Standoff Ho...	2.5			Lbyy						Lateral
15	MP4A	Mount Pipe	8			Lbyy						Lateral
16	MP3A	Mount Pipe	8			Lbyy						Lateral
17	MP2A	Mount Pipe	8			Lbyy						Lateral
18	MP1A	Mount Pipe	8			Lbyy						Lateral
19	M25	Tie-back	8.034			Lbyy						Lateral
20	M26	Stanodff Ve...	3.333			Lbyy			.65	.65		Lateral
21	M27	Stanodff Ve...	3.333			Lbyy			.65	.65		Lateral
22	M28	Stanodff Ve...	3.333			Lbyy			.65	.65		Lateral
23	M29	Stanodff Ve...	3.333			Lbyy			.65	.65		Lateral
24	M30	Standoff Dia...	3.976			Lbyy			.65	.65		Lateral
25	M31	Standoff Dia...	3.976			Lbyy			.65	.65		Lateral
26	M32	Standoff Dia...	3.976			Lbyy			.65	.65		Lateral
27	M33	Standoff Dia...	3.976			Lbyy			.65	.65		Lateral
28	M36	Tie-back	8.034			Lbyy						Lateral

Cold Formed Steel Design Parameters

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

Aluminum Design Parameters

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

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N42	max	926.285	9	1842.493	6	-198.968	4	-.361	1	.463	9	.35	10
2		min	-1682.8...	10	275.512	1	-2372.8...	6	-2.206	6	-.841	10	-.2	9
3	N41	max	1614.885	8	1848.532	8	2478.553	8	-.394	3	.807	8	.334	10
4		min	-992.324	9	320.824	3	-156.253	3	-2.227	8	-.496	9	-.178	9
5	N43	max	365.385	1	205.009	1	824.04	1	.031	10	.016	10	.068	10
6		min	-333.195	2	-154.754	2	-753.247	2	.003	9	.001	9	.006	9
7	N49A	max	283.486	1	162.943	1	642.475	1	.032	10	.017	10	.072	10
8		min	-311.571	2	-143.6	2	-705.752	2	-.002	1	-.001	1	-.005	1
9	Totals:	max	985.874	4	3715.092	7	1805.878	1						
10		min	-985.875	3	1031.899	2	-1805.8...	2						

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

	Member	Shape	Code Che...	Loc[ft]	LC	Shear Ch...	Loc[ft]	...	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M2	PL5/8x3.5	.690	0	8	.280	0	y	10	66866....	70875	.923	5.168	1...	H1-1b
2	M33	SR 0.75	.665	0	8	.027	0		7	3648.9...	14313....	.179	.179	3...	H1-1a
3	M4	PL5/8x3.5	.646	0	6	.268	0	y	10	66866....	70875	.923	5.168	1...	H1-1b
4	MP1A	PIPE_2.0	.413	2.333	10	.059	5.667		10	14916....	32130	1.872	1.872	4...	H1-1b
5	M14	PIPE_2.0	.409	2.318	8	.325	2.344		8	29810....	32130	1.872	1.872	2...	H1-1b
6	M13	PIPE_2.0	.378	2.318	8	.326	2.344		8	29810....	32130	1.872	1.872	2...	H1-1b
7	MP4A	PIPE_2.0	.356	5.667	9	.061	5.667		9	14916....	32130	1.872	1.872	4...	H1-1b
8	M1	PL5/8x3.5	.354	0	9	.215	0	y	9	66866....	70875	.923	5.168	1...	H1-1b
9	M3	PL5/8x3.5	.343	0	9	.212	0	y	9	66866....	70875	.923	5.168	1...	H1-1b
10	M31	SR 0.75	.337	0	9	.013	0		9	3648.9...	14313....	.179	.179	2...	H1-1a
11	M10	PIPE_2.5	.279	0	10	.070	.746		2	30358....	50715	3.596	3.596	2...	H1-1b
12	M7	PIPE_2.5	.268	0	10	.063	.746		1	30358....	50715	3.596	3.596	2...	H1-1b
13	MP2A	PIPE_2.0	.242	5.667	2	.041	2.333		2	14916....	32130	1.872	1.872	4...	H1-1b
14	M8	PIPE_2.5	.232	3.771	9	.057	3.771		9	30358....	50715	3.596	3.596	2...	H1-1b
15	M12	PIPE_2.0	.229	2.318	9	.153	2.344		9	29810....	32130	1.872	1.872	2...	H1-1b
16	M5	PIPE_2.5	.226	3.771	9	.032	3.771		9	30358....	50715	3.596	3.596	2...	H1-1b
17	M9	PIPE_2.5	.225	4.958	10	.057	4.958		2	41472....	50715	3.596	3.596	2...	H1-1b
18	M11	PIPE_2.0	.222	2.318	9	.150	2.344		9	29810....	32130	1.872	1.872	2...	H1-1b
19	M6	PIPE_2.5	.219	4.958	10	.055	4.958		1	41472....	50715	3.596	3.596	2...	H1-1b
20	M29	SR_0.625	.215	0	6	.023	3.333		10	2503.0...	9940.19	.104	.104	2...	H1-1b
21	M32	SR 0.75	.204	3.976	5	.029	3.976		8	3648.9...	14313....	.179	.179	3...	H1-1b
22	MP3A	PIPE_2.0	.110	5.667	9	.038	2.333		10	14916....	32130	1.872	1.872	4...	H1-1b
23	M30	SR 0.75	.110	3.976	5	.014	3.976		9	3648.9...	14313....	.179	.179	2...	H1-1b
24	M27	SR_0.625	.105	3.333	9	.018	0		10	2503.0...	9940.19	.104	.104	2...	H1-1b
25	M25	PIPE_2.0	.088	4.017	7	.048	8.034		10	14818....	32130	1.872	1.872	1...	H1-1b
26	M36	PIPE_2.0	.082	4.017	7	.050	8.034		10	14818....	32130	1.872	1.872	1...	H1-1b

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

	Member	Shape	Code Che...	Loc[ft]	LC	Shear Ch...	Loc[ft]	...	L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
27	M28	SR_0.625	.039	3.333	7	.003	0		8	2503.0...	9940.19	.104	.104	2...	H1-1b
28	M26	SR_0.625	.029	3.333	8	.004	0		6	2503.0...	9940.19	.104	.104	2...	H1-1b

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pn...	phi*Tn...	phi*M...	phi*M...	phi*...	phi*...	Cb	Eqn
No Data to Print ...																

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

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt[...	phi*Mn...	phi*Mn...	phi*Vny...	phi*Vnz...	Cb	Eqn
No Data to Print ...																

EXHIBIT 10

Construction Drawings

CTHA238A

150 LOST ACRES ROAD
NORTH GRANBY, CT 06060
HARTFORD COUNTY

SITE NO.: CTHA238A

RF DESIGN GUIDELINE: 67E5A998E 6160

SCOPE OF WORK

INSTALL:
- 9 ANTENNAS
- 6 RRUs
- 1 B160 BATTERY CABINET
- 1 6160 CABINET
- 1 PPC CABINET
- 1 PURCELL CABINET
- 1 GPS ANTENNA
- 3 HYBRID CABLES
- 1 LOW-PROFILE MOUNT
- 1 10'x15' CONCRETE PAD
- 1 8'x10' ICE CANOPY
- 1 ICE BRIDGE
- 1 GENERATOR
- 1 ATS

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

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

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

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

VICINITY MAP

SCALE: 1" = 1000'-0"

DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 58 TO MERGE ONTO I-90 WEST TOWARD ALBANY. TAKE EXIT 41 TOWARD US-202/MA-10. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR US-202 SOUTH. MERGE ONTO MA-10 SOUTH. SLIGHT RIGHT ONTO COURT STREET. TURN LEFT ONTO PLEASANT STREET. CONTINUE ONTO SOUTH MAPLE STREET. CONTINUE ONTO US-202 SOUTH. AT THE TRAFFIC CIRCLE TAKE 1ST EXIT ONTO EAST STREET. TURN RIGHT ONTO GRANVILLE ROAD. TURN LEFT ONTO LOST ACRES ROAD. SITE WILL BE ON THE RIGHT.

SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	TOWER ELEVATION & ANTENNA PLANS	1
A-3	SITE DETAILS 1 OF 2	1
A-4	SITE DETAILS 2 OF 2	1
A-5	GENERATOR SPECIFICATIONS 1	1
A-6	GENERATOR SPECIFICATIONS 2	1
A-7	ANTENNA & FEEDLINE CHARTS	1
E-1	SITE ELECTRIC & GROUNDING DETAILS 1 OF 2	1
E-2	SITE ELECTRIC & GROUNDING DETAILS 2 OF 2	1
E-3	ANTENNA ELECTRIC & GROUNDING DETAILS	1

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SITE NUMBER:	CTHA238A
SBA SITE NUMBER:	CT10017-A
SBA SITE NAME:	NORTH GRANBY
SITE ADDRESS:	150 LOST ACRES ROAD NORTH GRANBY, CT 06060
PROPERTY OWNER:	LOMBARDI JOHN G. & LOMBARDI DEBORAH LINDSEY 150 LOST ACRES ROAD NORTH GRANBY, CT 06060
TOWER OWNER:	SBA TOWERS II, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	HARTFORD COUNTY
ZONING DISTRICT:	R2A (RESIDENTIAL)
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	161'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 200 BOSTON POST ROAD WEST, SUITE 000 MARLBOROUGH, MA 00752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 200 BOSTON POST ROAD WEST, SUITE 000 MARLBOROUGH, MA 00752
SITE CONTROL POINT:	LATITUDE: N.42.009600° N.42°00'34.56" LONGITUDE W.72.865990° W.72°51'57.56"

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

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

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

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

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
8/31/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA238A

SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.259

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. 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.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. 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.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. 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.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. 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.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (⅞"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
8/31/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

