



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950A
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

January 4, 2021

Victoria Masse
Northeast Site Solutions
42 Main Street, Unit 2
Sturbridge, MA 01566

RE: **EM-T-MOBILE-088-201116** – T-Mobile notice of intent to modify an existing telecommunications facility located at 0 Clark Hill Road, Naugatuck, Connecticut.

Dear Ms. Masse:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 31, 2020 submitted in response to the Council's December 2, 2020 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

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

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Deborah Chase <deborah@northeastsitesolutions.com>

Sent: Thursday, December 31, 2020 1:09 PM

To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Mathews, Lisa A <Lisa.A.Mathews@ct.gov>

Cc: Sheldon Freinle <sheldon@northeastsitesolutions.com>; victoria@northeastsitesolutions.com; Kenneth Quinn <kenneth@northeastsitesolutions.com>

Subject: FW: CTNH305B-ANCHOR-Fwd: Council Incomplete Letter for EM-T-MOBILE-088-201116 (0 Clark Hill Road, Naugatuck)

Siting Council

Please see attached revised cover letter stating 5G capabilities.

Thank you very much

Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839



🌱 Save a tree. Refuse. Reduce. Reuse. Recycle.



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

December 31, 2020

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

RE: Notice of Exempt Modification
103 East Street AKA- 0 Clark Street, Naugatuck CT 06770
Latitude: 41.51780
Longitude: -73.01890
T-Mobile Site#: CTNH305B_Anchor **EM-T-Mobile-088--201116**

Dear Ms. Bachman:

Please accept this revised letter for 95 High Street, Portland. **EM-T-Mobile-088--201116** (attached).
This revision includes the 5G antenna statements, revised structural and drawings.

T-Mobile currently maintains six (6) antennas at the 236-foot level of the existing 276-foot guyed tower at 103 East Street AKA- 0 Clark Street, Naugatuck CT 06770. The tower is owned by WTIC/WCCT-TV. The property is owned by Channel 20 Inc c/o WTIC TV. T-Mobile now intends to install three (3) new 2500 MHz **5G** antenna, three (3) new 2100 MHz antenna, and replace three (3) existing antenna with three (3) new 600/700/1900/2100 MHz **5G** antenna. The new antennas would be installed at the 236-foot level of the tower.

Please note the proposed tower reinforcement modifications as shown in the enclosed drawings.

T-Mobile also intends to make the following modifications.

Planned Modifications: Remove: (6) 1-5/8" coax

- (3) T-Arm Mounts
- (3) RRUS11 B12
- (2) Diplexer
- (4) TMA

Remove and Replace:

- (3) DBXNH-6565A Antenna (Remove) – APXVAARR24_43U-NA20 Antenna (600/700/1900/2100 MHz 5G Replacement)

Install New:

- (3) SitePro VFA12-SD Mounts
- (3) APXV18 – 206516S-CA20 Antenna 2100 MHz
- (3) AIR6449 B41 Antenna 2500 MHz 5G
- (3) RRU4449 B71+B85



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

- (3) RRU4415 B25
- (3) Twin TMA
- (6) Hybrid lines
- (3) Smart Bias Tees

Existing to Remain:

- (3) AIR32 B66 Aa/B2a Antenna 1900/2100 MHz
- (6) 1-5/8" Coax
- (3) Fiber Lines
- (3) KRY-112-489/2 TMA
- (3) KRY-112-114 TMA

This facility was approved by the Borough of Naugatuck. Approval was granted on July 17, 1991 to erect a transmission and communication tower with an overall height of 281-feet with supporting anchors and guy wires. Please see attached.

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 N. Warren "Pete" Hess III, Elected Official, and Lori Rotella, Town Planner for the Town of Naugatuck, 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



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments

cc: N. Warren "Pete" Hess III- Mayor - as elected official

Lori Rotella, Town Planner - Naugatuck Zoning Department

Channel 20 Inc c/o WTIC TV - as tower owner & property owner



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VIA ELECTRONIC MAIL

December 2, 2020

Victoria Masse
Northeast Site Solutions
42 Main Street, Unit 2
Sturbridge, MA 01566

RE: **EM-T-MOBILE-088-201116** – T-Mobile notice of intent to modify an existing telecommunications facility located at 0 Clark Hill Road, Naugatuck, Connecticut.

Dear Ms. Masse:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on November 16, 2020.

According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "...any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a deficiency in the request. The exempt modification request lacks a description of the wireless services to be provided, including, but not limited to, any 5G services and those frequencies associated with 5G services as stated in the Council's memorandum to Telecommunications Industry Representatives dated October 26, 2020 (attached).

Therefore, the exempt modification request is incomplete at this time. The Council recommends that Northeast Site Solutions provide a statement clarifying if 5G services or frequencies associated with 5G services are part of the proposed modifications, on or before January 4, 2021. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to January 4, 2021. **Please provide an electronic version of the requested information for the incomplete exempt modification to be rendered complete and processed. Please include the Council's exempt modification identification number referenced above with the submittal.**

This notice of incompleteness shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

s/ Melanie A. Bachman

Melanie Bachman
Executive Director

MAB/IN/emr

Enclosure: Council's memo dated October 26, 2020 to Telecommunications Industry Representatives



STATE OF CONNECTICUT

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VIA ELECTRONIC MAIL

October 26, 2020

TO: Telecommunications Industry Representatives

FROM: Melanie A. Bachman, Executive Director *MAB*

RE: Exempt Modification/Tower Share Filings

Pursuant to Section 16-50aa of the Connecticut General Statutes, the Connecticut Siting Council (Council) shall issue an order approving shared use of a telecommunications facility if the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns.

Pursuant to Section 16-50j-72(b)(2) of the Regulations of Connecticut State Agencies, changes on an existing telecommunications tower site that meet the regulatory criteria shall not constitute a modification.

The Council is receiving inquiries from the municipalities and the public as to whether the equipment associated with requests for tower sharing and/or exempt modifications will provide 5G services.

Effective immediately, the Council hereby requests that a description of the wireless services to be provided by a proposed equipment installation, including, but not limited to, any 5G services and those frequencies associated with 5G services, be specifically identified in requests for tower sharing and requests for exempt modifications.

Pursuant to Sections 16-50j-39a and 16-50j-90, no request shall be approved until a complete submission containing all information deemed relevant by the Council has been filed.

Thank you in advance for your cooperation.

Exhibit A

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WIRELESS FACILITY UPGRADES BY



T-MOBILE NORTHEAST LLC

PROJECT TITLE: ANCHOR

SITE NUMBER: CTNH305B

SITE NAME: NH305/CHANNEL 20_ET

SITE ADDRESS: 103 EAST SIDE BOULEVARD

NAUGATUCK, CT 06770

(RF CONFIGURATION: 67D5994DB HYBRID)

APPLICANT:

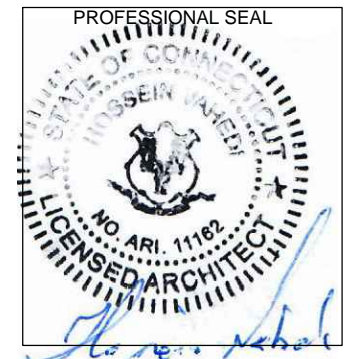
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER:

NORTHEAST SITE SOLUTIONS
Tuesday Wireless Development
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:

FORESITE LLC
 Architects . Engineers . Surveyors
 462 WALNUT STREET
 NEWTON, MA 02460
 617-212-3123



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REV	DESCRIPTION	DATE
A	PRELIMINARY	10/13/20
0	FINAL ISSUED	11/06/20
1	STRUCTURAL REF. UPDATED	11/30/20

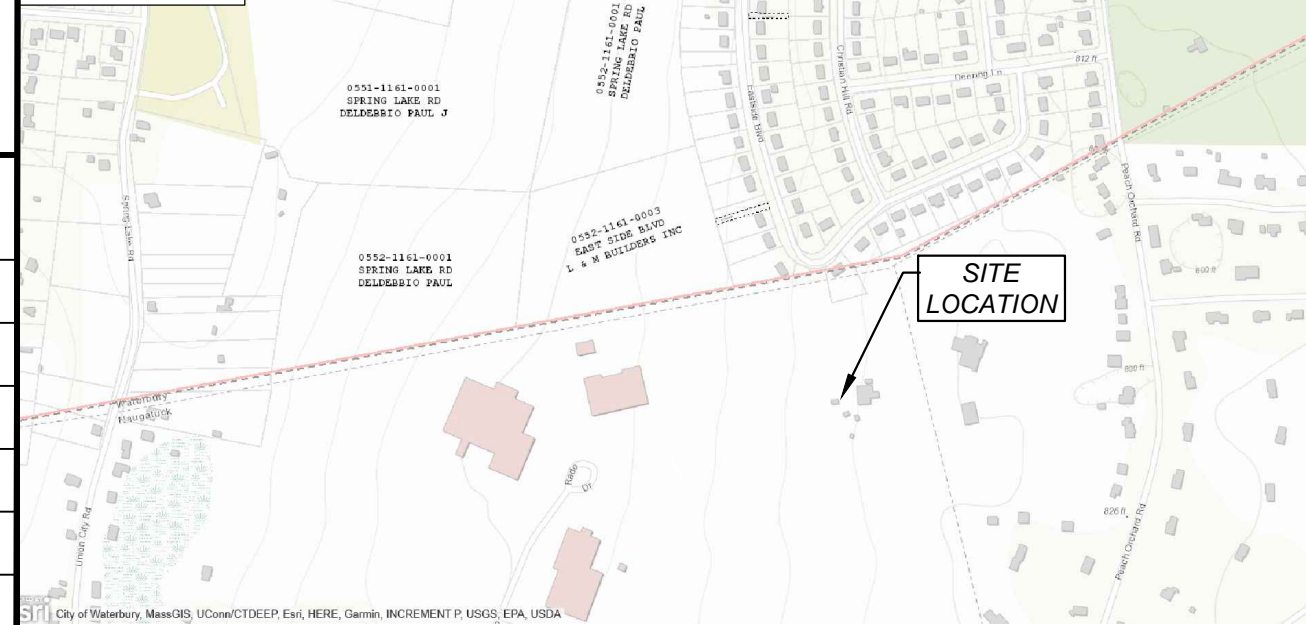
SITE NUMBER: CTNH305B
 SITE NAME: NH305/CHANNEL 20_ET
 SITE ADDRESS: 103 EAST SIDE BOULEVARD
 NAUGATUCK, CT 06770

SHEET TITLE:
 T-1: TITLE SHEET

SITE IMAGE:



VICINITY MAP:



PROJECT NOTES:

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS IS NOT REQUIRED. POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.

STRUCTURAL NOTES:
 REFER TO THE MOUNT STRUCTURAL ANALYSIS REPORT DATED 06/23/2020, TOWER STRUCTURAL ANALYSIS REPORT DATED 11/25/2020 AND TOWER MODIFICATION DESIGN DRAWINGS DATED 11/25/2020, ALL PREPARED BY FDH INFRASTRUCTURE SERVICES.

CODE COMPLIANCE:

ALL WORK SHALL COMPLY WITH THE CURRENT NATIONAL AND CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES, SUPPLEMENTS AND AMENDMENTS INCLUDING BUT NOT LIMITED TO THE LATEST EDITION OF:
 CONNECTICUT STATE BUILDING CODE (CSBC).
 ANSII/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
 NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
 NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

811 Connecticut - Call Before You Dig
 811 or 1-800-922-4455

Advance Notice:
 Minimum of 2 working days in advance, no more than 30 days in advance.

APPROVALS:

FSA CM	DATE
RF ENGINEER	DATE
FOPS	DATE
T-MOBILE ENGINEERING AND DEVELOPMENT	DATE
	DATE
	DATE

PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:
 UPGRADE EXISTING RBS 6102 CABINET INTERNALLY.
 ADD (1) 6160 AND (1) B160 CABINETS ON EXISTING CONCRETE PAD.
 REPLACE EXISTING (2) ANTENNA T-ARM MOUNTS WITH (4) ANTENNA SECTOR MOUNTS.
 REPLACE (3) OF (6) EXISTING ANTENNAS AND ADD (6) NEW ANTENNAS FOR A TOTAL OF (12) ON EXISTING TOWER.
 REMOVE (3) OF (6) EXISTING TMAS AND REPLACE THE REMAINING (3) TMAS.
 REPLACE (3) EXISTING REMOTE RADIO UNITS AND ADD (3) FOR A TOTAL OF (6) AT ANTENNAS.
 REMOVE ALL (6) EXISTING DIPLEXER.
 REMOVE (6) OF (12) EXISTING COAX, ADD (6) 6X12 HCS FOR FINAL COUNT OF (6) 6X12 HCS, (3) 9X18 HCS AND (6) 1-5/8" COAX.

PROJECT INFORMATION:

ADDRESS: 103 EAST SIDE BOULEVARD
 NAUGATUCK, CT 06770

STRUCTURE TYPE: GUYED TOWER
 COORDINATES: 41°31'04.69" N 73°01'06.43" W
 PARCEL ID: MAP 4, BLOCK 20E138, LOT A R-15
 ZONING DISTRICT: R-15
 AVERAGE GROUND ELEV: 740'± (AMSL)

PROJECT TEAM:

APPLICANT: T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

LANDLORD: CHANNEL 20 INC C/O WTIC TV
 1 CORPORATE CENTER
 HARTFORD, CT 06103

PROJECT MANAGER: NORTHEAST SITE SOLUTIONS
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 SHELDON FREINCKLE
 SHELDON@NORTHEASTSITE SOLUTIONS.COM
 201-776-8521

CONSULTANTS: FORESITE LLC
 462 WALNUT ST
 NEWTON, MA 02460
 SAEED MOSSAVAT
 SMOSSAVAT@FORESITELLC.COM
 617-212-3123

SHEET INDEX:

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 A-2: ELEVATION AND ANTENNA PLANS AND DETAILS
 A-3: EQUIPMENT LAYOUT, CONCRETE PAD DETAILS
 A-4: ANTENNA AND EQUIPMENT SPECIFICATIONS
 E-1: ONE LINE DIAGRAM AND GROUNDING DETAILS

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GENERAL NOTES:

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CLIENT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
7. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJEC
9. THE CONTRACTOR SHALL NOTIFY THE CLIENT'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CLIENT'S REPRESENTATIVE.
10. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:
 - A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS BUILDING CODES" OR LATEST EDITION.
 - B. AWS: AMERICAN WELDING SOCIETY INC. AS PUBLISHED IN "STANDARD D1.1-08, STRUCTURAL WELDING CODE" OR LATEST EDITION.
 - C. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).
11. BOLTING:
 - A. BOLTS SHALL BE CONFORMING TO ASTM A325 HIGH STRENGTH, HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.
 - B. BOLTS SHALL BE 3/4"Ø MINIMUM (UNLESS OTHERWISE NOTED)
 - C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.
12. FABRICATION:
 - A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES (LATEST EDITION).
 - B. ALL STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (LATEST EDITION), UNLESS OTHERWISE NOTED.
13. ERECTION OF STEEL:
 - A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.
 - B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.
 - C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.
14. ANTENNA INSTALLATION:
 - A. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.
 - B. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.


- C. INSTALL COAXIAL / FIBER CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:
 - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.
 - B. ALL COAXIAL / FIBER CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL / FIBER CABLE (NOT WITHIN BENDS).
16. RELATED WORK, FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:
 - A. FLASHING OF OPENING INTO OUTSIDE WALLS
 - B. SEALING AND CAULKING ALL OPENINGS
 - C. PAINTING
 - D. CUTTING AND PATCHING
17. REQUIREMENTS OF REGULATORY AGENCIES:
 - A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.
 - B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - C. TIA-EIA - 222 (LATEST EDITION). STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
 - D. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-IH, OBSTRUCTION MARKING AND LIGHTING.
 - E. FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
 - F. AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).
 - G. NEC - NATIONAL ELECTRICAL CODE - ON TOWER LIGHTING KITS.
 - H. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.
 - I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
 - J. 2018 LIFE SAFETY CODE NFPA - 101.

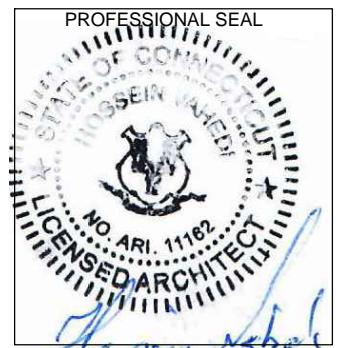
APPLICANT:

T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER

 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:

 Architects . Engineers . Surveyors
 462 WALNUT STREET
 NEWTON, MA 02460
 617-212-3123



PROFESSIONAL SEAL
 STATE OF CONNECTICUT
 NO. ARI. 11182
 LICENSED ARCHITECT

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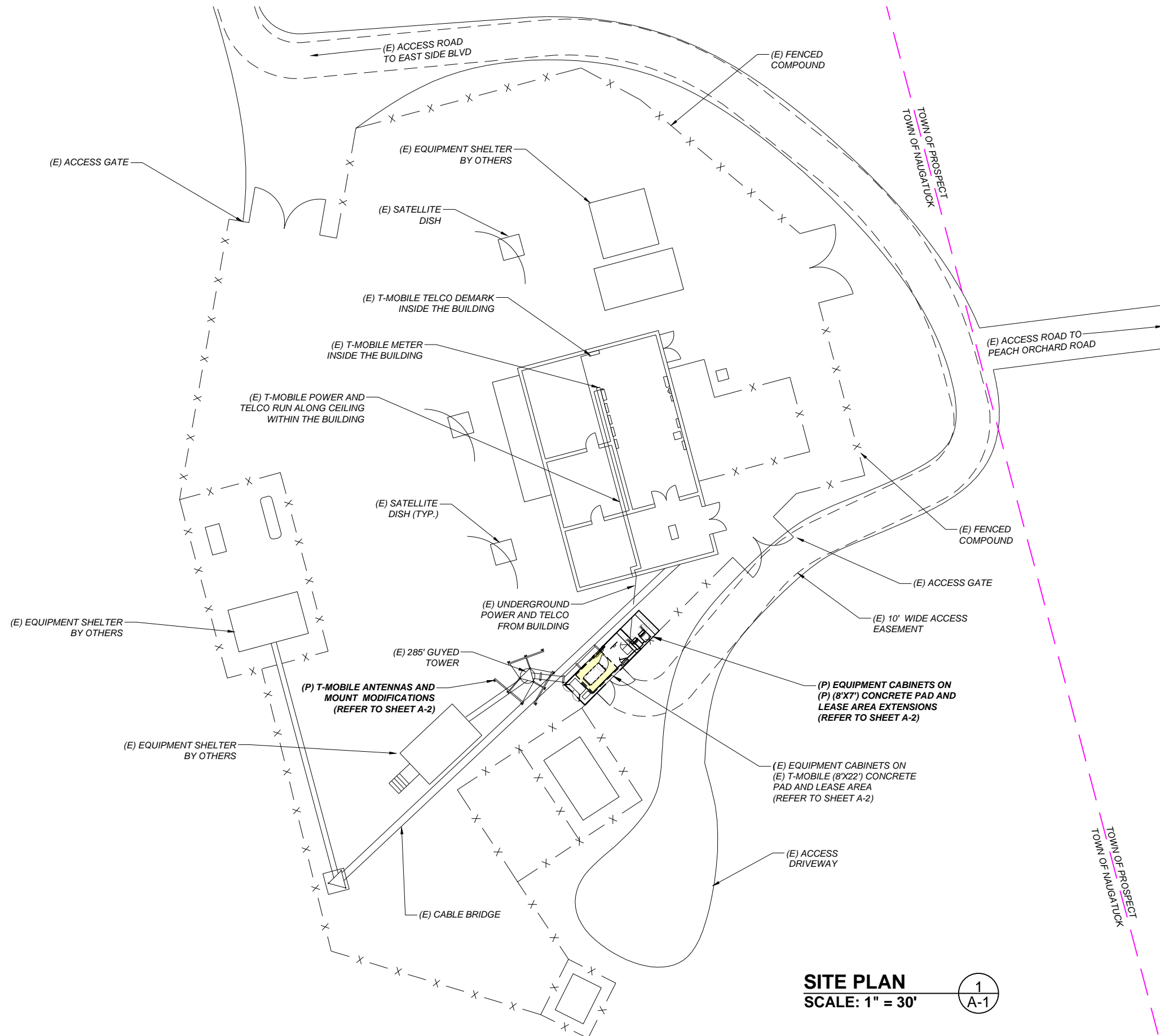
DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	10/13/20
0	FINAL ISSUED	11/06/20
1	STRUCTURAL REF. UPDATED	11/30/20

SITE NUMBER: CTNH305B
 SITE NAME: NH305/CHANNEL 20_ET
 SITE ADDRESS: 103 EAST SIDE BOULEVARD
 NAUGATUCK, CT 06770

SHEET TITLE:
N-1: GENERAL NOTES

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SITE PLAN
SCALE: 1" = 30'

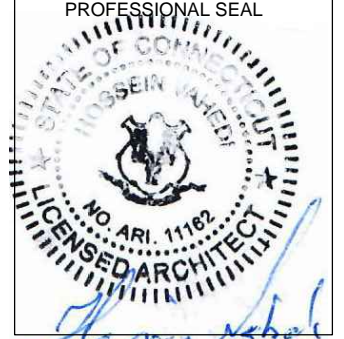
1
A-1

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER

NORTHEAST
 SITE SOLUTIONS
Turning Wireless Development
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:
FORESITE LLC
 Architects . Engineers . Surveyors
 462 WALNUT STREET
 NEWTON, MA 02460
 617-212-3123



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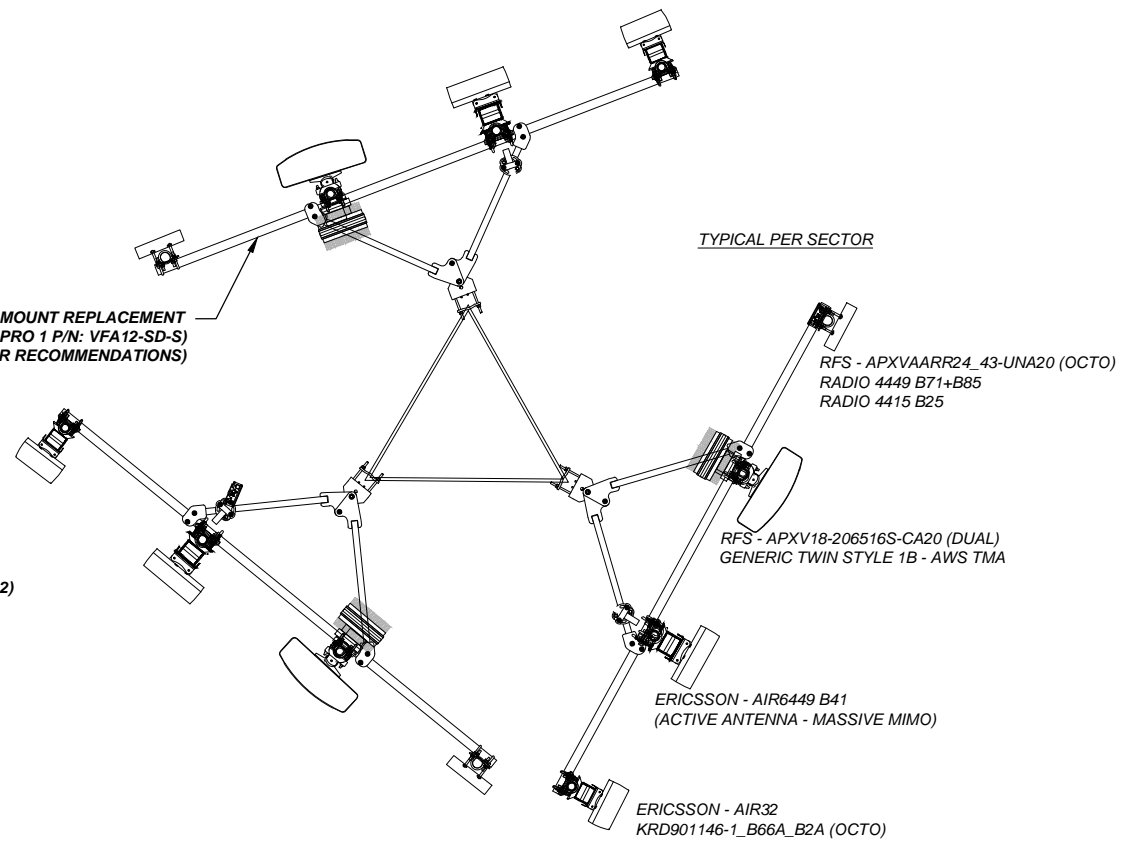
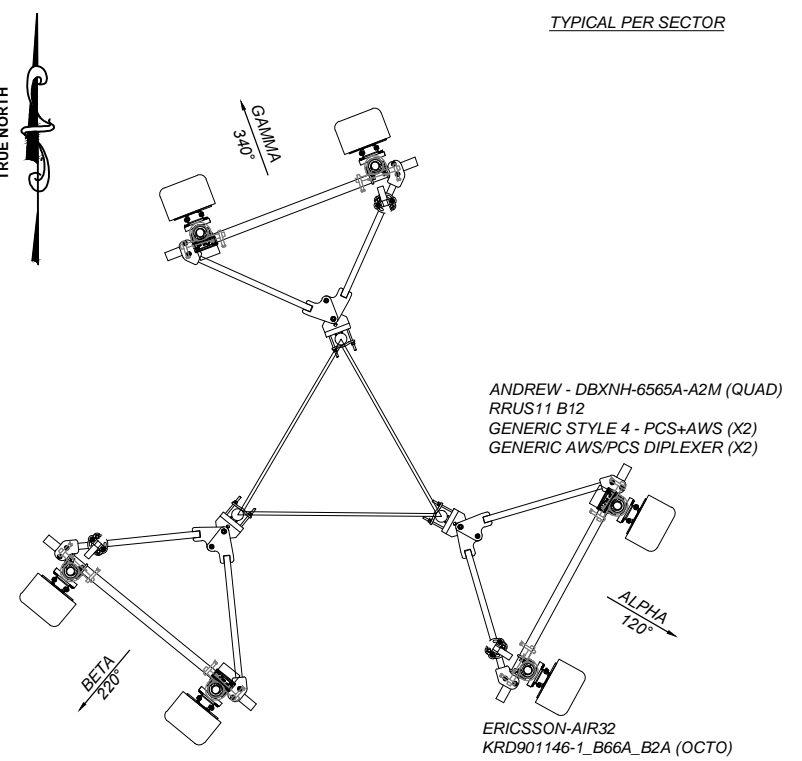
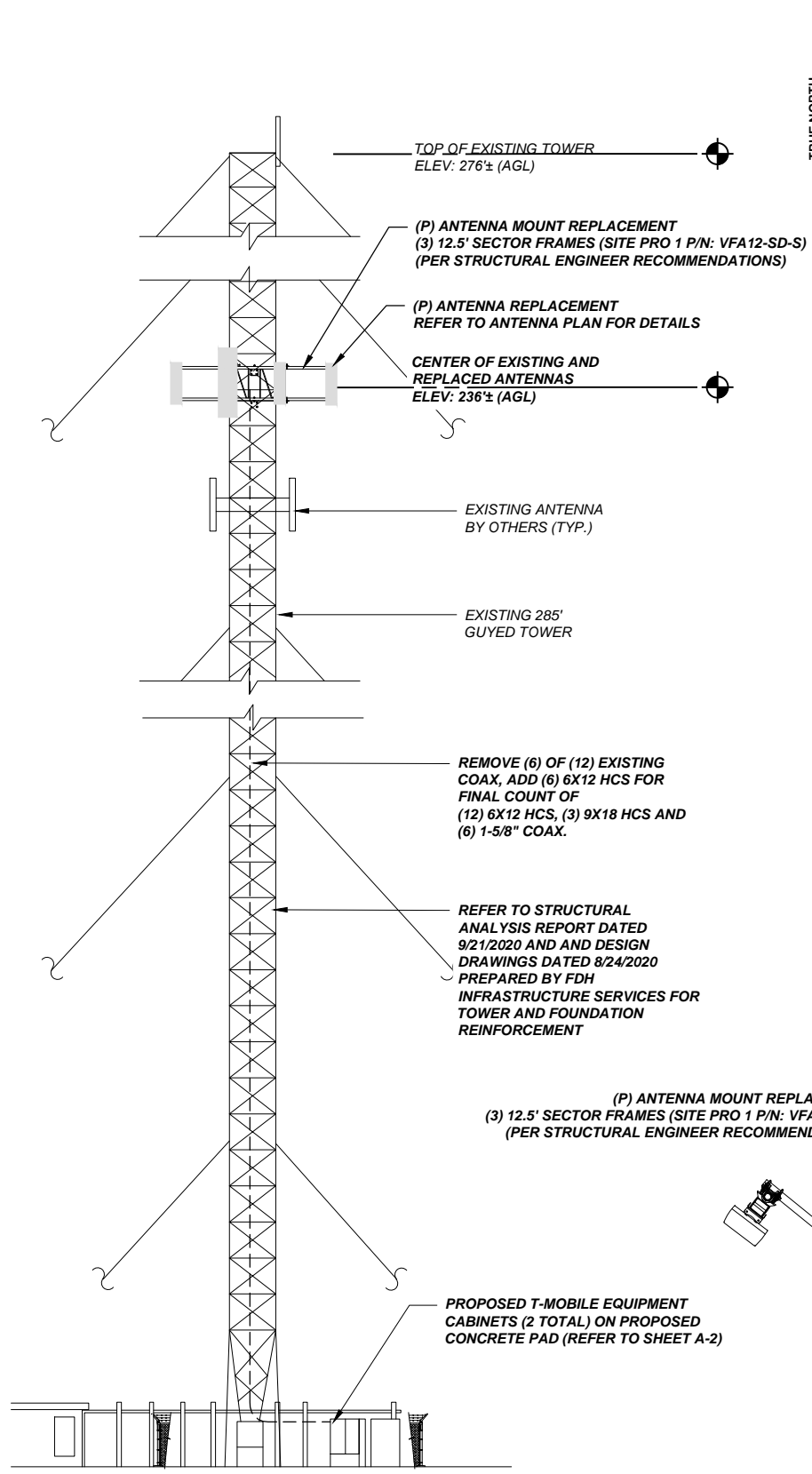
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A	PRELIMINARY	10/13/20
0	FINAL ISSUED	11/06/20
1	STRUCTURAL REF. UPDATED	11/30/20

