



Northeast Site Solutions  
Victoria Masse  
420 Main Street #2, Sturbridge, MA 01566  
860-306-2326  
victoria@northeastsitesolutions.com

December 14, 2020

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Notice of Exempt Modification  
21 Birchwood Drive, Ansonia CT 06401  
Latitude: 41.329100  
Longitude: -73.056300  
T-Mobile Site#: CTNH520A\_Anchor\_L600\_L1900

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 52-foot level of the existing 60-foot self-support tower at 21 Birchwood Drive, Ansonia CT. The 60-foot tower and property are both owned by Bob Knapp – Radio Communications Corp. T-Mobile now intends to replace six (6) of its existing antennas with three (3) new 2500 MHz 5G antenna and two (3) new 1900/2100 MHz antenna, and add three (3) new 600/700/1900/2100 MHz 5G antenna. Some of the antenna being installed are 5G technology. The new antennas would be installed at the 52-foot level of the tower. Please note the attached structural and mount analysis are combined in one document.

**Planned Modifications:**

Remove:

- (6) TMA
- (18) Coax

Remove and Replace:

- (3)LNX6515 Antenna (REMOVE) - (3) AIR6449 B41 Antenna 2500 MHz 5G Antenna (REPLACE)
- (3)APX16DWV Antenna (REMOVE) – (3) AIR32 - 1900/2100 MHz Antenna (REPLACE)

Install New:

- (3) APXVAALL18- 600/700/1900/2100 MHz 5G Antenna
- (3) RRU 4415 B25
- (3) RRU 4449 B12
- (3) Hybrid Lines
- SFSV Antenna Mount Stabilizer Kit

Existing to Remain: NONE



This facility was approved by the CT Siting Council –on August 28, 2009- TS-POCKET-002-090727. Please see attached approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Mayor David S. Cassetti, and David Blackwell, Sr, Zoning Enforcement Officer for the Town of Ansonia, as well as the property owner and the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,  
Victoria Masse  
Mobile: 860-306-2326  
Fax: 413-521-0558  
Office: 420 Main Street, Unit 2, Sturbridge MA 01566  
Email: [victoria@northeastsitesolutions.com](mailto:victoria@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

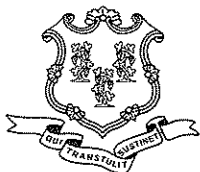
Attachments

cc: Mayor David S. Cassetti

David Blackwell Sr. – Zoning Enforcement Officer

Bob Knapp – Radio Communications Corp. - as property and tower owner

# Exhibit A



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051  
Phone: (860) 827-2935 Fax: (860) 827-2950  
E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)  
[www.ct.gov/csc](http://www.ct.gov/csc)

August 28, 2009

Carrie L. Larson, Esq.  
Pullman & Comley, LLC  
90 State House Square  
Hartford, CT 06103

RE: **TS-POCKET-002-090727** - Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications request for an order to approve tower sharing at an existing telecommunications facility located at 21 Birchwood Drive, Ansonia, Connecticut.

Dear Attorney Larson:

At a public meeting held August 27, 2009, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- The applicant shall take steps to mitigate the generator noise and ensure compliance of applicable noise standards while the temporary generator is in place until permanent utility connections are installed;
- An updated structural analysis taking into account the temporary microwave dish shall be submitted to the Council prior to the installation of such dish on the tower;
- The reinforcements specified on page 10 of the structural analysis report dated January 16, 2009 and sealed by Michael L. Bohlinger, P.E. shall be performed prior to the antenna installation;
- The tower and foundation shall not exceed 100 percent of their respective post-construction structural ratings; and
- A signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the reinforcements have been properly completed and the tower and foundation do not exceed 100 percent of their respective post-construction structural ratings.

This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

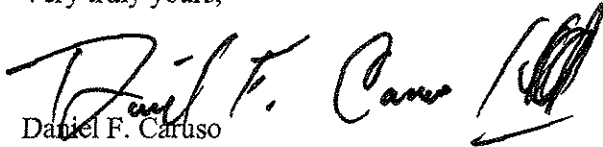


This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated July 24, 2009, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

  
Daniel F. Caruso  
Chairman

DFC/MP/jbw

c: The Honorable James T. DellaVolpe, Mayor, City of Ansonia  
Peter Crabtree, Zoning Enforcement Officer, City of Ansonia  
Radio Communication Corp.

# Exhibit B



Property Information

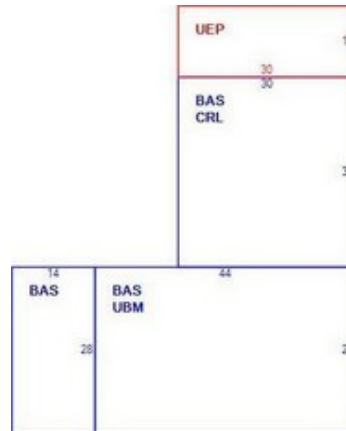
Property Location	21 BIRCHWOOD DR
Owner	KNAPP ROBERT C
Co-Owner	na
Mailing Address	21 BIRCHWOOD DR ANSONIA CT 06401
Land Use	101 Single Fam
Land Class	R
Zoning Code	A
Census Tract	1251

Neighborhood	1-00
Acreage	0.78
Utilities	Public Water,Public Sewer
Lot Setting/Desc	UNKNOWN Level
Book / Page	0502/1024
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1957
Building Desc.	Single Fam
Building Style	Ranch
Building Grade	Average
Stories	1
Occupancy	1.00
Exterior Walls	Wood Shingle
Exterior Walls 2	NA
Roof Style	Gable
Roof Cover	Asphalt Shingl
Interior Walls	Drywall/Sheetr
Interior Walls 2	NA
Interior Floors 1	Hardwood
Interior Floors 2	NA

Heating Fuel	Oil
Heating Type	Hot Water
AC Type	None
Bedrooms	04
Full Bathrooms	3
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	7
Bath Style	Average
Kitchen Style	Average
Whirlpool Tub	0
Jet Tub	0
Bsmnt Gar	1
Fireplaces	2

(\*Industrial / Commercial Details)

Building Use	Residential
Building Condition	A
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA





# City of Ansonia, CT

Property Listing Report

Map Block Lot

**07600250000**

Building # 1

PID

**2773**

Account

**26700**

## Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	176100	123300
Extras	8200	5700
Improvements		
Outbuildings	24600	17300
Land	159600	111700
<b>Total</b>	<b>368500</b>	<b>258000</b>

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	2584	2584
Crawl space	960	0
Basement	1232	0
Porch, Enclosed, Unfinished	360	0
<b>Total Area</b>	<b>5136</b>	<b>2584</b>

## Outbuilding and Extra Features

Type	Description
Pool Inground	612 S.F.
Patio	320 S.F.
Cell Tower	1 UNITS
Fin Bsmt	500 S.F.

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
KNAPP ROBERT C	0502/1024	2011-12-23	0
KNAPP BEVERLY S	0272/0449	1993-12-20	0



# Exhibit C

# ..T..Mobile..

NORTHEAST, LLC.

PROJECT: ANCHOR-L600-L1900

SITE I.D. NUMBER:

CTNH520A

SITE NAME:

KNAPP ANSONIA LATTICE TOWER

SITE ADDRESS:

21 BIRCHWOOD DR  
ANSONIA, CT 06401

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Mountainville, NY 10953 www.tectonicengineering.com  
Project Contact Info  
1279 Route 300  
Newburgh, NY 12550 Phone: (845) 567-6656

..T..Mobile..  
NORTHEAST, LLC.

35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002



APPROVALS

LANDLORD \_\_\_\_\_  
RF \_\_\_\_\_  
CONSTRUCTION \_\_\_\_\_  
OPERATIONS \_\_\_\_\_  
SITE ACQ. \_\_\_\_\_

PROJECT NUMBER	DESIGNED BY
10473.CTNH520A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BWY

ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_



SITE INFORMATION

KNAPP ANSONIA LATTICE TOWER  
CTNH520A  
21 BIRCHWOOD DRIVE  
ANSONIA, CT 06401

SHEET TITLE

TITLE SHEET

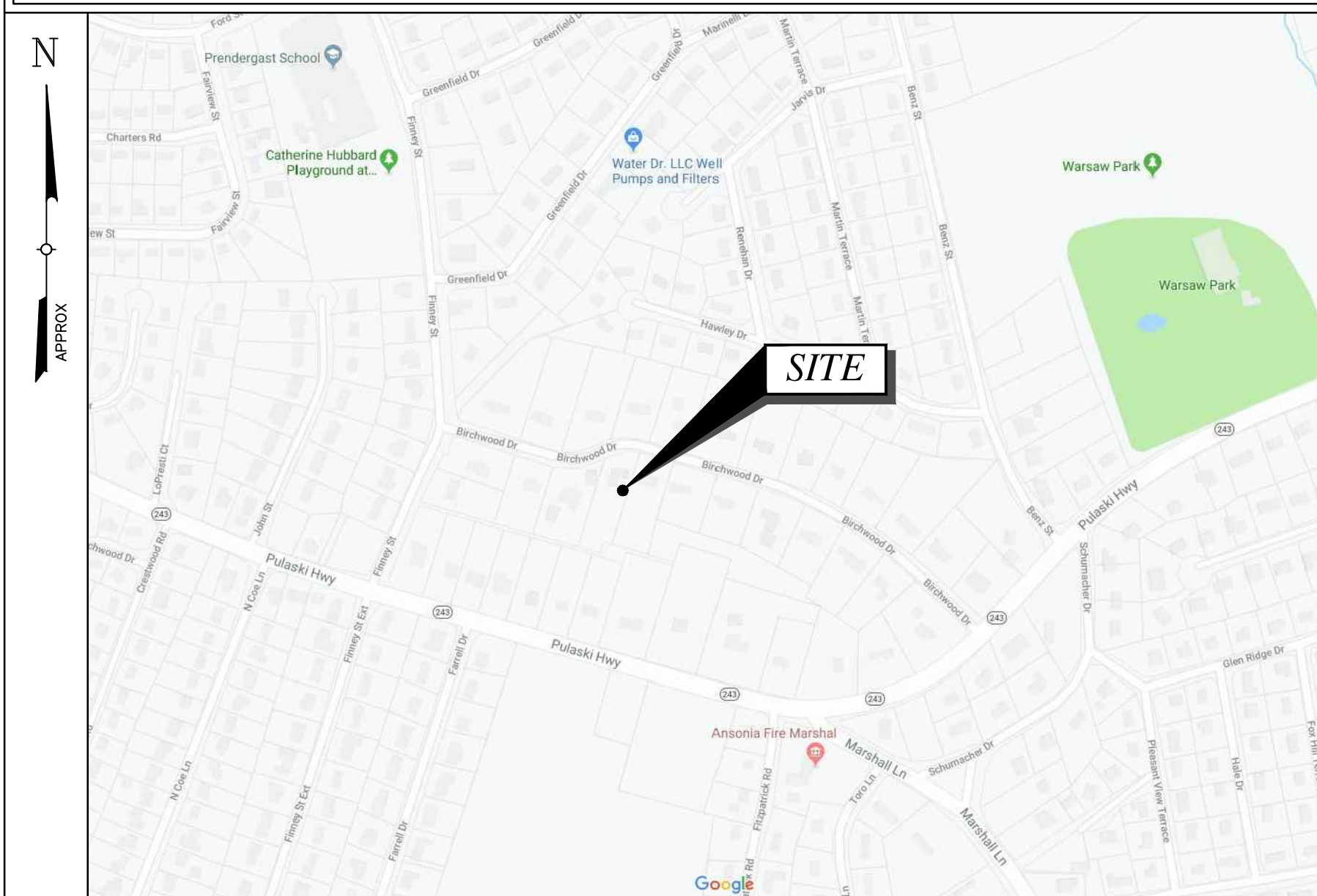
SHEET NUMBER

T-1

PROJECT INDEX

SITE NUMBER: CTNH520A	PROJECT CLIENT: NORTHEAST SITE SOLUTIONS, LLC SHELDON FREINCLE (201) 776-8521
SITE NAME: KNAPP ANSONIA LATTICE TOWER	CONTACT: (201) 776-8521
SITE ADDRESS: 21 BIRCHWOOD DR ANSONIA, CT 06401	ENGINEER/STRUCTURAL ENG: TECTONIC ENGINEERING & SURVEYING CONSULTANTS, PC. EDWARD IAMICELI (845) 567-6656x2811
PROPERTY OWNER: ROBERT C. KNAPP 21 BIRCHWOOD DRIVE ANSONIA, CT 06401	CONTACT: (845) 567-6656x2811
APPLICANT: T-MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002	
STRUCTURE TYPE: GUYED TOWER	
LATTITUDE (NAD83): N 41.329100"	
LONGITUDE (NAD83): W 73.056300"	
GRADE ELEVATION: 452' AMSL (PER GOOGLE EARTH)	
MUNICIPALITY: ANSONIA	
ZONING: A	
PARCEL ID: 07600250000	

VICINITY MAP (NTS)



SHEET INDEX

SHEET NO	DESCRIPTION	REVISION	DATE
T-1	TITLE SHEET	0	12/10/20
A-1	SITE PLAN	0	12/10/20
A-2	TOWER ELEVATION	0	12/10/20
A-3	EXISTING & PROPOSED EQUIPMENT PLANS	0	12/10/20
A-4	DEMO & NEW T-MOBILE ANTENNA PLANS & ANTENNA SCHEMATIC	0	12/10/20
A-5	DETAILS, SPECIFICATIONS & ANTENNA SCHEMATIC	0	12/10/20
A-6	NOTES	0	12/10/20
E-1	ELECTRICAL NOTES & ONE-LINE DIAGRAM	0	12/10/20
G-1	GROUNDING DETAILS & NOTES	0	12/10/20

CODE COMPLIANCE

- CODE INFORMATION
- STATE OF CONNECTICUT BUILDING CODE, LATEST EDITION
  - ANSI/TIA-222-G
  - NATIONAL ELECTRIC CODE, LATEST EDITION

DESIGN NOTE

DESIGN BASED ON RFDS DATED 10/06/2020, VERSION 4.  
RAN TEMPLATE: 67D5A997DB OUTDOOR  
A&L TEMPLATE: 67D5997DB\_2xAIR+10P (U21 MARKET)

STRUCTURAL NOTE

ANTENNA FRAME  
REFER TO THE "STRUCTURAL ANALYSIS REPORT" BY KM CONSULTING ENGINEERING, INC. DATED OCTOBER 20, 2020 & THE MOD CONSTRUCTION DRAWINGS BY KM CONSULTING ENGINEERING, INC. DATED OCTOBER 23, 2020.



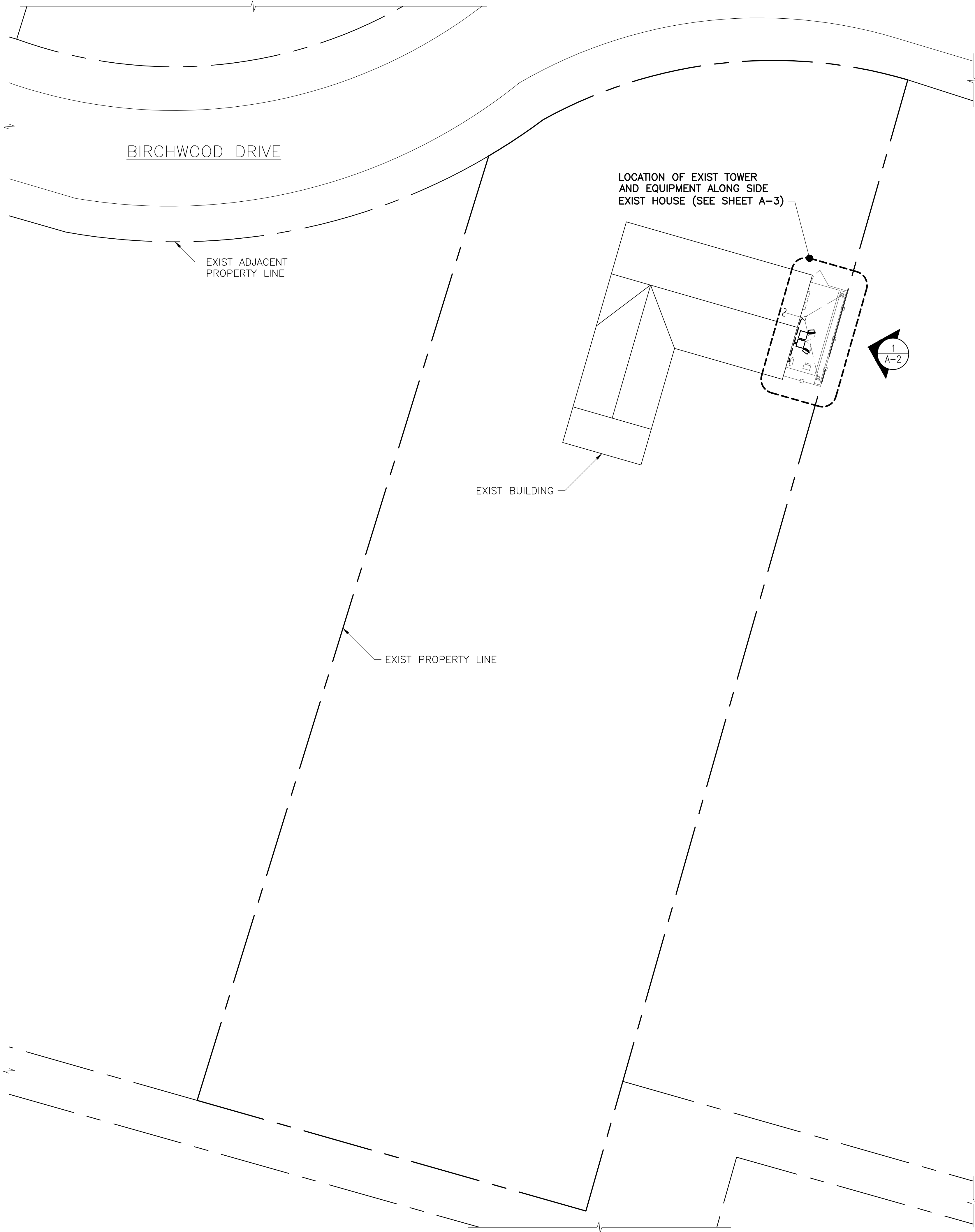
Know what's below.  
Call before you dig.

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1 SITE PLAN  
A-1 SCALE: 3/32" = 1'-0"

**STRUCTURAL NOTE**  
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**Mobile**  
 NORTHEAST, LLC.  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002



**APPROVALS**  
 LANDLORD \_\_\_\_\_  
 RF \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 OPERATIONS \_\_\_\_\_  
 SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A  
 DESIGNED BY EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BWY

ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_

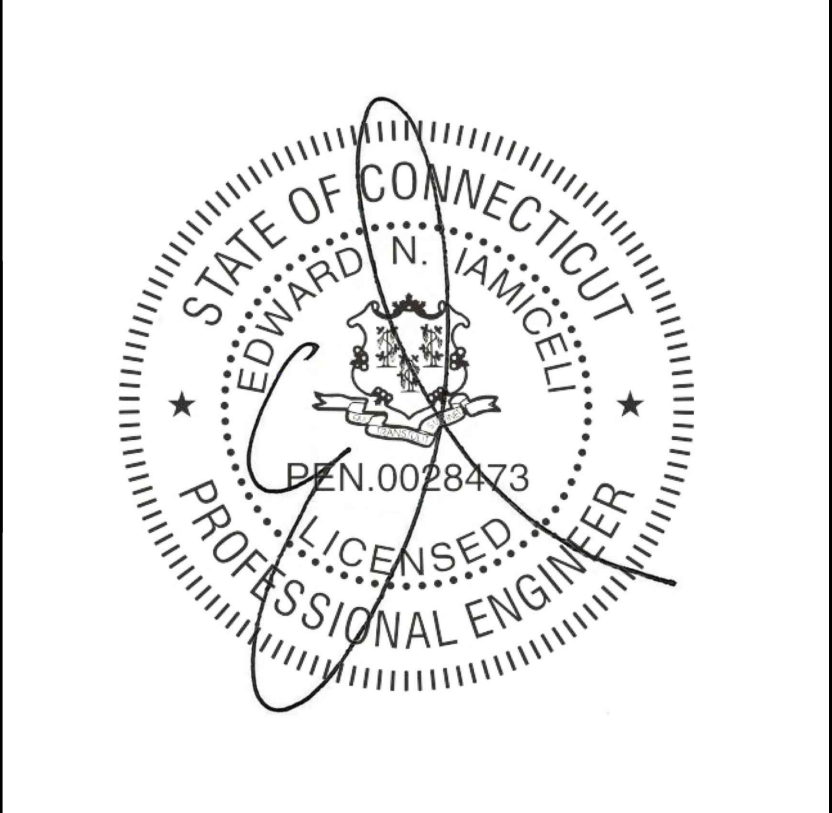


**SITE INFORMATION**  
 KNAPP ANSONIA LATTICE TOWER  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

**SHEET TITLE**  
 SITE PLAN

**SHEET NUMBER**  
 A-1

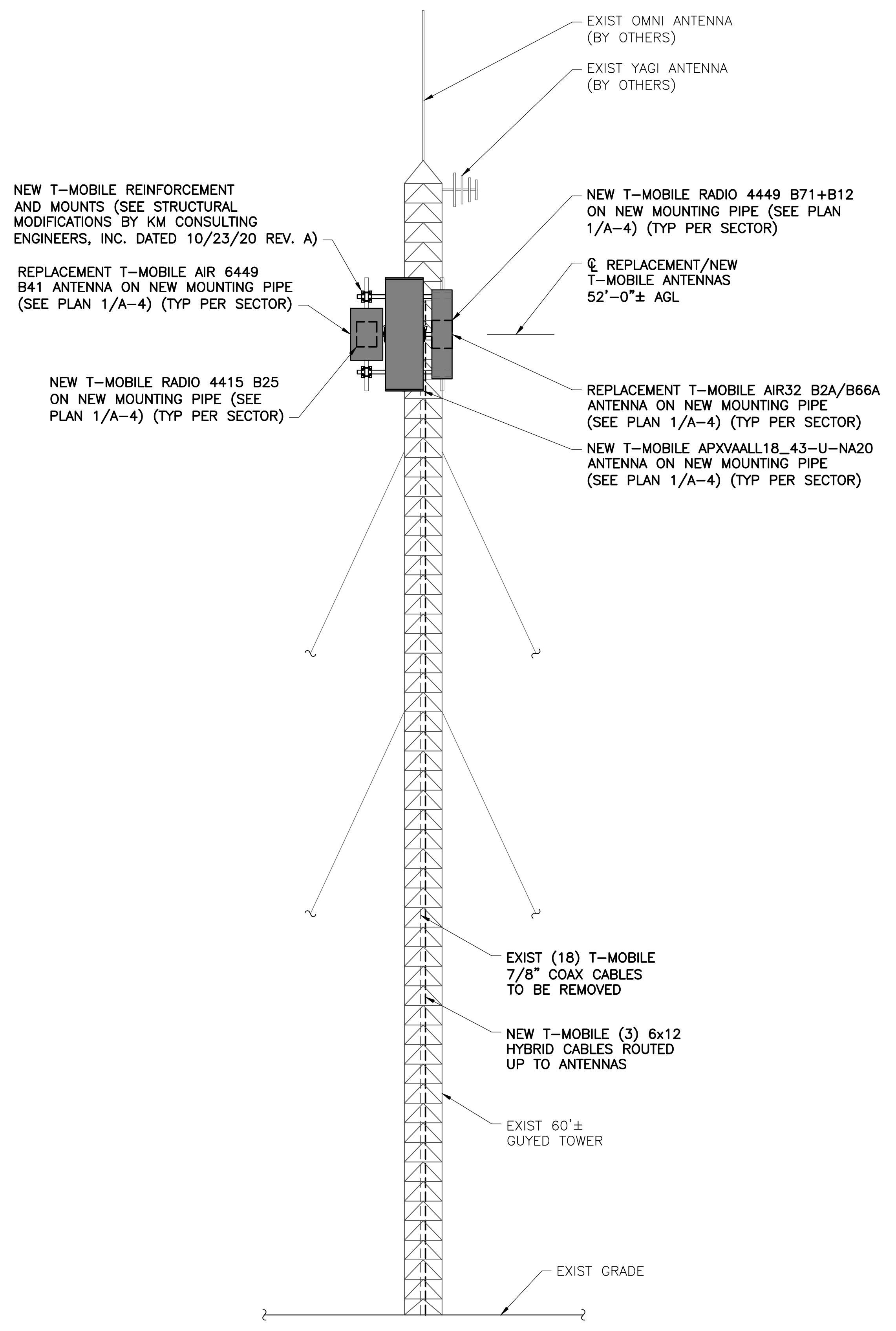
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NOTE: NOT ALL SITE FEATURES SHOWN FOR CLARITY.