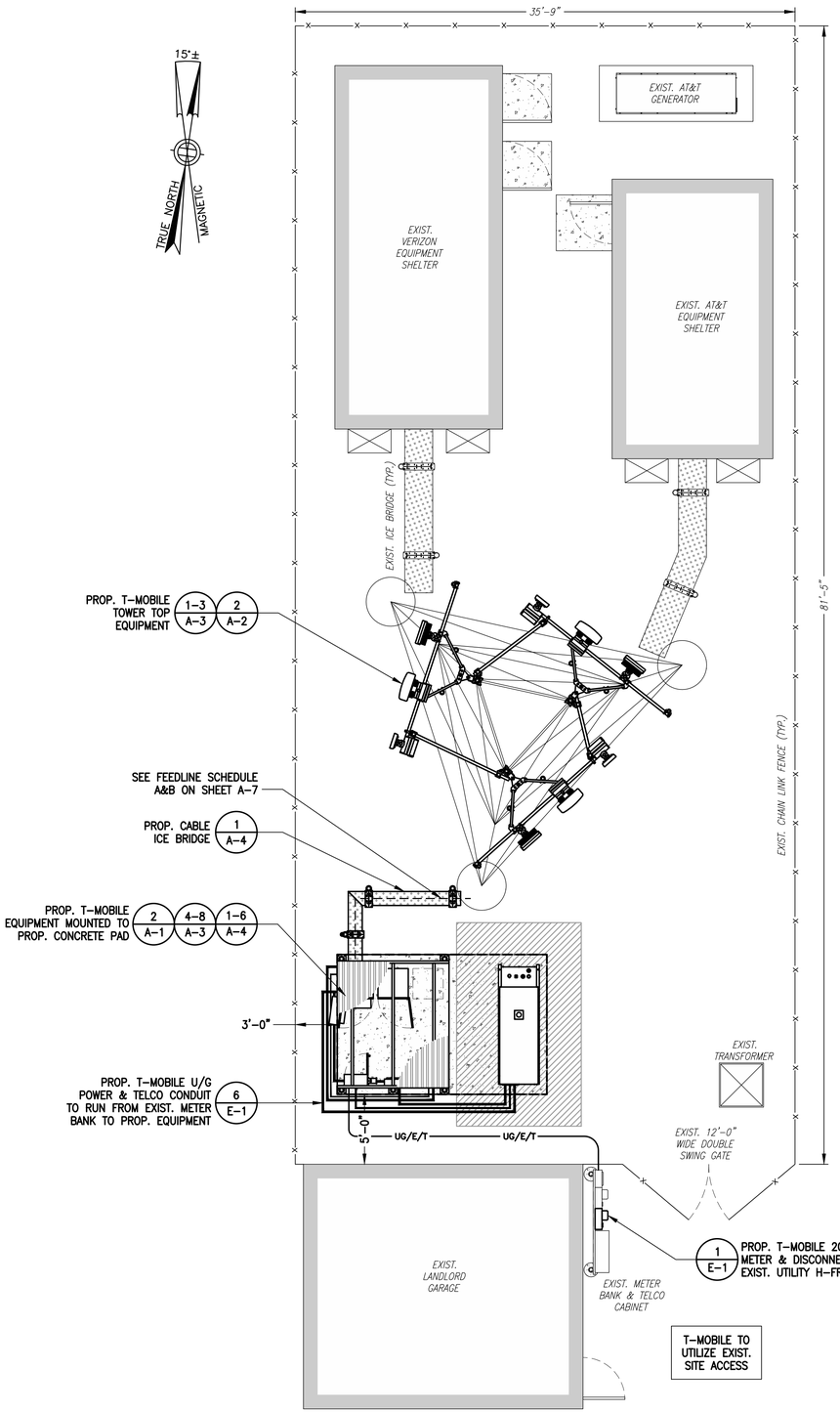
SITE NUMBER:
CTHA238A

SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

1815.259



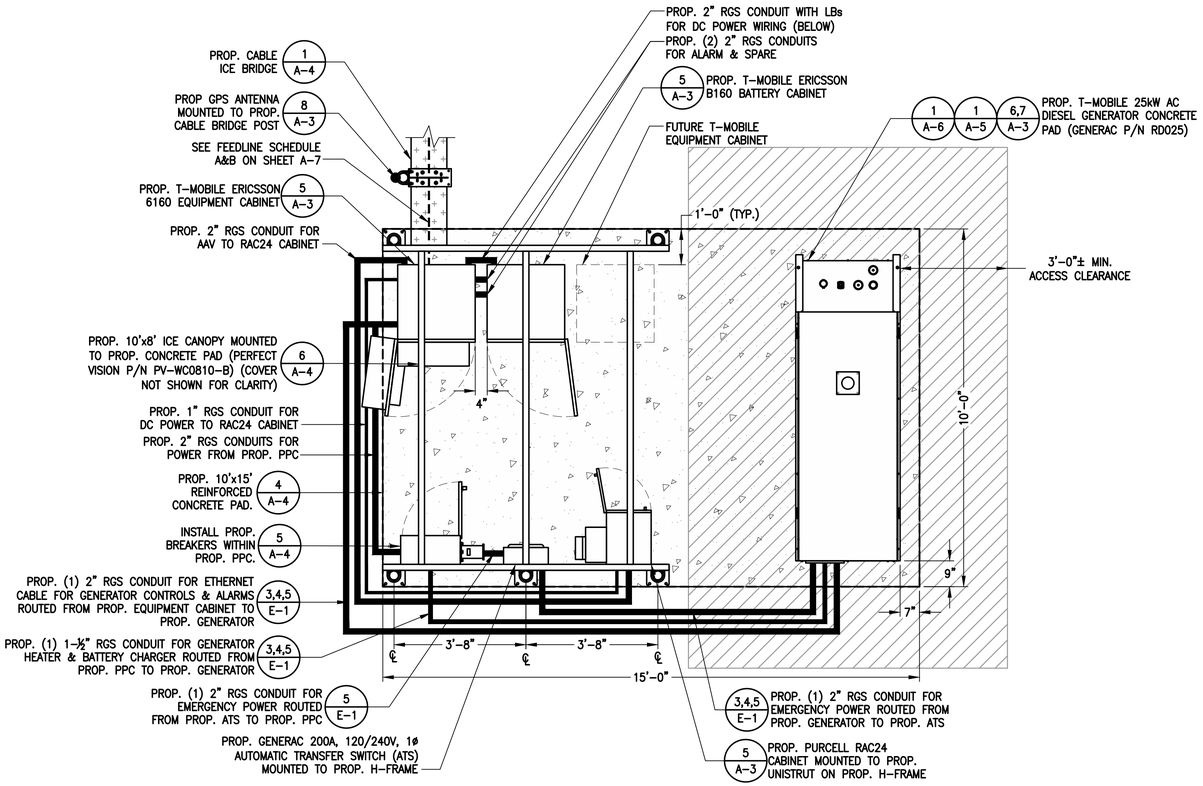
COMPOUND PLAN 1 A-1

SCALE: 1" = 5'-0"

0 5'-0" 10'-0 15'-0"

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

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).



PROPOSED EQUIPMENT PLAN 2 A-1

SCALE: 1/2" = 1'-0"

0 2'-0" 4'-0" 6'-0"

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SHEET TITLE
COMPOUND & EQUIPMENT PLAN

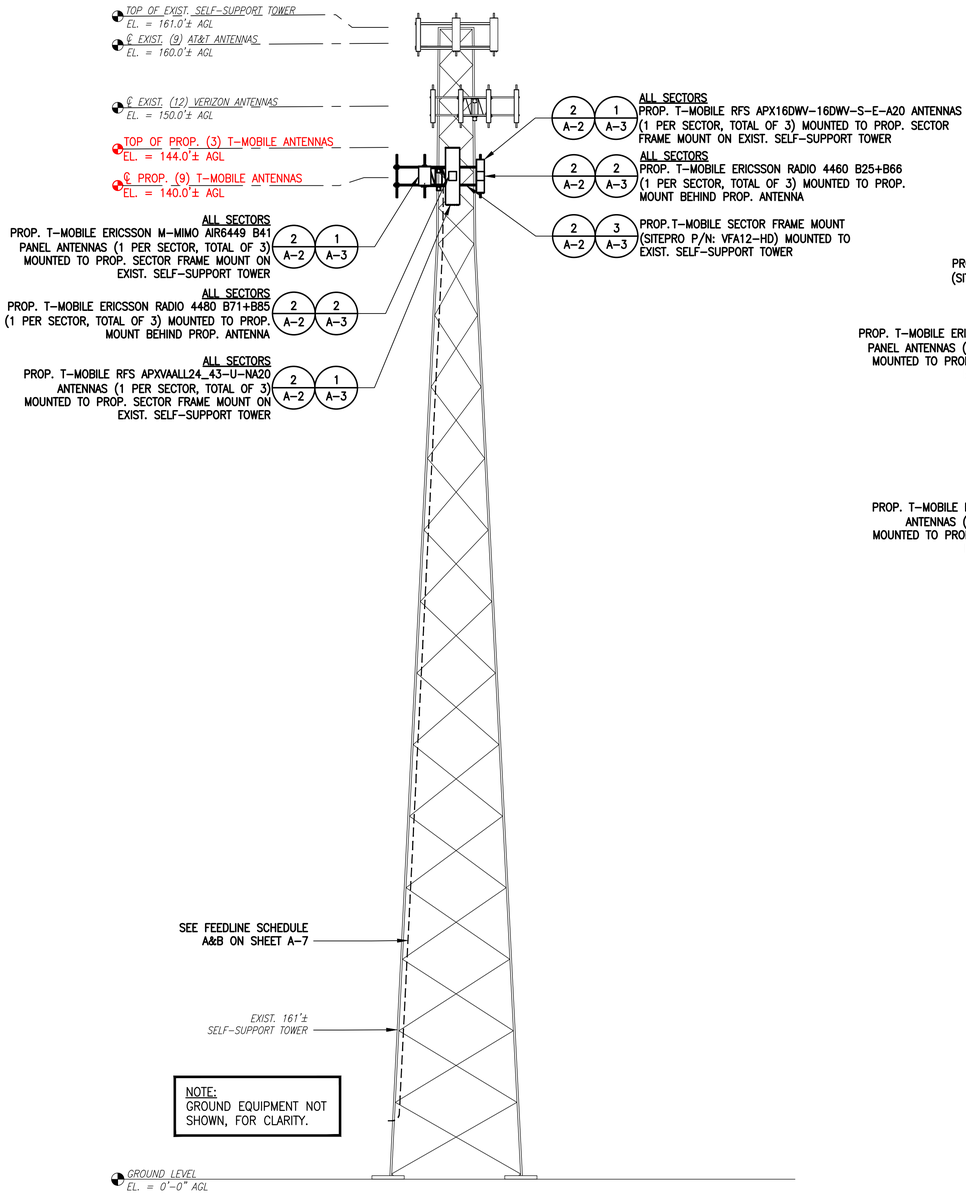
SHEET NUMBER
A-1

1815.259

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

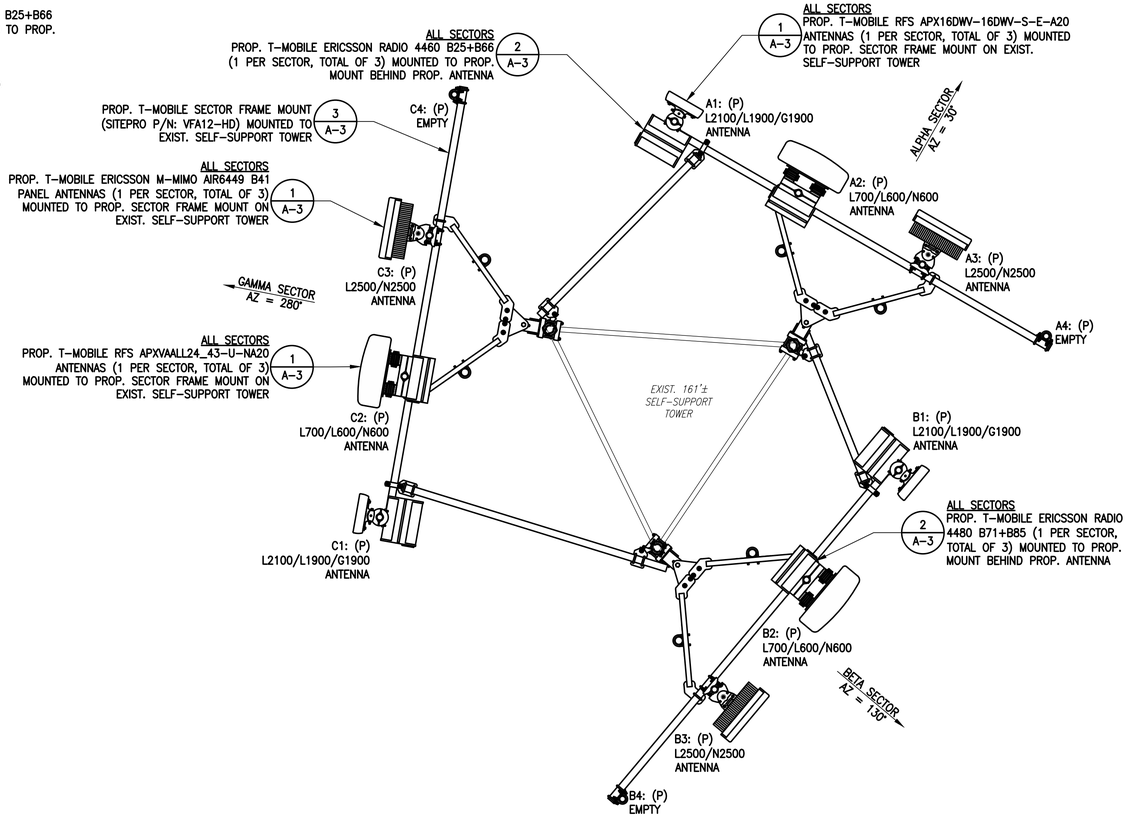
SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

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



NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION
SCALE: 1" = 10'-0"
1 A-2
0 10'-0" 20'-0" 30'-0"



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

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

ANTENNA STATUS LEGEND:

EMPTY – EMPTY PIPE

(E) – EXISTING
(P) – INSTALL
(F) – FUTURE

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
8/31/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