SITE NUMBER: CTNH305B
 SITE NAME: NH305/CHANNEL 20_ET
 SITE ADDRESS: 103 EAST SIDE BOULEVARD
 NAUGATUCK, CT 06770

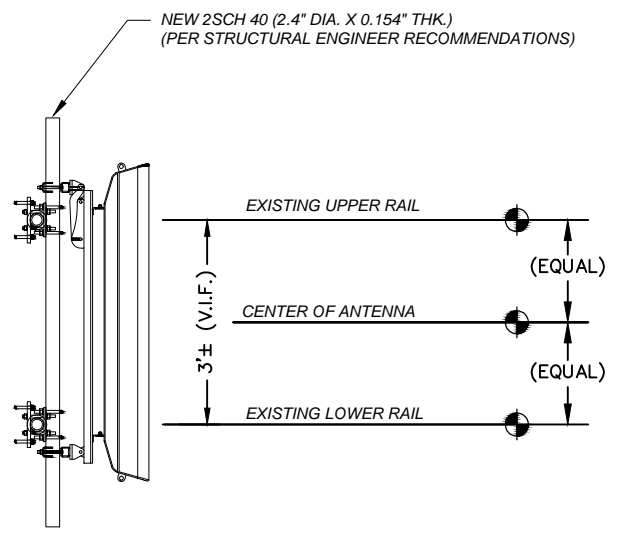
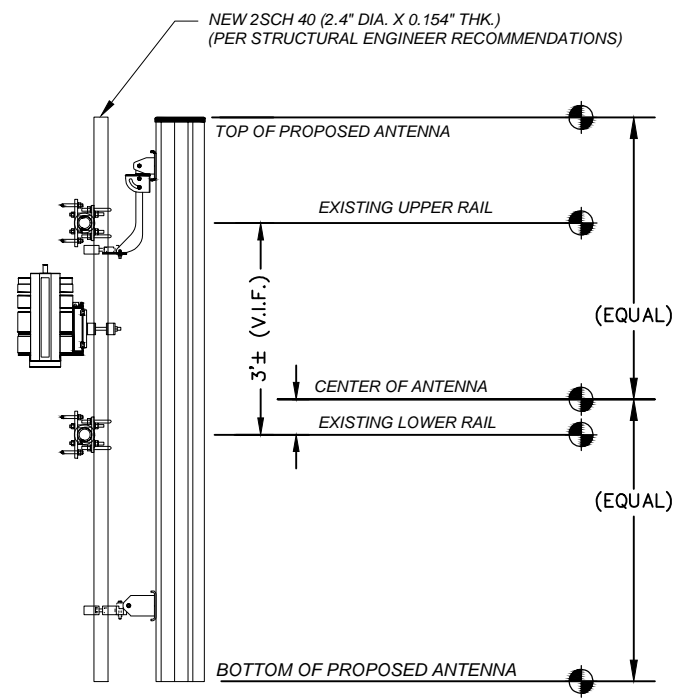
SHEET TITLE:
A-1: SITE PLAN

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STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REFER TO THE MOUNT STRUCTURAL ANALYSIS REPORT DATED 06/23/2020, TOWER STRUCTURAL ANALYSIS REPORT DATED 11/25/2020 AND TOWER MODIFICATION DESIGN DRAWINGS DATED 11/25/2020, ALL PREPARED BY FDH INFRASTRUCTURE SERVICES, AND ADHERE TO THE REPORTS FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.



APPLICANT:

T-Mobile
T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER

NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development

420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL

STATE OF CONNECTICUT
HOSSEIN WAKELI
NO. ARI. 11182
LICENSED ARCHITECT

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SHEET TITLE:
A-2: ELEVATIONS, ANTENNA
PLANS AND DETAILS

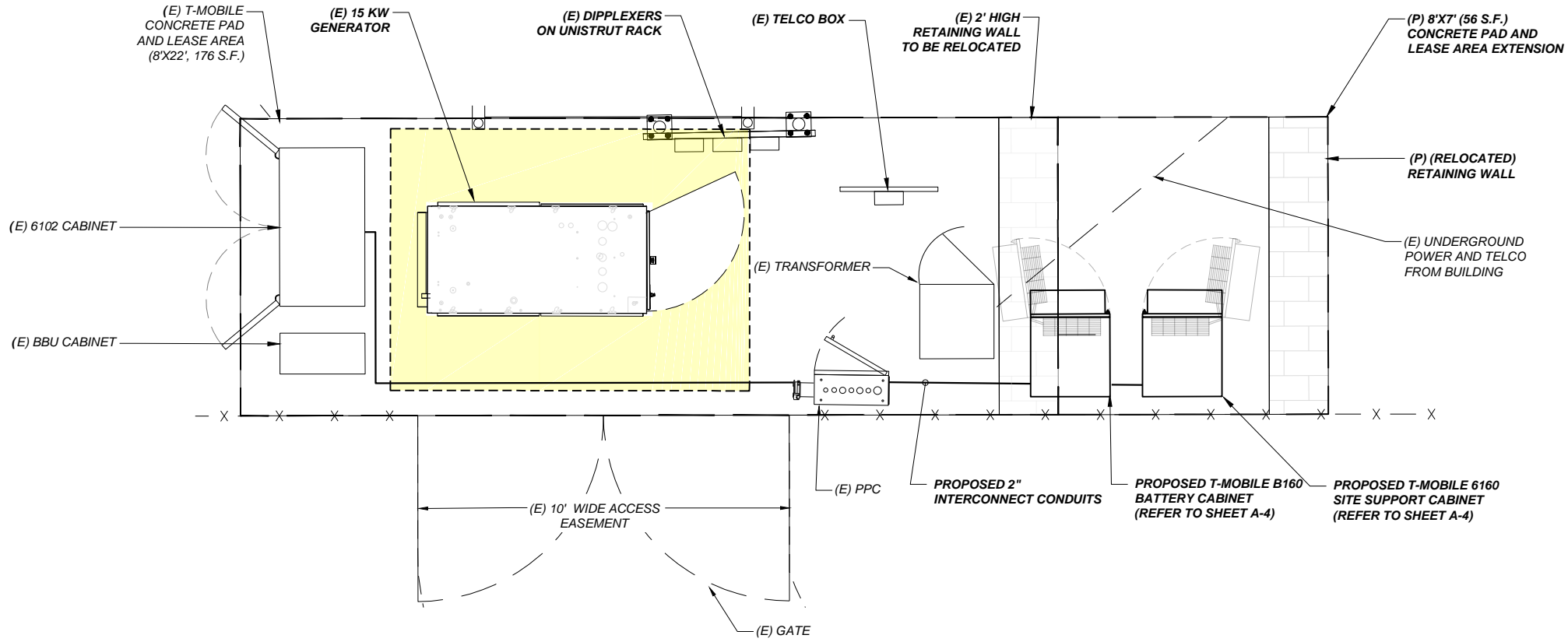
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CONSTRUCTION NOTES:

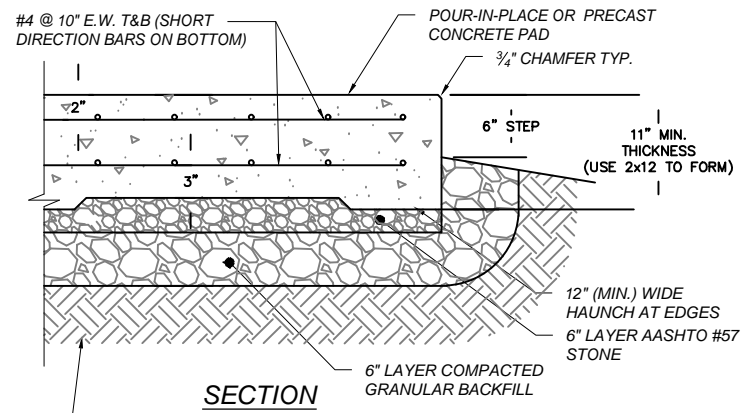
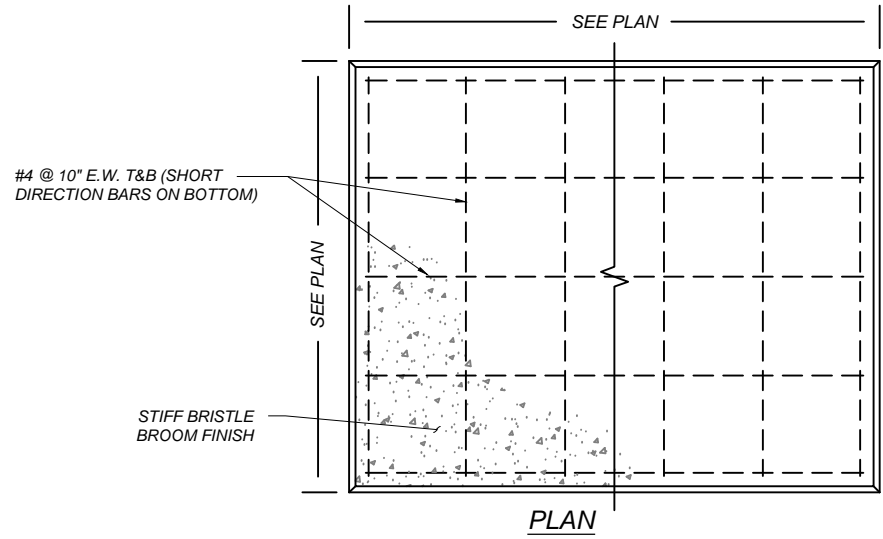
(HAND-DUG UTILITY TRENCH EXCAVATION REQUIRED):

EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. GENERAL CONTRACTOR SHALL HAND-EXCAVATE TO REQUIRED SUB-GRADE DEPTH, SUFFICIENT TEST HOLES. ALL PROPOSED UNDERGROUND UTILITY TRENCHES SHALL BE HAND-EXCAVATE AS REQUIRED.

GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED SPECIAL TEMPORARY PROTECTION OF, PHYSICAL DAMAGE TO, OR REPAIR OF EXISTING UNDERGROUND CONDUIT INCLUDING RESTORATION OF SERVICE.



ENLARGED SITE PLAN 1
SCALE: 1/4" = 1'-0" A-3

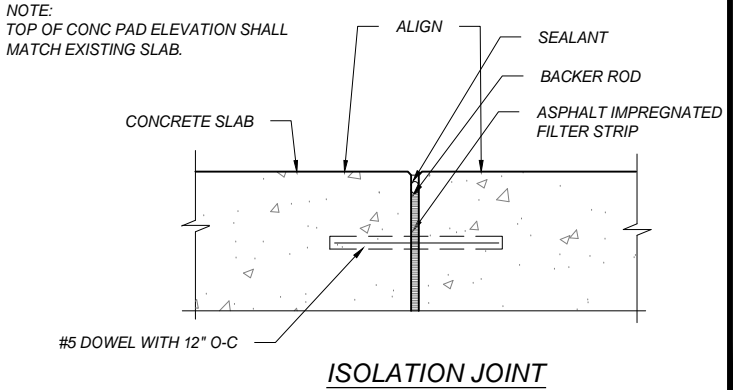


UNDISTURBED NATURAL SUB-GRADE, STRUCTURAL FILL OR RE-PURPOSED EXISTING MATERIAL, PROOF COMPACT PRIOR TO INSTALLATION OF GRAVEL. DEPENDING ON RESULTS OF RECORD GEO-TECHNICAL EXPLORATION.

CONCRETE PAD DETAILS 2
N.T.S. A-3

CONCRETE PAD NOTES:

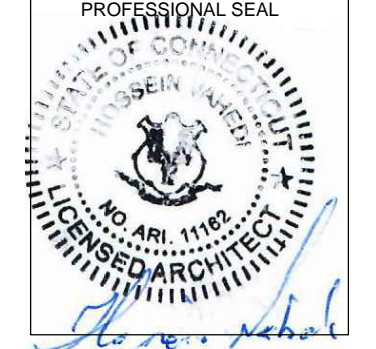
1. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED FILL. 95% COMPACTION.
2. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
3. CONCRETE FORM WORK SHALL BE CONSTRUCTED USING MINIMUM 2"X8" NOMINAL SIZE LUMBER. STRIP AND REMOVE UPON COMPLETION.
4. CONCRETE SHALL HAVE 4000PSI 28-DAY COMPRESSIVE STRENGTH WITH 5(±1)% AIR ENTRAINMENT, 4 (±1)" SLUMP AND BRISTLE BROOM FINISH.



APPLICANT:
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T-MOBILE NORTHEAST LLC
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PROJECT MANAGER
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CONSULTANT:
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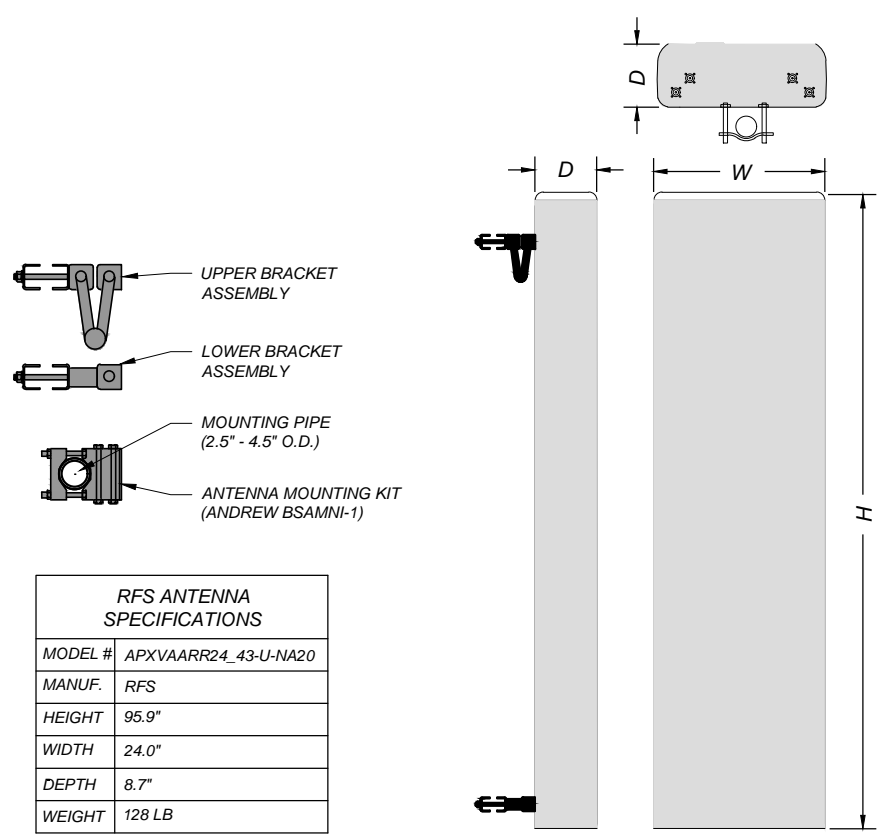
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NAUGATUCK, CT 06770

SHEET TITLE:
A-3: ENLARGED PLAN AND CONCRETE PAD DETAILS

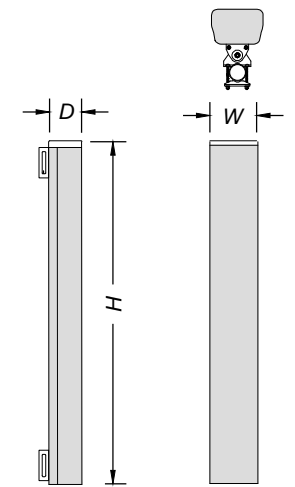
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RFS ANTENNA SPECIFICATIONS	
MODEL #	APXVAARR24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.7"
WEIGHT	128 LB

RFS APX ANTENNA
N.T.S.

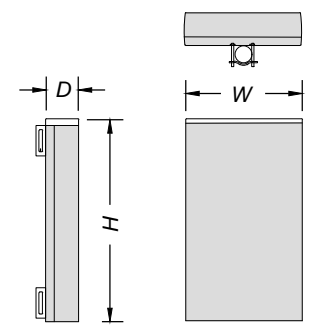
1
A-4



RFS ANTENNA SPECIFICATIONS	
MODEL #	APXV18-206516S-CA20
MANUF.	RFS
HEIGHT	53.1"
WIDTH	6.9"
DEPTH	3.15"
WEIGHT	18.7 LB

RFS APX ANTENNA
N.T.S.

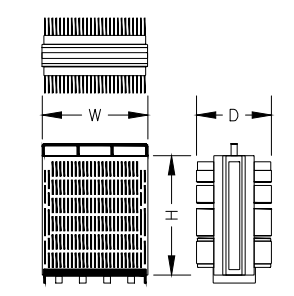
2
A-4



ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6449 B41
MANUF.	ERICSSON
HEIGHT	34.8"
WIDTH	20.5"
DEPTH	7.2"
WEIGHT	128 LB

AIR6488 ANTENNA
N.T.S.

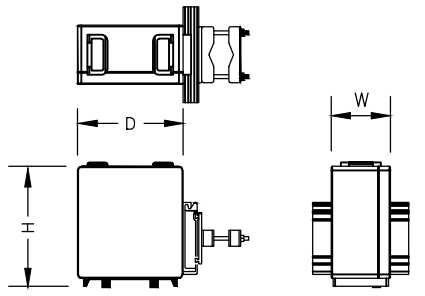
3
A-4



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B85
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT
N.T.S.

4
A-4



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

REMOTE RADIO UNIT
N.T.S.

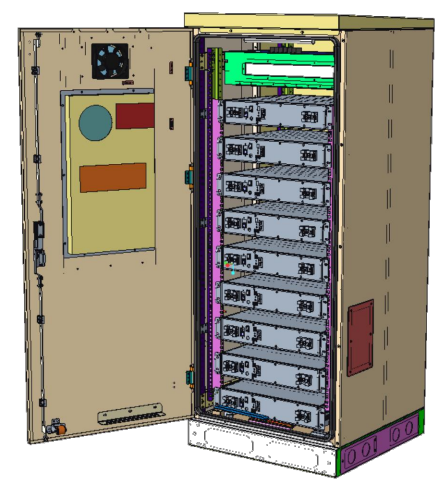
5
A-4



SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	25.6"
WEIGHT	605 LBS

SITE SUPPORT CABINET
N.T.S.

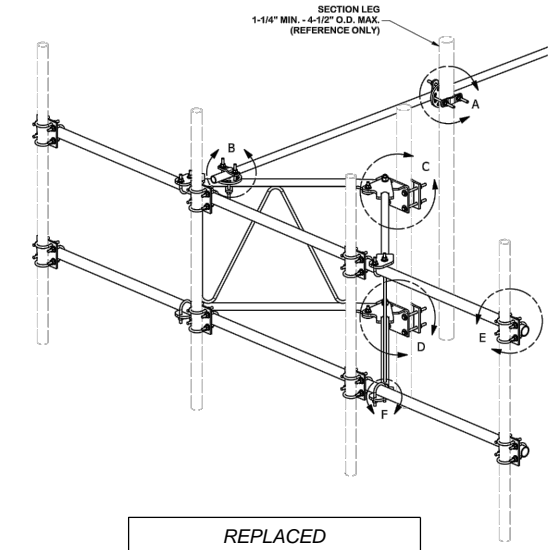
6
A-4



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	1883 LBS

BATTERY CABINET
N.T.S.

7
A-4



REPLACED SECTOR MOUNT	
PART #	VFA12-SD-S
MANUF.	SITE PRO 1
WIDTH	12.5'

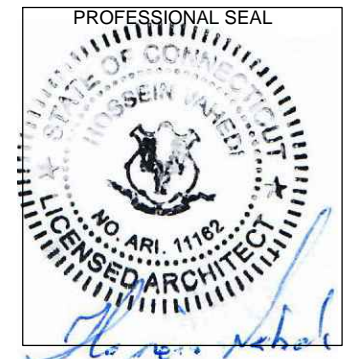
NEW SECTOR MOUNT
N.T.S.

8
A-4

APPLICANT:
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CONSULTANT:
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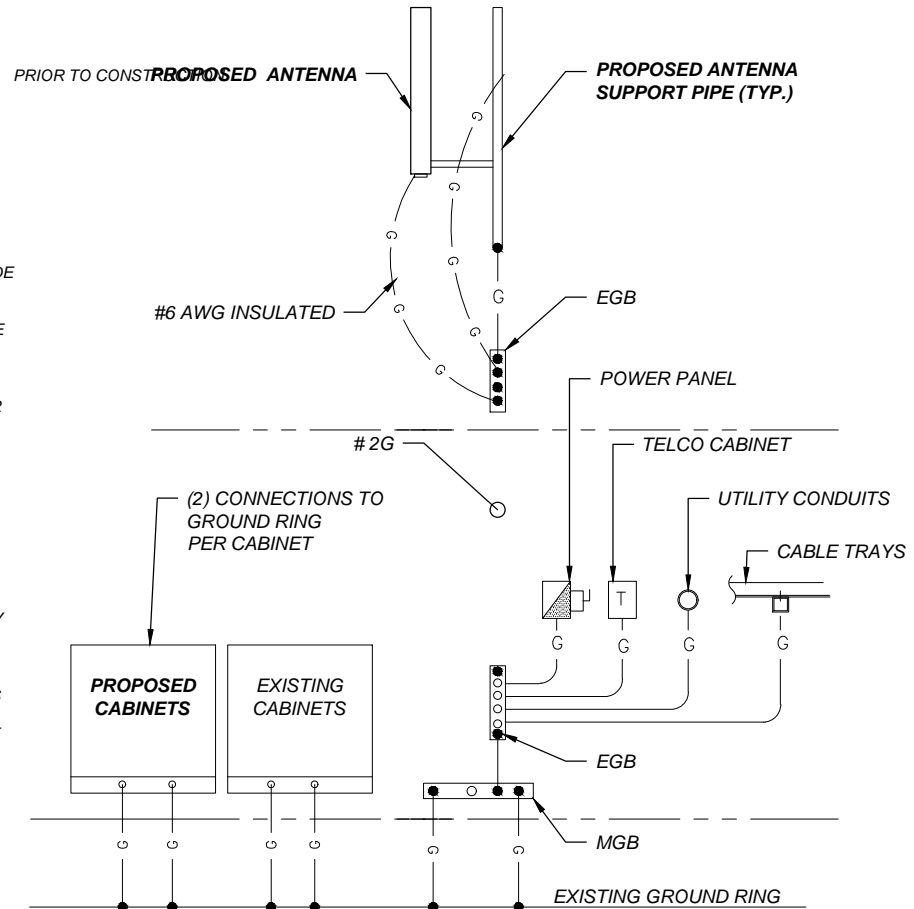
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SHEET TITLE:
A-4: ANTENNA AND EQUIPMENT SPECIFICATIONS

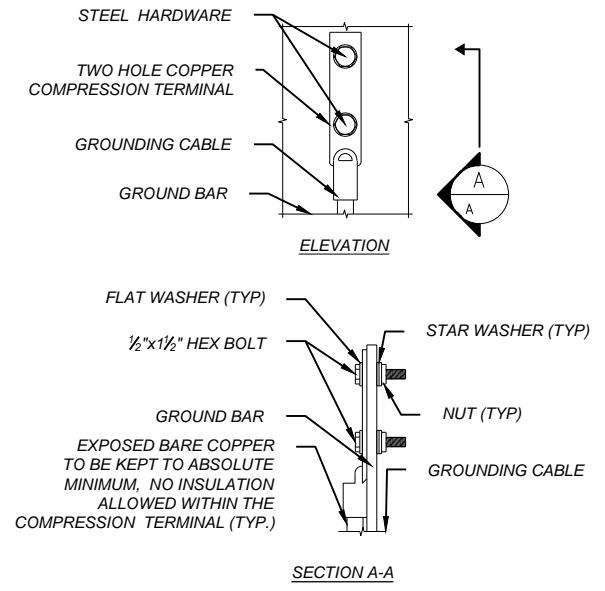
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ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A -1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY

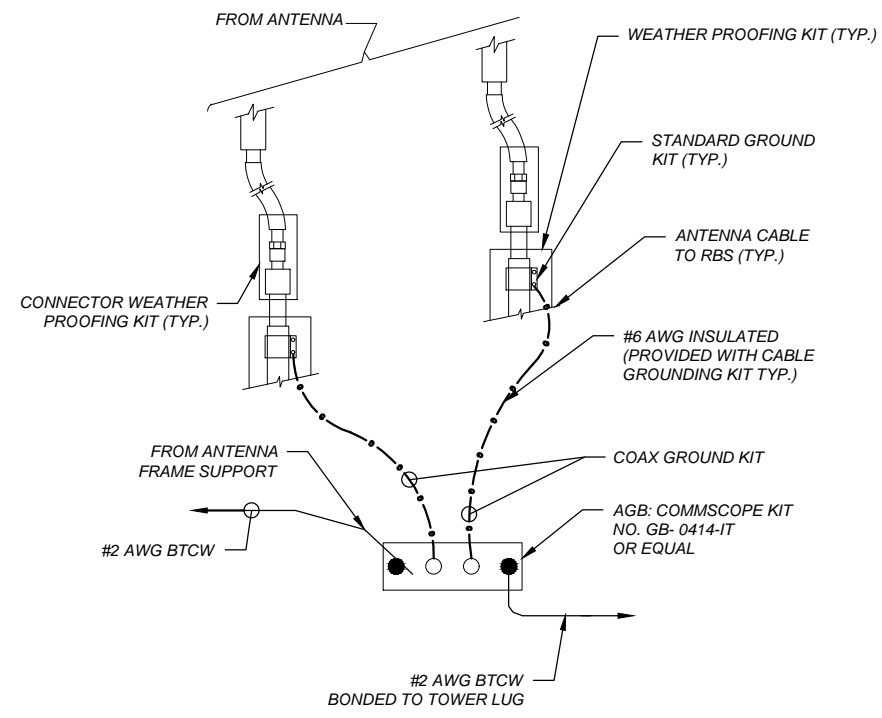


GROUNDING RISER DIAGRAM 1
N.T.S. E-1



- NOTES:
 1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

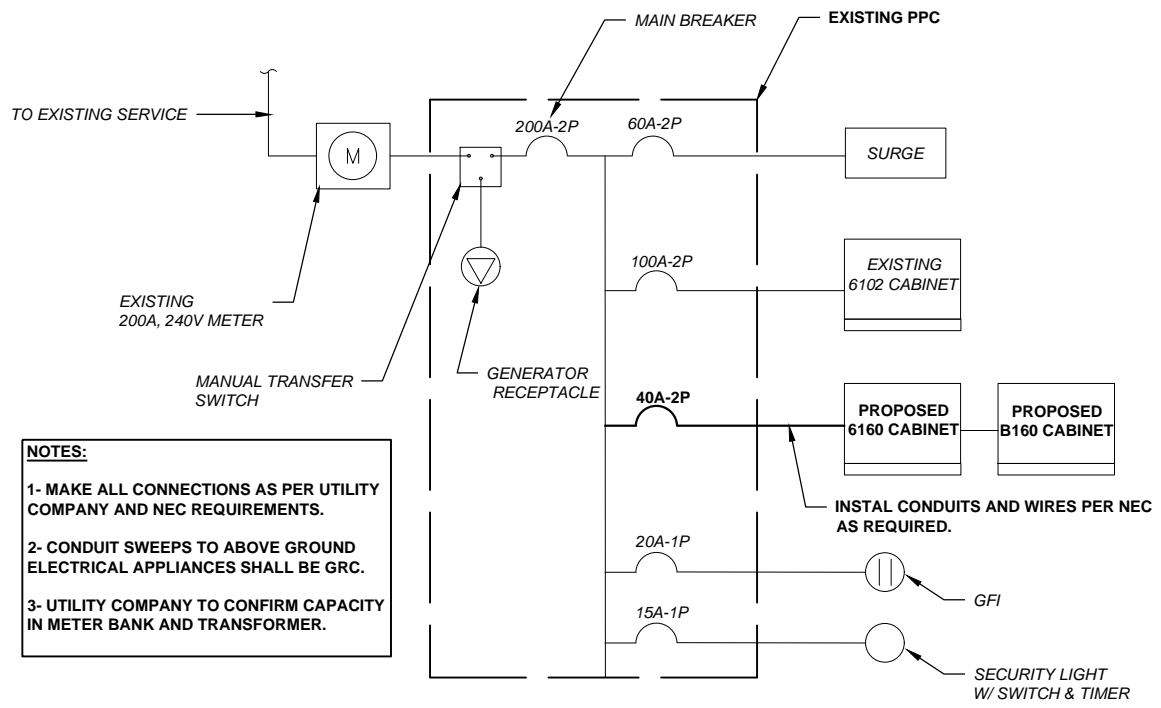
GROUND BAR CONNECTIONS 3
N.T.S. E-1



- NOTES:
 INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

ANTENNA CABLE GROUNDING 2
N.T.S. E-1

- NOTE:
 CONTRACTOR TO VERIFY THE POWER FEED & PHASE OF METER BANK AND THAT THE EXISTING AND PROPOSED CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



- NOTES:
 1- MAKE ALL CONNECTIONS AS PER UTILITY COMPANY AND NEC REQUIREMENTS.
 2- CONDUIT SWEEPS TO ABOVE GROUND ELECTRICAL APPLIANCES SHALL BE GRC.
 3- UTILITY COMPANY TO CONFIRM CAPACITY IN METER BANK AND TRANSFORMER.