**TOWER ELEVATION**

1  
A-2

SCALE: 3/16" = 1'-0"

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P.O. Box 37 (800) 529-6531  
Mountainville, NY 10953 www.tectonicengineering.com

Project Contact Info  
1279 Route 300  
Newburgh, NY 12550 Phone: (845) 567-6656

**Mobile**

NORTHEAST, LLC.

35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

**NSS** NORTHEAST  
SITE SOLUTIONS  
Turnkey Wireless Development

**APPROVALS**

LANDLORD \_\_\_\_\_

RF \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

OPERATIONS \_\_\_\_\_

SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A

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ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_



**SITE INFORMATION**

KNAPP ANSONIA LATTICE TOWER  
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ANSONIA, CT 06401

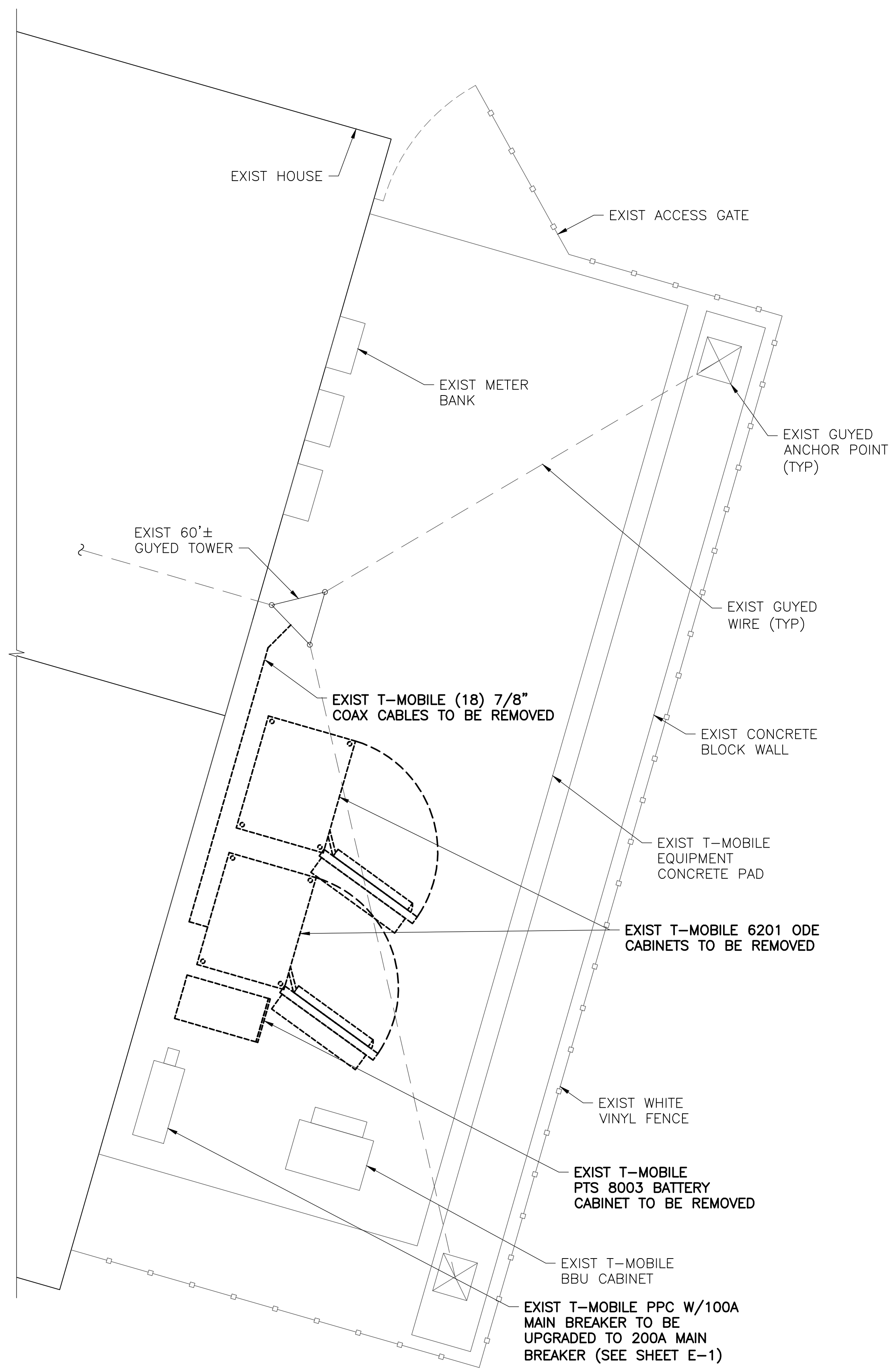
**SHEET TITLE**

TOWER ELEVATION

**SHEET NUMBER**

A-2





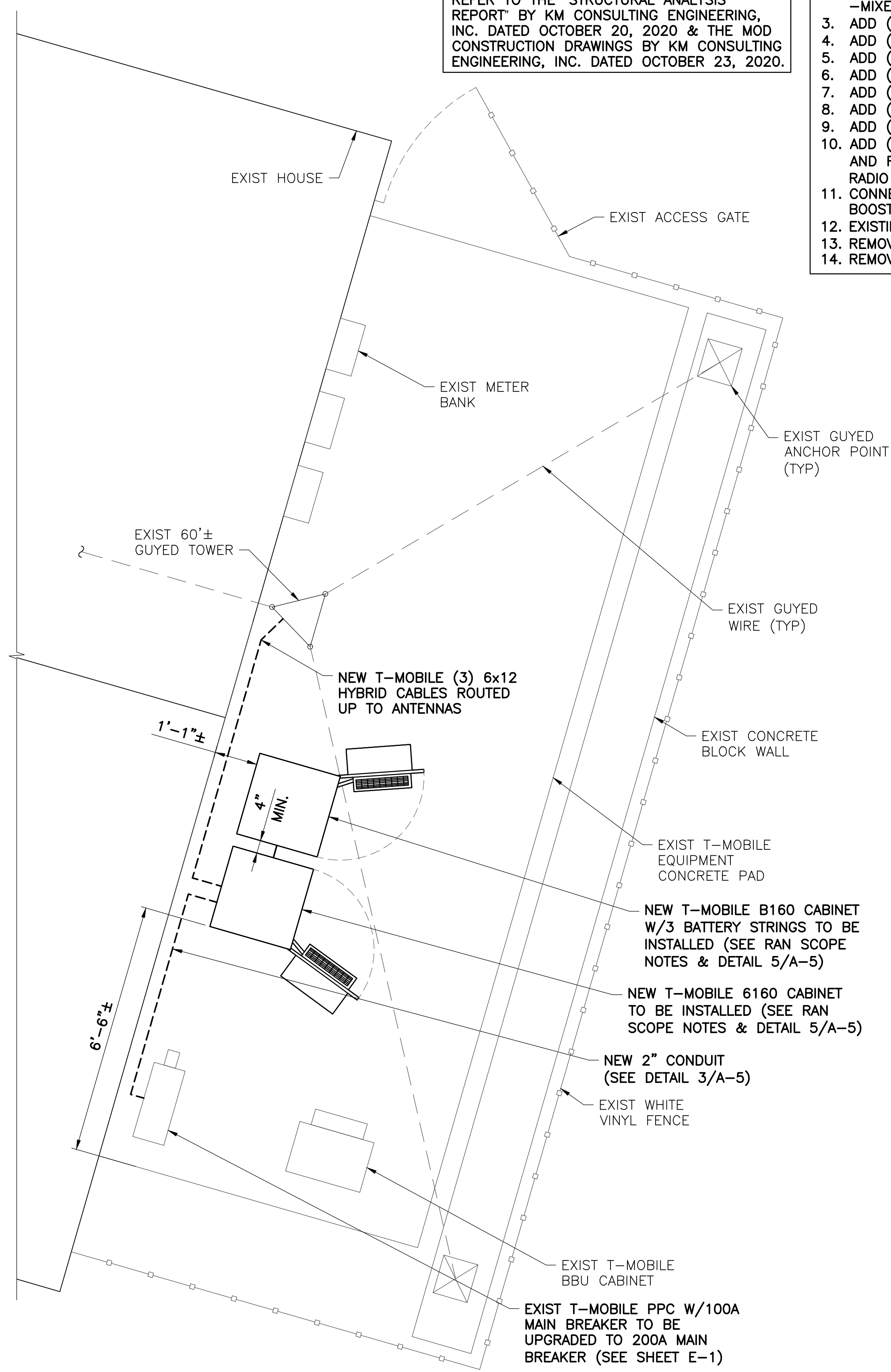
1  
A-3  
EXIST/DEMO T-MOBILE EQUIPMENT PLAN  
SCALE: 1/2" = 1'-0"

**STRUCTURAL NOTE**

**ANTENNA FRAME**

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- RAN SCOPE NOTES**
1. UPGRADE AC SERVICE AND BREAKERS.
  2. ADD (1) BB6630 FOR L600, L700, AND N600 (MMBB -MIXED MODE BASEBAND) TO NEW CABINET 6160.
  3. ADD (1) ENCLOSURE 6160.
  4. ADD (1) BATTERY CABINET B160.
  5. ADD (1) IXRE ROUTER TO NEW ENCLOSURE 6160.
  6. ADD (1) BB6630 FOR L2100 AND DUW30 TO NEW 6160.
  7. ADD (1) BB6630 FOR L2500 TO NEW ENCLOSURE 6160.
  8. ADD (1) BB6648 FOR N2500 TO NEW ENCLOSURE 6160.
  9. ADD (1) PSU 4813 TO NEW ENCLOSURE 6160.
  10. ADD (6) 6x12 HCS. (1) FOR AIR32 DUAL BAND; RADIO 4449 AND RADIO 4415 (FIBER PAIRS); (1) FOR THE AIR6449 AND RADIO 4415 (DC).
  11. CONNECT DC FOR THE AIR6449 TO THE PSU4813 VOLTAGE BOOSTER.
  12. EXISTING (18) 7/8" COAX CABLES.
  13. REMOVE (18) 7/8" COAX CABLES.
  14. REMOVE BOTH RBS 6201 ODE CABINETS.

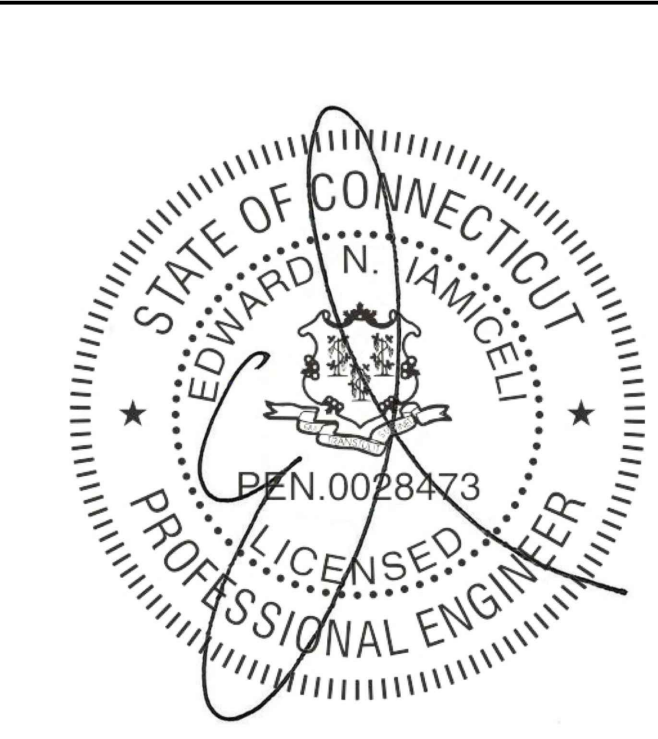


2  
A-3  
NEW T-MOBILE EQUIPMENT PLAN  
SCALE: 1/2" = 1'-0"

NOTES: ALL EQUIPMENT TO BE GROUNDED TO EXISTING GROUND RING.

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LANDLORD \_\_\_\_\_

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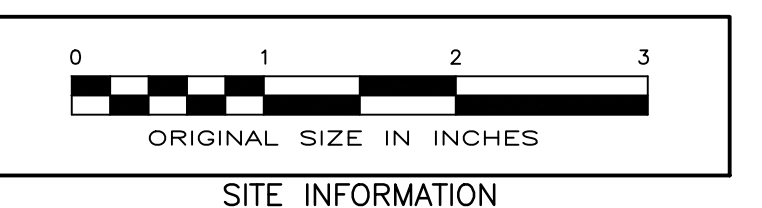
OPERATIONS \_\_\_\_\_

SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A DESIGNED BY EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BWY

ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_



**SITE INFORMATION**

KNAPP ANSONIA LATTICE TOWER  
CTNH520A  
21 BIRCHWOOD DRIVE  
ANSONIA, CT 06401

**SHEET TITLE**

EXISTING AND PROPOSED EQUIPMENT PLANS

**SHEET NUMBER**

A-3





**STRUCTURAL NOTE**

**ANTENNA FRAME**

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## ANTENNA CABLE SCHEDULE

SECTOR MARK	ANTENNA MODEL	AZIMUTH	ELEC. DOWNTILT	MECH. DOWNTILT	ANTENNA CENTERLINE	SECTOR	STATUS	TMA/RRU	CABLE	JUMPER TYPE	CABLE LENGTH
A-1 LTE	ERICSSON AIR32 B2A/B4P	30°	0°	0°	52'-0"±	LEFT ALPHA	REPLACEMENT	0/0	(1) NEW 6x12 HYBRID CABLE	FIBER	120'-0"
A-2 LTE/UMTS	RFS APXVAALL18-43-U-NA20	30°	0°	0°	52'-0"±	CENTER ALPHA	NEW	0/2	SHARED 6x12 HYBRID CABLE	1/2 COAX	120'-0"
A-3 LTE	ERICSSON AIR6449 B41	30°	0°	0°	52'-0"±	RIGHT ALPHA	REPLACEMENT	0/0	SHARED 6x12 HYBRID CABLE	FIBER	120'-0"
B-1 LTE	ERICSSON AIR32 B2A/B4P	150°	0°	0°	52'-0"±	LEFT BETA	REPLACEMENT	0/0	(1) NEW 6x12 HYBRID CABLE	FIBER	120'-0"
B-2 LTE/UMTS	RFS APXVAALL18-43-U-NA20	150°	0°	0°	52'-0"±	CENTER BETA	NEW	0/2	SHARED 6x12 HYBRID CABLE	1/2 COAX	120'-0"
B-3 LTE	ERICSSON AIR6449 B41	150°	0°	0°	52'-0"±	RIGHT BETA	REPLACEMENT	0/0	SHARED 6x12 HYBRID CABLE	FIBER	120'-0"
C-1 LTE	ERICSSON AIR32 B2A/B4P	270°	0°	0°	52'-0"±	LEFT GAMMA	REPLACEMENT	0/0	(1) NEW 6x12 HYBRID CABLE	FIBER	120'-0"
C-2 LTE/UMTS	RFS APXVAALL18-43-U-NA20	270°	0°	0°	52'-0"±	CENTER GAMMA	NEW	0/2	SHARED 6x12 HYBRID CABLE	1/2 COAX	120'-0"
C-3 LTE	ERICSSON AIR6449 B41	270°	0°	0°	52'-0"±	RIGHT GAMMA	REPLACEMENT	0/0	SHARED 6x12 HYBRID CABLE	FIBER	120'-0"

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 P.O. Box 37 (905) 529-6531  
 Mountainville, NY 10953 www.tectonicengineering.com  
 Project Contact Info  
 1279 Route 300  
 Newburgh, NY 12550 Phone: (845) 567-6656

**T-Mobile**  
 NORTEAST, LLC.  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002

**NSS** NORTEAST  
 SITE SOLUTIONS  
 Turnkey Wireless Development

**APPROVALS**

LANDLORD \_\_\_\_\_  
 RF \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 OPERATIONS \_\_\_\_\_  
 SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A DESIGNED BY EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BWY

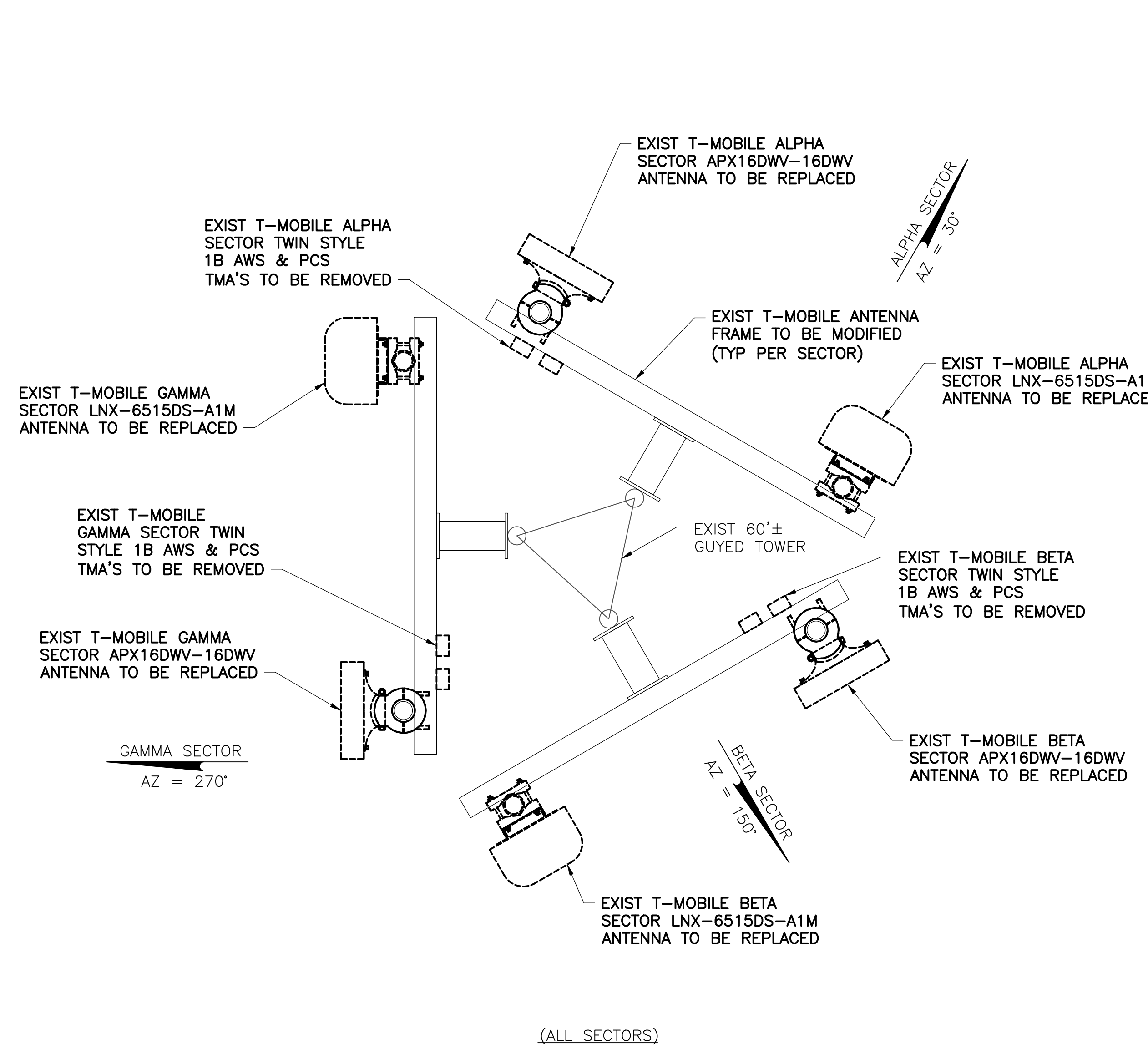
ISSUED BY	DATE

0 1 2 3  
 ORIGINAL SIZE IN INCHES  
**SITE INFORMATION**

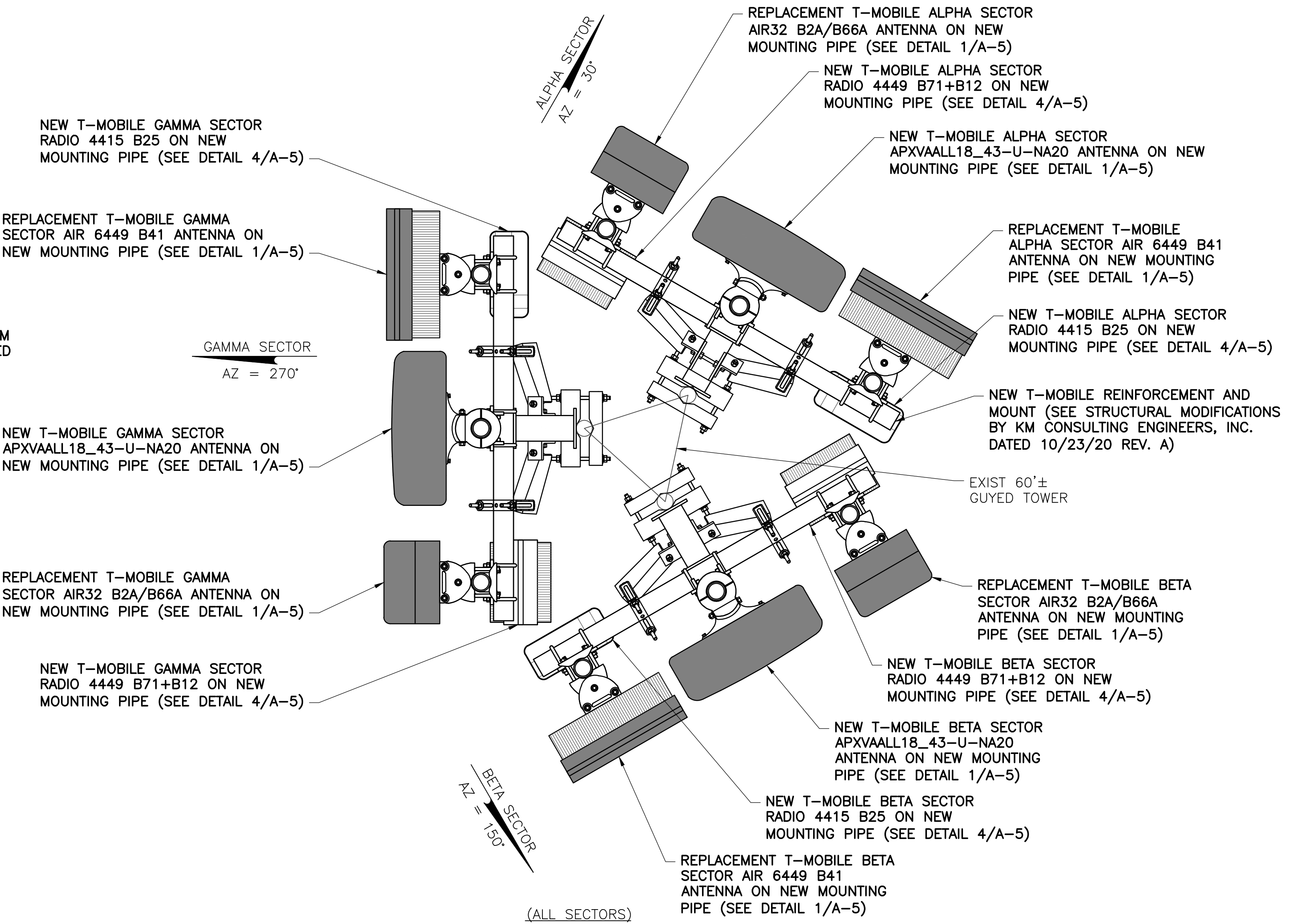
KNAPP ANSONIA LATTICE TOWER  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

**SHEET TITLE**  
 DEMO & NEW  
 T-MOBILE ANTENNA  
 PLANS & ANTENNA  
 SCHEDULE

**SHEET NUMBER**  
 A-4



1  
 A-4 DEMO T-MOBILE ANTENNA PLAN  
 SCALE: 1" = 1'-0"



1  
 A-4 NEW T-MOBILE ANTENNA PLAN  
 SCALE: 1/4" = 1'-0"

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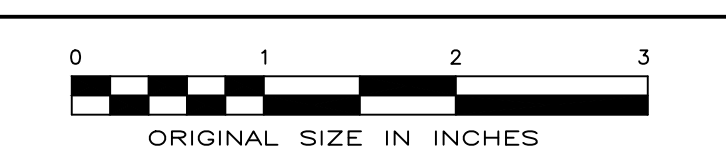
APPROVALS

LANDLORD \_\_\_\_\_  
 RF \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 OPERATIONS \_\_\_\_\_  
 SITE ACQ. \_\_\_\_\_

PROJECT NUMBER	DESIGNED BY
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SITE INFORMATION

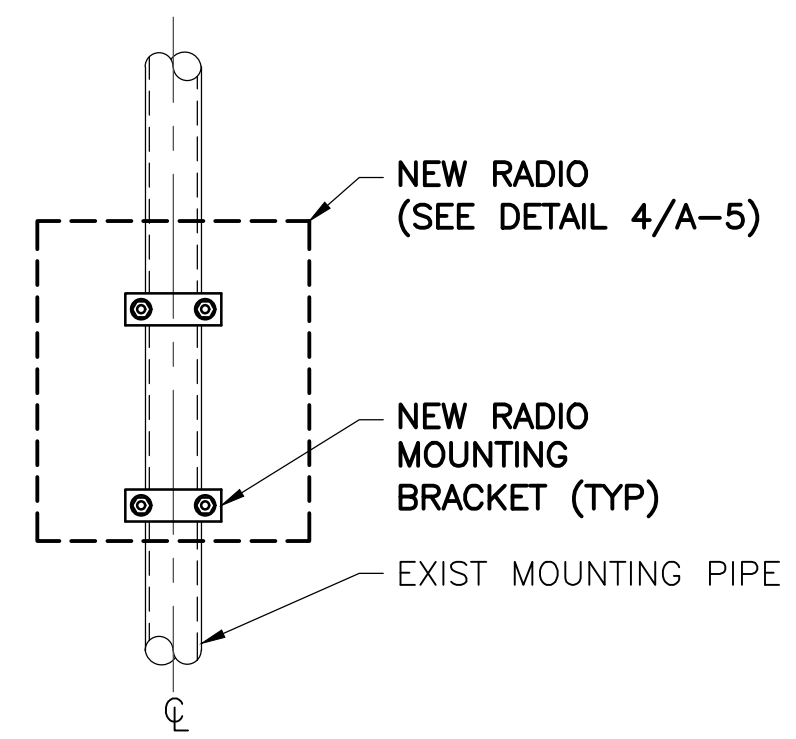
KNAPP ANSONIA LATTICE TOWER  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

SHEET TITLE

DETAILS,  
 SPECIFICATIONS &  
 ANTENNA SCHEMATIC

SHEET NUMBER

A-5

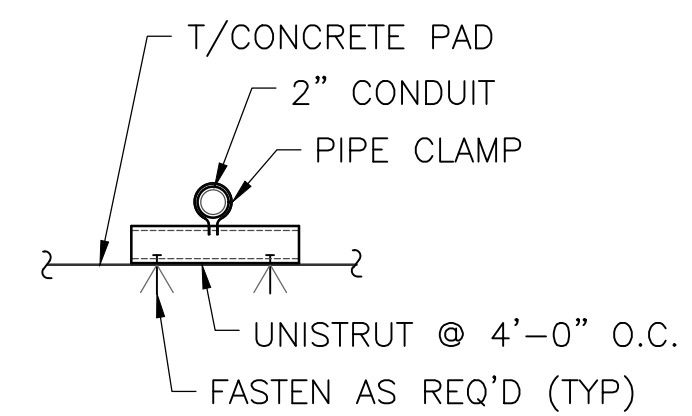


NEW RADIO (SEE DETAIL 4/A-5)  
 NEW RADIO MOUNTING BRACKET (TYP)  
 EXIST MOUNTING PIPE

NOTE: MOUNTING OF RADIO TO MOUNTING PIPE, INCLUDING MOUNTING BRACKET ASSEMBLY SHALL BE PER MANUFACTURER DIRECTION.