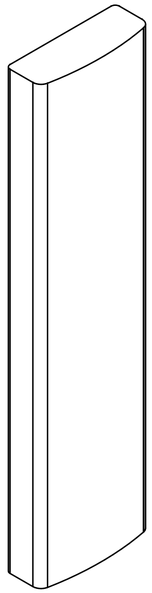
SITE NUMBER:
CTHA238A

SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
TOWER ELEVATION & ANTENNA PLAN

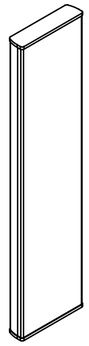
SHEET NUMBER
A-2

1815.259



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



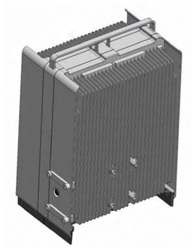
RFS APX16DWV-16DWV-S-E-A20 ANTENNA

DIMENSIONS: 55.9"H x 13.0"W x 3.15"D
WEIGHT: 40.7 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON M-MIMO AIR6449 B41 ANTENNA

DIMENSIONS: 33.1"H x 20.5"W x 8.3"D
WEIGHT: 103.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS
SCALE: N.T.S.
1 / A-3



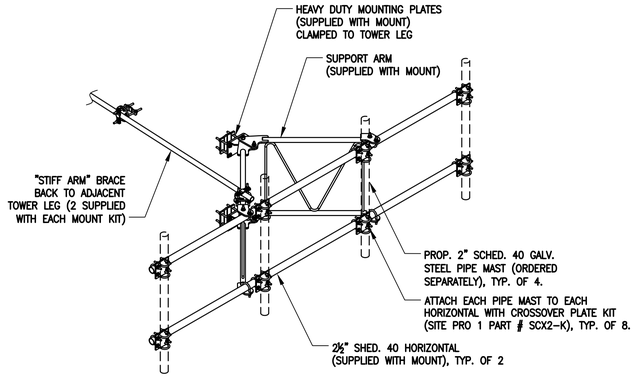
ERICSSON RADIO 4460 B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON RADIO 4480 B71+B85

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

RADIO DETAILS
SCALE: N.T.S.
2 / A-3



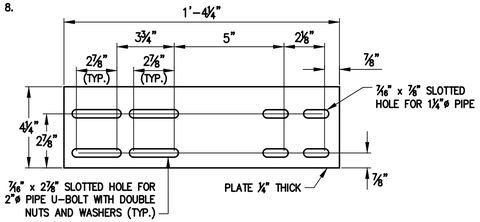
SITE-PRO 1 12'-6" HEAVY-DUTY V-FRAME

PART NUMBER: VFA12-HD
(TOTAL OF 3 REQUIRED)

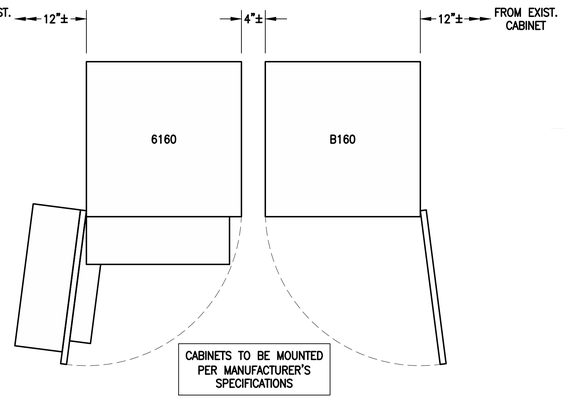
TYPICAL SITE PRO 1, 12'-6" HEAVY DUTY V-FRAME ASSEMBLY
SCALE: N.T.S.
3 / A-3

EMERSON SITE SUPPORT CABINET
DIMENSIONS: 24"x 24" x 16"

SSC DETAILS
SCALE: N.T.S.
5 / A-3



MOUNTING BRACKET PLATE



ERICSSON 6160 SITE SUPPORT CABINET

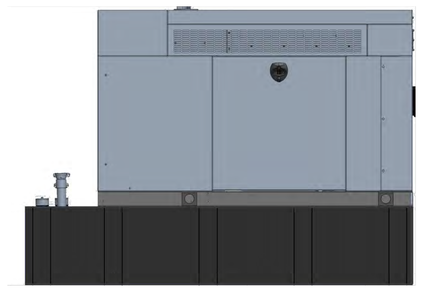
DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
WEIGHT: 680.0 lbs
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
WEIGHT: 1771.0 lbs
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL
SCALE: N.T.S.
4 / A-3

NOTE:
GENERATOR DIESEL TANK TO BE FILLED BY CONTRACTOR

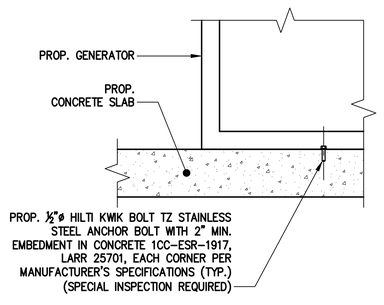


GENERAC RD025 25kW AC DIESEL GENERATOR

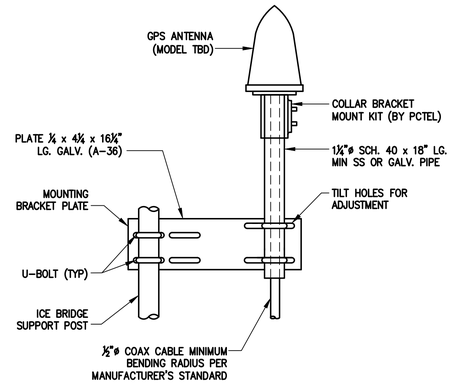
DIMENSIONS: 103.4"L x 35.0"W x 91.7"H
WEIGHT: 2,946 lbs
QUANTITY: TOTAL OF 1

GENERATOR DETAIL
SCALE: N.T.S.
6 / A-3

NOTE:
CONTRACTOR TO VERIFY 3" MIN. FROM EDGE OF CONCRETE TO NEW MOUNTING BOLT.



GENERATOR MOUNTING DETAIL
SCALE: N.T.S.
7 / A-3



GPS ANTENNA MOUNTING BRACKET

1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1½" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
2. THE MOUNTING PLATE SHALL BE FASTENED AS SHOWN AND ATTACHED TO THE APPROPRIATE SUPPORT STRUCTURE USING U-BOLTS. THE SUPPORT PIPE SHALL THEN BE ATTACHED TO THE MOUNTING PLATE USING THE OVERSIZE U-BOLTS PROVIDED TO ALLOW ADJUSTMENT. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.

GPS MOUNTING DETAIL
SCALE: NTS
8 / A-3

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SHEET TITLE
SITE DETAILS
1 OF 2

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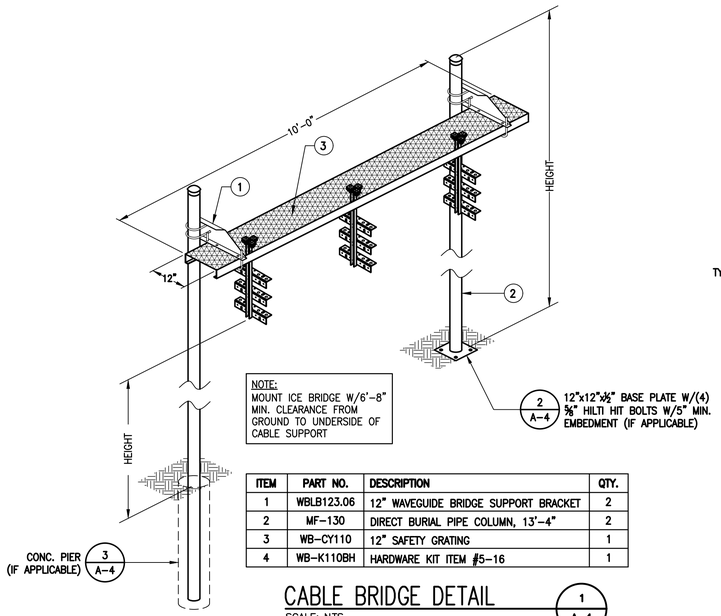
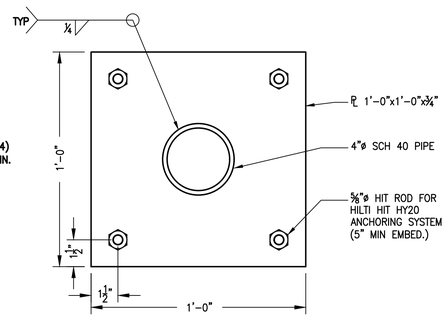
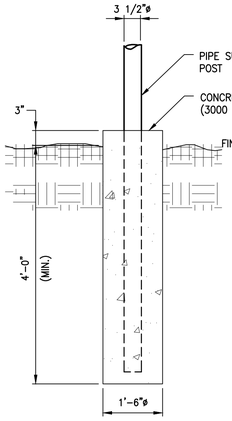


ITEM	PART NO.	DESCRIPTION	QTY.
1	WBLB123.06	12" WAVEGUIDE BRIDGE SUPPORT BRACKET	2
2	MF-130	DIRECT BURIAL PIPE COLUMN, 13'-4"	2
3	WB-CY110	12" SAFETY GRATING	1
4	WB-K110BH	HARDWARE KIT ITEM #5-16	1

CABLE BRIDGE DETAIL (1 / A-4)
SCALE: NTS



CABLE BRIDGE BASE PLATE (2 / A-4)
SCALE: NTS



NOTES:

1. FOR EXPOSED LEDGE, PROVIDE GROUT LEVELING PAD. INSTALL (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
2. FOR BURIED LEDGE AT LESS THAN 3'-6" BELOW FINISH GRADE, CORE 8"ø HOLE INTO LEDGE 18" DEEP. FILL AROUND PIPE WITH NON-SHRINK GROUT. USE COAL TAR ON BURIED LENGTH OF PIPE, AND BACKFILL TO FINISH GRADE
3. FOR CONCRETE, FASTEN BASEPLATE WITH (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
4. FOR POSTS ON CONCRETE OR EXPOSED LEDGE, PROVIDE 4"x8"x⅜" BASE PLATE WITH (2)-1⅛"ø HOLES @ 6" O.C.

CABLE BRIDGE PIER (3 / A-4)
SCALE: NTS

EMERSON CAC-A75201090 PPC
DIMENSIONS: 24.0"H x 15.7"W x 20.0"D
QUANTITY: TOTAL OF 1

PPC DETAIL (5 / A-4)
SCALE: N.T.S.

CONCRETE GENERAL NOTES

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND TO THE PROJECT SPECIFICATIONS.
2. ALL CONCRETE IS TO BE NORMAL DENSITY CONCRETE WITH A MAXIMUM SLUMP OF 4 INCHES. MAXIMUM AGGREGATE SIZE ¾ INCH. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
3. PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT IN ALL EXPOSED CONCRETE WORK WITH AIR-ENTRAINING ADMIXTURE COMPLYING WITH ASTM C 260. AT TROWEL-FINISHED FLOORS, DO NOT EXCEED AIR-ENTRAINMENT CONTENT OF 3 PERCENT.
4. NO HOLES OR SLEEVES SHALL BE MADE THROUGH CONCRETE WORK OTHER THAN THOSE INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
5. ALL FORMWORK OFFSET TOLERANCES (PER ACI 117) TO BE CLASS A.
6. FLOOR SLAB TOLERANCES TO ASTM E1155; SPECIFIED OVERALL MINIMUM VALUE OF FLATNESS F F=25 WITH LOCAL MINIMUM F F=17, AND MINIMUM VALUE OF LEVELNESS F F=20 WITH LOCAL MINIMUM F I AND F F WITHIN 72 HOURS OF SLAB CONSTRUCTION.
7. CABINETS ON SLAB (IF APPLICABLE). ALLOWABLE CAPACITY OF CONCRETE USED IN DESIGN MIN. 4000 PSI.