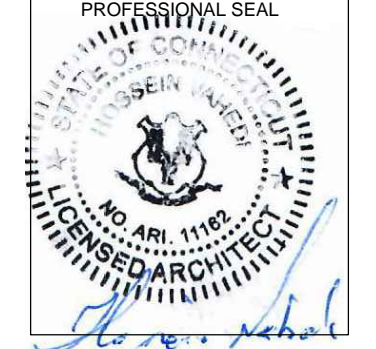
TYPICAL ONE LINE DIAGRAM 4
N.T.S. E-1

APPLICANT:
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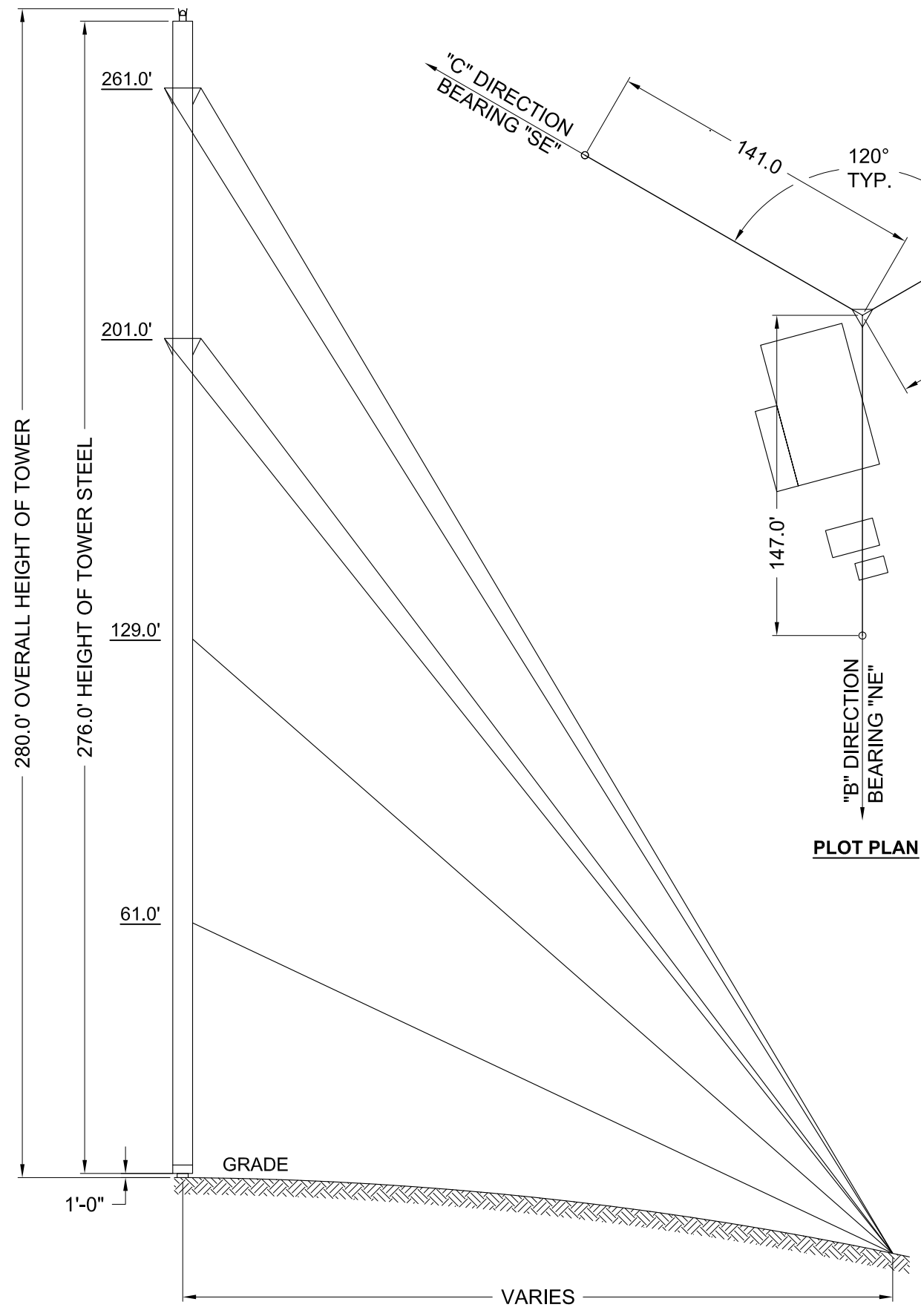
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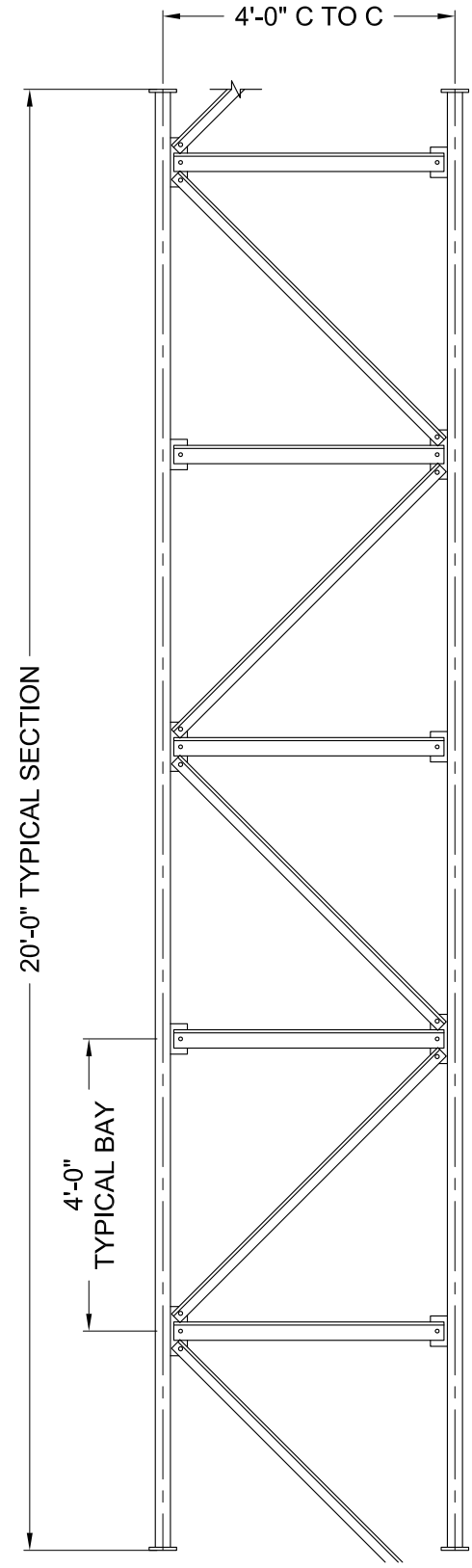
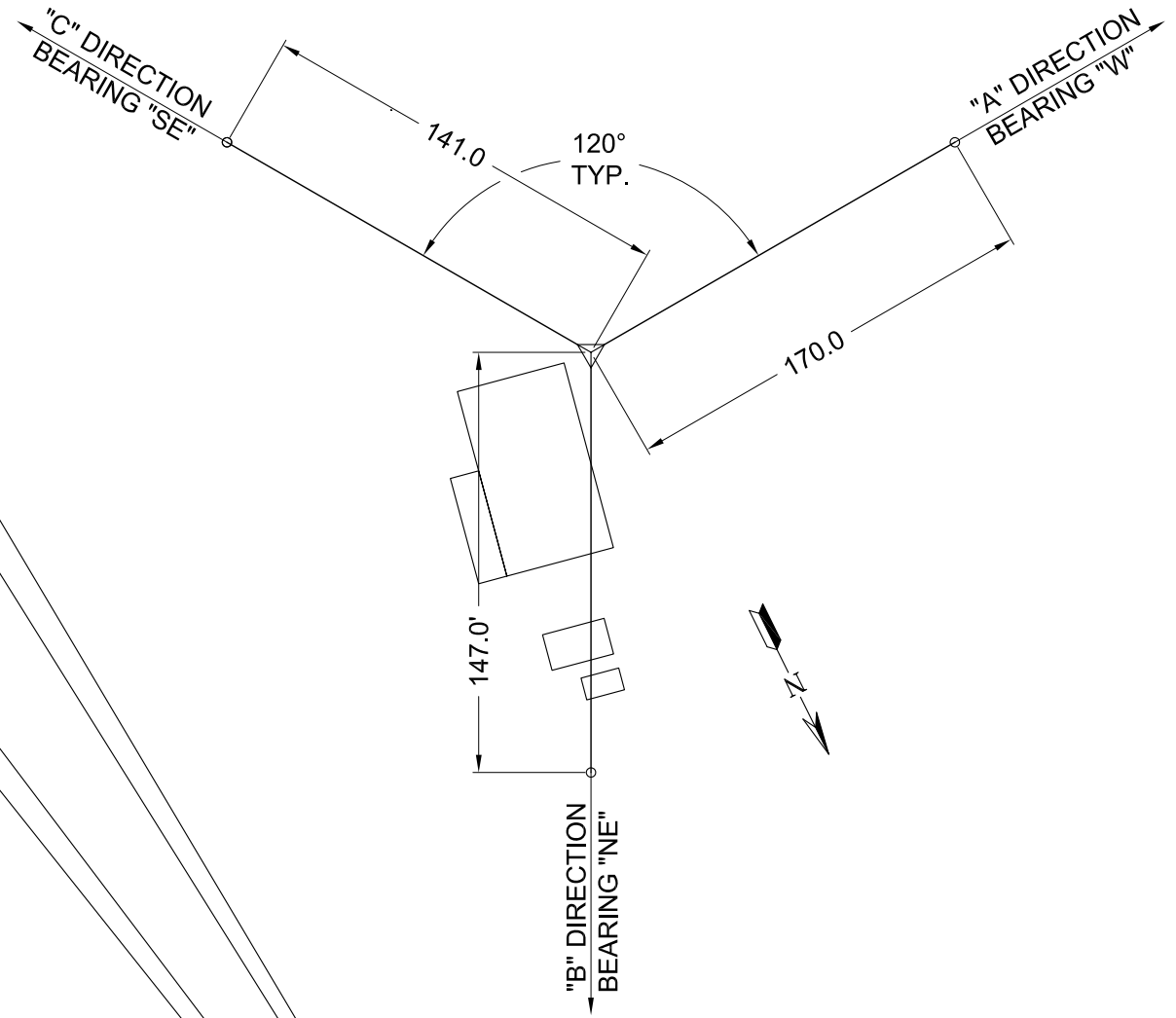
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 NAUGATUCK, CT 06770

SHEET TITLE:
 E-1: GROUNDING DETAILS AND ONE LINE DIAGRAM



ELEVATION VIEW



NOTE:
1. SEE PAGE D01.01 & D01.02 FOR GENERAL NOTES.



GENERAL ARRANGEMENT
WATERBURY, CT

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RE	7/24/20	
PREPARED BY	GH	
CHECKED BY	AV	
ENGINEER REVIEW	350816	
PROJECT NUMBER	D01.00	
DRAWING NUMBER		
DATE		
E.C.K		
DATE		
D.C.K		
REVISION DESCRIPTION		
REV	BY	DATE
*		
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*		
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*		
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7. Contractor shall observe safe construction practices and shall be responsible for all methods of construction, including proper and adequate bracing to the tower and excavation work during the installation process. Adequately designed temporary support shall be installed before any tower member is removed and replaced. All means and methods of construction, including construction and soil pressure loads, shall be properly calculated and documented by the Contractor.
8. If the construction activities require a rigging plan per the requirements of ANSI/TIA-1019-A, a rigging plan shall be developed by a qualified engineer, submitted to the Owner for review and implemented by a competent rigger. A properly detailed rigging plan shall include, as a minimum, a review of the following:
 - Operational and non-operational construction loads.
 - Equipment used, and Supporting structure
 - Construction sequence and durations
9. All shop fabrication drawings and material certificates of the successful contractor shall be approved in writing by Stainless prior to fabrication. The approval is to ensure the design requirements and proper fabrication practices are implemented, but does not include fit-up checks which shall be the responsibility of the Contractor.
10. Stainless assumes no responsibility for the structural adequacy of the tower if non-conforming modification materials are supplied and/or installed by others, and shall have no liability whatsoever to owner or to others for any work performed by any persons other than Stainless in connection with the implementation of any structural changes or modifications not specifically addressed within this design drawing package. Owner acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by owner shall be solely responsible to owner and to others for the quality of work performed by them and that Stainless shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by such rigger, erector or subcontractor.
11. The modification drawings contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following.
 - a. Proper alignment and plumbness.
 - b. Correct guy tensions.
 - c. Correct bolt tightness.
 - d. No significant deterioration or damage to any component.

APPLICABLE CODES AND STANDARDS

Use latest editions of the following Codes and Standards unless noted otherwise.

1. ANSI/TIA-222-G 2005 Structural Standards for Antenna Supporting Structures and Antennas including Addenda 1 & 2, dated 2007 and 2009.
2. ANSI/ASSE A10.48 Criteria for Safety Practices Related to the Installation, Alteration, and Maintenance of Communication Structures. ANSI/TIA-322 Loading, Analysis and Design Criteria Related to the Installation, Alteration and Maintenance Communication Structures.
3. AISC Manual of Steel Construction.
4. RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts.
5. ACI 301 Specifications for Structural Concrete.
6. ACI 318 Building Code Requirements for Structural Concrete.
7. ACI 315 Details and Detailing of Concrete Reinforcement.
8. CRSI Manual of Standard Practice.
9. ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete.
10. ASTM C494 Standard Specification for Chemical Admixtures for Concrete.
11. ASTM A36 Standard Specification for Carbon Structural Steel.
12. ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
13. ASTM A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
14. ASTM A194 Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
15. ASTM F436 Standard Specification for Hardened Steel Washers.
16. ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and products.
17. ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

18. ASTM A780 Standard Practice for Repair of Damage and Uncoated Areas of Hot-Dip Galvanized Coatings.
19. ASTM A615 Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.

STRUCTURAL STEEL

1. The fabrication and erection of structural steel shall conform to the latest edition of the AISC Manual of Steel Construction.
2. Connections are not fully detailed on these plans and shall be detailed by the steel fabricator in accordance with the AISC Manual of Steel Construction. Connections and connecting elements shall develop the strength capacities as indicated on the design drawings.
3. Hot-dip galvanize all items unless otherwise noted, after fabrication in accordance with ASTM A123 and/or ASTM A153.
4. Repair all damaged or uncoated areas of galvanized coatings in accordance with ASTM A780.
5. Locking ANCO style nuts shall be installed on all proposed and/or replaced bolts.
6. ASTM A325 bolts shall not be reused.
7. All A325 high strength bolts shall be tightened by the "snug tightening" method as specified in the RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts unless noted otherwise on the design drawings.
8. Material grades shall be as follows:
 - a. Plates and angles – A36
 - b. Bolts – A325X
 - c. Extra High Strength Guy strands – ASTM A475 Class A

INSTALLING GUYS AND PLUMBING LINES

1. The tower is designed for initial tension as specified in the erection drawings. It is important that the guys be tensioned accurately to assure the stiffness of the tower.
2. Uneven terrain, temperature, plumbness of tower and wind are factors which affect guy tensions. If the tower site is level and anchor distances are equal, the tensions in all three guys at a level will be equal when the tower is plumb. If the terrain of the tower site is uneven, the guys are not perfectly symmetrical and tensions in guys vary in the three directions. For this reason initial guy tensions are specified in one direction only. The tower should be plumbed with the specified tensions in the given guy direction.
3. Wind load on tower and guys changes the tension in all guys; therefore, plumb the tower in calm weather only.
4. In changing out guys, work should proceed in one guy direction at a time. A temporary guy must be installed before removing existing guy. It is the contractor's responsibility to insure the temporary guy and its connections are adequately designed for the loads imposed on it.
5. The plumbing of a tower or checking alignment of a tower should be performed in accordance with Annex J of ANSI/TIA/EIA 222G.

REINFORCED CONCRETE

1. All concrete shall be in accordance with ACI 318 and ACI 301 and have a minimum compressive strength of 4000 psi after 28 days.
2. All concrete shall be sampled and tested in accordance with ACI 301. Testing shall be carried out by an independent testing laboratory.
3. Concrete shall not contain calcium chloride or any admixtures that contain chlorides. All admixtures used shall conform to ASTM C260 (air-entraining) and ASTM C494 (water reducing and/or accelerating)
4. All reinforcing bars shall be Grade 60 deformed bars in accordance with ASTM A615, and shall be fabricated and placed in accordance with ASTM 315, ACI 318 and CRSI's Manual of Standard Practice.
5. See page D02.01 for foundation notes.

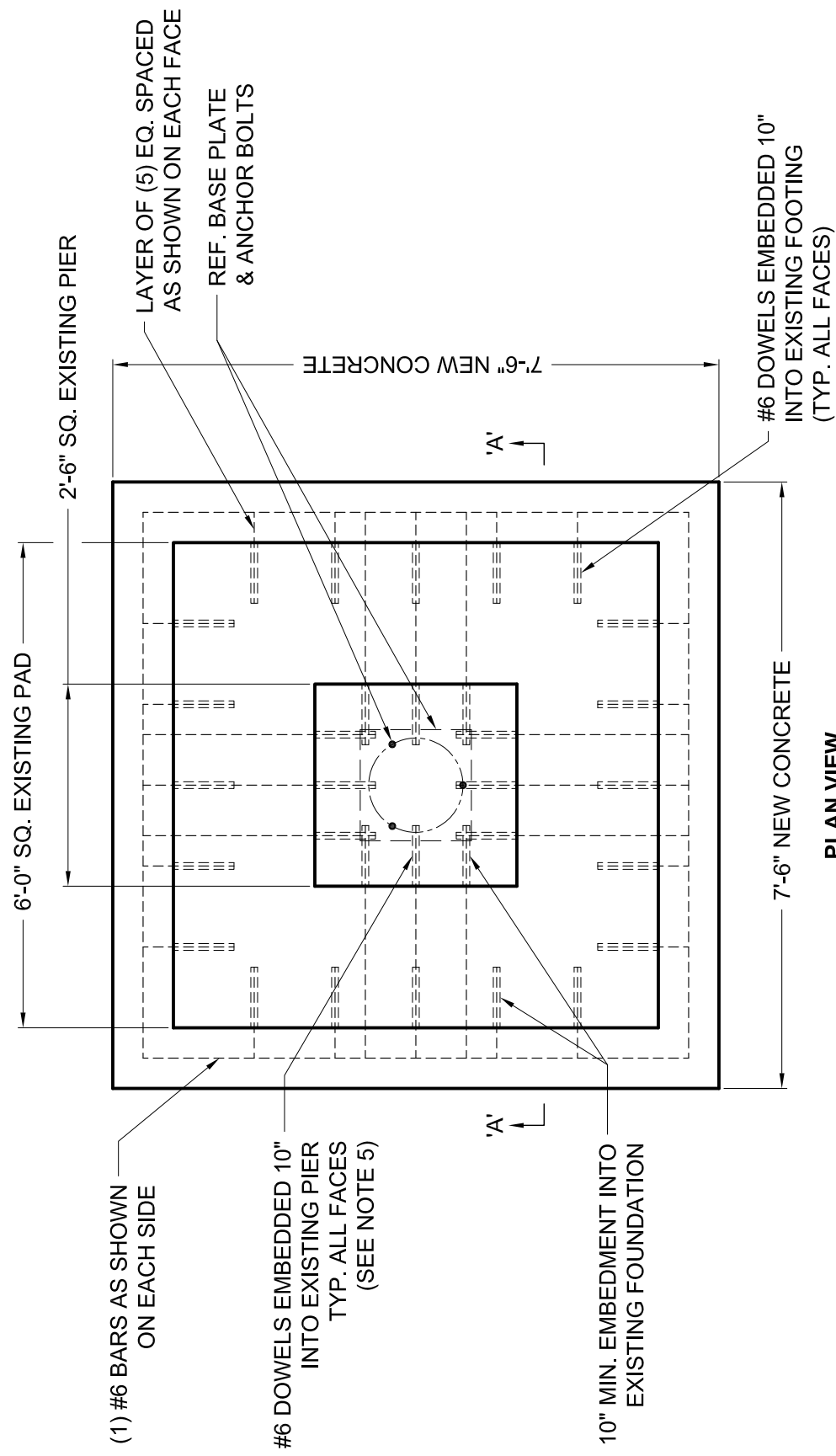
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	RE	GH	AV		
PREPARED BY	CHECKED BY	ENGINEER REVIEW	PROJECT NUMBER	DRAWING NUMBER	
			350816	D01.02	
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					D. CK
					REVISION DESCRIPTION
					REV. BY
					DATE
GENERAL NOTES WATERBURY, CT					
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NOTES:

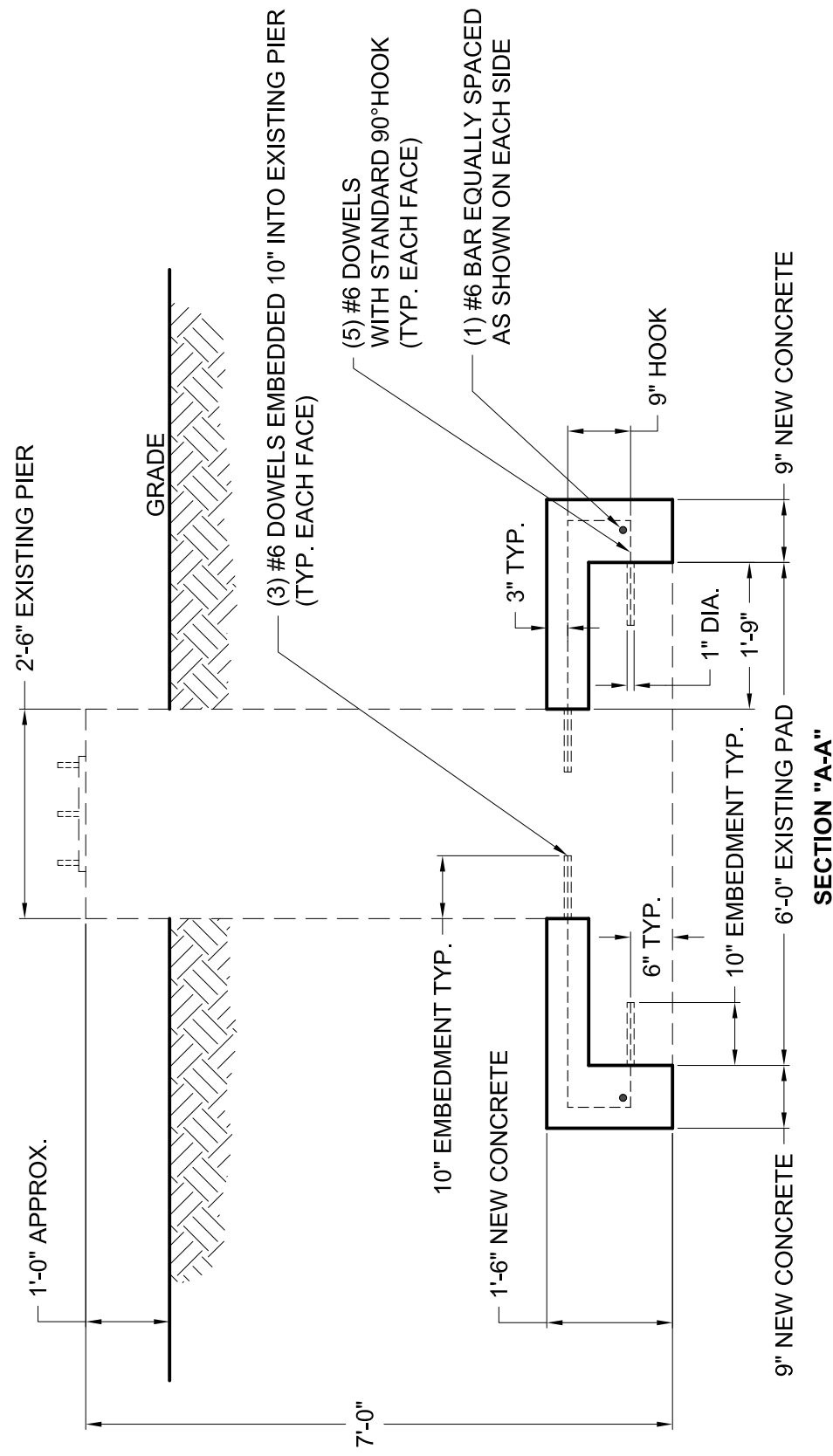
1. SEE PAGE D02.01 FOR FOUNDATION NOTES.
2. EXCAVATE AROUND PERIMETER OF EXISTING BASE PIER.
3. CLEAN AND ROUGHEN ALL INTERFACES BETWEEN OLD AND NEW CONCRETE. APPLY BONDING AGENT SIKADUR 32, HI-MOD LPL OR EQUIVALENT BONDING AGENT PRIOR TO NEW CONCRETE PLACEMENT. BONDING AGENT SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER APPLICATION SPECIFICATIONS AND GUIDELINES.
4. SECURE DOWELED IN REBAR WITH REBAR ADHESIVE (HILTI-HIT HY 200 ADHESIVE OR EQUIVALENT).
5. FIELD LOCATE EXISTING REBAR PRIOR TO DRILLING. DO NOT DAMAGE EXISTING REBAR DURING INSTALLATION OF EPOXY DOWELS.
6. FOUNDATION HAS BEEN DESIGNED FOR A GROSS ALLOWABLE BEARING PRESSURE OF 8000 PSF.