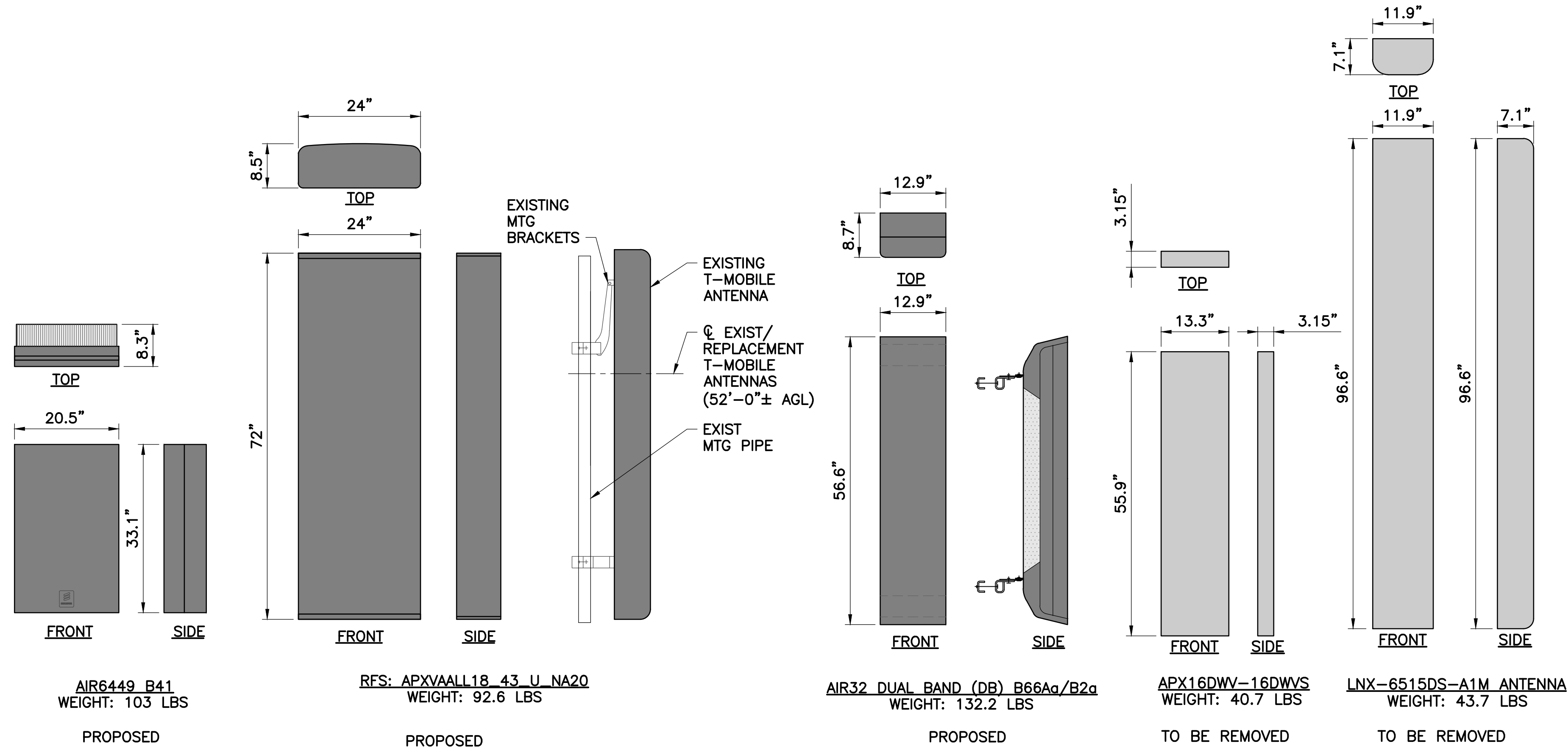
2 RADIO MOUNTING DETAIL

SCALE: 1" = 1'-0"



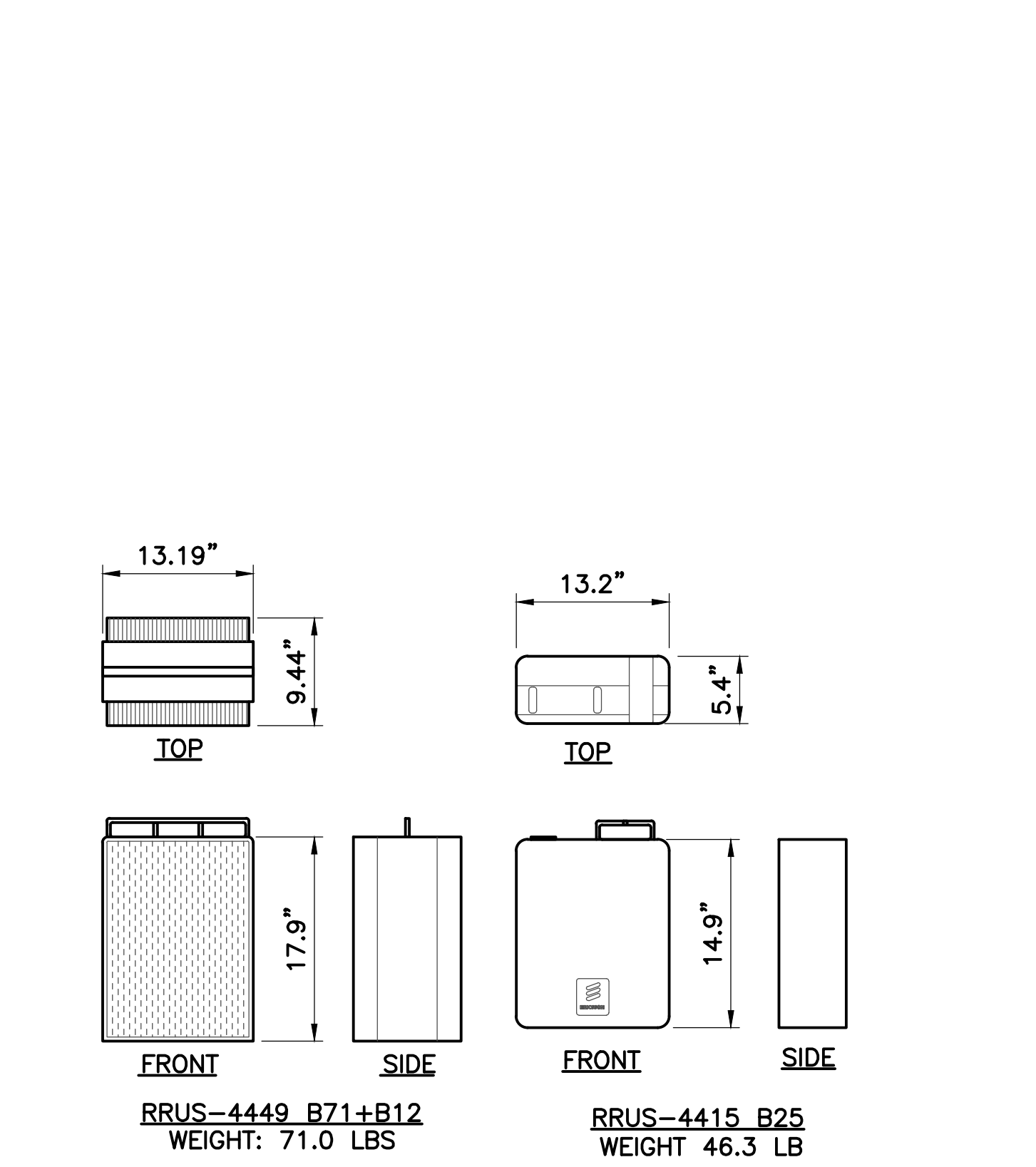
3 CONDUIT ROUTING DETAIL

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



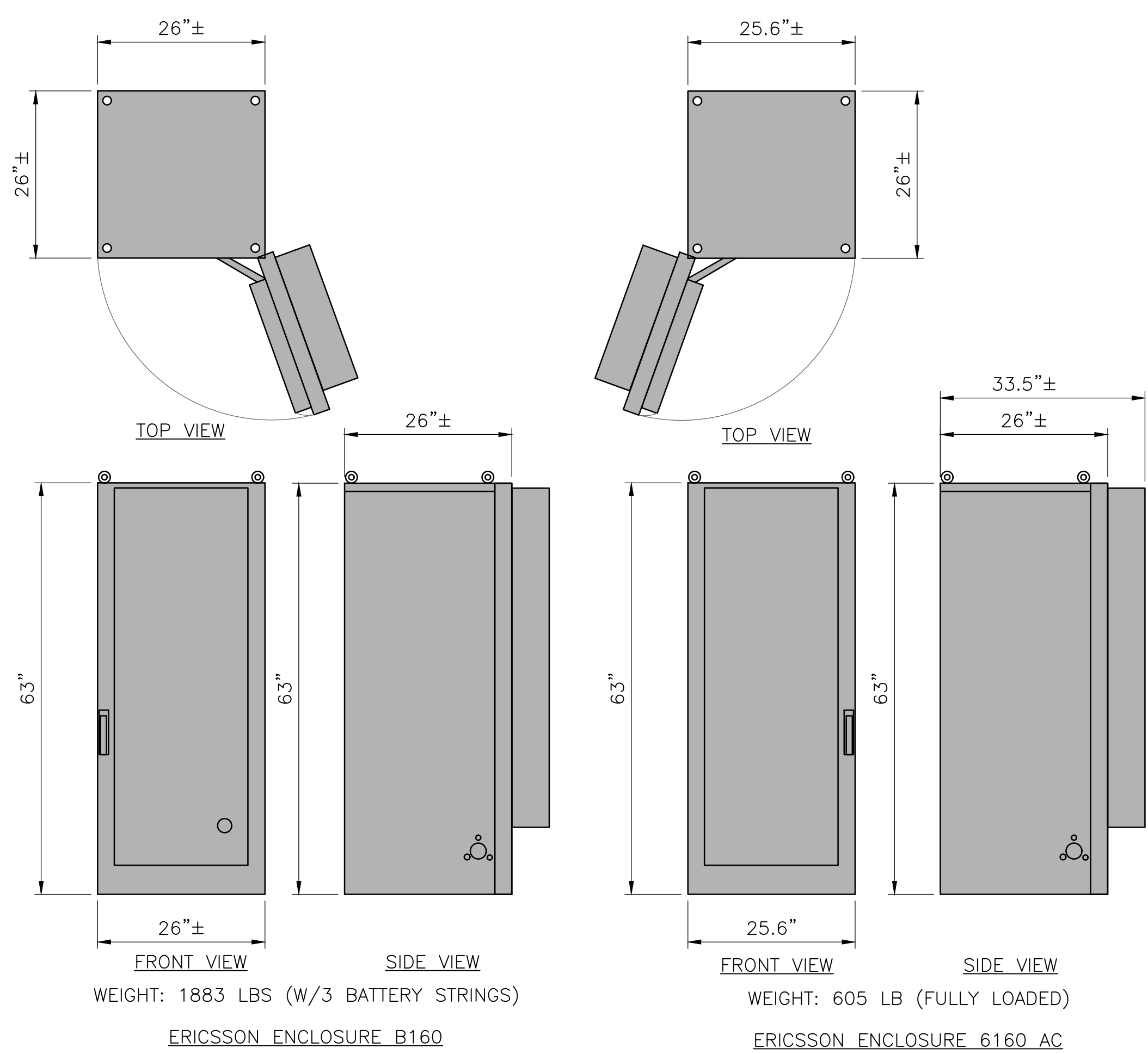
1 ANTENNA DETAILS

SCALE: 3/4" = 1'-0"



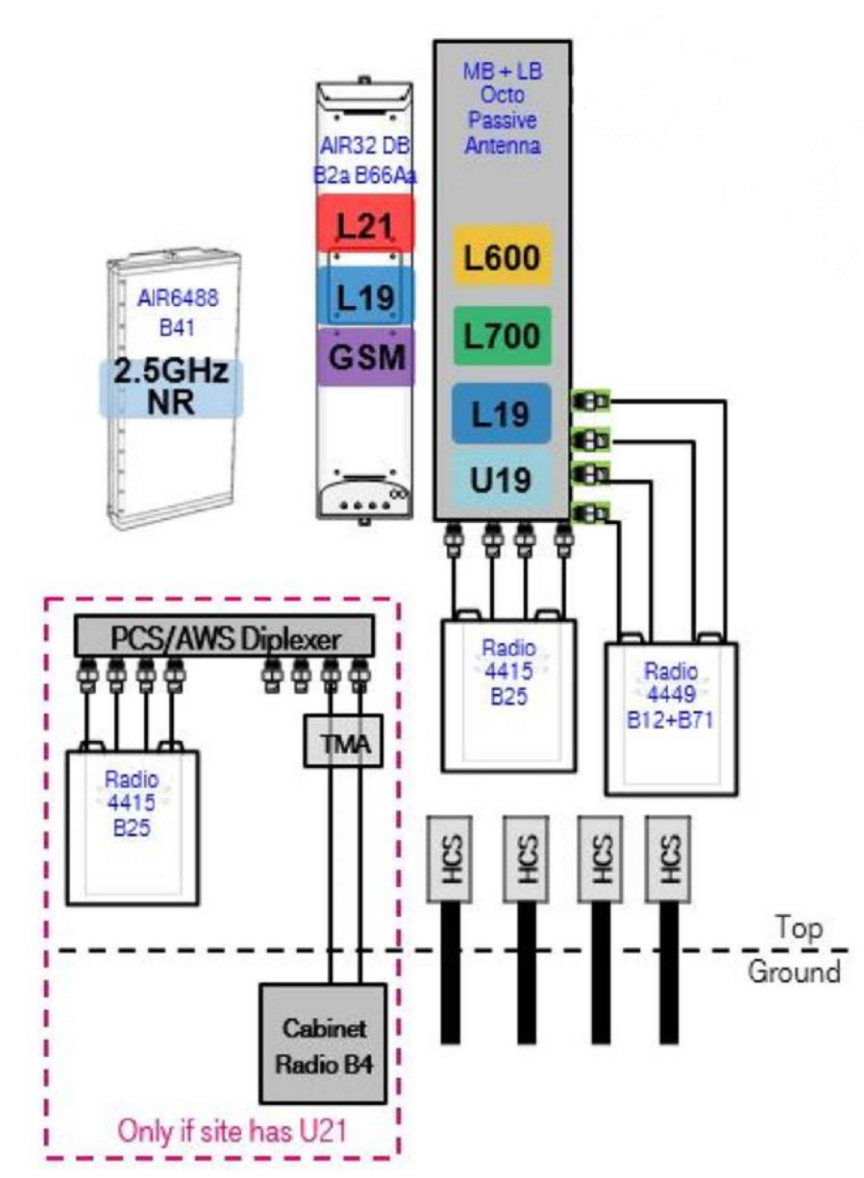
4 RADIO DETAIL

SCALE: 1" = 1'-0"



5 EQUIPMENT CABINET SPECIFICATIONS

SCALE: NTS

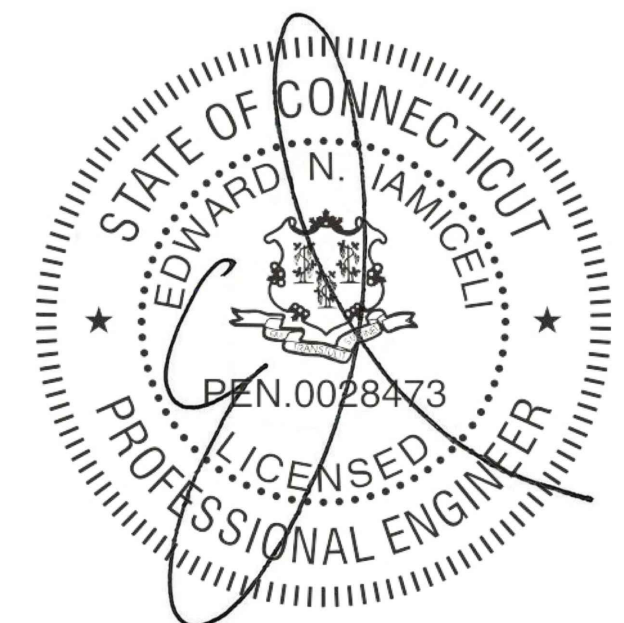


6 ANTENNA SCHEMATIC

SCALE: NTS

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**GENERAL NOTES**

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CONNECTICUT BUILDING CODE, LATEST VERSION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
- CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- DIMENSIONS SHOWN ARE TO FINISH SURFACES, UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE AUTHORIZED REPRESENTATIVE OR THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
- DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
- ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE "NOTICE TO PROCEED," CONTRACTOR WILL CONTACT THE CONSTRUCTION MANAGER OF RECORD A MINIMUM OF 48 HOURS PRIOR TO WORK START.
- CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
- CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
- ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS, AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
- CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
- CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT THE OWNER.
- INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
- MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, AND PIPING. REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.
- REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
- KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
- PROVIDE 48 HOURS WRITTEN NOTICE TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS AND OTHER DOCUMENTATION SHALL BE TURNED OVER TO AT COMPLETION OF CONSTRUCTION.
- COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE BY. ANY WORK, MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE CORRECTED IMMEDIATELY UPON WRITTEN NOTIFICATION AT NO ADDITIONAL COST TO T-MOBILE.

**STRUCTURAL NOTES**

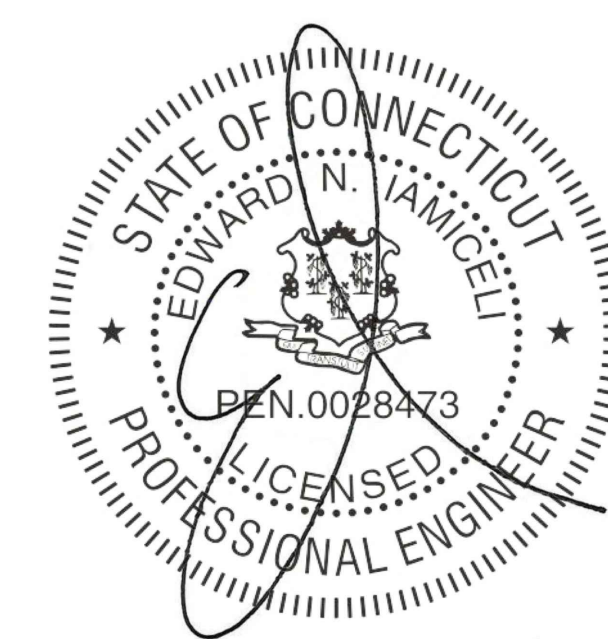
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.
- STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992 (Fy=50ksi). STRUCTURAL STEEL PLATES AND ANGLES SHALL CONFORM TO ASTM A36.
- ROUND AND SQUARE HOLLOW STRUCTURAL SECTIONS (HSS) CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE C.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 "PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC-COATED WELDED AND SEAMLESS", TYPE E OR S, GRADE B.
- CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:
  - CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.
  - STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".
  - WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN AND YIELD STRENGTH.
  - MINIMUM 3/16" FILLET E70-XX WELD SHALL APPLY UNLESS NOTED.
  - MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.
  - MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x3/8" UNLESS NOTED.
  - ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.
  - ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS", LATEST EDITION. BOLTS SHALL BE 3/4 INCH DIA. UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- ALL STEEL SUPPORTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.
- SLEEVE ANCHORS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 3, CLASS 3, AS MANUFACTURED BY HILTI FASTENING SYSTEMS OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE (3) INCHES.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE FOUR (4) INCHES.
- EPOXY ANCHORING SYSTEM SHALL BE THE HILTI HY-270 FOR MASONRY CONSTRUCTION WITH HOLLOW BRICK OR BLOCK & THE HILTI HIT HY200 INJECTION ADHESIVE ANCHOR FOR GROUT FILLED CONCRETE MASONRY UNITS AND CONCRETE. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2"Ø STAINLESS STEEL ANCHOR ROD W/NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE FOR THE HY-270 ONLY & AN EPOXY ADHESIVE (6" MIN EMBEDMENT). THE INSTALLATION PROCEDURE SHALL BE AS FOLLOWS
  - DRILL THE HOLE USING MANUFACTURER RECOMMENDED DRILL BIT UP TO SPECIFIED DEPTH. HAMMERING IS NOT PERMITTED.
  - CLEAN THE HOLE USING NYLON BRUSH AND/OR COMPRESSED AIR. THE HOLE SHOULD BE CLEAR OF ANY LOOSE MATERIAL. IF WET, THE MASONRY SHOULD BE ALLOWED TO DRY FULLY BEFORE ANCHOR INSTALLATION.
  - INSERT SPECIFIED SCREEN TUBE INTO THE HOLE.
  - FILL THE SCREEN TUBE COMPLETELY WITH ADHESIVE, BEGINNING AT THE BOTTOM END.
  - INSERT ANCHOR ROD OR INTERNALLY THREADED INSERT INTO THE ADHESIVE-FILLED SCREEN TUBE, TWISTING SLIGHTLY.
  - LOAD FASTENER ONLY AFTER MANUFACTURER SPECIFIED CURE TIME HAS ELAPSED.
- GRATING SHALL BE GALVANIZED WELDED STEEL BAR GRATING TYPE W/BA WITH 1-1/4" BEARING BARS AT 1-3/16" OC. FASTEN TO SUPPORTING MEMBERS WITH SADDLE-TYPE CLIPS AT 2'-0" O.C. AND BAND ALL EXPOSED EDGES.
- SUBMIT DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
- ALL WORK SHALL BE INSPECTED BY THE ENGINEER DURING AND AT THE COMPLETION OF CONSTRUCTION.
- CONTRACTOR TO REMOVE MASTIC ON THE EXISTING WALL/PARAPET AT EVERY STEEL SUPPORT ATTACHMENT AND REPOINT MASONRY AS REQUIRED. A BED OF SILICONE SHALL BE APPLIED BEHIND AND ALL AROUND THE STEEL SUPPORT ATTACHMENT TO MAKE IT WEATHERPROOF.
- HAMMER DRILLS ARE NOT TO BE USED WHEN DRILLING HOLES FOR SLEEVE OR EXPANSION BOLTS INSTALLED IN MASONRY BLOCKS/BRICKS.
- ALL HOLES TO BE ADDED IN THE FIELD SHALL BE PUNCHED OR DRILLED. NO HOLE BURNING SHALL BE ALLOWED.
- NOTES ARE NOT PROJECT SPECIFIC.