FOUNDATION NOTES:

1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

   1.1 CODES

   A. DESIGN CONFORMS TO INTERNATIONAL BUILDING CODE 2012.

   B. AMERICAN CONCRETE INSTITUTE "BUILDING COADE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-08.

2. EARTHWORK

   2.1 FOUNDATIONS

   A. FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON (UNDISTURBED RESIDUAL SOILS/COMPACTED STRUCTURAL FILL), CAPABLE OF SAFELY SUPPORTING A NET ALLOWABLE BEARING PRESSURE OF 2000 PSF. IF FOUNDATION CONDITIONS PROVE UNACCEPTABLE AT ELEVATIONS SHOWN, EXCAVATION SHALL BE CARRIED DEEPER AND SHALL BE BACKFILLED WITH LEAN CONCRETE TO PLAN FOOTING BOTTOM, OR REDESIGN OF FOUNDATIONS WILL BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

   B. DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND DRAINAGE NECESSARY TO MAINTAIN THE EXCAVATION AND PROTECT SURROUNDING STRUCTURES AND UTILITIES.

   C. THOROUGHLY COMPACT ALL BOTTOM OF FOOTINGS PRIOR TO PLACING ANY CONCRETE.

3. CONCRETE

   3.1 FORMWORK

   A. CONCRETE CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL, CONCRETE FOR BUILDINGS," (ACI 301-89).

   B. FORMWORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."

   3.2 REINFORCEMENT

   A. REINFORCING STEEL ASTM A615, GRADE 60. WELDED WIRE ASTM A185 (FLAT SHEET). LAPS 40 BAR DIAMETERS UNLESS NOTED. BARS SHALL BE SECURELY HELD IN ACCURATE POSITION BY SUITABLE ACCESSORIES, TIE BARS, SUPPORT BARS, ETC. HOOK LENGTHS SHALL BE 12 BAR DIAMETERS.

   B. CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

   FOOTINGS & SLABS CAST AGAINST GROUND . . . . . 3"
   CONCRETE TO BE IN CONTACT WITH GROUND OR WEATHER AT BARS GREATER THAN #5 . . . . . 2"
   AT BARS #5 OR LESS . . . . . 1-1/2"
   CONCRETE NOT TO BE EXPOSED TO GROUND OR WEATHER BEAMS, GIRDERS & COLUMNS . . . . . 1-1/2"
   SLABS & WALLS . . . . . 3/4"

   3.3 CAST-IN-PLACE-CONCRETE

   A. MINIMUM 28 DAY CYLINDER STRENGHT AND MAXIMUM SLUMP, PRIOR TO ADDITION OF SUPER PLASTICIZERS, AS FOLLOWS:

	F'C (PSI)	SLUMP
CLASS I FOOTINGS	4000	3"
CLASS II FOOTINGS	4000	3"
CLASS III INTERIOR ELEVATED SLABS & WALLS	4000	4"
CLASS V OTHER WORK	4000	4"
CLASS VI LEAN CONCRETE FOR OVER EXCAVATION OF FOUNDATIONS	2000	N/A

   B. MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 5. NO CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.

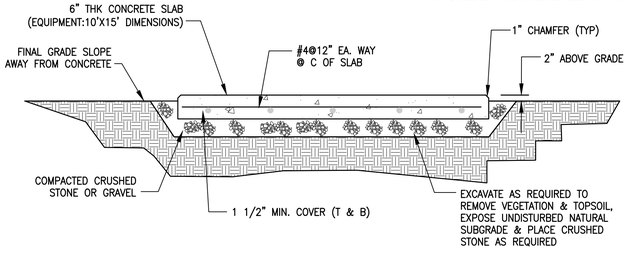
   C. COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE $57. COARSE AGGREGATE FOR LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330 GRADED 3/4" TO 1/4".

   D. COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1.

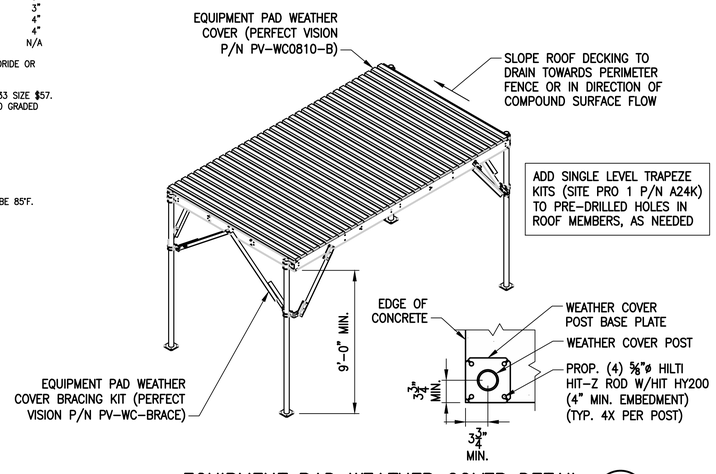
   E. HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R.

   F. CHAMFER ALL EXPOSED EDGES 3/4".

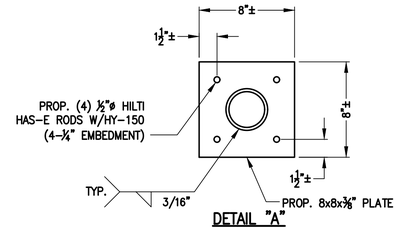
   G. THE MAXIMUM TEMPERATURE OF ALL CONCRETE AT DELIVERY TO THE SITE SHALL BE 85°F. TOTAL DELIVERY TIME SHALL BE LESS THAN 75 MINUTES.



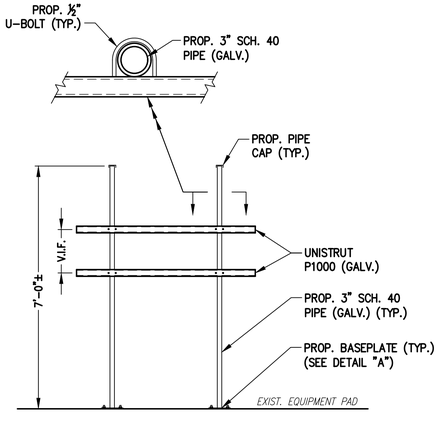
CONCRETE PAD DETAIL (4 / A-4)
SCALE: N.T.S.



EQUIPMENT PAD WEATHER COVER DETAIL (6 / A-4)
SCALE: N.T.S.



DETAIL "A"



H-FRAME DETAIL (7 / A-4)
SCALE: N.T.S.

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SITE ADDRESS:
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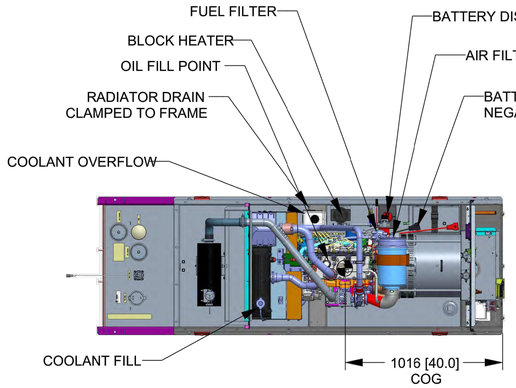
NORTH GRANBY, CT 06060

SHEET TITLE
SITE DETAILS
2 OF 2

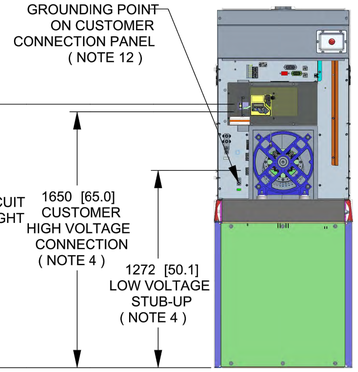
SHEET NUMBER
A-4

1815.259

SH	REV	WINDCHILL VERSION	
1/2	2	2.12	



TOP VIEW
(SHOWN WITH ENCLOSURE REMOVED)

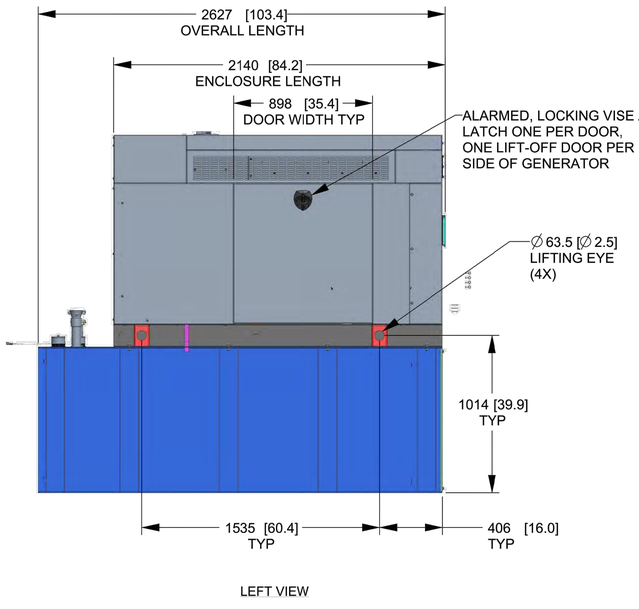


REAR VIEW
(SHOWN WITH REAR COVER PANEL REMOVED)

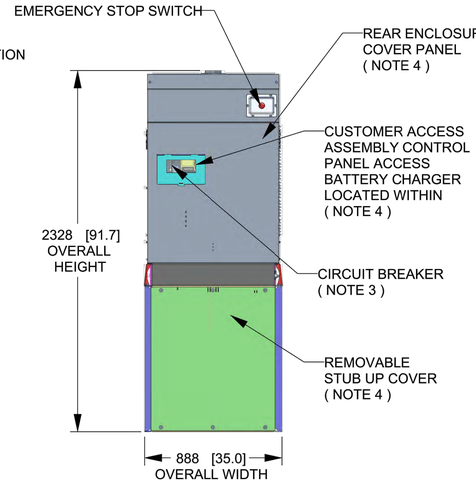
WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 6)	
GENERATOR AS SHOWN	1336 [2946]
WITH WOODEN SHIPPING SKID	1354 [2984]

WEIGHT: KG [LBS]
DIMENSIONS: MM [INCHES]

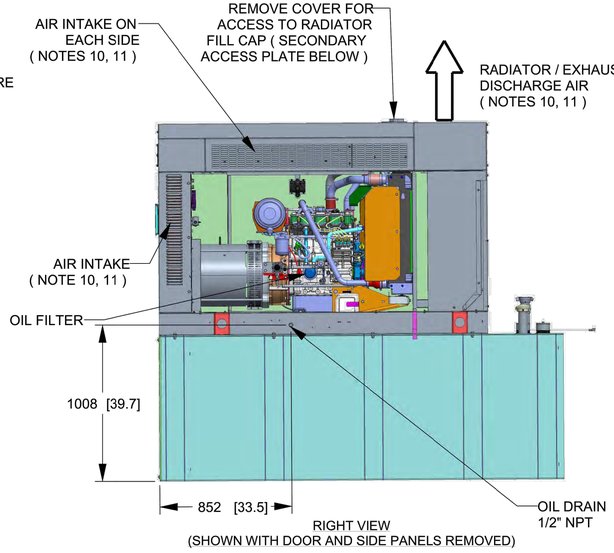
NOTES:
1. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
2. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
   - MAIN LINE CIRCUIT BREAKER 125 AMPS
   - SEE SPECIFICATION SHEET OR OWNERS MANUAL
   - ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR.
   - CONTROL PANEL INCLUDES INTEGRATED BATTERY CHARGER
4. REMOVE THE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
   - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
   - LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES
5. ENGINE SERVICE CONNECTIONS
   OIL DRAIN: 1/2" NPT
   RADIATOR DRAIN : HOSE CLAMPED TO FRAME
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
8. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
9. MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8-11 GRADE 5 (USE STANDARD SAE TORQUE SPECS)
10. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED. RECOMMENDED MINIMUM PERIMETER(3FT) AND VERTICAL OVER EXHAUST (5FT) CLEARANCE FOR SITE LOCATION.
12. GENERATOR MUST BE GROUNDED.