BILL OF MATERIAL

QTY.	NAME	DESCRIPTION
110 FT.	REINFORCING BARS	#6 - ASTM A615 GRADE 60
2.0 CU. YDS.	CONCRETE	4000 PSI AFTER 28 DAYS
AS REQUIRED	HILTI-HIT-HY 200 ADHESIVE	-----



PLAN VIEW



SECTION "A-A"



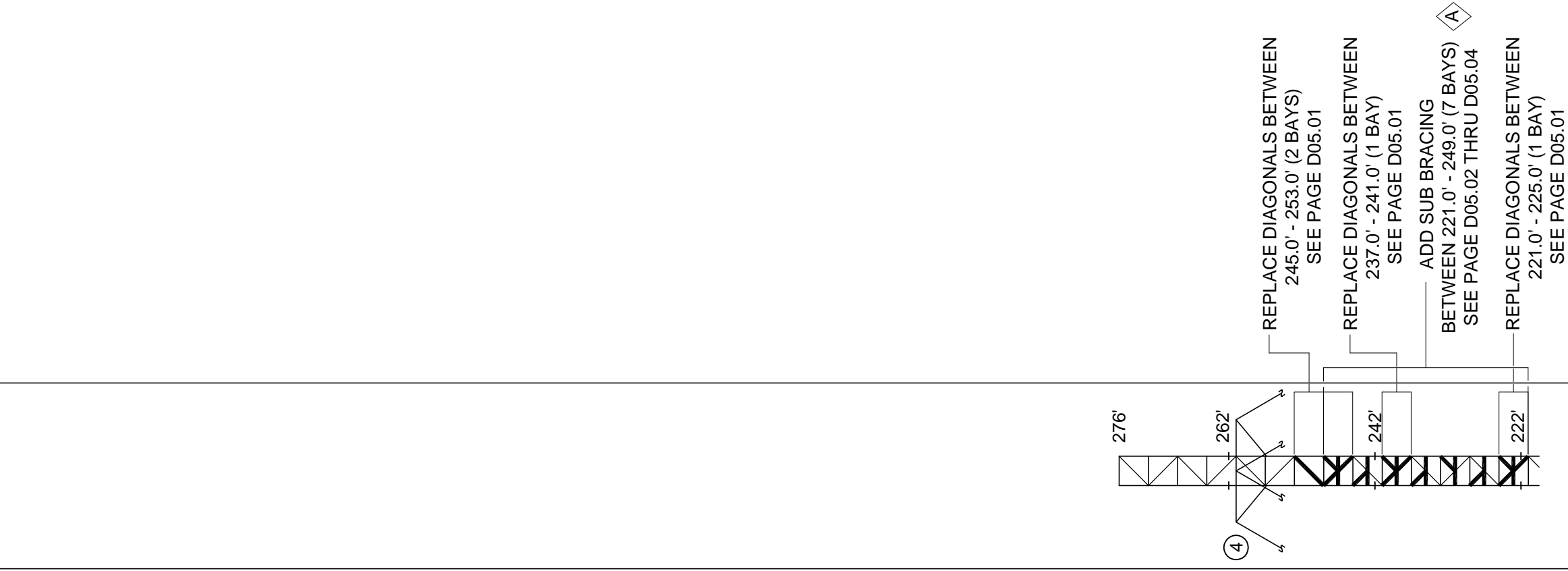
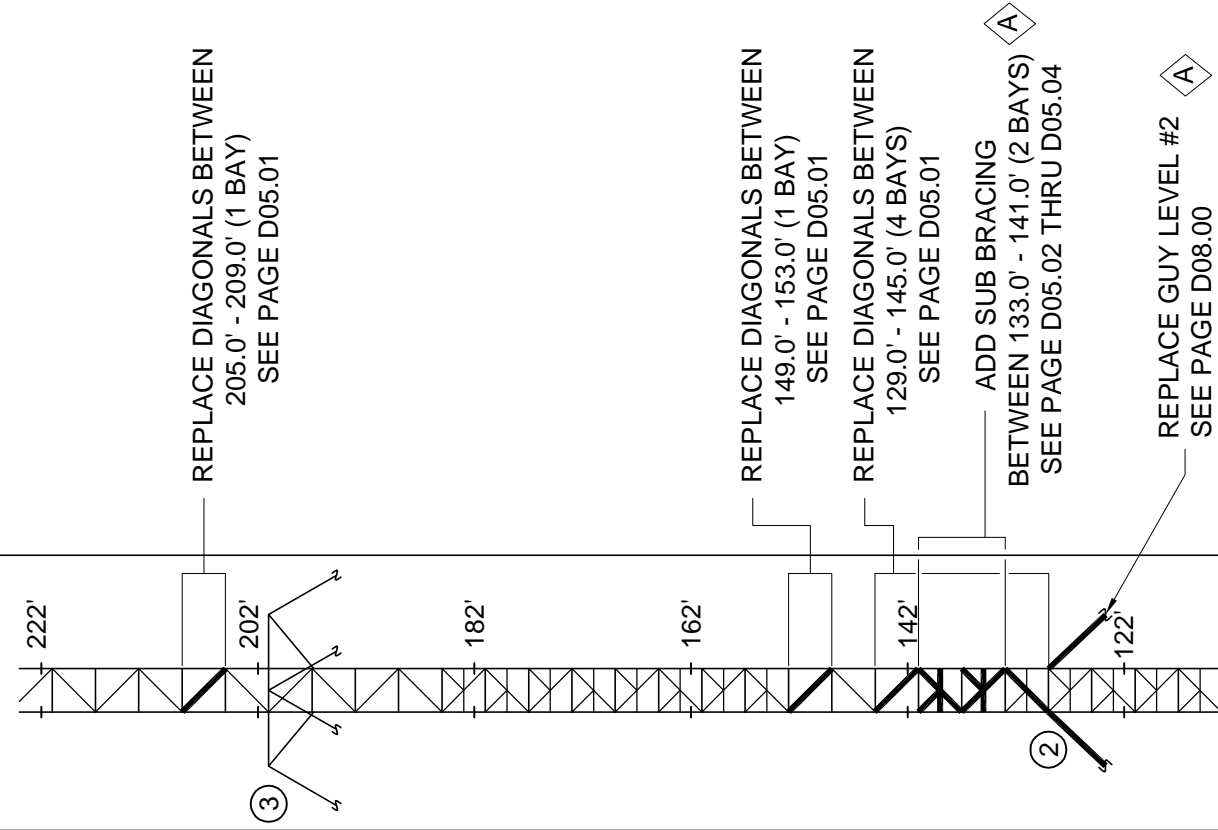
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BASE FOUNDATION MODIFICATION
WATERBURY, CT

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PREPARED BY	MM	7/22/20
CHECKED BY	GH	8/13/20
ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER	350816	
DRAWING NUMBER	D02.00	



TOWER ELEVATION	TOWER MODIFICATIONS	TOWER ELEVATION	TOWER MODIFICATIONS
222'		276'	
202'	REPLACE DIAGONALS BETWEEN 205.0' - 209.0' (1 BAY) SEE PAGE D05.01	262'	REPLACE DIAGONALS BETWEEN 245.0' - 253.0' (2 BAYS) SEE PAGE D05.01
182'		242'	REPLACE DIAGONALS BETWEEN 237.0' - 241.0' (1 BAY) SEE PAGE D05.01
162'	REPLACE DIAGONALS BETWEEN 149.0' - 153.0' (1 BAY) SEE PAGE D05.01		ADD SUB BRACING BETWEEN 221.0' - 249.0' (7 BAYS) SEE PAGE D05.02 THRU D05.04
142'	REPLACE DIAGONALS BETWEEN 129.0' - 145.0' (4 BAYS) SEE PAGE D05.01	222'	REPLACE DIAGONALS BETWEEN 221.0' - 225.0' (1 BAY) SEE PAGE D05.01
122'	ADD SUB BRACING BETWEEN 133.0' - 141.0' (2 BAYS) SEE PAGE D05.02 THRU D05.04		
102'	REPLACE GUY LEVEL #2 SEE PAGE D08.00		
82'			
62'			
42'	REPLACE DIAGONALS BETWEEN 37.0' - 45.0' (2 BAYS) SEE PAGE D05.01		
22'	REPLACE DIAGONALS BETWEEN 2.0' - 17.0' (4 BAYS) SEE PAGE D05.01		
2'	ADD SUB BRACING BETWEEN 2.0' - 5.0' (1 BAY) SEE PAGE D05.02 THRU D05.04		



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TOWER PROFILE
WATERBURY, CT

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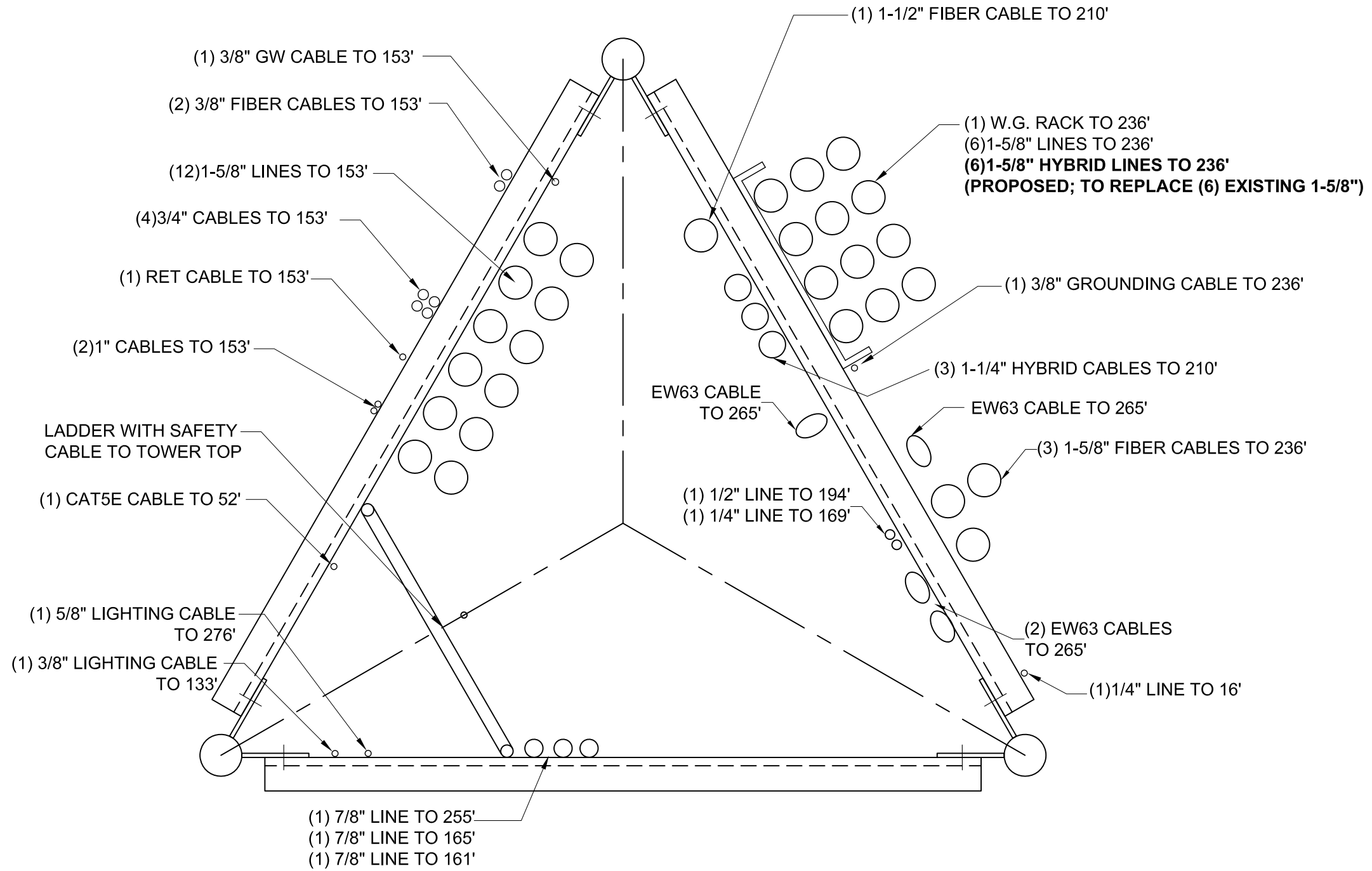
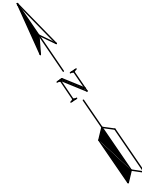
REV	BY	DATE	D.C.K	DATE	E.C.K	DATE
A	JMR	11/23/20	RE	11/23/20	AV	11/25/20
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ADDED PAGE D05.03 & D05.04 TO SUB-BRACING REFERENCE REPLACE GUY LEVEL #2, WAS GUY LEVEL #3.	REVISION DESCRIPTION
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PREPARED BY	RE	7/24/20
CHECKED BY	GH	8/13/20
ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER	350816	
DRAWING NUMBER	D04.00	

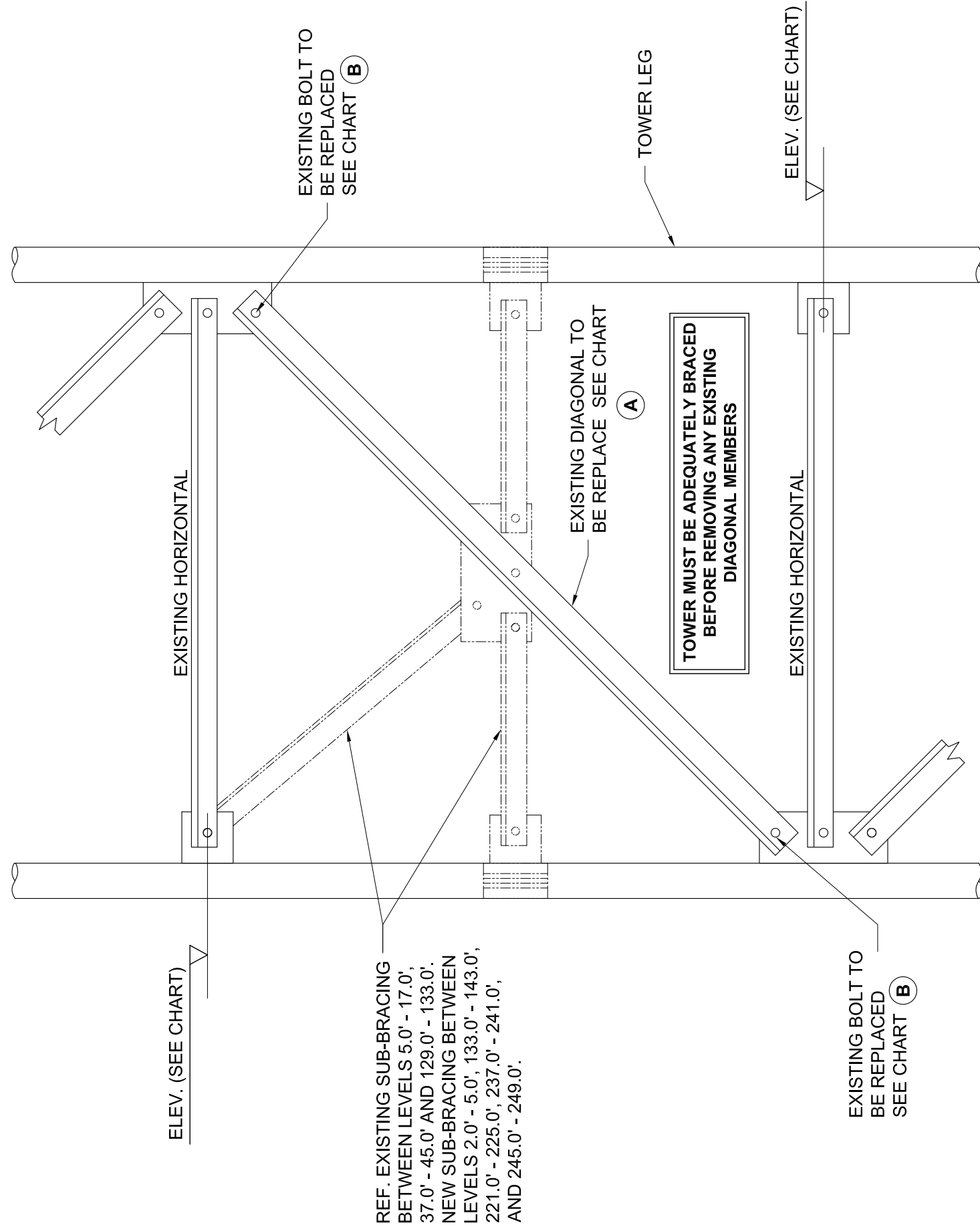
NOTE:

1. THE TOWER MODIFICATION IS BASED ON THE LINEAR APPURTENANCES (LADDER, TRANSMISSION LINES, CONDUITS, ETC.) BEING INSTALLED IN THE POSITION SHOWN ON THE CROSS SECTION. DEVIATING FROM THIS APPURTENANCE ARRANGEMENT COULD AFFECT THE STRUCTURAL INTEGRITY OF THE TOWER.



RE	7/24/20	PREPARED BY		DATE	
GH	8/13/20	CHECKED BY		E.C.K	
AV	8/24/2020	ENGINEER REVIEW		DATE	
PROJECT NUMBER			350816		
DRAWING NUMBER			D05.00		
REVISION DESCRIPTION					
REV	BY	DATE			
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<p>STAINLESS A BUSINESS OF FDH INFRASTRUCTURE SERVICES 100 West Main Street, Suite 400 Lansdale, PA 19446</p> <p>LINEAR APPURTENANCES WATERBURY, CT</p> <p>THIS DRAWING IS THE PROPERTY OF STAINLESS AND TRANSMITTED IN CONFIDENCE. AND THE REPRODUCTION, USE OR DISCLOSURE, IN WHOLE OR IN PART, OF THE DESIGN AND DETAILS CONTAINED HEREIN IS PROHIBITED WITHOUT THE PRIOR WRITTEN PERMISSION OF STAINLESS.</p>					
<p>08/24/2020</p>					

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ELEVATION VIEW

ELEVATION	BAYS	DIAGONAL REPLACEMENTS		MAX DESIGN LOAD IN MEMBER
		A	B	
2.0' - 17.0'	4	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
37.0' - 45.0'	2	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
129.0' - 145.0'	4	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
149.0' - 153.0'	1	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
205.0' - 209.0'	1	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
221.0' - 225.0'	1	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
237.0' - 241.0'	1	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
245.0' - 253.0'	2	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS

NOTES:

- ADEQUATE TEMPORARY BRACING MUST BE DESIGNED TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER. THE BRACING SHALL BE INSTALLED PRIOR TO REMOVING ANY TOWER MEMBER UTILIZING THE FOLLOWING PROCEDURE:
 - INSTALL TEMPORARY BRACING AT THE LOCATION THE DIAGONAL IS TO BE REPLACED.
 - REMOVE AND REPLACE DIAGONAL ON FACE AND IN BAY THAT THE TEMPORARY BRACING IS INSTALLED.
 - REMOVE AND REPLACE ONLY ONE MEMBER AT A TIME.
 - REPEAT THIS PROCEDURE FOR EACH TOWER FACE.
- REPEAT THIS PROCEDURE AT ALL LOCATIONS WHERE DIAGONALS ARE TO BE REPLACED.
- FIELD VERIFY DIMENSIONS AND END CONNECTION DETAILS PRIOR TO FABRICATION OF REPLACEMENT DIAGONALS. SEE NOTE 4 ON DRAWING D01.01.



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DIAGONAL REPLACEMENT
 WATERBURY, CT

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PROJECT NUMBER				350816		DRAWING NUMBER	
DRAWING NUMBER				D05.01		DATE	

PREPARED BY: RE 7/24/20
 CHECKED BY: GH 8/13/20
 ENGINEER REVIEW: AV 8/24/2020

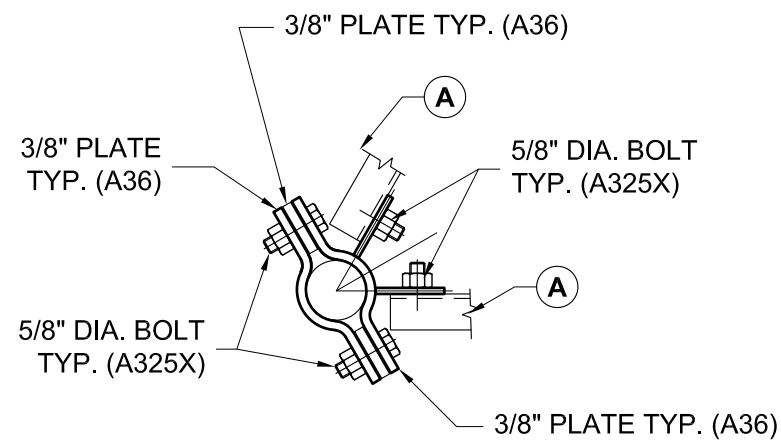
ELEVATION	BAYS	LEG DIA.	SUB BRACING		MAX. FACTORED COMPRESSION LEG LOADS
			A	B	
2.0' - 5.0'	1	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	128.6 KIPS
133.0' - 141.0'	2	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	119.5 KIPS
221.0' - 249.0'	7	1-3/4" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	86.9 KIPS

TOWER MUST BE ADEQUATELY BRACED BEFORE REMOVING ANY EXISTING TOWER BOLTS

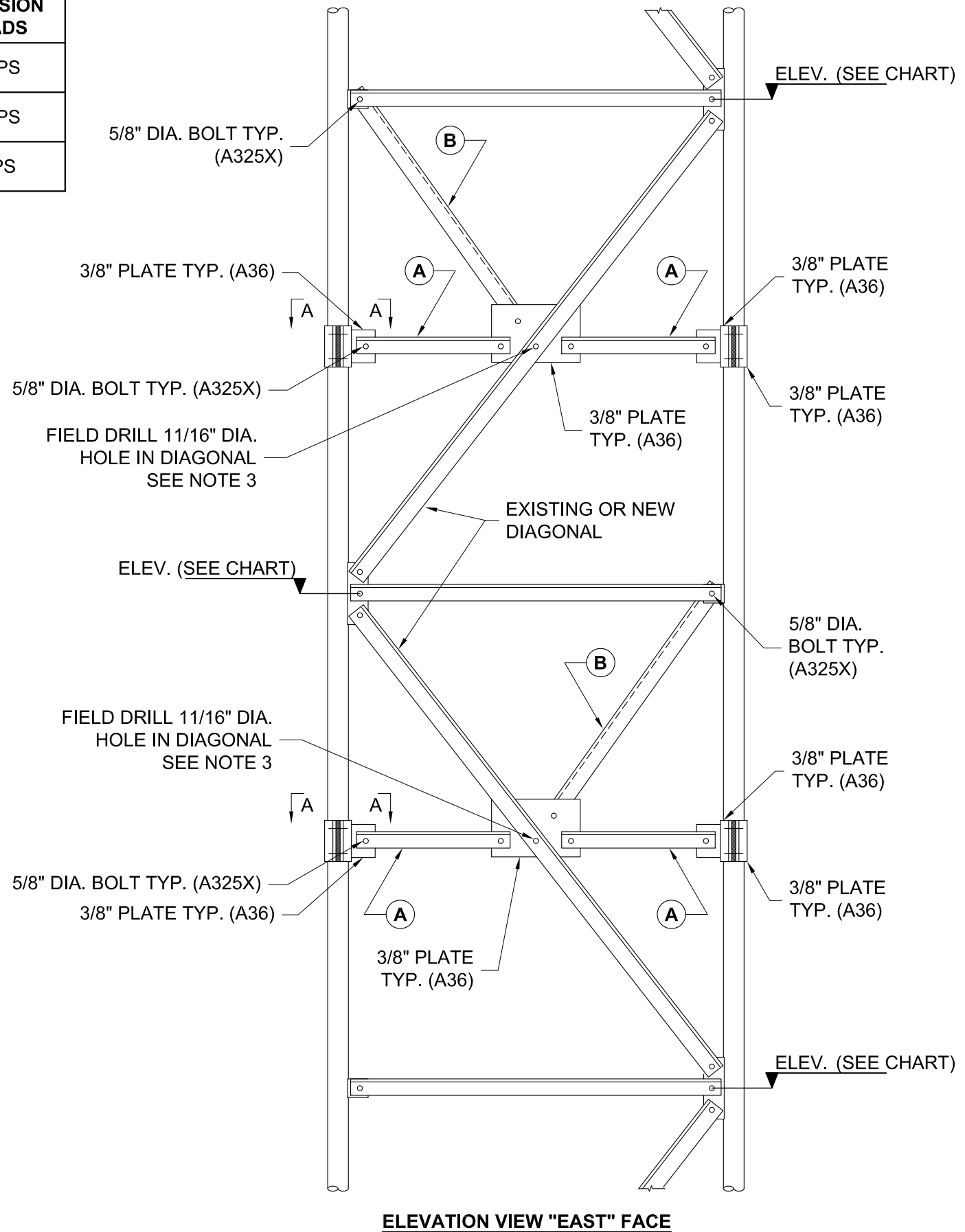
SEE PAGES D05.03 & D05.04 FOR SUB DIAGONAL CONFIGURATION WHERE SUB DIAGONAL INTERFERES WITH INSIDE CLIMBING LADDER ON THE "NW" AND "SW" FACES.

NOTES:

1. ADEQUATE TEMPORARY BRACING MUST BE INSTALLED PRIOR TO REMOVING ANY TOWER BOLTS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER.
2. DESIGN SUB BRACING CONNECTIONS PER ANSI/TIA 222-G BASED UPON THE MAXIMUM COMPRESSION LEG LOADS SHOWN.
3. TOUCH-UP DAMAGED GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - a. SURFACES TO BE PAINTED SHALL BE CLEAN, DRY AND FREE OF OIL, GREASE, PRE-EXISTING PAINT AND CORROSION BY-PRODUCTS.
 - b. APPLY ZINC RICH PAINT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS IN A SINGLE APPLICATION, EMPLOYING MULTIPLE PASSES TO ACHIEVE A DRY FILM THICKNESS OF NO LESS THAN 6 MILS.



SECTION A - A



ELEVATION VIEW "EAST" FACE

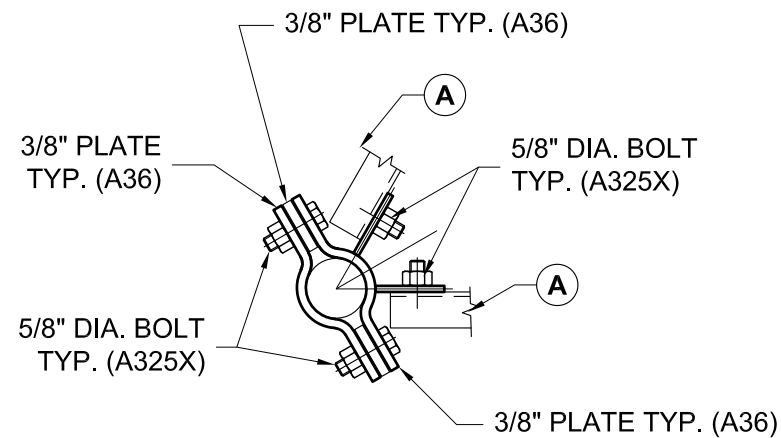
RE 7/24/20	GH 8/13/20	AV 8/24/2020	PROJECT NUMBER 350816	DRAWING NUMBER D05.02
PREPARED BY	CHECKED BY	ENGINEER REVIEW	PROJECT NUMBER	DRAWING NUMBER
* * * * *	A	JMR	11/23/20	ADDED NOTES REGARDING CLIMBING LADDER INTERFERENCE. REF. NEW PAGES D05.03 & D05.04
REV	BY	DATE	D.C.K	REVISION DESCRIPTION
K:\350816\dwg\350816_D05.02_SUB_BRACING_DETAILS.dwg				
SUB BRACING DETAILS WATERBURY, CT				
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11/25/2020				

ELEVATION	BAYS	LEG DIA.	SUB BRACING ON "NW" FACE ONLY			MAX. FACTORED COMPRESSION LEG LOADS
			A	B	C	
133.0' - 137.0'	1	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36) (COPEd)	119.5 KIPS
221.0' - 249.0'	4	1-3/4" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36) (COPEd)	86.9 KIPS

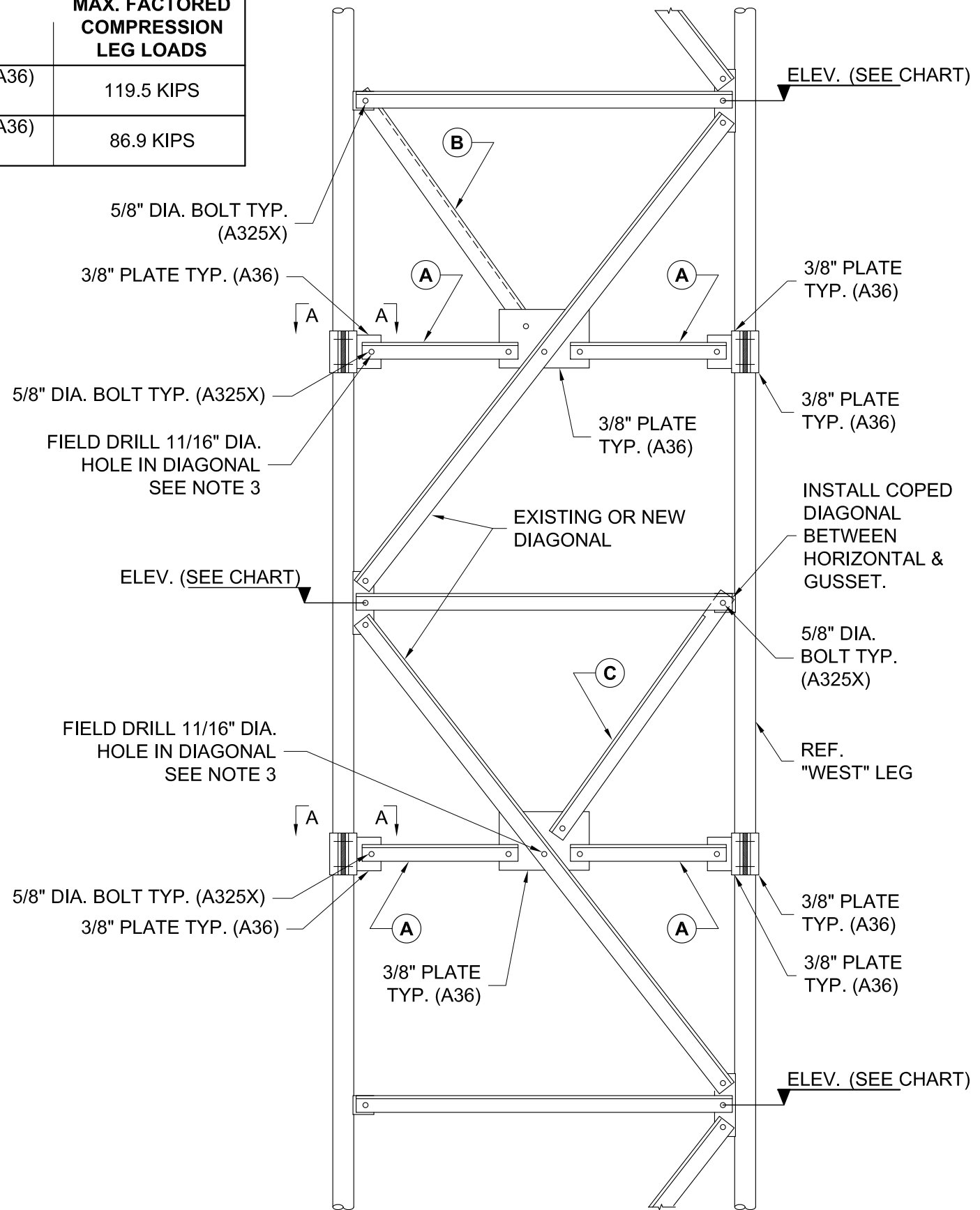
TOWER MUST BE ADEQUATELY BRACED BEFORE REMOVING ANY EXISTING TOWER BOLTS

NOTES:

1. ADEQUATE TEMPORARY BRACING MUST BE INSTALLED PRIOR TO REMOVING ANY TOWER BOLTS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER.
2. DESIGN SUB BRACING CONNECTIONS PER ANSI/TIA 222-G BASED UPON THE MAXIMUM COMPRESSION LEG LOADS SHOWN.
3. TOUCH-UP DAMAGED GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - a. SURFACES TO BE PAINTED SHALL BE CLEAN, DRY AND FREE OF OIL, GREASE, PRE-EXISTING PAINT AND CORROSION BY-PRODUCTS.
 - b. APPLY ZINC RICH PAINT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS IN A SINGLE APPLICATION, EMPLOYING MULTIPLE PASSES TO ACHIEVE A DRY FILM THICKNESS OF NO LESS THAN 6 MILS.