**SITE NOTES**

- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING.
- RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- 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.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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 CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
- 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 ENGINEER.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH.
- CONTRACTOR 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.
- CARE SHALL BE TAKEN TO RETAIN NATURAL GROWTH AND PREVENT DAMAGE TO TREES WITHIN AND OUTSIDE THE LIMITS OF CONSTRUCTION AND SPECIFIED WORK AREAS CAUSED BY EQUIPMENT AND MATERIALS. ANY DAMAGE TO THIS NATURAL GROWTH SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR.
- ALL AREAS DISTURBED BY THE CONTRACTOR WITHOUT AUTHORIZATION SHALL BE RESTORED BY THE CONTRACTOR.
- IN THE EVENT THE CONTRACTOR DAMAGES AN EXISTING UTILITY SERVICE CAUSING AN INTERRUPTION IN SAID SERVICE, HE SHALL IMMEDIATELY COMMENCE WORK TO RESTORE SERVICE AND MAY NOT CEASE HIS WORK OPERATION UNTIL SERVICE IS RESTORED.

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 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002

**NSS NORTEAST**  
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 Turnkey Wireless Development

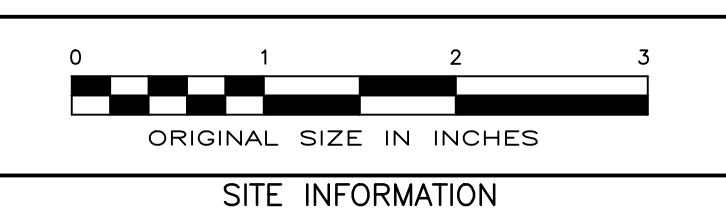
**APPROVALS**

LANDLORD \_\_\_\_\_  
 RF \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
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 SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A DESIGNED BY EI

REV.	DATE	DESCRIPTION	DRAWN BY
△	12/10/20	ISSUED FOR CONSTRUCTION	BWY

ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_



**SITE INFORMATION**

KNAPP ANSONIA LATTICE TOWER  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

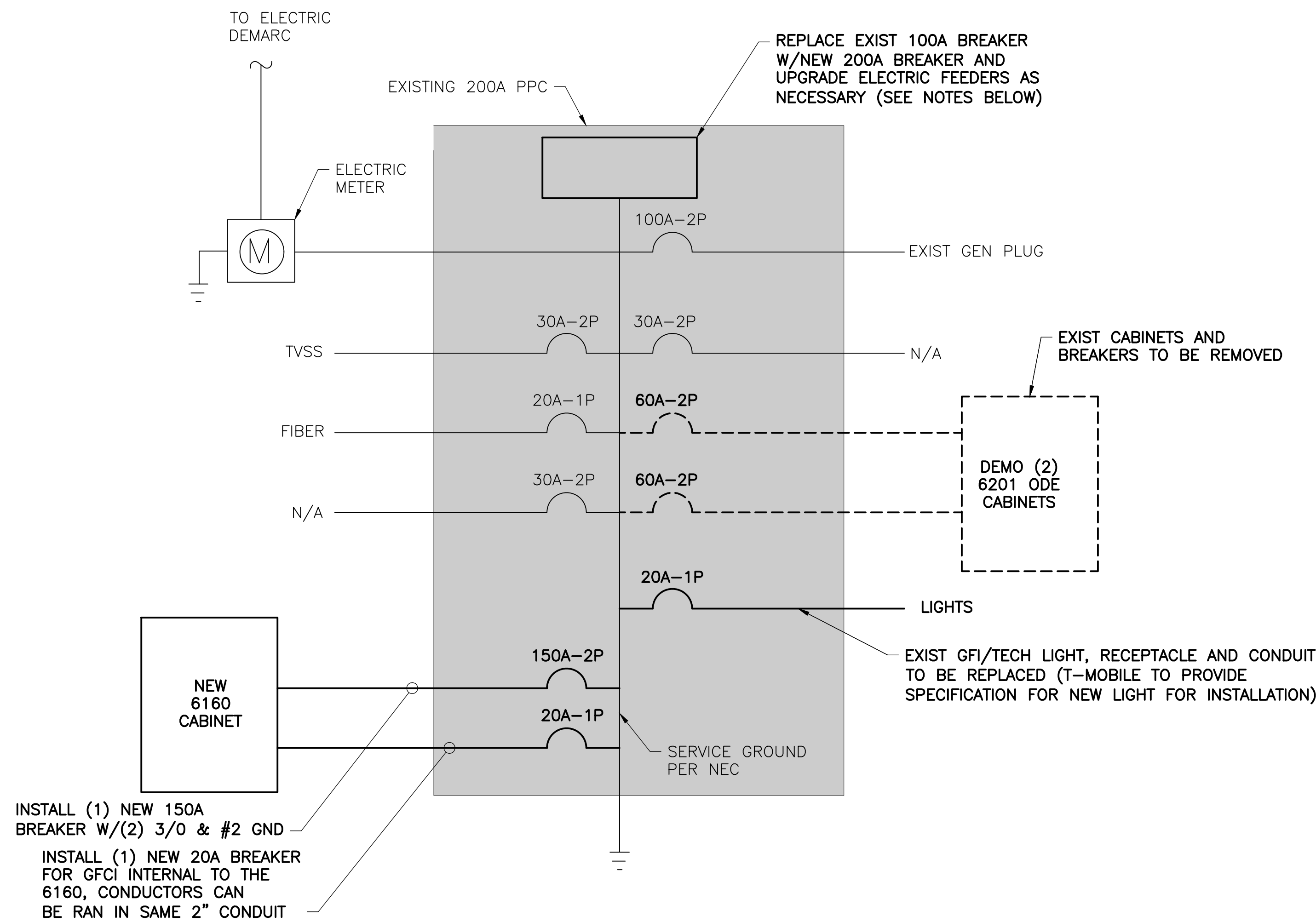
**SHEET TITLE**

NOTES

**SHEET NUMBER**

A-6





NOTES:  
 1. THE ABOVE DIAGRAM IS GENERIC AND ANY ELECTRICAL WORK SHALL BE COMPLETED BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH NEC STANDARDS.  
 2. ELECTRICAL CONSULT SHALL BE PERFORMED TO CONSTRUCTION TO CONFIRM THE POWER REQUIREMENTS AND FEASIBILITY.

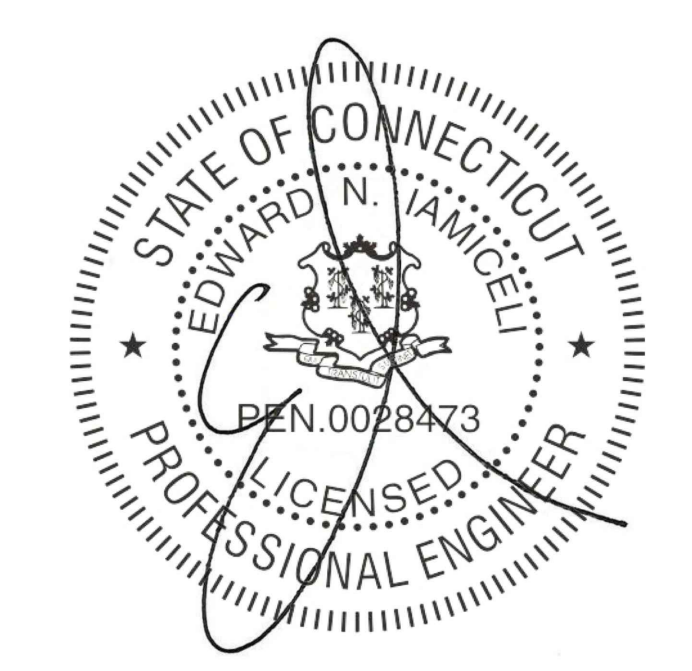
1 ONE-LINE DIAGRAM  
 E-1 SCALE: NTS

GENERAL ELECTRICAL NOTES

- CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (U.L.) AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
- CONTRACTOR TO COORDINATE WITH SITE OWNER FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
- METER SOCKETS AMPERES, VOLTAGE AND NUMBER OF PHASES SHALL BE NOTED AND SHALL BE MANUFACTURED BY SQUARE "D" COMPANY, SANGAMO OR APPROVED EQUAL. METER SOCKET SHALL BE APPROVED BY UTILITY COMPANY PRIOR TO INSTALLATION.
- WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM WITH TYPE THHN INSULATION UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL CONDUCTORS SHALL BE COPPER.
- USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURES.
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)
- CONDUIT:
  - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR.
  - INTERMEDIATE METAL CONDUIT SHALL BE U.L. LABEL, FITTINGS SHALL BE THREADED ALUMINUM OR STEEL AND SHALL BE USED FOR ALL EXTERIOR RUNS. THREADLESS COUPLINGS AND CONNECTORS SHALL NOT BE USED.
  - ELECTRICAL METALLIC TUBING (EMT) SHALL HAVE U.L. LABEL, FITTINGS SHALL BE NO SET SCREW OR CRIMP TYPE FITTINGS SHALL BE USED. GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
  - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.
  - CONDUIT SHALL BE SIZED PER THE NEC AND AS SHOWN.
  - CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLING.
  - ALL CONDUIT ONLY (C.O.) RUNS SHALL HAVE A PULL WIRE OR ROPE.
- COVERPLATES SHALL BE BRUSHED STAINLESS STEEL FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, AND SHALL HAVE ENGRAVED LETTERING WHERE INDICATED WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD-8 LIFT COVERPLATES.
- REFER TO MANUFACTURERS MANUAL FOR RECOMMENDED FUSE AND WIRE SIZES.
- ALL FINAL CONNECTIONS TO THE EQUIPMENT ARE TO BE OF FLEXIBLE WEATHERPROOF CONDUIT TO MEET APPLICABLE CODES.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
- GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2, UNLESS OTHERWISE NOTED.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE CONSTRUCTION MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- PROVIDE CONSTRUCTION MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH GAINING APPROVALS AND PAYING ALL FEES ASSESSED BY UTILITY COMPANY FOR ELECTRICAL SERVICE.

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**Tectonic**  
 PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.  
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 Newburgh, NY 12550 Phone: (845) 567-6656

**T-Mobile**  
 NORTEAST, LLC.  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002

**NSS NORTEAST**  
 SITE SOLUTIONS  
 Turnkey Wireless Development

APPROVALS

LANDLORD \_\_\_\_\_

RF \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

OPERATIONS \_\_\_\_\_

SITE ACQ. \_\_\_\_\_

PROJECT NUMBER	DESIGNED BY
10473.CTNH520A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BWY

ISSUED BY \_\_\_\_\_ DATE \_\_\_\_\_



SITE INFORMATION

KNAPP ANSONIA LATTICE TOWER  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

SHEET TITLE

ELECTRICAL NOTES &  
 ONE-LINE DIAGRAM

SHEET NUMBER

E-1



APPROVALS

LANDLORD \_\_\_\_\_  
 RF \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 OPERATIONS \_\_\_\_\_  
 SITE ACQ. \_\_\_\_\_

PROJECT NUMBER 10473.CTNH520A DESIGNED BY EI

REV.	DATE	DESCRIPTION	DRAWN BY
1	12/10/20	ISSUED FOR CONSTRUCTION	BY

ISSUED BY	DATE



**KNAPP ANSONIA LATTICE TOWER**  
 CTNH520A  
 21 BIRCHWOOD DRIVE  
 ANSONIA, CT 06401

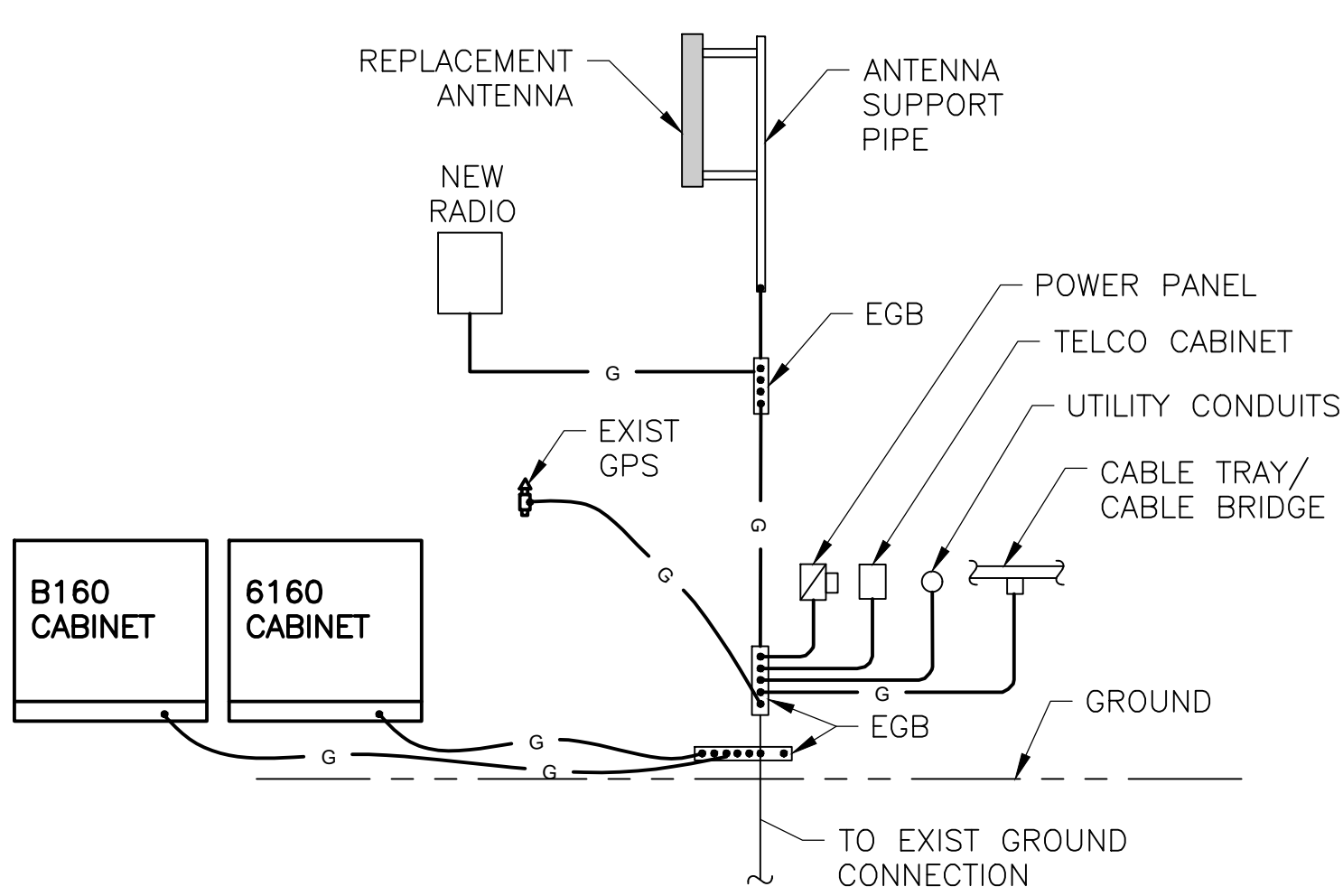
SHEET TITLE

**GROUNDING DETAILS & NOTES**

SHEET NUMBER

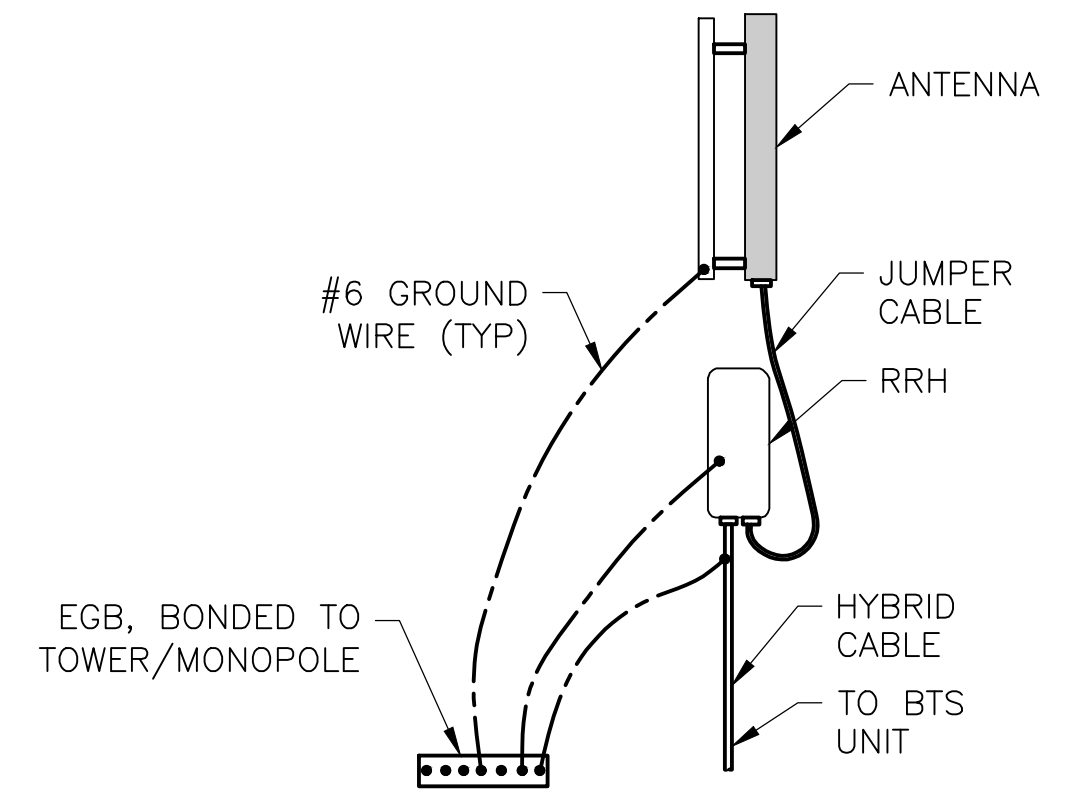
G-1

- ### GROUNDING NOTES
1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
  2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T-MOBILE STANDARD PRACTICE.
  3. ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
  4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
  5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
  6. ALL COPPER BUSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
  7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL RADIUS.
  8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
  9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
  10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.
  11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
  12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
  13. ALL EXPOSED #2 WIRE MUST BE TINNED NOT BTW.
  14. TECTONIC TAKES NO RESPONSIBILITY OR LIABILITY FOR THE GROUNDING SYSTEM AS SHOWN ON THIS SITE. THIS IS A STANDARD GROUNDING SYSTEM.

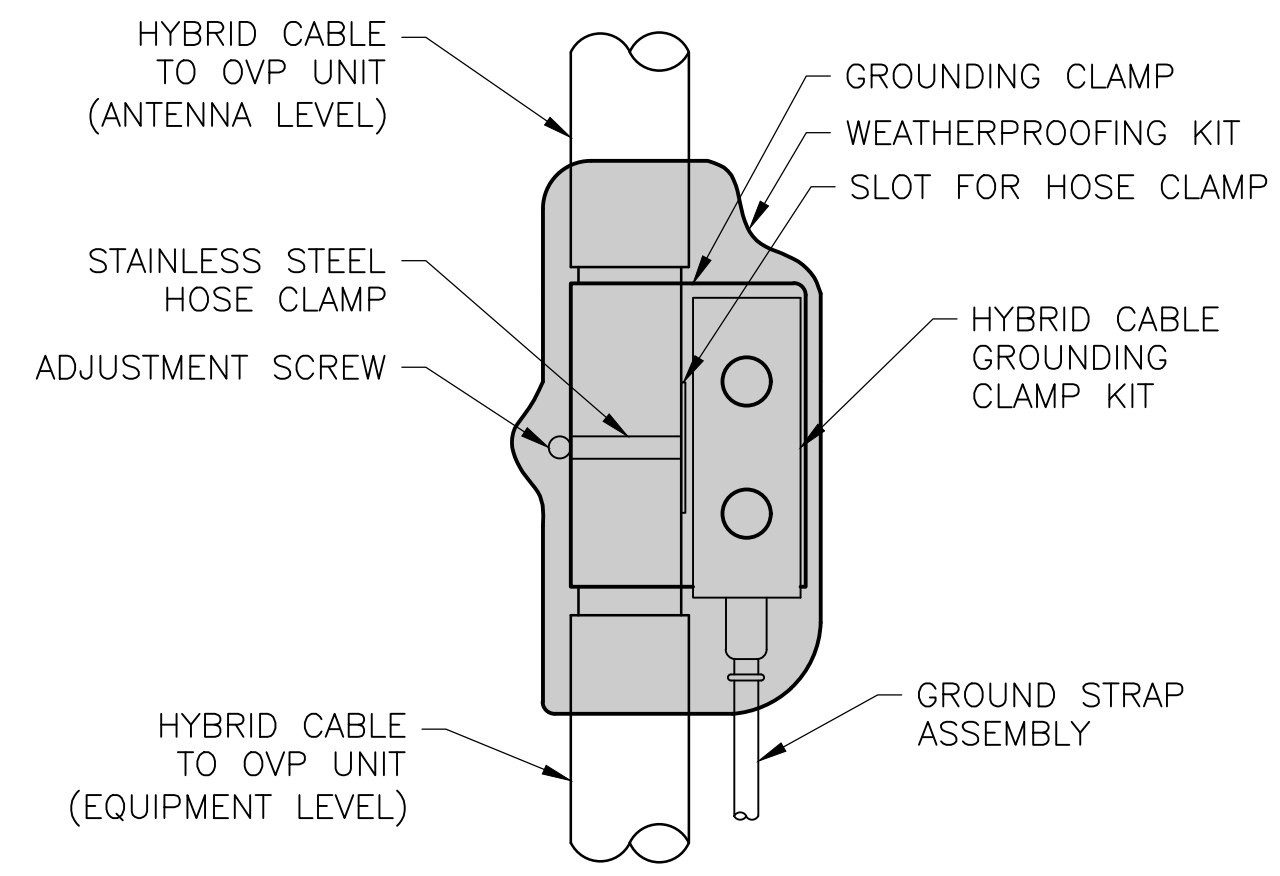


NOTE: CONTRACTOR SHALL CONFIRM ALL EQUIPMENT IS GROUNDED. IF NOT, CONTRACTOR SHALL GROUND EQUIPMENT AS SHOWN AND AS REQUIRED.