LEFT VIEW



REAR VIEW



RIGHT VIEW
(SHOWN WITH DOOR AND SIDE PANELS REMOVED)

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE: 5/10/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000036728	2

SCALE 0.031 | WT-KG SEE ABOVE | SHEET 1 of 2

GENERATOR SPECIFICATIONS 1
SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
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SBA COMMUNICATIONS CORP.
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CHAPPELL ENGINEERING ASSOCIATES, LLC
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R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
8/31/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA238A

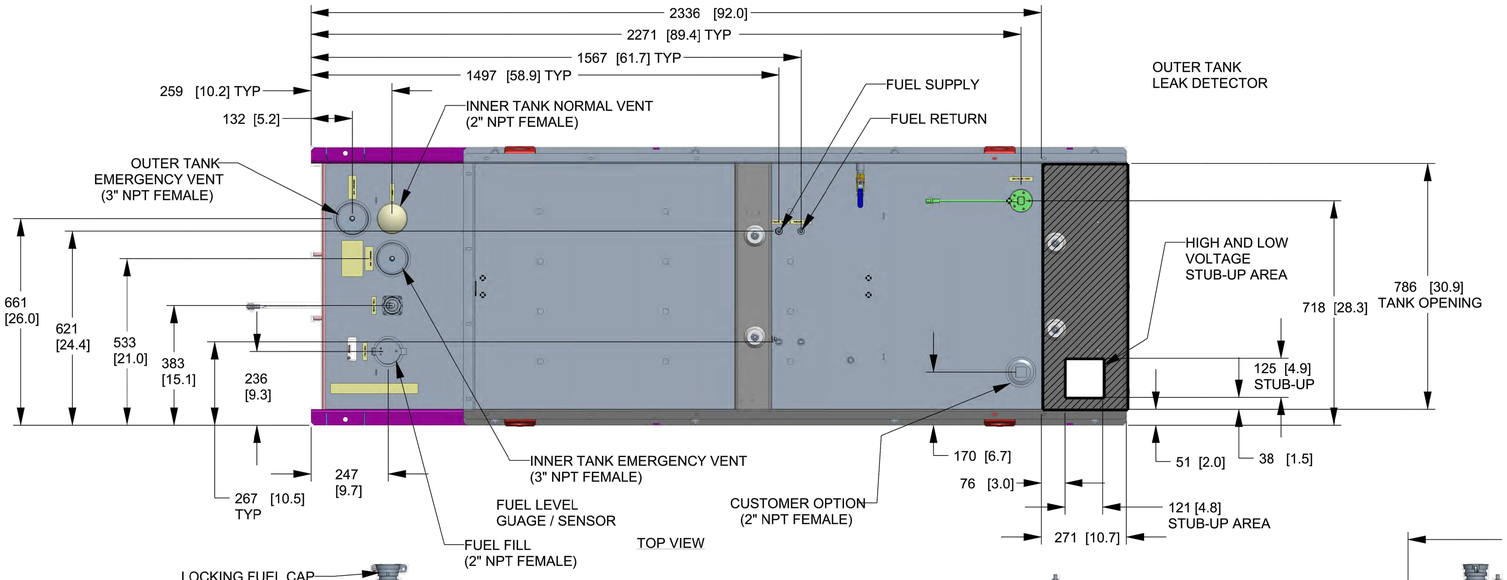
SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
GENERATOR SPECIFICATIONS 1

SHEET NUMBER
A-5

1815.259

SH	REV	WINDCHILL VERSION
2/2	2	2.12

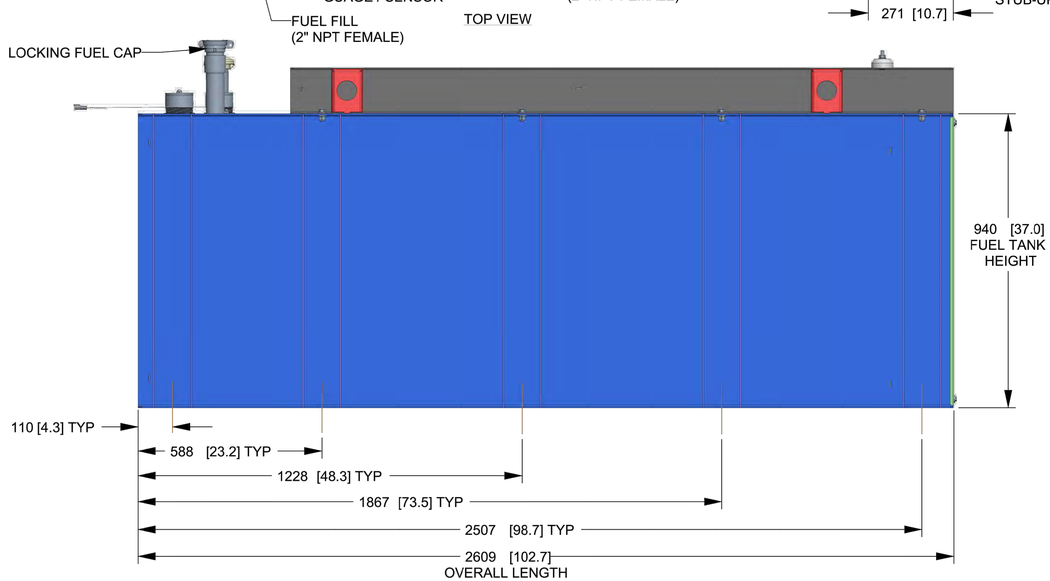


FUEL TANK	
TOTAL CAPACITY	908.5 (240)
USABLE CAPACITY	866.9 (229)

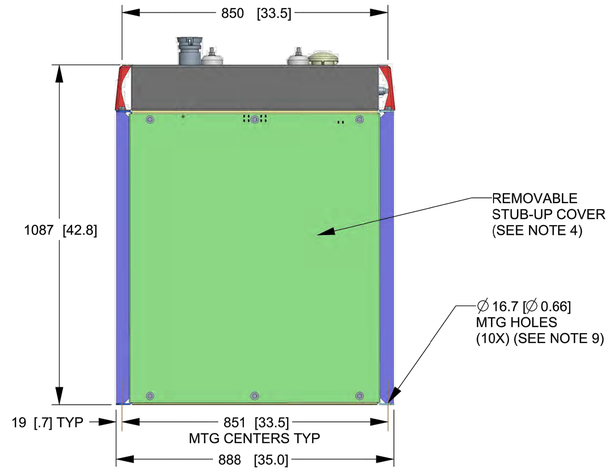
CAPACITY: LITER (GALLON)
DIMENSIONS: MM (INCH)

TANK IS LISTED TO UL142 AND ULC5601

NOTE:
STUB-UP AREA FOR HIGH
AND LOW VOLTAGE CONNECTIONS
CIRCUIT BREAKER, NEUTRAL AND
CUSTOMER CONNECTION OPENING.



LEFT VIEW



REAR VIEW

DRAWING CREATED FROM PRO/ENGINEER
3D FILE. ECO MODIFICATION TO BE
APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE: 5/10/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000036728	2

SCALE 0.063 | WT-KG SEE ABOVE | SHEET 2 of 2

GENERATOR SPECIFICATIONS
SCALE: N.T.S.

1
A-6

T-MOBILE
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SHEET TITLE
GENERATOR
SPECIFICATIONS 2

SHEET NUMBER
A-6

1815.259

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 RFS APX16DWV-16DWV-S-E-A20	140'± AGL	30°	–	–	L2100/L1900/G1900	RADIO 4460 B25+B66	(3) 2" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	140'± AGL	30°	–	–	L700/L600/N600	RADIO 4480 B71+B85	
	A3 ERICSSON M-MIMO AIR6449 B41	140'± AGL	30°	–	–	L2500/N2500	–	
	A4 EMPTY PIPE	–	–	–	–	–	–	
BETA	B1 RFS APX16DWV-16DWV-S-E-A20	140'± AGL	130°	–	–	L2100/L1900/G1900	RADIO 4460 B25+B66	
	B2 RFS APXVAALL24_43-U-NA20	140'± AGL	130°	–	–	L700/L600/N600	RADIO 4480 B71+B85	
	B3 ERICSSON M-MIMO AIR6449 B41	140'± AGL	130°	–	–	L2500/N2500	–	
	B4 EMPTY PIPE	–	–	–	–	–	–	
GAMMA	C1 RFS APX16DWV-16DWV-S-E-A20	140'± AGL	280°	–	–	L2100/L1900/G1900	RADIO 4460 B25+B66	
	C2 RFS APXVAALL24_43-U-NA20	140'± AGL	280°	–	–	L700/L600/N600	RADIO 4480 B71+B85	
	C3 ERICSSON M-MIMO AIR6449 B41	140'± AGL	280°	–	–	L2500/N2500	–	
	C4 EMPTY PIPE	–	–	–	–	–	–	

CABLE NOTE: SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV1 – 06/04/21

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	*EXISTING TO REMAIN:* *NONE* *EXISTING TO BE REMOVED:* *NONE*	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES (1) ½" COAX CABLE FOR GPS ANTENNA	

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

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NORTH GRANBY, CT 06060

SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-7

1815.259

NOTES TO CONTRACTOR:

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE ENGINEER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS REQUIRED WITH LOCAL AUTHORITY.
3. UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES & SPRINT CONSTRUCTION MANAGER.
4. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND LIGHTING AS REQUIRED FOR THE WORK.
5. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
6. THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
7. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
8. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
9. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
10. ALL WIRE SHALL BE TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE #10 AWG (#8 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C, (167 DEGREES F), 98% CONDUCTIVITY, MINIMUM #12.
11. ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
12. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
13. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
14. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.
15. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
16. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
17. ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL LOCATIONS FED FROM (NO EXCEPTIONS.)
18. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

   NOTE: ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY NOT BE CORRECT AS SHOWN ON THESE DRAWINGS). LOCATION OF OUTLETS, BOXES, ETC. AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
19. ALL UNDERGROUND CONDUIT ROUTING SHALL BE COORDINATED IN FIELD BETWEEN SPRINT WIE, CONTRACTOR, AND RESPECTIVE UTILITY COMPANIES.
20. ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
21. CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH 6" WIDE. 6 MIL THICK ALUMINIZED PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
22. ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR TELCO CONNECTION TO THE PRIMARY RADIO CABINET. COORDINATE EXACT CONNECTION TYPE WITH LUCENT.
23. ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR POWER CONNECTION TO THE PRIMARY RADIO CABINET. THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL 6'-0" COIL OF WIRE AT THE END OF THE SEALTITE.
24. GROUND IN ACCORD W/LOCAL CODE & SHEET E-2.
25. PROVIDE (2) 4" GALVANIZED RIGID STEEL CONDUIT RISER WITH 1/4" NYLON DRAG LINE INCLUDING 90° GRC SWEEP AT POLE (UP TO 20'-0" AFG). SECURE TO POLE PER UTILITY COMPANY REQUIREMENTS. PRIMARY CABLES BY UTILITY COMPANY.

ELECTRICAL SPECIFICATIONS

SECTION 16010 – GENERAL PROVISIONS

A. REQUIREMENTS: FURNISH ALL LABOR, MATERIALS, SERVICE, EQUIPMENT, AND APPLIANCES REQUIRED TO COMPLETE THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS.

B. REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS: INSTALLATION, MATERIAL, EQUIPMENT AND WORKMANSHIP SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) – APPLICABLE STATE ELECTRIC CODES, THE NATIONAL ELECTRICAL SAFETY CODE (NESC), AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE OWNER.

C. UNDERWRITER'S LABORATORIES (UL): ALL MATERIALS, APPLIANCES, EQUIPMENT, OR OR DEVICES SHALL CONFORM TO THE APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC. THE LABEL OF, OR LISTING BY. UL, IS REQUIRED.

SECTION 16110 – RACEWAYS, BOXES AND FITTINGS

A. CONDUIT FITTINGS, CONNECTORS AND COUPLINGS, EMT COUPLINGS AND CONNECTORS EITHER STEEL OR MALLEABLE IRON ONLY. "CONCRETE TIGHT" OR "RAIN TIGHT" AND EITHER THE GLAND AND RING COMPRESSION TYPE OR STAINLESS STEEL MULTIPLE POINT LOCKING TYPE. CONNECTORS TO HAVE INSULATED THROATS. EMT FITTINGS USING SET SCREWS OR INDENTATIONS AS A MEANS OF ATTACHMENT ARE NOT PERMITTED.