SECTION A - A



ELEVATION VIEW "NW" FACE


PREPARED BY	11/23/20	JMR	CHECKED BY	11/23/20	RE	ENGINEER REVIEW	11/25/20	AV	PROJECT NUMBER	350816	DRAWING NUMBER	D05.03
DATE			DATE			DATE			DATE		DATE	
E.C.K			E.C.K			E.C.K			E.C.K		E.C.K	
REVISION DESCRIPTION			REVISION DESCRIPTION			REVISION DESCRIPTION			REVISION DESCRIPTION		REVISION DESCRIPTION	
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SUB BRACING DETAILS FOR "NW" FACE
WATERBURY, CT

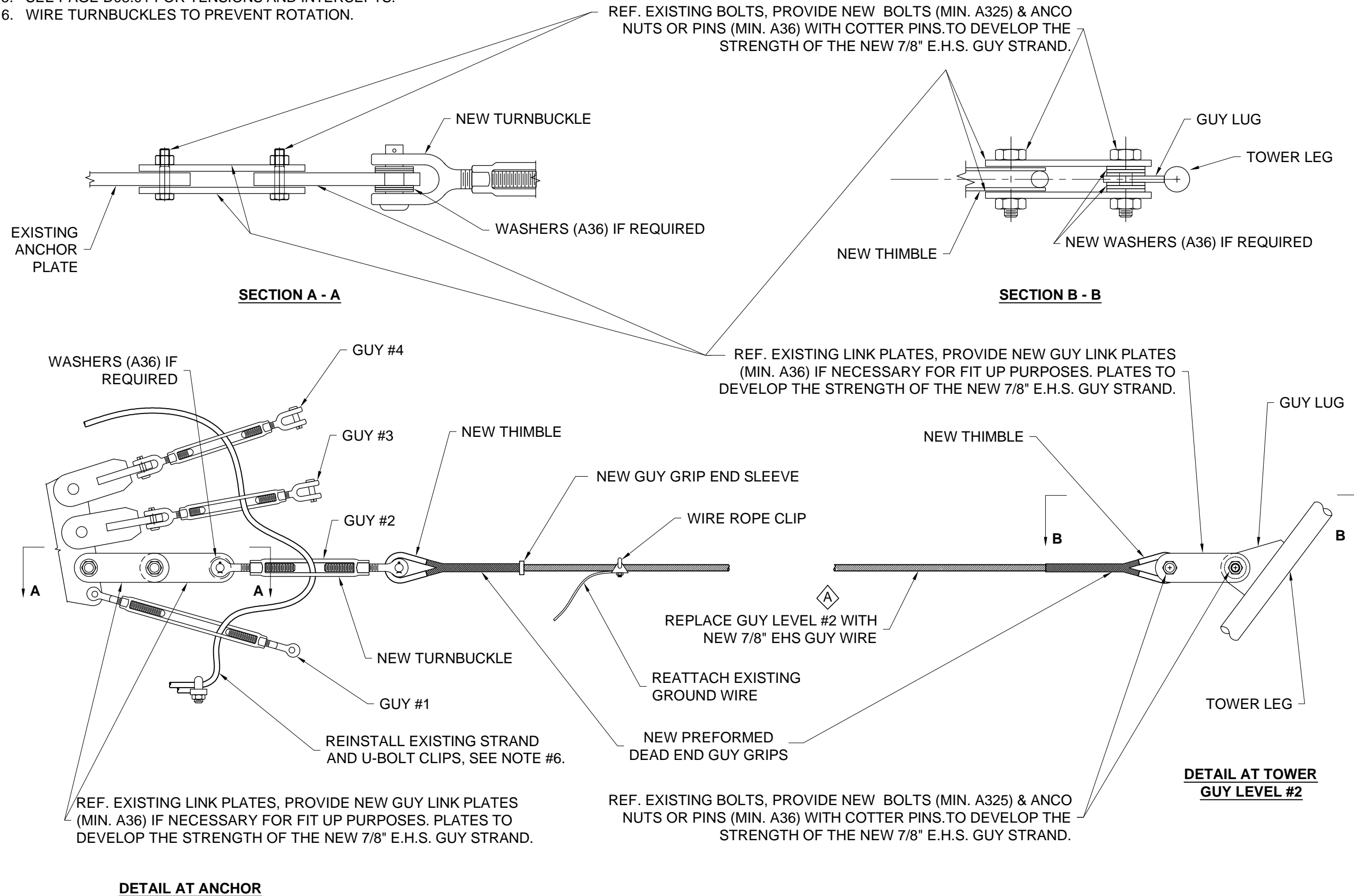
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NOTES:

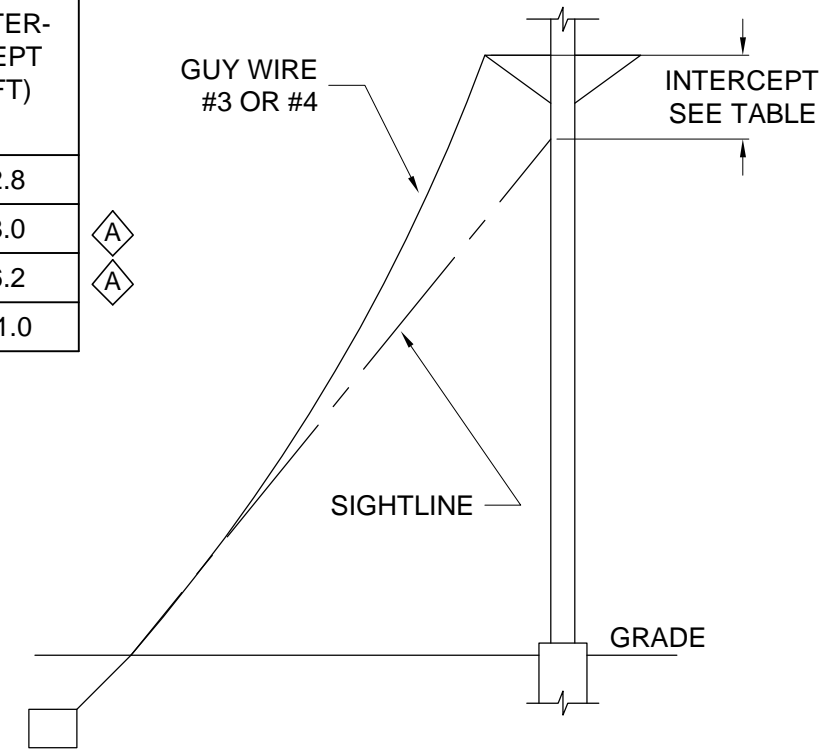
1. NEW GUY WIRE HARDWARE SHALL DEVELOP THE MAXIMUM ALLOWABLE LOAD OF THE GUY STRAND AS DETERMINED PER ANSI/TIA 222-G.
2. (3) GUY WIRE ASSEMBLIES REQUIRED FOR GUY LEVEL #2.
3. APPROXIMATELY 20 FT. SHOULD BE ADDED TO GUY WIRE LENGTH FOR TAKE-UP IN ERECTION.
4. CUT EXCESS GUY WIRE AFTER THE GUYS HAVE BEEN TENSIONED.
5. SEE PAGE D08.01 FOR TENSIONS AND INTERCEPTS.
6. WIRE TURNBUCKLES TO PREVENT ROTATION.



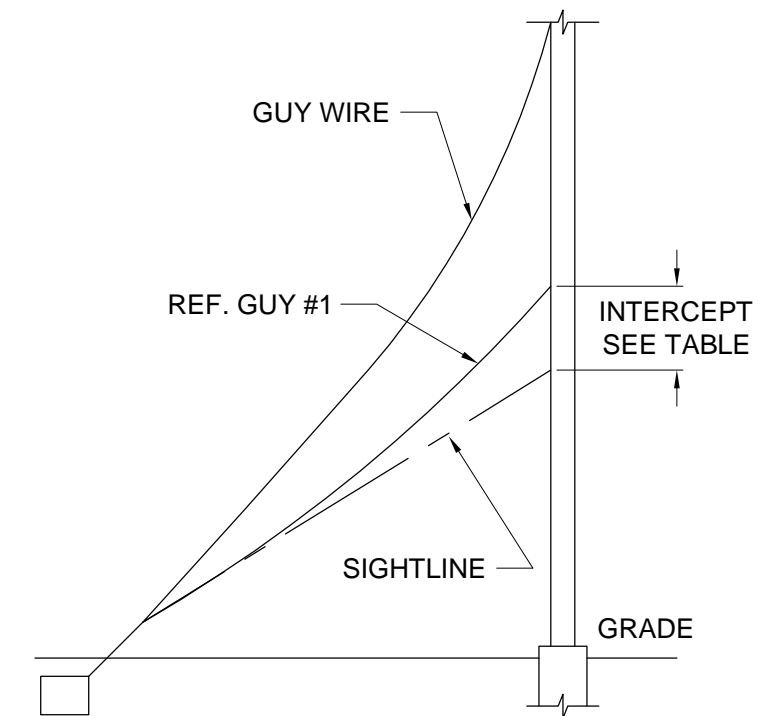
PREPARED BY	RE	7/24/20
CHECKED BY	GH	8/13/20
ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER	350816	
DRAWING NUMBER	D08.00	
DATE	11/25/20	DATE
E.C.K	AV	DATE
D.C.K	RE	DATE
REVISION DESCRIPTION	UPDATED DETAILS TO REFLECT GUY LEVEL 2 CHANGE OUT. PREVIOUS DETAILS SHOWN WAS FOR GUY LEVEL 3.	
REV	DATE	DATE
BY	DATE	DATE
A	JMR	11/23/20
REV	BY	DATE
*	*	*
 STAINLESS A BUSINESS OF PDH INFRASTRUCTURE SERVICES 100 West Main Street, Suite 400 Lansdale, PA 19446 WATERBURY, CT GUY ASSEMBLIES FOR GUY LEVEL 2		
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 11/25/2020		

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	0 DEG. F		20 DEG. F		40 DEG. F		60 DEG. F		80 DEG. F		100 DEG. F	
	ERECT. TENSION (LBS)	INTER-CEPT (FT)	ERECT. TENSION (LBS)	INTER-CEPT (FT)	ERECT. TENSION (LBS)	INTER-CEPT (FT)	ERECT. TENSION (LBS)	INTER-CEPT (FT)	ERECT. TENSION (LBS)	INTER-CEPT (FT)	ERECT. TENSION (LBS)	INTER-CEPT (FT)
1A	6274	1.9	5874	2.0	5478	2.2	5080	2.3	4688	2.5	4299	2.8
2A	7646	5.2	7073	5.7	6516	6.1	5980	6.7	5473	7.3	4997	8.0
3A	4723	5.0	4548	5.2	4374	5.5	4200	5.7	4029	6.0	3858	6.2
4A	3682	9.1	3560	9.5	3440	9.8	3320	10.2	3203	10.6	3087	11.0



ELEVATION VIEW GUYS #3 AND #4



ELEVATION VIEW GUYS #1 AND #2

NOTES:

1. DURING THE INITIAL GUY TENSIONING PROCEDURES AND AT THE TIME OF INSPECTION, THE GUY TENSIONS AND/OR INTERCEPTS SHOULD BE IN ACCORDANCE WITH THE VALUES SHOWN ABOVE. USE THE TEMPERATURE WHICH ACTUALLY EXISTS AT THE TIME THE TENSION IS BEING CHECKED. FOR TEMPERATURES OTHER THAN THOSE SHOWN ABOVE, INTERPOLATE OR EXTRAPOLATE OTHER VALUES.
2. TOWER PLUMBING AND INITIAL TENSIONING OF GUYS SHOULD BE DONE ONLY IN CALM WEATHER AND WITH NO ICE ON GUYS.
3. USE INTERCEPTS AND TENSIONS IN GUY DIRECTION "A" ONLY.
4. GUY #1 IS BOTTOM GUY; GUY #2 IS NEXT, ETC.
5. USE SIGHT BAR FOR DETERMINING GUY INTERCEPTS.
6. TENSION AND/OR INTERCEPT TOLERANCES +/- 5%.
7. AFTER INSTALLING FINAL SET OF GUYS GO BACK AND RECHECK ALL LEVELS, RETENSIONING WHERE REQUIRED.

PREPARED BY	RE	7/24/20
CHECKED BY	GH	8/13/20
ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER	350816	
DRAWING NUMBER	D08.01	
DATE	11/25/20	
E.C.K.	AV	
DATE	11/23/20	
D.C.K.	RE	
REVISION DESCRIPTION	UPDATED TENSION AND INTERCEPT TABLE FOR GUY LEVEL 2 & 3.	
REV BY	A JMR	11/23/20
DATE		
REV	*	*
BY	*	*
DATE	*	*
DESCRIPTION	* * *	

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100 West Main Street, Suite 400
Lansdale, PA 19446

INTERCEPTS & ERECTION TENSIONS
WATERBURY, CT

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STATE OF CONNECTICUT
CHRISTY M. PERE
No. 32975
PROFESSIONAL ENGINEER

11/25/2020

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Exhibit B



REPORT 350817

DATE: 9/21/2020

RIGOROUS STRUCTURAL ANALYSIS
 FOR A 276' G-48 GUYED TOWER
 WATERBURY, CT
 CAPACITY – 98%

PREPARED BY: AV

APPROVED: KP

CHECKED BY: AP



11/25/2020

Date	Pages	Remarks
11/25/2020	2-3, 5-6	Rev A: Section B: correction to guy replacement level. Sections B,C, & G: Update to failing SA report & mod drawing reference.

Rev.	Date	Description
A	11/25/2020	Section B: correction to guy replacement level. Sections B,C, & G: Update to failing SA report & mod drawing reference.

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Rev.	Date	Description
A	11/25/2020	Section B: correction to guy replacement level. Sections B,C, & G: Update to failing SA report & mod drawing reference.

A. AUTHORIZATION/PURPOSE

As authorized by Sheldon Freinle of Northeast Site Solutions, a rigorous structural analysis was performed to investigate the adequacy of a 276' guyed tower in Naugatuck, Connecticut to support specified equipment.

B. TOWER HISTORY

The tower was originally designed and furnished in 1991 by Stainless, Inc. It was designed in accordance with ANSI/EIA-222-D for a basic wind speed of 80 mph with no ice and 69.3 mph with 1/2" of uniform radial ice while supporting the following equipment:

1. Sixty (60) square feet of flat wind area at the 271' level and 20" width of linear wind area to the 276' level.
 2. Two (2) Andrew HMD16HD TV antennas, top mounted, fed by one (1) 1-5/8" line to each antenna.
 3. Four (4) 8' parabolic antennas with radomes at the 271' level, fed by one (1) EW 77 waveguide to each antenna (future).
 4. Two (2) 8' parabolic antennas with radomes at the 221' level, fed by one (1) EW 77 waveguide to each antenna.
 5. Two (2) 6' parabolic antennas with radomes at the 216' level, fed by one (1) EW 77 waveguide to each antenna.
 6. Two (2) 6' Mark grid dishes at the 121' level, fed by one (1) 7/8" line to each antenna.
 7. Two (2) 4' parabolic antennas with radomes at the 106' level, fed by one (1) EW 127 waveguide to each antenna.
 8. Two (2) 18" dishes at the 111' level, fed by one (1) RG59 line to each antenna.
 9. Two (2) 24" dishes at the 106' level, fed by one (1) RG59 line to each antenna.
 10. Four (4) 4' parabolic antennas with radomes at the 101' level, fed by one (1) EW 127 waveguide to each antenna.
 11. Two (2) 4' parabolic antennas with radomes at the 96' level, fed by one (1) EW 127 waveguide to each antenna.
 12. One (1) inside climbing ladder with cable type safety device for the full height of the tower.
- ❖ In 2005, the tower was modified by Paul J. Ford and Company. The scope of the modifications was obtained from:
- Dewberry drawing titled 'Modified 276' Guyed Tower, Sheet S-1' dated 06/14/2005.
 - Stainless LLC Report No. 350802 dated 11/2005, providing connection assembly material for the Level 3 guy replacement.

The modifications were as follows:

- a. Replaced existing 1/2" EHS guys at Level 3 with new 9/16" EHS guy wires.
- b. Adjusted initial guy tensions in all guy levels.

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- c. Replaced existing diagonal members with new higher capacity members at the following bays:

Location	No. of bays
141.0' – 193.0'	13

- ❖ The tower was modified per Stainless LLC Report 350804 dated 04/05/2013, and the modifications were as follows:

- a. Replaced existing 9/16" EHS guys at Level 2 with new 5/8" EHS guy wires.
- b. Installed concrete thrust blocks in front of each anchor and connected the blocks to the anchor arms to resist anchor arm bending.
- c. Adjusted initial guy tensions in all guy levels.

- ❖ The tower was analyzed per Stainless Report 350806 dated 6/25/2016, and tower modification design drawings prepared per Stainless Design Drawings Report 350812 dated 8/10/2017. The modifications consisted of the following:

- a. Replace existing guy wires at Levels 1 (bottom) and 2 with new higher capacity guy wires.
- b. Adjust initial tensions in all guy levels.
- c. Install additional horizontal sub-bracing members at the midpoints of the following bays:

Location	No. of bays
153.0' – 185.0'	8
5.0' – 133.0'	32

- d. Replace or reinforce existing diagonal braces with new higher capacity members at the following bays:

Location	No. of bays
129.0' – 149.0'	5
45.0' – 77.0'	8

- ❖ Tower and foundation modifications per Stainless Design Drawing package 350816 Rev A dated 11/25/2020 were based upon the recommended modifications per Stainless failing analysis Report 350815 Rev. A dated 11/23/2020. These modifications are assumed to have been correctly installed for the purpose of this analysis. The modifications are as follows:

- a. Adjust initial guy tensions at all guy levels.
- b. Install additional horizontal sub-bracing at the midpoints of the following bays:

Location	No. of bays
221' – 249'	7
133' – 141'	2
2' – 5'	1

- c. Replace existing level 2 guy wires with new higher capacity guy wires.

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- d. Replace the existing diagonal members with new, higher capacity members at the following locations:

Location	No. of bays
245' – 253'	2
237' – 241'	1
221' – 225'	1
205' – 209'	1
149' – 153'	1
129' – 145'	4
37' – 45'	2
2' – 17'	4

- e. Reinforce the tower base foundation. It is assumed there are no physical obstructions preventing the tower base remediation.

C. CONDITIONS INVESTIGATED

The analysis was performed for the tower supporting specified equipment based upon the following sources:

- Stainless Proposal P20_3508_002, dated 08/27/2020.
- FDH Infrastructure Services Feedline & Appurtenance Mapping Report dated 7/26/2019
- Stainless Report 350815 Rev A dated 11/23/2020
- Stainless Design Drawing package 350816 Rev. A dated 11/25/2020.

APPURTENANCE	ELEVATION, ft.	FEED LINES
5/8" diameter x 4.3' lightning rod	276	--
Beacon w/ ice shield	276	5/8" cable
(2) 6' x 6' ice shield	270	--
(2) 6' diameter MW dishes w/radome	265	(4) EW63
Scala grid dish	255	7/8"
(3) Andrew DBXNH-6565A-A2M (To Be Removed) (3) Ericsson RRUS11 B12 (To Be Removed) (4) RFS ATMA3P4-1A20 (To Be Removed) (2) RFS ATMA4P4-1A20 (To Be Removed) (3) T-Arm Mounts (To Be Removed) (3) Ericsson AIR32 KRD901146-1 B66Z B2A	236	(6) 1-5/8" lines (To Be Removed) (6) 1-5/8" lines (3) 1-5/8" fiber cable (6) 1-5/8" Hybrid Cable (Proposed)

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<p>(3) RFS-APXVAARR24_43-U-NA20 (Proposed) (3) RFS-APXV18-206516S-CA20 (Proposed) (3) Ericsson AIR6449 B41 (Proposed) (3) Ericsson Radio 4449 B71+B85 (Proposed) (3) Radio 4415 B25 (Proposed) (3) Generic Twin Style 1B-AWS TMA (Proposed) (3) 12.5' Sector Frames [SitePro1 P/N: VFA12-SD-S] (Proposed)</p>		
<p>(6) Alcatel-Lucent RRH 2x50-800 RRUs (3) RRH 8x20-25-FEU 8T8R RRUs (6) RRH 1900-4x45 RRUs (3) 70"x12"x8" panels (3) Andrew DT465B-2XR-V2 panels (3) Sector mounts</p>	210	<p>(1) 1-1/2" Fiber (3) 1-1/4" hybrid</p>
15' whip antenna w/ (3) elements	195	(1) 1/2" coax
6' x 6' ice shield	174	--
10' dipole w/(2) elements	171	7/8"
<p>(1) Mark 4' diameter grid dish (1) 9-1/2" x 2-1/2" x 2-1/2" ODU</p>	169	1/4" coax
Diamond D-130N	164	7/8"
<p>(3) Raycap DC6-48-60-18-8C SPDs (6) Ericsson RRUS 32 B30 RRUs (3) Powerwave 7770.00J1 panels (6) Ericsson KRC 161 689/3 RRUs (6) CCI TPX-070821 diplexers (6) Powerwave LGP 21401 TMAs (6) Ericsson KRC 161 472/3 RRUs (3) Kathrein 80010965 panels (3) CCI HPA-65R-BW-H6 panels (3) Quintel QS665122E53617881 panels (3) Ericsson RRUS 11 B12 (3) T-arm mounts</p>	153	<p>(2) 1" cables (1) RET cable (4) 3/4" cables (2) 3/8" fiber cables (12) 1-5/8" coax</p>
(3) L-810 side markers	133	3/8" cable
12" stand off (unused)	52	--
3-1/2" diameter x 9" Omni	17	1/4" coax
--	236	3/8" grounding cable
Inside climbing ladder with safety cable	Full height of the tower	3/8"

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The locations of the transmission lines have been based upon the cross section from Stainless Report 350815 Rev. A dated 11/23/2020 and the FDH Infrastructure Services Mapping report dated 7/26/2019 and shown on Page A-2 of this Report. Proposed transmission lines have been located to minimize the wind load on the tower. Deviating from the line arrangement as shown may invalidate the results of this analysis.

D. LOADS AND STRESSES

The analysis was performed using the following design parameters in accordance with the 2018 Connecticut Building Code, referencing the 2015 IBC and ANSI/TIA-222-G, Structural Standard for Antenna Supporting Structures and Antennas, including Addenda 1 & 2, dated 2007 and 2009 respectively.

- Risk Category II
- 125 mph ultimate 3-second gust wind speed with no ice.
- 50 mph nominal design wind speed with 3/4" design ice thickness.
- Exposure Category B
- Topographic Category 5 (H = 360', 2Lh = 2880', and x = 370')
- 0.19 earthquake spectral response acceleration at short periods (S_s)
- Earthquake Site Class D

The ultimate design wind speed is converted to a nominal design wind speed for use in ANSI/TIA 222-G based upon the following formula:

$$\begin{aligned}
 V_{asd} &= V_{ult} * (0.6)^{1/2} \\
 &= 125 * (0.6)^{1/2} \\
 &= 97 \text{ mph}
 \end{aligned}$$

Seismic effects need not be considered as the value of S_s is less than 1.0 per Section 2.7.3 of ANSI/TIA 222-G. Load and resistance factors used to evaluate the adequacy of the structure were in accordance with ANSI/TIA-222-G.

E. METHOD OF ANALYSIS

The analysis was performed using tnxTower, a commercial computer-aided finite element tower program for the non-linear analysis of towers subject to simultaneous lateral and axial loads.

F. RESULTS

The results of the analysis show the following ratings:

LOCATION	SPAN	RATING %
Leg compression	Cantilever	15

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	4	94
	3	94
	2	98
	1	84
Leg tension	Cantilever	19
	4	87
	3	33
	2	--
	1	--
Diagonals	Cantilever	44
	4	93
	3	98
	2	96
	1	96
Horizontals	Cantilever	11
	4	42
	3	65
	2	54
	1	26
Guys	4	77
	3	96
	2	85
	1	77
Foundations	Tower base	90
	Guy anchors	97

The rating is defined as the percentage of the component design capacity that is used up in supporting itself and the loading from the antennas and transmission lines under the design wind and ice loading conditions. Ratings of up to 100% are considered acceptable based on the state of Connecticut requirements, and the tower has been reviewed based on 100% maximum rating.

G. CONCLUSIONS AND RECOMMENDATIONS

Based on the preceding results, the following conclusions may be drawn:

1. With the modifications per Stainless Design Drawings package 350816 Rev A dated 11/25/2020 installed, the tower supporting equipment as specified in Section C of this report is adequate to achieve an ultimate 3-second gust wind speed of 125 mph with no ice and a nominal design wind speed of 50 mph with 3/4" design ice thickness in accordance with the 2018 Connecticut Building Code, referencing the 2015 IBC, and ANSI/TIA-222-G with the analysis parameters of Section D.

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2. The modifications as shown in the Appendix of this report must be correctly installed for this analysis to be considered valid.

H. PROVISIONS OF ANALYSIS

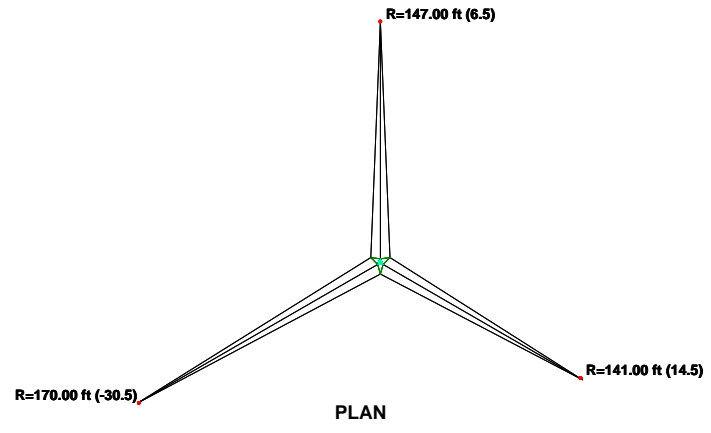
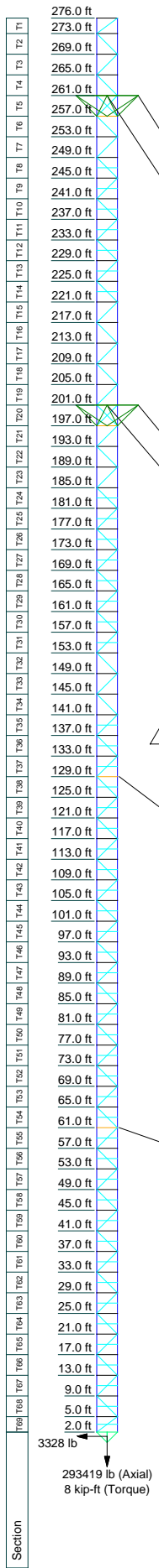
The analysis performed and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

1. Proper alignment and plumbness.
2. Correct guy tensions.
3. Correct bolt tightness.
4. No significant deterioration or damage to any component.

Furthermore, the information and conclusions contained in this Report were determined by application of the current “state-of-the-arts” engineering and analysis procedures and formulae, and Stainless assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will Stainless have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of Stainless, if any, pursuant to this Report shall be limited to the total funds actually received by Stainless for preparation of this Report.

Customer has requested Stainless to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested Stainless to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of Stainless, Customer has informed Stainless that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by Stainless and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer’s choice.

Customer hereby agrees and acknowledges that Stainless shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than Stainless in connection with the implementation of any structural changes or modifications recommended by Stainless including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that Stainless shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor.