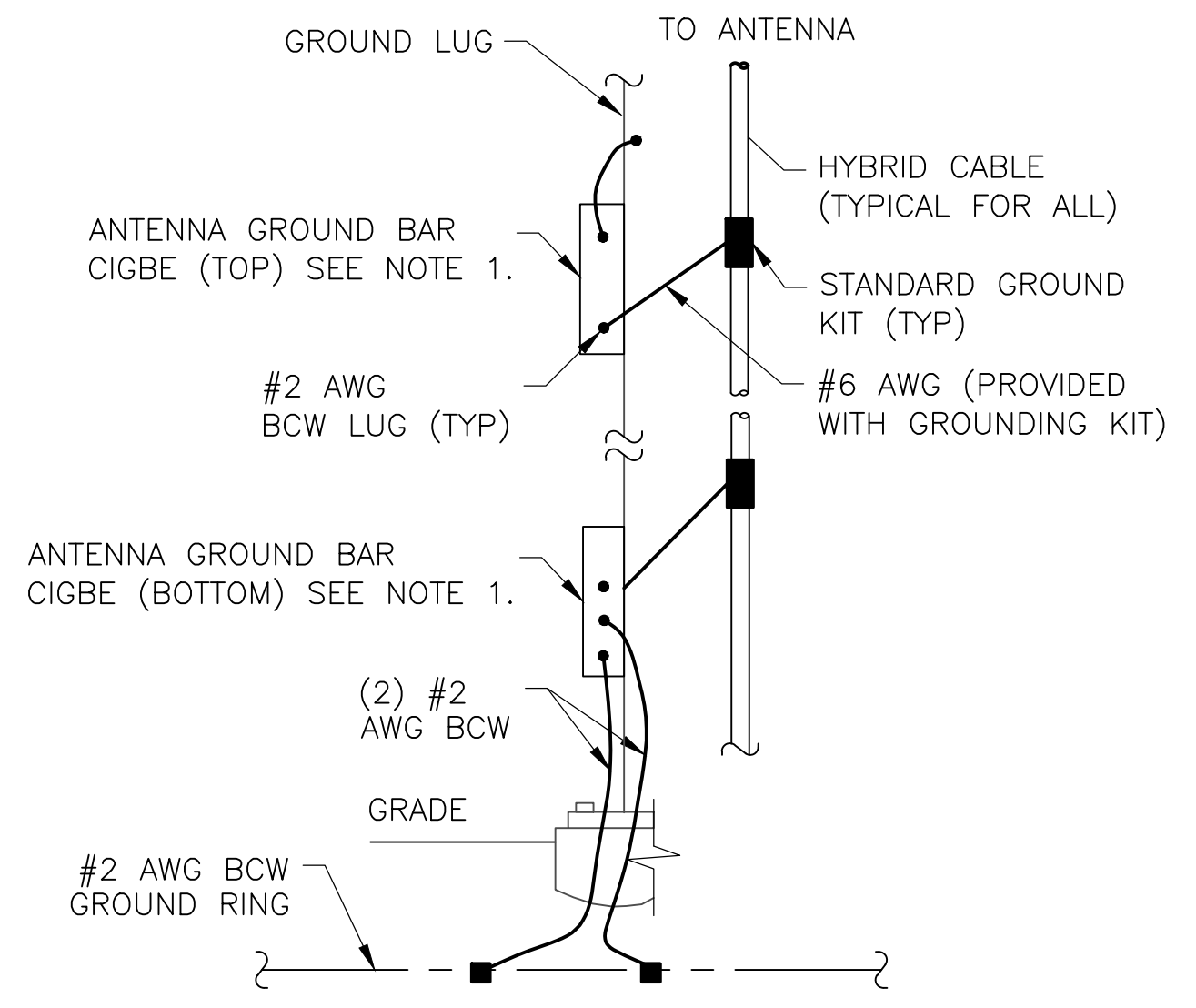
1 G-1 SCALE: NTS  
**GROUNDING RISER DIAGRAM**



2 G-1 SCALE: NTS  
**HYBRID CABLE CONNECTION DETAIL**

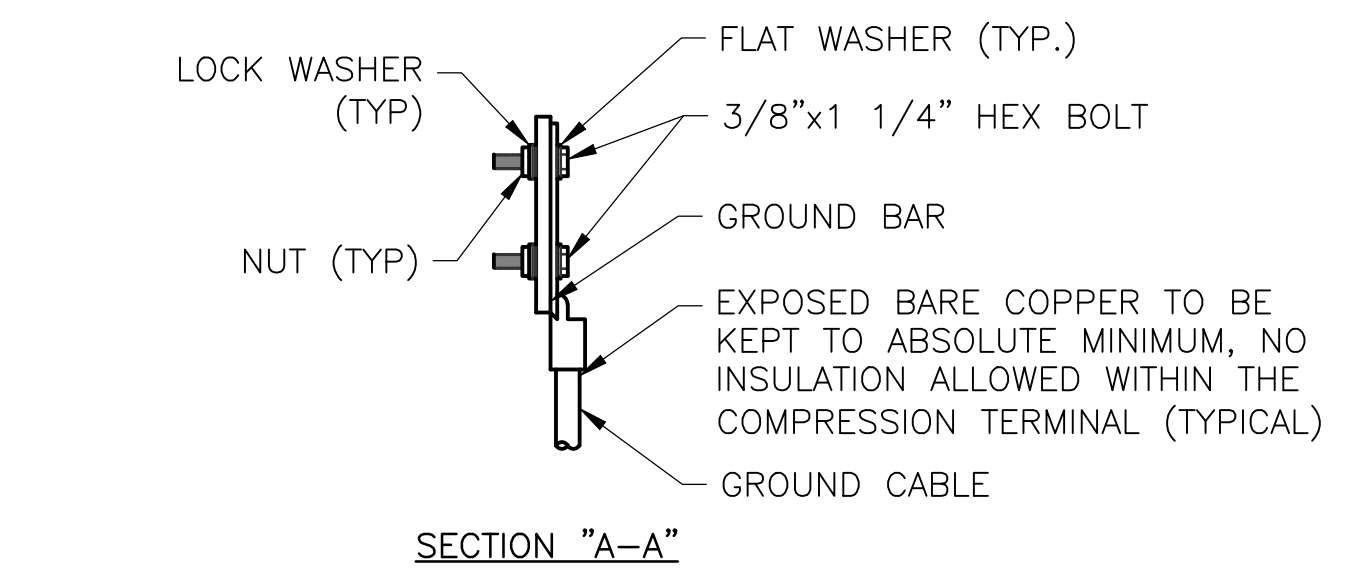
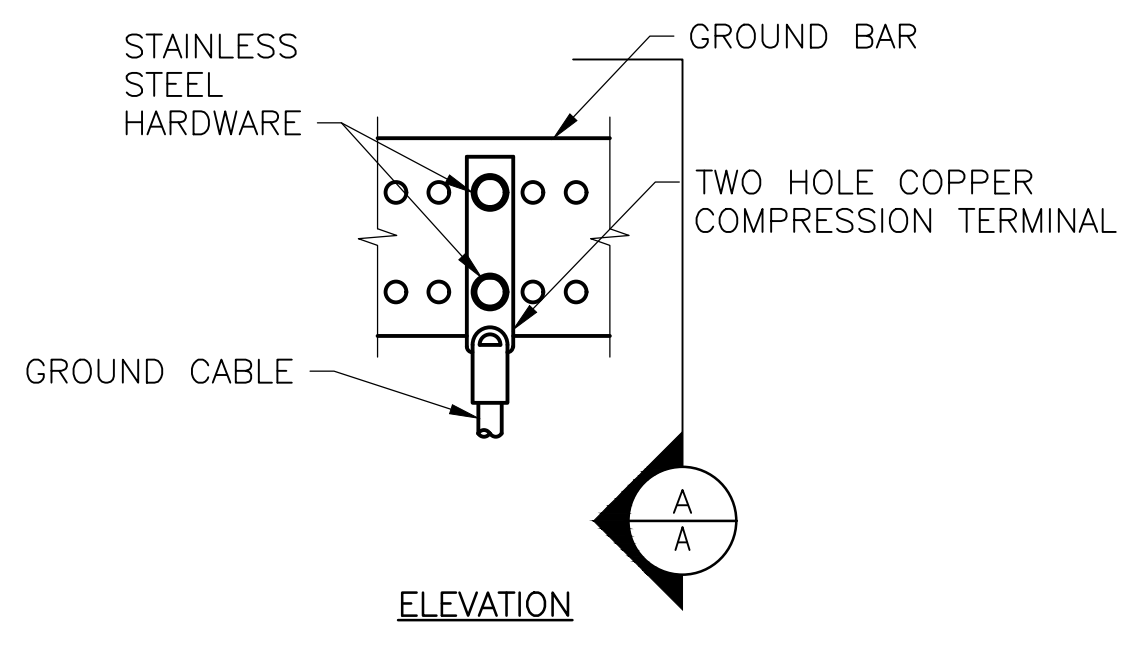


3 G-1 SCALE: NTS  
**HYBRID CABLE GROUNDING DETAIL**



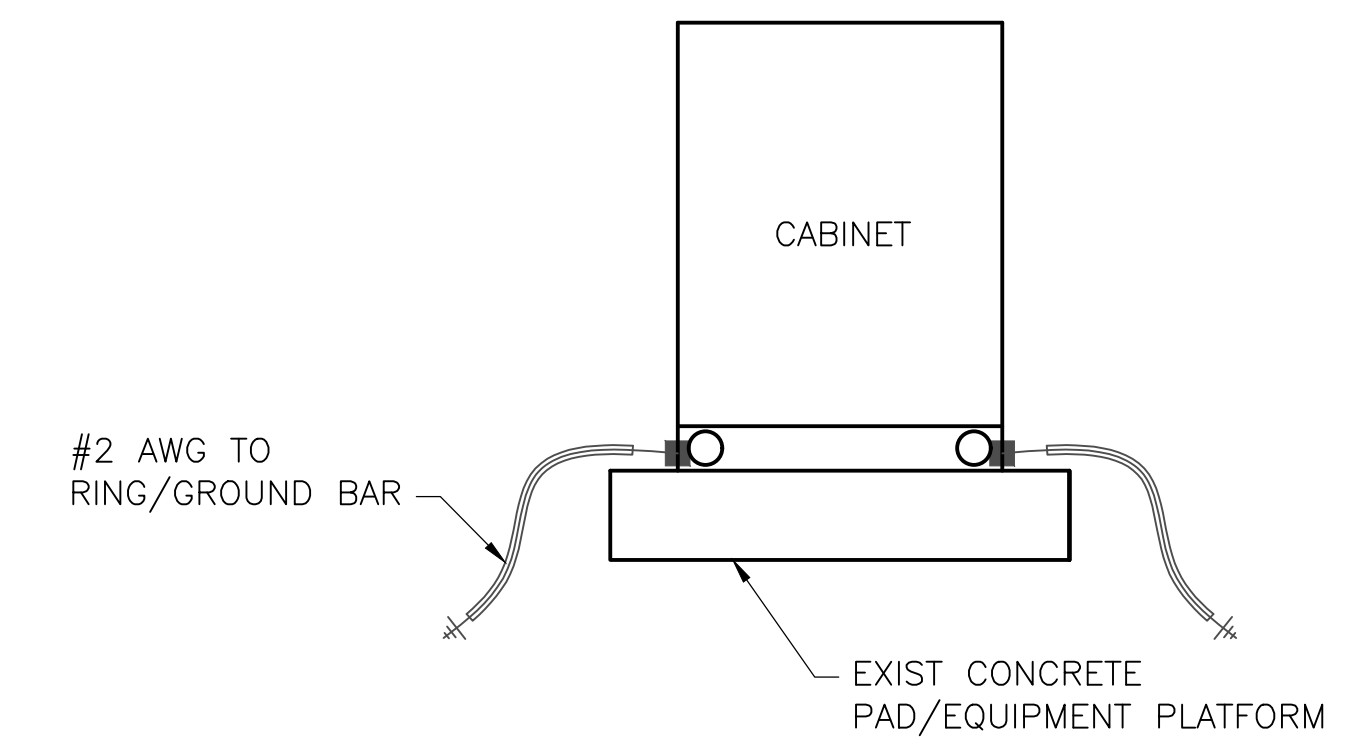
- NOTES:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
  2. A SEPARATE GROUND BAR TO BE USED FOR GPS UNIT IF REQUIRED.

4 G-1 SCALE: NTS  
**ANTENNA CABLE GROUNDING**



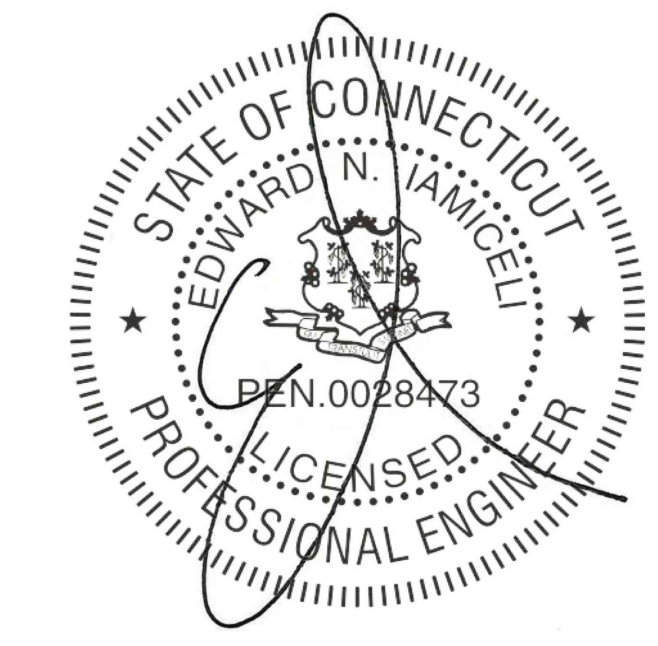
- NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
  2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  3. CADWELDED DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.
  4. ALL GROUND LUGS MUST NE HEAT SHRUNK AT WIRE/LUG CONNECTION.

5 G-1 SCALE: NTS  
**GROUND BAR CONNECTION DETAIL**



6 G-1 SCALE: NTS  
**CABINET GROUNDING DETAIL**

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# Exhibit D

# STRUCTURAL ANALYSIS REPORT

For



Northeast Site Solutions  
420 Main Street  
Sturbridge, MA 01566

CTNH520A  
Ansonia  
KM No. 140604.08

59' Guyed Tower  
21 Birchwood Drive  
Ansonia, CT 06401

Prepared By:



**KM CONSULTING ENGINEERS, INC.**

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

October 20, 2020

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

**Northeast Site Solutions  
CTNH520A (Ansonia)**

**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
1.0 EXECUTIVE SUMMARY .....	3
2.0 TOWER INVENTORY .....	4
3.0 COMMENTARY .....	5
4.0 ANALYSIS PROCEDURE .....	6
5.0 TOWER ANALYSIS RESULTS .....	7
6.0 RECOMMENDATIONS .....	8
7.0 APPENDIX .....	9

**Tower Loading:** Existing tower superstructure and reinforced T-Mobile antenna mounts with existing inventory and proposed T-Mobile installation.

## **1.0 EXECUTIVE SUMMARY**

### **Structure**

Owner/Manager: RCI  
Location: 21 Birchwood Drive  
Ansonia, CT 06401  
Manufacturer: Rohn  
Model 45G

### **Equipment**

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

### **Synopsis**

Tower Loading: The existing tower superstructure and reinforced T-Mobile antenna mounts with current inventory and proposed T-Mobile installation.

The tower superstructure, base foundation and existing antenna mounts with proposed reinforcement have sufficient capacity and therefore are acceptable per the current ANSI/TIA-222-G standards. The tower superstructure is rated at 76.2%, the guy anchors are rated at 28.2%, and the reinforced antenna mounts are acceptable. The base foundation is acceptable based on existing documentation of the site.



## 2.0 TOWER INVENTORY

### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' Omni x 2" OD	60	Radio 4449 B71_B85 (T-Mobile)	51.5
4' Standoff Mount	59	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 1" OD	59 - 55	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 1" OD	59 - 55	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 2.5" OD	59 - 55	5' T-Frame (T-Mobile)	51.5
2' Standoff Mount	55	5' T-Frame (T-Mobile)	51.5
2' Standoff Mount	55	5' T-Frame (T-Mobile)	51.5
2' Standoff Mount	55	AIR 6449 B41 (T-Mobile)	51.5
Yagi	55	AIR 6449 B41 (T-Mobile)	51.5
Antenna Frame Horizontal (T-Mobile)	54	AIR 6449 B41 (T-Mobile)	51.5
Antenna Frame Horizontal (T-Mobile)	54	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
Antenna Frame Horizontal (T-Mobile)	54	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
AIR32 B66A/B2A (T-Mobile)	51.5	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
AIR32 B66A/B2A (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
AIR32 B66A/B2A (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
Radio 4449 B71_B85 (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
Radio 4449 B71_B85 (T-Mobile)	51.5		

#### **T-Mobile Loading to be Installed:**

- \*(3) APXVAALL18-43-U-NA20 panel antennas @ 51.5' AGL
- \*(3) AIR32 B66A/B2A panel antennas @ 51.5' AGL
- \*(3) AIR 6449 B41 panel antennas @ 51.5' AGL
- \*(3) Radio 4415 B25's @ 51.5' AGL
- \*(3) Radio 4449 B71/B12 @ 51.5' AGL
- \*(3) 6x12 HCS cables up to 51.5' AGL
- \*(3) SFS-V stabilizer kits w/hizontals added @ 51.5' AGL

#### **T-Mobile Loading to be Removed:**

- \*(3) LNX-6515DS-A1M panel antennas @ 51.5' AGL
- \*(3) APX16DWV-16DWV panel antennas @ 51.5' AGL
- \*(6) TMAs @ 51.5' AGL
- \*(18) 7/8" coax lines

### **3.0 COMMENTARY**

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed T-Mobile equipment noted in the tower inventory.

Existing tower structure, foundation information and antenna loading was obtained from previous structural analysis by KM Consulting Engineers, Inc. (KMCE) dated 9/15/14 and verified with original Rohn 45G assembly drawings. Guy location was updated based on Atlantis Group mapping report. Guy anchor reinforcement details were obtained from KMCE drawings dated 7/20/09. Tower reinforcement (confirmed installed) designed by KMCE was included in the tower model. The proposed loading was obtained from a T-Mobile RFDS dated 10/6/20.

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

## **4.0 ANALYSIS PROCEDURE**

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

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

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

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

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

### **Codes and Standards**

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

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

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

CSBC – 2018 Connecticut State Building Code

ASCE - Minimum Design Loads for Buildings and Other Structures (ASCE/SEI 7)

## **5.0 TOWER ANALYSIS RESULTS**

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

The basic wind speed of 97 MPH with no radial ice in accordance with ANSI/TIA-222-G is taken from Appendix N in the 2018 Connecticut State Building Code for the nominal design wind speed for the municipality of Ansonia, CT. The basic wind speed of 50 MPH concurrent with ¾” design ice thickness is taken from the ANSI/TIA-222-G listing applicable for New Haven County, CT. Additional criteria include Structure Class II, Exposure Category B, and Topographic Category 1.

**Tower loading:** Proposed T-Mobile installation includes the addition of (3) APXVAALL18-43-U-NA20 panel antennas, AIR32 B66A/B2A panel antennas, (3) AIR 6449 B41 panel antennas, (3) Radio 4415 B25, (3) Radio 4449, and (3) 6x12 HCS cables. The existing antenna frames will be braced with the addition of an SFS-V stabilizer kit and (2) horizontals attached to the vertical masts. The T-Mobile installation includes the removal of (3) LNX-6515DS-A1M panel antennas, (3) APX16DWV-16DWV panel antennas, (6) TMAs, and (18) 7/8” coax lines.

The tower superstructure, base foundation and existing antenna mounts with proposed reinforcement have sufficient capacity and therefore are acceptable per the current ANSI/TIA-222-G standards. The tower superstructure is rated at 76.2%, the guy anchors are rated at 28.2%, and the reinforced antenna mounts are acceptable. The base foundation is acceptable based on existing documentation of the site.

Table 1. Guy Anchor Foundation Rating

Radius (ft)	Force	Actual (kips)	Capacity (kips)	% Capacity
16	Tension	8.9	31.6	<b>34.1%</b>

**6.0 RECOMMENDATIONS**

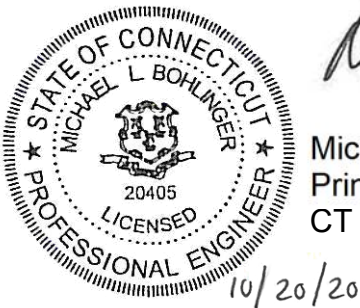
Further to our calculations, we conclude that the tower superstructure, base foundation, and the reinforced antenna mounts have adequate capacity and therefore meet the current ANSI/TIA-222-G design standards. The existing tower superstructure and reinforced mounts are acceptable to support the proposed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


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

Sincerely,  
**KM CONSULTING ENGINEERS, INC**

Reviewed and Approved by:

  
Domenic Aversa, PE  
Project Manager

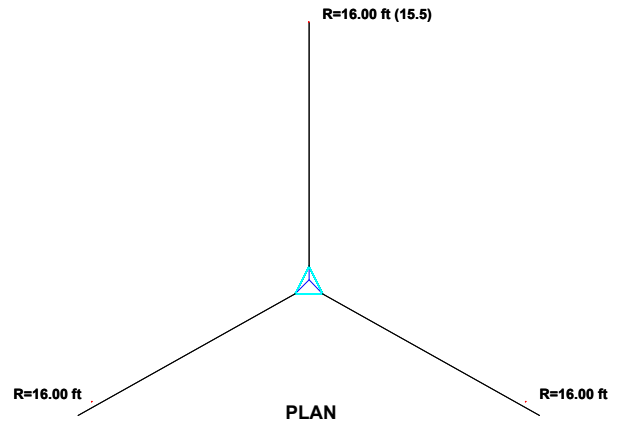
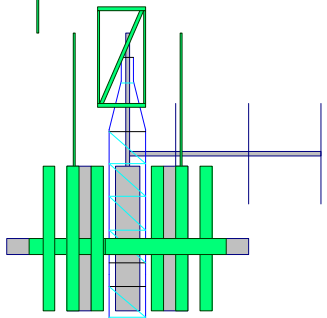
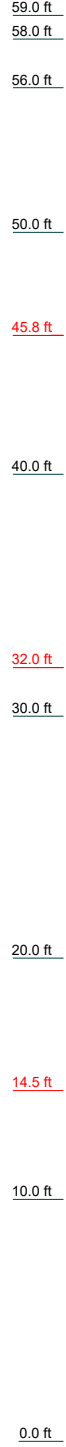


  
Michael L. Bohlinger, PE  
Principal  
CT License #20405

## **7.0 APPENDIX**

**LOAD CASE 1**

Section	T1	T2	T3	T4	T5	T6	T7	T8
Legs	ROHN 1.25x14 ga							
Leg Grade	A572-50							
Diagonals	(2) 7/16" SR							
Diagonal Grade	A36							
Top Girts	SR 7/16							
Bottom Girts	SR 7/16							
Horizontals	SR 7/16							
Top Guy Pull-Offs	SR 1 1/4							
Face Width (ft)	1.5							
# Panels @ (ft)	4 @ 1.35417							
Weight (lb)	2865.3							



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
12' Omni x 2" OD	60	Radio 4449 B71_B85 (T-Mobile)	51.5
4' Standoff Mount	59	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 1" OD	59 - 55	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 1" OD	59 - 55	Radio 4415 B25 (T-Mobile)	51.5
5' Omni x 2.5" OD	59 - 55	5' T-Frame (T-Mobile)	51.5
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Antenna Frame Horizontal (T-Mobile)	54	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
Antenna Frame Horizontal (T-Mobile)	54	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
AIR32 B66A/B2A (T-Mobile)	51.5	APXVAALL18_43-U-NA20 (T-Mobile)	51.5
AIR32 B66A/B2A (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
AIR32 B66A/B2A (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
Radio 4449 B71_B85 (T-Mobile)	51.5	SFS-V Stabilizer Kit (T-Mobile)	50
Radio 4449 B71_B85 (T-Mobile)	51.5		