B. BUSHINGS: INSULATED TYPE, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT GROUNDING SYSTEM, FOR RIGID STEEL CONDUIT, IMC AND RIGID ALUMINUM CONDUIT.

C. CONDUIT INSTALLATIONS: CONDUIT SYSTEMS, EMT, OR RIGID NON-METALLIC CONDUIT UNLESS NOTED. INSTALL CONCEALED CONDUIT AND EMT IN AS DIRECT LINES AS POSSIBLE. INSTALL EXPOSED CONDUITS AND EMT PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. RIGHT ANGLE BENDS IN EXPOSED CONDUIT AND EMT RUNS SHALL BE MADE WITH STANDARD ELBOWS, SCREW JOINTED CONDUIT FITTINGS OR CONDUIT BENT TO RADIUS NO LESS THAN THOSE OF STANDARD ELBOWS.

D. CONDUIT SUPPORTS: PROVIDE SUPPORTS FOR HORIZONTAL CONDUITS AND EMT NOT MORE THAN 8 FEET APART WITH NOT LESS THAN TWO SUPPORTS FOR EACH 10 FOOT STRAIGHT LENGTH AND ONE SUPPORT NEAR EACH ELBOW OR BEND INCLUDING RUNS ABOVE SUSPENDED CEILINGS AND WITHIN 3 FEET OF ALL JUNCTION BOXES, SWITCHES, FITTINGS, ETC. INSTALL ONE HOLE PIPE STRAPS ON CONDUITS 1 INCH OR SMALLER INSTALL INDIVIDUAL PIPE HANGERS FOR CONDUITS LARGER THAN 1 INCH. SPRING STEEL FASTENERS WITH HANGER RODS MAY BE USED IN DRY LOCATIONS IN LIEU OF PIPE STRAPS.

SECTION 16120 – CONDUCTORS

A. WIRES AND CABLES (600 VOLTS): CONFORM TO THE APPLICABLE UL AND ICEA STANDARDS FOR THE USE INTENDED. USE COPPER CONDUCTORS WITH 600 VOLTS INSULATION UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. USE STRANDED CONDUCTORS FOR NO. 8 OR LARGER WHERE ELSEWHERE SPECIFIED OR NOTED OTHERWISE ON THE DRAWINGS. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED. INSULATION SHALL BE TYPE THHN/THWN, 75°C, FOR ALL CONDUCTORS, USELESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS.

B. COLOR CODING. PHASE, NEUTRAL, AND GROUND CONDUCTORS COLOR-CODED IN ACCORDANCE WITH NEC. CONNECT ALL CONDUCTORS OF THE SAME COLOR TO THE SAME PHASE CONDUCTOR, COLOR CODING SHALL BE BLACK, RED, BLUE, WHITE (120/208) OR BROWN ORANGE, YELLOW, GRAY (277/480) WITH GREEN FOR ALL GROUND CONDUCTORS.

C. CONNECTORS AND LUGS: FOR COPPER CONDUCTORS NO. 6 AND SMALLER: 3M SCOTCH-LOK OR T & B STA-KON COMPRESSION OR INDENT TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN NO. 6 SOLDERLESS, INDENT, HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPED OR INSULATED.

D. SPLICES: (480 VOLTS AND UNDER): CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES UNLESS APPROVED BY THE BUILDING INSPECTOR.

SECTION 16220 – CIRCUIT BREAKERS

A. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. AIC RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS.

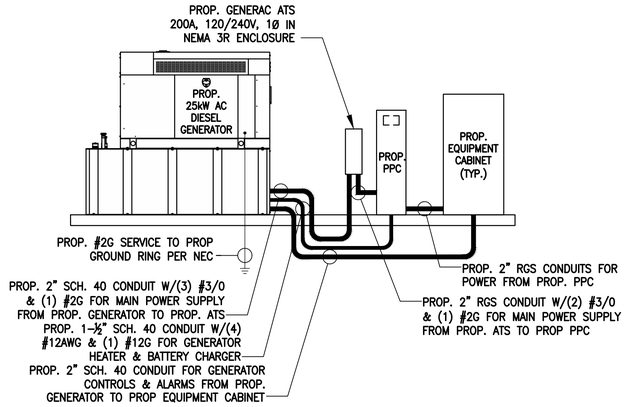
ELECTRICAL LEGEND

SYMBOLS

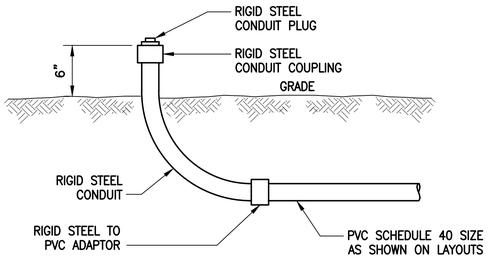
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT RUN UNDERGROUND
- CONDUIT RUN ABOVE GROUND
- (M) METER ON METER/BREAKER UNIT
- 5/8" x 10'-0" COPPER CLAD GROUND ROD
- EXOTHERMIC TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- G — G GROUND RING, #2 AWG SOLID TINNED BARE COPPER GROUND CONDUCTOR 6" BELOW FROST LINE AND 24" OFF CONCRETE PLATFORM
- XXX / XXX REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER
- XXX DETAIL NUMBER

ABBREVIATIONS

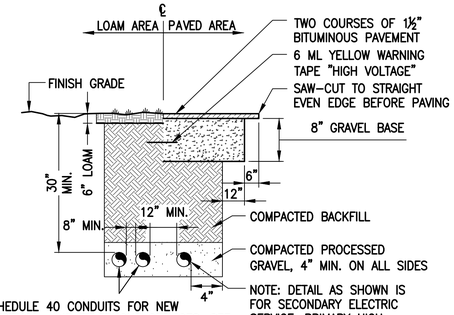
ACCA	ANTENNA CABLE COVER ASSEMBLY
AGB	COPPER ANTENNA GROUND BAR
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BTS	BASE TRANSMISSION SYSTEM
CIBGE	COAX ISOLATED GROUND BAR EXTERNAL
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GR	GROWTH
IGR	INTERIOR GROUND RING (HALO)
LAGB	LOWER ANTENNA COPPER GROUND BAR
MIGB	MASTER ISOLATED GROUND BAR
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
RGS	RIGID GALVANIZED STEEL
RWY	RACEWAY
TYP	TYPICAL
SSLP	SPRINT SPECTRUM LIMITED PARTNERSHIP
UAGB	UPPER ANTENNA COPPER GROUND BAR
EXIST.	EXISTING
PROP.	PROPOSED



GENERATOR
ONE-LINE POWER DIAGRAM
SCALE: NOT TO SCALE — 5 / E-1

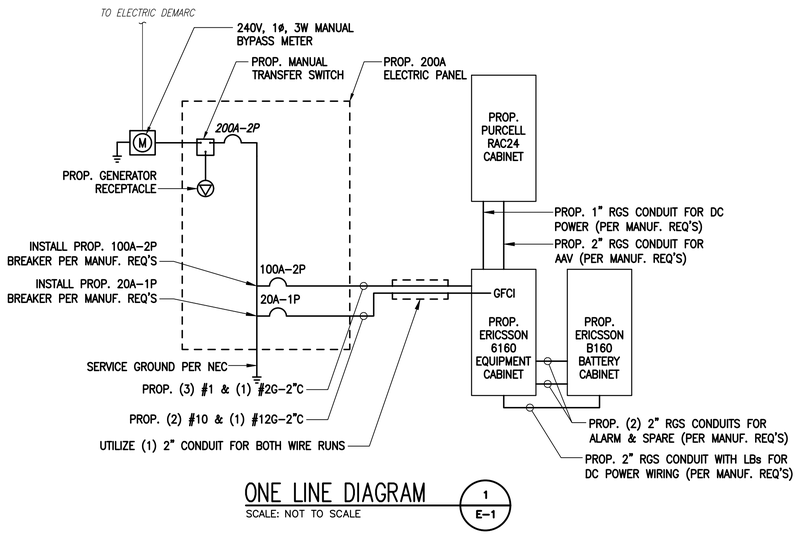


TYPICAL CONDUIT STUB-UP DETAIL
SCALE: NONE — 3 / E-1

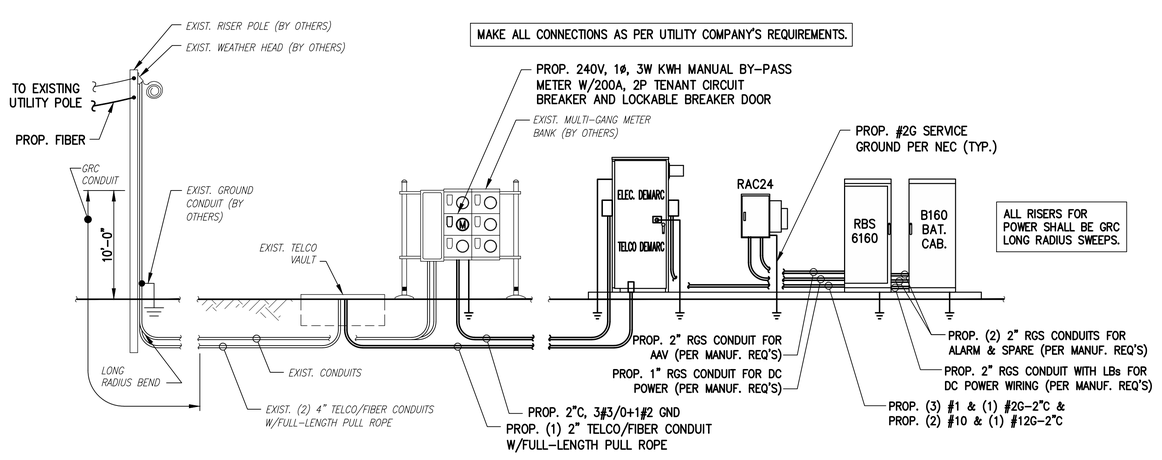


SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL AND TELEPHONE SERVICES. SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION W/ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.).

BURIED CONDUIT DETAIL
SCALE: NOT TO SCALE — 4 / E-1



ONE LINE DIAGRAM
SCALE: NOT TO SCALE — 1 / E-1



POWER/TELCO RISER DIAGRAM
SCALE: NOT TO SCALE — 2 / E-1

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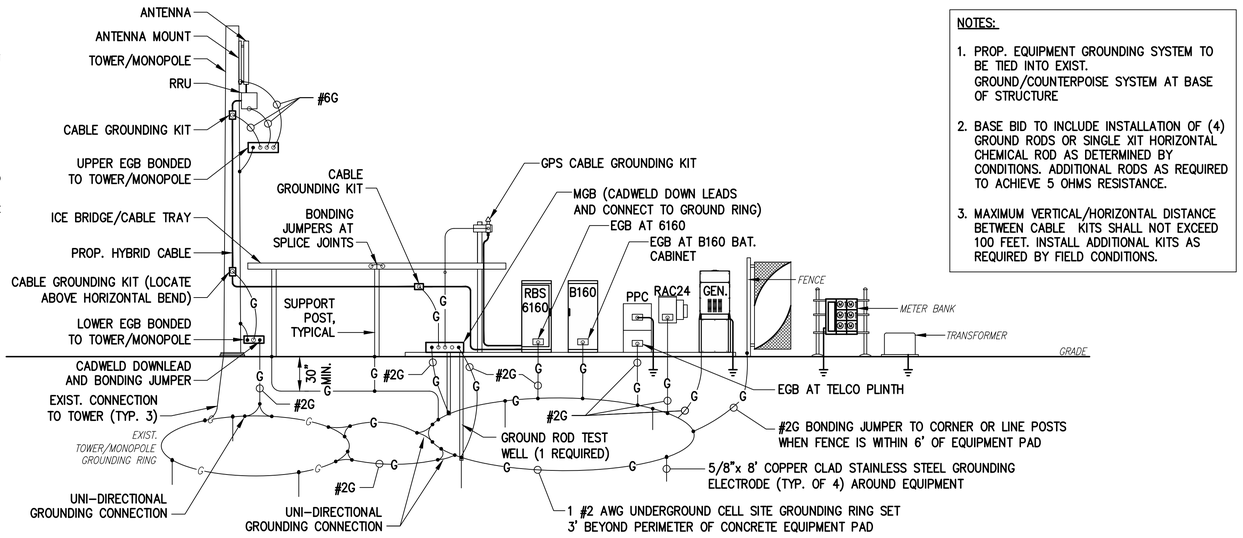
SHEET TITLE
SITE ELECTRIC & GROUNDING DETAILS
1 OF 2