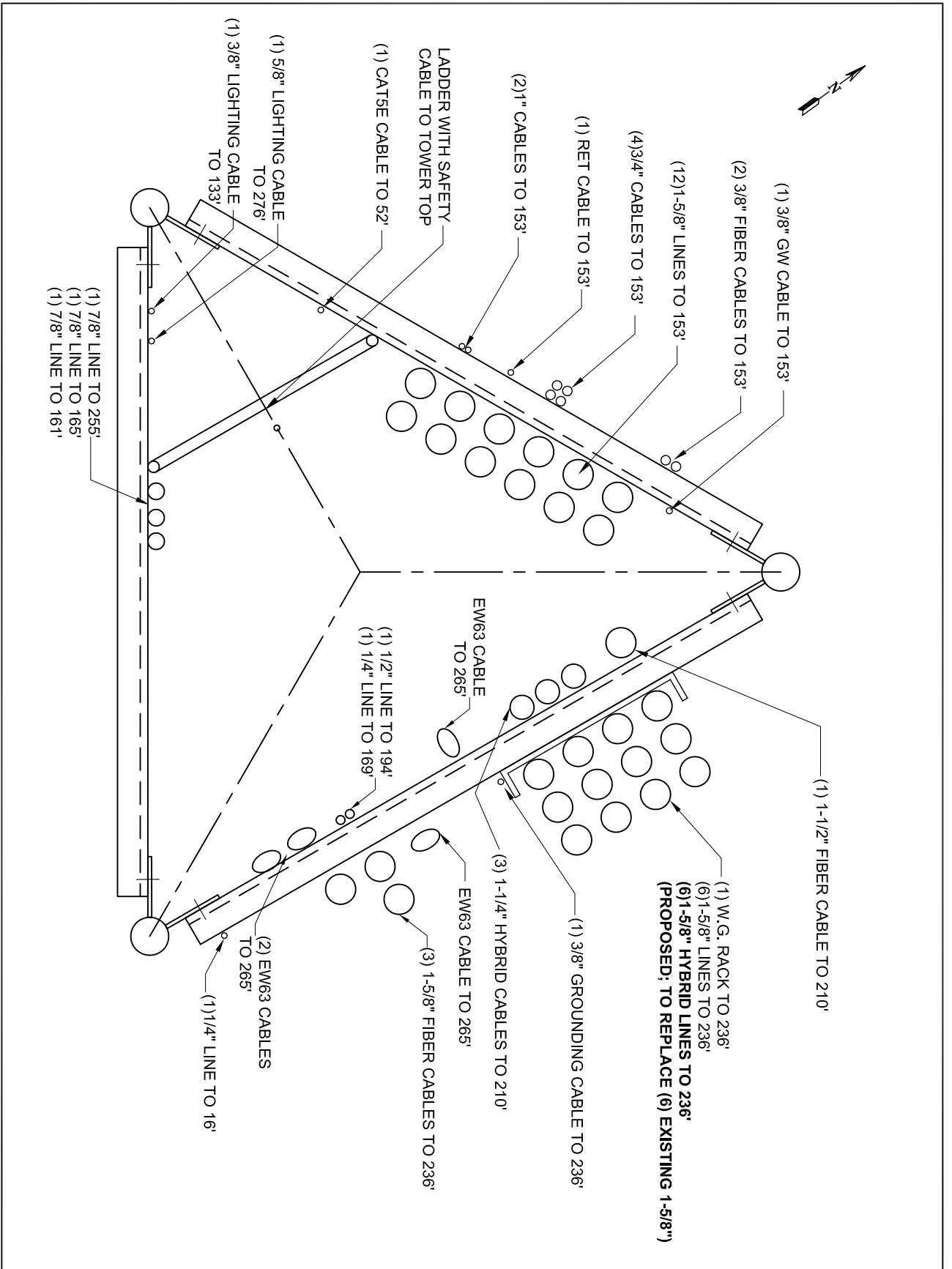
DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
lighting Rod and beacon	276	DT465B-2XR-V2	210
6'x6' ice shield	270	Sector Frame Mount	210
6'x6' ice shield	270	Sector Frame Mount	210
6' dish with radome	265	Sector Frame Mount	210
6' dish with radome	265	15' Whip with elements	195
Scala PR-450	255	6'x6' ice shield	174
APXVAARR24_43-U-NA20 w/ Mount Pipe	236	4-bay Dipole Antenna	171
APXVAARR24_43-U-NA20 w/ Mount Pipe	236	9-1/2"x2-1/2"x2-1/2" ODU	169
APXVAARR24_43-U-NA20 w/ Mount Pipe	236	4' Mark Grid dish	169
APXV18-206516S-C-A20 w/ Mount Pipe	236	Diamond D-130N	164
APXV18-206516S-C-A20 w/ Mount Pipe	236	DC6-48-60-18-8C	153
APXV18-206516S-C-A20 w/ Mount Pipe	236	DC6-48-60-18-8C	153
APXV18-206516S-C-A20 w/ Mount Pipe	236	DC6-48-60-18-8C	153
APXV18-206516S-C-A20 w/ Mount Pipe	236	(2) RRUS 32 B30	153
APXV18-206516S-C-A20 w/ Mount Pipe	236	(2) RRUS 32 B30	153
APXV18-206516S-C-A20 w/ Mount Pipe	236	(2) RRUS 32 B30	153
AIR6449 B41 w/ Mount Pipe	236	7700.00 w/Mount Pipe	153
AIR6449 B41 w/ Mount Pipe	236	7700.00 w/Mount Pipe	153
AIR6449 B41 w/ Mount Pipe	236	7700.00 w/Mount Pipe	153
RADIO 4449 B71/B85A	236	(2) KRC 161 472/3 RRUs	153
RADIO 4449 B71/B85A	236	(2) KRC 161 472/3 RRUs	153
RADIO 4449 B71/B85A	236	(2) KRC 161 472/3 RRUs	153
4415 B25	236	(2) TPX-070821	153
4415 B25	236	(2) TPX-070821	153
4415 B25	236	(2) TPX-070821	153
Generic 1B-AWS TMA	236	(2) LGP21401 TMA	153
Generic 1B-AWS TMA	236	(2) LGP21401 TMA	153
Generic 1B-AWS TMA	236	(2) LGP21401 TMA	153
Sector Frame Mount	236	(2) KRC 161 689/3 RRUs	153
Sector Frame Mount	236	(2) KRC 161 689/3 RRUs	153
Sector Frame Mount	236	(2) KRC 161 689/3 RRUs	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	800 10965 w/ Mount Pipe	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	800 10965 w/ Mount Pipe	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	800 10965 w/ Mount Pipe	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	HPA-65R-BUU-H6 w/ 5.5' Mount Pipe	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	HPA-65R-BUU-H6 w/ 5.5' Mount Pipe	153
AIR 32 B32 901146-1_B66a_B2A (Octa) w/Mount Pipe	236	HPA-65R-BUU-H6 w/ 5.5' Mount Pipe	153
(2) 800MHZ 2x50W RRH	210	QS66512-2 w/ Mount Pipe	153
(2) 800MHZ 2x50W RRH	210	QS66512-2 w/ Mount Pipe	153
(2) 800MHZ 2x50W RRH	210	QS66512-2 w/ Mount Pipe	153
TD-RRH8x20-25	210	RRUS 11 B12	153
TD-RRH8x20-25	210	RRUS 11 B12	153
TD-RRH8x20-25	210	RRUS 11 B12	153
(2) 1900MHz 4x45 RRH	210	Sector Frame Mount	153
(2) 1900MHz 4x45 RRH	210	Sector Frame Mount	153
(2) 1900MHz 4x45 RRH	210	Sector Frame Mount	153
APXVSP18-C-A20 w/ Mount Pipe	210	L-810 side markers	133
APXVSP18-C-A20 w/ Mount Pipe	210	L-810 side markers	133
APXVSP18-C-A20 w/ Mount Pipe	210	L-810 side markers	133
DT465B-2XR-V2	210	Subdiagonal bracing correction	129 - 125
DT465B-2XR-V2	210	Subdiagonal bracing correction	105 - 5
		Unused mount	52
		1'-4" x 3/4" Omni	17

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 5 with Crest Height of 360.00 ft

<p>Stainless 6521 Meridien Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031</p>	<p>Job: 350817 Waterbury CT</p> <p>Project: 276' Stainless G-48 guyed tower</p>	
	<p>Client: Northeast Site Solutions LLC</p> <p>Code: TIA-222-G</p> <p>Path: E:\E1\STAINLESS\PROJ\CTB\202009_SSP\350817_Waterbury_CT_WTC\WTC.dwg (P:030303)350817.dwg</p>	<p>Drawn by: AVago</p> <p>Date: 09/14/20</p>



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LINEAR APPURTENANCES WATERBURY, CT																																								
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A-3 DESIGN DRAWINGS 350816



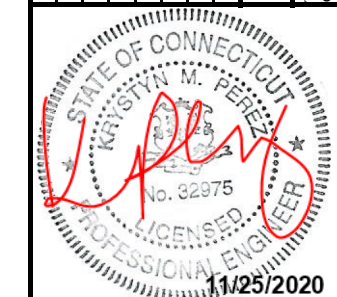
A BUSINESS OF FDH INFRASTRUCTURE SERVICES
 100 West Main Street, Suite 400
 Lansdale, PA 19446

DESIGN DRAWINGS EXISTING G48 TOWER WATERBURY, CT

INDEX

DESCRIPTION	DWG	REV	DATE	DESCRIPTION	DWG	REV	DATE
GENERAL ARRANGEMENT	D01.00		7/24/2020	DIAGONAL REPLACEMENT	D05.01		7/24/2020
GENERAL NOTES	D01.01	A	11/23/2020	SUB BRACING DETAILS	D05.02	A	11/23/2020
GENERAL NOTES	D01.02		7/24/2020	SUB BRACING DETAILS FOR "NW" FACE	D05.03		11/23/2020
BASE FOUNDATION MODIFICATION	D02.00		7/22/2020	SUB BRACING DETAILS FOR "SW" FACE	D05.04		11/23/2020
FOUNDATION NOTES	D02.01		7/23/2020	GUY ASSEMBLIES FOR GUY LEVEL 2 <A>	D08.00	A	11/23/2020
TOWER PROFILE	D04.00	A	11/23/2020	INTERCEPTS & ERECTION TENSIONS	D08.01	A	11/23/2020
LINEAR APPURTENANCES	D05.00		7/24/2020				

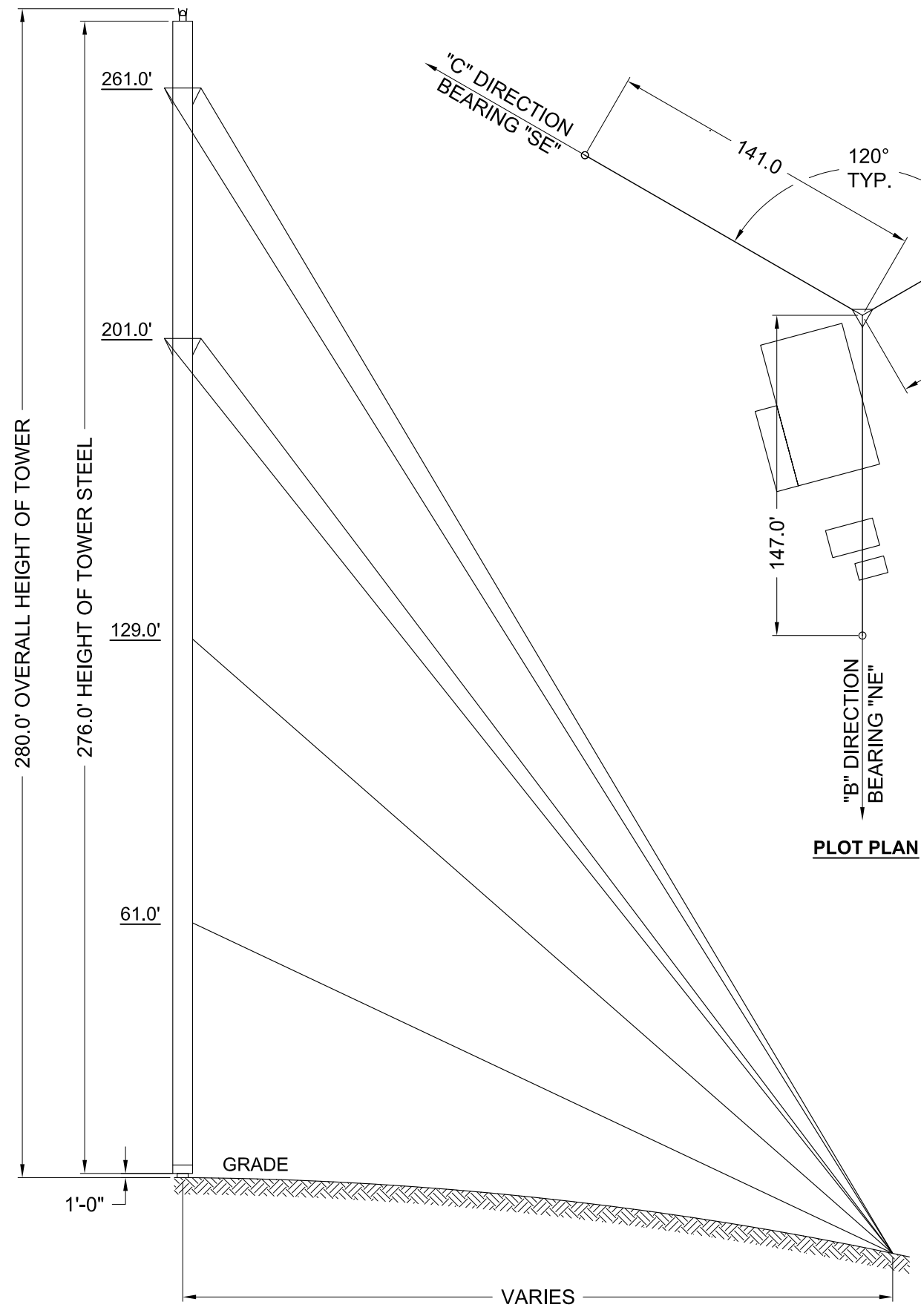
Rev	Description	Drawn by	Date	Checked by	Date	Reviewed by	Date	Approved by	Date
A	Rev.D01.01,D04.00,D05.02,D08.00,D08.01,Added D05.03,D05.04.	JMR	11/23/2020			GH	11/23/2020	AV	11/25/2020
--	Initial Release	RE	7/24/2020	GH	8/13/2020	GH	8/13/2020	AV	8/24/2020



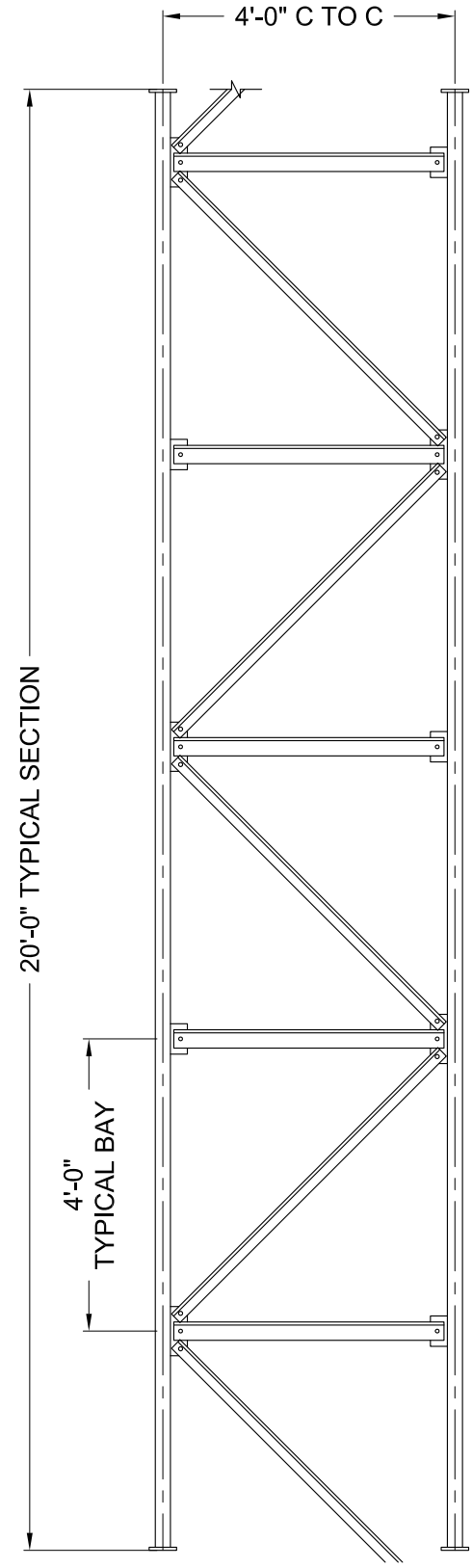
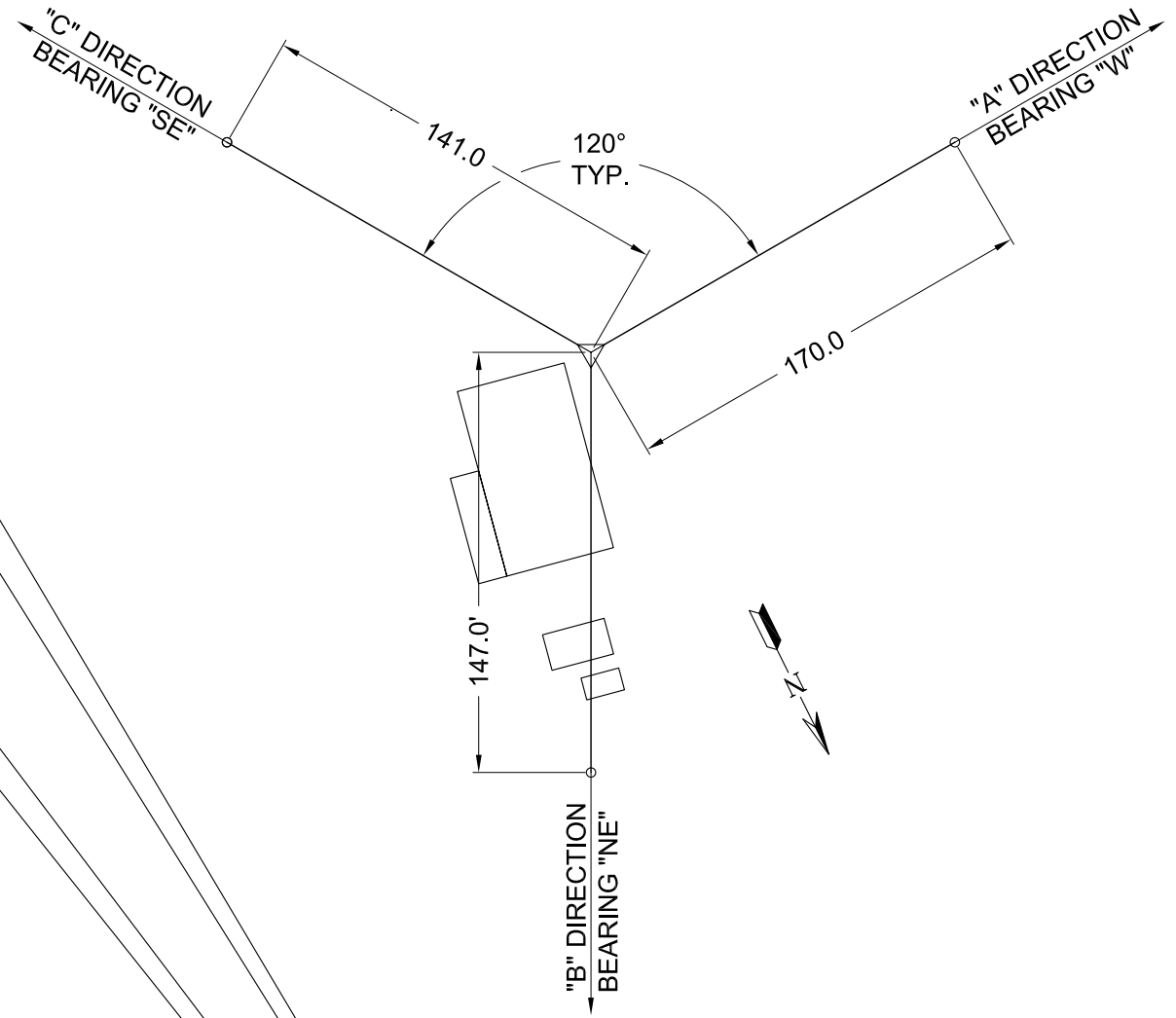
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Project No.: 350816

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ELEVATION VIEW



NOTE:
1. SEE PAGE D01.01 & D01.02 FOR GENERAL NOTES.



GENERAL ARRANGEMENT
WATERBURY, CT

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RE	7/24/20	PREPARED BY	RE	7/24/20
GH	8/13/20	CHECKED BY	GH	8/13/20
AV	8/24/2020	ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER		350816		
DRAWING NUMBER		D01.00		
REV	BY	DATE	REVISION DESCRIPTION	D.C.K
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*				

- The tower is a guyed, triangular, non-insulated, open face structure.
- The tower was analyzed per Stainless Rigorous Structural Analysis Report 350815 Rev. A dated 11/23/20 <A>. It was analyzed in accordance with the 2018 Connecticut Building Code, referencing the 2015 IBC and ANSI/TIA-222-G 2005, Structural Standard for Antenna Supporting Structures and Antennas, including addenda 1 and 2 dated 2007 and 2009 for the following parameters to support equipment as listed below:

-) Risk Category II
-) 125 mph ultimate 3-second gust wind speed with no ice.
-) 50 mph nominal design wind speed with 3/4" design ice thickness.
-) Exposure Category B
-) Topographic Category 5 (H = 360', 2Lh = 2880', and x = 370')
-) 0.19 earthquake spectral response acceleration at short periods (S_s)
-) Earthquake Site Class D

Appurtenance	ELEVATION,ft	FEED LINES
5/8" diameter x 4.3' lightning rod	276	--
Beacon w/ ice shield	276	5/8" cable
(2) 6' x 6' ice shield	270	--
(2) 6' diameter MW dishes w/radome	265	(4) EW63
Scala grid dish	255	7/8"
(3) Andrew DBXNH-6565A-A2M (To Be Removed) (3) Ericsson RRUS11 B12 (To Be Removed) (4) RFS ATMA3P4-1A20 (To Be Removed) (2) RFS ATMA4P4-1A20 (To Be Removed) (3) T-Arm Mounts (To Be Removed) (3) Ericsson AIR32 KRD901146-1_B66Z_B2A (3) RFS-APXVAARR24_43-U-NA20 (Proposed) (3) RFS-APXV18-206516S-CA20 (Proposed) (3) Ericsson AIR6449 B41 (Proposed) (3) Ericsson Radio 4449 B71+B85 (Proposed) (3) Radio 4415 B25 (Proposed) (3) Generic Twin Style 1B-AWS TMA (Proposed) (3) 12.5' Sector Frames [SitePro1 P/N: VFA12-SD-S] (Proposed)	236	(6) 1-5/8" lines (To Be Removed) (6) 1-5/8" lines (3) 1-5/8" fiber cable (6) 1-5/8" Hybrid Cable (Proposed)
(6) Alcatel-Lucent RRH 2x50-800 RRUs (3) RRH 8x20-25-FEU 8T8R RRUs (6) RRH 1900-4x45 RRUs (3) 70"x12"x8" panels (3) Andrew DT465B-2XR-V2 panels (3) Sector mounts	210	(1) 1-1/2" Fiber (3) 1-1/4" hybrid
15' whip antenna w/ (3) elements	195	(1) 1/2" coax
6' x 6' ice shield	174	--
10' dipole w/(2) elements	171	7/8"
(1) Mark 4' diameter grid dish	169	1/4" coax
(1) 9-1/2" x 2-1/2" x 2-1/2" ODU	164	7/8"
Diamond D-130N	164	7/8"
(3) Raycap DC6-48-60-18-8C SPDs (6) Ericsson RRUS 32 B30 RRUs (3) Powerwave 7770.00J1 panels (6) Ericsson KRC 161 689/3 RRUs (6) CCI TPX-070821 diplexers (6) Powerwave LGP 21401 TMAs (6) Ericsson KRC 161 472/3 RRUs (3) Kathrein 80010965 panels (3) CCI HPA-65R-BW-H6 panels (3) Quintel QS665122E53617881 panels (3) Ericsson RRUS 11 B12 (3) T-arm mounts	153	(2) 1" cables (1) RET cable (4) 3/4" cables (2) 3/8" fiber cables (12) 1-5/8" coax

(3) L-810 side markers	133	3/8" cable
12" standoff (unused)	52	--
3-1/2" diameter x 9" Omni	17	1/4" coax
--	236	3/8" grounding cable
Inside climbing ladder with safety cable	Full height of the tower	3/8"

- In order for the tower to achieve an 125 mph ultimate 3-second gust wind speed with no ice and 50 mph nominal design wind speed with 3/4" design ice thickness in accordance with 2015 IBC and ANSI/TIA 222-G, the following modifications are required:
 - Reinforce the tower base foundation.
 - Replace existing guy wires at Level 2 <A> with new, higher capacity guy wires.
 - Adjust the initial guy tensions to the following values at 60 degrees F:


Level	Tension (kips)
1A	5080
2A	5980
3A	4200
4A (Top)	3320
 - Install additional horizontal sub-bracing members at the midpoints of the following bays:

Location	No. of bays
2.0' - 5.0'	1
133.0' - 141.0'	2
221.0' - 249.0'	7
 - Replace existing diagonal braces with new, higher capacity members at the following bays:

Location	No. of bays
2.0' - 17.0'	4
37.0' - 45.0'	2
129.0' - 145.0'	4
149.0' - 153.0'	1
205.0' - 209.0'	1
221.0' - 225.0'	1
237.0' - 241.0'	1
245.0' - 253.0'	2

- The design of the tower modifications above has been based upon Stainless Report 350815 Rev. A dated 11/23/2020 <A>. The details contained within this design drawing package are included for information and are not intended to be used as shop or final fabrication drawings. The Contractor shall field verify all dimensions, elevations and existing site conditions and notify Stainless immediately of any site discrepancies or variances. Contractor shall not scale dimensions from the design drawings.
- All work shown on this design drawing package shall be performed by qualified contractor (s) with a minimum of 5 years experience in tower and foundation construction.
- All fabricated elements shall be in accordance with the notes, specifications and drawings. All deviations and substitutions must be approved by a registered Professional Engineer in the state where the work is being done and submitted to Stainless for approval prior to installation. The Contractor shall furnish satisfactory evidence as to the kind and quality of the materials and equipment being substituted. Contractor shall also be responsible for obtaining all necessary permits, licenses and any other requirements for the construction. Submit calculations for connection details based upon the design loads shown on the drawings.


7/24/20	8/13/20	8/24/2020	350816	D01.01
RE	GH	AV	PROJECT NUMBER	DRAWING NUMBER
PREPARED BY	CHECKED BY	ENGINEER REVIEW	DATE	DATE
			11/25/20	AV
			RE	11/23/20
			D.CK	DATE
			REVISION DESCRIPTION	DATE
			A	JMR
			REV	BY
			DATE	DATE



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WATERBURY, CT 06705

GENERAL NOTES
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KRISTYN M. PEREZ
No. 32975
LICENSED PROFESSIONAL ENGINEER
11/25/2020

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7. Contractor shall observe safe construction practices and shall be responsible for all methods of construction, including proper and adequate bracing to the tower and excavation work during the installation process. Adequately designed temporary support shall be installed before any tower member is removed and replaced. All means and methods of construction, including construction and soil pressure loads, shall be properly calculated and documented by the Contractor.
8. If the construction activities require a rigging plan per the requirements of ANSI/TIA-1019-A, a rigging plan shall be developed by a qualified engineer, submitted to the Owner for review and implemented by a competent rigger. A properly detailed rigging plan shall include, as a minimum, a review of the following:
 - Operational and non-operational construction loads.
 - Equipment used, and Supporting structure
 - Construction sequence and durations
9. All shop fabrication drawings and material certificates of the successful contractor shall be approved in writing by Stainless prior to fabrication. The approval is to ensure the design requirements and proper fabrication practices are implemented, but does not include fit-up checks which shall be the responsibility of the Contractor.
10. Stainless assumes no responsibility for the structural adequacy of the tower if non-conforming modification materials are supplied and/or installed by others, and shall have no liability whatsoever to owner or to others for any work performed by any persons other than Stainless in connection with the implementation of any structural changes or modifications not specifically addressed within this design drawing package. Owner acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by owner shall be solely responsible to owner and to others for the quality of work performed by them and that Stainless shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by such rigger, erector or subcontractor.
11. The modification drawings contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following.
 - a. Proper alignment and plumbness.
 - b. Correct guy tensions.
 - c. Correct bolt tightness.
 - d. No significant deterioration or damage to any component.

APPLICABLE CODES AND STANDARDS

Use latest editions of the following Codes and Standards unless noted otherwise.

1. ANSI/TIA-222-G 2005 Structural Standards for Antenna Supporting Structures and Antennas including Addenda 1 & 2, dated 2007 and 2009.
2. ANSI/ASSE A10.48 Criteria for Safety Practices Related to the Installation, Alteration, and Maintenance of Communication Structures. ANSI/TIA-322 Loading, Analysis and Design Criteria Related to the Installation, Alteration and Maintenance Communication Structures.
3. AISC Manual of Steel Construction.
4. RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts.
5. ACI 301 Specifications for Structural Concrete.
6. ACI 318 Building Code Requirements for Structural Concrete.
7. ACI 315 Details and Detailing of Concrete Reinforcement.
8. CRSI Manual of Standard Practice.
9. ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete.
10. ASTM C494 Standard Specification for Chemical Admixtures for Concrete.
11. ASTM A36 Standard Specification for Carbon Structural Steel.
12. ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
13. ASTM A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
14. ASTM A194 Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
15. ASTM F436 Standard Specification for Hardened Steel Washers.
16. ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and products.
17. ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

18. ASTM A780 Standard Practice for Repair of Damage and Uncoated Areas of Hot-Dip Galvanized Coatings.
19. ASTM A615 Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.