**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	SR 5/8	C	1 @ 0.916667
B	N.A.	D	1 @ 1.83333

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi



**KM Consulting Engineers**  
262 Upper Ferry Road  
Ewing, NJ 08525  
Phone: (609) 538-0400  
FAX:

Job: **CTNH520A (Ansonia)**

Project: **140604.08**

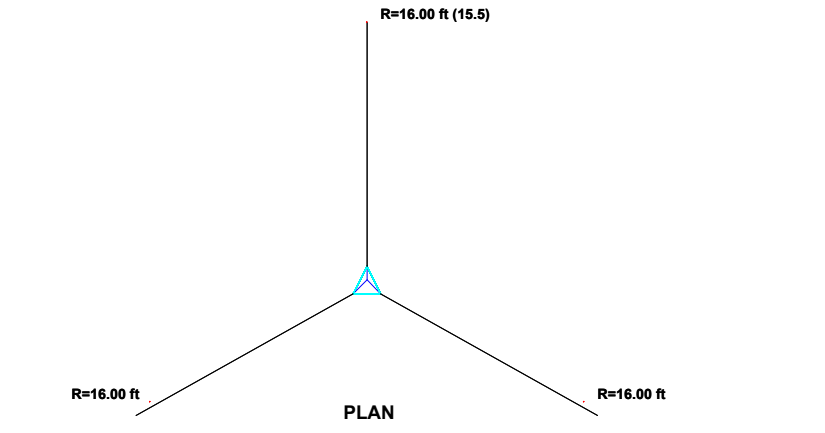
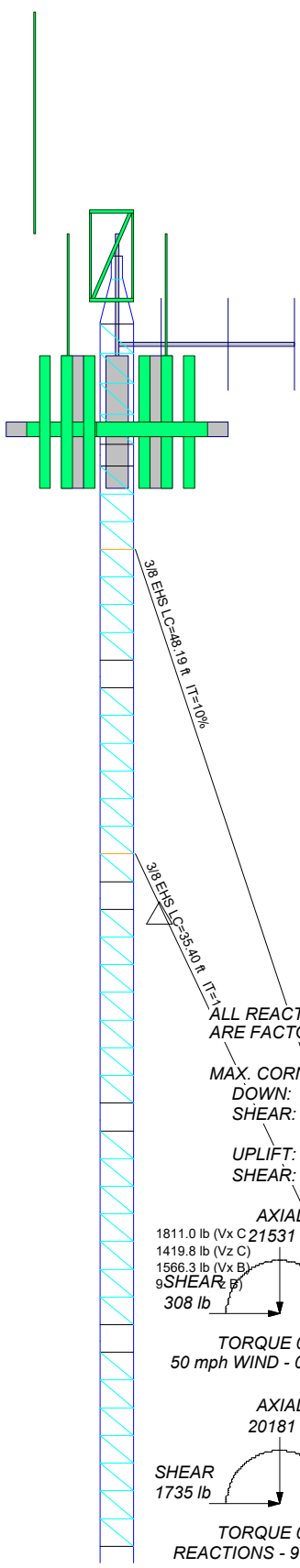
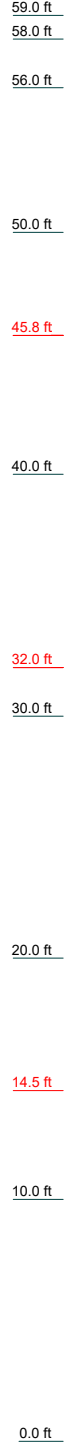
Client: **Northeast Site Solutions** | Drawn by: **Domenic Aversa** | App'd:

Code: **TIA-222-G** | Date: **10/20/20** | Scale: **NTS**

Path: C:\Users\Domenic\Desktop\Work\Northeast Site Solutions\Ansonia\Updated Analysis\Engineers\Ansonia LCI.dwg | Dwg No. **E-1**



Section	T1	T2	T3	T4	T5	T6	T7	T8
Legs	ROHN 1.25x14 ga							
Leg Grade								
Diagonals	N.A.							
Diagonal Grade	N.A.							
Top Girts	N.A.							
Bottom Girts	N.A.							
Horizontal	SR 5/8 B							
Top Guy Pull-Offs	N.A.							
Face Width (ft)	0.5							
# Panels @ (ft)	4 @ 1.35417							
Weight (lb)	2865.3							



**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	SR 5/8	C	1 @ 0.916667
B	N.A.	D	1 @ 1.83333

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

- TOWER DESIGN NOTES**
1. Tower designed for Exposure B to the TIA-222-G Standard.
  2. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
  3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
  4. Deflections are based upon a 60 mph wind.
  5. Tower Structure Class II.
  6. Topographic Category 1 with Crest Height of 0.00 ft
  7. TOWER RATING: 58%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 9120 lb  
SHEAR: 573 lb

UPLIFT: 0 lb  
SHEAR: 0 lb

AXIAL 1811.0 lb (Vx C) 21531 lb  
1419.8 lb (Vz C)  
1566.3 lb (Vx B)  
SHEAR 308 lb

MOMENT 1 kip-ft

TORQUE 0 kip-ft  
50 mph WIND - 0.7500 in ICE

AXIAL 20181 lb

SHEAR 1735 lb


MOMENT 4 kip-ft

TORQUE 0 kip-ft

REACTIONS - 97 mph WIND

8275 lb  
3318 lb  
6915 lb  
R=16.00 ft

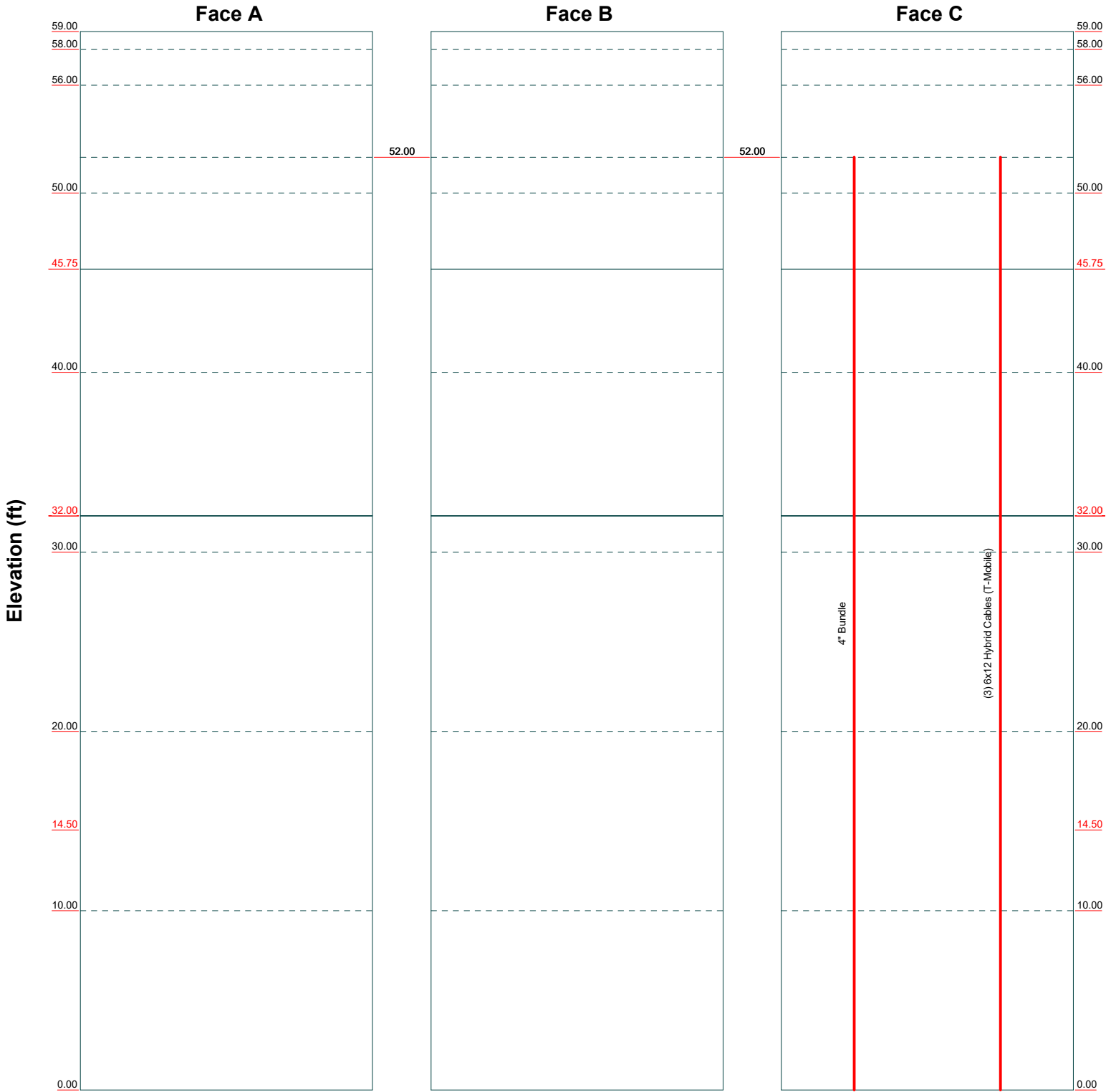
ALL REACTIONS ARE FACTORED

 <p><b>KM Consulting Engineers</b> 262 Upper Ferry Road Ewing, NJ 08525 Phone: (609) 538-0400 FAX:</p>	<b>Job: CTNH520A (Ansonia)</b>		
	Project: 140604.08		
	Client: Northeast Site Solutions	Drawn by: Domenic Aversa	App'd:
	Code: TIA-222-G	Date: 10/20/20	Scale: NTS
	Path:	Dwg No. E-1	

# Feed Line Distribution Chart

## 0' - 59'

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

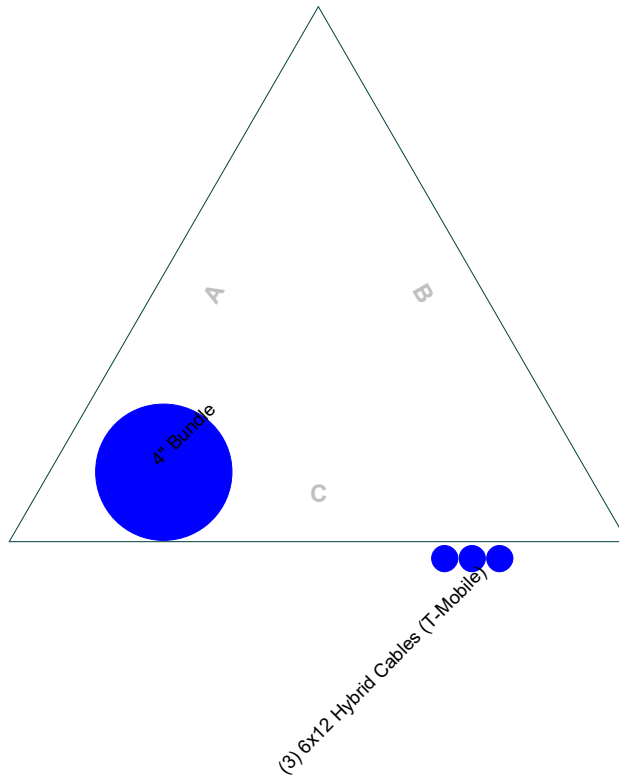


 Consulting Engineers	<b>KM Consulting Engineers</b>	Job: <b>CTNH520A (Ansonia)</b>			
	262 Upper Ferry Road		Project: <b>140604.08</b>		
	Ewing, NJ 08525		Client: Northeast Site Solutions	Drawn by: Domenic Aversa	App'd:
	Phone: (609) 538-0400		Code: TIA-222-G	Date: 10/20/20	Scale: NTS
	FAX:		Path:		Dwg No. E-7

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# Feed Line Plan

Round Flat App In Face App Out Face



 <p>Consulting Engineers</p>	<b>KM Consulting Engineers</b>		Job: <b>CTNH520A (Ansonia)</b>
	262 Upper Ferry Road Ewing, NJ 08525		Project: <b>140604.08</b>
	Phone: (609) 538-0400		Client: Northeast Site Solutions
	FAX:		Drawn by: Domenic Aversa
			Code: TIA-222-G
		Path:	Scale: NTS
			Dwg No. E-7

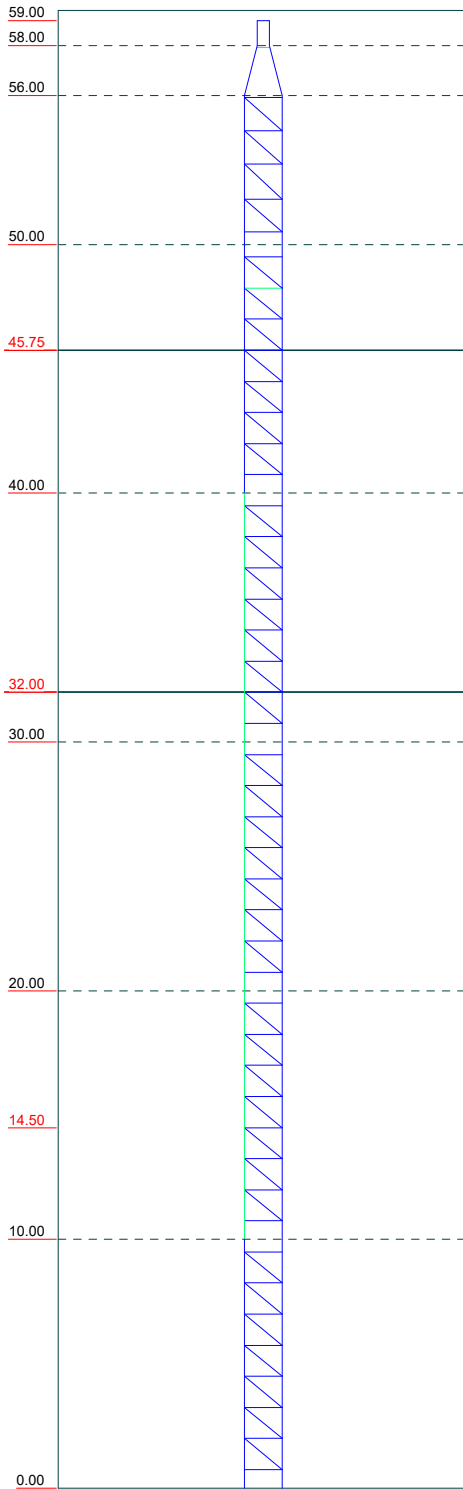
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# Stress Distribution Chart

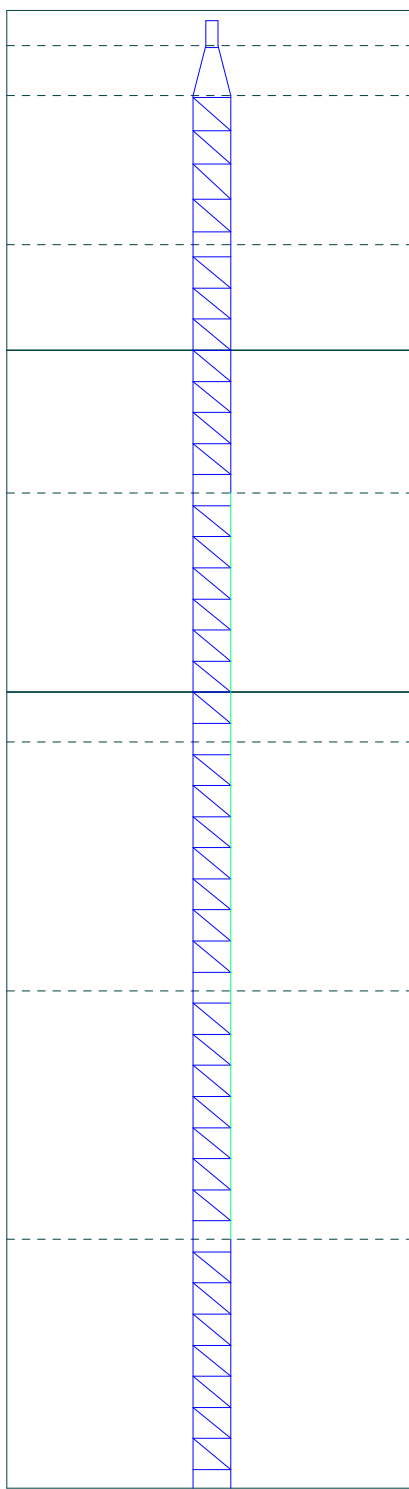
0' - 59'

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

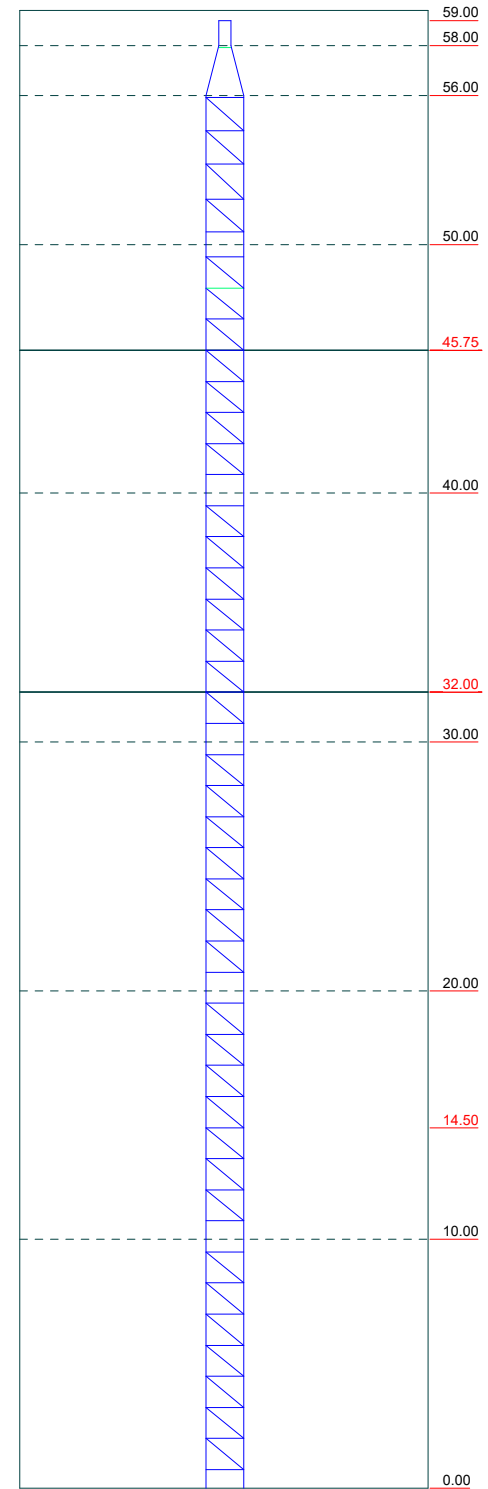
Face A



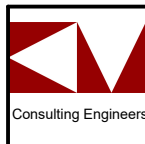
Face B



Face C



Elevation (ft)



**KM Consulting Engineers**  
 262 Upper Ferry Road  
 Ewing, NJ 08525  
 Phone: (609) 538-0400  
 FAX:

Job: **CTNH520A (Ansonia)**

Project: **140604.08**

Client: Northeast Site Solutions

Drawn by: Domenic Aversa

App'd:

Code: TIA-222-G

Date: 10/20/20

Scale: NTS

Path:

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Dwg No. E-8

<b>tnxTower</b>  <b>KM Consulting Engineers</b> 262 Upper Ferry Road Ewing, NJ 08525 Phone: (609) 538-0400 FAX:	<b>Job</b> CTNH520A (Ansonia)	<b>Page</b> 43 of 44
	<b>Project</b> 140604.08	<b>Date</b> 14:27:21 10/20/20
	<b>Client</b> Northeast Site Solutions	<b>Designed by</b> Domenic Aversa

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass Fail	
T1	59 - 58	Leg	ROHN 1.25x14 ga	1	-1648.85	13762.20	19.7	Pass	
		Top Girt	5/8	4	-4.44	13063.20	39.8	Pass	
T2	58 - 56	Leg	ROHN 1.25x14 ga	7	-1129.68	12474.20	32.2	Pass	
		Horizontal	5/8	10	-154.99	12888.40	58.0	Pass	
T3	56 - 50	Leg	ROHN 1.25x14 ga	15	-4196.21	13389.00	31.3	Pass	
		Diagonal	(2) 7/16" SR	24	-1923.15	18762.50	10.2	Pass	
		Horizontal	7/16	27	-838.42	3055.36	27.4	Pass	
		Top Girt	7/16	16	279.73	4870.70	5.7	Pass	
		Bottom Girt	7/16	21	-666.25	3055.36	21.8	Pass	
T4	50 - 40	Leg	ROHN 1.25 x 14ga w/ 1" grade 150 threaded rod	45	-15409.30	43909.40	35.1	Pass	
		Diagonal	(2) 7/16" SR	88	-2933.38	20097.50	14.6	Pass	
		Horizontal	7/16	87	-1603.48	3055.36	52.5	Pass	
		Top Girt	7/16	48	-1119.31	3055.36	36.6	Pass	
		Bottom Girt	7/16	51	-576.95	3055.36	18.9	Pass	
		Guy A@45.75	3/8	285	4504.29	9240.00	48.7	Pass	
		Guy B@45.75	3/8	284	4961.73	9240.00	53.7	Pass	
		Guy C@45.75	3/8	283	4925.93	9240.00	53.3	Pass	
		Top Guy	1 1/4	73	1528.79	55223.30	2.8	Pass	
		Pull-Off@45.75							
		T5	40 - 30	Leg	ROHN 1.25 x 14ga w/ 1" grade 150 threaded rod	93	-23034.20	43909.40	52.5
Diagonal	(2) 7/16" SR			136	-1618.63	20097.50	8.1	Pass	
Horizontal	7/16			135	-884.52	3055.36	28.9	Pass	
Top Girt	7/16			96	-594.86	3055.36	19.5	Pass	
Bottom Girt	7/16			99	-337.71	3055.36	11.1	Pass	
Guy A@32	3/8			288	2996.39	9240.00	32.4	Pass	
Guy B@32	3/8			287	3990.10	9240.00	43.2	Pass	
Guy C@32	3/8			286	3964.14	9240.00	42.9	Pass	
Top Guy	1 1/4			104	1210.02	55223.30	2.2	Pass	
Pull-Off@32									
T6	30 - 20	Leg	ROHN 1.25 x 14ga w/ 1" grade 150 threaded rod	141	-23737.20	43909.40	54.1	Pass	
		Diagonal	(2) 7/16" SR	185	-1493.31	20097.50	7.4	Pass	
		Horizontal	7/16	182	817.54	4870.70	16.8	Pass	
		Top Girt	7/16	143	620.98	4870.70	12.7	Pass	
		Bottom Girt	7/16	146	466.71	4870.70	9.6	Pass	
T7	20 - 10	Leg	ROHN 1.25 x 14ga w/ 1" grade 150 threaded rod	189	-24687.10	43909.40	56.2	Pass	
		Diagonal	(2) 7/16" SR	198	-2954.87	20097.50	14.7	Pass	
		Horizontal	7/16	200	-1202.87	3055.36	39.4	Pass	
		Top Girt	7/16	191	501.35	4870.70	10.3	Pass	
		Bottom Girt	7/16	194	-765.28	3055.36	25.0	Pass	
T8	10 - 0	Leg	ROHN 1.25 x 14ga w/ 1" grade 150 threaded rod	237	-17974.40	43909.40	40.9	Pass	
		Diagonal	(2) 7/16" SR	282	-2936.90	20097.50	14.6	Pass	
		Horizontal	7/16	278	-1110.85	3055.36	36.4	Pass	
		Top Girt	7/16	239	-820.85	3055.36	26.9	Pass	
		Bottom Girt	7/16	243	1134.55	4870.70	23.3	Pass	
Summary									
						Leg (T7)	56.2	Pass	
						Diagonal (T7)	14.7	Pass	
						Horizontal (T2)	58.0	Pass	
						Top Girt (T1)	39.8	Pass	
						Bottom Girt	25.0	Pass	

<b>tnxTower</b>  <b>KM Consulting Engineers</b> 262 Upper Ferry Road Ewing, NJ 08525 Phone: (609) 538-0400 FAX:	<b>Job</b> CTNH520A (Ansonia)	<b>Page</b> 44 of 44
	<b>Project</b> 140604.08	<b>Date</b> 14:27:21 10/20/20
	<b>Client</b> Northeast Site Solutions	<b>Designed by</b> Domenic Aversa

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass Fail
						(T7)		
						Guy A (T4)	48.7	Pass
						Guy B (T4)	53.7	Pass
						Guy C (T4)	53.3	Pass
						Top Guy	2.8	Pass
						Pull-Off		
						(T4)		
						Bolt Checks	37.3	Pass
						<b>RATING =</b>	<b>58.0</b>	<b>Pass</b>



(2) New 2.5" (nom) horizontal attached using crossover plates. Each mounted 2' away from the existing middle horizontal pipe

Antenna masts spaced ~2' apart

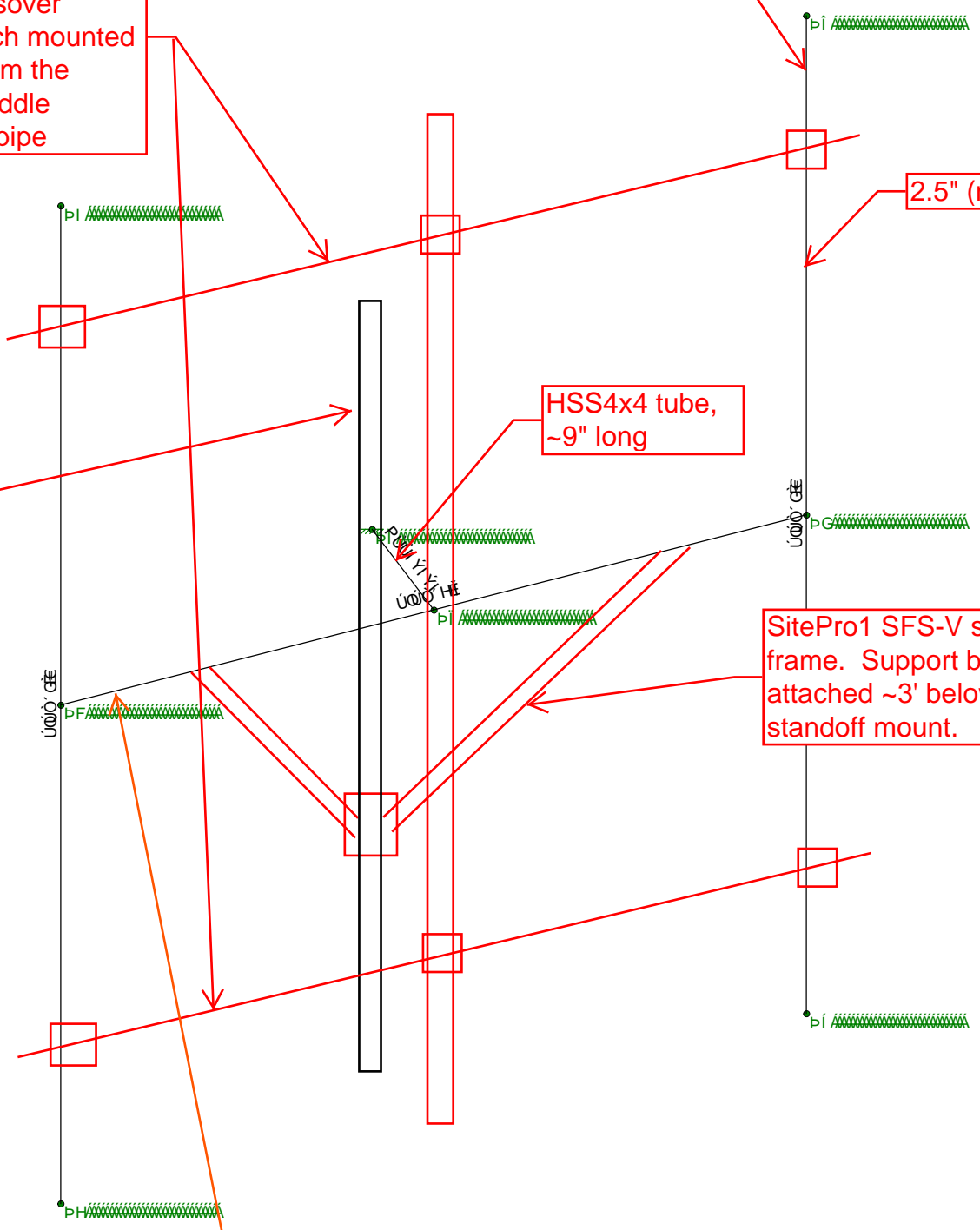
2.5" (nominal)

HSS4x4 tube, ~9" long

Tower leg

SitePro1 SFS-V stabilizer frame. Support bracket attached ~3' below the standoff mount.