SHEET NUMBER
E-1

1815.259

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250–GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON–CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE–2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI–OXIDANT (THOMAS BETTS KOPR–SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF–TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI–CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    –ANTI–THEFT UPDATE TO SPRINT GROUNDING DATED 08–24–12
    –SPRINT ENGINEERING LETTER EL–0504 DATED 04–20–12



NOTES:

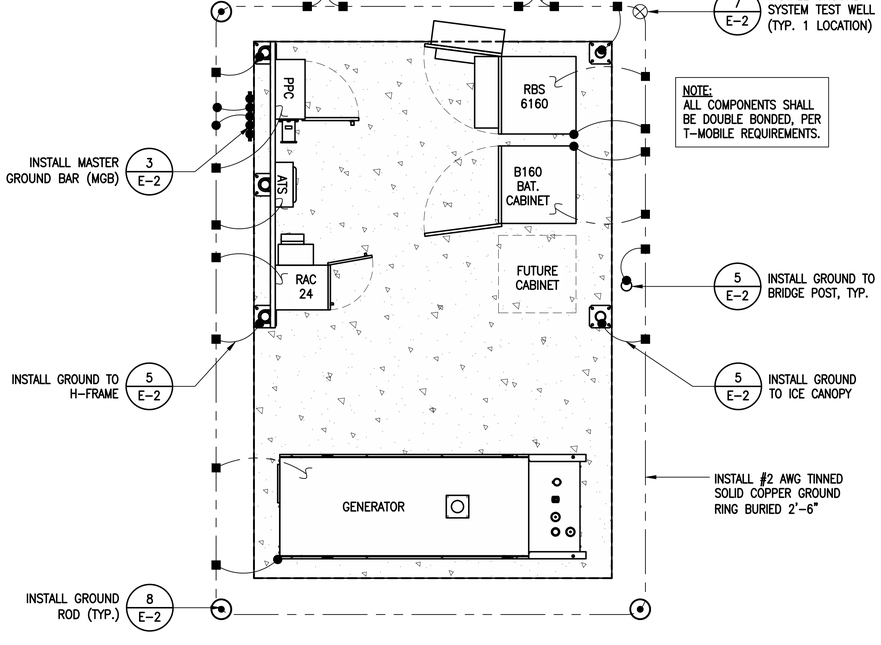
1. PROP. EQUIPMENT GROUNDING SYSTEM TO BE TIED INTO EXIST. GROUND/COUNTERPOISE SYSTEM AT BASE OF STRUCTURE
2. BASE BID TO INCLUDE INSTALLATION OF (4) GROUND RODS OR SINGLE XIT HORIZONTAL CHEMICAL ROD AS DETERMINED BY CONDITIONS. ADDITIONAL RODS AS REQUIRED TO ACHIEVE 5 OHMS RESISTANCE.
3. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.

GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE — 2 / E–2

GROUNDING LEGEND

- ■ EXOTHERMIC GROUND
- ● MECHANICAL GROUND
- ⊙ GROUND ROD
- ⊗ TEST WELL
- ---- #2 AWG GROUND

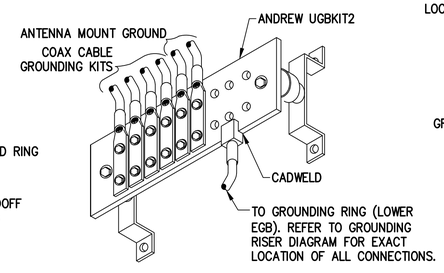


GROUNDING PLAN

SCALE: N.T.S. — 1 / E–2

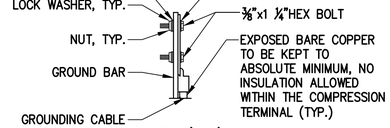
MASTER GROUND BAR (MGB)

SCALE: NOT TO SCALE — 3 / E–2



GROUND BAR (EGB)

SCALE: NOT TO SCALE — 4 / E–2

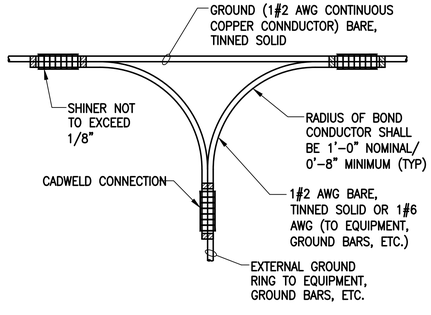


SECTION 'A–A'

NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL

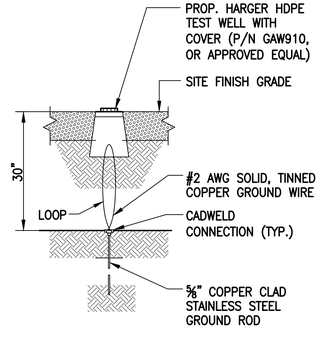
SCALE: NOT TO SCALE — 5 / E–2



NOTE: ALL CONNECTION TO GROUND SHALL BE NON–DIRECTIONAL.

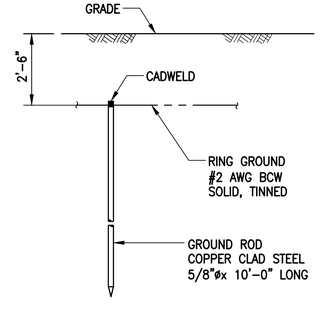
NON–DIRECTIONAL SPLICE

SCALE: NOT TO SCALE — 6 / E–2



GROUND ROD TEST WELL DETAIL

SCALE: NOT TO SCALE — 7 / E–2



GROUND ROD

SCALE: NOT TO SCALE — 8 / E–2

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STATE OF CONNECTICUT ★ JAMES M. FITZGERALD ★ No. 25987 LICENSED PROFESSIONAL CIVIL ENGINEER
8/31/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

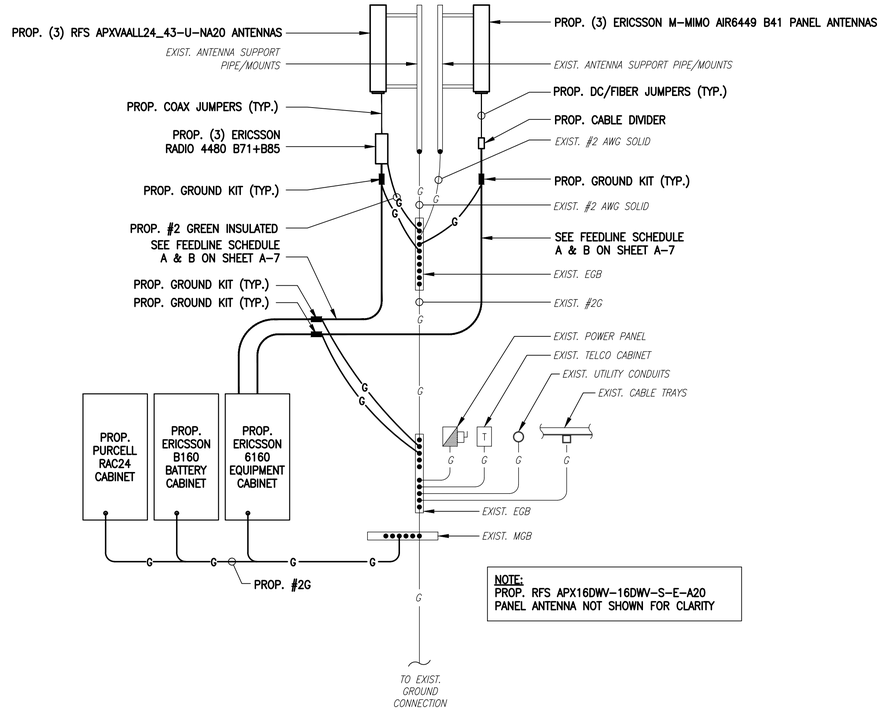
SITE NUMBER:
CTHA238A

SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
SITE ELECTRIC & GROUNDING DETAILS 2 OF 2

SHEET NUMBER
E-2

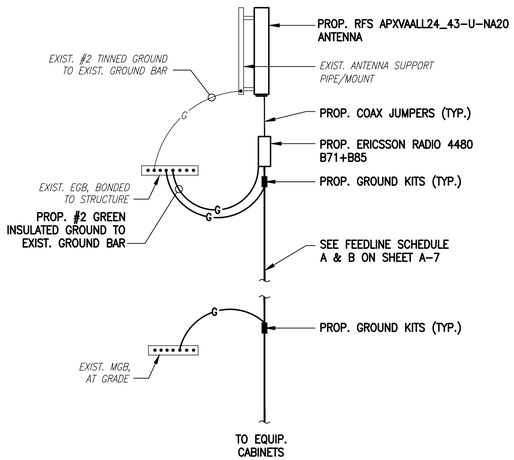
1815.259



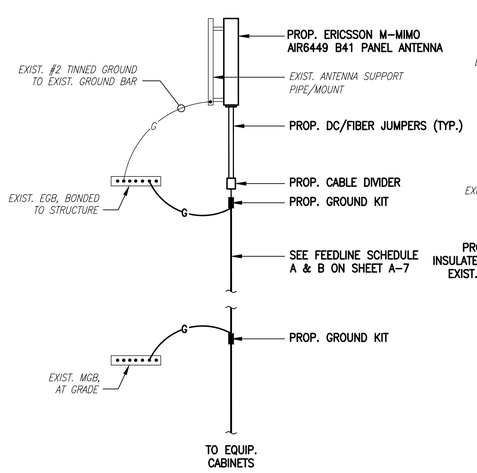
GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

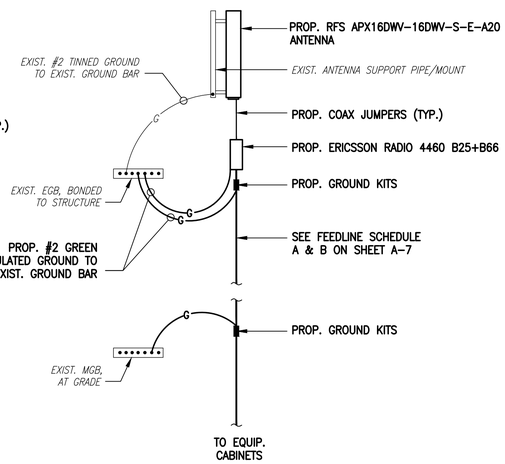
1
E-3



L700/L600/N600 ANTENNA



L2500/N2500 ANTENNA



L2100/L1900/G1900/U2100 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE

2
E-3

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN PROP. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
9/3/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/31/21	ISSUED FOR CONSTRUCTION	JRV
0	08/12/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA238A

SITE ADDRESS:
150 LOST ACRES ROAD
NORTH GRANBY, CT 06060

SHEET TITLE
ANTENNA ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-3

1815.259

EXHIBIT 11

Generac RD025 25kw

RD025 | 2.2L | 25 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Standby Power Rating

25 kW, 31.25 kVA, 60 Hz

*Built in the USA using domestic and foreign parts

Image used for illustration purposes only

Codes and Standards

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

- UL2200, UL508, UL489, UL142
- CSA 22.2
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99
- ISO 3046, 8528, 9001
- NEMA ICS1, ICS10, MG1, 250, ICS6, AB1
- ANSI/IEEE C62.41

Powering Ahead

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

RD025 | 2.2L | 25 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Standard Features

ENGINE SYSTEM

- Cold Weather Kit
- Oil Drain Extension
- Heavy Duty Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil & Coolant
- Critical Exhaust Silencer