STRUCTURAL STEEL

1. The fabrication and erection of structural steel shall conform to the latest edition of the AISC Manual of Steel Construction.
2. Connections are not fully detailed on these plans and shall be detailed by the steel fabricator in accordance with the AISC Manual of Steel Construction. Connections and connecting elements shall develop the strength capacities as indicated on the design drawings.
3. Hot-dip galvanize all items unless otherwise noted, after fabrication in accordance with ASTM A123 and/or ASTM A153.
4. Repair all damaged or uncoated areas of galvanized coatings in accordance with ASTM A780.
5. Locking ANCO style nuts shall be installed on all proposed and/or replaced bolts.
6. ASTM A325 bolts shall not be reused.
7. All A325 high strength bolts shall be tightened by the "snug tightening" method as specified in the RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts unless noted otherwise on the design drawings.
8. Material grades shall be as follows:
 - a. Plates and angles – A36
 - b. Bolts – A325X
 - c. Extra High Strength Guy strands – ASTM A475 Class A

INSTALLING GUYS AND PLUMBING LINES

1. The tower is designed for initial tension as specified in the erection drawings. It is important that the guys be tensioned accurately to assure the stiffness of the tower.
2. Uneven terrain, temperature, plumbness of tower and wind are factors which affect guy tensions. If the tower site is level and anchor distances are equal, the tensions in all three guys at a level will be equal when the tower is plumb. If the terrain of the tower site is uneven, the guys are not perfectly symmetrical and tensions in guys vary in the three directions. For this reason initial guy tensions are specified in one direction only. The tower should be plumbed with the specified tensions in the given guy direction.
3. Wind load on tower and guys changes the tension in all guys; therefore, plumb the tower in calm weather only.
4. In changing out guys, work should proceed in one guy direction at a time. A temporary guy must be installed before removing existing guy. It is the contractor's responsibility to insure the temporary guy and its connections are adequately designed for the loads imposed on it.
5. The plumbing of a tower or checking alignment of a tower should be performed in accordance with Annex J of ANSI/TIA/EIA 222G.

REINFORCED CONCRETE

1. All concrete shall be in accordance with ACI 318 and ACI 301 and have a minimum compressive strength of 4000 psi after 28 days.
2. All concrete shall be sampled and tested in accordance with ACI 301. Testing shall be carried out by an independent testing laboratory.
3. Concrete shall not contain calcium chloride or any admixtures that contain chlorides. All admixtures used shall conform to ASTM C260 (air-entraining) and ASTM C494 (water reducing and/or accelerating)
4. All reinforcing bars shall be Grade 60 deformed bars in accordance with ASTM A615, and shall be fabricated and placed in accordance with ASTM 315, ACI 318 and CRSI's Manual of Standard Practice.
5. See page D02.01 for foundation notes.

	7/24/20	RE	8/13/20	GH	8/24/2020	AY	350816	D01.02
PREPARED BY	CHECKED BY	ENGINEER REVIEW	PROJECT NUMBER	DRAWING NUMBER	DATE	E. CK	DATE	D. CK
STAINLESS <small>A BUSINESS OF FCM INFRASTRUCTURE SERVICES 100 West Main Street, Suite 400 Lenoir, PA 15448</small>								
GENERAL NOTES WATERBURY, CT								
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08/24/2020								

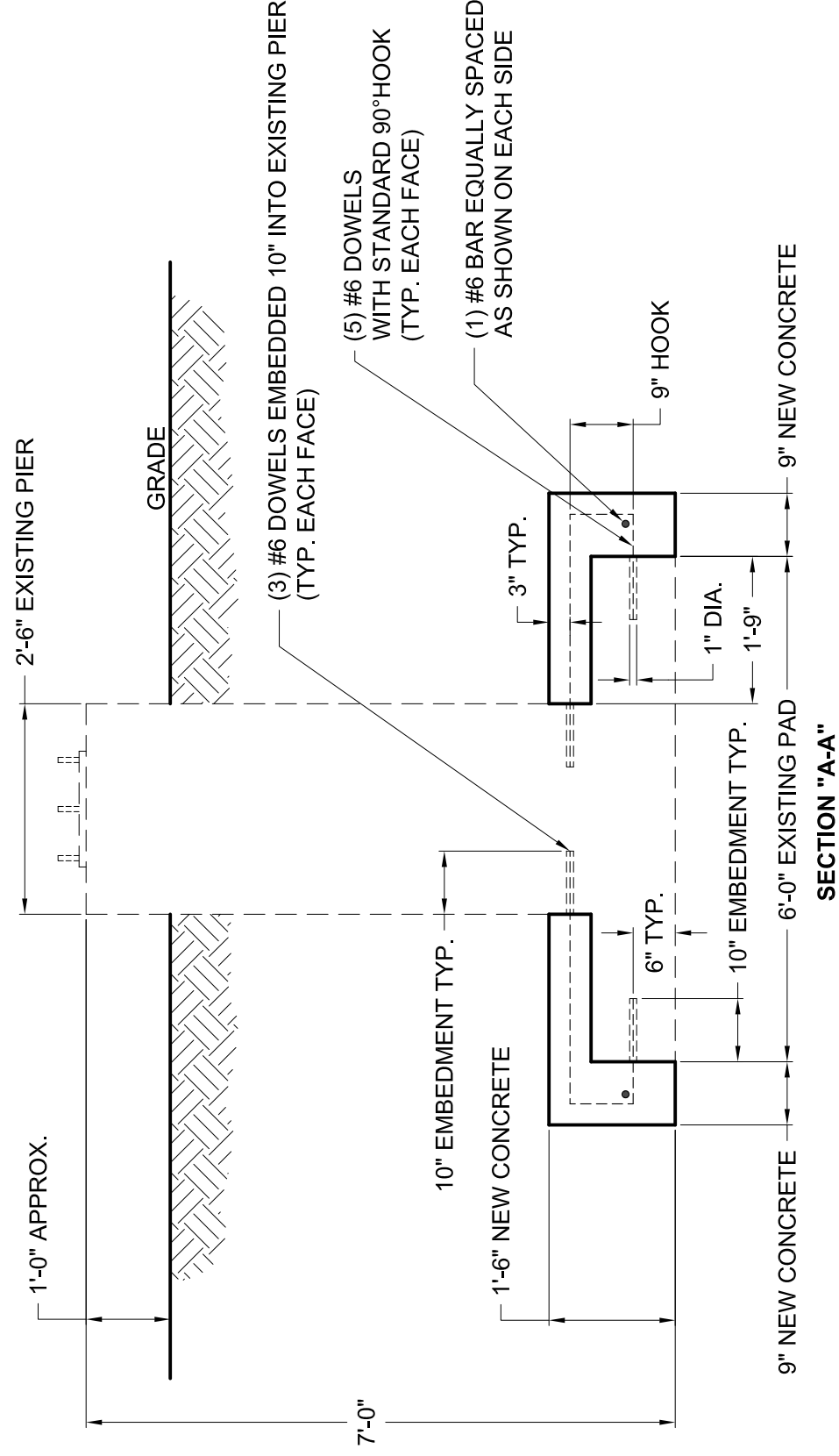
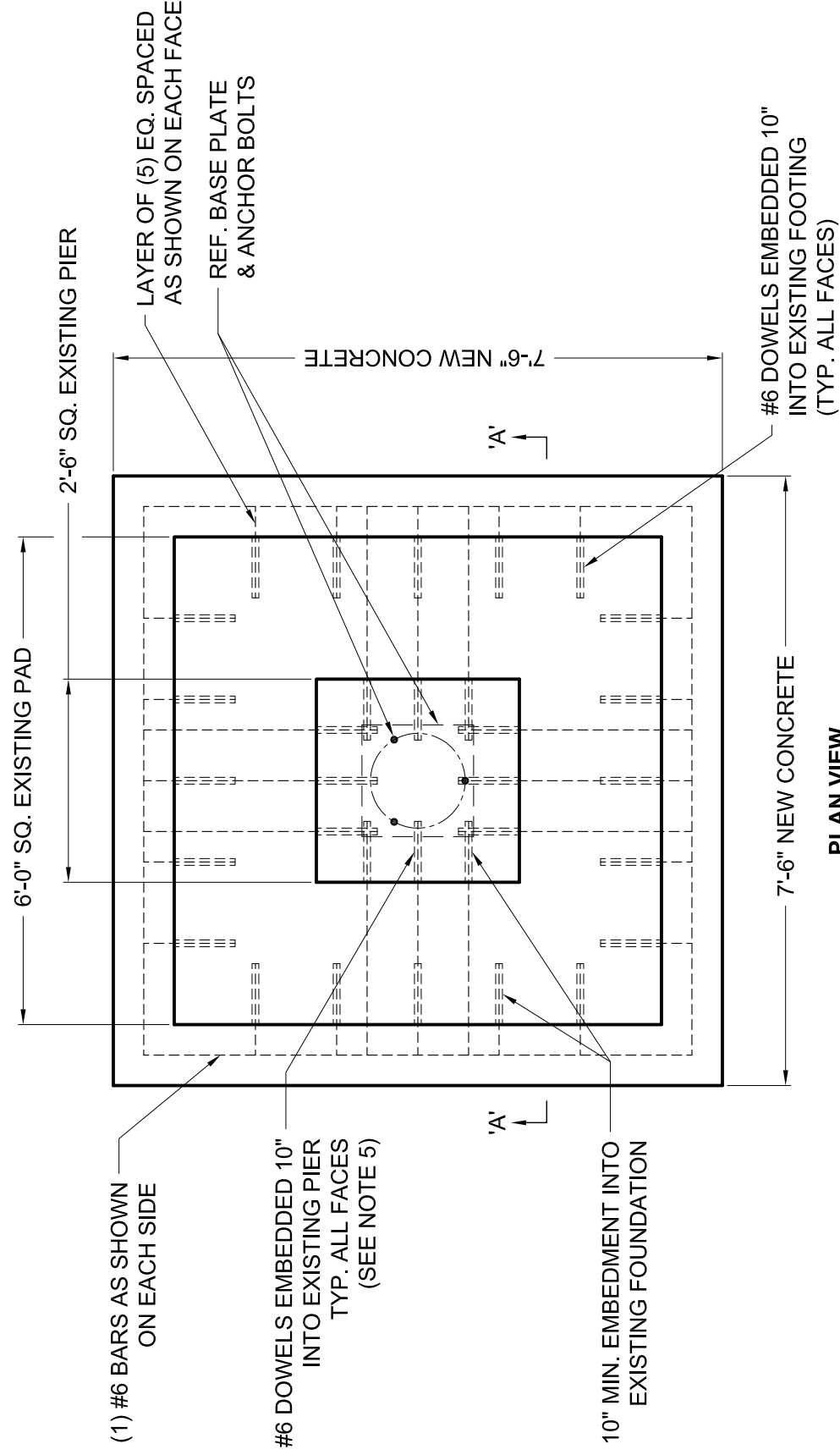
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NOTES:

1. SEE PAGE D02.01 FOR FOUNDATION NOTES.
2. EXCAVATE AROUND PERIMETER OF EXISTING BASE PIER.
3. CLEAN AND ROUGHEN ALL INTERFACES BETWEEN OLD AND NEW CONCRETE. APPLY BONDING AGENT SIKADUR 32, HI-MOD LPL OR EQUIVALENT BONDING AGENT PRIOR TO NEW CONCRETE PLACEMENT. BONDING AGENT SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER APPLICATION SPECIFICATIONS AND GUIDELINES.
4. SECURE DOWELED IN REBAR WITH REBAR ADHESIVE (HILTI-HIT HY 200 ADHESIVE OR EQUIVALENT).
5. FIELD LOCATE EXISTING REBAR PRIOR TO DRILLING. DO NOT DAMAGE EXISTING REBAR DURING INSTALLATION OF EPOXY DOWELS.
6. FOUNDATION HAS BEEN DESIGNED FOR A GROSS ALLOWABLE BEARING PRESSURE OF 8000 PSF.

BILL OF MATERIAL

QTY.	NAME	DESCRIPTION
110 FT.	REINFORCING BARS	#6 - ASTM A615 GRADE 60
2.0 CU. YDS.	CONCRETE	4000 PSI AFTER 28 DAYS
AS REQUIRED	HILTI-HIT-HY 200 ADHESIVE	-----



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BASE FOUNDATION MODIFICATION
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REV	BY	DATE	REVISION DESCRIPTION	D.CK	DATE	E.CK	DATE
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PREPARED BY		MM	7/22/20				
CHECKED BY		GH	8/13/20				
ENGINEER REVIEW		AV	8/24/2020				
PROJECT NUMBER		350816					
DRAWING NUMBER		D02.00					

FOUNDATION NOTES

- 1. No rough lumber to be used where concrete surface is visible.
- 2. All exposed concrete corners shall be beveled neatly with approximately 1" chamfer.
- 3. Reinforcing shall be positioned as shown and adequately supported against displacement. Tack welding is not permitted.
- 4. Bend all reinforcing cold and remove all scale.
- 5. Minimum cover for reinforcing bars is 3".
- 6. The foundation must rest on undisturbed soil.
- 7. Backfill near and around all foundations with a reasonable well graded fill and compact to within 95% of maximum dry unit density.
- 8. Elevation and flatness of base foundation top to be within plus or minus 1/4".
- 9. Foundation design is based on a gross allowable bearing pressure of 8000 psf.
- 10. Bill of Material is approximate and for reference only. Contractor must verify all quantities.



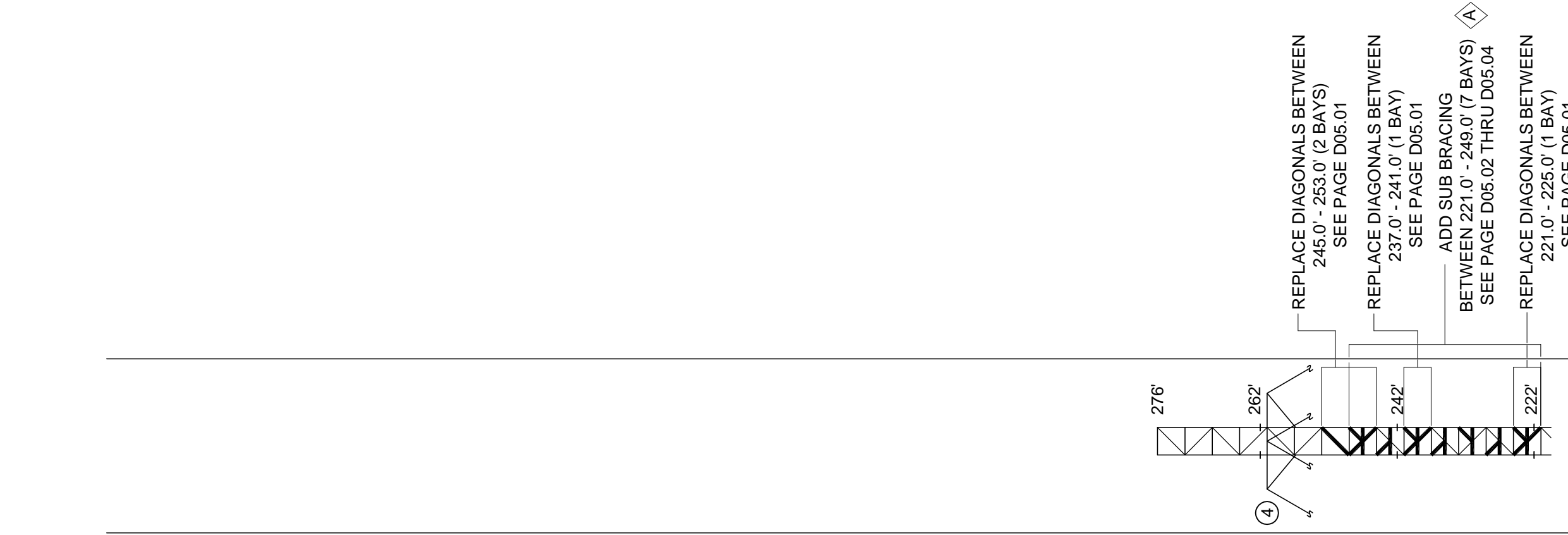
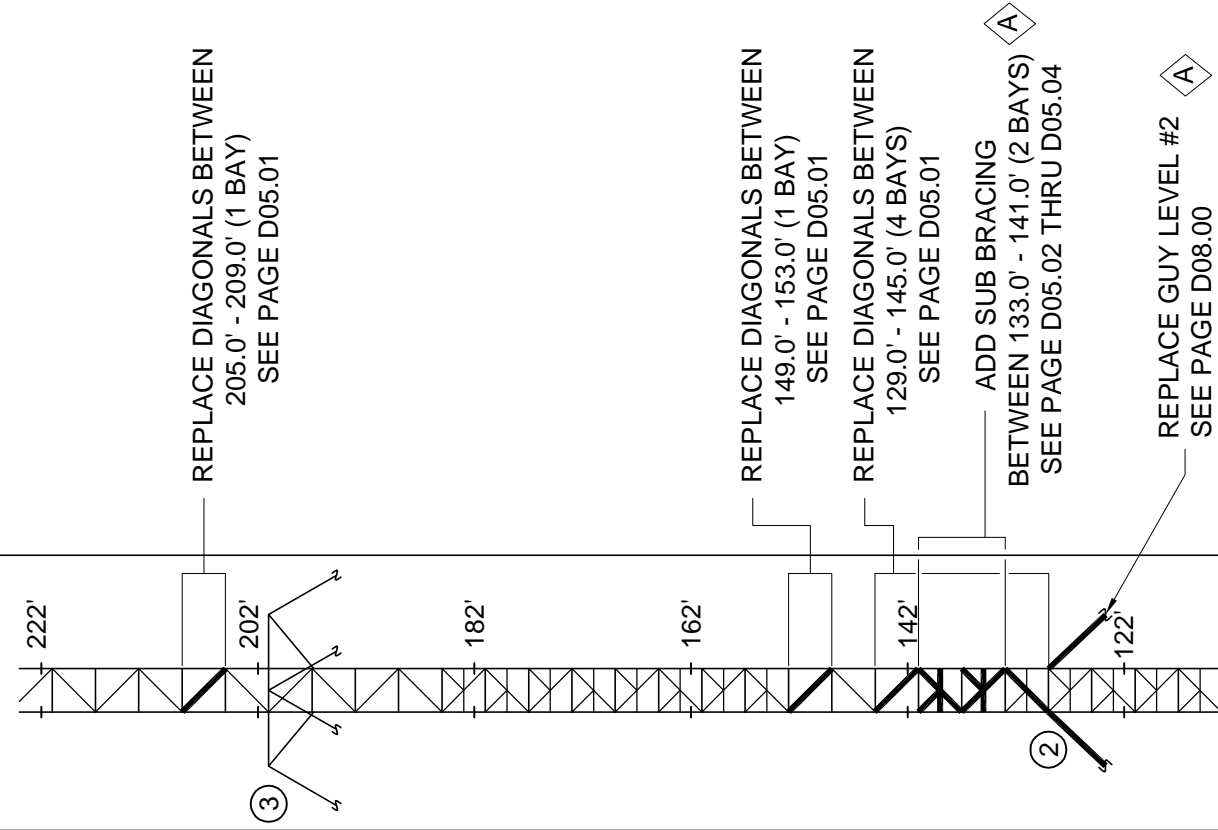
**FOUNDATION NOTES
WATERBUDY, CT**

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RE	7/23/20		
CHECKED BY	GH	8/13/20	
ENGINEER REVIEW BY	AV	8/24/2020	
PROJECT NUMBER	350816		
DRAWING NUMBER	D02.01		
REV	BY	DATE	DESCRIPTION


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TOWER ELEVATION	TOWER MODIFICATIONS
	<ul style="list-style-type: none"> * REPLACE DIAGONALS BETWEEN 205.0' - 209.0' (1 BAY) SEE PAGE D05.01 * REPLACE DIAGONALS BETWEEN 149.0' - 153.0' (1 BAY) SEE PAGE D05.01 * REPLACE DIAGONALS BETWEEN 129.0' - 145.0' (4 BAYS) SEE PAGE D05.01 * ADD SUB BRACING BETWEEN 133.0' - 141.0' (2 BAYS) SEE PAGE D05.02 THRU D05.04 * REPLACE GUY LEVEL #2 SEE PAGE D08.00 * REPLACE DIAGONALS BETWEEN 37.0' - 45.0' (2 BAYS) SEE PAGE D05.01 * REPLACE DIAGONALS BETWEEN 2.0' - 17.0' (4 BAYS) SEE PAGE D05.01 * ADD SUB BRACING BETWEEN 2.0' - 5.0' (1 BAY) SEE PAGE D05.02 THRU D05.04

TOWER ELEVATION	TOWER MODIFICATIONS
	<ul style="list-style-type: none"> * REPLACE DIAGONALS BETWEEN 245.0' - 253.0' (2 BAYS) SEE PAGE D05.01 * REPLACE DIAGONALS BETWEEN 237.0' - 241.0' (1 BAY) SEE PAGE D05.01 * ADD SUB BRACING BETWEEN 221.0' - 249.0' (7 BAYS) SEE PAGE D05.02 THRU D05.04 * REPLACE DIAGONALS BETWEEN 221.0' - 225.0' (1 BAY) SEE PAGE D05.01

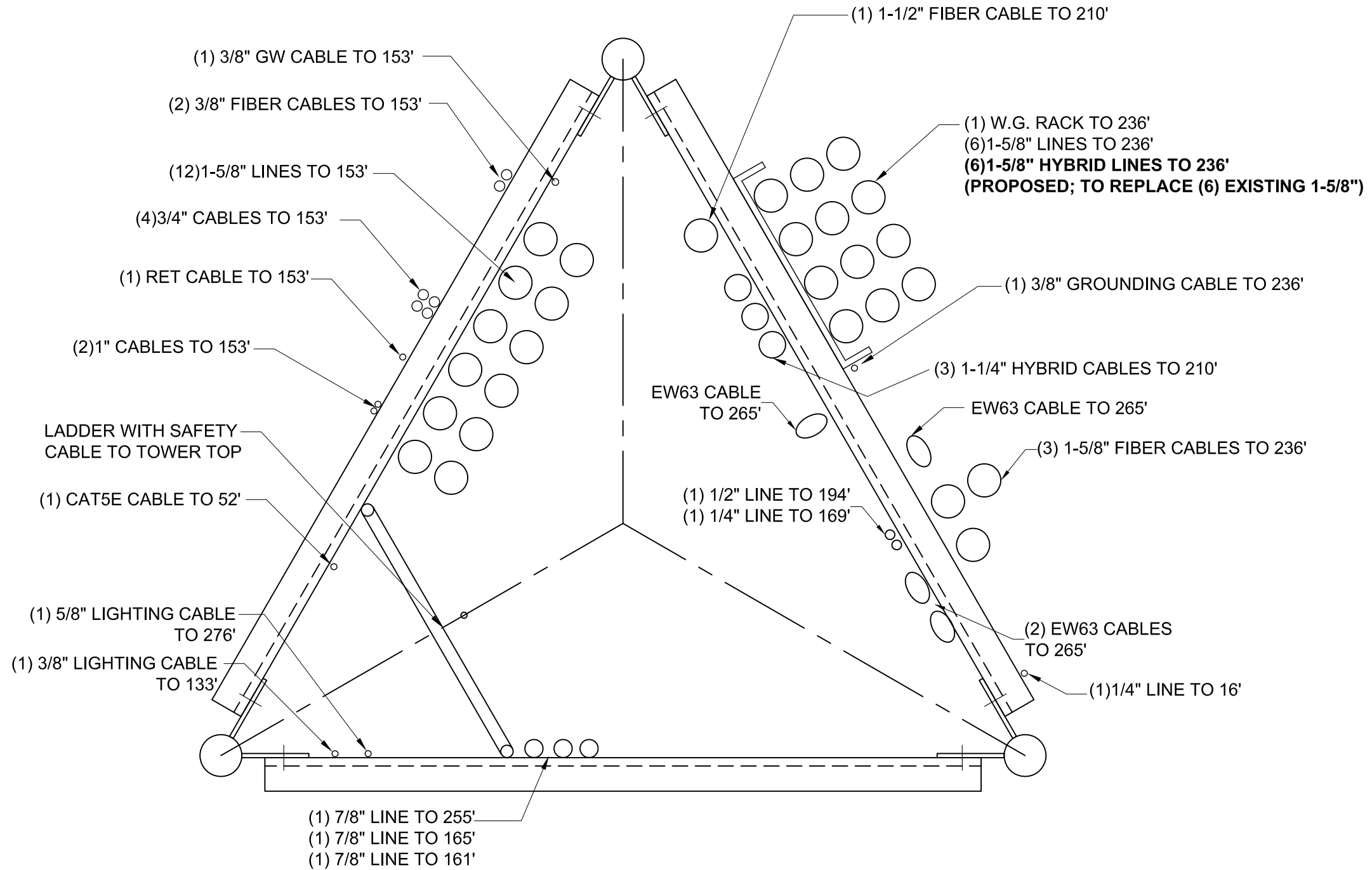
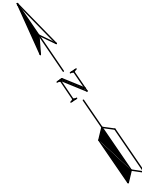



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TOWER PROFILE
WATERBURY, CT
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TOWER MODIFICATIONS	TOWER ELEVATION	TOWER MODIFICATIONS
PREPARED BY: RE 7/24/20 CHECKED BY: GH 8/13/20 ENGINEER REVIEW: AV 8/24/2020 PROJECT NUMBER: 350816 DRAWING NUMBER: D04.00	REVISION DESCRIPTION RE 11/23/20 AV 11/25/20 D.C.K DATE E.C.K DATE ADD PAGE D05.03 & D05.04 TO SUB-BRACING REFERENCE REPLACE GUY LEVEL #2, WAS GUY LEVEL #3.	REVISION DESCRIPTION RE 11/23/20 AV 11/25/20 D.C.K DATE E.C.K DATE


NOTE:

1. THE TOWER MODIFICATION IS BASED ON THE LINEAR APPURTENANCES (LADDER, TRANSMISSION LINES, CONDUITS, ETC.) BEING INSTALLED IN THE POSITION SHOWN ON THE CROSS SECTION. DEVIATING FROM THIS APPURTENANCE ARRANGEMENT COULD AFFECT THE STRUCTURAL INTEGRITY OF THE TOWER.