Existing 3.5" (nom) horizontal, slightly over 4' long with the existing antennas spaced 4' apart.

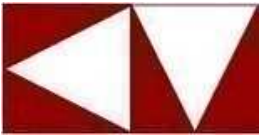


0, 9, 11, 13, 15, 17, 19

ST	Q	}	~		a	*	A	,	a	^	!	•	E	E
Q	~	*	A	E	•	a	E	Q	V					
F	E	E	E											

OVPI GEE  
Qa^A^ca

U	S	A	E										
R		A	E	G	E	J	A	E	K	E	A	U	T
T	[	]	Q	a	E	E	E						



CTNH520A

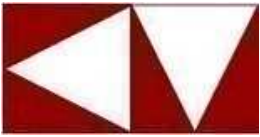
## Index

<u>Page</u>	<u>Item</u>
C-1	Site Details
C-2	Antenna and Mount Details
C-3	Antenna Force Calculations (no ice)
C-4	Mount Force Calculations (no ice)
C-5	Antenna Force Calculations (with ice)
C-6	Mount Force Calculations (with ice)
C-7	Calculation Summary

Design Criteria: 2018 CSBC  
ANSI/TIA-222-G  
AISC Steel Construction Manual

Assumptions: Proposed loading was obtained from T-Mobile RFDS 10/6/20. Mount details were obtained from a mapping completed by IMTL on 6/26/19. Proposed mount reinforcement is designed by KMCE. All members are assumed to be in good working condition.





Site Details:

Wind Speed:  $V_{asd} := 97 \text{ mph}$  (nominal design wind speed per 2018 CSBC)

$$V := V_{asd}$$

$$V_{ice} := 50 \text{ mph}$$

Centerline Height:  $z_a := 51.5 \text{ ft}$

Exposure B:  $z_g := 1200 \text{ ft}$   $\alpha := 7.0$

Structure Class II:  $I_{wind} := 1.00$   $I_{ice} := 1.00$

Design Ice Thickness:  $t_i := 0.75 \text{ in}$

Wind Pressure Calculation

$$q_z = 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I$$

$$F_A = q_z G_h (EPA_A)$$

$$K_z := 2.01 \left( \frac{z_a}{z_g} \right)^{\frac{2}{\alpha}} = 0.82$$

$$G_h := 0.85$$

$$I_{wind} = 1.0$$

$$I_{ice} = 1.0$$

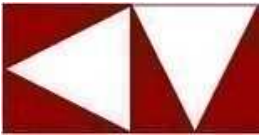
$$K_d := 0.95$$

$$K_{zt} := 1.0 \quad K_{iz} := \left( \frac{51.5}{33} \right)^{0.1} = 1.0$$

$$\text{No Ice: } q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I_{wind} \cdot \frac{\text{lbf}}{\text{ft}^2 \cdot \text{mph}^2} = 18.7 \frac{\text{lbf}}{\text{ft}^2}$$

$$\text{With Ice: } q_{z_i} := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V_{ice}^2 \cdot I_{ice} \cdot \frac{\text{lbf}}{\text{ft}^2 \cdot \text{mph}^2} = 5.0 \frac{\text{lbf}}{\text{ft}^2}$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot (K_{zt})^{0.35} = 1.6 \text{ in}$$



Antenna/Mount Details:

Weight:

APXVAALL18\_43-U-NA20:

$$H_{a1} := 72.0 \text{ in}$$
$$W_{a1} := 24.0 \text{ in}$$
$$D_{a1} := 8.5 \text{ in}$$

$$w_{a1} := 92.6 \text{ lbf}$$
$$w_{a1i} := 92.6 \text{ lbf} + 87.8 \text{ lbf} = 180.4 \text{ lbf}$$

AIR 6449 B41:

$$H_{a2} := 33.1 \text{ in}$$
$$W_{a2} := 20.6 \text{ in}$$
$$D_{a2} := 8.6 \text{ in}$$

$$w_{a2} := 104 \text{ lbf}$$
$$w_{a2i} := 104 \text{ lbf} + 39.99 \text{ lbf} = 144.0 \text{ lbf}$$

AIR32 B2A/B66A:

$$H_{a3} := 56.6 \text{ in}$$
$$W_{a3} := 12.9 \text{ in}$$
$$D_{a3} := 8.7 \text{ in}$$

$$w_{a3} := 132.2 \text{ lbf}$$
$$w_{a3i} := 132.2 \text{ lbf} + 46.9 \text{ lbf} = 179.1 \text{ lbf}$$

Radio 4449:

$$H_{a4} := 15.0 \text{ in}$$
$$W_{a4} := 13.2 \text{ in}$$
$$D_{a4} := 10.4 \text{ in}$$

$$w_{a4} := 78 \text{ lbf}$$
$$w_{a4i} := 78 \text{ lbf} + 17.6 \text{ lbf} = 95.6 \text{ lbf}$$

Radio 4415 B25:

$$H_{a5} := 16.5 \text{ in}$$
$$W_{a5} := 13.5 \text{ in}$$
$$D_{a5} := 6.3 \text{ in}$$

$$w_{a5} := 49.5 \text{ lbf}$$
$$w_{a5i} := 49.5 \text{ lbf} + 14.9 \text{ lbf} = 64.4 \text{ lbf}$$

2" (nom) pipes:

$$D_{p1} := 2.375 \text{ in}$$

3.5" (nom) pipes:

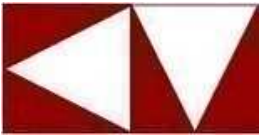
$$D_{p2} := 4.0 \text{ in}$$

HSS4x4:

$$D_{p3} := 4.0 \text{ in}$$

L2x2 brace:

$$D_{p4} := 2.0 \text{ in}$$



### Antenna Wind Force Calculation (no ice)

APXVAALL18\_43-U-NA20:

$$EPA_{A1f} := H_{a1} \cdot W_{a1} = 12.00 \text{ ft}^2$$

$$EPA_{A1s} := H_{a1} \cdot D_{a1} = 4.25 \text{ ft}^2$$

$$C_{a_{1f}} := 1.22$$

$$C_{a_{1s}} := 1.45$$

$$F_{A1f} := q_z \cdot G_h \cdot (EPA_{A1f}) \cdot C_{a_{1f}} = 232.8 \text{ lbf} \quad F_{A1s} := q_z \cdot G_h \cdot (EPA_{A1s}) \cdot C_{a_{1s}} = 98.0 \text{ lbf}$$

AIR 6449 B41:

$$EPA_{A2f} := H_{a2} \cdot W_{a2} = 4.74 \text{ ft}^2$$

$$EPA_{A2s} := H_{a2} \cdot D_{a2} = 1.98 \text{ ft}^2$$

$$C_{a_{2f}} := 1.2$$

$$C_{a_{2s}} := 1.26$$

$$F_{A2f} := q_z \cdot G_h \cdot (EPA_{A2f}) \cdot C_{a_{2f}} = 90.4 \text{ lbf} \quad F_{A2s} := q_z \cdot G_h \cdot (EPA_{A2s}) \cdot C_{a_{2s}} = 39.6 \text{ lbf}$$

AIR32 B2A/B66A:

$$EPA_{A3f} := H_{a3} \cdot W_{a3} = 5.07 \text{ ft}^2$$

$$EPA_{A3s} := H_{a3} \cdot D_{a3} = 3.42 \text{ ft}^2$$

$$C_{a_{3f}} := 1.27$$

$$C_{a_{3s}} := 1.53$$

$$F_{A3f} := q_z \cdot G_h \cdot (EPA_{A3f}) \cdot C_{a_{3f}} = 102.4 \text{ lbf} \quad F_{A3s} := q_z \cdot G_h \cdot (EPA_{A3s}) \cdot C_{a_{3s}} = 83.2 \text{ lbf}$$

Radio 4449:

$$EPA_{A4f} := H_{a4} \cdot W_{a4} = 1.38 \text{ ft}^2$$

$$EPA_{A4s} := H_{a4} \cdot D_{a4} = 1.08 \text{ ft}^2$$

$$C_{a_{4f}} := 1.20$$

$$C_{a_{4s}} := 1.31$$

$$F_{A4f} := q_z \cdot G_h \cdot (EPA_{A4f}) \cdot C_{a_{4f}} = 26.2 \text{ lbf} \quad F_{A4s} := q_z \cdot G_h \cdot (EPA_{A4s}) \cdot C_{a_{4s}} = 22.6 \text{ lbf}$$

Radio 4415 B25:

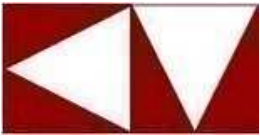
$$EPA_{A5f} := H_{a5} \cdot W_{a5} = 1.55 \text{ ft}^2$$

$$EPA_{A5s} := H_{a5} \cdot D_{a5} = 0.72 \text{ ft}^2$$

$$C_{a_{5f}} := 1.2$$

$$C_{a_{5s}} := 1.2$$

$$F_{A5f} := q_z \cdot G_h \cdot (EPA_{A5f}) \cdot C_{a_{5f}} = 29.5 \text{ lbf} \quad F_{A5s} := q_z \cdot G_h \cdot (EPA_{A5s}) \cdot C_{a_{5s}} = 13.8 \text{ lbf}$$



Mount Force Calculation (no ice)

2" (nom) pipes:

$$EPA_{p1} := D_{p1} = 2.38 \text{ in}$$

$$C_{a\_p1} := 1.2$$

$$F_{p1} := q_z \cdot G_h \cdot (EPA_{p1}) \cdot C_{a\_p1} = 3.78 \frac{\text{lbf}}{\text{ft}}$$

3.5" (nom) pipes:

$$EPA_{p2} := D_{p2} = 4 \text{ in}$$

$$C_{a\_p2} := 1.2$$

$$F_{p2} := q_z \cdot G_h \cdot (EPA_{p2}) \cdot C_{a\_p2} = 6.36 \frac{\text{lbf}}{\text{ft}}$$

HSS4x4:

$$EPA_{p3} := D_{p3} = 4 \text{ in}$$

$$C_{a\_p3} := 1.4$$

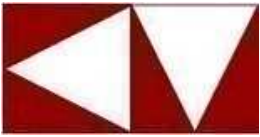
$$F_{p3} := q_z \cdot G_h \cdot (EPA_{p3}) \cdot C_{a\_p3} = 7.42 \frac{\text{lbf}}{\text{ft}}$$

L2x2 brace:

$$EPA_{p4} := D_{p4} = 2 \text{ in}$$

$$C_{a\_p4} := 1.2$$

$$F_{p4} := q_z \cdot G_h \cdot (EPA_{p4}) \cdot C_{a\_p4} = 3.18 \frac{\text{lbf}}{\text{ft}}$$



### Antenna Force Calculation (with ice)

APXVAALL18\_43-U-NA20:

$$EPA_{A1f} := (H_{a1} + 2 \cdot t_{iz}) \cdot (W_{a1} + 2 \cdot t_{iz}) \quad EPA_{A1s} := (H_{a1} + 2 \cdot t_{iz}) \cdot (D_{a1} + 2 \cdot t_{iz})$$

$$C_{a_1f} = 1.22 \quad C_{a_1s} = 1.45$$

$$F_{A1fi} := q_{z_i} \cdot G_h \cdot (EPA_{A1f}) \cdot C_{a_1f} = 73.0 \text{ lbf} \quad F_{A1si} := q_{z_i} \cdot G_h \cdot (EPA_{A1s}) \cdot C_{a_1s} = 37.2 \text{ lbf}$$

AIR 6449 B41:

$$EPA_{A2f} := (H_{a2} + 2 \cdot t_{iz}) \cdot (W_{a2} + 2 \cdot t_{iz}) \quad EPA_{A2s} := (H_{a2} + 2 \cdot t_{iz}) \cdot (D_{a2} + 2 \cdot t_{iz})$$

$$C_{a_2f} = 1.20 \quad C_{a_2s} = 1.26$$

$$F_{A2fi} := q_{z_i} \cdot G_h \cdot (EPA_{A2f}) \cdot C_{a_2f} = 30.3 \text{ lbf} \quad F_{A2si} := q_{z_i} \cdot G_h \cdot (EPA_{A2s}) \cdot C_{a_2s} = 15.7 \text{ lbf}$$

AIR32 B2A/B66A:

$$EPA_{A3f} := (H_{a3} + 2 \cdot t_{iz}) \cdot (W_{a3} + 2 \cdot t_{iz}) \quad EPA_{A3s} := (H_{a3} + 2 \cdot t_{iz}) \cdot (D_{a3} + 2 \cdot t_{iz})$$

$$C_{a_3f} = 1.27 \quad C_{a_3s} = 1.53$$

$$F_{A3fi} := q_{z_i} \cdot G_h \cdot (EPA_{A3f}) \cdot C_{a_3f} = 35.7 \text{ lbf} \quad F_{A3si} := q_{z_i} \cdot G_h \cdot (EPA_{A3s}) \cdot C_{a_3s} = 31.7 \text{ lbf}$$

Radio 4449:

$$EPA_{A4f} := (H_{a4} + 2 \cdot t_{iz}) \cdot (W_{a4} + 2 \cdot t_{iz}) \quad EPA_{A4s} := (H_{a4} + 2 \cdot t_{iz}) \cdot (D_{a4} + 2 \cdot t_{iz})$$

$$C_{a_4f} = 1.2 \quad C_{a_4s} = 1.31$$

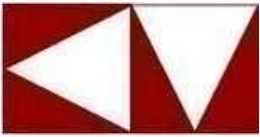
$$F_{A4fi} := q_{z_i} \cdot G_h \cdot (EPA_{A4f}) \cdot C_{a_4f} = 10.4 \text{ lbf} \quad F_{A4si} := q_{z_i} \cdot G_h \cdot (EPA_{A4s}) \cdot C_{a_4s} = 9.4 \text{ lbf}$$

Radio 4415 B25:

$$EPA_{A5f} := (H_{a5} + 2 \cdot t_{iz}) \cdot (W_{a5} + 2 \cdot t_{iz}) \quad EPA_{A5s} := (H_{a5} + 2 \cdot t_{iz}) \cdot (D_{a5} + 2 \cdot t_{iz})$$

$$C_{a_5f} = 1.2 \quad C_{a_5s} = 1.2$$

$$F_{A5fi} := q_{z_i} \cdot G_h \cdot (EPA_{A5f}) \cdot C_{a_5f} = 11.5 \text{ lbf} \quad F_{A5si} := q_{z_i} \cdot G_h \cdot (EPA_{A5s}) \cdot C_{a_5s} = 6.5 \text{ lbf}$$



### Mount Force Calculation (with ice)

2" (nom) pipes:

$$EPA_{p1} := D_{p1} + 2 \cdot t_{iz} = 5.51 \text{ in}$$

$$C_{a\_p1} = 1.2$$

$$F_{Ap1i} := q_{z\_i} \cdot G_h \cdot (EPA_{p1}) \cdot C_{a\_p1} = 2.33 \frac{\text{lbf}}{\text{ft}}$$

3.5" (nom) pipes:

$$EPA_{p2} := D_{p2} + 2 \cdot t_{iz} = 7.14 \text{ in}$$

$$C_{a\_p2} = 1.2$$

$$F_{Ap2i} := q_{z\_i} \cdot G_h \cdot (EPA_{p2}) \cdot C_{a\_p2} = 3.02 \frac{\text{lbf}}{\text{ft}}$$

HSS4x4:

$$EPA_{p3} := D_{p3} + 2 \cdot t_{iz} = 7.14 \text{ in}$$

$$C_{a\_p3} = 1.4$$

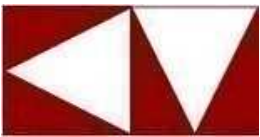
$$F_{Ap3i} := q_{z\_i} \cdot G_h \cdot (EPA_{p3}) \cdot C_{a\_p3} = 3.52 \frac{\text{lbf}}{\text{ft}}$$

L2x2 brace:

$$EPA_{p4} := D_{p4} + 2 \cdot t_{iz} = 5.14 \text{ in}$$

$$C_{a\_p4} = 1.2$$

$$F_{Ap4i} := q_{z\_i} \cdot G_h \cdot (EPA_{p4}) \cdot C_{a\_p4} = 2.17 \frac{\text{lbf}}{\text{ft}}$$



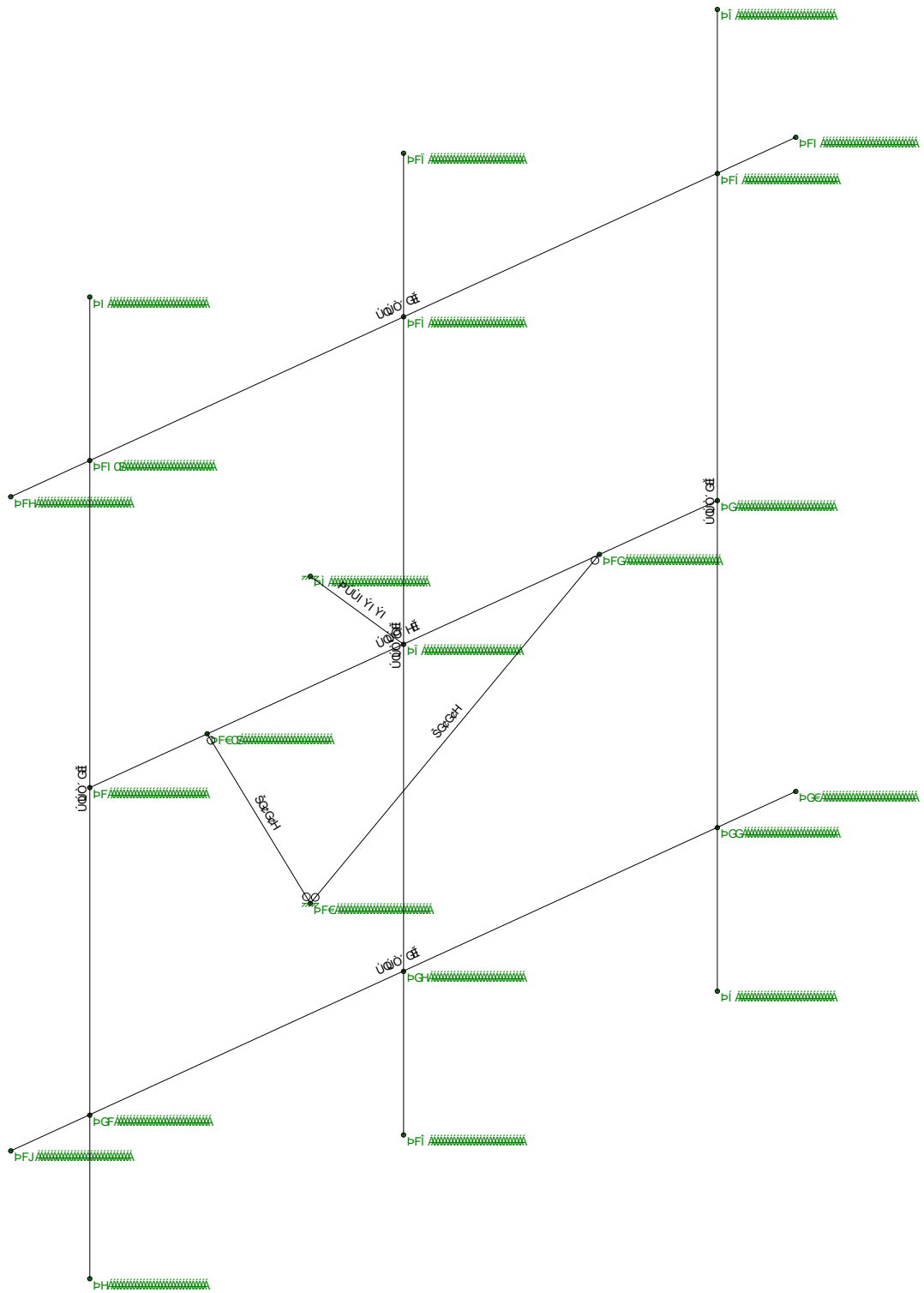
Summary (no ice)

	Front Wind Force:	Side Wind Force:	Weight:
APXVAALL18_43-U-NA20:	$F_{A1f} = 232.8 \text{ lbf}$	$F_{A1s} = 98.0 \text{ lbf}$	$w_{a1} = 92.6 \text{ lbf}$
AIR 6449 B41:	$F_{A2f} = 90.4 \text{ lbf}$	$F_{A2s} = 39.6 \text{ lbf}$	$w_{a2} = 104.0 \text{ lbf}$
AIR32 B2A/B66A:	$F_{A3f} = 102.4 \text{ lbf}$	$F_{A3s} = 83.2 \text{ lbf}$	$w_{a3} = 132.2 \text{ lbf}$
Radio 4449:	$F_{A4f} = 26.2 \text{ lbf}$	$F_{A4s} = 22.6 \text{ lbf}$	$w_{a4} = 78.0 \text{ lbf}$
Radio 4415 B25:	$F_{A5f} = 29.5 \text{ lbf}$	$F_{A5s} = 13.8 \text{ lbf}$	$w_{a5} = 49.5 \text{ lbf}$
2" (nom) pipes:	$F_{p1} = 3.78 \frac{\text{lbf}}{\text{ft}}$		
3.5" (nom) pipes:	$F_{p2} = 6.36 \frac{\text{lbf}}{\text{ft}}$		
HSS4x4:	$F_{p3} = 7.42 \frac{\text{lbf}}{\text{ft}}$		
L2x2 brace:	$F_{p4} = 3.18 \frac{\text{lbf}}{\text{ft}}$		

Summary (with ice)