GENERATOR SET

- Sound Attenuated Aluminum Enclosure
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Wrapped Exhaust Piping
- Standard Factory Testing
- 5 Year Limited Warranty
- Ready to Accept Full Load in <10 Seconds
- E-Stop

Electrical System

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

ALTERNATOR SYSTEM

- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Sealed Bearings
- Low Temperature Rise (>120°C)
- Low THD (<5%)

Cooling System

- Closed Coolant Recovery System
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension
- Can Operate at up to 122°F (50°C) Ambient Temperature

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter
- Stainless Steel Fuel Lines

TANKS

- 24 Hour Run Time Tank
- UL142 Listed Tank

CONTROL SYSTEM

Evolution ™ Controller

- Two-Line Plain Text LCD Display
- Programmable Start Delay Between 10-30 seconds
- 10 second Engine Start Sequence
- 5 second Engine Warm Up
- 1 minute Engine Cool-Down
- Starter Lock-Out
- Smart Battery Charger
- Automatic Voltage Regulation with Over and Under Protection
- Automatic Low Oil Pressure Shutdown
- Overspeed Shutdown
- High Temperature Shutdown
- Overcrank Protection
- Safety Fused
- Failure to Transfer Protection
- Low Battery Protection
- 50 Even Run Log
- Future Set Capable Exerciser
- Incorrect Wiring Protection
- Internal Fault Protection
- Common External Fault Capability
- Governor Failure Protection

Optional Shipped Loose and Field Install Kits

ENGINE SYSTEM

- ○ Base Plug Kit

GENERATOR SET

- ○ Paint Kit
- ○ Scheduled Maintance Kit

CONTROL SYSTEM

- ○ Mobile Link ™ and Adapter Kit

TANKS

- ○ Spill Box
- ○ 90% Fuel Alarm
- ○ Tank Risers
- ○ Spill Box Drainback Kit
- ○ Vent Extension Support Kit
- ○ 5 Day Run Time Tank

RD025 | 2.2L | 25 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Perkins
EPA Emission Compliance	Tier 4 Interim
Cylinder #	4
Type	In-Line
Displacement - in^3 (L)	2.22 (135)
Bore - in (mm)	3.3 (84.0)
Stroke - in (mm)	3.9 (100.0)
Compression Ratio	23.3:1
Intake Air Method	Turbocharged/Aftercooled
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow Cartridge
Crankcase Capacity with Filters- qt (L)	11.2 (10.6)

Cooling System

Cooling System Type	Closed Recovery
Fan Type	Pusher
Fan Speed- rpm	1,980
Fan Diameter - in (mm)	18.0 (457.2)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specification	ASTM
Fuel Pump Type	Mechanical Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Lin (mm/in)	7.94/0.31 (ID)
Fuel Return Line (mm/in)	4.76/.19 (ID)
Fuel Filtering (microns)	25

Engine Electrical System

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

ALTERNATOR SPECIFICATIONS

Standard Model	Generac
Poles	4
Field Type	Rotating
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Direct
Bearings	Single Sealed
Coupling	Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	2
Regulation Accuracy (Steady State)	±1%

RD025 | 2.2L | 25 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC® | INDUSTRIAL POWER

OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/480 VAC @0.1pf	25 kW	Amps: 104
Three-Phase 120/208 VAC @0.8pf	25 kW	Amps: 87
Three-Phase 120/240 VAC @0.8pf	25 kW	Amps: 75
Three-Phase 277/480 VAC @0.8pf	25 kW	Amps: 37

MOTOR STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip at 30%

120/240 V, Single-Phase at 0.4pf	168
120/208 V, Three-Phase at 0.4pf	144
120/240 V, Three-Phase at 0.4pf	125
120/240 V, Three-Phase at 0.4pf	64

FUEL CONSUMPTION RATES*

Percent Load	Diesel gal/hr (L/hr)
25%	0.97 (3.67)
50%	1.37 (5.19)
75%	1.97 (7.46)
100%	2.77 (10.49)

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

COOLING

		Standby
Air Flow (Radiator and Alternator)	ft^3/min (m^3/min)	2800 (79)
Coolant System Capacity	gal (L)	2.5 (9.5)
Heat Rejection to Coolant	BTU/hr (MJ/hr)	128,638 (135.7)
Max. Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199270SSD	
Maximum Radiator Backpressure	in H_2O (kPa)	0.50 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power ft^3/min (m^3/min)	88 (2.5)

ENGINE

		Standby
Rated Engine Speed	rpm	1,800

EXHAUST

		Standby
Exhaust Flow (Rated Output)	ft^3/min (m^3/min)	296.6 (8.4)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	930 (499)

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

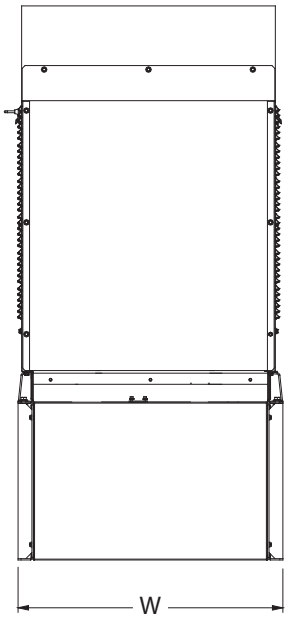
RD025 | 2.2L | 25kW

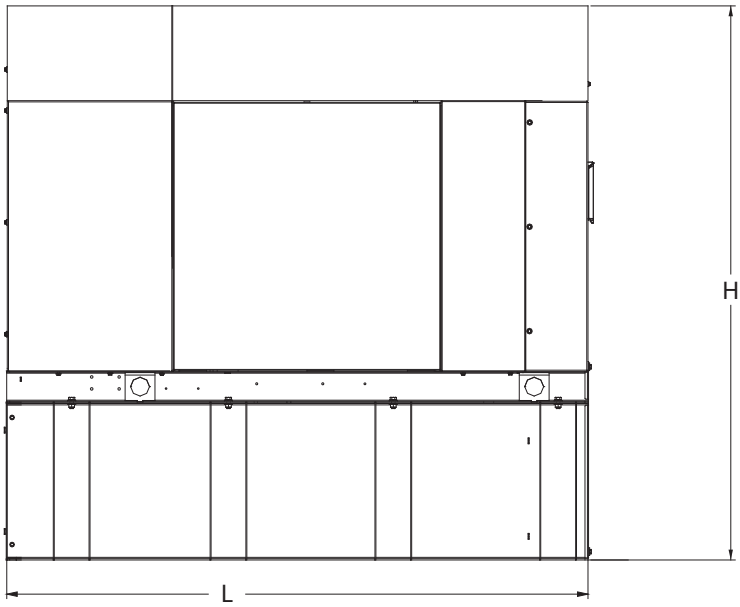
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC® | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*





Weights and Dimensions

Unit Weight - lbs	Unit Weight with Skid - lbs	Dimensions (L x W x H) in
2,811	2,849	84.2 x 35.0 x 91.7

with fuel tank
103.4" 35" x 91.7"

25kW Fuel Consumption	
Fuel Tank Gross Total Capacity	240
Fuel Tank Gross Usable Capacity	229
Fuel Tank Net Usable Capacity (Run Hours Based on Net Usable Capacity)	206
Run Hours 100% Load	98
Run Hours 75% Load	125
Run Hours 50% Load	161

Sound Emission Data	
Rated Load Sound Output at 23ft - dB(A)	65

* All measurements are approximate and for estimation purposes only.
Drawing is for illustration purposes only, not to scale.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

SPEC SHEET

5 OF 5

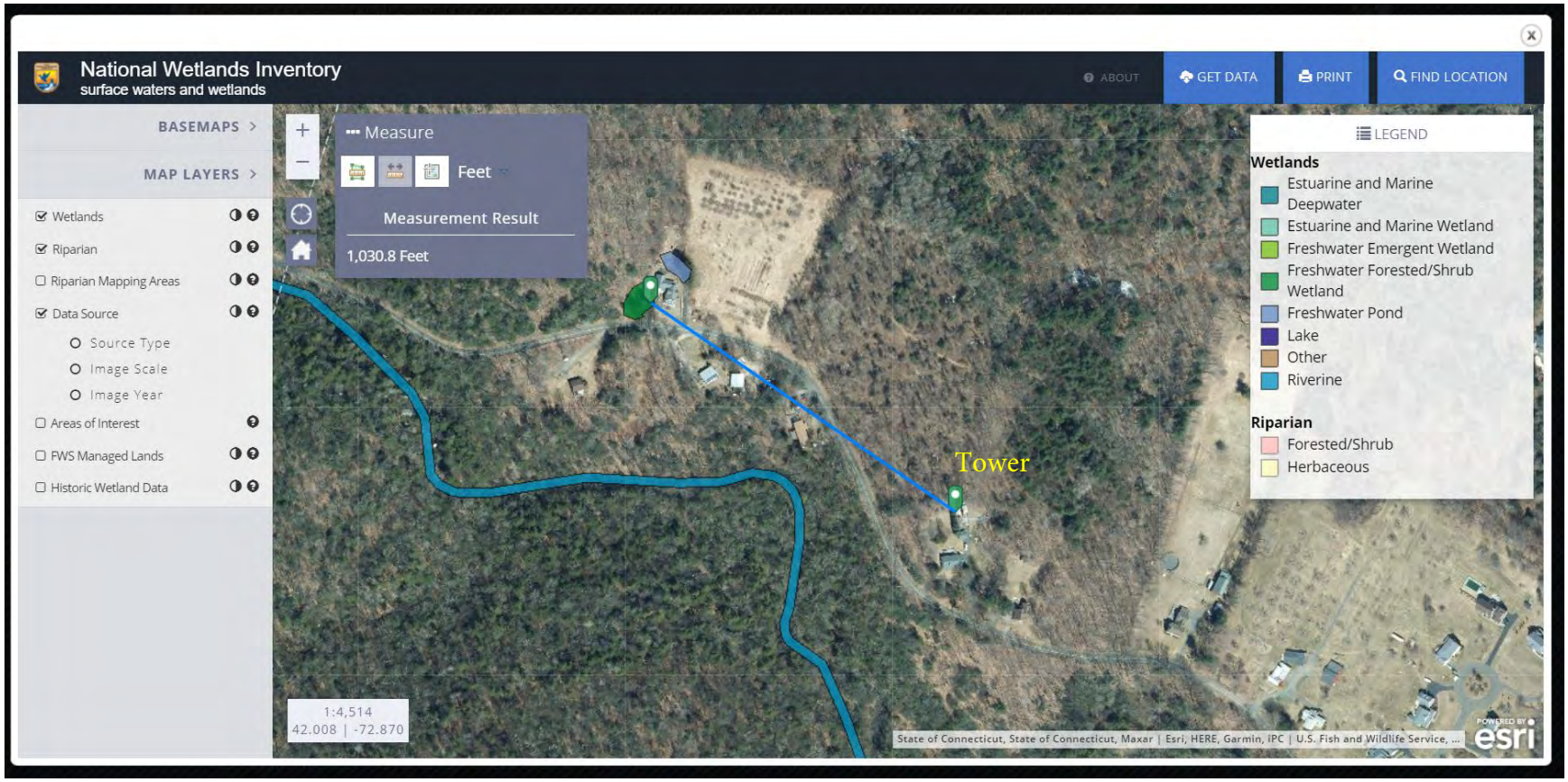
Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No 10000041046
Rev. 1 07/16/18

EXHIBIT 12

Wetlands Map


National Wetlands Inventory
surface waters and wetlands
ABOUT
GET DATA
PRINT
FIND LOCATION
BASEMAPS
MAP LAYERS
Wetlands
Riparian
Riparian Mapping Areas
Data Source
Source Type
Image Scale
Image Year
Areas of Interest
FWS Managed Lands
Historic Wetland Data
Measure
Feet
Measurement Result
1,030.8 Feet
Tower
LEGEND
Wetlands
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine
Riparian
Forested/Shrub
Herbaceous
1:4,514
42.008 | -72.870
State of Connecticut, State of Connecticut, Maxar | Esri, HERE, Garmin, iPC | U.S. Fish and Wildlife Service, ...
esri