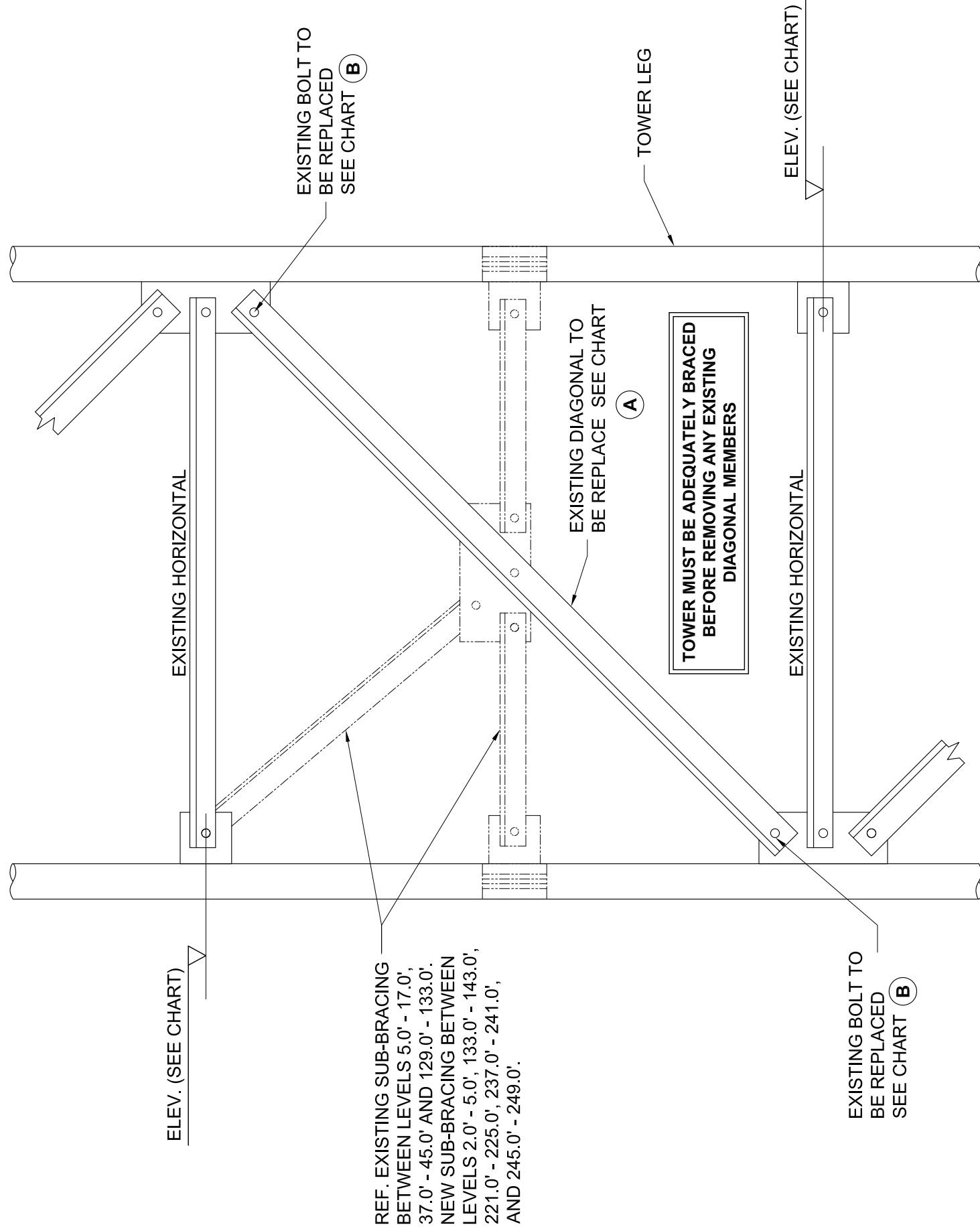
PREPARED BY	RE	7/24/20
CHECKED BY	GH	8/13/20
ENGINEER REVIEW	AV	8/24/2020
PROJECT NUMBER	350816	
DRAWING NUMBER	D05.00	

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LINEAR APPURTENANCES
WATERBURY, CT

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 08/24/2020



ELEVATION VIEW

ELEVATION	BAYS	DIAGONAL REPLACEMENTS		MAX DESIGN LOAD IN MEMBER
		A	B	
2.0' - 17.0'	4	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
37.0' - 45.0'	2	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
129.0' - 145.0'	4	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
149.0' - 153.0'	1	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
205.0' - 209.0'	1	L 2 1/2 x 2 1/2 x 3/8 (A36)	5/8" DIA. BOLT (A325X)	47.3 KIPS
221.0' - 225.0'	1	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
237.0' - 241.0'	1	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS
245.0' - 253.0'	2	L 2 x 2 x 1/4 (A36)	5/8" DIA. BOLT (A325X)	24.5 KIPS

NOTES:

1. ADEQUATE TEMPORARY BRACING MUST BE DESIGNED TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER. THE BRACING SHALL BE INSTALLED PRIOR TO REMOVING ANY TOWER MEMBER UTILIZING THE FOLLOWING PROCEDURE:
 - a. INSTALL TEMPORARY BRACING AT THE LOCATION THE DIAGONAL IS TO BE REPLACED.
 - b. REMOVE AND REPLACE DIAGONAL ON FACE AND IN BAY THAT THE TEMPORARY BRACING IS INSTALLED.
 - c. REMOVE AND REPLACE ONLY ONE MEMBER AT A TIME.
 - d. REPEAT THIS PROCEDURE FOR EACH TOWER FACE.
2. REPEAT THIS PROCEDURE AT ALL LOCATIONS WHERE DIAGONALS ARE TO BE REPLACED.
3. FIELD VERIFY DIMENSIONS AND END CONNECTION DETAILS PRIOR TO FABRICATION OF REPLACEMENT DIAGONALS. SEE NOTE 4 ON DRAWING D01.01.



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DIAGONAL REPLACEMENT
 WATERBURY, CT

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REVISION	DATE	D.CK	DATE	E.CK	DATE
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REVISION DESCRIPTION		PROJECT NUMBER		DRAWING NUMBER	
		350816		D05.01	
PREPARED BY	RE	CHECKED BY	GH	7/24/20	
ENGINEER REVIEW	AV			8/13/20	
				8/24/2020	

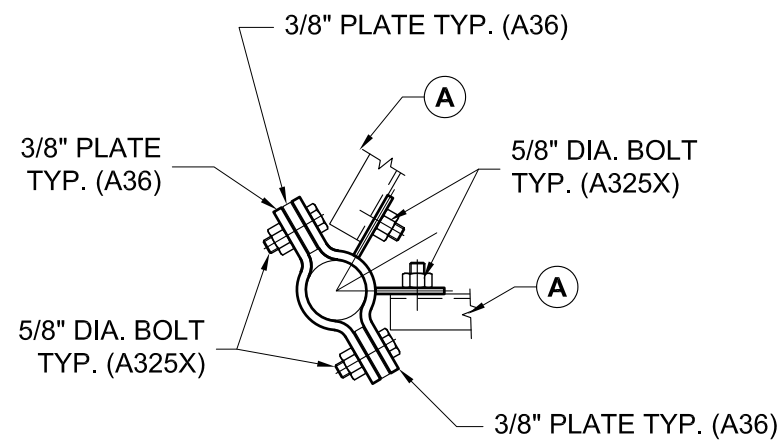
ELEVATION	BAYS	LEG DIA.	SUB BRACING		MAX. FACTORED COMPRESSION LEG LOADS
			(A)	(B)	
2.0' - 5.0'	1	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	128.6 KIPS
133.0' - 141.0'	2	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	119.5 KIPS
221.0' - 249.0'	7	1-3/4" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	86.9 KIPS

TOWER MUST BE ADEQUATELY BRACED BEFORE REMOVING ANY EXISTING TOWER BOLTS

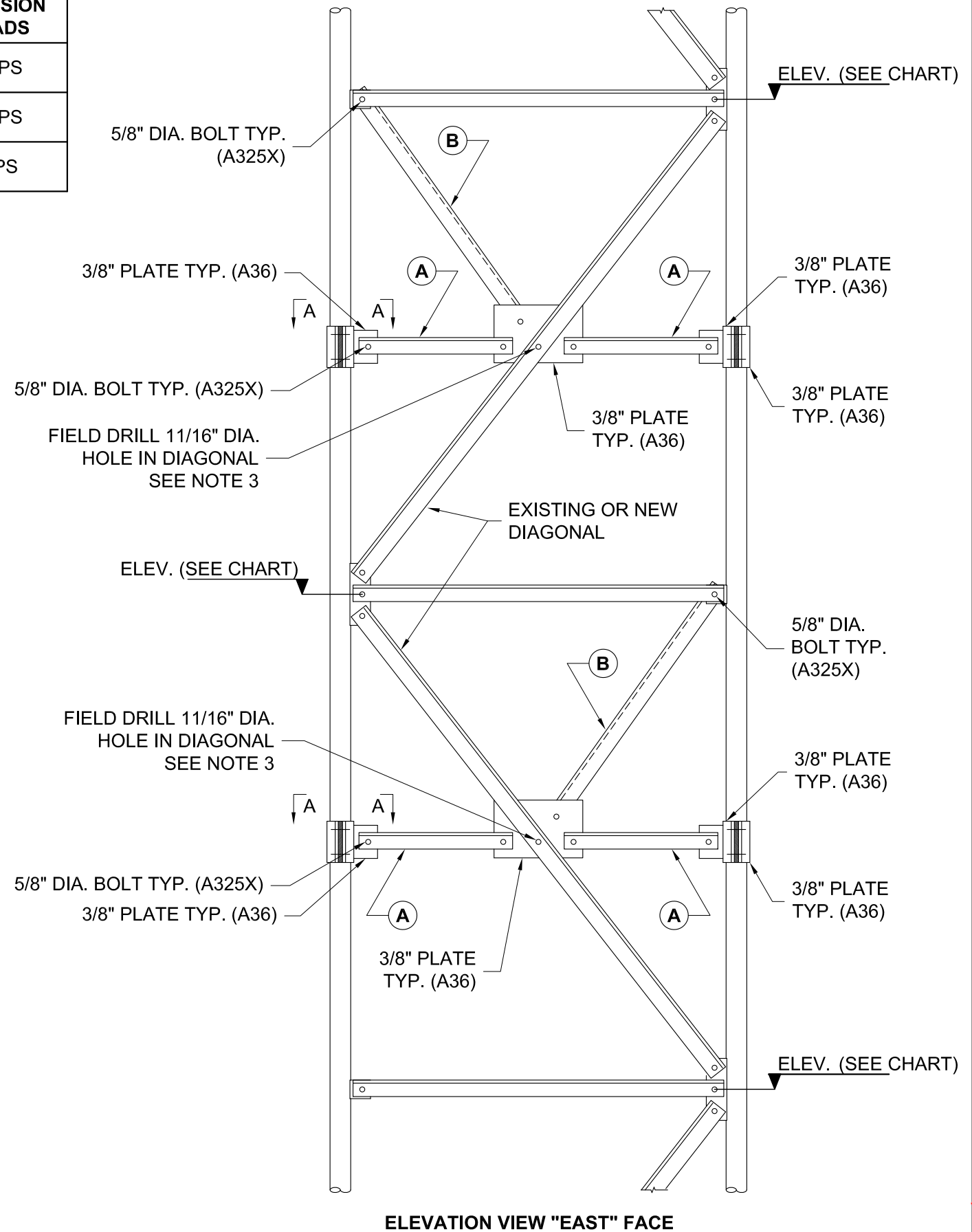
SEE PAGES D05.03 & D05.04 FOR SUB DIAGONAL CONFIGURATION WHERE SUB DIAGONAL INTERFERES WITH INSIDE CLIMBING LADDER ON THE "NW" AND "SW" FACES.

NOTES:

- ADEQUATE TEMPORARY BRACING MUST BE INSTALLED PRIOR TO REMOVING ANY TOWER BOLTS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER.
- DESIGN SUB BRACING CONNECTIONS PER ANSI/TIA 222-G BASED UPON THE MAXIMUM COMPRESSION LEG LOADS SHOWN.
- TOUCH-UP DAMAGED GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - SURFACES TO BE PAINTED SHALL BE CLEAN, DRY AND FREE OF OIL, GREASE, PRE-EXISTING PAINT AND CORROSION BY-PRODUCTS.
 - APPLY ZINC RICH PAINT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS IN A SINGLE APPLICATION, EMPLOYING MULTIPLE PASSES TO ACHIEVE A DRY FILM THICKNESS OF NO LESS THAN 6 MILS.



SECTION A - A



ELEVATION VIEW "EAST" FACE

PREPARED BY	RE	7/24/20	CHECKED BY	GH	8/13/20	ENGINEER REVIEW	AV	8/24/2020	PROJECT NUMBER	350816	DRAWING NUMBER	D05.02
									RE	11/23/20	DATE	11/25/20
									D.C.K		DATE	
ADDED NOTES REGARDING CLIMBING LADDER INTERFERENCE. REF. NEW PAGES D05.03 & D05.04												
									REV	BY	DATE	
*	*	*	*	*	*	*	*	*	A	JMR	11/23/20	
K:\350816\dwg\350816_D05.02_SUB_BRACING_DETAILS.dwg												
 A BUSINESS OF FDH INFRASTRUCTURE SERVICES 100 West Main Street, Suite 400 Lansdale, PA 19446			SUB BRACING DETAILS WATERBURY, CT			THIS DRAWING IS THE PROPERTY OF STAINLESS AND TRANSMITTED IN CONFIDENCE. AND THE REPRODUCTION, USE OR DISCLOSURE, IN WHOLE OR IN PART, OF THE DESIGN AND DETAILS CONTAINED HEREIN IS PROHIBITED WITHOUT THE PRIOR WRITTEN PERMISSION OF STAINLESS.			 11/25/2020			

PREPARED BY	JMR	11/23/20
CHECKED BY	RE	11/23/20
ENGINEER REVIEW	AV	11/25/20
PROJECT NUMBER	350816	
DRAWING NUMBER	D05.03	

REV	BY	DATE	REVISION DESCRIPTION
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STAINLESS
 A BUSINESS OF FDH INFRASTRUCTURE SERVICES
 100 West Main Street, Suite 400
 Lanesdale, PA 19446

SUB BRACING DETAILS FOR "NW" FACE
 WATERBURY, CT

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STATE OF CONNECTICUT
 KRISTYN M. PEREZ
 No. 22975
 LICENSED PROFESSIONAL ENGINEER

11/25/2020

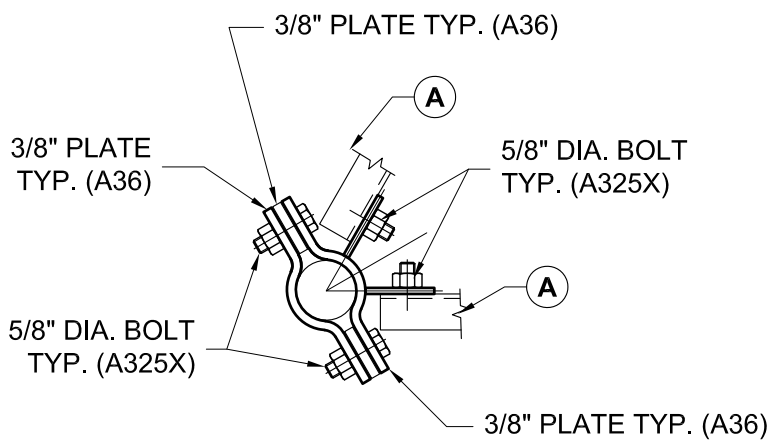
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ELEVATION	BAYS	LEG DIA.	SUB BRACING ON "NW" FACE ONLY			MAX. FACTORED COMPRESSION LEG LOADS
			A	B	C	
133.0' - 137.0'	1	2" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36) (COPE)	119.5 KIPS
221.0' - 249.0'	4	1-3/4" Ø	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36)	L 2 x 2 x 1/4 (A36) (COPE)	86.9 KIPS

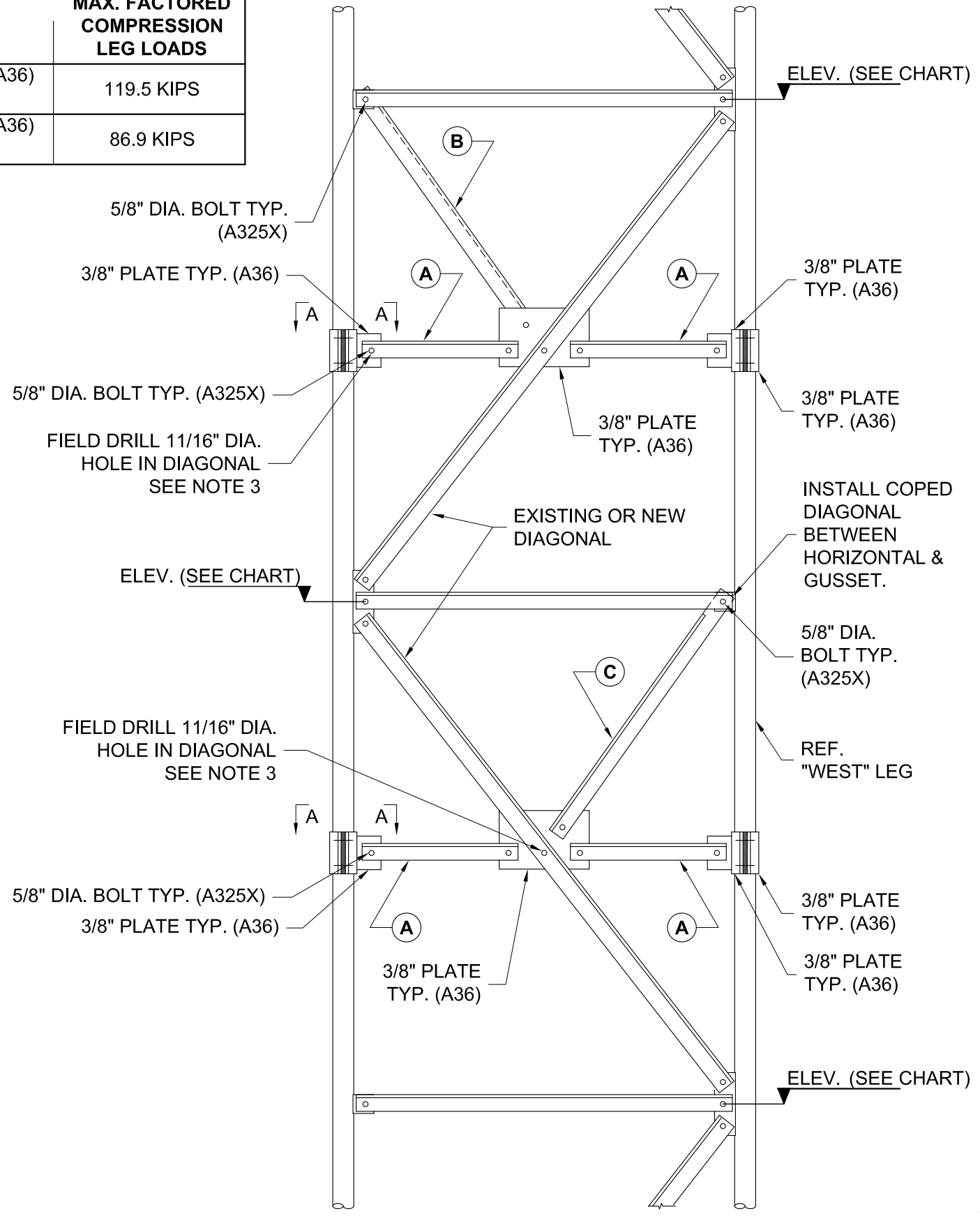
TOWER MUST BE ADEQUATELY BRACED BEFORE REMOVING ANY EXISTING TOWER BOLTS

NOTES:

- ADEQUATE TEMPORARY BRACING MUST BE INSTALLED PRIOR TO REMOVING ANY TOWER BOLTS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TOWER.
- DESIGN SUB BRACING CONNECTIONS PER ANSI/TIA 222-G BASED UPON THE MAXIMUM COMPRESSION LEG LOADS SHOWN.
- TOUCH-UP DAMAGED GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - SURFACES TO BE PAINTED SHALL BE CLEAN, DRY AND FREE OF OIL, GREASE, PRE-EXISTING PAINT AND CORROSION BY-PRODUCTS.
 - APPLY ZINC RICH PAINT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS IN A SINGLE APPLICATION, EMPLOYING MULTIPLE PASSES TO ACHIEVE A DRY FILM THICKNESS OF NO LESS THAN 6 MILS.



SECTION A - A

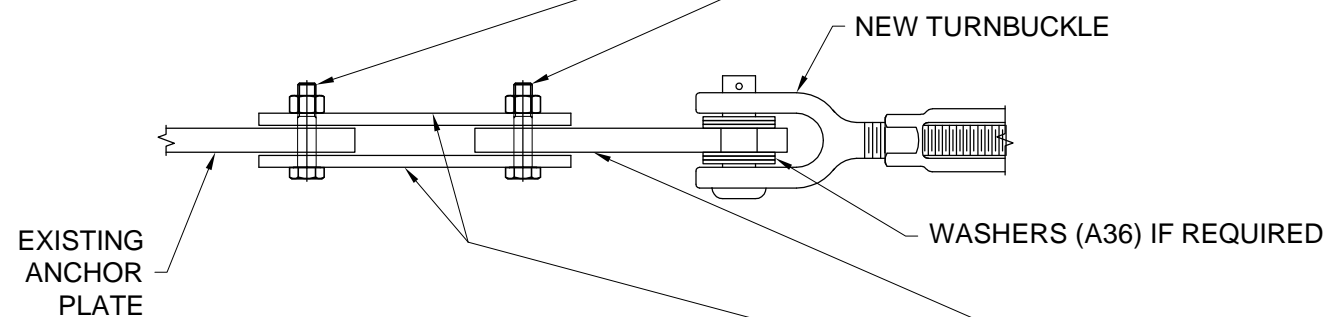


ELEVATION VIEW "NW" FACE

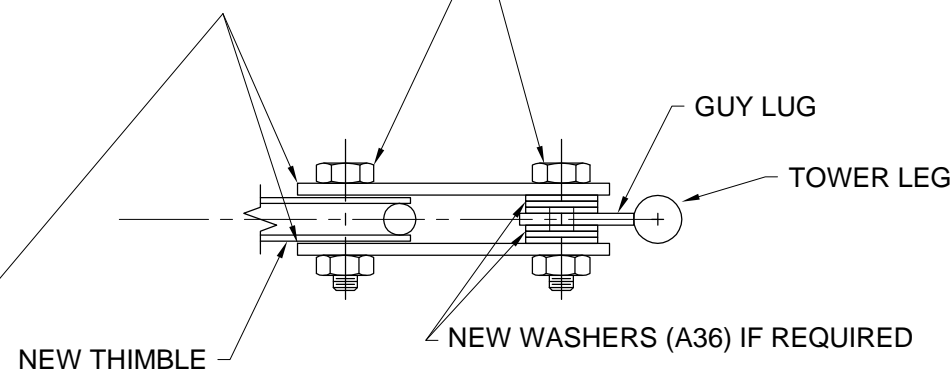
NOTES:

1. NEW GUY WIRE HARDWARE SHALL DEVELOP THE MAXIMUM ALLOWABLE LOAD OF THE GUY STRAND AS DETERMINED PER ANSI/TIA 222-G.
2. (3) GUY WIRE ASSEMBLIES REQUIRED FOR GUY LEVEL #2.
3. APPROXIMATELY 20 FT. SHOULD BE ADDED TO GUY WIRE LENGTH FOR TAKE-UP IN ERECTION.
4. CUT EXCESS GUY WIRE AFTER THE GUYS HAVE BEEN TENSIONED.
5. SEE PAGE D08.01 FOR TENSIONS AND INTERCEPTS.
6. WIRE TURNBUCKLES TO PREVENT ROTATION.

REF. EXISTING BOLTS, PROVIDE NEW BOLTS (MIN. A325) & ANCO NUTS OR PINS (MIN. A36) WITH COTTER PINS TO DEVELOP THE STRENGTH OF THE NEW 7/8" E.H.S. GUY STRAND.

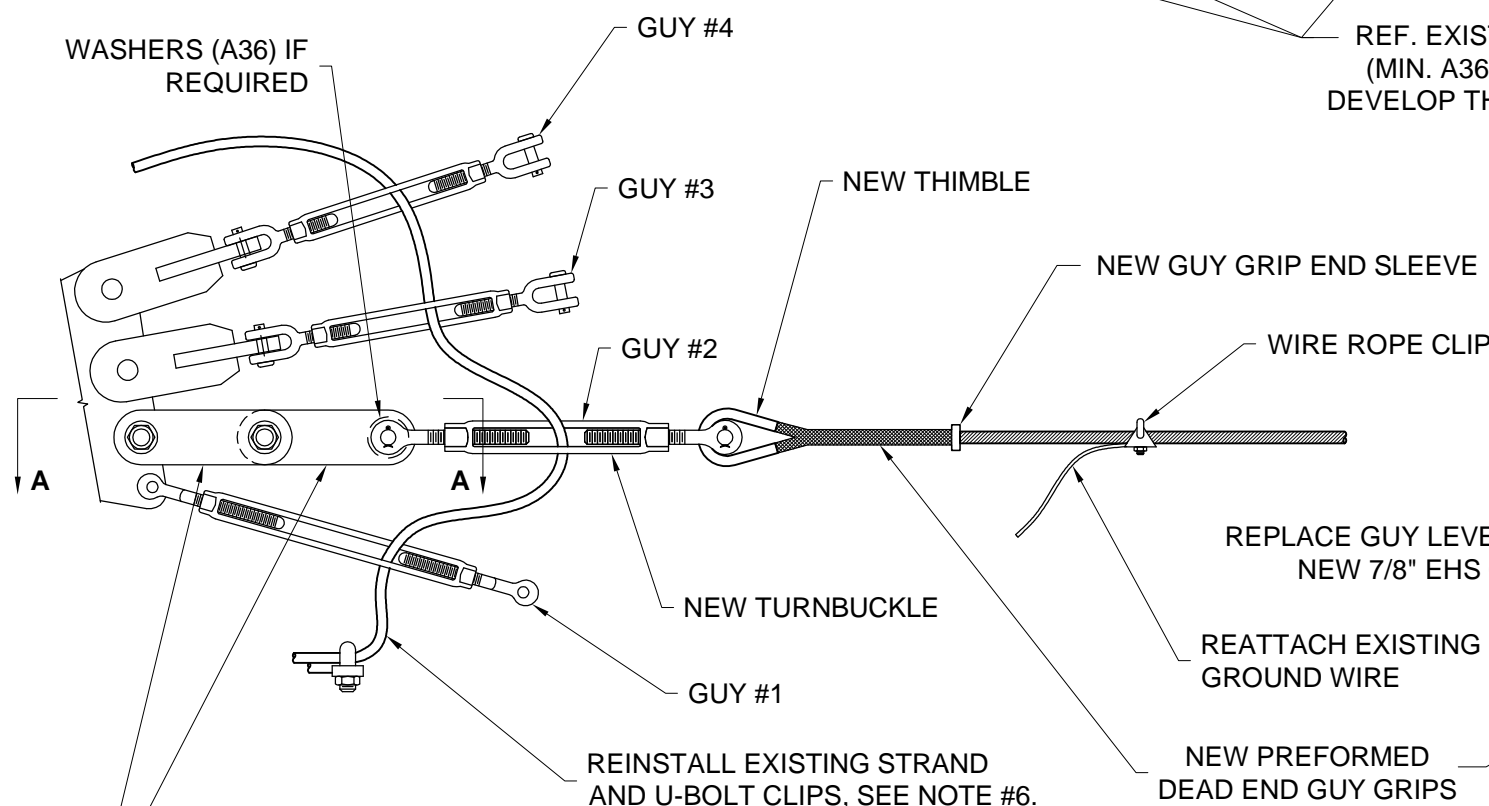


SECTION A - A



SECTION B - B

REF. EXISTING LINK PLATES, PROVIDE NEW GUY LINK PLATES (MIN. A36) IF NECESSARY FOR FIT UP PURPOSES. PLATES TO DEVELOP THE STRENGTH OF THE NEW 7/8" E.H.S. GUY STRAND.



REF. EXISTING LINK PLATES, PROVIDE NEW GUY LINK PLATES (MIN. A36) IF NECESSARY FOR FIT UP PURPOSES. PLATES TO DEVELOP THE STRENGTH OF THE NEW 7/8" E.H.S. GUY STRAND.

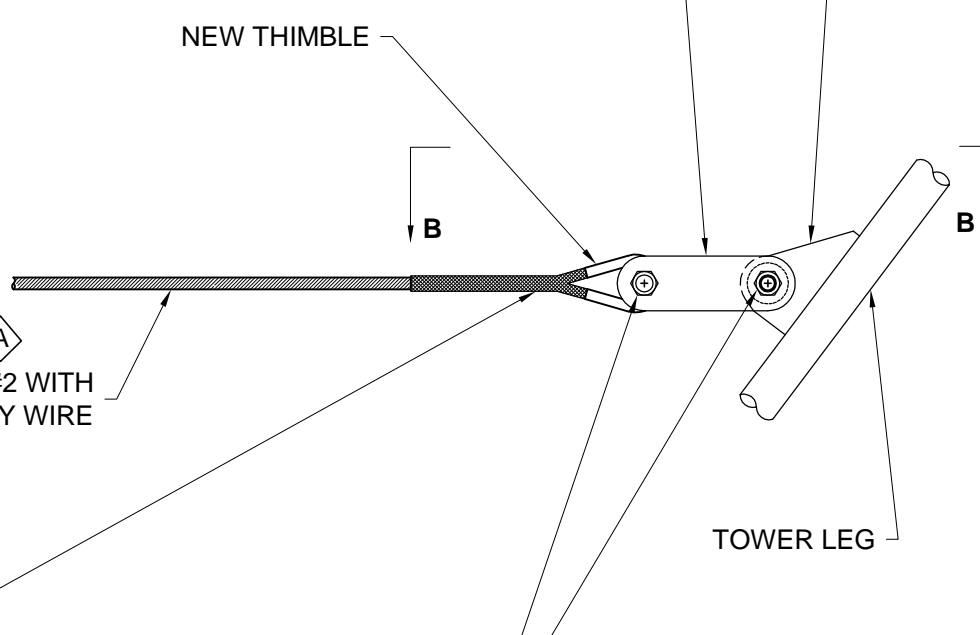
DETAIL AT ANCHOR

REF. EXISTING BOLTS, PROVIDE NEW BOLTS (MIN. A325) & ANCO NUTS OR PINS (MIN. A36) WITH COTTER PINS TO DEVELOP THE STRENGTH OF THE NEW 7/8" E.H.S. GUY STRAND.

REPLACE GUY LEVEL #2 WITH NEW 7/8" EHS GUY WIRE

REATTACH EXISTING GROUND WIRE

NEW PREFORMED DEAD END GUY GRIPS



DETAIL AT TOWER GUY LEVEL #2



GUY ASSEMBLIES FOR GUY LEVEL 2 WATERBURY, CT

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11/25/2020

PREPARED BY	CHECKED BY	ENGINEER REVIEW	PROJECT NUMBER	DRAWING NUMBER
RE 7/24/20	GH 8/13/20	AV 8/24/2020	350816	D08.00
			11/25/20	AV DATE
			11/23/20	RE DATE
				D.CK DATE
				REVISION DESCRIPTION
				UPDATED DETAILS TO REFLECT GUY LEVEL 2 CHANGE OUT. PREVIOUS DETAILS SHOWN WAS FOR GUY LEVEL 3.
			A JMR	REV BY DATE
*	*	*	*	*

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