	Front Wind Force:	Side Wind Force:	Weight:
APXVAALL18_43-U-NA20:	$F_{A1fi} = 73.0 \text{ lbf}$	$F_{A1si} = 37.2 \text{ lbf}$	$w_{a1i} = 180.4 \text{ lbf}$
AIR 6449 B41:	$F_{A2fi} = 30.3 \text{ lbf}$	$F_{A2si} = 15.7 \text{ lbf}$	$w_{a2i} = 144.0 \text{ lbf}$
AIR32 B2A/B66A:	$F_{A3fi} = 35.7 \text{ lbf}$	$F_{A3si} = 31.7 \text{ lbf}$	$w_{a3i} = 179.1 \text{ lbf}$
Radio 4449:	$F_{A4fi} = 10.4 \text{ lbf}$	$F_{A4si} = 9.4 \text{ lbf}$	$w_{a4i} = 95.6 \text{ lbf}$
Radio 4415 B25:	$F_{A5fi} = 11.5 \text{ lbf}$	$F_{A5si} = 6.5 \text{ lbf}$	$w_{a5i} = 64.4 \text{ lbf}$
2" (nom) pipes:	$F_{Ap1i} = 2.3 \frac{\text{lbf}}{\text{ft}}$		$w_{p1i} := 1.8 \frac{\text{lbf}}{\text{ft}}$
3.5" (nom) pipes:	$F_{Ap2i} = 3.0 \frac{\text{lbf}}{\text{ft}}$		$w_{p2i} := 2.5 \frac{\text{lbf}}{\text{ft}}$
HSS4x4:	$F_{Ap3i} = 3.5 \frac{\text{lbf}}{\text{ft}}$		$w_{p3i} := 3.3 \frac{\text{lbf}}{\text{ft}}$
L2x2 brace:	$F_{Ap4i} = 2.2 \frac{\text{lbf}}{\text{ft}}$		$w_{p4i} := 1.7 \frac{\text{lbf}}{\text{ft}}$

Page C-7

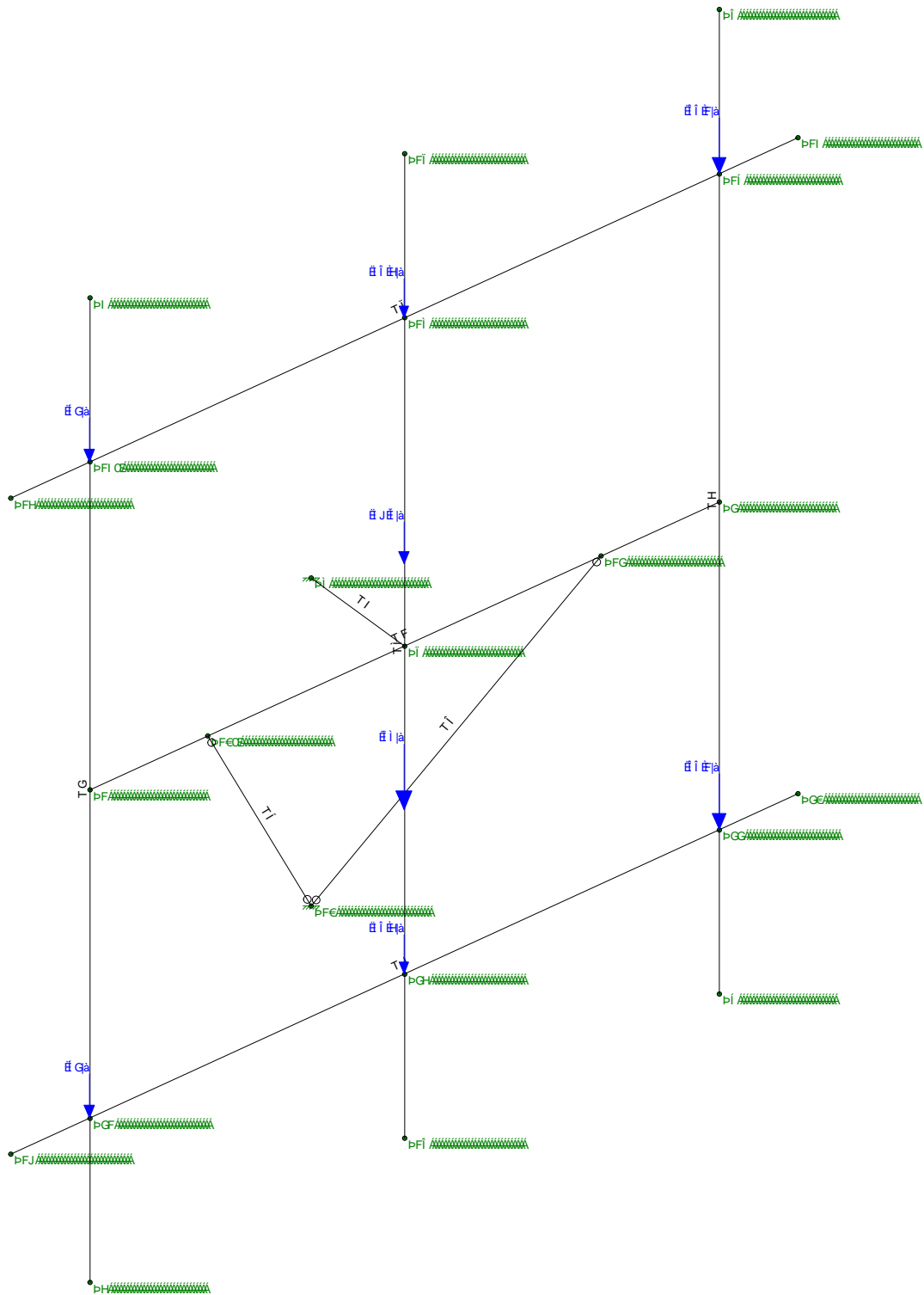


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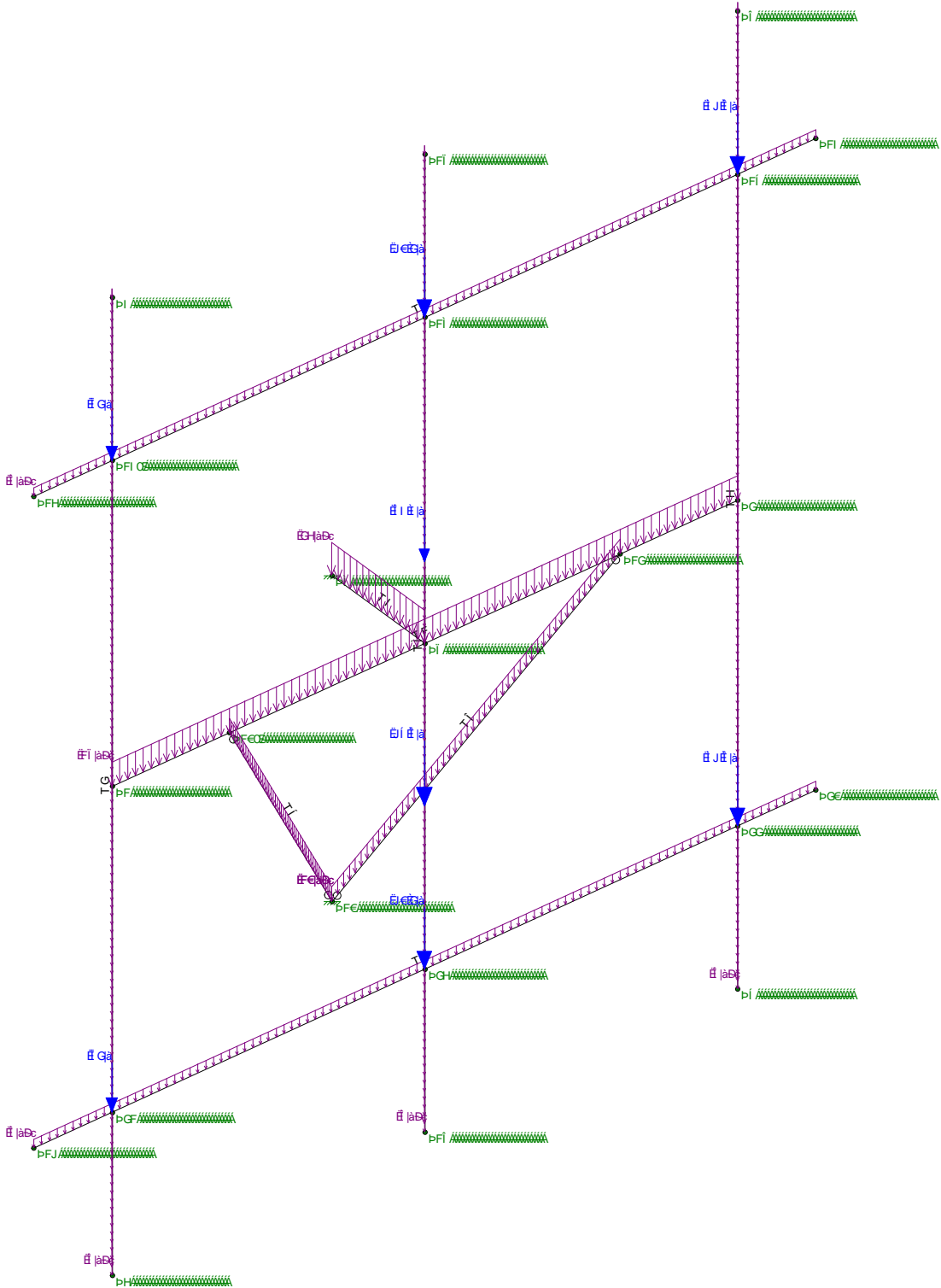


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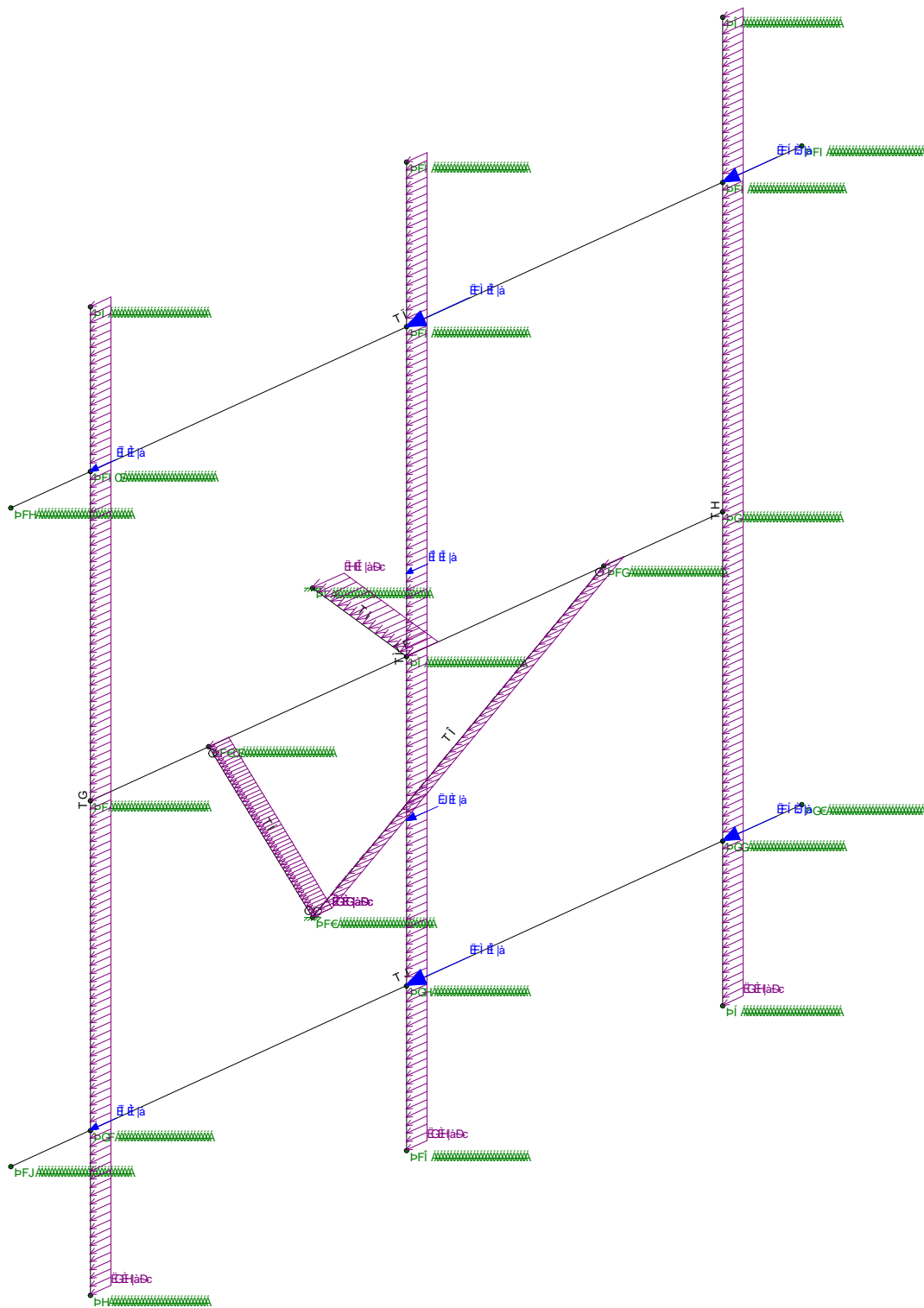


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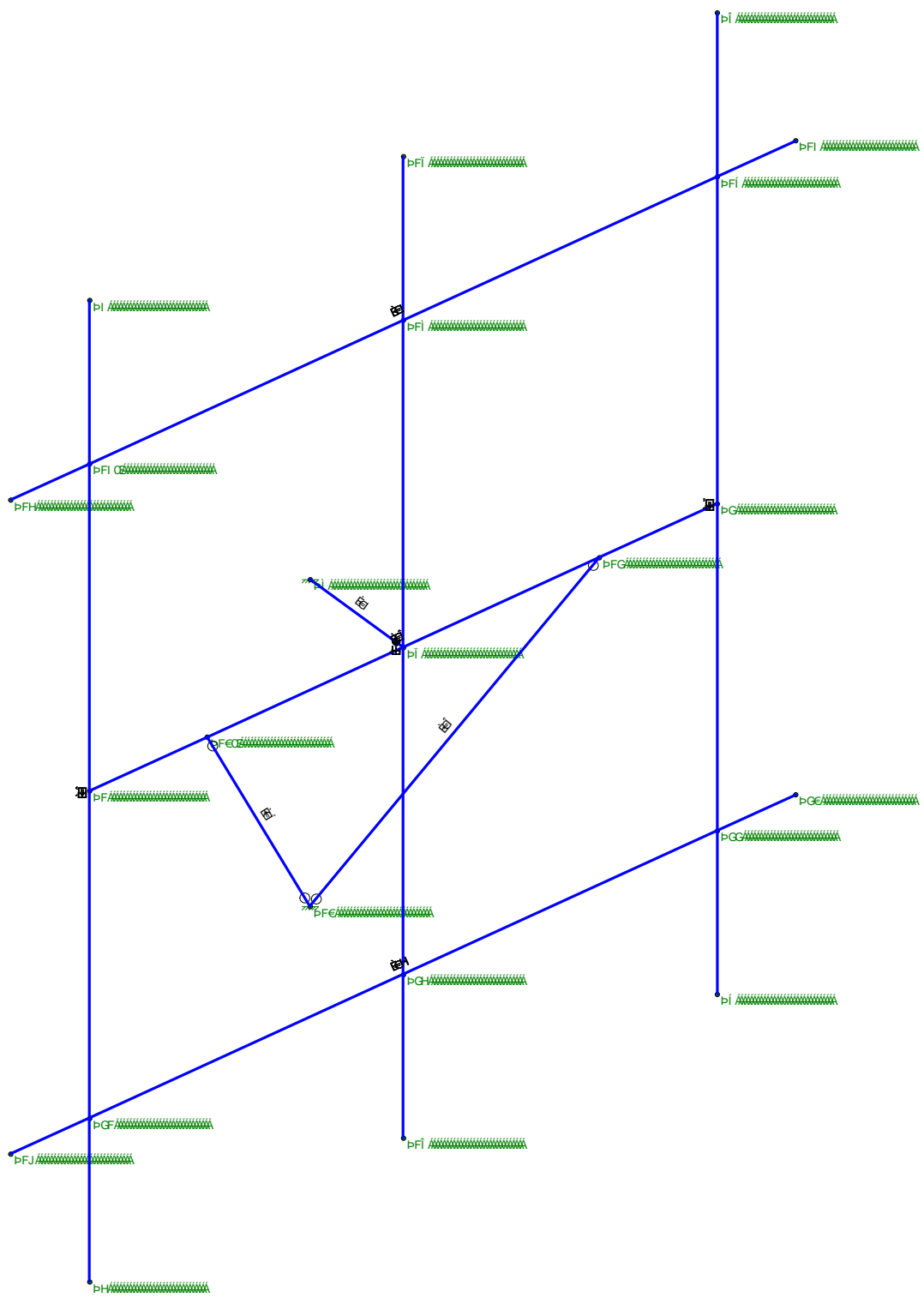
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# Exhibit E

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

T-Mobile Existing Facility

Site ID: CTNH520A

Knapp Ansonia Lattice Tower  
21 Birchwood Drive  
Ansonia, Connecticut 06401

**December 6, 2020**

**EBI Project Number: 6220006132**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>89.25%</b>

December 6, 2020

T-Mobile

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

Emissions Analysis for Site: CTNH520A - Knapp Ansonia Lattice Tower

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **21 Birchwood Drive** in **Ansonia, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 21 Birchwood Drive in Ansonia, 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 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) 2 UMTS 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) 4 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 channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 9) 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.
- 10) 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.
- 11) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL18\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL18\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL18\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 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.

- 12) The antenna mounting height centerline of the proposed antennas is 51.5 feet above ground level (AGL).
- 13) 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.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	51.5 feet	Height (AGL):	51.5 feet	Height (AGL):	51.5 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):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A1 MPE %:	<b>11.83%</b>	Antenna B1 MPE %:	<b>11.83%</b>	Antenna C1 MPE %:	<b>11.83%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL18_43-U-NA20	Make / Model:	RFS APXVAALL18_43-U-NA20	Make / Model:	RFS APXVAALL18_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	11.66 dBd / 11.66 dBd / 12.31 dBd / 15.05 dBd / 15.05 dBd	Gain:	11.66 dBd / 11.66 dBd / 12.31 dBd / 15.05 dBd / 15.05 dBd	Gain:	11.66 dBd / 11.66 dBd / 12.31 dBd / 15.05 dBd / 15.05 dBd
Height (AGL):	51.5 feet	Height (AGL):	51.5 feet	Height (AGL):	51.5 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	8,831.07	ERP (W):	8,831.07	ERP (W):	8,831.07
Antenna A2 MPE %:	<b>17.72%</b>	Antenna B2 MPE %:	<b>17.72%</b>	Antenna C2 MPE %:	<b>17.72%</b>
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	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	51.5 feet	Height (AGL):	51.5 feet	Height (AGL):	51.5 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	<b>52.16%</b>	Antenna B3 MPE %:	<b>52.16%</b>	Antenna C3 MPE %:	<b>52.16%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	81.71%
Metro PCS	3.21%
Radio Comm. Corp	0.49%
Paging Assoc. Inc.	1.77%
Paging	2.07%
<b>Site Total MPE % :</b>	<b>89.25%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	81.71%
T-Mobile Sector B Total:	81.71%
T-Mobile Sector C Total:	81.71%
Site Total MPE % :	89.25%

### 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 ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 1900 MHz LTE	2	2056.61	51.5	55.75	1900 MHz LTE	1000	5.58%
T-Mobile 2100 MHz LTE	2	2307.55	51.5	62.56	2100 MHz LTE	1000	6.26%
T-Mobile 600 MHz LTE	2	439.66	51.5	11.92	600 MHz LTE	400	2.98%
T-Mobile 600 MHz NR	1	1172.44	51.5	15.89	600 MHz NR	400	3.97%
T-Mobile 700 MHz LTE	2	510.65	51.5	13.84	700 MHz LTE	467	2.96%
T-Mobile 1900 MHz UMTS	2	959.67	51.5	26.02	1900 MHz UMTS	1000	2.60%
T-Mobile 1900 MHz LTE	2	1919.34	51.5	52.03	1900 MHz LTE	1000	5.20%
T-Mobile 2500 MHz LTE	1	19238.94	51.5	260.79	2500 MHz LTE	1000	26.08%
T-Mobile 2500 MHz NR	1	19238.94	51.5	260.79	2500 MHz NR	1000	26.08%
						<b>Total:</b>	<b>81.71%</b>

• 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:	81.71%
Sector B:	81.71%
Sector C:	81.71%
T-Mobile Maximum MPE % (Sector A):	81.71%
Site Total:	89.25%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **89.25%** 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 F




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Ref#: NH520-ZAP  
**0006**


DEBORAH CHASE  
NORTHEAST SITE SOLUTIONS, LLC  
420 MAIN ST STE 2  
STURBRIDGE MA 01566-1359

**C080**

SHIP TO:

BOB KNAPP  
24 ROCKDALE RD  
WEST HAVEN CT 06516-1929

**USPS TRACKING #**



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**9405 5036 9930 0206 1404 93**

Trans. #: 519308919	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 12/21/2020	Total: <b>\$7.75</b>
Ship Date: 12/23/2020	
Expected Delivery Date: 12/29/2020	

**From:** DEBORAH CHASE Ref#: NH520-ZAP  
NORTHEAST SITE SOLUTIONS, LLC  
420 MAIN ST STE 2  
STURBRIDGE MA 01566-1359


**To:** BOB KNAPP  
24 ROCKDALE RD  
WEST HAVEN CT 06516-1929

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Ref#: NH520-ZAP  
**0006**

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 234 MAIN ST  
 ANSONIA CT 06401

**USPS TRACKING #**



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Print Date: 12/21/2020	Total: <b>\$7.75</b>
Ship Date: 12/23/2020	
Expected Delivery Date: 12/29/2020	


**From:** DEBORAH CHASE      Ref#: NH520-ZAP  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** MAYOR DAVID S CASSETTI  
 234 MAIN ST  
 ANSONIA CT 06401

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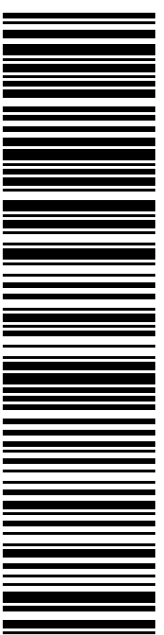
12/23/2020 Mailed from 01566 062S0000000310

**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 12/29/20  
 Ref#: NH520-ZAP  
**0006**

SHIP TO: LISA MATTHEWS  
 CT SITING COUNCIL  
 10 FRANKLIN SQ  
 NEW BRITAIN CT 06051-2655

**USPS TRACKING #**



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Trans. #: 519308919	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 12/21/2020	Total: <b>\$7.75</b>
Ship Date: 12/23/2020	
Expected Delivery Date: 12/29/2020	


**From:** DEBORAH CHASE Ref#: NH520-ZAP  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** LISA MATTHEWS  
 CT SITING COUNCIL  
 10 FRANKLIN SQ  
 NEW BRITAIN CT 06051-2655

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 12/23/2020


**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 12/29/20  
 Ref#: NH520-ZAP  
**0006**

SHIP TO:  
 DAVID S BLACKWELL  
 234 MAIN ST  
 ANSONIA CT 06401

**C001**

**USPS TRACKING #**



**9405 5036 9930 0206 1406 53**

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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0206 1406 53**

Trans. #: 519308919	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 12/21/2020	Total: <b>\$7.75</b>
Ship Date: 12/23/2020	
Expected Delivery Date: 12/29/2020	

**From:** DEBORAH CHASE Ref#: NH520-ZAP  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** DAVID S BLACKWELL  
 234 MAIN ST  
 ANSONIA CT 06401

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# Exhibit G

## Deborah Chase

---

**From:** Deborah Chase  
**Sent:** Monday, December 21, 2020 1:35 PM  
**To:** 'dcassetti@ansoniac.org'; 'dblackwell@ansoniac.org'  
**Cc:** 'bobk@zcall.com'  
**Subject:** 21 BIRCHWOOD DRIVE ANSONIA CT T-MOBILE EM APPLICATION (CTNH520A-Anchor\_L600\_L1900)  
**Attachments:** 21 BIRCHWOOD DRIVE ANSONIA CT T-MOBILE EM APPLICATION (CTNH520A -Anchor-L600-L1900).pdf

Good afternoon,

On behalf of our client, (T-Mobile), I am forwarding copies of T-Mobile's Exempt Modification Request to collocate on a wireless telecommunications facility located at 21 Birchwood Drive, Ansonia , CT.

Hard copies will be sent as well for your records.

Feel free to contact me with any questions regarding T-Mobile's Exempt Modification Request.

Thank you very much

### Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839



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